The Neuman Systems Model

Fifth Edition

Betty Neuman
Jacqueline Fawcett

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THE NEUMAN SYSTEMS MODEL

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Dedication

I will always be grateful for the love and support received from my late husband, Kree, for the experiences of being the mother of Nancy, and for the joy I have experienced as Alissa's grandmother.

Betty Neuman

I always am grateful to my husband, John S. Fawcett, for his continuing love and support. He is consistent in his willingness to help me to attain my personal and professional life goals.

Jacqueline Fawcett

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PREFACE

The Neuman Systems Model, developed in 1970, was first used for nursing education and practice in the mid-1970s. Since that time, the model has provided direction for development of innovations in nursing in particular and health care in general. Within a decade of its development, the model achieved global recognition as a transcultural guide for client system care. The decade of the 1990s and the first decade of the 21st century saw increased use of the model as a guide for clinical practice, research, education, and administration, as clients and caregivers alike recognize the need for a wholistic, systems approach to global health care concerns.

This fifth edition of *The Neuman Systems Model* continues the tradition established with the previous four editions by including contributions that clearly reflect the broad applicability of the model. Section One of this edition, which contains Chapter 1, presents a detailed description of the Neuman Systems Model. Chapter 1 represents further reorganization of earlier presentations of the Neuman Systems Model; no changes in the content of the model have been made for this edition of the book.

Section Two, which contains Chapters 2, 3, 4, 5, and 6, presents exciting new insights about Neuman Systems Model concepts. Chapter 2 contains a detailed description of the client system as an individual, and Chapter 3 contains a detailed description of the client system as a family, a group, or a community. Chapter 4 is a presentation of new thoughts about the previously elusive concept of reconstitution, and Chapter 5 sheds light on the meaning of the equally elusive concept of the created environment. Chapter 6 contains an informative discussion of how use of the Neuman Systems Model can enhance critical thinking.

The four chapters of Section Three—Chapters 7, 8, 9, and 10—present guidelines for Neuman Systems Model–guided education, practice, administration of nursing services, and research, respectively. Chapter 7 also includes a list of educational tools derived from the Neuman Systems Model, Chapter 8 also includes a list of practice tools derived from the model, and Chapter 10 includes a list of research instruments derived from the model.

Section Four is made up of four chapters—11, 12, 13, and 14—that will help readers to understand how the Neuman Systems Model is used to guide curriculum construction in associate degree (Chapter 12) and baccalaureate degree (Chapters 11 and 13) nursing programs in the United States, and a specialized psychiatric nursing degree program in Canada (Chapter 14).

The focus turns to nursing practice in Section Five. Chapter 15 presents a detailed explanation of how the Neuman Systems Model guides pediatric nursing practice. Chapter 16 contains a thoughtful discussion of the use of the model as a guide for psychiatric nursing practice. The content of Chapter 17 will help readers to understand how the Neuman Systems Model can be used to guide a highly successful program that emphasizes the integration of practice and research needed for evidence-based practice. Chapter 18 contains a detailed discussion of how implementation of the Neuman Systems Model was evaluated in a psychiatric facility in Holland. The two chapters of Section Six—Chapters 19 and 20—present informative step-by-step explanations of how nurse leaders in two hospitals in the United States facilitated implementation of the Neuman Systems Model as a guide for administration of nursing services.

A special feature of this fifth edition of the book is Section Seven, which contains two chapters focusing on theory development. Chapter 21 presents a detailed explanation of the process used to derive a middle-range theory from the Neuman Systems Model, and Chapter 22 addresses the issues involved in linking existing middle-range theories with the model.

Section Eight, which contains Chapter 23, addresses the Neuman Systems Model and the future. In this chapter, Betty Neuman, along with several trustees of Neuman Systems Model International, present ideas about the future of the Neuman Systems Model.

This edition also includes seven appendices. Appendix A provides the definition of each Neuman Systems Model concept. Appendix B presents Betty Neuman's autobiography and a chronology of the development and utilization of the Neuman Systems Model. Appendix C includes the Neuman Systems Model Nursing Process Format and the Neuman Systems Model Assessment and Intervention Tool, as well as a family case study that illustrates the wellness-focused, comprehensive, and flexible features of the Neuman Systems Model. Appendix E presents an explanation of the Neuman Systems Model Research Institute. Appendix E is a description of Neuman Systems Model International and a list of current and former trustees. Appendix F includes a list of schools of nursing that have used the Neuman Systems Model as a guide for one or more courses or the entire curriculum, as well as lists of clinical agencies that use the model as a basis for administration of nursing services. Appendix G presents a comprehensive bibliography of Neuman Systems Model literature, including primary sources, commentaries, and applications in clinical practice, research, education, and administration.

This fifth edition, like previous editions, is suitable as a text for all levels of nursing education in all clinical specialties, as well as for continuing education programs. This edition also is a useful text for students, educators, clinicians, researchers, and administrators in all health care disciplines.

ACKNOWLEDGMENTS

We once again acknowledge the enthusiasm of users and would-be users of the Neuman Systems Model worldwide. Their continued interest in and questions about practical uses of the model provided the motivation for this edition.

We offer our gratitude to all contributing authors for their willingness to share their most creative work with us and with the readers of this edition. We are grateful also for the continuing support of the trustees of Neuman Systems Model International. Their commitment to the Neuman Systems Model certainly will ensure its continuing contributions to the advancement of health care knowledge in general and nursing knowledge in particular.

We extend our appreciation to Pamela Fuller of Pearson Education and her staff for their support and assistance throughout the preparation of this edition. We also acknowledge the essential contributions of all the people who facilitated the production of this edition.

Betty Neuman, FAAN, PhD

Jacqueline Fawcett, FAAN, PhD

THANK YOU

Thanks go to our colleagues from schools of nursing around the world, who generously gave their time to help create this book. These professionals helped us plan and shape our book by contributing their collective experience and expertise as nurses and teachers, and we made many improvements based on their efforts.

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SECTION ONE

The Neuman Systems Model

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CHAPTER 1

The Neuman Systems Model

Betty Neuman

The Neuman Systems Model is a unique, open systems–based perspective that provides a unifying focus for approaching a wide range of nursing concerns. A system acts as a boundary for a single client, a group, and even a number of groups; it can also be defined for a social issue. The client system in interaction with the environment delineates the domain of nursing concerns. The Neuman Systems Model is dynamic because it is based on the client's continuous relationship to environmental stress factors, which have potential for causing a reaction, or obvious symptomatic reaction to stress, or could affect reconstitution following treatment of a stress reaction. In particular, the model takes into account all variables affecting a client's possible or actual response to stressors and explains how system stability is achieved in relation to environmental stressors imposed on the client. The main nursing goal is to facilitate optimal wellness for the client through retention, attainment, or maintenance of client system stability. Optimal wellness represents the greatest possible degree of system stability at a given point in time. Thus, wellness is a matter of degree, a point on a continuum running from the greatest degree of wellness to severe illness or death. Nursing action or intervention is based on a synthesis of comprehensive client data and relevant theory that is appropriate to the client's perception of need and is related to functional competence or possibility within the client's environmental context.

The content of this chapter is a revision of earlier presentations of the Neuman Systems Model and its relationship to systems theory (Neuman, 1982, 1989b, 1995; Neuman & Fawcett, 2002). The basic ideas comprising the model remain, though a few changes in definitions and interpretation of concepts are included here. As such, many of the references cited are those that influenced the initial development of the model and later refinements. The wholistic perspective, concepts, and processes of the Neuman Systems Model remain equally applicable to any health care discipline, which increases the value of the model for interdisciplinary, multidisciplinary, and transdisciplinary use. Moreover, the Neuman Systems Model is not in conflict with other conceptual models of nursing; rather, it has been shown to be complementary to other nursing models because of its broad, comprehensive, systemic, and wholistic perspective.

In this chapter, the content of the Neuman Systems Model is explicitly related to the four concepts of nursing's metaparadigm—human beings, environment, health, and nursing. Definitions of important Neuman Systems Model concepts are found in Appendix A,

at the end of this book. Betty Neuman's autobiography and a chronology of the development of the Neuman Systems Model are given in Appendix B. The Neuman Systems Model Nursing Process Format and the Neuman Systems Model Assessment and Intervention Tool are presented in Appendix C. Appendix D provides information about the Neuman Systems Model Research Institute, Appendix E lists the members of the Neuman Systems Model Trustees Group, and Appendix F documents use of the Neuman Systems Model as a guide for nursing education and administration of nursing services. A comprehensive Neuman Systems Model bibliography and information about the Neuman Systems Model Web site are available in Appendix G.

SYSTEMS THEORY AND NURSING

Systems theory has the potential for development of a totally new posture toward health care professionalism. All scientific disciplines, including nursing, benefit from use of a systemic structure for organization, specification, and cohesion of their increasingly complex components.

The significance of systems theory for nursing has been recognized for many years. Hazzard (1975), for example, noted: "General system theory is a theory of organized complexity, where all the elements are in interaction. Such a theory can be utilized well in nursing. Nursing is a system because it consists of elements in interaction" (p. 383). Systems theory continues to be used as a unifying force for scholarly exploration in various scientific disciplines, as well as in the fields of business and finance. Yet a major question lingers: Will nursing fully recognize and accept the exciting potential for and inevitable challenge to develop its scientific professional base within the breadth of a systems perspective? New frontiers are possible for the discipline through research validation of systems use in continually evolving practice roles.

The growing complexity of nursing demands that an organizational system is able to change as required, while preserving and even enhancing its inherent character. The systems approach has the potential for such organization, while allowing the assimilation of new demands through adjustive processes, which are requisite if new qualities are to emerge. Aydelotte's comments remain as valid today as when they were published in 1972:

> Nursing leadership must reorient itself and restructure itself in such a way that nursing education and practice are inseparable, are symbolic, and are united in purpose. We must put aside inertia, apathy, competitiveness, personal animosities, and censorship. We must restructure a set of social relationships [that] will enable society to receive that which it has charged us to provide. If we do not do this, society will surely place the charge they have given us elsewhere. Portions of nursing leadership, in resisting change, have boldly overlooked the fact that nursing as an occupation is a social institution and social institutions, many of long standing, are crumbling and changing today as a result of the reordering of priorities and of values and services by current day society. There is a great need to accelerate the progressive movements now occurring in nursing: striking changes in levels of nursing practice; greater development of clinical specialization; and significant alterations in the reciprocal roles held by nurses and other health personnel, particularly the physicians. There is increasing

> evidence that these movements are responsive to what society wants and are the directions that society will support. (p. 23)

Rapid societal changes, with concomitant creative expectations, roles, functions, and conditions, create stress areas for nursing practice. A great challenge for nursing will continue as the discipline attempts to remain stable yet flexible enough to meet the action and reaction effects of both internal and external environmental demands. As nursing functions become more diversified and complex, the traditional linkages or structures that hold all of nursing together are being severely challenged. Thus, nursing professional inconsistencies need closure to prevent others from making decisions.

The discipline of nursing has become a complex system, if measured only by the diversity of roles and functions. A systems perspective adds to our appreciation of the system's complexity and to the exploration and valuing of its parts. Portions of the domain of nursing can be dealt with either as organized wholes within the larger superstructure or as parts or subparts of the defined whole system.

For example, a nurse manager is concerned with the broad, all-encompassing domain, whereas a clinical nurse specialist gives priority of function to a specific area as a part or subpart of the larger system. Using this example, the roles and functions of both the clinical specialist and the manager would contribute to the development of new alliances, providing truly wholistic client care. There are many other examples of new alliances that benefit the nursing discipline and that enhance both education and practice. A reorientation to the functional domain of nursing, with clearly defined subsystems, is required; we must view structurally the logical overall system within which nursing education and practice take place. After the boundaries of the larger system are established, the parts and subparts inherent within it must be clearly defined. The use of systems theory can help nursing define itself in relation to new health mandates and health care reform issues, such as major emphasis on wellness promotion and disease prevention.

As nursing roles and functions expand, they become more complex and comprehensive, and a broader structure will be required to encompass them. Expansiveness as a result of assimilation of change is characteristic of a systems perspective. Complex nursing phenomena can be placed within a logical and empirically valid open systems perspective; as the number of parts or subparts increases, the whole expands. Regardless of the size of an identified system, its boundaries, as well as the characteristics of the interrelating parts, must be defined for analysis and utilization. With an expansive systems perspective as a nursing base, we must never overlook scientific exploration or the crossing of interdisciplinary boundaries where cooperation and collaboration are requisites.

The Systems Perspective

Historically, Banathy (1973) acknowledged that solutions to increasingly more complex technological and social problems are not found in the thinking and tools of single analytically oriented disciplines. Although this idea seems obvious in the contemporary health care system, it has meant that we had to evolve a new way of thinking and a new approach to disciplined inquiry in the form of systems science. Systems science has demonstrated its effectiveness in attacking highly complex and large-scale problems. It evolves models constructed of systems concepts that are applicable to several traditional fields of knowledge. It also develops strategies that can be applied to the solution of

problems. The integration of systems concepts into our thinking leads us to acquire the systems view, and the systems view enables us to think of ourselves, our environment, and the entities that surround us (and of which we are a part) in a new way. This new way of thinking can be applied to analysis, design, or development, and management of systems for the solution of complex problems. Adapting systems thinking to nursing demands a high degree of flexibility, which in turn allows for much creativity. A great risk for the nursing profession lies in failing to measure up to the flexibility required by rapid societal changes and demands and instead maintaining a potentially tragic semblance of stability through defensive rigidity. We must also guard against maintenance of a quasi-homeostatic or stability state through use of the systems approach.

For nursing to mature as a discipline and expand through a systems perspective, a wide variety of creative approaches to client care must be examined. A possible beginning point might be to rethink two major functional components of nursing—education and practice. In the systems approach, the two are interdependent and mutually affected by environmental changes. Forming a cooperative, collaborative relationship between these two interdependent parts of the system creates favorable conditions for enhancement of the system. The ability to form meaningful relationships is requisite for the growth of any system.

Miller (1965) identified the dimensions of the system as structure, process, and function. *Structure* refers to the arrangement of parts and subparts of a system at any given point in time. *Process* and *function* refer to matter, energy, and information exchanges with interaction between the parts and subparts. Living systems are open systems, and a steady state exists when the composition of a system is relatively constant despite continuous exchanges between the system and its environment. In systems thinking, the "whole" is the structure; sharing is the function.

Inherent within the systems perspective are guidelines for system enhancement and expansion. This feature is particularly significant to nursing, which is becoming an increasingly complex system within the general health care system. Some advantages of the use of systems theory in nursing are the integration of systems concepts with the increasing complexity of nursing phenomena, leading to new perspectives for nursing, and the clarification and definition of nursing knowledge related to the social sciences. This is congruent with Fawcett's (1999) assertion that only a strong link between theory and research will advance nursing knowledge. Moreover, Orem (1971) maintained that a general concept of nursing is essential for knowledge production within the field because an adequate general concept of nursing makes explicit the proper object of the profession.

Inherent in all systems are structure and dynamic organization, principles and laws, and terms affecting the constraints of their environments. Bertalanffy (1968) described general system theory as consisting of the scientific exploration of "wholes" and "wholeness." The interdisciplinary nature of concepts, models, and principles applying to systems provides a logical approach toward the unification of science. Beckstrand (1980) suggested that further development of nursing knowledge occurs by rigorous application of the methods of science, ethics, and philosophy to problems encountered in the professional experience of nurses. Inasmuch as conceptual models represent reality, they are basic to any attempt at theory development. A model facilitates deductions from premises, explanations, and predictions, often with unexpected results. As early as 1978, Oakes maintained that general system theory would prove to be a step toward the ultimate goal of improvement in the quality of client care; that has not yet happened. As

nursing continues to use systems components knowledgeably over time, to the benefit of clients and the client system, it should evolve into a logically defensible, wholistic, and scientific discipline.

In the change process, an ongoing tug of war is being waged between the rigidity required to retain valued elements of the past and the uncertainty and flexibility required for new structures to emerge. Lazlo (1972) claimed that neither individual nor long-term purposes can be identified or rationally pursued without synthesis of the items of knowledge held valid in a society. Inherent in nursing, as within any other system, are factors for either maintenance or growth through change (Figure 1-1).

The more complex a nursing system becomes, the more difficult it is to maintain the status quo, and the greater the need is for a viable organizational structure that can maintain relative stability during the process of change. As the boundaries of nursing roles and functions continue to broaden and expand, nurses are gaining freedom to assert themselves, while paradoxically and simultaneously increasing their need for a valid organizational base or structure.

Implicit in the goal of attaining stability through use of systems is the risk of coordination and control to a degree that limits the flexibility necessary for adjusting the nursing system to the changing environment, thus producing a closed system rather than the desired open system. An open system is one in which there is a continuous flow of input and process, output, and feedback. Within the open systems approach is the potential for self-determinative, creative, and adjustive effects in relation to internal and external environmental stressors imposed on nursing, and a tangible structure within which change can safely take place. Although some alteration in the conception of and approaches to nursing is inherent in the use of the systems approach, the requisite structure allowing for flexibility exists for meeting the challenge of tomorrow's new nursing posture.

Discovering order is a major challenge of the systems approach. Florence Nightingale could well have been the first pioneer in systems thinking for nursing when she demanded that nursing laws be discovered and defined (Riehl & Roy, 1974). In determining these laws, we must carefully consider nursing as a rapidly evolving system. Ashby (1972) noted that we must treat systems as wholes composed of related parts between which interaction occurs. In analyzing the system, nursing could use general system theory, defined by Klir (1972) as a collection of concepts, principles, tools, problems, methods, and techniques associated with systems.

The whole of nursing as a system with boundaries must be clearly identified and defined before its parts can be properly analyzed. Then we can identify the interacting parts or subparts and their relationships to the whole system. The ways the combination of interacting system parts form the structure of the whole is significant.

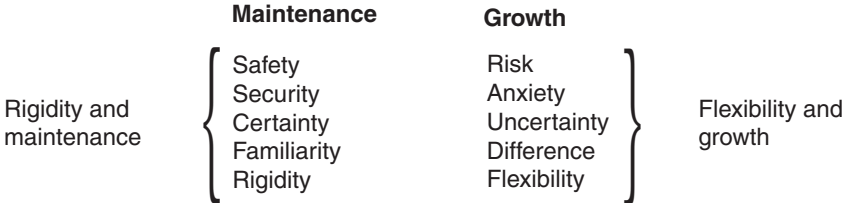

FIGURE 1-1 Choice factors in change.

The organization of nursing in relation to systems thinking may be classified as follows. The health care system is the larger system; it includes the discipline of nursing. The discipline of nursing includes two major functional components—nursing education and nursing practice. Nursing education and nursing practice contain many subparts, with specialized areas of concern.

By systemically considering specific interactions that occur within as well as among each of the parts and subparts of the nursing discipline, we can deal appropriately with the constraints the environment places on nursing, thus ensuring that the profession meets its commitment both to clients and to the larger client system. Accelerated development and integration of nursing as a science can take place within the context of such an organized yet flexible structure. As a whole system, nursing must have a reciprocal relationship with the environment of the larger health care system and with the larger social system surrounding it, while sharing with the parts and subparts of its own system (Figure 1-2). For example, nursing as a component of the health care system is related to other disciplines with the common goal of maintaining the integrity of the client/client system. The actions of nursing affect the health care system and in turn are affected by it. These sharing relationships of parts and subparts of the health care system represent a type of interdependency and accountability requisite for optimal system functioning and, in fact, for the evolutionary survival of the whole system.

The whole system is bound by the environment and any applicable constraints, whether it is nursing, the client, or other systems, as illustrated in Figure 1-2. A first constructive step in conceptualizing a system is to analyze processes occurring within the arbitrarily defined system. The next step is to relate wholes to their environment. A system is defined when its parts or subparts can be organized into an interrelating whole. Although organization is logical, structural differences may exist from system to system. The implied concept of wholistic organization is one of keeping parts intact or stable in their intimate relationships. The nature and number of parts and their relationships determine the complexity of the system. Both system processes and nursing actions are purposeful and goal directed. That is, nursing vigorously attempts to control variables affecting client care, for example, toward the general improvement of client system capability or performance, better adjustment of behavior patterns, or perhaps better skill performance of a specific task.

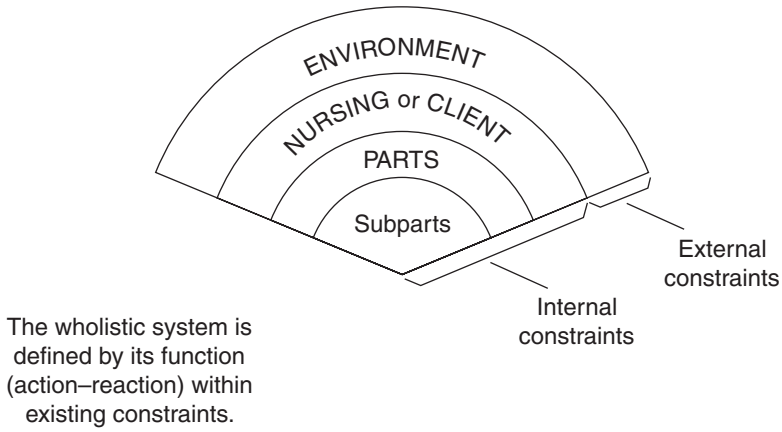

FIGURE 1-2 Nursing, or client, or both, in the wholistic system.

An inherent danger in the use of a systems model is oversimplification, especially when the phenomena and definition of entities under consideration are very complex. When used correctly, however, a systems model dramatically and convincingly demonstrates the nature of a process, which leads to better understanding and more accurate prediction of outcomes.

The concept of system—something consisting of interacting components—is not limited and can apply to any defined whole. It is relevant to nursing in dealing with varied client system interrelationships, because the same terms and principles can be applied to facts in either system parts or the whole. A clear conception of systems organization requires skill in viewing client situations abstractly, that is, client system boundaries and related variables may lose some clarity because they are dynamic and constantly changing, presenting differing appearances according to time, place, and the significance of events. The uniqueness of the characteristic response of each system part implies that each must be studied and understood at its own level if we are to understand its significance in relationships and to the stability of the whole system's organization.

The Open System: A Wholistic Perspective for Nursing

Dunn (1961) described the state of wellness as the integration of social, cultural, psychological, and biological functioning in a manner that is oriented to maximize the potential capabilities of the identified system. Components of a system, from a wholistic viewpoint, are not significantly connected except with reference to the whole. A system, then, can be defined as a pervasive order that holds together its parts. With this definition, nursing can readily be conceptualized as a complete whole with identifiable smaller wholes or parts. The whole structure is maintained by interrelationships of system components, through regulations that evolve out of the dynamics of the open system. As increasing organization becomes automatic in the course of development, regulations are ideally compensatory to system internal and external feedback.

The open systems concept increases understanding of and has far-reaching implications for nursing; it provides an important working hypothesis for the development of new insights and statements for verification of new theoretical perspectives. The open systems concept, with possibilities inherent for stability, has been found to be increasingly relevant particularly to the sciences, contributing greatly to the expansion of scientific theory. The systems concept has significant potential for nursing, simultaneously representing both a great challenge and an opportunity as health care reform evolves.

For professional nursing to grow, expand, remain relevant to rapidly changing social demands, and best articulate its future direction, all nurses must subscribe to a broadly based organizing structure. The unifying effects of a systems approach adequately provide the necessary structure for relatedness within the nursing discipline and point the way for discovery of commonalities and cooperative relationships with other health care disciplines, while allowing nursing to declare emphatically its unique professional profile. Inasmuch as the members of all health care disciplines understand systems terminology, important interdisciplinary sharing and communication should improve significantly.

In contrast to past mechanistic views in science is the newer concern with wholeness, dynamic interaction, and organization. Working terms derived from general system theory, such as *wholeness, order, differentiation, goal directedness, stressors, stability*, and *feedback*, are homologous to nursing concepts. Principles and terminology can be readily

transferred from one discipline to another, having a unifying effect on all the sciences. The trend toward cooperative interdisciplinary alliances is becoming increasingly clear.

New insights and principles for professional nursing are possible as new areas amenable to research and resolution are discovered. Valid, realistic, and operational systems principles can advance nursing toward becoming a scientific discipline bearing a new professional image. The systems perspective points the way for nursing to discover its own uniqueness, which lies in the way it organizes and uses knowledge rather than in its fund of knowledge per se. The use of systems thinking should help clarify how the bridge is made between knowledge and nursing action; it should identify which nursing actions are beneficial to the client and should support research efforts that advance nursing science.

The immense yet noble movement toward professionalism in nursing is at best arduous, prolonged, and often divisive; however, new tools are being acquired to meet this ongoing and provocative challenge. Nurse theorists continue to expand their conceptual model components to include a more wholistic perspective. The rapid acceleration of model usage, a significant development for organizing nursing phenomena, is the precursor of the development of the profession into a recognized scientific discipline. The systems perspective offers new hope for those who seek professionalism in nursing and provides a basis for continued creativity in relatively unexplored arenas made possible by evolving health reform issues and opportunities worldwide.

Wholism is both a philosophical and a biological concept, implying relationships and processes arising from wholeness, dynamic freedom, and creativity in adjusting to stressors in the internal and external environments. Using a wholistic systems approach to both protect and promote client welfare, nursing action must be skillfully related to meaningful and dynamic organization of the various parts and subparts of the whole affecting the client. The various interrelationships of the parts and subparts must be appropriately identified and analyzed before relevant nursing actions can be taken. A system implies dynamic energy exchange, moving either toward or away from stability, which has a direct relationship to prediction of outcomes.

Basically, nursing functions within accepted, familiar, and often singular concepts. It is now imperative that the discipline articulates its function within a comprehensive structure. That is, we must conceptualize nursing action in wellness–illness and organization–disorganization states more broadly. Consideration of a more broadly based organizing structure will help facilitate the professional goal of enabling clients to move toward optimal wellness in any setting.

The open systems approach permits a reorientation to a scientific, thinking approach to studying people. Bertalanffy (1968) maintained that a different image of the person in society is needed. That is, the client must be considered an unlimited entity with an active personality system, whose evolution follows principles, symbolism, and systemic organizations, and it is not always possible to see the potential expansions of this entity and the ramifications of its actions.

The open systems approach begins by identifying and mapping repeated cycles of input, process, and output, which serve as feedback for further input; these cycles comprise the dynamic organizational pattern. Bertalanffy (1968, 1980) brought a systems approach to the biological and social sciences through a convergence of regular pattern blends with their evolutionary history.

A living open system is never at rest but rather tends to move cyclically toward differentiation and elaboration for further growth and survival of the organism. The continuous

dynamism and energy flow implicit within the systems concept adequately provide the most tangible structure within which the plethora of phenomena in nursing can meet the desired goal of protecting client/client system integrity.

Heslin (1986) claimed that revitalization occurs when a living open system achieves stability in an equifinal process. She considers every restorative process and reconstitution following a reaction, interaction, and intervention to be the reestablishment of an equifinal steady state. Equifinality is an evolving cycle of refinement; a process related to a specific condition or situation. Heslin related system output to the end product of the process and also viewed it as input to further cycles, resulting in a redefined pattern of stability. Based on open systems theory, variables are interrelated and organized in various patterns that serve as sources of system input and output alike. Heslin's view that processed input provides output as feedback for further input, creating an organized pattern within the open system, supports the open systems theory of both Bertalanffy's (1980) and Lazarus's (1981) systemic views.

Emery (1969) explained that in adapting to its environment, an open system will attempt to cope with external environmental stressors by consuming them or acquiring control over them for survival purposes. At the simplest level, a steady state, governed by a dynamic interaction of parts and subparts, is one of stability over time. At more complex levels, a steady state preserves the character of the system through growth and expansion. As a system becomes progressively more organized, conditions of regulation or constraints become more complex. For example, as social organizations increase, their roles become more specialized in function. The process of development, evolution, and increasing order is beyond homeostasis or stability, just as the lack of development results in regression to lesser states and ultimately to extinction. Gray, Rizzo, and Duhl (1969) found Menninger's notion of a continuum—a circular motion in all living activity, regardless of limitation—highly useful. Examples include the cycle of wellness to illness to wellness again or the balance process of homeostatic and heterostatic mechanisms.

Putt (1972) noted that systems theory focuses attention on variables inherent in the client's adaptation to the environment, as well as on the effects of each system on other systems. She pointed out that as one system articulates with another system, the relationship of both is changed. In addition, Putt viewed systems theory as a relevant framework for the assessment of client needs, the development of nursing care plans, and the determination of nursing actions. Maintaining that the assessment of client needs is the first step in providing professional nursing care, she found that, guided by systems models, one can more easily achieve a desired level or quality of nursing care.

GENERAL SYSTEM THEORY AND THE NEUMAN SYSTEMS MODEL

The complexity of health care systems requires comprehensive conceptual models that provide the needed structure and direction for information processing, goal-directed activities, and a socially acceptable quality of care. Furthermore, the conceptualization of health care as systems of care requires the use of conceptual models that reflect general system theory. The Neuman Systems Model meets both of these requirements—it is a comprehensive conceptual model and it is derived from general system theory. Furthermore, as a systems model, the Neuman Systems Model is relevant for use by members of all health care disciplines. In addition, its systems orientation facilitates understanding of the diverse systems of health care that are found throughout the world.

Thus, the Neuman Systems Model is applicable globally, to clients and client systems of all cultures.

The intent of the Neuman Systems Model is to set forth a structure that depicts the parts and subparts and their interrelationship for the whole of the client as a complete system. The same fundamental idea or concept applies equally well to a small group or community, a larger aggregate, or even the universe. The model provides the structure, organization, and direction for nursing action; it is flexible enough to deal adequately with the client's infinite complexity.

Putt (1972) described the concept of "living system" as open to the environment, freely interchanging energy and information with surrounding matter, maintaining itself, and seeking a steady state while existing in an interlocking hierarchy ranging in size from cosmic to microscopic. The Neuman Systems Model focuses on living open systems. As an open systems model it views nursing as being primarily concerned with defining appropriate actions in stress-related situations or in possible reactions of the client/client system; since environmental exchanges are reciprocal, both client and environment may be positively or negatively affected by each other. More specifically, the Neuman Systems Model is a systemic perspective of health and wellness, defined as the condition or the degree of system stability—that is, the condition in which all parts and subparts (variables) are in balance or harmony with the whole of the client/client system. The client is an interacting open system in total interface with internal and external environmental forces or stressors. Furthermore, the client is in constant change, with reciprocal environmental interaction, at all times moving either toward a dynamic state of stability or wellness or toward one of illness in varying degrees. Health is reflected in the level of wellness: When system needs are met, a state of optimal wellness exists. Conversely, unmet needs reduce the client wellness condition.

Environment has been generally conceptualized as all factors affecting and affected by a system. Environment is that viable arena that has relevance to the life space of the system, including a created environment. Consideration of environment is critical because health and wellness vary as to the needs, predisposition, perception, and goals of all identifiable systems. Consideration of the environment also is critical because, as nursing practice focuses more and more on the community, nurses realize that they cannot control or directly manage the client's environment, as they can in inpatient settings. It therefore becomes a necessity rather than an option to view the client as part of other systems, such as the family and the community.

THE NEUMAN SYSTEMS MODEL

The philosophic base of the Neuman Systems Model encompasses wholism, a wellness orientation, client perception and motivation, and a dynamic systems perspective of energy and variable interaction with the environment to mitigate possible harm from internal and external stressors, while caregivers and clients form a partnership relationship to negotiate desired outcome goals for optimal health retention, restoration, and maintenance. This philosophic base pervades all aspects of the model.

The Neuman Systems Model is predominantly wellness oriented and wholistic. The content of the model draws from and is related to Gestalt, stress, and dynamically organized systems theories (de Chardin, 1955; Cornu, 1957; Edelson, 1970; Lazarus, 1981, 1999; Selye, 1950). It is based on stress and reaction or possible reaction to stressors within the total environment of the defined client as a system.

More specifically, the Neuman Systems Model has some similarity to Gestalt theory, which implies that each client/client system is surrounded by a perceptual field that is in dynamic equilibrium. The model also relates to field theories endorsing the molar view that all parts of the system are intimately interrelated and interdependent (Edelson, 1970). Emphasis is placed on the total organization of the field. In the wholistic Neuman Systems Model, the organization of the field or system considers the occurrence of stressors, the reaction or possible reaction of the client to stressors, and the particular client as a system, taking into consideration the simultaneous effects of the interacting variables—physiological, psychological, sociocultural, developmental, and spiritual. This is similar to Gestalt theorists' view of insight as the perception of relationships in a total situation.

De Chardin (1955) and Cornu (1957) suggest that in all dynamically organized systems the properties of a part are determined to an extent by the wholes that contain it. This means that no part can be considered in isolation; each must be viewed as part of the whole. The single part influences our perception of the whole, and the patterns or features of the whole influence our awareness of each system part.

The specific components of the Neuman Systems Model and their connections are depicted in Figure 1-3. The definition of each component is given in Appendix A. Figure 1-3 depicts the Neuman Systems Model as a comprehensive open systems–based conceptual framework for nursing and other health care disciplines that is concerned with stressors,

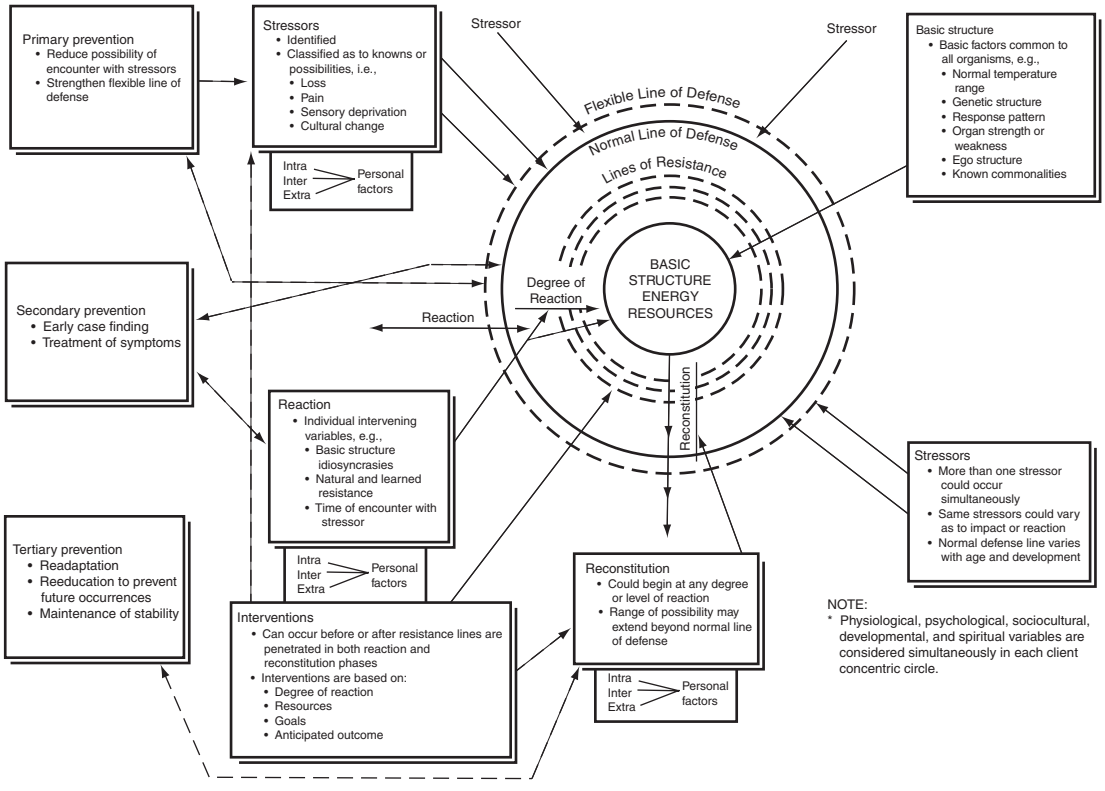

FIGURE 1-3 The Neuman Systems Model.

reactions to stressors, and the prevention interventions that address potential and actual reactions to stressors. The figure depicts the client within an open systems perspective wholistically and multidimensionally. Moreover, it illustrates the composite of five interacting variables—physiological, psychological, sociocultural, developmental, and spiritual—that function harmoniously or are stable in relation to internal and external environmental stressor influences on the client, as an open system, at a given point in time.

The unique perspective of the Neuman Systems Model is summarized in the following statements:

- Each individual client or group as an open client system is unique; each system is a composite of common known factors or innate characteristics within a normal, given range of response contained within a basic structure.
- The client as a system is in dynamic, constant energy exchange with the environment.
- Many known, unknown, and universal environmental stressors exist. Each differs in its potential for disturbing a client's usual stability level, or normal line of defense. The particular interrelationships of client variables—physiological, psychological, sociocultural, developmental, and spiritual—at any point in time can affect the degree to which a client is protected by the flexible line of defense against possible reaction to a single stressor or a combination of stressors.
- Each individual client/client system has evolved a normal range of response to the environment that is referred to as the normal line of defense, or usual wellness/stability state. It represents change over time through coping with diverse stress encounters. The normal line of defense can be used as a standard from which to measure health deviation.
- When the cushioning, accordion-like effect of the flexible line of defense is no longer capable of protecting the client/client system against an environmental stressor, the stressor breaks through the normal line of defense. The interrelationships of variables—physiological, psychological, sociocultural, developmental, and spiritual—determine the nature and degree of system reaction or possible reaction to the stressor.
- The client, whether in a state of wellness or illness, is a dynamic composite of the interrelationships of variables—physiological, psychological, sociocultural, developmental, and spiritual. Wellness is on a continuum of available energy to support the system in an optimal state of system stability.
- Implicit within each client system are internal resistance factors, known as lines of resistance, that function to stabilize and return the client to the usual wellness state (normal line of defense) or possibly to a higher level of stability following an environmental stressor reaction.
- Primary prevention relates to general knowledge that is applied in client assessment and intervention in identification and reduction or mitigation of possible or actual risk factors associated with environmental stressors to prevent possible reaction. The goal of health promotion is included in primary prevention.
- Secondary prevention relates to symptomatology following a reaction to stressors, appropriate ranking of intervention priorities, and treatment to reduce their noxious effects.
- Tertiary prevention relates to the adjustive processes taking place as reconstitution begins and maintenance factors move the client back in a circular manner toward primary prevention.

The unique perspective of the Neuman Systems Model is elaborated in the following discussion of the model components, which is organized by the nursing metaparadigm concepts—human beings, environment, health, and nursing.

Human Beings as Clients/Client Systems

Human beings are viewed as clients or client systems (Figure 1-4). The term *client* was selected out of respect for newer collaborative client–caregiver relationships, as well as the wellness perspective of the model. The Neuman Systems Model considers the client, whether one or many, proximal or distal, as a system. Each system boundary must be identified or defined, along with the parts contained within it. What is defined or included within the boundary of the system must have relevance to a particular health care discipline and represent the reality of its domain of concern.

Within the Neuman Systems Model the client or client system may be an individual, a family, a group, a community, or a social issue. More specifically, the client as an open system represents an "individual," a "person," or "a human being." The client system also may represent more than one person in environmental interaction, for example, in groups of various sizes (e.g., family, community, or a social issue). The model components are equally

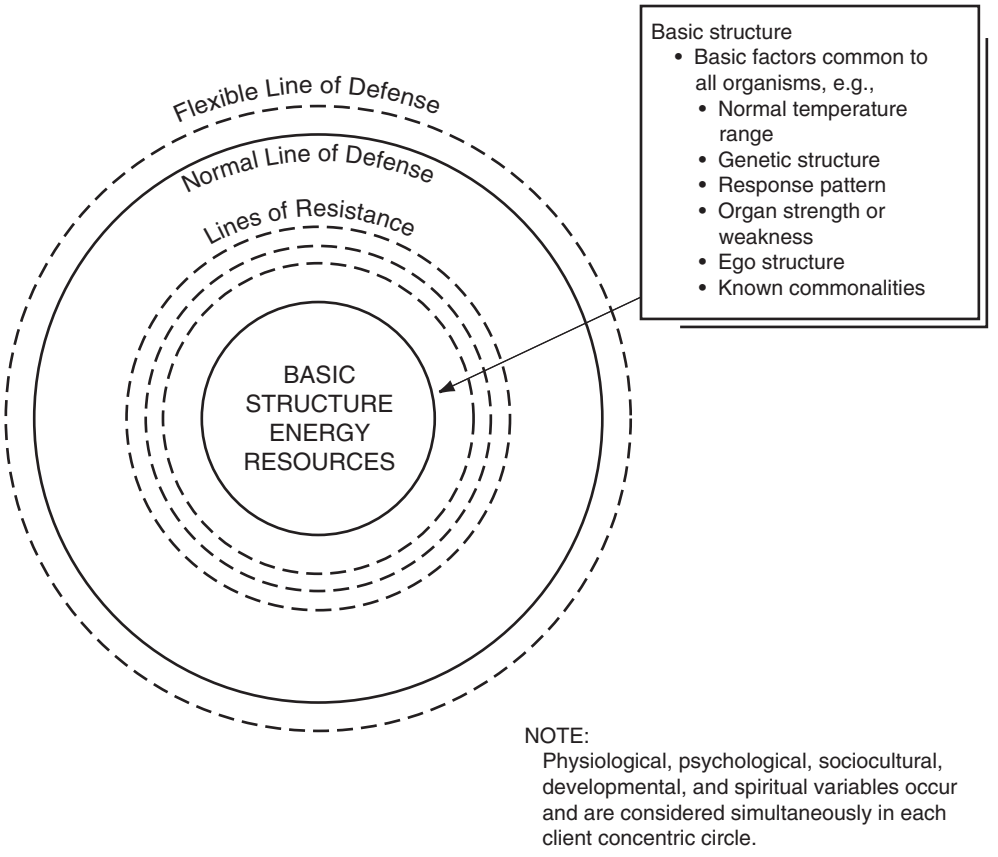

FIGURE 1-4 Client/client system.

applicable to narrowly defined systems and to those defined as broadly as situations dictate, that is, ranging from one client as a system to the global community as a system.

THE FIVE VARIABLES The client system is a composite of five interacting variable areas, which are in varying degrees of development and have a wide range of interactive styles and potential. The five client system variables are defined broadly and generally; the first four—physiological, psychological, sociocultural, developmental—are commonly understood by nurses and members of other health professions. The fifth—spirituality—is rarely made explicit within a conceptual model; this variable is discussed in detail below and in Box 1-1. The five client system variables are:

1. ***Physiological***—refers to bodily structure and internal function.
2. ***Psychological***—refers to mental processes and interactive environmental effects, both internally and externally.
3. ***Sociocultural***—refers to combined effects of social cultural conditions, and influences.
4. ***Developmental***—refers to age-related development processes and activities.
5. ***Spiritual***—refers to spiritual beliefs and influences.

Although the importance of spirituality to health is beginning to be recognized by many practitioners and researchers, this variable is frequently interpreted as religiosity. Tanyi (2002), in an analysis of the concept of spirituality, pointed out that although religiosity and spirituality are often seen as the same thing, they are in fact different. Spirituality encompasses the search for meaning in life, which may or may not include religious beliefs. Others interpret spirituality to mean making sense of life situations, belief standards and values, appreciation of a dimension beyond self, relationships to others, and a sense of self (Martsolf & Mickley, 1998). A detailed explanation of the meaning of the spiritual variable within the context of the Neuman Systems Model is given in Box 1-1.

The five client system variables are considered simultaneously. Ideally, the five variables function harmoniously and are stable in relation to internal and external environmental stressor influences. The five client system variables are within the basic structure, as well as within the flexible line of defense, the normal line of defense, and the lines of resistance.

THE BASIC STRUCTURE In Figure 1-4, the client or client system is represented by a series of concentric rings or circles surrounding a basic structure. The basic structure or central core is the source of the five client system variables and represents human processes of living and dying within the context of the fluid intersection of the five interrelated and interacting client system variables. Basic survival factors common to human beings are located in the central core, including innate or genetic features and strengths and weaknesses of the client system parts. Certain unique features or characteristics also exist for each client system variable in the central core:

- Physiological variable: extent of physical and physiological intactness of body cells, tissues, organs, and systems
- Psychological variable: extent of sense of self and cognition
- Sociocultural variable: extent of integration into a culture and the larger society
- Developmental variable: extent of accomplishment of developmental tasks
- Spiritual variable: extent of understanding of meaning of life and faith

BOX 1-1
The Spiritual Variable

Spiritual variable considerations are necessary for a truly wholistic perspective and a truly caring concern for the client/client system. An analogy of the "seed" can be used to further qualify and clarify the statement that the spirit controls the mind and the mind controls the body as it relates to the Neuman Systems Model spiritual variable.

It is assumed that each person is born with a spiritual energy force, or "seed," within the spiritual variable, as identified in the basic structure of the client system. The seed or human spirit with its enormous energy potential lies on a continuum of dormant, unacceptable, or undeveloped to recognition, development, and positive system influence. Traditionally, a seed must have environmental catalysts, such as timing, warmth, moisture, and nutrients, to burst forth with the energy that transforms it into a living form which then, in turn, as it becomes further nourished and developed, offers itself as sustenance, generating power as long as its own source of nurture exists.

The human spirit combines with the power of the Holy Spirit as a gift from God when the innate human force, or "seed," becomes catalyzed by some life event such as a crisis or a joyous occasion; this energy begins to magnify and becomes recognizable within the thought patterns as something whose truths must become known and tested in life situations. Ideally in the testing, mental and physical expressions such as understanding, compassion, and love are manifested.

As thought patterns are positively affected, the body becomes increasingly nourished and sustained through positive use of spiritual energy empowerment. For example, it has been proven that a joyous thought enhances the immune system; the opposite also is true, with a negative outcome for the body.

Thus, it is assumed that spiritual development in varying degrees empowers the client system toward well-being by positively directing spiritual energy for use first by the mind and then by the body.

The beginning of spiritual awareness and development can take place at any stage of the life cycle. The supply of spiritual energy, when understood and positively used by the client system, is inexhaustible except for the death of the living system as we know it. The human spirit returns to the God source to live on into eternity when death occurs and it is no longer needed to empower the living mind, soul, and body.

The spiritual variable positively or negatively affects or is affected by the condition and interactive effect of the other client system variables, such as grief or loss (psychological states), which may arrest, decrease, initiate, or increase spirituality. The potential exists for movement in either direction on a continuum.

Through careful assessment of client needs in the spiritual area, followed by purposeful intervention, such as fostering hope that affects the will to live, the relation between the spiritual variable and wellness may be better understood and utilized as an energy source in achieving client change and optimal system stability.

The concentric circles seen in Figure 1-4—the flexible and normal lines of defense and the lines of resistance—function essentially as protective mechanisms for the basic structure to preserve client system integrity.

THE FLEXIBLE LINE OF DEFENSE The flexible line of defense forms the outer boundary of the defined client system, whether a single client, a group, or a social issue. Each line of defense and resistance contains similar protective elements related to the five variables—physiological, psychological, developmental, sociocultural, and spiritual—while being distinguished by their specific protective functions. The flexible line of defense is depicted in Figure 1-4 as the outer, broken circle surrounding the normal (solid) line of defense.

It acts as a protective buffer system for the client's normal or stable state. That is, it ideally prevents stressor invasions of the client system, keeping the system free from stressor reactions, or symptomatology. It is accordion-like in function. As it expands away from the normal defense line, greater protection is provided; as it draws closer, less protection is available. It is dynamic rather than stable and can be rapidly altered over a relatively short time period or in a situation like a state of emergency or a condition like poor nutrition, sleep loss, or dehydration. Single or multiple stressor impact has the potential for reducing the effectiveness of this buffer system. When the normal line of defense is rendered ineffective in relation to a particular stressor impact, a reaction will occur within the client system. That is, when the normal line of defense has been penetrated, the client presents with symptoms of instability or illness, caused by one or more stressors. In all lines of defense and resistance are found elements that are similar but specific functionally, related to the five client system variables. Some examples are coping patterns, lifestyle factors, and developmental, sociocultural, and belief system influences.

THE NORMAL LINE OF DEFENSE The flexible line of defense protects the normal line of defense. The normal line of defense is depicted as the solid boundary line that encircles the broken internal lines of resistance (Figure 1-4). This line represents what the client has become, the state to which the client has evolved over time, or the usual wellness level. The adjustment of the five client system variables to environmental stressors determines client stability or usual wellness level. The normal defense line is a standard against which deviancy from the usual wellness state can be determined. It is the result of previous system behavior, defining the stability and integrity of the system and its ability to maintain them. Influencing factors are the system variables, coping patterns, lifestyle factors, developmental and spiritual influences, and cultural considerations. Any stressor can create a reaction within the client by invading the normal line of defense when it is insufficiently protected by the flexible line of defense. A client reaction may reduce the ability of the system to withstand additional stressor impact, especially if the effectiveness of the lines of resistance is reduced. The normal line of defense is considered dynamic in that it can expand or contract over time. For example, the usual wellness level or system stability may remain the same, become reduced, or expand following treatment of a stressor reaction. It is also dynamic in terms of its ability to become and remain stabilized to deal with life stresses over time, thus protecting the basic structure and system integrity.

LINES OF RESISTANCE The series of concentric broken circles surrounding the basic structure are identified as lines of resistance for the client (Figure 1-4). These lines are activated following invasion of the normal line of defense by environmental stressors. The lines of resistance protect the basic structure. These resistance lines contain certain known and unknown internal and external resource factors that support the client's basic structure and normal defense line, thus protecting system integrity. An example is the body's mobilization of white blood cells or activation of immune system mechanisms. Effectiveness of the lines of resistance in reversing the reaction to stressors allows the system to reconstitute; ineffectiveness leads to energy depletion and death.

The Lines of Defense and Resistance. A functionally interactive relationship exists jointly among all lines of defense and resistance, as each line individually contains the five system variables and protects the system components pertaining to it. Lifestyle,

coping patterns, client expectations, and motivation are all inherent within the lines of defense and resistance, ultimately protecting the basic structure. Input, output, and feedback across these boundary lines provide corrective action to change, enhance, and stabilize the system, with the goal of achieving the optimal wellness level. Additional information about the lines of defense and resistance is given in Box 1-2.

Environment

The environment is broadly defined as all internal and external factors or influences surrounding the identified client or client system (Figure 1-5). The Neuman Systems Model identifies three relevant environments: the internal environment, which is intrapersonal in nature; the external environment, which is interpersonal and extrapersonal in

BOX 1-2
The Neuman Systems Model Lines of Defense and Resistance

The five Neuman Systems Model client system variables—physiological, psychological, sociocultural, developmental, and spiritual—define the nature of a chosen client system through their interaction patterns with each other and with both internal and external environmental influences, thereby creating a dynamic client system energy flow.

The client system basic energy or central core structure, consisting of the five client system variables, must be protected by the lines of defense and resistance to keep the system viable. Each of these lines of defense and resistance is similar in purpose, that is, to keep the system stable. Each contains the five client system variables.

The flexible line of defense ideally protects the system from immediate or short-term environmental stressors that could destabilize the normal line of defense, that is, the usual client system wellness condition. It is important to assess the strength and nature of each interacting variable within the flexible line of defense to determine how well it functions as a protective shield or composite. Examples are effects of sleep patterns, perception of events, nature of perceived social support, age-related energy expenditure, and spiritual beliefs.

The same basic principles of assessment are inherent in the normal line of defense, which should be viewed as a long-term adjustment to stressors, or the client system's usual stressor coping patterns and lifestyle influences. Client system adjustment within the normal line of defense develops over time. The normal line of defense defines the current health status of the client system, thereby acting as a standard for assessment of the normal or usual health condition and/or variance from wellness. Ideally, the pattern of interactions between the five client system variables and the environment keeps the system stable. However, when this fails and the normal line of defense is penetrated by one or more stressors, a reaction or system destabilization occurs, which requires assessment of the degree of deviation from the normal wellness condition.

When a reaction or destabilization occurs, the lines of resistance are called into play as both internal and external resources. The lines of resistance, based on the assessment of the interaction between the five client system variables and the environment, as well as system support, must deal with the degree of system destabilization (illness symptoms). Ideally, the available system resources within the lines of resistance are adequate to reconstitute the system energy flow and return it to its optimal wellness level. When the system fails to respond to use of available resources, decreased system wellness or death may result.

By assessing the effects of all five client system variables in interaction with the environment, the client system's health status becomes known and clarifies for the caregiver appropriate use of the three prevention-as-intervention modalities to facilitate an optimal client system wellness condition.

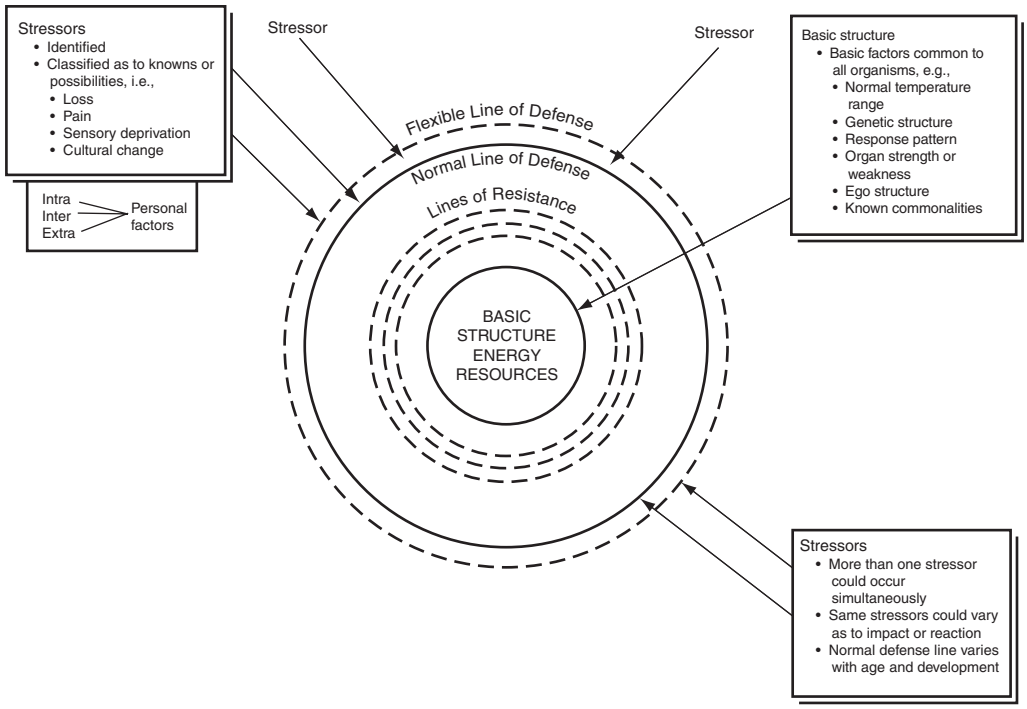

FIGURE 1-5 Environment.

nature; and the created environment, which is intrapersonal, interpersonal, and extrapersonal in nature.

INTERNAL ENVIRONMENT The internal environment consists of all forces or interactive influences internal to or contained solely within the boundaries of the defined client/client system. It correlates with the Neuman Systems Model intrapersonal factors or stressors.

EXTERNAL ENVIRONMENT The external environment consists of all forces or interactive influences external to or existing outside the defined client/client system. It correlates with both the inter- and extrapersonal factors or stressors.

CREATED ENVIRONMENT Another important environment is the created environment, which represents an open system exchanging energy with both the internal and external environment (Neuman, 1989b, 1990). This environment, developed unconsciously by the client, is a symbolic expression of system wholeness. That is, it acts as an immediate or long-range safe reservoir for existence or the maintenance of system integrity expressed consciously, unconsciously, or both simultaneously.

The created environment is dynamic and represents the client's unconscious mobilization of all system variables (particularly the psychological and sociocultural), including the basic structure energy factors, toward system integration, stability, and integrity. It is inherently purposeful. Though unconsciously developed, its function is to offer a protective perceptive coping shield (Lazarus, 1981) or safe arena for system function as the client is

usually cognitively unaware of the host of existing psychosocial and physiological influences. It pervades all systems, large and small, at least to some degree; it is spontaneously created, increased, or decreased, as warranted by a special condition of need. It supersedes or goes beyond the internal and external environments, encompassing both.

The insulating effect of the created environment changes the response or possible response of the client to environmental stressors, for example, the use of denial or envy (psychological), physical rigidity or muscular constraint (physiological), life-cycle continuation of survival patterns (developmental), required social space range (sociocultural), and sustaining hope (spiritual). Perception has a direct relationship to coping (Lazarus, 1981); clients' perceptions may be faulty in their creation of a "special" reality, thus binding energy for optimal function. All basic structure factors and system variable influences are identified by the created environment, which is developed and maintained through binding available energy in varying degrees of protectiveness. At any given place or point in time or over time, it may be necessary to change a situation or the self to cope with perceived system threat. The caregiver will need to determine through assessment (1) what has been created (nature of it); (2) the outcome of it (extent of its use and client value); and (3) the ideal that has yet to be created (the protection that is needed or possible, to a lesser or greater degree). These are all important areas for determination to best understand and support the client's created environment. After the nature and quality of the client's created environment is accurately assessed, further integration and synthesis of it may be desirable for optimal client wellness.

The created environment is based on unseen, unconscious knowledge, as well as self-esteem, beliefs, energy exchanges, system variables, and predisposition; it is a process-based concept of perpetual adjustment within which a client may either increase or decrease available energy affecting the wellness state. The caregiver's goal is to guide the client in the conservation and use of energy as a force to move beyond the present condition, ideally preserving and enhancing the wellness level. What was originally created to safeguard the health of the system may have a negative outcome effect in the binding of available energy. The client should be treated in a gentle, nonjudgmental manner, allowing his or her control and choice as to change. One can assume that self-introspective ability is poor, requiring careful search for factors that bind energy and help in movement toward increasing levels of self actualization and optimal health.

A major objective of the created environment is to stimulate the client's health. It has been well documented that a diseased condition is often created by cognitive distortions on the part of the client or the caregiver, although intervention traditionally focuses on physical and observable symptoms, overlooking causal factors like unexplored beliefs, and fears. For example, a client's fear of job loss, with resultant lowered self-esteem and role conflict because of the inability to meet financial obligations, may lead to spinal problems. A client's ideas based on past experiences also may influence a current health state; for example, the belief about the length of time required to cure the common cold may have a positive or negative health outcome.

In wellness and illness states, all causal factors must be evaluated as to internal, innate, and external factors (known as variables and stressors) affecting the client; known or potential interrelationships, interactions, and interdependencies that may have created a given health state must be identified and correlated. Optimal client wellness depends on the evaluation of all causal factors, along with nursing action through relevant nursing intervention. Client awareness of the created environment and its relationship to health is

a key concept that nursing may wish to pursue and further develop through research-based practice. As the caregiver recognizes the value of the client-created environment and purposely intervenes, the interpersonal relationship can become one of important mutual exchange.

STRESSORS A tendency exists within any system to maintain a steady state or balance among the various disruptive forces operating within or on it. The Neuman Systems Model identifies these forces as stressors. Stressors are defined as tension-producing stimuli that have the potential to cause system instability. More specifically, stressors are tension-producing stimuli or forces occurring within the internal and external environmental boundaries of the client system. More than one stressor may affect the client system at any given time. According to Gestalt theory, any stressor to some degree influences the client's reaction to all other stressors.

Stressors may have either a positive or negative outcome effect. The effect depends largely on the client's perception and ability to negotiate the effects of the stressor. The effect of stressors that are perceived as negative is referred to as stress, whereas the effect of stressors that are perceived as positive is referred to as "eustress" (Gibbons, Dempster, & Moutray, 2008). Within the context of the Neuman Systems Model, stressors are regarded as inherently neutral or inert; the client's perception of each stressor and the nature of the encounter with the stressor determine whether the outcome or effect is beneficial or noxious (Lazarus, 1999).

Neuman Systems Model environmental stressors are classified as intrapersonal, interpersonal, and extrapersonal in nature. They are present within as well as outside the client system.

- *Intrapersonal stressors* are internal environmental forces that occur within the boundary of the client system (e.g., conditioned response or autoimmune response).
- *Interpersonal stressors* are external environmental interaction forces that occur outside the boundaries of the client system at the proximal range (e.g., between one or more role expectations or communication patterns).
- *Extrapersonal stressors* are external environmental interaction forces that occur outside the boundaries of the client system at the distal range (e.g., between one or more social policies or financial concerns).

Stressors may be present in situational or maturational crises, whether or not experienced as such by the client. The five client system variables within the flexible line of defense ideally protect the client system from possible instability caused by stressors. Determining factors would include the client's physiologic condition, cognitive skills, sociocultural influences, developmental state, and spiritual considerations. It is important to view the whole client system as dealing not with one or a few of the variables, but rather to view all variables as affecting the client at any given point in time. The wholeness concept is based on appropriate consideration of the interrelationships of variables, which determine the amount of resistance an individual has to any environmental stressors, whether or not a reaction has occurred.

Stressors have potential for reaction with the client or can cause a reaction with defined symptoms, and can influence reconstitution following treatment of symptoms. The time of stressor occurrence, past and present condition of the client system, nature and intensity of the stressor, and the amount of energy required by the client to adjust all are

important considerations. The caregiver may be able to predict possible client adjustment based on past coping behavior or patterns in a similar situation, all conditions being equal. Coping is directly related to client perception and cognition. Cognitive appraisal determines the degree of stress felt, while coping functions mediate the reaction (Lazarus, 1981).

Critical to system analysis is the identification of stressors as to type, time of encounter, and nature of a reaction or possible reaction to them. Stressors may have a positive outcome, with the potential for beneficial, temporary, or even ultimate system change. For example, in an avoidance condition such as agoraphobia, anxiety may be clinically imposed as a stressor for the possible longer-term gain of mitigating the phobia, allowing for higher-level functioning. Various conditions and constraints accompany stressors. For example, a stressor may create a series of effects in more than one part or subpart of the client system and in response to these effects may itself in turn be affected.

The Client System and the Environment. Environmental exchanges must be identified as to their nature and possible or actual outcome for the client or client system. As an open system, the client system is in interaction and total interface with the environment. The client is a system capable of both input and output related to intrapersonal, interpersonal, and extrapersonal environmental influences, interacting with the environment by adjusting to it, or as a system, adjusting the environment to itself. The process of interaction and adjustment results in varying degrees of harmony, stability, or balance between the client and environment. Ideally, there is optimal client system stability. The client may influence or be influenced by environmental forces either positively or negatively at any given point in time. A particular stressor with a negative outcome for a client at a particular point in time may not always be noxious. The adjustment of the system may alter the client's response pattern. Input, output, and feedback between the client and the environment is of a circular nature; client and environment have a reciprocal relationship, the outcome of which is corrective or regulative for the system.

A system receives suitable satisfaction only by interacting with the available environment in order to take on its parts for fulfillment of survival needs. Energy flow is continuous between the client and the environment even when a relatively stable state is maintained.

Health

The Neuman Systems Model conceptualization of health is illustrated in Figure 1-6. Health, or wellness, is viewed as a continuum; wellness and illness are on opposite ends of the continuum. Health for the client is equated with optimal system stability, that is, the best possible wellness state at any given time (Figure 1-7). Client health is envisioned as being at various, changing levels within a normal range, rising or falling throughout the life span because of basic structure factors and satisfactory or unsatisfactory adjustment by the client system to environmental stressors. Health is a manifestation of living energy available to preserve and enhance system integrity.

The Neuman Systems Model wellness–illness continuum (Figure 1-6) implies that energy flow is continuous between the client system and the environment. To conceptualize wellness, then, is to determine the actual or possible effects of stressor invasion in terms of *existing client system energy levels*. Client movement is toward wellness when more energy is being generated than used; when more energy is required than is being generated, movement is toward illness and possible death. Variances from wellness or

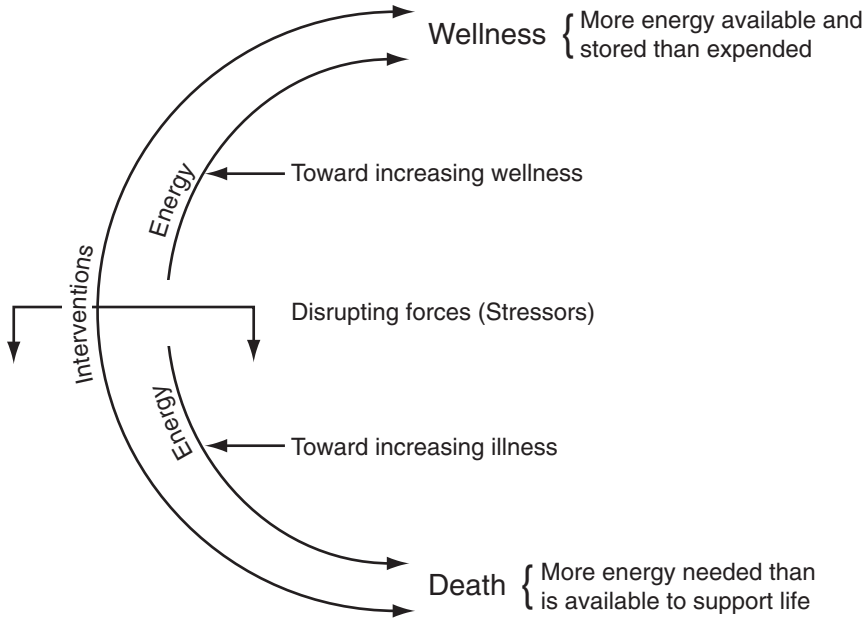

FIGURE 1-6 Neuman Systems Model wellness–illness continuum.

varying degrees of system instability are caused by stressor invasion of the normal line of defense.

The condition of the flexible line of defense determines whether a reaction might be likely to take place in an encounter with a stressor (Figure 1-7). Ideally, the flexible line of defense is strong enough to prevent or reduce the magnitude of a possible stressor reaction. A dynamic stability state can exist within the system along the internal lines of resistance, following a reaction to a stressor. However, a violent energy flow occurs when the client system is disrupted from its normal or stable state; that is, it expends energy to cope with system changes. When more energy is used by the system than is built and stored, the outcome may be death. The degree of wellness is determined by the amount of energy required to return to and maintain system stability. When more energy is available than is being used, the system is stable.

Stability implies a state of balance or harmony requiring energy exchange between the system and environment to cope adequately with imposing stressors. Stability preserves the character of the system. An adjustment in one direction is countered by a movement in the opposite direction, both movements being approximately rather than precisely compensatory. With opposing forces in effect, the process of stability is an example of the regulatory capacity of a system. Feedback of output into input makes the system self-regulatory in relation to either maintenance of a desired health state or goal outcome. For example, much research is needed to determine client health status by identification of compensatory actions among one or more system variables. Interaction of parts can fuse the client/environment into a unit relationship as a system. Health, within a systemic perspective, is viewed as a continuum from wellness to illness. The two end states are opposites: wellness is a state of saturation or inertness, one free of disrupting needs; illness is a state of insufficiency with disrupting needs unsatisfied.

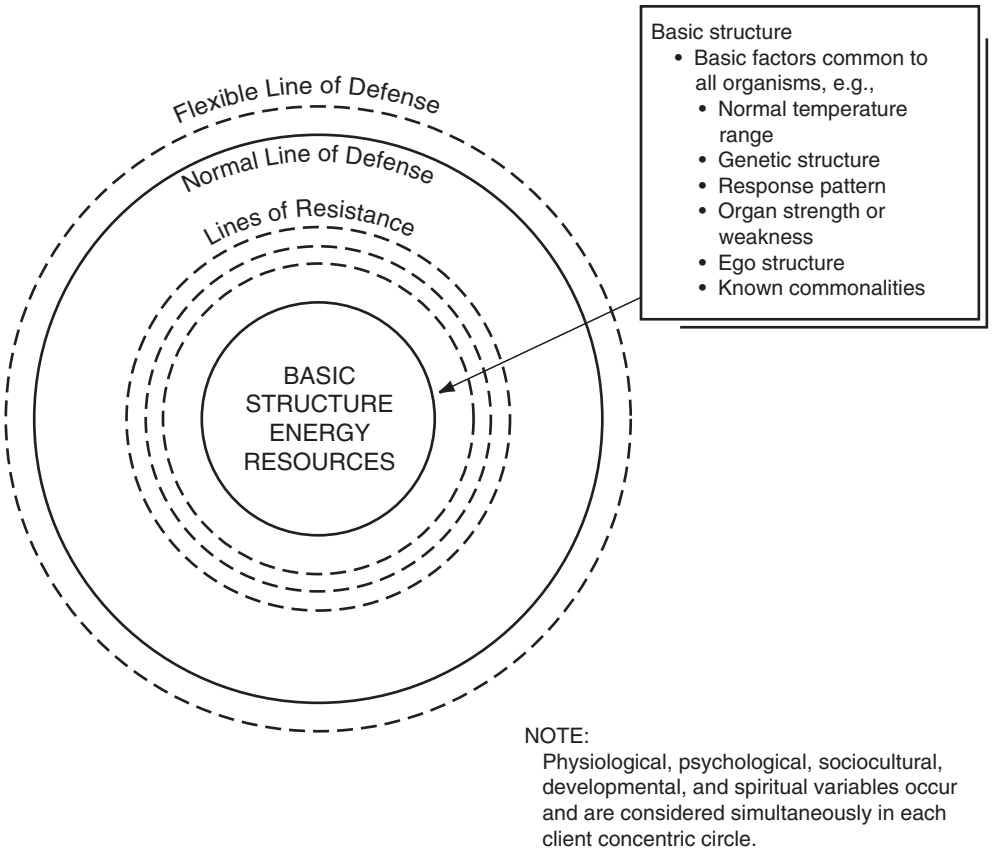

FIGURE 1-7 Health.

Nursing

The nursing component of the model (Figure 1-8) illustrates that the major concern for nursing is in keeping the client system stable through accuracy in assessing the effects and possible effects of environmental stressors and in assisting client adjustments required for an optimal wellness level. *Optimal* means the best possible health state achievable at a given point in time. Nursing actions are initiated to best retain, attain, and maintain optimal client health or wellness, using the three preventions-as-interventions to keep the system stable. In keeping the system stable, the nurse creates linkages among the client, the environment, health, and nursing.

PREVENTION AS INTERVENTION The point of entry into the health care system for both the client and the caregiver is at the primary prevention level, before a reaction to stressors has occurred; at the secondary prevention level, after a stressor reaction has occurred; or at the tertiary prevention level, following treatment of a stressor reaction. The prevention-as-intervention formats or modes (Figures 1-9, 1-10, and 1-11; see also Appendix C, Table C-6) are a typology of interventions that not only identify the entry point condition for the client into the health care system but also indicate the general type

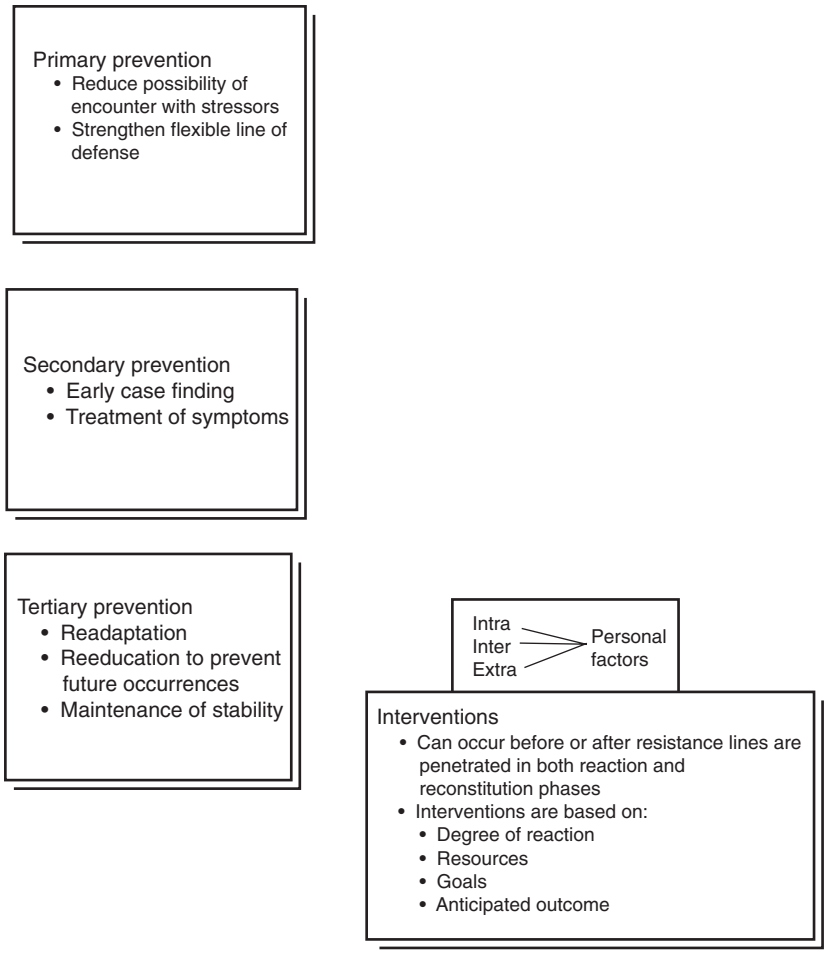

FIGURE 1-8 Nursing.

of intervention or action required. This intervention modality allows for multilevel intervention, because more than one of the prevention-as-intervention modes can be used simultaneously, as the client condition warrants.

The Neuman Systems Model provides an intervention typology. *Primary prevention as intervention* (Figure 1-9) is used for primary prevention as wellness retention, that is, to protect the client system's normal line of defense or usual wellness state by strengthening the flexible line of defense. The goal is to promote client wellness by stress prevention and reduction of risk factors. This includes a variety of strategies for health promotion.

Intervention can begin at any point at which a stressor is either suspected or identified. Primary prevention as intervention is provided when the degree of risk or hazard is known but a reaction has not yet occurred. The caregiver may choose to reduce the possibility of stressor encounter or in some manner attempt to strengthen the client's flexible line of defense to decrease the possibility of a reaction. Ideally, primary prevention is also considered concomitantly with secondary and tertiary preventions-as-interventions.

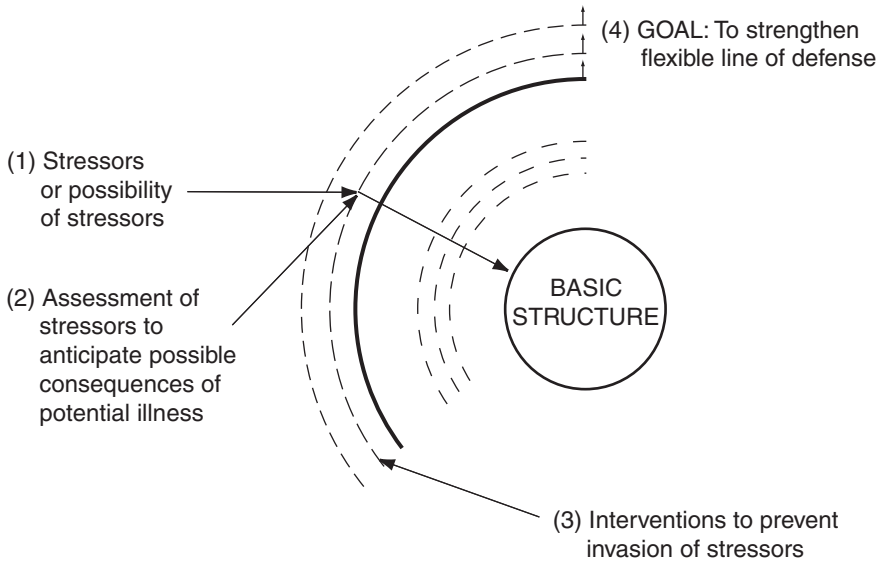

FIGURE 1-9 Format for primary prevention as intervention mode.

Assuming that either the above intervention was not provided or that it failed and a reaction occurred, intervention known as secondary prevention as intervention or treatment would be provided in terms of existing symptoms. The *secondary prevention-as-intervention* modality (Figure 1-10) is used for secondary prevention as wellness attainment, that is, to protect the basic structure by strengthening the internal lines of resistance.

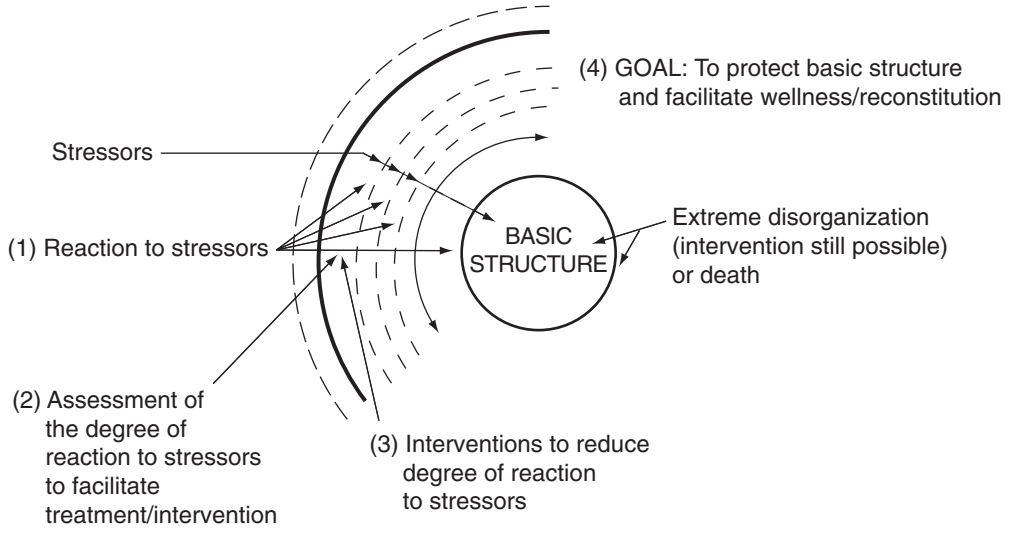

FIGURE 1-10 Format for secondary prevention as intervention mode.

The goal is to provide appropriate treatment of symptoms to attain optimal client system stability or wellness and energy conservation.

Treatment could begin at any point following the occurrence of symptoms. Maximum use of existing client internal and external resources would be considered in an attempt to stabilize the system by strengthening the internal lines of resistance, thus reducing the reaction. Relevant goals are established, based on use of the Neuman Systems Model Nursing Process Format (Appendix C, Table C-1), which has been designed to implement the model. Through its use, the meaning of the experience to the client is discovered, as well as existing needs and resources for meeting them. Through the synthesis of comprehensive client data and relevant theory, an umbrella-like, or comprehensive, nursing diagnostic statement is made, from which nursing goals for nursing intervention can be readily determined in collaboration with clients.

If, following treatment, secondary prevention as intervention fails to reconstitute the client, death occurs as a result of failure of the basic structure to support the intervention. Reconstitution is identified as beginning at any point following treatment; it is the determined energy increase related to the degree of reaction. Complete reconstitution may progress well beyond the previously determined normal line of defense or usual wellness level, it may stabilize the system at a lower level, or it may return to the level prior to illness.

The *tertiary prevention-as-intervention* modality (Figure 1-11) is used for tertiary prevention as wellness maintenance, that is, to protect client system reconstitution or

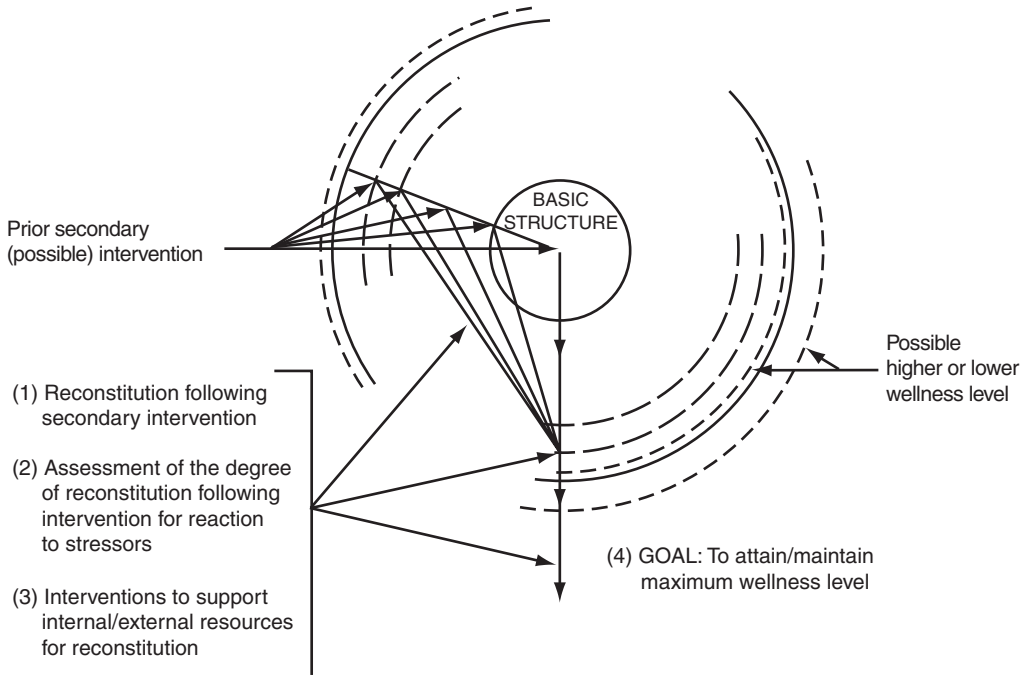

FIGURE 1-11 Format for tertiary prevention as intervention mode.

return to wellness following treatment. Reconstitution may be viewed as feedback from the input and output of secondary intervention. The goal is to maintain an optimal wellness level by supporting existing strengths and conserving client system energy. Tertiary prevention as intervention can begin at any point in client reconstitution following treatment, that is, when some degree of system stability has occurred. Reconstitution at this stage is dependent on the successful mobilization of client resources to prevent further stressor reaction or regression; it represents a dynamic state of adjustment to stressors and integration of all necessary factors towards optimal use of existing resources for client system stability or wellness maintenance.

This dynamic view of tertiary prevention tends to lead back, in circular fashion, toward primary prevention. An example of this circularity is either avoidance of specific known hazardous stressors or desensitization to them. In using this intervention typology, the client condition, in relation to environmental stressors, becomes readily apparent. One or all three prevention modalities give direction to, or may be simultaneously used for, nursing action, with possible synergistic benefits.

HEALTH PROMOTION Health promotion based on the Neuman Systems Model is a component of the primary prevention-as-intervention modality. This contradicts Pender's (1987) view that the two areas should be considered separate entities. In the Neuman Systems Model, health promotion is subsumed within the area of primary prevention and becomes one of the specific goals within it for nursing action. For example, following need determination, intervention goals would include education and appropriate supportive actions toward achieving optimal client wellness, that is, augmenting existing strengths related to the flexible line of defense and thus decreasing the possibility of risk or threat of client reaction to potential or actual stressors. The major goal for nursing is to reduce stressor impact, whether actual or potential, and to increase client resistance. Because the Neuman Systems Model is wellness oriented, health promotion goals should ideally work in concert with both secondary and tertiary prevention as interventions to prevent recidivism and to promote optimal wellness. Health promotion, in general, and within the primary prevention concept, relates to activities that optimize a client's wellness potential or condition.

Inasmuch as the Neuman Systems Model has considered environmental stressors as having a continuous impact on the client system, health promotion is inherently a major area of concern for both clients and caregivers, not only in retention, but also in attainment and maintenance of optimal client/client system wellness (Neuman, 1974). Primary prevention as intervention with inherent health promotion is an expanding futuristic, proactive concept with which the nursing field must become increasingly concerned. It has unlimited potential for major role development that could shape the future image of nursing as world health care reform continues to evolve in the 21st century.

THE NURSING PROCESS AND THE NEUMAN SYSTEMS MODEL Insufficient methodology exists for truly scientific approaches to complex and rapidly changing nursing concerns. Nurses largely conceptualize and utilize their social science knowledge for nursing in their own unique way, thus contributing to general inadequacy in professional communication and often poorly defined client goals. The need is critical for meaningful definitions

and conceptual frames of reference for nursing practice if the profession is to be established as a science. For example, though considerable progress has been made in the past few years, the profession is still without definitive criteria for establishing a nursing diagnosis within the nursing process. It is considered to be in an evolving state from its present North American Nursing Diagnosis Association (NANDA) guidelines. There is a major concern that these criteria relate only in part to various nursing conceptual frameworks. Therefore, the Neuman Systems Model concepts should be used for Neuman Systems Model nursing diagnoses.

The Neuman Systems Model Nursing Process Format was designed specifically for nursing implementation of the Neuman Systems Model (Appendix C, Table C-1). The nursing process format has been developed within the following three categories: nursing diagnosis, nursing goals, and nursing outcomes. These categories best fit the systemic perspective of the Neuman Systems Model. The utility of the format was first validated by doctoral students at the University of Alabama in 1982; its validity and social utility have since been documented in a wide variety of international nursing education and practice areas.

In using the Neuman Systems Model, the nurse is concerned with acquiring significant and comprehensive client system data to determine the impact or the possible impact of environmental stressors. Selected, prioritized client information is related to or is synthesized with relevant social science and nursing theories. This process fully explains the client condition, providing the logic or rationale for subsequent nursing action. That is, it provides the basis for a broad, comprehensive (umbrella-like) diagnostic statement concerning the entire client condition, from which logically defensible goals are easily and accurately derived. The Neuman Systems Model Nursing Process Format is elaborated by the Neuman Systems Model Assessment and Intervention Tool: Client Assessment and Nursing Diagnosis (Appendix C, Table C-3), the Neuman Systems Model Assessment and Intervention Tool: Summary of Goals with Rationale (Appendix C, Table C-4), the Neuman Systems Model Assessment and Intervention Tool: Intervention Plan to Support Stated Goals (Appendix C, Table C-5), and the Neuman Systems Model Assessment and Intervention Tool: Format for Prevention as Intervention (Appendix C, Table C-6).

A unique feature of the Neuman Systems Model nursing process is determination of the perceptions of both client system and caregiver (see the Neuman Systems Model Assessment and Intervention Tool: Client Assessment and Nursing Diagnosis, Appendix C, Table C-3). Another important feature is the mutual determination of client intervention goals (see Neuman Systems Model Nursing Process Format, Appendix C, Table C-1). These characteristics follow current mandates within the health care system for client rights in health care issues.

Although many authors have proposed various characteristics as integral components of the nursing process as a whole and in each of its phases, Phaneuf (1976) pointed out that there is little to support assumptions concerning the outcomes of the nursing process unless they are made from an adequate database. The Neuman Systems Model Nursing Process Format attempts to offer some resolution to the awkward dilemma in the following manner. Sufficient client data are obtained to make a comprehensive diagnostic statement and objectively determine client variance from wellness. Relevant goal setting is then defensible in terms of the theoretical synthesis with client data. Through the use of this specially designed nursing format, analytical outcomes are possible because they are based on purposeful prevention-as-intervention modalities.

THE NEUMAN SYSTEMS MODEL AND MIDDLE-RANGE THEORY DEVELOPMENT

The author and a valued nursing colleague, Audrey Koertvelyessy (Neuman & Koertvelyessy, 1986), jointly identified the major theory for the model as the theory of optimal client system stability. The theory asserts that stability represents health for the system. Several other theories inherent within the model could be identified and clarified with the goal of optimizing health for the client; for example, nursing is prevention as intervention and the client as a system is wholistic.

Koertvelyessy (personal communication, fall 1987) also proposed the theory of prevention as intervention. She views the concept of prevention—primary, secondary, or tertiary—as prevalent and significant in the Neuman Systems Model, linked to each of the broad concepts of the model, that is, client, environment, health, and nursing. Inasmuch as the prevention strategies are the modes instituted to retain, attain, or maintain stability of a client's health status, she considers the development of a theory statement linking these concepts as a necessary next step.

Other middle-range theories that have been directly derived from the Neuman Systems Model are listed in Chapter 21 of this book, which also contains a discussion of techniques used to derive middle-range theories from the model. Techniques used to link the Neuman Systems Model with existing middle-range theories are discussed in Chapter 22.

Conclusion

The Neuman Systems Model is a comprehensive guide for nursing practice, research, education, and administration that is open to creative implementation. Although creative interpretations and implementation of the model are valued, structural changes that could alter its original meaning and purpose are not sanctioned. Indeed, fundamental changes in the meaning or purpose or content of the model would reflect the development of a new conceptual model that should be identified as such.

The Neuman Systems Model helps nurses to organize the nursing field within a broad systems perspective as a logical way of dealing with its growing complexity. Earlier, the Neuman Systems Model was criticized as being too broad, as were other conceptual models of nursing; now, this quality has become a major reason for increasing acceptance of the model and its documented utility.

The Neuman Systems Model has the potential for unifying various health-related theories, clarifying the relationships of variables in nursing care and role definitions at various levels of nursing practice. Nursing practice goals should enable the client to create and shape reality in a desired direction, related to retention, attainment, or maintenance of optimal client system wellness, or a combination of these, through purposeful prevention interventions. Nursing prevention interventions should mitigate or reduce stress factors and adverse conditions that affect or could affect optimal client functioning at any given point in time. The Neuman Systems Model Nursing Process Format and the Assessment and Intervention Tool (Appendix C) were designed to implement the Neuman Systems Model by incorporating its terminology and encompassing its breadth of purpose.

Although nurse theorists have increasingly added system components to their models, initially they viewed humans or clients collectively or the person singularly as a behavioral

composite, a biological system, an organism at a particular stage of development, or as part of an interactive process. As befits a wholistic perspective, the Neuman Systems Model has always considered all of these factors simultaneously and comprehensively within a systems perspective. That is, the client is viewed as a composite of interacting variables—physiological, psychological, developmental, sociocultural, and spiritual—that are, ideally, functioning harmoniously or are stable in relation to both internal and external environmental stressor influences. This approach to clients and client systems prevents possible fragmentation and failure to interrelate various aspects of the client system as the nursing goal becomes that of facilitating optimal client system stability.

A great need exists to clarify and make explicit not only the relationship of variables affecting a client during and following an illness but also those related to wellness retention for ambulatory and evolving high-risk groups. Inasmuch as health care is shifting increasingly toward primary prevention, including health promotion, an understanding of how these variables interface with those of secondary and tertiary prevention is important. These relationships are illustrated in the Neuman Systems Model diagram (Figure 1-3). The Neuman Systems Model fits well with the wholistic concept of optimizing a dynamic yet stable interrelationship of spirit, mind, and body of the client in a constantly changing environment and society (Neuman & Young, 1972). The Neuman Systems Model has fulfilled the World Health Organization's mandate for the year 2000 and reaches far beyond, seeking unity in wellness states—wellness of spirit, mind, body, and environment. The Neuman Systems Model also is in accord with the views of the American Nursing Association, sharing its concern about potential stressors and its emphasis on primary prevention, as well as world health care reform concern for preventing illness.

The multidimensionality and wholistic systemic perspective of the Neuman Systems Model is increasingly demonstrating its relevance and reliability in a wide variety of clinical and educational settings throughout the world. Its comprehensive approach accommodates a variety of health-related theories. It also has the potential for generating important nursing theory through research into its components and by the unification of existing theories to serve world health care concerns well into the future.

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SECTION TWO

Toward an Enhanced Understanding of the Neuman Systems Model

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CHAPTER 2

The Client System as an Individual

Michel A. Tarko
Anna M. Helewka

The purpose of this chapter is to enhance understanding of the Neuman Systems Model concept of the client system as an individual. The chapter contains work completed by the Douglas College Department of Psychiatric Nursing faculty. Additional work done by the faculty to enhance understanding of the client system as a family, group, or community is presented in Chapter 3.

Douglas College is located in British Columbia, Canada. The faculty of the Health Sciences Department of Psychiatric Nursing has been using the Neuman Systems Model as a curriculum framework for more than 25 years in the Advanced Diploma in Psychiatric Nursing program, which is a postgraduate program for registered psychiatric Nurses and registered nurses working in a mental health context (see Table 2-1). In September 2006, the Douglas College Department of Psychiatric Nursing added a four-year Bachelor of Science in Psychiatric Nursing degree program. (See Chapter 14 of this book for a comprehensive discussion of the college's curriculum development process and course sequence.)

CLIENT SYSTEM AS AN INDIVIDUAL

The Neuman Systems Model can be used to guide the education and practice of student nurses as they learn to care for clients as individuals. The basic structure of the individual client system could be introduced to nursing students in their first clinical nursing course as they learn about themselves and the well client (Meyer & Xu, 2005). Student learning is enhanced by applying the components of the basic structure to themselves and to well clients, thereby providing them with a frame of reference for the Neuman Systems Model that is grounded in reality for them as learners and novice nurses. As the students progress in their education and practice, more complex parameters of the client system as an individual are introduced to inform their developing knowledge of health assessment and interventions grounded in a conceptual model of nursing (Fawcett, 2004; Ume-Nwagbo, DeWan, & Lowry, 2006).

TABLE 2-1 Douglas College Department of Psychiatric Nursing Curriculum Conceptual Framework

Curriculum Threads	Concepts	Person/ Family/Group/ Community	Environment	Health	Psychiatric Nursing
Wellness–Wholism Illness Continuum – Wholism – Determinants of Health – Variance from Wellness – Perception of Wellness/Illness – Universal Experiences: Crisis, Comfort, Hope, Loss, Power, Integrity, and Resiliency **Professional Values** – Self-awareness – Professional Role – Standards of Practice – Legal and Ethical Guidelines – Advocacy **Professional Caring** – Attributes: Compassion, Comportment, Commitment, Conscience, Competence, Confidence, and Collegiality – Nursing Process – Therapeutic Use of Self – Clinical Procedures	**Universal Experiences** **CRISIS** **COMFORT** **HOPE** **LOSS** **POWER** **RESILIENCY**	**Client System** – Individual/ Family/Group/ Community **Psychological Variable** – Integration: Emotions – Cognition, Perception – Self-concept, Sexuality **Sociocultural Variable** – Relatedness: Communication, Social History, Roles, Relationships **Physiological Variable** – Cellular Dynamic – Circulation – Oxygenation – Elimination – Metabolism – Mobility – Neurosensory – Protection – Reproduction **Spiritual Variable** – Purpose and Meaning – Interconnectedness	**1. Internal** **2. External** • Cultural • Economic • Physical • Political • Social **3. Created**	**Health/ Wellness** – System Stability – Harmony **Illness** – System Instability – Disharmony **Flexible Line of Defense** **Normal Line of Defense** **Lines of Resistance** **Stressors** – Intrapersonal – Interpersonal – Extrapersonal	**Prevention as Intervention** – Primary Prevention – Secondary Prevention – Tertiary Prevention

(*continued*)

TABLE 2-1 (continued)

Curriculum Threads	Concepts	Person/ Family/Group/ Community	Environment	Health	Psychiatric Nursing
– Teaching-Learning Process – Group Process **Health Care Delivery System** – Primary Health Care (Promotive, Preventative, Restorative, Curative, Rehabilitative, and Supportive Services) – Psychosocial Rehabilitation – Case Management – Program Management – Interdisciplinary Collaboration – Leadership – Information Technology (Informatics)	**INTEGRITY**	– Faith – Forgiveness – Religion – Creativity – Transcendence **Developmental Variable** – Growth – Life Span – Transitions			

Source: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada. © Copyright Douglas College, June 2006. Used with permission.

Client System Variables

The individual as an open client system is composed of five interrelated and interacting variables—physiological, psychological, sociocultural, developmental, and spiritual—that function harmoniously to maintain system stability in response to external and internal environmental stressors. Figure 2-1 illustrates how the client system variables intersect and interact with each other and how together they form an essential part of the basic structure or central core of the individual client system. Because the five client system variables are fluid and dynamic, they vary in how much they intersect and interact at any particular time.

The client system as an individual is composed of the *physiological variable,* which refers to body structures and their physiological functions, such as the condition and effectiveness of the organs and the regulatory systems of the body. The *psychological variable* involves the client's mental processes and ability to build/maintain relationships,

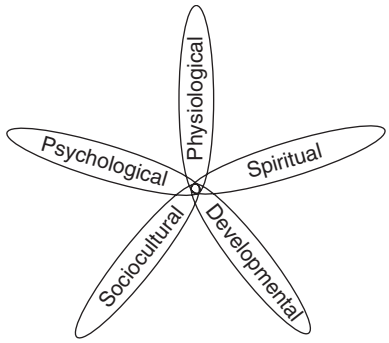

FIGURE 2-1 Diagram of the client system variables. *Source*: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada. Copyright © Douglas College, June 2006. Used with permission.

such as emotional state, cognitive processes, communication skills, coping mechanisms, and self-concept. The *sociocultural variable* comprises the client's social and cultural dimensions or attributes such as attitudes, beliefs, lifestyle, habits, and ethnicity. The *developmental variable* refers to human growth and developmental transitions throughout the life span. The *spiritual variable* refers to the client's spiritual beliefs and influences that serve to guide all life processes. The interrelationship of the five variables as a system, which determines the client's level of wellness, is unique to each individual. The five variables change over time and influence how a client responds to internal and external environmental stressors.

Organizers that assist students to collect and analyze data have been identified for each client system variable. The organizers for each of the five client system variables are:

1. ***Physiological variable***—cellular dynamic, circulation, oxygenation, elimination, metabolism, mobility, neurosensory, protection, reproduction
2. ***Psychological variable***—integration: emotions, cognition and perception, self-concept, sexuality
3. ***Sociocultural variable***—relatedness: communication, social history, roles, relationships
4. ***Developmental variable***—growth, life span, transitions
5. ***Spiritual variable***—purpose and meaning, interconnectedness, faith, forgiveness, religion, creativity, transcendence

Students understand that data placement is not static and that sometimes data belong in more than one organizer or variable. All five variables are assessed when collecting data about an individual client, and the assessment must include the client's perception of system stability and stressors, as well as the caregiver's perceptions.

Client System and Environment

Each individual client system has boundaries composed of real or imaginary lines that differentiate one client system from another or its environment (Antai-Otong, 2003). For example, the skin of the body is a real and visible boundary for the individual client system.

The external environment of the individual client system is defined as interpersonal and extrapersonal in nature and "is conceptualized as everything outside a person including physical surroundings and social interactions" (Boyd, 2005, p. 774). The internal environment of the individual client system is intrapersonal in nature and is made up of all interactive influences contained within the boundaries of the individual. For example, human genes are a component of the internal environment that "play an enormous role in the expression of certain talents, conditions, and pathologies" (Mohr, 2003, p. 32).

The created environment of the individual client system involves intra-, inter-, and extrapersonal dimensions that are expressed as the subconscious or conscious reality perceived by the individual client, which may not necessarily represent reality as perceived by the nurse. Understanding the individual client's created environment, which requires excellent communication skills and establishment of a mutually meaningful therapeutic relationship between the client and the nurse, assists the nurse to preserve and enhance client system wellness.

NURSING PROCESS FOR THE CLIENT SYSTEM AS AN INDIVIDUAL

The Neuman Systems Model Nursing Process Format of nursing diagnosis, nursing goals, and nursing outcomes (Crawford & Tarko, 2002; Gehrling & Tarko, 2004; Neuman, 2002; Tarko & Gehrling, 2004) is utilized throughout the Douglas College Department of Psychiatric Nursing curriculum. Nursing diagnosis statements arise from analysis of data that describe the individual client system's variance from wellness, as well as from theoretical knowledge and other resources. Nursing goals statements are formulated with the client and/or family as appropriate and are written in language reflecting a client-centered perspective. Nursing outcomes statements, which stipulate prevention-as-intervention strategies chosen by the nurse and the client to attain the desired nursing goals, must:

- take into account the client's perception and the nurse's perception,
- strengthen the lines of defense,
- reduce the likelihood of an encounter with a stressor,
- reduce the impact of a stressor,
- promote the highest possible level of wellness following reconstitution or recovery,
- ensure that the client's and the nurse's goals are compatible,
- facilitate system stability/harmony, and
- incorporate all levels of prevention.

Assessment of Client System Variables

The Douglas College Department of Psychiatric Nursing faculty has developed a comprehensive assessment guide and assessment tool for each of the five client system variables based on the organizers for each variable. The assessment guides and tools are shown in Figures 2-2, 2-3, 2-4, 2-5, and 2-6 at the end of this chapter.

Client System Variables and Nursing Diagnosis

The Douglas College Department of Psychiatric Nursing faculty has developed a taxonomy of nursing diagnoses grounded in the Neuman Systems Model within the context of psychiatric nursing (see Figure 2-7 at the end of this chapter). The Douglas College

Department of Psychiatric Nursing Neuman Systems Model taxonomy of nursing diagnoses is currently being utilized in a pilot project by students and faculty at the college, who have been invited to provide input regarding its utility in diverse psychiatric nursing practice settings. It is important to note that students are educated to know that they are not bound by the specific language of the diagnostic statements; if a client's experience requires different language or terminology, then students may use other concepts that make sense to them and the client across a variety of nursing specialty contexts.

The taxonomy for the client system as an individual is based on the organizers identified for each of the five client system variables. Inasmuch as client system variables function in harmony to maintain system stability, any variance in system stability or wellness involves an alteration in one or more of the organizers within the variables. Formulating a nursing diagnosis statement requires identifying: (1) the relevant client system variables and organizers; (2) relevant intrapersonal, interpersonal, and extrapersonal stressors arising from the client system's internal and external environments; and (3) the client system's created environment.

Each nursing diagnosis statement addresses protection of the basic structure and movement of the client to optimum wellness as defined by the client. The diagnostic statements include the data that have led to the particular diagnoses. Formulating nursing diagnosis statements in this way guides development of preventions as interventions that are related to the stressors that have influenced client system stability. Preventions as interventions are then designed to reduce the stressor or minimize its impact.

A CASE STUDY

A case study that illustrates application of the client system variables and the Douglas College Department of Psychiatric Nursing Neuman Systems Model taxonomy of nursing diagnoses is presented in Box 2-1.

BOX 2-1

Case Study: The Client System as an Individual

Mary is a 30-year-old, single, unemployed woman currently receiving funding from social services. She has three children under the age of 12 years. She has been referred to your outpatient mental health centre by her general practitioner for treatment of a mood disorder. She has no previous contact with the mental health system. She moved to Abbotsford 5 months ago to be closer to her sister. She has a medical history of asthma and Crohn's disease. She also has a family history of CAD and type 2 diabetes. She had a tubal ligation 2 years ago.

On initial presentation, Mary is casually dressed in tight stretch pants, a sweater, and a jacket. Her clothing is clean and appropriate for the weather. She is 152 cm (60 inches tall) and weighs 48 kg (105.6 pounds). She has clean, shoulder-length, blond hair, blue eyes, and wears glasses. Her movements are easy and coordinated. She makes eye contact throughout the interview and you note that her facial expression is sad.

Mary says she has been "depressed" since her common-law relationship of 2 years ended 6 weeks ago. She states she was frustrated and unhappy with the relationship before it ended, but did not want to separate from her partner. Currently, she has lost interest in her usual activities, is fatigued, has no interest in food, and has lost weight [5 kg (11 pounds) in the last 2 months]. She occasionally experiences a dry mouth and nausea. She

has been having difficulty falling asleep and awakens several times during the night. She is tearful during the interview and says, "I can't seem to stop crying or look after my children anymore. I don't think anyone will ever want or love me again." She rates her mood as 3 on a scale of 1 to 10. She can't recall the last time she felt happy. She indicates that she attempted suicide at age 16 with Tylenol and states, "I've thought about it (suicide) but I could not do it because of the children."

Her current medications are Paxil (Paroxetine hydrochloride) 20 mg daily, which she has been taking for 3 weeks with no noted improvement in her feeling state; Ventolin (Albuterol) inhaler 2 puffs qid; Beclovent inhaler 1 puff tid; and Azathioprine (Imuran) 50 mg do.

Her *DSM-IV* diagnosis is Major Depressive Disorder, moderate, single episode. Query dysthymia.

History: Mary is the second of four children. She states that she does not remember much of her life before the age of 10. She is close to an older sister, Edna, who lives in the same community; Edna is currently in counseling for childhood issues. Mary and Edna's father left the family when Mary was 3 years old and she does not remember him. She says her mother is an alcoholic who was emotionally and physically abusive to both girls. For short periods of time Mary and her sister lived in foster homes and with their maternal grandmother. Mary and Edna's mother had two other children (boys) now in their early 20s—they are both known drug abusers and have been in jail numerous times. Mary rarely sees her mother or her brothers. During her teen years Mary reports being raped by her mother's common-law husband on several occasions (denied by her mother and the common-law husband) but charges were never filed. Mary did poorly in school and quit after grade 10. On two occasions she has returned to school in an attempt to obtain her grade 12 equivalency but has not been able to stay with it; she states, "maybe I'm really stupid." She has been suffering from exacerbation of Crohn's and asthma since she was 16 years old.

Mary moved in with a boyfriend who was physically abusive. They both drank heavily and used drugs. This relationship resulted in two children (now ages 11 and 8). Mary and this man separated a number of times and the relationship finally ended 3 years ago when he moved to Saskatchewan. He does not pay any child support nor does he have contact with the children. Mary became involved in a second common-law relationship shortly thereafter, and has one child, aged 2, from that short, failed relationship. She attended a parenting group 3 years ago to develop parenting skills. She thinks that she is a good mother; "I give them time out. Sometimes I yell, but I never spank them." She would like to spend more time doing things with the children like sports and talking to them, but believes that her financial status interferes with her family life.

At this time, Mary says she feels fat and hates her body. She used to binge and purge but says she does not do so now; however, she does not eat regularly nor does she consume a variety of foods. She does try to feed the children a healthy diet. She walks to appointments and shopping but does not have a regular exercise program. She smokes 20 cigarettes daily. She likes to drink "socially" when she can afford it ("I get drunk about once or twice a month especially if things are rough"), but she no longer does drugs. She states that she believes health is very important. She considers herself healthy even though she suffers from Crohn's and asthma—she states that these conditions bother her only when she does not take care of herself or take her medications.

Mary says she has friends but they are not the kind of people she wants to associate with because "they drink and are losers." Most of her friends live in the subsidized housing complex where she lives. She does not like her neighborhood; she states she does not feel safe but continues to live there because it's the only place she can afford and it is close to her sister's place. She spends most of her day watching TV. She thinks her problems would be solved if she were in a loving relationship with someone to care for her and her children. She feels victimized by her past and her life circumstances. Mary says that the only time she feels good about herself is when she is in a relationship—"then I feel desirable, sexy and feminine . . . most of the time I hate myself and my body . . . I'm a failure." When she meets someone new she will seek intimacy through intercourse but once the relationship is established she loses interest. She does not ask her partners to wear condoms. She had her

(*continued*)

BOX 2-1 (continued)

first sexual experience at 11 years old and was sexually abused by her mother's husband at 13 years of age. She began menses at age 13 and finds them distasteful. She feels ashamed of her body, feels fat, and does not like to be seen nude. She has not had a physical examination since her last child was born 2 years ago. She states she does do regular breast self-exams. She wishes she had not had the tubal ligation because it decreases "my value as a partner." She does not remember how she learned about reproduction and her knowledge about the subject is limited.

Mary sees the source of her problems as outside of herself. "I let things slide until I have to do something or someone else makes the decision. She states, "I have too much stress at home with being on my own with the children." She has worked as a waitress in the past and has no other job skills saying, "there's just no point working for minimum wages." She believes that "there must be a God but I have not seen him working in my life." She states that her grandmother used to take her to the Catholic church which she really enjoyed but she has not been active in any religion since childhood. She does not know about her heritage except that her grandmother is part French Canadian.

The mental status exam indicates nothing abnormal except the lack of ability to recall early life events. She is able to respond to proverbs with abstract ideas. Her speech is spontaneous with normal flow; she expresses her ideas clearly. Vocabulary is appropriate to her educational level. There is no evidence of thought disorder.

1. **Under each variable identify the three levels of stressors (intrapersonal, interpersonal, and extrapersonal) experienced by the client for each variable. Include the nurse's perception of stressors as well as the client's perceptions of the stressors.**
   - **A. Physiological**
     - **Intrapersonal stressors**
       - *Asthma, Crohn's, mood disorder*
       - *Family history of CAD, type 2 diabetes, smoker*
       - *Period of noncompliance with meds*
       - *Hasn't had physical exam in 2 years*
       - *Does not engage in physical exercise*
       - *Does not have a varied diet; no interest in food; not eating*
       - *Difficulty falling asleep*
       - *Awakens several times during the night*
       - *Limited knowledge about reproductive health*
       - *Does do breast self-exam*
     - **Interpersonal stressors**
       - *Relationship ended 6 weeks ago*
       - *Lack of child support and visiting from father of children*
       - *Doesn't ask partners to wear condoms*
     - **Extrapersonal stressors**
       - *Unemployed*
       - *Decreased finances*
   - **B. Sociocultural**
     - **Intrapersonal stressors**
       - *Did poorly in school*
       - *French Canadian; single mother*
       - *Doesn't feel safe*
     - **Interpersonal stressors**
       - *Common-law relationship; physically abusive*
       - *Would like to increase activities with children*
       - *Sees friends as "losers"*
       - *Impoverished environment; doesn't feel safe*
     - **Extrapersonal stressors**
       - *Unemployed; lack of training for jobs due to poor schooling*
       - *Social services/mental health center?*
       - *Lives in subsidized housing in Abbotsford; poor neighborhood*
       - *Child of a broken home*
       - *Had been in many foster homes*
       - *Limited finances*
       - *Abusive environment/relationship*
   - **C. Spiritual**
     - **Intrapersonal stressors**
       - *Part French Canadian; tubal ligation*
       - *Lost her "joie de vivre"; mood disorder; suicidal risk*
       - *Eating disorder; thinks she is stupid and fat*

- **Interpersonal stressors**
  - *Grandmother used to take her to Catholic church*
  - *Attended parenting group*
  - *Feels/thinks she loves her children and that life is worth living because of them*
  - *Thinks she needs to be in a relationship in order to have value as a person*
  - *Has moved to be near sister*
- **Extrapersonal stressors**
  - *Catholic church and faith*
  - *Faith in God?*
  - *Seeks solace from alcohol*
  - *Possible anger at mother's common-law husband/society as she was raped by him and no charges were filed*

D. Developmental

- **Intrapersonal stressors**
  - *Asthma and Crohn's since she was young; CAD and diabetes risk*
  - *Unemployed (choosing not to work for minimum wage)*
  - *Only basic education; no occupational skills*
  - *ETOH and drug abuse history*
  - *Tubal ligation; low mood; suicide attempt at 16*
  - *Poor parenting skills; self-concept*
  - *Unable to experience mature intimacy; no individuation*
  - *Lack of problem-solving skills; external locus of control*
  - *Limited knowledge re: safe sex*
- **Interpersonal stressors**
  - *Single mother*
  - *Chaotic family background; poor parental role modeling*
  - *Friendships are not necessarily a good influence*
  - *Difficult relationship with boyfriends*
  - *Sexual, emotional, and physical abuse*
- **Extrapersonal stressors**
  - *Perceives that neighborhood is not safe*
  - *Lack of finances is limiting her*
  - *Little family support (only sister)*
  - *Undeveloped understanding of family history*

E. Psychological

- **Intrapersonal stressors**
  - *Altered body image*
  - *Mood 3/10; crying*
  - *Past history of suicidal ideation*
  - *Depression; anxiety; sadness*
  - *Frustrated with life*
  - *Hates body; decreased self-concept*
- **Interpersonal stressors**
  - *Relationship problems*
  - *Dysfunctional family*
  - *History of substance abuse*
  - *Problems with children*
  - *Problem with maintaining relationships*
  - *Loneliness*
  - *Past history of family abuse; no father figure*
- **Extrapersonal stressors**
  - *No financial supports*
  - *Decreased emotional support system*
  - *Not happy with work for minimum wages*
  - *Lonely*

2. Identify which stressors have broken through the FLD, NLD, and LOR and place Mary in actual or potential disharmony. Identify any stressors that have a positive influence on the FLD, NLD, and LOR.

A. Flexible Line of Defense (FLD)

- *Asthma, Crohn's, mood disorder; ETOH and drug abuse history*
- *Family history of CAD and type 2 diabetes*
- *Tubal ligation; periods of noncompliance with medications*
- *Has not had a physical exam in 2 years*
- *Smoker; does not engage in regular exercise regimen*
- *Unemployed (reluctant to work for minimum wage)*
- *Unsafe sex practices (does not ask partners to wear condoms)*
- *Limited knowledge re: safe sex practices and reproductive health*
- *Perceives that friends are not necessarily a good influence*

(*continued*)

BOX 2-1 (continued)

- *Believes that lack of finances is limiting to her*
- *Little family emotional or financial support*
- *Undeveloped understanding of family history*
- *Perceives neighborhood as not being safe*
- *Single mother*

Positive Stressors

- *Identifies with French Canadian background*
- *Some faith in God*
- *Grandmother used to take her to Catholic church*
- *Attended parenting group*
- *Feels she loves her children—life is worth living because of them*
- *Has moved to be near her sister*

B. Normal Line of Defense (NLD)

- *Does not have a varied diet; no interest in food; at times does not eat; has lost 5 kg in 2 months*
- *Difficulty falling asleep; awakens several times during the night*
- *Relationship ended 6 weeks ago*
- *Lack of child support and involvement from children's fathers*
- *Unemployed/decreased finances, therefore cannot afford nutritious food*
- *Did poorly in school—only basic education; lack of vocational training or education; no occupational skills; not happy working for minimum wage*
- *ETOH and drug abuse history*
- *Single mother; limited finances and no financial supports*
- *Feels unsafe in neighborhood; low-income neighborhood*
- *Believes needs to be in a intimate relationship to feel valued as a person*
- *Asthma and Crohn's history; mood disorder*
- *Family history of CAD and type 2 diabetes; has had tubal ligation but now wishes she had not (decision-making skills poor)*
- *Sees friends as losers*
- *Low mood; suicide attempt at 16 years of age; past history of suicide ideation; frustrated with life*
- *Poor self-image and altered self-concept*
- *Poor parenting skills*
- *Has not experienced mature intimacy*
- *Lack of problem-solving skills; functions from an external locus of control*
- *Chaotic family background; poor or little parental role modeling*
- *History of sexual, emotional, and physical abuse*
- *Mood 3/10; cries often*
- *History of troublesome intimate relationships*

Positive Stressors

- *Identifies as being from French Canadian heritage*
- *Availability of social services and mental health services*
- *Subsidized housing*
- *States she no longer uses drugs*
- *Trying to do the best for her children*
- *Knows she should provide children with a good diet*
- *Is able to identify if friends are a bad influence on her life*

C. Lines of Resistance (LOR)

- *History of suicide ideation and suicidal risk*
- *Decreased self-esteem and altered body image—dislikes herself and how her body looks*
- *Unhappy with life situation; lonely; depressed, anxious, and sad*
- *Does not feel valued unless she is in a relationship*
- *Will use alcohol as a comfort and escape*
- *Lack of self-respect and self-confidence*
- *Problems with children and does not know how to handle situations*
- *Relationship problems/dysfunctional and abusive*
- *Anger at mother, mother's common-law husband, and society for past sexual abuse and perceives nothing has been done to help her*

- *Low mood (3/10)*
- *Impoverished environment*
- *Does not feel safe in own neighborhood*
- *Child of a broken home and has been in many foster homes or living with grandmother; dysfunctional family; no father figure and little or no parental role modeling*

Positive Stressors

- *Does breast self-exam*
- *Does not use drugs anymore*
- *Loves her children*
- *Sister is a support*

3. **Describe Mary's basic (core) structure.** Considering what Mary has gone through she is remarkably resilient. Mary's core structure remains intact but is highly at risk due to the numerous stressors that have weakened the FLD, altered the NLD, and crossed the LOR, thereby placing her in a state of actual system disharmony/instability. The impact of these stressors on the FLD, NLD, and LOR has affected all five variables resulting in variances in wellness across the five variables.

   A. Stressors that have resulted in permanent changes in the core structure:
   - History of family and partner abuse
   - Dysfunctional family history
   - Crohn's , asthma
   - Tubal ligation

   Interventions related to these stressors are focused on the system response; in other words, assisting Mary to deal with and manage the effect of these stressors.

   B. Stressors that are currently affecting the core structure because they have altered the NLD, FLD, and crossed the LOR are:
   - Mood disorder, altered self-image
   - Relationship issues, lack of parenting skills, loneliness, few friends
   - Poor diet, lack of exercise, smoker
   - History of drug and alcohol abuse to deal with problems
   - Financial difficulties, no job
   - Frustrated with life situation
   - Limited education
   - Unresolved anger at mother
   - No physical exam for 2 years
   - Noncompliance with treatment regimen for Crohn's and asthma
   - Unsafe sex practices; limited knowledge of sexual health practices
   - Limited emotional support resources
   - Functions from an external locus of control and sees her problems as being caused by outside forces

   These stressors are placing Mary's core structure at risk but have not necessarily altered the core structure permanently, though they are causing a state of disharmony. Interventions related to these stressors are focused on reducing the response to the stressors but are also aimed at removing the stressor if possible (or at least making the stressor less damaging).

4. **Identify the client's strengths (potential for reconstitution).**

   Mary has the potential for reconstitution or recovery. Mary has strengths that (with intervention) will assist her to reestablish the protective LOR, NLD, and FLD so that the core is less at risk. These strengths include:
   - Some awareness that she is at risk for disharmony and is looking for some help with her issues (evident by her willingness to talk about her concerns)
   - Living near a sister who will provide some support
   - Has been successful in not using drugs
   - Understands the importance of staying healthy for her children and wants to make some changes in her life for them
   - Mental status examination results indicate she is relatively stable

5. **Variance in Wellness/Nursing Diagnosis (Examples only—not a comprehensive list).**

   Variances in wellness are based on assessment of variables, identification of stressors, and client's reaction to stressors. The nursing diagnoses statements would be formulated in collaboration with Mary, and must consider what she perceives as a priority in addition to dealing with any urgent issues and potential safety concerns identified by the nurse. These nursing diagnoses are

(*continued*)

BOX 2-1 (continued)

written using the Department of Psychiatric Nursing (DOPN) taxonomy, which is based on the DOPN Neuman Systems Model curriculum conceptual framework. The diagnostic statements are formulated using the following format:

Altered Variable Organizer: (*Specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by (aeb) _____(*data*)_____.

A. Altered Oxygenation: (*Altered oxygen–CO_2 exchange in alveoli and at cellular level*) related to being a smoker, asthma, noncompliance with medication regimen, SOB, activity intolerance.

B. Altered Protection: (*Potential for acquiring STDs*) related to lack of knowledge of safe sexual practices and stating she does not require partners to wear condoms.

C. Altered Rest/Comfort: (*Altered sleep patterns*) related to feelings of sadness and depression over loss of recent relationship and not sleeping at night, waking often, restlessness.

D. Altered Self-concept: (*Feels worthless*) related to poorly developed sense of self and feeling valued only when she is in a relationship.

E. Altered Emotions: (*Suicidal ideation and depression*) related to development of mood disorder and life circumstances; crying, tearing, feeling sad, mood 3/10 when asked, children are keeping her from attempting suicide.

F. Altered Roles: (*Difficulties with parenting role*) related to no parenting role models in past and a lack of knowledge of parenting skills and stating she does not know how to handle problems with children.

G. Altered Support Structures: (*Limited finances*) related to lack of employment, lack of child support and feeling unsafe in low-cost housing but cannot afford to live elsewhere.

H. Altered Interpersonal Development: *(Develops destructive relationships)* related to a lack of knowledge related to parameters of social and intimate relationships and all partners having been abusive, friends are losers.

I. Altered Relationships with Family and Significant Others: *(Unresolved anger issues)* related to decreased insight and knowledge of how to deal with anger and stating she is angry at mother's role in history of sexual/physical abuse.

J. Alterations in Purpose and Meaning: *(Dissatisfaction with life circumstances)* related to history of abuse, destructive relationships, maladaptive coping resources and stating she has not seen that God has played much of a role in her life and does not know how to take care of her children, sees no point in going to work for minimum wage.

6. Nursing Goals

The psychiatric nurse would collaborate with Mary to set client-centered goals based on negotiations with her for desired change to correct variance in wellness. Goals would be focused on altering the system behaviors:

- Altered O_2–CO_2 exchange in alveoli
- Potential for acquiring STD
- Altered sleep pattern
- Feeling worthless
- Suicidal ideation and depression
- Difficulties with parenting role
- Limited finances
- Develops destructive relationships
- Unresolved anger issues
- Dissatisfaction with life circumstances

7. Nursing Outcomes

Nursing interventions are accomplished by the implementation of one or more of the three prevention-as-intervention modes in altering system behaviors—in fact it is suggested that all interventions include elements of all three modes.

Interventions also need to include strategies to modify the stressors' effects on the client system as well as to modify the client system's response to stressors.

A. Primary Prevention: In Mary's case there has been penetration of the NLD but interventions should still include teaching

related to avoiding stressors in the future, strengthening resistance, and preventing further variances in wellness by identifying potential risks. STD counseling, parenting classes, and medication teaching for Mary fall under this mode of prevention.

B. Secondary Prevention: Mary's LOR have been penetrated. She exhibits symptoms of depression and a mood disorder, unresolved anger, relationship issues, and altered self-concept. Interventions are needed to strengthen defenses, reverse maladaptive processes, and assist Mary to attain optimal wellness. Suicide and depression assessments, medications, therapeutic communication, and interactions to assist Mary to deal with unresolved anger, feelings of sadness, maladaptive coping skills, relationship concerns, vocational counseling, and financial and housing problem solving all fall under this mode of prevention.

C. Tertiary Prevention: Once Mary has made progress with the strategies outlined as secondary prevention, the goal would be to set up a structure to help her maintain this progress and continue with progress through rehabilitation and recovery strategies. The goal would be to help Mary maintain an optimum level of functioning by educating her on how to prevent future recurrences of penetration of the NLD and LOR.

D. Evaluation of Nursing Goals/Nursing Outcome
- Done mutually with Mary
- Future planning (intermediate/ long-term goals)

Conclusion

The Neuman Systems Model directs nursing practice by providing a framework for gathering and analyzing individual client system data, and planning, implementing, and evaluating nursing care. It is a dynamic model with stable elements—one that is amenable to change and that can expand to incorporate developments in nursing knowledge and practice that are based on nursing research and the increasing complexities of the world (Gerhling & Memmott, 2008; Lowry, Beckman, Gerhling, & Fawcett, 2007; Neuman & Reed, 2007). Moreover, the Neuman Systems Model can be adapted to various contexts of nursing practice. The model fosters expansion of how registered psychiatric nurses and registered nurses view themselves, the environment, clients, and health. The model also fosters creativity and collaboration that is required for dynamic, evidence-based nursing practice.

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The Neuman Systems Model is utilized in both the diploma and baccalaureate degree programs as a guide for all theoretical and clinical nursing courses. The authors gratefully acknowledge the work of the Douglas College Department of Psychiatric Nursing faculty over the past two decades for their commitment and dedication to advancing the quality of nursing education using the Neuman Systems Model to guide the education of the next generation of registered psychiatric nurses and registered nurses. This work continues to reflect evidenced-based nursing education and contributes to the profession of nursing in Canada and globally. Persons living with mental health and addiction challenges, as well as other health conditions, will benefit from the knowledge and competencies acquired by our graduates regarding health promotion and prevention that is rooted in the Neuman Systems Model.

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Neurosensory/Neurologic	Circulation/Cardiovascular/ Peripheral	Oxygenation/Respiratory/ Cardiovascular
Temperature—body, skin	VS (T, P, R, BP)	Airway—nares, mouth/nose, breather
Orientation	Pulses (including apical)—quality, rate, rhythm	Chest Auscultation—air entry, breath sounds
Eyes—sclera, discharge visual acuity, aids	Neurovascular—CWMS	Shape of Thorax (i.e., barrel)
Ears—discharge (i.e., cerumen), auditory acuity, aids	Skin Color—central/peripheral	Respiration—rate, rhythm, effort
Taste, Smell, Tactile	Edema	Oxygen Delivery System—rate
Reflexes (i.e., -gag)		O_2 saturation
Pain Assessment		Cough—effective, productive, characteristics of sputum
Analgesic—response		Mental Alertness
Alternate Measures		Activity Tolerance
Seizure Activity		Environmental Factors—smoker
Neurological Assessment		

FIGURE 2-2 Physiological Variable Assessment Guide. *Source*: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada. Copyright © Douglas College, June 2006. Used with permission.

Associated Medical Diagnosis and/or Surgeries: Related Rx & Tests: Related Medications:	Associated Medical Diagnosis and/or Surgeries: Related Rx & Tests: Related Medications:	Associated Medical Diagnosis and/or Surgeries: Related Rx & Tests: Related Medications:
Elimination/Urinary/GI System	**Metabolism/GI System**	**Mobility/Musculoskeletal**
Urine—amount, color, odor Frequency Continence Catheter/Condom Abdomen—bowel sounds, palpation, flatus BM—ease, character, frequency, color, amount Diaphoresis Intake/Output Balance N/G—color, amount, suction Drains—type, amount, character Stoma Associated Medical Diagnosis and/or Surgeries: Related Rx & Tests: Related Medications:	Height/Weight—proportion Diet—type Method of Intake—independent, assist, tube feed Condition of Teeth and Gums Dentures Ability to Chew/Swallow Fluid/Food Intake Nausea/Anorexia Vomiting—amount, character, frequency IV—solution, rate Blood Glucose Liver Function Associated Medical Diagnosis and/or Surgeries: Related Rx & Tests: Related Medications:	ADLs Body Posture Mobility—gait, aids Activity Pattern—sleep, rest periods, insomnia Stamina/Tolerance/Energy Joint Appearance ROM Muscle Control & Strength Associated Medical Diagnosis and/or Surgeries: Related Rx & Tests: Related Medications:
Cellular Dynamics	**Protection/Integumentary/ Lymphatic**	**Reproduction/Reproductive**
Allergies Inflammation Special Precautions WBC C&S Reports CBC Electrolytes Associated Medical Diagnosis and/or Surgeries: Related Rx & Tests: Related Medications:	Skin—integrity, character, texture, turgor, rashes, hygiene, areas of redness, scars Mucous Membranes—tongue, nares Nails & Hair—characteristics Wound/Incision—location, dressing, drainage, IV Site, Assessment Drains & Tubes Physical Environment—side rails, restraints/seclusion Screening: CAGE, CIWA Self-injury/Suicide/Risk of Violence Associated Medical Diagnosis and/or Surgeries: Related Rx & Tests: Related Medications:	Self-exam—breast, testicular Sexually Active—functional, dysfunctional Genitalia Birth Control, Safer Sex Number of Children STD Peri-/Postnatal Health Concerns Screening: PAP, prostate Sexual Assault Menses/Menopause Associated Medical Diagnosis and/or Surgeries: Related Rx & Tests: Related Medications:

FIGURE 2-2 (continued)

The Psychological Variable Assessment Guide is designed to improve the quality of psychiatric nursing care because of gains made in understanding the person. The person's self-image as a passive recipient of care may shift to that of an active participant. The following questions are designed to give the person an opportunity to talk and self-explore. Ensure assessment of the psychological variable proceeds at the persons' pace. Progress slowly, observe affect, and demonstrate respect and caring. Do not pressure the person by asking all of the questions outlined on this tool. Select a few questions from each organizer to aid in the person's understanding and your support of the person. Consider your position in the therapeutic relationship and avoid an attitude that might make the person feel as if he or she were being interrogated.

As part of a holistic assessment, data for the psychological variable is sorted according to organizers and may be partially collected when performing a Mental Status Exam. To assist in your final analysis of the data related to the psychological variable, utilize the Department of Psychiatric Nursing Curriculum Guide and Conceptual Framework. Identify what specific stressors are influencing the person and their ability to achieve harmony.

INTEGRATION

EMOTIONS

In your assessment of this section, utilize the Mental Status Assessment Guide to collect data under the Emotional State: Mood, Feelings, Affect heading.

When assessing the person's emotions, consider mood in relation to the following:

What is the person's mood (apprehensive, anxious, fearful, elated, depressed)?
The qualities reflect the person's affect (impoverished, constricted, flat, spontaneous)?
How stable/unstable are the person's emotions?
How intense are the feelings expressed?
How do the person's emotions change in response to positive/negative situations?
What is the relationship between the person's mood and thought content?
What emotions dominate the person's life?
How does the person express their emotions?
What situations have made the person feel calm, secure, or happy?
What situations have made the person feel anxious, angry, or sad?
What is the person's level of emotional awareness?
What influence does the person's culture have on their emotions/expression of emotions?
What effect does the person's current prescribed drugs have on their mood/affect?
How has the person responded emotionally to problems in the past?
What might the person consider to be the "last straw"?
What defense motivated behaviors does the person use?
Does the person acknowledge a need or desire for assistance coping with emotions?
Does the person have any thoughts about self-harm or harming others?
Suicidal/homicidal thoughts?

FIGURE 2-3 Psychological Variable Assessment Guide. *Source*: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada.

Patterns

How clearly does the person express his or her mood via speech and/or writing or gestures?
How congruent is their verbal message with their nonverbal communication?
What fluctuations of mood and affect occur?
Changes during interview, diurnal/cyclic variations, time of day?
Can the person associate specific precipitating events, time of day/month/year or activities with their mood/change in mood?

COGNITION AND PERCEPTION

Cognition is a mental process enabling the person to reason logically. Cognition is characterized by the thinking processes that give the person an ability to know, reason, and judge. It involves intellectual processes also associated with the person's ability to learn, calculate, reason, think abstractly, and to respond accurately to simple and complete commands. Cognition enables the person to comprehend his or her environment and experience by connecting pieces of information into a meaningful whole. Cognition can promote harmony. Impairments in cognition can lead to disharmony. Perception is an important process which impacts on self-concept. Perception refers to the process of interpreting sensory stimuli. It is influenced by such variables as age, sex, culture, environment, attitudes, values, beliefs, experience, health state, and emotions. We are selective in what we perceive due to the amount of stimuli around us. In addition, we often perceive what we expect. Expectation is based on previous experience primarily, and selectiveness often reflects our interests. Thus, our reality is based on the accuracy of interpreting sensory stimuli through the process of perception.

In your assessment of this section, utilize the Mental Status Assessment Guide to collect data. Place primary emphasis of data collection to assess the person's cognitive functioning and perception, under the headings Level of Consciousness, Thought Process, Cognitive Functioning and Perception.

SELF-CONCEPT

Identity

How does the person describe his or her identity?
How does the person feel about his or her identity?
How does the person act to reinforce his or her sense of identity?
(assess consistency, flexibility, autonomy, assertiveness)
What is the person's perception of self?
(competent decision maker, a leader or follower)
How does the person describe his or her sexual identity?
How does the person feel about his or her sexual identity/sexual expression?

Based on the above data, determine the person's level of identity (distinctness from others; feeling of being integrated and self-directed or diffuse and directed from external forces within the environment). In your overall analysis of the data related to self-concept, determine the person's level of self-awareness in relation to his or her ability to identify own feelings, the effect of own behavior on others, and the effect of others' behavior on self. Consider the person's ability to describe his or her strengths and weaknesses.

FIGURE 2-3 (continued)

Self-esteem
How does the person describe their own worth based on:

- their appearance?
- frequency of accomplishments and/or meeting his or her own expectations and capabilities?
- feelings of being respected, accepted, praised, and loved, by others?
- feelings of competence, ability to cope with life, power/control over personal destiny, ability to cope with change?
- thoughts/feelings about the past, the present, and the future (sense of hope)?

How does the person feel about decisions made regarding:

- education and career choices?
- participation and acceptance in social activities?
- expression of sexuality (data is collected under the section on Sexuality)?
- following through on convictions?
- roles assumed (data is collected under the section on Roles)?

Does the person often feel an obligation to please others?
Does the person have difficulty saying no even when they want to?
How has the person adapted to self-deficiencies and maximizing self-strengths?

In your analysis of data for this section, identify what specific stressors are influencing the person's self-esteem. Based on the above data, determine if the person has high self-esteem (low anxiety, effective group functioning, acceptance of others, achievement of potential for harmony), or low self-esteem (increased anxiety, ineffective interpersonal relations, and low self-worth, potential for disharmony).
Consider changes related to Developmental Variable (growth, life span, transitions)?

Body Image
How does the person describe his or her body?
(Includes past & present perceptions about appearance, size, functioning, potential).
How does the person feel about his or her body?
What does the person like/dislike about his or her body?
How does the person use clothes, possessions, and position as extensions of his or her body image?
What if anything, would the person change, about his or her body?
What changes have occurred in physical size, function, appearance, and potential?
How does the person value his or her body and act to preserve and protect it?

Consider additional data collected under physiological variable. Based on the above data, determine if the person accepts and likes his or her body (leading to high self-esteem, security, and freedom from anxiety) or if the person dislikes his or her body. In your analysis of the data for this section, identify what specific stressors are influencing the person's body image. (Consider ongoing or episodic health challenges which may change body structures/functions).

Self-ideal
What personal standards does the person have in relation to:

- stated goals or aspirations that they would like to achieve?
- the kind of person they would like to be and behave like?

FIGURE 2-3 (continued)

Does the person feel he or she expects too much of self? What happens if the person asks too much of self?
How does the person's goals/expectations/values fit with his or her abilities and resources?
How does the person feel about meeting/not meeting his or her goals and expectations?
How does the person's goals/expectations/values compare with those of his or her peers/significant others?
How does the person's goals/expectations/values conform to societies norms?
How does the person describe his or her ability to alter goals and expectations in response to changing circumstances?

Identify stressors that are influencing the individual's self-ideal. In your analysis of this section consider the influence the following factors have on the individual's self-ideal:

- ambition and the desire to excel and succeed
- the need to be realistic
- the desire to avoid failure
- the presence of feelings of anxiety and inferiority

Based on the above data, determine if the person's self-ideal is clear, goal oriented, and realistic or vague.

Sexuality

What concerns or questions does the person have about his or her sexuality and sexual functioning?
What is the sexual preference of the person?
How important is a sexual relationship to the person?
What sexual relationships, if any, is the person engaged in? How satisfying are these relationships?
Does the person feel vulnerable or exploited sexually?
What type(s) of contraception does the person use?
Does the person have a general understanding of sexually transmitted diseases and how these can be acquired?
What safer sex practices does the person take?
What changes in the person's lifestyle/health/mental health status have influenced his or her sexuality/sexual functioning/sexual activities?
What is the effect of these changes? What factors affect the person's sexual functioning/sexual activities?
What effect, if any, does current prescribed medication have on the person's sexual functioning/activities?
What concerns does the person have associated with their usual sexual functioning/sexual activities?
How is the person coping with his or her concerns?

If necessary to collect more data related to the person's sexuality consult with your instructor before initiating discussion with your patient.

In your analysis of the data collected for Sexuality, identify stressors that are influencing the person's sexuality (physiological, sociocultural, spiritual, developmental factors, or environmental concerns). In addition, consider the person's understanding of sexual anatomy and physiology, sexual practices, sexual expression, and the impact of the person's psychiatric history on his or her sexuality.

FIGURE 2-3 (continued)

In assessing your patient/client in relation to the sociocultural variable, this guide may be helpful in considering the range of sociocultural influences and providing some sample questions. As the five variables are arbitrary organizers, the variables are interrelated and exert influence on all aspects of the irreducible, whole person. Remember to view the sociocultural variable from a diverse perspective, including various subcultural groups you may have experienced, such as the culture of psychiatric nursing, the culture of Douglas College, or the culture of Vancouver's Downtown Eastside.

What are sociocultural influences in your life?
Organizers related to sociocultural and diversity to consider:

1. Ethnicity and race
2. Values, norms, and sanctions
3. Cultural or subculture membership and identity
4. Habits, practices, and beliefs about health and illness
5. Perceptions of mental health and illness
6. Culturally unique health or healing practices and beliefs
7. Experiences or perceptions of racism or discrimination
8. Health risks associated with specific ethnicity or culture
9. Language or communication patterns
10. Educational, employment, or economic expectations

SOCIOCULTURAL VARIABLE ASSESSMENT TOOLS

- **Ecomap**
- **Genogram**

Sample Questions to Elicit Sociocultural Data

How strongly do you identify with a particular cultural, ethnic, or racial group?
Who do you identify with as a particular cultural group?
What behaviors would be considered unacceptable within your cultural, ethnic, or racial group?
What actions would get you in trouble with your peers?
How is success defined in your culture?
What is an indication that you are accepted as an adult in your culture?
What is an indication that you are an accepted member of the gang?
What is your sense of your family's expectations for your work?
Tell me how mental illness is understood in your culture.
What do you do to promote health?
What is your culture's view of a "perfect" healthy body?
Tell me about healing traditions practiced in your culture.
How do you view the role of a nurse or of a physician?
How do you feel about a male nurse providing care?
How comfortable are you working with a female doctor?

FIGURE 2-4 Sociocultural Variable Assessment Guide and tools. *Source*: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada.

RELATEDNESS ORGANIZER

COMMUNICATION

Verbal

What is the person's ethnic background?
Does the person speak a second language?
What influence does the person's ethnic/cultural background have on:

- verbal expression of emotions? (e.g., anger, grief, happiness)
- asking for others assistance to deal with stressors

What are the characteristics of the person's speech?
What does the person say about how easily he or she understands the communication of others (especially significant others and family)?
How much self-disclosure does the person engage in with the psychiatric nurse, family and significant others?
What topics are difficult for the person to discuss with others?
Does the person's communication pattern "fit" with reality?

Nonverbal

How is the person's affect?
Observe and collect data in relation to the person's facial expressions, general appearance, and psychomotor behavior.

Assess the person's appropriateness of affect to the situation by observing the following:

- How congruent is what the person says and his or her emotional state, as expressed nonverbally?
- What is the person's affect in relation to different topics (blunted, flat, underresponsive, overresponsive, ambivalent, congruent, or incongruent)

What is the person's ability to maintain eye contact when interacting with others?

ROLES

Expectations

What ascribed roles does the person occupy?
(age, sex)
What assumed roles does the person occupy?
(occupational, family, significant others)
In what way are these roles satisfying/dissatisfying?
What community groups does the person belong to? What is his or her role in these groups?
How does the person express his or her identity in relationships with others?
What intimate relationship(s) is the person involved in?
What sex roles does the person occupy?
What is the person's knowledge of specific role expectations?
How clear is the person about behaviors appropriate to the role(s)?

Conflicts

How do significant others respond to the person's behavior in the various roles?
Does the person see him- or herself fitting into the community in which he or she lives
What special practices does the person consider essential to their lifestyle and role

FIGURE 2-4 (continued)

expression?(diet, religious practices, health habits, use of tobacco, drugs, or alcohol)
What does the patient consider to be his or her place in the community?
What subjects cause the most disagreement between the person and significant others?

Overload

How does the person's ongoing or episodic health challenge affect his or her lifestyle?
What family, social (with friends), or therapeutic activities does the person participate in?
Does the person express a need for withdrawal or discomfort with the personal demands or expectations involved with these activities?
In what ways is the person dissatisfied with his or her role(s) in these activities?
How clearly defined are the person's roles?
Does the person believe they played a special role in their family?
(substitute parent, "black sheep," "little angel," suffering victim)

In your analysis of the data for this section, identify what specific stressors are influencing the person's role behavior (e.g., developmental-role transitions, environmental, health challenges).

Based on the above data, determine if the person is adequately performing identified role behaviors.

RELATIONSHIPS

Significant Others

Does the person express feelings of caring for and about others?
Does the person form relationships with other people?
Was there and/or is there an important individual in the person's life?
Where does the person live (rural/urban)? What is the home like? How did living circumstances influence relationship development?
How frequently has the person changed residences?
With whom does the person live? For how long?
How does the person normally spend his or her time each day? What activities does the person engage in for recreation or leisure? Do these activities include others?
How does the person describe his or her interpersonal relationships with significant others?

Dynamics

How does the person feel about him- or herself as a result of relationships with significant others and family?
What does the person do well in these relationships?
Who in these relationships needs the person's support?
What would the person like to do better in this relationship?
What feedback does the person get from others about their relationships
How are significant others and family reacting to the person's present health challenge?
How does the person describe feelings of being included and loved or alienated and rejected when talking about significant others and family?
Are there significant others or family members who will assist the person to deal with their present stressors?
How will they help?
How does the person describe his or her family communication (Who speaks to whom? Who makes decisions?)?
Are family members generally interested and/or supportive of the person?

FIGURE 2-4 (continued)

SOCIAL HISTORY

Family

What is the person's marital status?
Who are the person's significant others and family?
How close is the family? What leads the person to believe this?
What is the family makeup (nuclear or extended)?
Is the person satisfied with the closeness of his or her family?
How readily available to the patient are family members, geographically, and emotionally?
How does the person describe his or her interpersonal relationship with their family members?

Education

What is the person's highest level of education and at what age did he or she achieve this?
What is the reason the person stopped education efforts at that time?
What specific skills did or does the person possess that can be used for employment or leisure?
What type of school record does the person have?

Work/Finances

What work has the person done? (number of jobs and duration of employment)
What type of work record does the person have?
What is the source of the person's income?
Does the person have financial security?
What attitudes or ideas has the person changed to function in his or her job or at school?
What does the person do when excessive demands are placed on him or her at school or on the job?

SOCIOCULTURAL ASSESSMENT TOOL

Sociocultural Variable and Health	Sociocultural and Psychological Integration	Sociocultural and Psychological Relatedness
• Ethnicity • Race • Habits, practices, and beliefs about health, illness, birth, death, time, and health care provider • Healing beliefs and practices	• Culture or subculture identity • Experiences or perceptions of racism or discrimination and the results on the person's response to health care/Tx • Expected psychological responses to change, loss, pain, or patient role	• Ability to relate to people outside and within the person's sociocultural group • Economic and educational expectations or norms related to the person's culture or subculture • Distinctive family roles characteristic of the person's culture or subculture • Norms re: family participation in health care • Language and communication patterns associated with the sociocultural group • Subculture (norms and values that differ from the dominant culture

FIGURE 2-4 (continued)

Sociocultural and Physiological Variable	Sociocultural and Spiritual Variable	Sociocultural and Developmental Variable
• Distinctive racial characteristics • Diseases or health risks associated with specific ethnic or cultural groups • Variations in health practices related to protection, hygiene, or health assessment process • Characteristics of food preparation, preferences, and consumption	• Religious expectations related to the sociocultural group • Expected role of culturally recognized spiritually influential persons during health or illness	• Sociocultural influences on development • Socioculturally influenced expectations of lifespan events

SOCIOCULTURAL ASSESSMENT TOOL

Sample Questions

Sociocultural & Health	Sociocultural & Psychological Integration	Sociocultural & Psychological Relatedness
• Which cultural group do you identify with? • Where have you lived? • How would you describe your need for privacy? • What traditions for well-being do you rely on for healing? • How is illness explained within your culture? • How is mental illness viewed within your cultural/ethnic group? • How important is "being on time" in your culture?	• How strongly do you identify with a particular cultural, racial, or ethnic group? • Have you experienced discrimination because of your ethnic background? If so, how? • What type of cultural stereotyping have you experienced? • What cultural practices or values are most precious to you?	• What language do you speak or prefer to speak? • How well does your language allow you to express yourself to others? • How is success defined within your culture? • What expectations do you experience from your family related to education? • How does family usually participate in health care?
Sociocultural & Physiological	**Sociocultural & Spiritual**	**Sociocultural & Developmental**
• What types of food are associated with healing? • Do you believe there are curative cooking practices? • How is pain expressed within your family? • What low socioeconomic conditions put the client at risk (e.g., tuberculosis related to overcrowding, alcoholism related to despair, rat infestations related to inadequate housing)?	• Who is a significant person within your community during times of distress or illness? • How aligned are you to the characteristic religious/spiritual practices within your cultural group? • How do you experience any conflict between the religious expectations of your cultural/ethnic group and your own personal beliefs?	• Are there any distinctive markers or practices for growth or development within your cultural group? • How is progress into adulthood expressed in your culture? • What is expected of a grandmother in your culture?

FIGURE 2-4 (continued)

Life Span
As part of a developmental perspective, life span refers to looking at significant events holistically to better understand the person's experiences over time and the journey to where the person is now and where the person may be headed. Significance is determined by client's perception and meaning of an event as well as developmental theory. Life span refers to a timetable of events, expected and unexpected, over the course of a person's life.

Expected Life Events
Refers to those occurrences that are common for the majority of people who share a similar sociocultural context. For example, most young people graduate from high school in Canada, whereas in some developing countries a high school education is not an expectation.

Unexpected Life Events
Refers to those occurrences that are not foreseen, unpredictable, and not a usual part of that stage of life. If a person does not experience an expected life event, this may result in an unexpected life event. For example, if a woman expects to get pregnant after a few years of marriage, she may be devastated to discover that she is infertile.

Growth
Refers to expected patterns of physiological growth and changes that occur throughout the life span. Growth includes changes in structure or size (e.g., metabolic and biochemical processes, height, weight and body proportion, size of individual organs and systems).

Development
Refers to changes in skill and capacity to function that evolve from maturation of physiological, psychological, emotional, cognitive, and moral, social, and spiritual capacities and through learning. Developmental patterns include a gradual change in function that results in more complex skills and abilities which expand the person's capacity for achievement (e.g., simple to complex, general to specific, head to toe, or inner to outer).

Transition
Refers to the process of identifying, negotiating, and reflecting on changes throughout one's life. The transitions are characterized by significant events eliciting a response of coping, followed by a time of reappraisal and self-discovery before the next beginning. A time when a person questions his or her life, considers new possibilities, and makes crucial new choice. *A continuous process like waves upon the shore.*

Growth and Development Context
Development is influenced by factors within the person as well as the interaction with the environment. It is important to consider the sociocultural and historical influences when examining the possible meaning of life events from the client's perspective. Clearly, the sociocultural variable will address the values and norms of the person's family, subculture, ethnic, and other influences. It is not necessary to repeat this assessment in another variable guide. It is also valuable to be aware of the economic and political aspects and cultural mores of the dominant society during various decades of the person's life. Understanding this context in relation to the person's lifeline helps build understanding of the person. For example, if a person was a teenager in North America during the Great Depression of the 1930s, experiencing those desperate financial conditions may have resulted in maintaining frugal spending habits today. In comparison, a person born into an affluent family in the 1980s may have a more materialistic value system.

FIGURE 2-5 Developmental Variable Assessment Guide and tools. *Source*: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada. Copyright © Douglas College, June 2006. Used with permission.

DEVELOPMENTAL VARIABLE ASSESSMENT TOOLS

- **Lifeline**
- **Life Review**

Sample Questions

What have been significant events in your life?
What events have changed the direction in your life?
If your life was a newspaper, what would be the leading stories?
What physical changes have you experienced as memorable?
Tell me about any changes in your roles in the family over your lifetime?
What medical changes have had an impact on your life?
In reviewing your life, what were things like when you were 30 years old?
What do you think you learned from that significant life event?
Did (the significant life event) change the direction of your life?
How has your family history influenced to your life decisions?
What choices did you make as a result (of the significant life event)?
How have you coped with some of the anxiety or ambivalence that can accompany change?

Remember, it may not be necessary to ask additional questions about developmental events if you have conducted a thorough assessment of the other variables. Consider the patient's perspective—you do not want to be repetitive in your questioning.

DEVELOPING A LIFELINE

A lifeline is a tool to organize data related to significant life events. Lifelines can be used to explore events in particular areas of one's life or as an integrated exploration. For example, one can use a lifeline to map surgeries, medications, physical ailments and to summarize complex data about a patient's physiological health. Alternatively, one can outline a person's mental health history on a focused lifeline. An integrated lifeline pulls together significant markers in the physiological, psychological, sociocultural, and spiritual areas of a person's life. From the lifeline, it is possible to recognize patterns and connections that may assist with diagnostic reasoning regarding the person's life experience

Examples of expected and unexpected events related to various lifelines:

PHYSIOLOGICAL

Diagnosis of juvenile-onset diabetes
Diagnosis of dementia
Diagnosis of osteoarthritis
Fracture of tibia
Diagnosis of chlamydia
Diagnosis of asthma
Appendicitis
Onset of frequent urinary tract infections
Development of tardive dyskinesia
Increased pain resulting in decreased ability to perform ADLs
Onset of constipation problems
Tooth extraction

PSYCHOLOGICAL

Diagnosis of schizophrenia
Birth of a child
Loss of job
Death of family member
Marriage
Divorce
Involvement in a crisis event (fire, earthquake, robbery, rape)
Suicide attempt
Sexuality
Change in sexual relationship with partner
Psychiatric hospitalization

FIGURE 2-5 (continued)

SOCIOCULTURAL

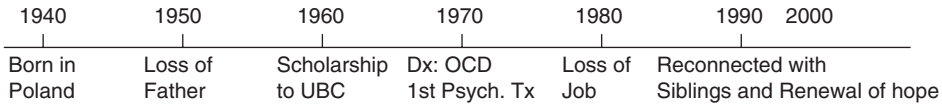
Debt
Interracial marriage
Relocated in work to another company (work culture variation)
Arranged marriage (if in conflict with person's wishes)
Move to new country
Move to a new neighborhood (community cultural norms)
Adoption of child from a different cultural background
Clitoral circumcision
Lifestyle change resulting in subculture change

SPIRITUAL

Bar Mitzvah
Baptism
Confirmation
Acceptance of mortality
Revelations
Loss of faith
Life event resulting in restoration of hope (new job after long period of unemployment)
Return to faith
Near-death experiences
Psychological insights
Dreams

The following are two examples of lifelines. The first is an example of an integrated approach. The second separates the data in relation to variables.

Sample of an integrated lifeline for Patient Sasha:



Sample of variable lifelines for Patient Francis:

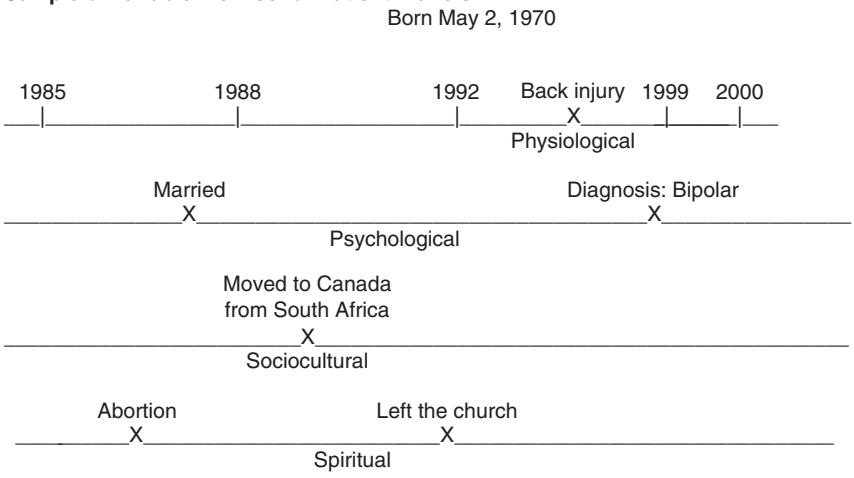


FIGURE 2-5 (continued)

The aim of this spiritual assessment guide is to increase your awareness and knowledge and to enhance your assessment skills related to spirituality in working with diverse client groups. The intent of this tool is to assist you in your own development of self-awareness as to how you may approach the topic of spirituality with your client after you have established a therapeutic relationship. You are encouraged to reflect upon your own spirituality in relation to the questions in the assessment guide before your approach the topic with any client groups.

Spirituality is a multidimensional construct. There is no documented consensus as to how the construct is defined in the nursing and psychological literature. A number of subconcepts are cited in the literature and fall under the umbrella construct of spirituality. They include: purpose and meaning, interconnectedness, faith, forgiveness, hope, religion, creativity, and transcendence. These subconcepts have been expanded on in order to begin to explore and assess the spiritual dimension of the human experience with diverse client groups.

Conversations with clients about their spirituality is an area in psychiatric/mental health nursing which is often either neglected or misunderstood by health care professionals. This in part is related to feeling uncomfortable with the topic, or partly because health care professionals lack specific knowledge about spirituality and the required assessment and intervention skills. Spirituality is described as having many facets of which some may not be directly observable. Health care professionals may agree on some of these facets and others may not, therefore it is important to seek different ways to describe, delineate, and develop awareness of the subconcepts and related meaning associated with the complexity of the spiritual dimension in working with diverse client groups.

ASSESSMENT GUIDE

In assessing the spiritual variable with your client, select a few questions clustered from each of the subconcepts using your clinical judgment as to the relevance of the questions to the client's lived experience. For example, clients who present with suicidal ideation often describe feeling worthless as individuals and hopeless about their future or report having lost their sense of purpose and meaning to "carry on" with living.

Expressions of Spirituality

Purpose and Meaning

The idea that "to be human" is to "search for meaning through relationships" has emerged as a pervasive theme in nursing and psychological literature. When an individual experiences an altered state of health, finding meaning within the experience may be difficult. Meaning is derived from the individual client when a search for insight and expression of underlying feelings regarding the client's philosophy of life, values, and beliefs about health and health challenges is explored.

What meaning does life have for you?
What adds meaning to your life (people, activities, animals)?
What do you see as your purpose in life?
How do you go about fulfilling this aspect of your life?
What in life is important to you?
What are your thoughts and feelings about life?
How satisfied are you with your spirituality?
How do you view your present situation in relation to what you value and believe?
What relationship do you believe exists between spiritual/religious beliefs and health and illness?
What events, if any, have affected your beliefs about health and illness?

FIGURE 2-6 Spiritual Variable Assessment Guide. *Source*: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada.

What beliefs of a spiritual/religious nature do you have about treating illness?
How important is health to you?
What do you believe caused your illness?
What do you believe "heals" illness?
What did you do at home to treat your illness?
From whom did you seek help/assistance/treatment?
What are some home remedies you routinely use?
What nonmedical practices have you used to deal with illness?

Interconnectedness

The subconcept of interconnectedness is a second major theme in the literature regarding an individual's sense of love, belonging, and connection to self, others, a higher power, nature, and the cosmos.

Tell me about with whom do you feel a sense of peace and comfort when together?
Who is the most important person to you spiritually?
Tell me what place you go to in order to feel a sense of peace and comfort (near the sea, the mountains, the forest, the park, your garden)?
Whom do you trust? What are your feelings toward them? What are their feelings toward you?
Describe the relationships you have with others?
How satisfied are you with your relationships with other people?
Who meets your needs for love?
How do you express your feelings of love (words, actions, behaviors)?
How do others express their feelings of love toward you?
How supportive are significant others of your spiritual beliefs and practices?
Tell me how you developed/came to believe what you value about spirituality (within your family/as a child/adolescent/adult)?
How have your values and beliefs about spirituality changed over time?
How will being here affect your ability to express/practice your spiritual beliefs?
What are your beliefs about the presence of a power greater than yourself?
What is your concept of this power, being or God? How important is this belief to you?
How would you describe your relationship with this power, being, or God?
What influence/role does your belief have on your life, lifestyle, activities, and relationships with others?

Faith

The subconcept of faith represents a belief in the unseen or unknown. Faith is described in the literature as a firm belief in the ability to draw on spiritual resources with certainty despite any evidence or proof. Faith fosters a way of being, living, or imagining, a universal human experience. Faith, only one component of spirituality, is essential and through one's experience of faith, a deep sense of spirituality is mobilized in order to take on the challenges of life. Individual faith is delineated into four stages comprising (1) impartial individuals, (2) institutional individuals, (3) individual seekers, and (4) integrated individuals.

Impartial individuals are described as choosing to participate in activities based on their own interest and are not involved in any faith communities. Strategies for individuals in this stage may include readings from sources like the poem "Footprints," the "Serenity Prayer," or such hymns as "Amazing Grace" and "Beautiful Savior." Print materials associated with Alcoholics and Narcotics Anonymous may be perceived as being helpful.

Institutional individuals are describe as regular worship attendees who adhere to institutional rules, rituals, rites, and a philosophy of "good/bad" individuals. Strategies for individuals in this stage may include the stage one strategies as well as contact with members from their spiritual community, use of prayer, laying on of hands, music specific to own faith expression.

FIGURE 2-6 (continued)

Individual seekers are described as persons who have left a formal religious community, seeking new answers or personal quest to questions, problems, or crises. Strategies for people in this stage are perceived to be creative and diverse encompassing practices from Eastern and Western spiritual traditions such as meditation, healing touch, reading, communal prayer, and music.

Integrated individuals are described as internalizing their faith, accepting the rules they abide by, and believing them to be just and right. They may or may not be aligned with any formal faith group and are perceived as teachers or mystics. Strategies for this stage comprise the strategies in stage two, with emphasis on internal meaning. Individuals in this stage may strive to leave a spiritual legacy.

Tell me about your beliefs related to faith and faith practices?
Tell me about any faith practices/rituals important to you?
How often do you engage in faith activities?
What, if any, sanctions, restrictions do you have?
How will being here affect your ability to express/practice your faith beliefs?

Forgiveness

The subconcept and value of forgiveness may not have meaning to all client groups. It is rooted in a reciprocal dynamic relationship between one or more individuals and / or a higher power. Clients will describe situations where either they have done something to other people or other people have done something to them directly or indirectly bringing on feelings of being hurt, angry, resentful, betrayed, and/or devastated. The idea here is to explore with your client his or her ability to forgive others and/or their openness to accept forgiveness from others as a starting point of "letting go" of past feelings of being hurt, angry, resentful, betrayed, and/or devastated.

What do you believe about forgiveness? What situations, if any, have you experienced where you needed to forgive someone? What happened? How did you feel/react?
What do you believe interferes with your ability to forgive?
What do you believe about being forgiven? What situations have you experienced where someone forgave you/didn't forgive you? What happened? How did you feel/react?
What do you believe interferes with their ability to forgive?
When you feel hurt or you have been wronged, how do you feel and react?
What is the outcome?
What kinds of things cause you to feel guilty?
How do you react and/or deal with these feelings?

Religion

The subconcept of religion is often used synonymously with the construct of spirituality. This can be limiting if the client does not practice or ascribe to any organized religious doctrines. Religion is defined as a system of organized worship ascribing to a set of doctrines which the person practices. Please note the practice of religion is only one way an individual may express his or her spirituality.

What is your religion/religious preference? How do you express your religious beliefs?
Tell me about any religious articles, creeds, sayings, or literature important to you?
Tell me about any religious practices, rituals important to you?
How often do you engage in religious activities?
What, if any, religious sanctions or restrictions do you have?
What religious resources do you have/want available to you?
How will being here affect your ability to express/practice your religious beliefs?

FIGURE 2-6 (continued)

Creativity
The subconcept of creativity is reported as any activity producing a sense of peace, comfort, and soulfulness for the individual. Some of these activities may include listening to music or playing a musical instrument, reading, painting, sculpting, gardening, cooking, swimming, walking, running, kayaking, sailing, cycling, and skiing. Clients may report that engaging in anyone of these activities provides them with a sense of peace and comfort within themselves and with nature as being "good for their soul/spirit."

What does creativity mean to you?
How do you express your creativity?
What are your creative/artistic abilities?
What types of activities provide you with a sense of peace and comfort?
What activities do you find personally fulfilling?
How often do you engage in these activities?
How much satisfaction do you get from these activities?

Transcendence
The subconcept of transcendence is described as a process/experience beyond the usual sensory phenomena. Transcendence is often associated with classical mystic experiences of God; it is not reserved for religious experience alone, but may be related to aesthetic reactions to art and music or the response to the majesty of creation (regarding a feeling of wonder or awe).

What does the word *transcendence* mean to you?
What do you believe happens when a person dies?
What meaning does "mind over matter" have for you?
What do you believe about pain and suffering?
How would you describe the "balance" in your life (work, recreation, and relationships)?
What are your personal life views regarding "being and relationships" which transcend the material boundaries of life?

FIGURE 2-6 (continued)

Physiological Variable

Altered Neurosensory: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _(*data*)_____.

Altered Circulation: (*specify behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ___(*data*)_____.

Altered Oxygenation: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____(*data*) _____.

Altered Elimination: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Metabolism: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____(*data*)_____.

FIGURE 2-7 Department of Psychiatric Nursing (DOPN) Neuman Systems Model taxonomy of nursing diagnoses. *Source*: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada. Copyright © Douglas College, June 2006. Used with permission.

Altered Mobility: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Cellular Dynamics: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Protection:(*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____(*data*)_____.

Altered Reproduction/Sexual Function: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____(*data*)_____.

Altered Physiological Development: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____(*data*)_____.

Altered Rest/Comfort: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____(*data*)_____.

Psychological Variable

Altered Self-Concept: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ___(*data*)_____.

Altered Body Image: (*specify system behavior*) related to (*intra-, inter-, extra-personal stressors*) as evidenced by ____(*data*)_____.

Altered Self-Ideal: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ___(*data*)_____.

Altered Self-Esteem: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Cognition: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ___(*data*)_____.

Altered Emotions: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Coping Patterns: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ___(*data*)_____.

Altered Roles [Ascribed–Assumed]: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ___(*data*)_____.

Altered Sexuality: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Identity: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Perceptions: (*specify system behaviour*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____*(data)*_____.

Altered Interpersonal relating: *specify system behaviour*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____*(data)*_____.

Altered Activity Patterns: *specify system behaviour*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____*(data)*_____.

FIGURE 2-7 (continued)

Altered Communication: *specify system behaviour*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by _____*(data)*_____.

Developmental Variable

Altered Growth/Physical Development: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Moral Development: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Spiritual Development: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Interpersonal Development: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Cognitive Development: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Sociocultural Variable

Altered Health Beliefs: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ___(*data*)_____.

Altered Roles with Family & Significant Others: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Altered Relationships with Family & Significant Others: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ___(*data*)_____.

Altered Communication Patterns: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ___(*data*)_____.

Altered Cultural Norms and Values: (*specify system behavior*) related to (*intra-, inter-, extrapersonal stressors*) as evidenced by ____(*data*)_____.

Spiritual Variable

Alterations in Spiritual Values & Beliefs: (*specify system behavior*) related to (*intra, inter, extra-personal stressors*) as evidenced by ____(*data*)_____.

Alterations in Purpose & Meaning: (*specify system behavior*) related to (*intra, inter, extra-personal stressors*) as evidenced by _____(*data*)_____.

Alterations in Love: (*specify system behavior*) related to (*intra, inter, extra-personal stressors*) as evidenced by ___(*data*)_____.

Alterations in Belonging: (*specify system behavior*) related to (*intra, inter, extra-personal stressors*) as evidenced by ____(*data*)_____.

Alterations in Forgiveness: (*specify system behavior*) related to (*intra, inter, extra-personal stressors*) as evidenced by ____(*data*)_____.

Alterations in Hope: (*specify system behavior*) related to (*intra, inter, extra-personal stressors*) as evidenced by ___(*data*)_____.

Alterations in Creativity: (*specify system behavior*) related to (*intra, inter, extra-personal stressors*) as evidenced by ____(*data*)_____.

FIGURE 2-7 (continued)

CHAPTER 3

The Client System as Family, Group, or Community

Anna Jajic
Hudson Andrews
Claire Winson Jones

The purpose of this chapter is to enhance understanding of the Neuman Systems Model concept of the client system as a family, group, or community. The chapter, which continues the discussion of the client system begun in Chapter 2, contains additional work done by the Douglas College Department of Psychiatric Nursing faculty.

CLIENT SYSTEM AS FAMILY

ANNA JAJIC

A strength of the Neuman Systems Model is in its application to family nursing, where it provides a useful framework for viewing the family as the client. The systems orientation of the model easily supports viewing the family as a whole unit and as the central core unit of the community. The Neuman Systems Model also views family members as subsystems of the larger family system, providing a clear example of how the whole—the family—is greater than the sum of the parts—the individual members.

All individual members of the family, as "family" is defined by the client, are encompassed within the central core. The visual application of the central core of the family as client is the genogram, an illustration that provides a visualization of the family's structure, health history, and relationships (McGoldrick, Gerson, & Shellenberg, 1999). The use of standardized symbols provides a clear picture of the family structure.

The genogram includes the family's genetic structure and shared traits within the health history of the biological family. Health history of the family includes disorders such as diabetes, cardiovascular disease, or substance abuse. Genetics include eye color, body shape, height, skin color, and longevity. Personality traits and mannerisms also can be identified on a genogram. Relationships within the family, who communicates with whom, and how, can also be depicted on the genogram. The genogram assists users to

view dyads and triads within the family, or family members that are cut off from others. An example of a family genogram is given in Box 3-1.

Client System Variables

The five Neuman Systems Model client system variables are envisioned within the central core of the individual client. It is, however, difficult to differentiate distinctly between the psychological and sociocultural variables within the family as a result of the integrated role of the family in defining and interpreting those variables. Therefore, in assessing and synthesizing the family as client, it is more appropriate to assess the family using four variables: (1) the psychosocial relationships of the family, which integrates the psychosocial and cultural variables, (2) the physical health of the family, (3) the development of the family, and (4) the spiritual influences on the family (Tarko & Reed, 2004).

The family is the central core structure that the community is built on. The family's psychosocial practices, behaviors, and traditions have an impact not only on each family member but also on the community as a whole. The way in which the family interacts with the physical and cultural community is evaluated through *psychosocial relationships*.

The *physical health* of the family as a system is greater than the sum of the health of the individual family members but is affected by the health of individual members and the roles the members play within the family unit. The health experience of each family member has an impact on the health of the other family members as well as the overall health

BOX 3-1

An Example of a Family Genogram

The family consists of Helen, Chris, Molly, and Brett. They all live in the same household.

Helen, a dental hygienist, married George, who is Brett and Molly's father, in 1987.

George, a civil service worker, was abusive, and the couple divorced in 1994. Not much is known about George's family, and he has little contact with Helen.

Brett was born in 1987 and is currently troubled, often running away to his father George's house. George and Brett continue to be close and have weekly visits.

Helen had a miscarriage in 1991; **Molly** was born in 1993.

Helen and Chris, an engineer, married in 1996 and are currently expecting their first child together.

Helen's Background: Helen's parents, Herman and Joyce, were married in 1959. Helen was closer to her father than to her mother. Helen has brothers who are identical twins, Jason and Jared, who are very close.

Herman was an alcoholic; he died in 1989.

Joyce is very active in her local community.

Chris's Background: Chris's parents, Sirus and Mary, were married in 1961, but have been separated since 1999. Sirus has health difficulties due to diabetes and relies heavily on Chris to help him. Chris's sister, Anna, is in a relationship with Donna, which has distanced her from their mother, Mary. Chris is close to Anna.

The family genogram is illustrated in Figure 3-1.

(*continued*)

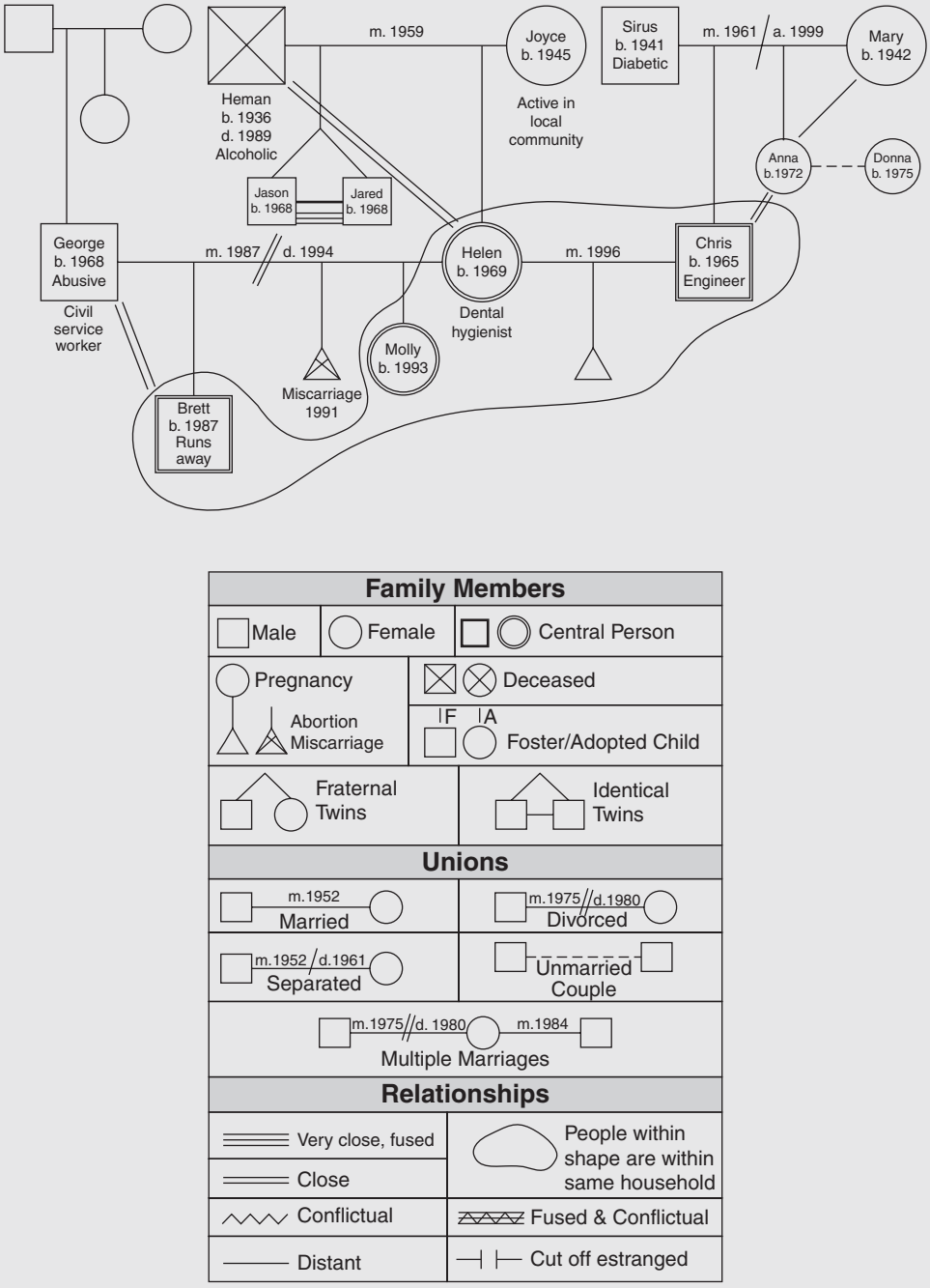


FIGURE 3-1 A sample family genogram.

of the family. Therefore, when evaluating the physical variable of the family, the health of each individual member is evaluated against its effect on the health and functioning of the family as a whole. For example, in a family with small children where the parents have fixed roles—such as the mother who does all the cooking, cleaning, and child caregiving; and the father, who works long hours outside of the home and, therefore, does not help with cooking, cleaning, and child care—the mother's experience of a new health challenge will have a greater effect on the overall health of the family than it might if the parents shared roles in the daily functioning of the family.

Developmental variables of the family can be viewed from the perspective of such family-focused theories as the Duvall's (1977) family developmental theory, which focuses on family tasks, and Carter and McGoldrick's (1980) theory, which focuses on transition points and family status changes that most families experience throughout the life span of the family. When applied broadly, both theories identify basic shared experiences of families as they grow and mature, completing family tasks such as raising and launching children. Examples of shared family development experiences include sleepless nights of parents with a new baby, the angst of parents of teenage children, the empty nest experience of parents when children leave the home, or the experience of the "sandwich generation" as adults take on double roles of raising their children and providing care for ailing or frail elderly parents. Relationships and social roles also change over time and with each stage of family development. In families with small children, the parents' role is more focused on safety and providing for their children's needs, such as food, clothing, and attachment. In a family with adolescent and young adult children, the role of parents switches to helping children gain the skills needed for independent adult life. Although family development theories are criticized for being biased toward intact nuclear families, if used as general guides they provide theoretical concepts that nurses can use as a foundation for working with families to anticipate the developmental tasks and challenges families face. Nurses can then determine how the theory can be adapted to guide care of individual families.

The *spiritual variable* includes but moves beyond the structured religious beliefs and practices of the family. The spiritual variable identifies the family's role and ability to provide an environment that supports a sense of love and belonging, safety, purpose and meaning, hope, and the ability to practice forgiveness. Spirituality of the family also includes creativity, interconnectedness, and transcendence.

Stressors

Stressors emerge internally or externally to the family system (Tarko & Reed, 2004). Intrafamily stressors are forces derived from within the family boundaries that have the potential to disrupt the family's system stability, such as illness of a family member, enmeshment of individuals' boundaries, and life changes such as a new baby, retirement, or a death within the family. Interfamily stressors result from forces occurring external to the boundary of the family but within the family's immediate environment, such as relationships with in-laws, family vacations, and cultural and religious practices and expectations. Extrafamily stressors are external and distant to the family boundaries; they have the potential to affect family functioning but the family has little or no control over these stressors. This type of stressor includes such socioeconomic and political considerations as changes in family social assistance, housing costs, employer and employment changes, and neighborhood and community safety issues.

Protective Lines

The goals of family health promotion and primary prevention are strengthening of the flexible line of defense, normal line of defense, and lines of resistance. Assessment of and interventions for the family focus on retaining, maintaining, and attaining family system stability and wellness. Application of family theory concepts provides the strategies that the nurse uses in collaboration with the family to strengthen the family's lines of defense and resistance. Application of role theory concepts, such as role stress, role strain, role changes, and formal and informal family roles, provides interventions that can be used to strengthen the family's protective barrier, that is, their flexible line of defense (Reed, 1993). The normal line of defense, which demonstrates the family's functioning level over time, can be assessed and strengthened through family communication patterns, problem-solving processes, and healthy demonstration of intimacy, caring, and affection within the family system. Lines of resistance are the last protection against stressors before they penetrate the central core. The lines of resistance protect the health of the family. They represent the internal factors of the family that can defend against stressors. Changes in family health practices and awareness of family health risks will increase the size and distance of the lines of resistance from the family central core and provide increased protection of the family. In addition, Reed suggested that interrelatedness, independence, and values and beliefs will support the lines of resistance.

CLIENT SYSTEM AS GROUP

HUDSON ANDREWS

Another strength of the Neuman Systems Model is its ability to guide nursing care of groups other than families. One of the nuances of applying the Neuman Systems Model to groups is that generally, groups have a specific focus. Although the focus of the discussion about groups in this chapter is the group work done in the context of counseling, the content may be applicable to groups formed for many other purposes.

The central goal of counseling groups is remediation and prevention. Moreover, counseling groups are most often problem or theme oriented; the specific aim is determined by its members. Group work tends to be growth oriented, which encourages members to explore and discover their individual strengths and assets. Group concerns are usually related to development, structure, and transition tasks, as are the concerns of families. Group members provide emotional support and an environment of safety where members can explore issues, just as families usually do. Furthermore, members of groups are helped to develop and strengthen resources so that they can transport these to the outside world (Corey, 2004).

Central Core

The central core of the group can be seen as the values, ideals, attitudes, and beliefs that bind together individuals in the group. Defining the central core of a beginning group differs from that of the individual or family in that the core has yet to be established. However, the core must become discernable before the group can operate as a whole.

When a group begins, the facilitator must create a form and a structure for the group so that individuals can feel secure as they get to know one another and learn to function

effectively as a group. It is critical that the facilitator accurately interprets the evolution of the group so that the structural role can be given up once the central core clearly forms. A healthy group will naturally establish norms and rules and can be flexible enough to allow those norms and rules to grow and evolve. In this way, groups eventually develop and operate much as families do, that is, as units or client systems (Corey, 2004).

Stressors

Stressors experienced by groups can be categorized as intragroup stressors and extragroup stressors. Intragroup stressors may consist of confused, rigid, or unclear interaction patterns, particularly if the facilitator is involved. Cultural differences, subjectivity of individual group members, reaction patterns to stress, degree of flexibility/inflexibility, and role confusion are other intragroup stressors. If individual needs rather than group goals are emphasized a loss of energy occurs. Extragroup stressors may include outside environmental pressures such as loss of meeting space or violence in the neighborhood.

Protective Lines

The lines of resistance are partly representative of the degree of trust and internal support that individual group members, as well as the group as a client system, provide for the group members. These lines also represent the commitment members have to each other and to the growth of each member.

At any given point in time, the normal line of defense signifies what the group has become or developed into over time, which addresses the cohesion that has developed within the group. As the group matures and works together, coping and problem-solving strategies emerge. The flexible line of defense deals with environmental factors, including the physical area in which the group takes place, noise, temperature, ambiance, appropriate refreshment, and possible adjuncts, such as music or artwork utilized during group sessions (Neuman, 2002).

Areas of assessment of group client systems are listed in Table 3-1. The assessment focuses on physiological, sociocultural, psychological, developmental, spiritual, and intersystem variables.

Prevention as Intervention

In keeping with the wholistic approach of the Neuman Systems Model, it is important to view the whole as stable in the group members' and facilitator's close relationships with each other. As the group matures, harmony becomes ever stronger, with groups perceived as a constellation of values and related meanings. This notion implies an ongoing exchange of energy in the form of sharing, asking for help, and mutual support. Stability ultimately depends on the facilitator's skill and involvement, along with the skill and commitment range of the group members. Quite clearly then, whatever happens to one member has an effect on the rest, and ultimately on the external environment as well. As the group grows together, each individual within the group helps to define the larger entity by his or her interactions as the individual becomes ever more part of the composite.

Individual needs in groups, as in families, are determined by the chronological age, gender, developmental stage, and environmental factors of each member. Group dynamics are analogous to family dynamics as interactions focus on decision making, coping styles,

TABLE 3-1 Assessing Basic Components of the Client System as a Group

Physiological Variables	Vital statistics Safety Risk factors Violence potential General health status Available services Environmental influences Medications/illicit drugs used
Sociocultural Variables	Demographics Ethnic/cultural influences Educational level General lifestyles Dominant subcultures/themes Power/control relationships Economic considerations Language strengths/barriers Mobility Communication patterns/skills Degree of isolation Funding considerations
Psychological Variables	Intermember emotional support Coping skills Common health beliefs Overall emotional/mental health Attitudes and belief systems Self vs. group orientation
Developmental Variables	Significant group events Group maturation Evolutionary stage of group: New, Developing, Establishing, or Terminating
Spiritual Variables	Spiritual influences and values that are brought to group by members—congruence with the group
Intersystem Variables	*Intragroup*: Interaction among members *Intergroup*: Interaction with societal systems, influenced by group boundaries

Some common goals that all groups share are to:
Increase self and other acceptance and trust
Develop a new way of being and to gain self-confidence and respect
Develop a heightened self-awareness and recognize a distinct identity

TABLE 3-1 (continued)

Recognize themes and experiences that are universal
Grow in empathy and compassion for others
Develop new ways of dealing with old issues and coping strategies for conquering new challenges
Gain increasing independence and develop self-responsibility
Become aware of the choices that are made and realize that freedom of choice does not absolve one from freedom of consequences
Learn and adapt socially
Clarify expectations, values, and beliefs that are fondly held
Learn appropriate assertiveness to be able to challenge others in a respectful, honest way (Corey, 2004)

Note: It is easy to see where there is some overlap in the goals and outcomes for families and groups. Obviously, increasing acceptance and trust is a goal within families, as is the gaining of self-confidence and development of respect. Identity and self-awareness along with empathy and compassion combined with developing coping strategies are also applicable. Developing independence and self-responsibility are also goals for families. Learning to adapt socially and acquiring values and beliefs along with nurturing assertiveness and honest communication also apply.

Source: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada.

negotiation styles, power distribution, and problem-solving approaches. The astute facilitator assesses and utilizes role relationships, communication styles, and interaction patterns to foster growth of the group.

The astute facilitator also observes and clarifies group goals, which eventually provide a sense of group identity. Furthermore, the facilitator needs to determine whether each member accepts the goals set by the group. In addition, the facilitator closely monitors the rules, values, and beliefs to determine how they may conflict or support individual needs of group members. The degree to which members feel free to share their perceptions of the rules, values, and beliefs is a measure of the stability of the group as a client system (Corey, 2004).

CLIENT SYSTEM AS COMMUNITY

CLAIRE WINSON JONES

Still another strength of the Neuman Systems Model is its compatibility with community health nursing practice. Community health practice extends the continuum of care beyond providing care to an individual client within the community to addressing the needs of aggregate populations in a community. The Douglas College Department of Psychiatric Nursing faculty believes that the focus of community as client within the curriculum should be identifying the priority of mental health within a Canadian perspective, which also is applicable in many other countries. The Neuman Systems Model, together with the Community as Partner Model (Vollman, Anderson, & McFarlane, 2008), provides a guide for assessment, analysis, diagnosis, planning, implementing, and evaluating community

mental health nursing care, which can be extended to all of community health nursing care. The flexibility of the Neuman Systems Model allows for diverse application and assignments associated with the psychiatric nursing community concepts course requirements. Topics included in the community portion of the Douglas College Department of Psychiatric Nursing curriculum are given in Table 3-2.

The faculty's decision to focus on mental health from a Canadian perspective was supported by the current framework for Health Promotion in Canada. The Ottawa Charter for Health Promotion (World Health Organization, 1986) identified at-risk groups as those

TABLE 3-2 Douglas College Department of Psychiatric Nursing Client as Community Curriculum Outline

Unit	Topics
Unit 1: Introduction to Community Mental Health	Exploration of the meaning of community Consideration of the shift to client centered community care and understanding the role of the community psychiatric nurse in this approach to care Defining the continuum of care for mental health services and the philosophy of least restrictive environment Identification of the varied mental health services and programs within the mental health system framework including crisis response, advocacy, housing, supportive employment Introduction to Best Practices Models of Assertive Community Treatment and Case Management Exploration of the concept of recovery in mental health, specifically the recovery model
Unit 2: Introduction to Community Health Practice	The history and evolution of the philosophy and policies supporting the concept of health and the foundation of community practice Introduction to the framework for health promotion in Canada Identification of the determinants of health and evidence-based practice of the adopted "population health approach" Introduction to the use of basic epidemiologic, demographic, and statistical measures of community health, including accepted descriptive measures of health A review of the levels of prevention in community practice
Unit 3: Supporting Health through an Ecological Perspective	A review of the jurisdiction responsibility of federal, provincial, and municipal government for health and socials service delivery Introduction to legislation defining principles underlying the health care systems of Canada defined as Canadian Health Act (1984) Identification of the overall determinants of health of all Canadians and distribution of health status related to such issues as poverty, education, literacy, and personal health practice A focus on the ecological perspective of health identifying the roles of physical and social environments for community well-being

TABLE 3-2 (continued)

Unit	Topics
Unit 4: A Model of Community Practice: Community as Partner Model	Introduction to the purpose of models as a guide to health care practices Introduction to Betty Neuman's (2002) Systems Model including the Community as Partner Model and the model descriptors—central core, subsystems, flexible line of defense, normal line of defense, and lines of resistance Identification of various community stressors A focus on the assessment, diagnosis, planning, intervention, and evaluation in the process of working with the community as partner approach
Unit 5: A Model of Community Practice: Community Assessment	Introduction to phase one assessment of Community as Partner Model Introduction to the use of a model or framework the community assessment called the community assessment wheel, identifying eight subsystems within the community: Economics, Recreation, Physical Environment, Education, Safety and Transportation, Politics and Government, Health and Social Services, and Communications Identification of various sources of community data A focus on the methods of data collection for accurate assessment including strengths and weaknesses of approaches
Unit 6: A Model of Community Practice: Community Analysis and Diagnosis	Introduction to phase two of the community process through analysis and formation of community diagnosis Identification of the accepted format of a community diagnosis A focus on working with a team to synthesize data through methods of classification, summarization, and interpretation for development of a tentative community diagnosis A review of guidelines and principles conducive to a positive team environment
Unit 7: A Model of Community Practice: Community Partnership for Health Planning	Introduction to the varied influences in formulation of community-focused planning Identification of the systematic processes and plan for partnering with community that allow for prioritizing diagnosis and identifying goals, collaborative relationships, and potential barriers and resources that allow for identification of actions to achieve the desired outcome Using theories of change to assist in partnering with the community for planned change
Unit 8: A Model of Community Practice: Implementation of the Action Phase	Introduction to the process of intervention and the varied influences on active participation of the community Identification of the value of community ownership of the plan and strategies to facilitate promotion of ownership for successful implementation A review of the levels of prevention and a focus on the three types of intervention: education, engineering through policy formulation, and enforcement

TABLE 3-2 (continued)

Unit	Topics
	Recognition of the agencies such as Health Canada and the role of Canadian health in implementing community change Emphasis on the role of social support and social marketing forces and access to advocacy in the implementation phase
Unit 9: A Model of Community Practice: Evaluation	Introduction to the principles, strategies, and processes of the evaluation of the effectiveness of a program and the multiple purposes of evaluation Identification of a model for program evaluation A review of the components of evaluation of relevancy, progress, cost efficiency, effectiveness, and outcome Recognition of the multiple methods of data collection and evaluation tools and the strengths and weaknesses of approaches Emphasis on the importance of evaluation for decision making, revision of plan, and continued funding A review of the importance of the logic model plan identifying a plan for evaluation prior to evaluation process being undertaken

Source: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada.

suffering from chronic illnesses and defined individuals living with a mental illness as the predominant health problem among Canadians in all age groups. The aim of health promotion is achievement of health for all, a population health approach. The determinants of health are income and social status, social support networks, education, employment and working conditions, social environment, physical environments, personal health practices and coping skills, healthy child development, culture, gender, biology and generic endowment, and health services (Frankish, Moulton, Quantz, Carson, Casebeer, & Eyles, 2007).

The Neuman Systems Model client system variables and the subsystems identified in the Community as Partner Model are compatible with the health determinants and provide a framework for viewing the community from a systems perspective (Table 3-3). The assessment of these variables allows for the identification of community strengths and weaknesses and assists in determining priority prevention interventions. Relevant jurisdictional powers and responsibilities of municipal, provincial, and federal levels of government also should be assessed to determine which stakeholders and levels of government to approach to collaborate and advocate for necessary programs and funding for at-risk communities and aggregate populations.

Neuman Systems Model Nursing Process for the Community

Assignments within the Community as Client course are readily adaptable to numerous clinical situations but the Community as Partner Model and the Neuman Systems Model provide the primary focus for assessment, diagnosis, planning, and evaluating community mental health. Assignments generally are done in small groups. Students may work together based on a specific area of interest, such as working with an identified aggregate

TABLE 3-3 Comparison of the Neuman Systems Model Five Client System Variables, Health Determinants, and Community Subsystems

Neuman System Model Client System Variables	Determinants of Health	Community Subsystems
Developmental	Healthy child development	Politics and government
Physiological	Physical environment Income Social status Biology and genetic endowment	Physical environment Economics
Psychological	Employment and working conditions Social support networks	Health and social services Safety and transportation Communication
Sociocultural	Personal health practices and coping Health services Education	Education Recreation
Spiritual	Culture Gender	Social environment

Source: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada.

population. An example is working with clients experiencing delirium in the community. Alternatively, students may be placed together in a group based on a shared current clinical setting. Students also are often placed in different clinical settings within the same geographical community or health region. For example, one student may be placed in a community mental health team; another student, in a forensic outpatient clinic; another, within a residential facility; another, in a drop-in or an emergency shelter; and another, in a detoxification or addiction program. Each student identifies the agency's levels of prevention interventions and the client population served. Inasmuch as the students are in a local geographical area and often the agency serves a similar population, the student group identifies an aggregate population that they all serve. Examples include an aggregate population of homeless clients suffering mental illness, or clients suffering mental illness and addiction, within a particular geographical area of a large city in British Columbia.

The students conduct a thorough community assessment based on the community assessment wheel and the assessment segment of the Community as Partner Model (Vollman et al., 2008). The students address strengths and weaknesses within the nine subsystems of politics and government, physical environment, economics, health and social services, safety and transportation, communication, education, recreation, and social environment as they relate to the identified aggregate. In addition, students identify potential intrapersonal, interpersonal, and extrapersonal stressors. They also gather information about the identified aggregate population through numerous sources, including vital

statistics for age, gender, culture, ethnicity, and socioeconomic status. As well, the students review current research related to the risk factors of safety, violence, drug and alcohol use, and physical and emotional health. Students then are able to assess the Neuman Systems Model central core, lines of resistance, normal line of defense, and flexible line of defense (see Table 3-4). The assessment enables the students to identify community diagnoses using a template consisting of an actual or potential risk statement for an identified aggregate population, related to etiological or causative factors, as evidenced by use of statistics and empirical research.

TABLE 3-4 Assessment of Aggregate Populations: Neuman Systems Model Central Core, Line of Resistance, Normal Line of Defense, and Flexible Line of Defense

Central Core	Age Sex Ethnic distribution Education level Employment level Socioeconomic status
Lines of Resistance (LR) The relative strengths, assets, and degree of collaboration between eight subsystems. Tertiary level of prevention interventions support the LR.	Health and social services Politics and government Education Safety and transportation Physical Environment Recreation Economics Communication
Normal Line of Defense (NLD) The level of health the aggregate has reached over time. May include the aggregate's health status in comparison to national health status. Secondary level of prevention interventions protect NLD.	Mortality/ Morbidity rates Incidence/Prevalence of disease Presence/Prevalence of risk factors Patterns of coping/Problem solving
Flexible Line of Defense (FLD) The buffer zone to the NLD, a dynamic level of health that occurs in times of crisis—the resilience of the community in times of crisis. Primary level of prevention interventions are viewed as strengthening the FLD.	An example is the collaboration between medical officer, hospital, emergency health services, shelters, drop-ins, housing, and the media when there were eight accidental overdose deaths among intravenous drug users over a two-day period within a city Community diagnosis: Increased risk for accidental drug overdose death among IV drug users related to high-potency drugs as evidenced by eight deaths in a 48-hour period

Source: Health Sciences Department of Psychiatric Nursing, Douglas College, British Columbia, Canada.

Students identify stressors and develop a plan for intervention based on assessment and community diagnosis and, whenever possible, consult with stakeholders, including members of the aggregate population to identify priority goals. Community stressors encompass intrasystem stressors, which are those stressors among the aggregate population; intersystem stressors, which are those stressors among the eight subsystems of the Community as Partner Model (see Table 3-4); and extrasystem stressors, which are those stressors occurring outside the community subsystems and aggregate population and might include changes in the priorities of the federal government or upcoming events such as the Olympic games. Interventions are identified at primary, secondary, and tertiary preventions levels. Primary levels of prevention are viewed as interventions strengthening the flexible line of defense. Secondary levels of prevention protect the normal line of defense and the lines of resistance. Tertiary levels of prevention support the lines of resistance and strengthen the flexible line of defense.

A case study of the use of the Neuman Systems Model with a community as the client system is given in Box 3-2.

BOX 3-2

Case Study: Assessment of an Aggregate Population—Crystal Methamphetamine Users in the Fraser Health Region

In June 2005, the Fraser Health Authority and Addictions Services developed *A Community Guide: Strategies and Interventions for Dealing with Crystal Methamphetamine and Other Emerging Drug Trends* in response to recognition of a reemergence of methamphetamine in the community. The impetus for the guide included recognition that the effects of the drug on users, families, and the community were ill understood, and overall there was a felt need to bring together concerned individuals, including multidisciplinary and multisystem professionals, to investigate prevalence and impact of the drug in the community and to identify required services and resources at all levels of prevention as well as service gaps, and to strategize long- and short-term goals. The broad community—including mental health specialists, addictions specialists, criminal justice system representatives, child and youth mental health experts, and community services representatives—was part of the task force. This community guide is the resource and provides the content for the case study.

The Central Core

It is difficult to define and order described users of crystal methamphetamine in the region as they were very broad. In the general population use is low, however, subpopulations can be identified. Some users unintentionally used crystal methamphetamine; as an example, youth involved in the club or dance scene thinking they were using ecstasy. Those purposefully taking the drug included shift workers, university students, sex trade workers, and homeless persons who desired the drugs effect on remaining awake and energetic for long periods.

At-risk populations particularly identified in this study were youth, especially street involved, mental health clients, gay populations, pregnant women and women with small children, and drug endangered children who may be living in places where methamphetamine is produced. Youth were identified as most likely to be polysubstance abusing. Clients with mental health issues of schizophrenia or bipolar affective disorder, or similar diagnosis, were identified as requiring the most specialized services. Each of these populations often used the drug for diverse reasons, or were exposed to the drug inadvertently, and a one-size-fits-all approach to prevention, assessment, intervention, and treatment as a response was seen as unlikely to work.

(*continued*)

BOX 3-2 (continued)

Lines of Resistance

The Methamphetamine Task Group coming together is evidence of the strengths, assets, and degree of collaboration between the subsystems. Mental health services, addiction services, criminal justice system, and emergency medical services were identified as requiring a collaborative effort to come up with a successful approach.

The eight subsystems of the community assessment wheel are interrelated and often data could be organized under multiple or different headings. The guide identified themes and resources for intervention as well as gaps in services.

Health and Social Services

Priority issues included all health care professionals working in addiction and/or mental health need to screen for drug use and mental illness.

Gaps included identified need for specialized treatment approaches with intensive programs. Overall, treatment programs must recognize the heterogeneity of users. Treatment needs had to incorporate social determinants of poverty, homelessness, employment, family, and health. Withdrawal from methamphetamine use was seen as protracted. While the withdrawal from methamphetamine is not life-threatening and can safely be done at home, detoxification settings need to be specialized for those clients with polysubstance use and those at risk for medical life-threatening withdrawal, homeless individuals, and/or significant psychiatric conditions.

More research was identified as a need to understand long-term effects of methamphetamine exposure and to ensure evidence-based practice.

With regard to exposure, methamphetamine is a safety hazard and those personnel involved in the investigation and clean up of a production lab require training and examination by medical personnel to ensure decontamination.

Politics and Government

Community partnership and collaboration was a theme throughout the guide.

Users were more likely to be involved in the criminal justice system, particularly those who were concurrently diagnosed, and coordination between the mental health, addiction, and criminal justice systems was identified as required. The use of drug court or community courts was well supported.

Advocating to all levels of government for increased resources for treatment was highlighted. Treatment resources were lacking as were the availability of treatment specialists for concurrently diagnosed clients. Timeliness of residential program placement is crucial and limited availability of detoxification and treatment beds was identified as a stressor.

The Ministry of Child and Families was identified as requiring the need to revise practice guidelines to have specific protocols/ guidelines regarding meeting the needs of children who are exposed to methamphetamine due to others smoking around them or being housed where the drug is being produced.

Production and enforcement issues include that methamphetamine is primarily domestically manufactured and may be exported to other countries such as the United States and Japan. These drugs originally were produced in "mom and pop" shops but more recently have expanded to organized crime, and Asian and outlaw motorcycle gangs produce and traffic the drug.

In 2003 the Precursor Control Regulations under the Controlled and Substances Act came into effect and is seen as a successful approach to reduce the supply of the drug.

Public health issues and environmental hazards due to the risk of chemical process involved in producing methamphetamine were identified. Resources to address health risks for those investigating and cleaning up methamphetamine labs were highlighted.

Education

The need for education with identified guidelines based on empirical evidence was highlighted.

Screening, assessment, and treatment guidelines and education for health care professionals and emergency personnel were identified as a high priority. First responders (law enforcement,

paramedics, firefighters, and hospital) were identified as requiring crucial resources. General practitioners were also identified as requiring information/resources as they were likely to be approached by users seeking treatment.

Personnel need to be able to identify users at risk for methamphetamine intoxication, including those with induced psychosis at risk for violence in the community and emergency department. Some clients can be managed in a mental health setting by those experienced with working with concurrently diagnosed clients. Sedating medication including benzodiazepines and short-term use of neuroleptics, assessing vitals and avoiding dehydration in a quiet low-stimulation environment, were identified as key to treatment of thought disorder. Methamphetamine toxicity is on a continuum and uncomplicated management of physiological symptoms may include reduction of body temperature together with sedation in a quiet environment. Clients exhibiting hyperthermia and convulsions are at risk for coma and death. All emergency personnel, mental health facilities, and hospital and substance abuse treatment center personnel should be trained to identify the toxicity continuum and use best practices for treatment. Treatment providers should recognize that admission to an emergency department and similar crisis can often be a catalyst to motivate clients to accept treatment.

School-based programs for prevention were highlighted especially in their ability to increase protective factors.

Physical Environment

Treatment environments were diverse and on a continuum, but overall guidelines approaches were identified as well as specific barriers for treatment.

Managing methamphetamine withdrawal requires psychosocial support in a safe nonthreatening environment. Awareness of barriers to treatment is necessary, including lack of programs to meet needs of specific populations such as rural clients, youth, and concurrently diagnosed persons. Avoidance of homelessness and need for a continuum of treatment services and options including drug court programs are seen as beneficial to the treatment environment. Confrontation and punitive communication styles in treatment counselors/programs overall should be avoided, but the use of leverage is of benefit.

Safety and Transportation

Methamphetamine toxicity and resulting psychosis can increase user risk of violence and thereby present a risk to the community, first responders, health care professionals, families, and children.

Methamphetamine production is dangerous and those living in a place of production test positive in urine drug screens, regardless of whether they describe themselves as users. As well, children living in homes where methamphetamine is smoked, but not produced, test positive for the drug.

As well, contaminants created during the making of methamphetamine are absorbed by exposed surfaces and pose an unknown health hazard to future occupants. Chemical waste is also flushed down toilets or dumped outside, which is a potential risk to the entire community.

Recreation

Protective factors for avoidance of drug use included recreational opportunities in and outside of school and feeling supported by a community of people. Leisure and increased social functioning was an identified requirement for good treatment programs for all at-risk groups. Identified protective factors needed to be incorporated in primary prevention programs within schools and the community.

Economics

Effective management of comorbidity is likely to be cost-effective and integrated programs were well supported.

Environmental companies trained in hazardous material removal and clean up must be hired to decontaminate buildings that have been used as production labs. The guidelines for clean up are included in bylaws and landlords maybe billed.

Communication

Coordination and cooperation among first responders and governmental agencies is assumed to be necessary. Social supports, family support, and outpatient counseling are valued. Programs such

(*continued*)

BOX 3-2 (continued)

as the Meth Watch Program promote cooperation and communication between retailers and law enforcement to train employees to recognize suspicious activity, and in-store measures to reduce theft of products for methamphetamine production are identified as worthwhile.

Normal Line of Defense

Overall, methamphetamine users were more likely than the general population to live in poverty and have unstable housing, and they or their family members had undiagnosed mental health issues; poor family, school, and community connections; and prenatal exposure to alcohol or drugs. HIV and other sexually transmitted diseases were much higher in this population. Clients who were HIV positive were less adherent to HAART medication increasing resistance to these drugs.

Methamphetamine users have numerous heath risks, including anxiety, suspiciousness confusion, mood swings, compulsive behavior psychosis, paranoia, depression, and hallucinations. Physical effects are on a continuum, including teeth grinding, sores, numbness, pupil dilation, SOB, chest pain, nausea, flailing jerky movements, dizziness, insomnia, and increase in heart rate and blood pressure. Severe effects include hyperthermia, seizures, cardiovascular collapse, convulsions, coma, and death. After long-term abuse, neurocognitive deficits remain. These include ongoing problems with attention and abstract thinking, lack of motivation, and anhedonia.

Users often have unsafe sex practices and are at increased risk for hepatitis B and C and HIV/AIDS even in comparison to cocaine users. Additionally, those withdrawing are at higher risk for profound depression and suicidal ideation. Crystal methamphetamine withdrawal is protracted in comparison to cocaine withdrawal; specifically withdrawal from crystal methamphetamine use is 2–3 weeks in comparison to cocaine withdrawal, which is 1–3 days.

Pregnant women using crystal methamphetamine are at high risk for spontaneous abortion and premature delivery. Children born to these women are six times more likely to be born with birth defects and are higher risk for sudden infant death syndrome. Full-term babies have difficulty sucking and may be hypersensitive to stimuli. Issues such as nutrition, poverty, infection, housing, and education were required in antenatal care and treatment programs for this group of users.

Children living in home where parent(s) are using are at increased risk for neglect and abuse. Additionally in homes where the drug is produced and/or smoked children are chemically contaminated, as evidenced by positive urine drug screens. As well, these children are at increased risk to be exposed to drug paraphernalia potentially increasing risk for HIV and hepatitis. Children found in homes where the drug is produced require complete pediatric evaluation within 24 hours.

Flexible Line of Defense

Primary prevention programs were identified to delay or prevent onset of drug use as well as reduce harm associated with drug supply and use.

Principles of prevention of methamphetamine use included: identifying the at-risk groups and addressing the needs of at-risk specific populations by increasing protective factors. At-risk populations identified were youth, especially street-involved youth, mental health clients, gay populations, pregnant women and women with small children, and drug-endangered children.

Primary prevention programs designed to increase protective factors included family-based programs to enhance family bonding and parenting skills and training in drug awareness.

School programs are needed to identify children at risk for drug use, academic difficulties, poor social skills, and aggressive behaviors. Education to focus on self-control, social problem solving, and academic support were identified. Teenagers required additional support that included drug resistance skills, social competency skills with peers, skills with peers and self-efficacy, and assertiveness skills.

Community programs include identification of transition stressors that promote bonding and sense of belonging to the community. Community

prevention programs should include teachers, parents, families, and peers.

Harm reduction techniques included developing a plan to stay safe.

Messages include eat, drink water, and sleep to withstand highs and avoid physiological and psychological consequences of methamphetamine use. Encourage users to plan for safer sexual practices given that methamphetamine is a powerful sexual stimulant and has an impact on judgment. And assist users to identify the negative consequences by dispelling myths about the positive effects of functional use of methamphetamine to increase energy, and so on. Encourage methamphetamine users to reconsider IV drug use of methamphetamine or encourage the use of sterile injection equipment.

Internet Resources

http://www.fraserhealth.ca/Services/MentalHealthandAddictions/AddictionServices/Documents/CMCommunityGuide.pdf
http://www.camh.net/
http://www.kci.org/meth_info/slang_names.htm.
http://www.vch.ca/women/sheway.htm
www.health.gov.bc.ca/library/publications/year/2005/MHA_meth_strategy_6mo_update.pdf
www.methwatch.ca/home_en.html

Conclusion

The contents of this chapter enhance understanding of the ways in which the client system can be viewed as a family, a group, or a community. Continued work by faculty, students, and health care team members in practice will increase understanding of how the concepts of the Neuman Systems Model can be applied with each type of client system.

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CHAPTER 4

Reconstitution

Karen Reed Gehrling

Although reconstitution has been part of the Neuman Systems Model since its inception, it is one of the least described, researched, and understood concepts of the model. As August-Brady (2000) noted, "The process of reconstitution is defined and is understandable. However, how one measures or validates reconstitution is not explicated" (p. 1305). The purpose of this chapter is to begin to clarify the process of reconstitution by exploring the origins of the concept, discussing terms used by Neuman and others, and identifying its attributes. The chapter includes a review of research related to each attribute, as well a case study for each one. The chapter concludes with a discussion of the use of reconstitution in practice, education, and research.

DEFINING RECONSTITUTION

A definition of the term *reconstitute* is a starting point for understanding the concept. The *American Heritage Dictionary* (2003) lists two definitions:

1. To provide with a new structure
2. To bring (a liquid in concentrated or powder form) to normal strength by adding water

The *Merriam-Webster Medical Dictionary* (2008) defines reconstitution as:

1. The action of reconstituting or state of being reconstituted
2. Regeneration of an organic form by reorganization of existent tissue without blastema formation

The Biology Online Dictionary (2008) provides this definition of reconstitution:

A type of regeneration in which a new organ forms by the rearrangement of tissues rather than from new formation at an injured surface. The restoration to original form of a substance previously altered for preservation and storage.

General Attributes of Reconstitution

The general attributes of reconstitution, which were extracted from the various definitions, are given here.

Reconstitution is a process of

- regeneration
- reorganization of structure
- adjustments to existing structure

for the purpose of

- bringing to normal strength
- forming a new organ
- restoring to original or "normal" form
- adjusting to new circumstances

Neuman Systems Model Conceptualization of Reconstitution

According to Rae Jean Memmott (personal communication, February 16, 2008) and Betty Neuman (personal communication, April 21, 2008), a belief in the human potential for positive change and adaptation was the impetus for including reconstitution as a concept of the Neuman Systems Model. Fawcett and colleagues (1982) pointed out that Neuman and Young first introduced the concept of reconstitution in 1972 to describe the events that occur "following the person's reaction to stressors" (p. 37). They inferred that the process of reconstitution is the person's progress to a return to stability and wellness after a stressor has created a variance from wellness. Hoffman (1982) inferred that reconstitution is the "state of adaptation to stressors in the internal and external environment" that could begin at any degree or level of stressor reaction and in which the "range of possibilities may extend beyond the normal line of defense" (p. 45). These early interpretations of reconstitution indicate that reconstitution encompasses intrapersonal, interpersonal, and extrapersonal factors, and requires that the five client system variables (physiological, psychological, sociocultural, developmental, and spiritual) be taken into account.

Elaborating, Neuman (1989) explained,

> Reconstitution is identified as beginning at any point following treatment; it is the determined energy increase related to the degree of reaction. Complete reconstitution may progress well beyond the previously determined normal line of defense or usual wellness level, it may stabilize the system at a lower level, or it may return to the level prior to illness. . . . Reconstitution may be viewed as feedback from the input and output of secondary interventions. The goal is to maintain an optimal wellness level by supporting existing strengths and conserving client system energy. Reconstitution at this stage (tertiary prevention) is dependent upon the successful mobilization of client resources to prevent further stressor reaction or regressions. It represents a dynamic state of adjustment to stressors and integration of all necessary factors toward optimal use of existing resources for client system stability or wellness maintenance. (pp. 36–37)

Later, Neuman (1995; Neuman & Fawcett, 2002) explicitly defined reconstitution as "the return and maintenance of system stability, following treatment of stressor reaction, which may result in a higher or lower level of wellness than previously" (1995, p. 46). The same definition is given in Chapter 1 of this book.

NEUMAN SYSTEMS MODEL–SPECIFIC ATTRIBUTES OF RECONSTITUTION The attributes of reconstitution when viewed within the context of the Neuman Systems Model are:

- Reconstitution follows a reaction to stressors.
- Reconstitution is client-initiated in an effort to return to a state of wellness.
- Reconstitution incorporates all five client system variables.
- Reconstitution may be intra-, inter-, or extrapersonal in nature.

Integrating General and Neuman Systems Model–Specific Attributes of Reconstitution

A more complete conceptual image of reconstitution begins to evolve when the general attributes extracted from the various definitions of reconstitution are integrated with the Neuman Systems Model–specific attributes. The more complete image illustrates the process of reconstitution as follows:

- Reconstitution is a regenerative or reconstructive process whereby a client system undergoes a rearrangement of existing variables at the site of stressor impact.
- Reconstitution occurs after the client system has experienced a negative reaction to a stressor, which required the client system to alter itself to preserve the system and protect the basic structure.
- Reconstitution occurs with or without the implementation of a prevention intervention, although a more favorable outcome, that is, a higher level of return to wellness, may be realized if a prevention intervention is provided.

These descriptions of how the client system recovers from stressors and begins to return to a state of wellness provide guidelines for interpreting experiences of clients who have encountered all kinds of stressors. However, the descriptions do little to clarify what reconstitution looks like in a practice situation or how successful completion of the process is recognized. The descriptions also provide little guidance for measurement of the process.

RECOGNIZING RECONSTITUTION

During the past 20 years, researchers have examined the process of returning to previous levels of wellness and how client systems have adjusted or changed once the noxious stressors have been immobilized. Most of the work has, however, focused on individual experiences: a specific type of stressor; a specific event, such as divorce or loss; an illness, such as cancer; or a health condition, such as chronic pain. Many studies, for example, have been designed to describe the "lived experience of . . .." Yet there has been no effort to examine similarities in experiences across events, illnesses, or health conditions. If the Neuman Systems Model–specific attributes of reconstitution are used as a framework for review of such studies, certain patterns begin to appear that are not specific to the event being studied but are constant as part of *a process*—that is, the process of returning to a state of wellness, or reconstitution from the event. It may be that clients go

through the same process whenever any stressor has an impact on the system. If such a similar progression exists, nursing prevention interventions could be developed to support the process, which would have a profound effect on nursing practice.

Reconstitution Follows a Reaction to Stressors That Have Penetrated the Client System

The environment, according to the Neuman Systems Model, consists of known, unknown, and universal stressors that have potential for disturbing the client system's usual stability level, or normal line of defense. A stressor, then, is a strain or force that has the potential to disrupt the client system's usual level of wellness. Noxious stressors are perceived by the client system as unfavorable experiences that may place the system in danger. Once a stressor has broken through the lines of defense and resistance, the client system attempts to return to a stable state, which occurs through reconstitution.

Most often, the process of recovering from stressor impact has been described from a physiological orientation, with an emphasis on how the body physically recovers from an acute stressor, such as a cardiovascular event. What has not been explored in any great detail has been the process of reconstructing or reconstituting from stressors that have lesser physical effects but greater psychological, sociocultural, developmental, and spiritual effects. Stressors such as divorce, chronic illness, and the death of a family member can have profound effects on individuals, perhaps even bringing the client system to the point of needing to create a different identity in order to survive.

For example, van Schalwyk (2005) interviewed four women in South Africa to ascertain how they coped and rebuilt their life following divorce. Her premise was that as a married person, a woman "has constructed her life according to a specific set of beliefs, values and prescriptions of the traditional culture to which she belongs" (p. 91). When divorce occurs, there is a change not only in women's position in the community, but also their sense of identity. "Women's management of their personal and professional lives after divorces is sometimes an extended struggle to reconstruct their selves for the sake of self-preservation" (p. 91). The loss of self as a relational being, that is no longer a wife but a single person, is one of the largest losses. To reconstitute, the women van Schalwyk interviewed found themselves having to regain a sense of self that has value, focus on new roles and new relationships, and discover a new sense of direction for life. Van Schalwyk commented, "Reconstructing the self for these women implies a new positioning, a new language, new memories, and a new sense of personhood that challenges the dominant discourses" (p. 96). Another woman's story of reconstitution, told within the context of the Neuman Systems Model, is given in Box 4-1.

Reconstitution Is Client Initiated in an Effort to Return to a State of Wellness

According to the Neuman Systems Model, reconstitution may result in a higher or lower level of wellness than previously experienced. Restoration and adjustment of the lines of resistance, normal line of defense, and flexible line of defense occur from the inner portions of the system outward, restoring and adjusting the client system to adapt to changes created by the stressors. Whitehead (2005), who studied clients with chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME), described the impact of chronic illness stressors and clients' experiences of dealing with body changes. The diagnosis of CFS/ME

BOX 4-1

Case Study: Reconstitution Follows a Reaction to Stressors That Have Penetrated the Client System

Even marital difficulties can create a difference in the client system. A colleague who is familiar with the Neuman Systems Model wrote:

> Since J and I have decided to save our marriage, I would suppose I have been in this process of reconstitution. I spent many years with a broken heart; and while I have been thankful to God for helping me through this, I have been feeling a little "off" now that the worst is over. I thought maybe I was just being ungrateful; or maybe a little depressed; or worse yet, was I regretting my decision? But I think that it is just that I am different now. As the stressors resolve and my life has "returned to system stability" I realize that it is not a higher or lower level of wellness; it is not even the same level of wellness. It is simply different. (L. E., personal communication, March 21, 2006)

has extreme effects on the physiological, psychological, spiritual, and sociocultural client system variable. Specifically, all study participants described physiological disruption from high to low levels of activity. They indicated that identity reconstruction from the old to a new self incorporated elements of the old life with the new, including reconstructing social standing, friends, and economic status, such that they were in the "process of creating new, and they believed, better selves. The majority felt that they had transcended the illness, underpinned by a deeper understanding of themselves, others and life in general" (p. 1028).

In the cancer experience, life review often "results in minimization of minor anxieties that, following diagnosis, appear inconsequential when compared to the illness" (Maher, 1982; Tomich & Hegelson, 2002 as cited in Boyle, 2006). Quotations from a woman who is a breast cancer survivor appear in Box 4-2.

Inasmuch as the client system can describe not only an individual but also a family or a community within the Neuman Systems Model, it should follow that the process of reconstitution also applies to families and communities that experience stressors. For example, the intrusion of cancer causes permanent changes in how survivors and families respond to and cope with the cancer diagnosis, treatment, and sequelae. A new norm must be constructed for the family unit to move forward. Families facing cancer must reconstruct reality and change their future orientation, manage information, assign meaning to illness, reorganize roles, manage therapeutic regimes, and evaluate and shift priorities

BOX 4-2

Case Study: Reconstitution Is Client Initiated in an Effort to Return to a State of Wellness

A Native American woman who survive breast cancer commented:

> In each experience that I live . . . I learn to be grateful for the gifts and live for the moment. . . . When you receive a gift, you need to thank the Great Spirit. . . . The biggest thing I had to learn was how to live life while you are alive. (Pelusi & Krebs, 2005, p. 14)

(Boyle, 2006). Additional analyses are needed to identify patterns in the reconstitution process when stressors are encountered by client systems other than individuals.

Reconstitution Incorporates All Five Client System Variables

In some instances, it would seem that only one variable would be affected by stressors. For example, in the case of a myocardial infarction, it would seem that the physiological variable is most important in reconstitution. However, upon reflection, reconstitution in such a case can be viewed as more than physiological. Other variables that are affected include the psychological aspect of desiring change, the sociocultural aspects of dietary habits, the developmental process of lifestyle, and the spiritual aspect of the hope or fear of the recovery process.

Although it is common to have multiple variables involved in the reconstitution process, the importance of the developmental variable is rarely considered. Christ (2000) studied 150 children's experience of mourning of the death of a parent, which can be viewed as reconstitution within the context of the Neuman Systems Model. Christ found clear, distinct differences among the children's responses based on their developmental stage, and explained, "Indeed, the differences in the timing of the most intense mourning, the defenses used against grief, the very character of the mourning experiences were discernable" (p. 79).

Gerstle, All, and Wallace (2001) found that age was a mediator for quality of life in study participants with chronic nonmalignant pain. Participants who were older perceived a better overall quality of life than their younger counterparts. Gerstle et al. concluded, "Older age seems to be advantageous when faced with adversity of chronic pain and chronic conditions. Perhaps the abilities to cope and adapt to stress, and the consequences of such become more fully developed over time" (p. 105). The researchers, who used the Neuman Systems Model to guide their study, categorized age and other demographic information as stressors, and quality of life as a reaction to the stressor. It may, however, be more appropriate to view age and other demographics as part of the client system's lines of defense and resistance. Age would then represent the developmental variable, and quality of life would represent reconstitution.

The importance of spirituality to the reconstitution process is highlighted in research addressing disability and chronic illness. Rittman, Boylstein, Hinojosa, Hinojosa, and Haun (2007) studied the transitional progress of stroke survivors from discharge to home care. Study participants used spiritual beliefs to provide continuity in life changes related to the stroke. Rittman et al. commented that inasmuch as stroke "disrupts one's sense of self because it changes and alters the taken-for-granted body," (p. 25), a belief in God or a higher power often provides a way to normalize the changes.

Do Rozario (1997) used a sample of individuals with various chronic conditions to study factors that facilitate coping. Spiritual integrity was found to be essential in developing a sense of wholeness. A quote from one woman in her study is given in Box 4-3.

Reconstitution May Be Intra-, Inter-, or Extrapersonal in Nature

Reconstitution from mental illness is an area that has only recently been explored. Mezzina, Davidson, Borg, Marin, Topor, and Sells (2006) describe the process of recovery from mental illness as highly individualized, but with certain components that are similar in nature. Based on interviews with persons from a multinational geographical area, the

BOX 4-3

Case Study: Reconstitution Incorporates All Five Client System Variables

A woman who had osteoarthritis, stated,

> Sometimes if I can actually get myself, move myself from whatever fairly narrow thing I'm actually involved with, it's still a spiritual level, but it's more to do with listening to music or reading something, reading poetry, the whole relationship between the arts and spirituality I suppose. That whole area can be very energizing . . . remembering the spiritual creative dimension, my own interior journey. (Do Rozario, 1997, p. 433)

BOX 4-4

Case Study: Reconstitution May Be Intra-, Inter-, or Extrapersonal in Nature

> "Your relationship to everyone around you is going to change," says [Susan] Nessim, who is a survivor of rhabdomyosarcoma, a childhood cancer of the muscles, which she developed in 1975 at age 17. "You may find yourself cutting off relationships that aren't working. You may want to change jobs because you've had this meaningful, life-changing experience." (Retrieved January 17, 2005, from http://www.medicinenet. com/script/main/art.asp?articlekey=51858)

researchers developed themes to describe the process of recovery from psychosis. Intrapersonal factors included regaining a sense of control over life, self-determination in decision making, making sense of the disorder, and addressing other's perceptions of themselves. Hope, a sense of meaning and purpose, exercise, and spirituality were "some of the more important symbolic components in a reconstruction of the self that incorporated illness and limitations into a broader perspective" (p. 67).

Mezzina et al. (2006) went on to describe interpersonal factors in recovery that included relationships, in which the support person was present over time and through various circumstances, doing more than the objective nature of the relationship demanded, and doing things that were not part of the traditional role. Extrapersonal factors included community arenas where fellowship and activity supported the redefinition of self. A place to call home, financial stability, and other material resources were critical to the recovery process, "not only for engaging in meaningful activities but also as instruments for emancipation from one's illness" (p. 69). Interpersonal factors are highlighted in the quotation given in Box 4-4.

PRACTICING RECONSTITUTION

Assessing the Reconstitution Process

Assessment of the process of reconstitution focuses on how the client system experiences reconstitution. Nurses need to keep in mind that reconstitution is client initiated, not externally provided. The nurse's role is to support the process. Reconstitution can occur as a known process, such as repair of cellular damage to a physiological system after stressor damage, or as a more abstract and less clearly defined process, such as mourning the

loss of a lifestyle. In either situation, assessment of how the client is coping becomes the first step in knowing how to support the process.

The assessment of all five client system variables is crucial. Too often, nurses and other health care team members focus primarily on the physiological aspect of returning to a state of wellness, even after the immediate concern with physiological variables has subsided. However, the literature provides evidence that psychological, sociocultural, developmental, and spiritual variables are as important as physiological variables in the return to a state of wellness. Indeed, it may be that the other variables become increasingly important when a return to the original state of wellness is not likely, such as in chronic illness.

The Neuman Systems Model Assessment and Intervention Tool (see Appendix C) directs assessment to stressors as perceived by the client and by the caregiver, analysis of discrepancies, and intra-, inter-, and extrapersonal factors. It is important to point out that assessment is a continuous process that includes changes in stressors and priorities and changes in intra-, inter-, and extrapersonal factors, which may require concomitant changes in goals over time. Reconstitution assessment includes not only assessment of stressors but of strengths found in the flexible and normal lines of defense and the lines of resistance; the intra-, inter-, and extrapersonal factors influencing the process, including all five client system variables; and the change in goals that occur as reconstitution occurs.

The specific areas of assessment of reconstitution listed below are based on Wright and Leahey's (2005) method of assessing family coping by asking circular questions that allow the family members to examine their thoughts and feelings regarding the impact of the stressor on their lives. The areas of assessment are:

- The client's perception of what is needed by him or her in order to function
- The most and least helpful interventions by health care providers in the past
- The greatest challenges facing the client and family
- What the client (or family) needs in order to prepare for life following this event

Prevention Interventions for Reconstitution

Prevention interventions need to be designed to support the process of reconstitution and to help clients understand the process. Clients frequently ask, "What is happening to me?" and want to know whether what is happening is "normal." Understanding the complicated process that is necessary to regain not only a physiological return to normal but also a new sense of self can be extremely helpful to clients who are trying to make sense of a new body, a new situation, or an altered lifestyle. Health care professionals must incorporate this information into the health teaching for clients.

Although nurses can assist clients with the intrapersonal process of reconstituting physiological variables through use of medication, treatments, and various other physical interventions, it is clear that the inter- and extrapersonal aspects of supporting reconstitution are equally important for clients' return to a state of normal. Being supportive, doing more than is professionally required, and thinking and doing things that are "outside of the box" have been identified, as well as providing community activities and help with finding meaningful work, and, if necessary, a safe place to call home. Although not all of these interventions are needed by all clients all the time, and not all may be offered by nurses, it is clear that health care professionals have a very important role to play in supporting their clients' progress toward a state of wellness. Indeed, helping the client to

understand the process of reconstitution is probably one of the least documented and yet most important roles of the health care professional.

Evaluating Reconstitution

Knowing when reconstitution is successful is a challenge for both nurses and client systems. Some information about the impact of reconstitution on individual client systems is available, but less is known about the impact on family systems, and even less is known about how supporting reconstitution affects health care providers.

Although evaluation of reconstitution can be accomplished by asking how recovery is progressing, a more structured evaluation format will provide a more comprehensive evaluation. A structured format can also be helpful in organizing an evaluation of outcomes of prevention interventions.

Drawing from Wright and Leahey (2005), a structure for evaluating reconstitution includes the four areas listed here:

1. How the client's perception of the situation has changed
2. What interventions have been the most helpful and least helpful
3. What challenges the client continues to confront
4. Where the client system is in the life process following the event

TEACHING RECONSTITUTION

Historically, the concept of reconstitution has only been addressed superficially when teaching the Neuman Systems Model to students. Although the concept typically is defined, little emphasis has been placed on the importance of nursing care to support the reconstitution process. One way to enhance students' understanding of reconstitution is to start with the goal of returning the client system to a state of wellness and help students to realize that returning to a state of wellness occurs through the process of reconstitution. Then students can be helped to devise prevention interventions that support the five client system variables and the lines of defense and resistance by initiating nursing care which strengthens and reorganizes variable interactions that may have been damaged by stressors. Such a teaching-learning strategy helps students to understand the crucial role that all client system variables play in the return to wellness, as well as the need for a partnership between the health care professional and client system and a more holistic approach to providing care.

For example, when teaching students enrolled in a psychiatric mental health course practicum in a community setting, the teacher could direct students to begin with understanding the goal for the client. To do that, an assessment of the client's needs, desires, strengths, and barriers to achieving the goal is necessary. The assessment could begin by asking the client what he or she would like to accomplish or what he or she regards as a long-term goal, which emphasizes the collaborative relationship between the nurse caregiver and the client. The assessment can continue with identification of the status of physiological variables, such as medication needs, side effects of medications, and comorbidity issues, such as alcoholism, smoking, and diabetes. Sociocultural variables to be assessed include whether the client has a safe home and adequate income, and if the client is employed. Assessment of developmental variables also is important, including the client's age and developmental stage of reasoning. Although assessment of spiritual variables may not

seem relevant for a chronically mentally ill person, determining the client's sense of hope and belief in a higher power, as well as his or her use of art and music to support the spiritual aspects of life, can provide valuable data. Of course, psychological variables must be assessed, with emphasis on how the illness has changed the client's ability to relate to others, to think for himself or herself, and to connect to the outside world, as well as an identification of what the client thinks might improve his or her situation. Such a teaching-learning strategy will facilitate students' understanding of the interaction of the client system variables, the need for complete and holistic assessments of chronically mentally ill clients, and intervention plans that foster reconstitution of clients to the highest possible level of system stability based on the Neuman Systems Model.

RESEARCHING RECONSTITUTION

Little research has focused on the Neuman Systems Model concept of reconstitution. There is, however, extensive research that addresses similar concepts across diverse clinical situations. Concepts such as reconstruction, surviving, transitioning, continuity, and recovery have been studied extensively. A consistent theme drawn from the various studies is that findings reflect one or more attributes of reconstitute. What has not yet been explored in great detail is the pattern of how client systems reconstitute across known stressors. The necessary next step is to undertake integrative reviews of relevant research, including metasynthesis of qualitative research and meta-analysis of quantitative research, that will identify patterns of reconstitution regardless of the type or origin of the stressors. Knowledge development could be greatly enhanced by asking such questions as:

- What is the process of restoration and adjustment to the impact of stressors that threaten client system stability?
- Are there similarities in the processes of adjustment and restoration of persons who experience different types of stressors?
- Can those similarities be identified?
- Can those similarities be used to design interventions that will be helpful in moving clients to stability and wellness?

Such research questions will help to elaborate the Neuman Systems Model and substantiate its impact on health care delivery. As Hays (2007) maintained, "Programs, theories, measures, policies and teachers adjust to changing circumstances. The critical strategic decision is never to foreclose the inquiry or the ways of knowing but rather to invite and embrace all that can be learned from words and numbers" (p. 299).

Conclusion

The focus on reconstitution in this chapter extends understanding of this important Neuman Systems Model concept. The needed additional work outlined in the chapter should yield even greater understanding of the concept and should contribute substantially to design of prevention interventions that will foster client's reconstitution to an optimum level of system stability.

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CHAPTER 5

The Created Environment

Marlou de Kuiper

The concept of the created environment was added to the Neuman Systems Model in 1989 (Neuman, 1989) but its use with client systems in practice has never been described in detail. The purpose of this chapter is to enhance understanding of the Neuman Systems Model concept of the created environment and to contribute to the development of guidelines for practice.

DEFINING THE CREATED ENVIRONMENT

The created environment was initially defined as a dynamic component of the Neuman Systems Model that "represents the client's unconscious mobilization of all system variables, including the basic structure energy factors, toward system integration, stability, and integrity" (Neuman, 1989, p. 32). The function of the created environment is "to offer a protective shield or safe arena for system function" that encompasses the internal and external environments and is "intra-, inter-, and extrapersonal in nature" (p. 32).

Over time, the created environment has been interpreted by users of the Neuman Systems Model to be the client system's construction of reality, which influences the client system's perception of and reaction to stressors. Furthermore, Neuman's (1989) conceptualization of the created environment as "a symbolic expression of wholeness" (p. 32) can be interpreted to mean those personal characteristics that client systems perceive as essential for wholeness or survival.

THE WHOLENESS OF CLIENT SYSTEMS

The content and nature of the exchange of matter, information, and energy between client systems as they interact leads to differences in perceptions of the wholeness or uniqueness, or "unicity," of personal characteristics (Arendt, 1958). How the unicity of personal characteristics is perceived depends on the client system's overall construction of reality, that is, the created environment. Unicity is perceived to be positive or beneficial when an individual client system's personal characteristics are recognized in a unitary manner, such as when someone comments, "You have a lovely smile," or "You have beautiful hair," or "I love you even if we sometimes fight." However, unicity is perceived

to be negative or damaging when clients do not feel understood or acknowledged for their personal characteristics, such as when someone states, "You always make too much noise" or "You never clean up your room." When personal characteristics are acknowledged positively, the client system's created environment is a safe and empowering place. Conversely, when personal characteristics are acknowledged negatively, the client system's created environment is an unsafe place of loneliness and misunderstandings.

The created environment has been studied extensively in the field of human ecology, which has been described as:

> an interdisciplinary applied field that uses a holistic approach to help people solve problems and enhance human potential within their near environments—their clothing, family, home, and community. Human Ecologists promote the well-being of individuals, families, and communities through education, prevention, and empowerment. (University of Alberta, Department of Human Ecology, http://www.ales.ualberta.ca/hecol/)

COREGULATION AND THE CREATED ENVIRONMENT

When a system is out of balance and moving away from well-being, the system may, as a way of coping, seek help from nurses and other professional caregivers. According to Timmers-Huigens (2001), the exchanges between client systems and caregivers can be considered a process of coregulation aimed at finding dynamic stability for increased well-being. Good-quality coregulation generates a created environment of safety, security, self-confidence, trust, openness in relationships, balance, and harmony. Poor-quality coregulation, in contrast, generates a created environment of insecurity, fear, loneliness, discomfort, and inadequacy.

Coregulation and Empathy

Because coregulation is the essence of every caregiving relationship, professional caregivers must be able to provide good-quality coregulation. The main skill required for provision of good-quality coregulation is empathy, which is a person's capacity to recognize or understand another person's state of mind. Empathy is achieved through the caregiver's intention to understand the client system's created environment. Understanding another's created environment requires not only a general feeling of love and caring for others but also a considerable amount of knowledge of people in general, including knowledge of the five Neuman Systems Model client system variables in the form of physical functions, psychological insights, sociocultural influences, developmental issues, and the meaning of spirituality. This knowledge is achieved through a lifetime of dealing with other people and formal and informal education.

Coping Strategies

Caregivers can help client systems to mobilize coping strategies, which refer to the specific efforts, both behavioral and psychological, that people employ to master, tolerate, reduce, or minimize stressful events (Folkman & Lazarus, 1980). Two general coping strategies have been distinguished: problem-solving strategies are efforts to do something active to alleviate stressful circumstances, whereas emotion-focused coping strategies involve efforts to regulate the emotional consequences of stressful or potentially stressful events.

Some coping strategies are active, and others are considered avoidant. Active coping strategies are either behavioral or psychological responses designed to change the nature of the stressor itself or how one thinks about the stressor. Avoidant coping strategies lead people into activities—such as alcohol use—or mental states—such as withdrawal—that keep them from directly addressing stressful events.

Coping strategies have been studied extensively (Wong, Wong, & Lonner, 2006). The field of coping studies has moved from Freud's psychoanalytical approach through the second generation of coping studies, which includes behaviorism; the transactional approach, which involves cognitive appraisal and taxation of demands and resources; and the trait approach, which includes the concepts of hardiness and locus of control. The next generation of coping paradigms includes the study of appraisal and coping behavior and its consequences. It has become clear that active, problem-focused strategies are associated with the best client system outcomes in terms of well-being. The latest generation of coping studies is not so much oriented toward problems and how people deal with them but rather toward being happy and healthy and how to stay that way. The fields of positive psychology and neuroscience have made it clear that happiness and health are not so much a consequence of one's destiny as positive conscious choices.

THE CREATED ENVIRONMENT AND GOALS OF CAREGIVING

Within the context of the Neuman Systems Model, two general goals are: (1) to assist client systems to gain insight into the quality of their created environments and the impact of the perceived created environment on health-related behaviors; and (2) to set mutual, meaningful, attainable goals. Setting goals requires insight into the client system's patterns of coping strategies and insight into ways of converting ineffective or negative coping strategies into effective, positive coping strategies. The required insight is gained through interpreting the client system's behavior as an expression of his or her created environment and providing the client with an interpretation of the behavior, that is, feedback.

Feedback

Feedback is the process of sharing observations, concerns, and suggestions between persons with the intention of improving personal performance (van Schaik & Barkema-Sala, 2008). Properly given feedback will provide insight into the client system's created environment. In practice, the caregiver takes on the role of coach, to guide the client system to a different and more positive way of perceiving a situation. The aim is to change emotion-focused and/or avoidant coping strategies to problem-focused and/or active coping strategies.

Effective coaching is accomplished by following the five guidelines listed in Box 5-1. A case study of an interaction between a client system and a nurse acting as a coach is given in Box 5-2.

CULTURAL SENSITIVITY AND CULTURAL COMPETENCE Effective feedback requires being sensitive to various influences on the client system's created environment. Cultural, ethnic, linguistic, and economic differences influence how individuals and groups access and use health, education, and social services. Those differences can also be barriers to effective education and prevention interventions, especially when health educators or health care practitioners stereotype, misinterpret, make faulty assumptions, or otherwise

BOX 5-1

Five Guidelines for Effective Coaching

1. Always ask the client for his or her assessment of the situation first. In other words, before the caregiver offers advice or instructions, it is important to find out what the client is thinking. For example, the caregiver could ask the client, "How do you think that went?"

2. Give balanced feedback, starting with the positive. To be effective, feedback must be balanced. If the caregiver focuses only on the negative, the client's likely reaction will be defensiveness. If the client is defensive, he or she will shut down, tune out, or rationalize the caregiver's feedback as irrelevant. If, however, the caregiver focuses on the positive, the client may be more open to negative feedback later. With balanced feedback, the client does not assume that the caregiver is "out to get me." Instead, the client views the caregiver as being fair.

3. Face challenges with courage. Handling tough issues can be uncomfortable and difficult for both caregiver and client. The caregiver should ask him- or herself, "Does this client deserve my help?" Caregivers who care about their clients need to be honest with them, even when it is painful.

4. Provide specific feedback. Document comments with concrete examples. In particular, the caregiver should provide a detailed description of the when, where, and how of the client's specific behaviors, actions, words, or body language to support the feedback.

5. Protect the client's confidentiality. When giving feedback, the caregiver must be certain that the setting is private and free from distractions, and that the client knows that what is said will not be repeated to others.

BOX 5-2

Case Study: Nurse Coaching

Angela has come to see Mary, who is a nurse practitioner at a community clinic.

Angela, who is 55 years of age, has a history of psychiatric care due to recurring depression and alcohol abuse. She has type 2 diabetes and is overweight at 220 pounds. She has two sons, aged 35 and 37, who live far away; she sees them only once or twice every year. Angela has been living by herself for the last 2 years and seems to have been doing reasonably well.

Angela complains of feeling very tired lately. Mary asks her about her diet and insulin administration. Angela confesses that she never cooks a meal and just snacks on fast food.

Mary compliments her on having lived by herself for the last 2 years and having done well by not drinking alcohol and keeping her diabetes under control. Angela is really happy about the compliment, and tells Mary that that is the nicest thing anyone has said to her in the last 10 years.

Angela is so happy about the compliment that she asks Mary to help her to lose weight. Mary asks her if she has any ideas about how she could accomplish that goal. Angela replies she used to love to cook for other people but now that she has no one to cook for, she does not eat properly. Mary finds out that, despite her history of depression and alcohol abuse, Angela is a certified cook and has worked in several good restaurants.

Mary also finds out that the homeless shelter in their community needs a cook. Angela now cooks meals at the shelter four days each a week, which has made her feel useful, talented, and much less lonely. She is eating much healthier meals, and even though she has not yet lost any weight, she feels much more energetic.

mishandle their exchanges with individuals and groups who are viewed as different in terms of their backgrounds and experiences (Leininger, 1985).

The term *cultural competence* refers to the ability to work effectively with individuals from different cultural and ethnic backgrounds, or in settings where several cultures coexist. It includes the ability to understand the language, culture, and behaviors of other individuals and groups, and to make appropriate recommendations. Cultural competence exists on a continuum from incompetence to proficiency. *Cultural sensitivity,* which is a necessary component of cultural competence, means that health care professionals make an effort to be aware of the potential and actual cultural factors that affect their interactions with clients.

Conclusion

The promotion of well-being as the main focus of nursing requires nurses to have extensive knowledge of the way in which people create their environment. The field of human ecology contributes to this knowledge as well as the body of knowledge of positive psychology and neuroscience that has been developed over the past decade. Through the created environment, client systems develop patterns of coping strategies that are not always effective. Nurses may assist client systems to develop effective, positive coping strategies through empathy, cultural sensitivity, interpretation of the client system's behavior, and feedback. Nurses may view their main role in this endeavor as that of a coach. Caring then is viewed as assisting the client system to gain insight into his or her created environment and coaching the client system toward effective coping.

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CHAPTER 6

Critical Thinking

Opal A. Freiburger

Professional practice and scientific research require high-level critical thinking. This means that nurses and other health care team members must be able to offer constructive criticism, engage in logical reasoning, and be willing to share information, ask questions, consider different perspectives, and construct knowledge from discourse with others.

The purpose of this chapter is to enhance understanding of critical thinking within the context of the Neuman Systems Model. The chapter starts with a definition of critical thinking and continues with a discussion of how critical thinking is viewed within the context of the concepts of the Neuman Systems Model. The chapter concludes with a discussion and two examples of strategies that can be used to facilitate development of nurse-learners' competency in critical thinking.

DEFINITION OF CRITICAL THINKING

Critical thinking, as defined by Ruggiero (2001), "means reviewing the ideas we have produced, making a tentative decision about what action will best solve the problem or what belief about the issue is most reasonable, and then evaluating and refining that solution or belief" (p. 151). Two complementary and distinct yet intertwined phases of the mind are involved in the process of critical thinking—a production phase and a judgment phase. During the production phase, ideas are brought forth. More adept critical thinkers tend to see a problem from many perspectives, produce a greater variety of ideas, and consider more different approaches for resolving a problem than thinkers who judge too quickly and uncritically. The focus of the judgment phase is on examining and evaluating what has been produced, making judgments, and refining the thinking. During this phase, thinking centers on testing the workability and logic of solutions and basing conclusions on evidence to support thinking. More proficient thinkers are able to master approaches to each phase and develop skill in moving back and forth between them (Ruggiero).

CRITICAL THINKING WITHIN THE CONTEXT OF THE NEUMAN SYSTEMS MODEL

Critical thinking permeates all aspects of nursing practice and is the means by which a nurse-learner practices nursing. The nursing process is regarded as a model of critical thinking (American Nurses Association, 2004). Thus, nurse-learners' systematic use of the Neuman Systems Model nursing process requires the ability to think critically. Application of the nursing process involves collecting and analyzing data, selecting a nursing diagnosis that is validated through evidence from scientific and other sources, identifying expected client outcomes, planning care, implementing appropriate nursing actions, and evaluating all components of nursing care each of which may require refinement based on changing client or environmental conditions. Several Neuman Systems Model concepts are relevant to critical thinking, including the client system; client system variables; the basic structure; the flexible and normal lines of defense; lines of resistance; internal, external, and created environments; and stressors.

The Client System

The nurse-learner is considered a client system in the Neuman Systems Model. When viewing the nurse-learner as the client system, the teaching-learning process is regarded as an open system that is in a reciprocal relationship with the environment. The nurse-learner may influence or be influenced either positively or negatively by the internal environment, the external environment, and the created environment.

Client System Variables

The Neuman Systems Model client system variables permeate all aspects of the nurse-learner client system. Examples of relevant variables associated with each of the five client system variables include:

1. ***Physiological variables***—Physical status, physical abilities and limitations, manual dexterity, five human senses
2. ***Psychological variables***—Cognitive ability, self-confidence, emotional stability, perceptions, level of anxiety, learning abilities/disabilities
3. ***Sociocultural variables***—Family, friends, colleagues, support systems, family and role responsibilities, language, and cultural beliefs about health, illness, and teaching/learning
4. ***Developmental variables***—Level of competency/skill acquisition, experiences, age, completion of developmental tasks, level of maturity, professional attributes, learning style
5. ***Spiritual variables***—Ego strength, personal integrity, identity, motivation, quest for inquiry, caring attitude, meaning of life/value of life

The Basic Structure

The basic structure of the nurse-learner system includes factors that are common to all practicing nurses. However, degrees of variation exist among individuals. Core components include cognitive abilities, psychomotor abilities, response pattern, language and

communication, ego structure, energy resources, and the nurse's human senses. Factors in the basic structure must be considered when teaching nurse-learners to assimilate knowledge and think critically to make sound decisions in practice. Nurse-learners entering practice as registered nurses are expected to have the ability to use the nursing process. Nursing diagnoses, a major component of the nursing process, provide the structure for nursing interventions. Practicing nurses and nurse educators are being challenged to address the critical need to improve the accuracy of nursing diagnoses (Lunney, 2008). This is an example of how a nurse-learner system may be influenced by environmental factors, teaching methodologies, and practice standards.

Flexible Line of Defense

The flexible line of defense acts as the nurse-learner's protective buffer against stressors. Nurse-learners, for example, may be motivated to increase their study time in response to the stressor of a scheduled exam, a supervised procedure demonstration, or preparation for a clinical assignment to provide nursing care for a client with diabetes. The nurse-learner's flexible line of defense is strengthened, for example, by a healthy lifestyle and weakened by too little sleep.

The flexible line of defense represents the nurse-learner's beginning knowledge and skills that require repeated practice for mastery. Course content is introduced through the flexible line of defense. A nurse-learner's flexible line of defense is rich with opportunities that can be used by educators to facilitate critical thinking. Therefore, it is essential to start from the first day of the educational program to define critical thinking, engage nurse-learners in activities to illustrate and evaluate critical thinking, and to articulate expected critical thinking learning outcomes for each nursing course. By the time that nurse-learners begin practicum experiences, they have acquired a vast amount of information from other college courses, personal experiences, observations, and anecdotal reports. However, this information frequently is fragmented and scattered. Thus, a major critical thinking task for nurse-learners is to learn to analyze, synthesize, and integrate their previously acquired knowledge and skills into the content of the nursing practicum courses. Other critical thinking tasks include discriminating fact from fiction, interpreting and prioritizing data, and selecting the most appropriate nursing action from a series of optional nursing actions.

Normal Line of Defense

The normal line of defense represents the nurse-learner's usual steady state. Factors associated with the normal line of defense include appropriate developmental level; internalized repertoire of knowledge, skills, and abilities; self-directedness; acceptance of responsibility for lifelong learning; spirit of inquiry; and the ability to construct knowledge.

The normal line of defense reflects mastery of certain knowledge and skills. As learning occurs, the normal line of defense responds by integrating newly acquired knowledge, skills, and behaviors into its normal or usual state. If the nurse-learner fails to retain or store information so it can be assimilated into the normal line of defense, over time the information may be lost. The goal is to embrace the concept of lifelong learning and use techniques consistent with expansion of the nurse-learner's normal line of defense. For example, nurse-learners are expected to integrate knowledge of principles for sterile technique when performing a urinary catheterization.

Lines of Resistance

Lines of resistance represent factors that support the basic structure and protect the integrity of the nurse-learner system. When environmental stressors invade the normal line of defense, the lines of resistance become activated. The nurse-learner's lines of resistance include the ability to transfer and build on previous knowledge and cluster information, understand principles, standards, and statutes relevant to practice; engage in self-evaluation; and consistently use productive study habits. Internalizing critical thinking and applying the nursing process as a model of critical thinking are expected outcome goals for nurse-learners. Safe and appropriate care of individual, family, group, and community client systems requires consistent use of critical thinking. Coping effectively with an unannounced quiz or an unexpected practice situation, for example, reflects the condition of the nurse-learner's lines of resistance.

Educators assume a pivotal role in providing opportunities for strengthening learners' lines of resistance and facilitating their critical thinking through the use of simulated and actual clinical practice experiences. Computer-programmed mannequins can be used to simulate a wide variety of situations through which nurse-learners practice nursing, receive feedback, evaluate their performance, and refine their responses in a safe environment (Hodge, Martin, Tavernier, Perea-Ryan, & Houten, 2008; Overstreet, 2008). In actual clinical situations, faculty support for nurse-learner experiences includes such techniques as reviewing procedures with students prior to actual performance, fostering perceptions that students are expected to "do" appropriate procedures with guidance and supervision rather than "observe" the procedures, initiating self-evaluation of performance, and giving feedback to students after procedures are completed.

Internal, External, and Created Environments

The environment encompasses factors that are internal and external to the nurse-learner system and are the source of stressors. The internal environment incorporates forces that are contained within the nurse-learner system and is the source of intrapersonal stressors. An example is a nurse-learner with diabetes struggling to keep her/his blood sugar under control, while trying to juggle family and educational responsibilities. The external environment refers to forces outside the nurse-learner system and is the source of interpersonal and extrapersonal stressors. An example is a nurse-learner having difficulty working with a team leader in the practice setting.

The nurse-learner's created environment is dynamic, purposeful, and representative of unconscious mobilization of all system variables. Inasmuch as a major objective of the created environment is to stimulate the nurse-learner's critical thinking skills, it is advisable for nursing educators to be aware of situations that might interfere with the educational process. For example, some nurse-learners may not recognize their limitations and unconsciously deny problems experienced when previously performing a procedure or may not be aware that they are exhibiting an unusually high level of anxiety in a situation. Educators can utilize the benefits of the created environment by guiding the nurse-learner's energies and abilities within a learning environment that fosters a sense of mutual trust, collaboration, mutual respect, openness, and authenticity (Freiburger, 1988).

Stressors

Intrapersonal, interpersonal, and extrapersonal stressors may disrupt nurse-learner system stability and may produce a positive or a negative outcome. Relevant stressors encountered by nurse-learners include inadequate or disrupted sleep, work overload, family and/or work responsibilities, lack of time or poor time management, high level of anxiety, lack of motivation, unrealistic expectations, misconceptions about decision making, and lack of basic knowledge.

TEACHING AND LEARNING CRITICAL THINKING

Critical thinking is most efficiently taught within the realm of domain knowledge rather than through critical thinking programs. Guidelines for teaching nursing students to think critically include the use of nursing content that is appropriate for the knowledge level of the learners with the expectation that all students have the ability to think critically. Educators should also identify and give explicit examples of how critical thinking strategies apply to course content, proceed in stages, and provide ample opportunity for practice (Willingham, 2007).

Teaching nurse-learners to think critically is a high priority in nursing education. As nurse-learners progress through each course, their abilities to think critically and the quality of their thinking are progressively challenged through a variety of educational activities in the classroom and in various practice settings. Critical thinking skills typically improve as nurse-learners become competent at one level of nursing and advance to more complex practice situations. At each level, nurse-learners encounter challenges that can be overcome with practice and motivation to improve. Over time, thinking critically becomes habitual, and the overall quality of thinking is enhanced (Ruggiero, 2001).

Nursing education programs typically emphasize critical thinking through teaching and learning activities that foster nurse-learners' abilities to analyze, prioritize, diagnose, synthesize, and evaluate as they learn to apply the nursing process in practice. Strategies such as the use of inquiry and assisting students to discover knowledge are effective methods for teaching nursing students to think critically (Freiburger, 1998).

A wide variety of methodologies are used to assimilate clinical situations and apply nursing theory to practice. The amount of time and the availability of appropriate procedures for students to perform in clinical settings are limited. Advanced simulation technology currently is the most effective and efficient way to provide experiential learning opportunities that incorporate aspects of critical thinking, psychomotor skills, emotional issues, and ethical issues in programmed situational experiences (Hodge et al., 2008; Overstreet, 2008). Numerous benefits and innovative ways to use computerized simulated programs for hands-on practice are readily available in the nursing literature. In addition, the International Nursing Association for Clinical Simulation and Learning (www.inacsl.org) is a valuable resource for the use of simulation in education.

Reflective thinking is a technique that can be used to teach learners to be self-directed in evaluating and identifying ways to improve their performance and critical thinking abilities. Educators use reflective teaching methods in multiple situations, such as debriefing after simulation or actual performance, writing and examining personal experiences,

and presenting various contextual situations requiring specific appropriate responses (Forneris & Peden-McAlpine, 2007; Tanner, 2006). The examples of nurse-learner self-evaluations in this chapter are rooted in the use of reflective teaching.

Inasmuch as registered nurses are expected to evaluate their own practice in relation to current professional nursing practices, identify their strengths, and determine areas for improvement (American Nurses Association, 2004), it is imperative that nurse-learners learn to evaluate their performance and be actively involved in their own learning. In addition to providing the basis for determining the ability to perform various tasks and the need to seek assistance, self-evaluation plays a major role in developing self-confidence (Freiburger, 2002). When nurse-learners review their actions, identify their strengths, and determine goals to improve their performance, they tend to emphasize a critical and reflective approach to learning.

Encouraging nurse-learners to constructively criticize their own performance of procedures is facilitated by use of periodic written self-evaluations. This teaching-learning strategy provides opportunities for nurse-learners to express their thinking in writing and, therefore, make the connection between thinking clearly and writing clearly. The written self-evaluation also provides concrete evidence of thinking and reasoning that can be used to track nurse-learners' progress. And, when descriptions of practice situations are the focus of the self-evaluation, the nurse-learner has an opportunity to convey the meaning of the situation to self and others. Moreover, a written self-evaluation helps nurse-learners to organize, clarify, and rethink aspects of their performance.

Examples of nurse-learner self-evaluation of critical thinking within the context of the Neuman Systems Model are given in Boxes 6-1 and 6-2. An example of the use of quizzes as a self-evaluation strategy that can foster critical thinking is presented in Box 6-1. An example of a holistic critical thinking professional and personal plan as another self-evaluation strategy that fosters critical thinking is given in Box 6-2 and Table 6-1.

BOX 6-1

Use of Quizzes to Foster Critical Thinking

Quizzes can be used for self-evaluation of clinical experiences for nurse-learners in any course. The example given here is for nurse-learners enrolled in the first nursing practicum course. The quiz encompasses five components—nursing activities, learning experiences, stressors, strengths, and goals.

- Nursing activities—Flexible line of defense: Briefly describe the types of nursing interventions you have performed. List any unusual or special activities that were included in your practice experience.
- Psychological variable learning experiences and stressors—Interpersonal stressor: Describe an interaction with a client, staff member, or instructor that was an especially helpful learning experience.
- Learning experiences and stressors—Intrapersonal stressor: Describe a situation involving a client, staff member, or instructor that you found to be stressful.
- Strengths—Lines of resistance: Identify two of your strengths for application of nursing knowledge to practice.
- Goals—Normal line of defense: List two goals for improving your practice that you want to attain this semester.

The quiz stimulates critical thinking through the judgment phase of mental functioning. During

this phase, the nurse-learner examines and evaluates what has been produced, makes judgments, determines need for refinement, and supports his or her responses with evidence (Ruggiero, 2001).

Self-evaluation is an excellent strategy for thinking critically about learning experiences, identifying positive aspects of performance that are satisfying and tend to build self-confidence, recognizing limitations and areas of concern, and establishing goals to improve performance.

BOX 6-2

Use of Holistic Professional and Personal Plan Development to Foster Critical Thinking

An assignment to develop a holistic professional and personal plan based on self-evaluation in a senior year nursing course can be incorporated into a take-home final examination or given as a separate assignment. The assignment requires nurse-learners to prepare a self-assessment (My Perceptions of Me) and use the self-assessment results as the basis for a plan of care that addresses their professional and personal development. The plan of care includes four sections—personal and professional goals, stressors that may affect goal attainment, strengths and areas of improvement, and prevention interventions.

Examples from the My Perceptions of Me self-assessment are listed here:

- Strong-willed, stubborn person who is easily stressed.
- I am surprised to see a person that I hardly know.
- Believe that strengthening the core of holistic health is very important.
- Holistic health: balance of physiological, psychological, sociocultural, developmental, and spiritual aspects of life; my life contains all of these aspects; on my way to having holistic health, but haven't got the balance I would like to have.
- I believe that my face reflects my holistic health; I am trying to "build my own face" with responsibility.

An example of a holistic professional and personal development plan is displayed in Table 6-1.

TABLE 6-1 Holistic Professional/Personal Development Plan

List personal and professional goals; include all five variables of the Neuman Systems Model: physiological, psychological, sociocultural, spiritual, and developmental	List stressors/potential stressors that may affect attainment of your goals	Identify strengths and areas for improvement; list strategies to strengthen your flexible line of defense	Develop realistic interventions that you can use to promote holistic health and achievement of your goals
Improve health habits	Gained 10 pounds in 2 years	Lose weight	Record food intake
Develop plan for exercise	Eat too many meals at fast-food restaurants—less time to prepare and clean up	Do not skip meals	Join weight-loss program after graduation
	Use eating as a coping mechanism—snack while studying	Avoid eating late at night	Plan weekly menu—healthy, well balanced meals
	Craving for chocolate	Eat healthy, well balanced meals	
		Decrease consumption of caffeine	

(*continued*)

TABLE 6-1 (continued)

	Addicted to caffeine—helps me stay alert for studying No time to exercise—study; work 2–3 days each week; 2 children—6 and 8 years old; help children with homework; study after they go to bed	Exercise regularly Take time for myself Time management Family approach to household chores Develop healthy coping mechanisms to reduce stress	Have fruits, vegetables, low-fat snacks available Make and adhere to grocery list for meals Schedule grocery shopping (rather than quick stops on way home) Increase water intake Go to bed no later than 10 p.m. Listen to relaxing music to promote sleep Develop family schedule for help with routine chores Have children help with clean-up after evening meal Take 2-hour walks 3–4 times each week—Maybe have family walks after dinner to walk and talk
OTHER SAMPLE ENTRIES			
Pass licensure examination Seek full-time employment Pay off loans Pursue balance in all my roles Develop a social life that revolves around my family instead of school Feel more confident Cope effectively with lifestyle changes Continue to express hope in and value of my belief system and inner resources	Inexperience in nursing Role change from student to registered nurse Facing decisions alone Not passing boards Comparison of self to others with experience Working weekends Low self-esteem and low confidence Parent's health and aging Inability to accept death as a reality Want to please everyone at expense of myself	Maintain realistic expectations Do not take on more than I can handle Seek balance in life Take time to relax and rejuvenate Start taking care of myself Develop a normal schedule Be direct and assertive Learning to say no when I need to Need more self-discipline to take care of my physical and spiritual needs	Journal to help clear my mind and use entries for future self-introspection Pat self on back for jobs well done and strive to improve skills that need to be improved Remind myself daily that I will be loved and accepted even though I cannot help everyone Use a nicotine patch to help me quit smoking Make and follow a budget Schedule special dates with my husband

TABLE 6-1 (continued)

Continue to find meaning and purpose in life	Fear of not recognizing declining patient conditions	Maintain family support system	Do gardening: it is creative, physical, and spiritual
Decorate and paint interior of house	Do not stand up for myself to avoid conflict	Maintain my sense of humor	Travel to see some natural beauty
Become a professional and *good* registered nurse	Frequent feelings of being overwhelmed	Continue to have a positive attitude and be a self-motivator	Practice mindfulness, staying focused on the present, one thing at a time
Have a closer relationship with God	Financial responsibilities		Ask for help when I need it
Enhance relationship with husband and children	Organizational skills		
Quit smoking			

Conclusion

The content of this chapter expands understanding of how the Neuman Systems Model can be used to enhance nurse-learners' ability to think critically. Although written from the perspective of undergraduate nursing education, the ideas presented in this chapter can be utilized in other teaching and learning situations, such as graduate nursing education and continuing education in practice settings.

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SECTION THREE

Neuman Systems Model Guidelines for Education, Practice, Administration, and Research

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CHAPTER 7

Neuman Systems Model–Based Education for the Health Professions: Guidelines and Educational Tools

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The Neuman Systems Model was developed as a way to organize nursing specialty course content (Neuman & Young, 1972). The potential of the model's use as a guide for an entire curriculum was soon recognized. Later, the potential of the model to serve as a guide for education in other health care disciplines was also recognized (Toot & Schmoll, 1995). When used as a guide for education, the focus of the four nursing metaparadigm concepts is modified. *Human beings* become the learners in the educational program, and *environment* becomes the surroundings of the learners, the teacher-learner interactions, and the settings in which education for the health professions takes place. *Health* becomes the curriculum that promotes teachers' ability to communicate content effectively and efficiently, and learners' ability to comprehend and apply content, as well as the advancement of the health care discipline of interest, and *nursing* becomes the teaching, learning, and advising strategies used by teachers.

In this chapter, guidelines for Neuman Systems Model–based education are identified, as are the educational tools that have been derived from the model. The chapter includes a discussion of each guideline and an explanation of how the Neuman Systems Model facilitates wholistic education for the health professions.

THE NEUMAN SYSTEMS MODEL EDUCATION GUIDELINES

Rudimentary guidelines for Neuman Systems Model–based nursing education were extracted from the content of the model several years ago (Fawcett, 1989) and were refined over time (Fawcett, 1995, 2000; Newman, Neuman, & Fawcett, 2002). The refinements in the guidelines were the direct result of the growing literature about the use of the Neuman Systems Model in nursing education programs (see especially Johnson, 1989; Lowry, 1988, 1998; Mirenda, 1986; Neuman, 1985, 1995; Ross, Bourbonnais, & Carroll, 1987; Strickland-Seng, Mirenda, & Lowry, 1996). The most recent refinements, which are the result of dialogue among the authors of this chapter, are presented in Table 7-1. Although the guidelines initially were targeted to nursing education, our interest in the use of the Neuman Systems

TABLE 7-1 Guidelines for Neuman Systems Model–Based Education for the Health Professions

1. Focus of the Curriculum	The focus of a Neuman Systems Model–based educational program is on the client system's reaction to environmental stressors. The purpose of education for the health professions is to facilitate the design and use of primary, secondary, and tertiary prevention-as-intervention modalities by learners and teachers to assist client systems in retaining, attaining, and maintaining optimal wellness.
2. Nature and Sequence of Content	The content of a Neuman Systems Model–based curriculum encompasses all of the concepts of the model. The sequence of content may be guided by the complexity of interactions among the concepts or by the prevention-as-intervention modalities.
3. Settings for Education for the Health Care Professions	Education can occur in vocational and technical programs, hospital-based nursing diploma programs, associate degree programs, baccalaureate programs, and graduate programs. The concepts of the Neuman Systems Model can be used to guide the sequence and timing of program offerings, such as a generic or an accelerated curriculum, as well as the mode of delivery of content, such as traditional classroom, Web-enhanced, or distance learning using various telephone, television, and online Internet technologies.
4. Characteristics of Learners	Learners who meet the requirements for any type of health professions educational program must have the ability to engage in high-level critical thinking. Learners also must be willing to engage in both cooperative and independent learning.
5. Teaching-Learning Strategies	Teaching-learning strategies include a variety of modalities that foster critical thinking, as well as cooperative and independent learning.

Model across diverse health care fields of study called for the extrapolation of the guidelines to education for all health professions. Consequently, the guidelines listed in Table 7-1 have been written for educators and students in all fields of health care.

Focus of the Curriculum

The first guideline stipulates that the focus of a Neuman Systems Model–based educational program is on the client system's reaction to environmental stressors. This means that the curriculum must emphasize clients' perceptions of intrapersonal, interpersonal, and extrapersonal stressors, and that the curriculum must take into account the possibility of both noxious and beneficial stressors. The first guideline also stipulates that the purpose of education for the health professions is to facilitate the design and use of primary, secondary, and tertiary prevention-as-intervention modalities by learners and teachers, and to assist client systems in retaining, attaining, and maintaining optimal wellness. This means that, in concert with the first aspect of this guideline, the ultimate goal of the curriculum is to help learners implement prevention interventions that will strengthen clients' lines of defense and resistance against environmental stressors.

Nature and Sequence of Content

The second guideline stipulates that the content of a Neuman Systems Model–based curriculum encompasses all of the concepts of the model. This means that program content encompasses individual, family, and community client systems; physiological, psychological, sociocultural, developmental, and spiritual variables; the central core; the flexible and normal lines of defense and the lines of resistance; the internal, external, and created environments; intrapersonal, interpersonal, and extrapersonal stressors; client system stability, variances from wellness, and reconstitution; and primary, secondary, and tertiary prevention interventions.

The second guideline also stipulates that the sequence of content may be guided by the complexity of interactions among the Neuman Systems Model concepts or by the prevention-as-intervention modalities. This means that the content of the Neuman Systems Model should direct the sequence of content. For example, the concepts of the Neuman Systems Model can be introduced in first-level courses and then explored in depth in subsequent courses. The emphasis on concepts varies according to the focus of each course and the client system of interest. Integration of concepts occurs from the beginning to the end of the program and increases in complexity toward the final course. The final course in the program emphasizes the complex integration of all Neuman Systems Model concepts in a wholistic manner.

Settings for Education for the Health Care Professions

The third guideline stipulates that although the Neuman Systems Model was initially developed within a university setting as a guide for professional nursing education, its use has extended to technical education. Thus, Neuman Systems Model–based education now occurs in vocational and technical programs, hospital-based nursing diploma programs, associate degree programs, baccalaureate programs, and graduate programs. This guideline alerts educators to consider how best to ensure consistency between a Neuman Systems Model–based curriculum and the terminal objectives of the program.

When considered in conjunction with the second guideline, the third guideline also stipulates that the concepts of the Neuman Systems Model can be used to guide the sequence and timing of program offerings, such as a generic or an accelerated curriculum. The model concepts also can be used to guide the mode of delivery of content, such as traditional classroom, Web-enhanced, or distance learning using various telephone, television, and online Internet technologies.

Characteristics of Learners

The fourth guideline stipulates that learners who meet the requirements for any type of Neuman Systems Model–based educational program for the health professions must have the ability to engage in high-level critical thinking. Depending on their educational background, some learners may require guidance and support to develop critical thinking skills. Learners also must be willing to engage in both cooperative and independent learning. This means that learners must be able to offer constructive criticism and engage in logical reasoning. They also must be willing to share information, ask questions, consider different perspectives, and construct knowledge from discourse (see Chapter 6 for a discussion of critical thinking within the context of the Neuman Systems Model).

Teaching-Learning Strategies

The fifth guideline stipulates that teaching-learning strategies include a variety of modalities that foster critical thinking, as well as cooperative and independent learning. Specific strategies include the use of a visual representation of the content of the Neuman Systems Model (Johnson, 1989), and *The Nurse Theorists: Portraits of Excellence—Betty Neuman* videotape or CD (Neuman, 1988). Classroom teaching-learning strategies include lectures and discussion about the individual, the family, and the community as client systems; small-group activities, such as games, crossword puzzles, and simulation games (Busch & Lynch, 1998); keeping a journal of thoughts and questions about the model; and case studies of simulated client situations to test learners' assessment and decision-making skills. Clinical experiences occur in various hospital-, home-, and community-based settings and focus on use of the Neuman Systems Model Nursing Process Format with diverse individual, family, and community client systems.

NEUMAN SYSTEMS MODEL–BASED EDUCATIONAL TOOLS There is a long-standing and strong link between the Neuman Systems Model and educational tools. The model initially was designed as an educational tool to help students organize the content of clinical nurse specialist courses at the University of California–Los Angeles (Neuman & Young, 1972). As Neuman (1995) explained:

> In 1970 I developed the Neuman Systems Model to provide unity, or a focal point, for student learning. . . . Since my major concern was how to provide structure to best integrate student learning in a holistic manner, I personally developed the model design as it still exists today. . . . The model was developed strictly as a teaching aid. (p. 674)

Since 1970, the teaching aid has become one of the most widely used models in nursing education (Lowry, 1998, 2002).

Educational tools have been developed to guide students' learning regarding the Neuman Systems Model, to examine students' progress in courses based on the model, and to examine model-based course materials and curricula. All educational tools are, in their broadest sense, teaching strategies. Therefore, it is possible that some educational tools may be used to help students organize and understand Neuman Systems Model terminology but may not be used to evaluate student progression though the curriculum. Such tools are categorized as nonevaluative. Neuman Systems Model–based educational tools, with citations to publications about the tools, are listed in Table 7-2. A detailed discussion of each tool is given in Reed (2002).

Two other tools are presented here for the first time. Diana M. L. Newman has developed a care plan that can be used to evaluate student learning in acute care, long-term care, and community settings (Figure 7-1). Beginning students who may not yet have the required knowledge and practical skills to implement prevention interventions may use Parts A, B, C, and D of the care plan and add Part E when they are ready to implement prevention interventions. Part C of the care plan is adapted from Ziegler's (1982) early work on a taxonomy of Neuman Systems Model–based nursing diagnoses, and Part E is adapted from the Neuman Systems Model Nursing Process Format (see Appendix C).

Rilla Taylor has developed a tool, called the Guidelines for Application of the Neuman Systems Model, to introduce the Neuman Systems Model to students enrolled in registered nurse to baccalaureate (RN to BSN) degree educational programs (Figures 7-2 and 7-3). The tool is a cognitive organizer, or decision tree, used as the nurse interacts with a new client and begins to gather the assessment results, impressions, comments,

TABLE 7-2 Neuman Systems Model–Based Educational Tools

Educational Tool and Citation	Purpose of Tool	System of Focus
Variable and Intervention Tool (Tollet, 1982; Reed, 2002)	Nonevaluative—Student learning	Student
Assessment and Analysis Guideline Tool (McHolm & Geib, 1998; Reed, 2002)	Nonevaluative—Student learning	Student
Nursing Assessment Guide (Beckman et al., 1998; Reed, 2002)	Nonevaluative—Student learning	Student
Student Clinical Performance Evaluation (Beckman et al., 1998; Reed, 2002)	Evaluative—Student learning	Student
Clinical Evaluation Instrument (Strickland-Seng, 1998; Reed, 2002)	Evaluative—Student clinical performance	Student
Summary of Clinical Evaluation Tool (Strickland-Seng, 1998; Reed, 2002)	Evaluative—Cumulative summaries of student behaviors	Student
Profile of Clinical Evaluation (Strickland-Seng, 1998; Reed, 2002)	Evaluative—Student's progression through program	Student
Lowry-Jopp Neuman Model Evaluation Instrument (Lowry, 1998; Reed, 2002)	Evaluative—Course, curriculum, end of program, employer satisfaction	Curriculum, program evaluation

NEUMAN SYSTEMS MODEL GUIDELINE FOR COLLECTING AND PRESENTING DATA

Student Name_____ Date_____

PART A
Patient initials_____

1. Overview of client (summary of current problem)
   Age:
   Sex:
   Ethnicity/race:
   Affect:
   When admitted to facility:
   Past medical history:
   Past surgical history:
2. Primary medical diagnosis: How is patient information linked to specific medical diagnosis? (Give a brief definition and explanation of the pathophysiology)
3. **Physiological variable** (refers to body structure and function). List intrapersonal, interpersonal, and extrapersonal stressors (stressors are tension-producing stimuli or forces occurring within the internal and external boundaries of the client system).

   Intrapersonal Stressors:
   Interpersonal Stressors:
   Extrapersonal Stressors:
4. **Psychological variable** (refers to mental processes and interactive environmental effects both internally and externally). List intrapersonal, interpersonal, and extrapersonal stressors.

   Intrapersonal Stressors:
   Interpersonal Stressors:
   Extrapersonal Stressors:
5. **Sociocultural variable** (refers to combined effects of social cultural conditions, and influences). List intrapersonal, interpersonal, and extrapersonal stressors.

   Intrapersonal Stressors:
   Interpersonal Stressors:
   Extrapersonal Stressors:
6. **Developmental variable** (refers to age-related developmental processes and activities). List intrapersonal, interpersonal, and extrapersonal stressors.

   Intrapersonal Stressors:
   Interpersonal Stressors:
   Extrapersonal Stressors:
7. **Spiritual variable** (refers to spiritual beliefs, and values and influences). List intrapersonal, interpersonal, and extrapersonal stressors.

   Intrapersonal Stressors:
   Interpersonal Stressors:
   Extrapersonal Stressors:

FIGURE 7-1 A Neuman Systems Model care plan.

Part B

1. Physical Findings

   Vital signs:
   Skin assessment:
   Respiratory assessment:
   Abdominal assessment:
   Cardiovascular assessment:
   Neurological assessment (including mental status):
   Other:

2. Pertinent laboratory data

   Lab value Normal range Interpretation

3. Significant X-ray and/or other diagnostic tests:

4. Summary of perceptual differences between client and caregiver:

5. List current nursing diagnosis—Prioritize according to the five variables (see Part A).

6. Client goals (as stated by the client):

Part C

Nursing diagnosis (one or more may be described).

Related to _____ as manifested by:_____

Subsystem Responding:	**Client System Being : Diagnosed**	**Level of Response:**	**Source of Stressor Etiology:**	**Type of Stressor Etiology:**
Physiological Psychological Developmental Sociocultural Spiritual	Individual Family Group Community	Primary Secondary Tertiary	Intrasystem Intersystem Extrasystem	Physiological Psychological Developmental Sociocultural Spiritual

FIGURE 7-1 (continued)

Part D
Medications

Name of Medication	Dose	Route	Frequency	Medication Classification	Rationale (why the client is receiving the medication)	Action and Therapeutic Effect	Adverse Reactions (list the most common and threatening)

Part E
Prevention as Intervention

Primary Prevention as Interventions

Goal:
Intervention:
Outcome:
Evaluation:
Revision:

Secondary Prevention as Interventions

Goal:
Intervention:
Outcome:
Evaluation:
Revision:

Tertiary Prevention as Interventions

Goal:
Intervention:
Outcome:
Evaluation:
Revision:

FIGURE 7-1 (continued)

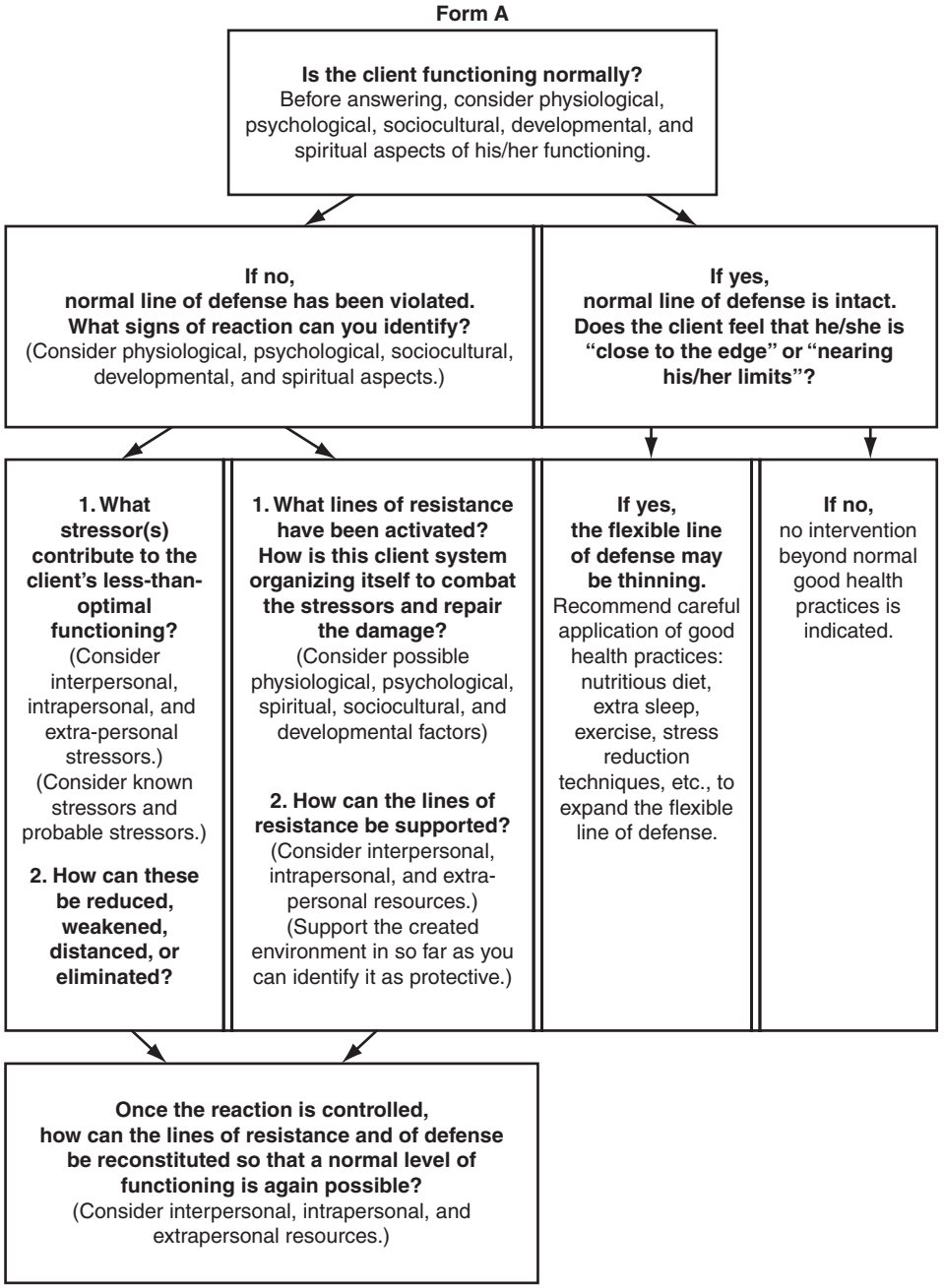

FIGURE 7-2 Guidelines for Application of the Neuman Systems Model—Form A.

Guidelines for Application of the Neuman Systems Model

Form B

Is the client functioning normally?

Consider physiological, psychological, sociocultural, development, and spiritual aspects of his/her functioning; problems may only be present in one or two areas, but all should be considered in the nurse's mind.

If no, in any area, the *normal line of defense* has been violated.
What signs of reaction can you identify?

Consider physiological, psychological, sociocultural, developmental, and spiritual aspects of the body's resistance mechanisms, although some may seem to be uninvolved.

What stressor(s) contribute to the client's less-than-optimal functioning?

Consider interpersonal, intrapersonal, and extrapersonal stressors.
Consider known stressors and probable stressors.
Remember that some stressors may be long standing and others recent; some may be severe and others mild.

Which of these can be reduced, weakened, distanced, or eliminated, and how can this be done?
What lines of resistance have been activated? How is this client system organizing itself to combat the stressors and repair the damage?

Consider physiological, psychological, sociocultural, developmental, and spiritual aspects of the body's resistance mechanisms, although some may seem to be uninvolved.

How can these lines of resistance be supported?

Consider interpersonal, intrapersonal, and extrapersonal resources.
Take care to support the created environment so far as you can identify it as protective.

Once the reaction is controlled, how can the lines of resistance and defense be reconstituted so that a normal level of functioning is possible?

Consider interpersonal, intrapersonal, and extrapersonal resources.

FIGURE 7-3 Guidelines for Application of the Neuman Systems Model—Form B.

and intuitions that form the foundation for a care plan. The tool was specifically designed to (1) provide an experience with the application of the Neuman Systems Model as a basis for subsequent understanding of the content of the model, and (2) demonstrate the practice relevance of the Neuman Systems Model, particularly its flexibility for use in both relatively simple and complex health care situations.

IMPLEMENTING THE NEUMAN SYSTEMS MODEL IN EDUCATIONAL PROGRAMS

The Neuman Systems Model is an appropriate framework for health professions education in the 21st century. In particular, the Neuman Systems Model provides an organized, specific, cohesive, and systems-based framework to guide the design and implementation of health professions education programs within the context of a market-driven economy

and health care environment marked by the increased use of technology, multiculturalism, a continuing knowledge explosion, and changing requirements of accrediting organizations for undergraduate and graduate education. Key challenges to health professions education in the 21st century include the knowledge base needed for health professions practice, the development and design of technology-driven curricula for various types of entry-level and graduate education programs, accreditation criteria, and education for interdisciplinary, multidisciplinary, and transdisciplinary practice.

The Challenge of Knowledge for Practice

In the United States, the Institute of Medicine (IOM; 2001) identified goals for safe, effective, patient-centered care that is timely, efficient, and equitable (Box 7-1). The Neuman Systems Model provides an organized and systematic knowledge base for health professions education curricula to address the IOM goals and similar goals identified in the strategic health care plans of other countries. The Neuman Systems Model is especially responsive to the goal of patient-centered care. For example, the focus on clients' perceptions of stressors enables students to consider the particular concerns of each client, which promotes client willingness to exercise choices in making health care decisions. In addition, use of the Neuman Systems Model leads to safe, timely, and efficient care because fewer misunderstandings and greater coordination occur when both client system and caregiver perceptions are taken into account. Effective care is a natural outcome of use of the Neuman Systems Model due to identification of the type of scientific evidence-based prevention interventions needed for each client at each point of encounter with the health care system. Equitable care is a hallmark of use of the Neuman Systems Model in that consideration of the sociocultural variable fosters consideration of each client's personal characteristics.

The Challenge of Curriculum Design

Some health professions have multiple levels of entry into practice. Nursing students in some countries may, for example, enroll in an entry-level hospital-based diploma program, or an associate degree program, or a baccalaureate degree program, or even a post-baccalaureate

BOX 7-1
United States Institute of Medicine Goals

Safe Care: Avoid injuries to clients from the care that is intended to help them.

Effective Care: Provide services based on scientific knowledge to all who could benefit and refrain from providing services to those not likely to benefit, thereby avoiding underuse and overuse of services.

Patient-Centered Care: Provide care that is respectful of and responsive to individual client system preferences, needs, and values, and ensure that clients' values guide all treatment decisions.

Timely Care: Reduce waiting time and sometimes harmful delays for both those who receive and those who give care.

Efficient Care: Avoid waste of equipment, supplies, ideas, and energy.

Equitable Care: Provide care that does not vary in quality because of personal characteristics of clients, such as gender, ethnicity, geographic location, and socioeconomic status.

degree entry-level program. Such an array of entry-level programs tends to promote fragmentation of educational programs and frequently leads to unrealistic expectations of graduates of the various types of programs. Furthermore, some health professions offer various types of graduate education programs, such as master's degree, professional doctoral degree, and research doctoral degree programs. And, virtually all health professions offer continuing education programs. Use of the Neuman Systems Model provides a structure for the curriculum of each type of program, which can be adjusted according to the terminal objectives of the program, the learning needs of the students, and the timing and mode of content delivery.

The Neuman Systems Model provides a strong organizing structure for degree programs that offer options for time to completion, such as a traditional four-semester associate degree program, a generic 4-year baccalaureate program, or an accelerated associate or baccalaureate degree program. Given the increasing demand for accelerated programs (Wink, 2005), such an organizing structure is crucial to ensure that essential content is not left out of the curriculum.

Furthermore, educators in the health professions are challenged to structure learning experiences in an environment of rapidly changing technology (Lindeman, 2000), which has revolutionized both professional and nonprofessional education. Distance learning that involves telephone, television, and online Internet technologies are increasingly common teaching-learning strategies, as is the use of clinical simulation. The Neuman Systems Model provides the structure needed to foster selection of those learning experiences best addressed by different technologies. For example, many procedures used as secondary prevention interventions can be learned using clinical simulation, whereas the content and teaching techniques used for primary and tertiary prevention interventions can be learned via course Web site materials and discussion boards. Concept mapping may be used as a teaching-learning strategy to enhance the application of the model in the classroom, as well as when using distance learning and Web-based discussions and discussion boards.

NURSING EDUCATION Ideally, the curriculum of any Neuman Systems Model–based nursing education program reflects the model content in every course throughout the entire curriculum. General education and science courses should be selected to enhance students' understanding of client system variables. Examples of courses that are relevant for each variable are listed in Table 7-3.

Discipline-specific nursing courses can be offered in traditional practice specialties, such as pediatric and adult medicine and surgery, maternity and women's health, mental health, and community health. Alternatively, essential content can be organized in courses addressing the Neuman Systems Model concepts. For example, some courses could focus on intrapersonal, interpersonal, and extrapersonal stressors, and other courses could focus on primary, secondary, and tertiary prevention-as-intervention modalities.

The Challenge of Accreditation

Educators working in health professions education programs assign great value to accreditation of those programs by the relevant accrediting organization. Multiple entry-level educational programs pose considerable challenges for both educators and the accrediting organizations, inasmuch as such programs may require different standards and criteria for the same basic outcome—education of students who will be safe and effective practitioners.

TABLE 7-3 Examples of Relevant Types of General Education and Science Courses for Each Client System Variable

Client System Variable	Relevant Types of Courses
Physiological Variable	Biology Chemistry Microbiology Anatomy and physiology Pathophysiology Pharmacology
Psychological Variable	Psychology Humanities
Sociocultural Variable	Sociology World cultures Humanities
Developmental Variable	Individual growth and development Family studies
Spiritual Variable	Religious studies Holistic health studies

Accreditation of various types of nursing education programs, for example, currently is carried out by the Commission on Collegiate Nursing Education (CCNE), the accrediting arm of the American Association of Colleges of Nursing (AACN, 2008, 2009), and the National League for Nursing Accrediting Commission (NLNAC; 2006). The CCNE accredits baccalaureate, master's, and doctor of nursing practice degree programs; the NLNAC accredits associate, baccalaureate, and master's degree programs. Each organization uses somewhat different standards and criteria for accreditation, which has resulted in lack of standardization of the focus and essential content of each type of educational program.

The Neuman Systems Model provides a comprehensive framework that nurses can use regardless of particular accreditation standards. For example, the content of a Neuman Systems Model–based baccalaureate curriculum is consistent with the AACN Essentials for Baccalaureate Nursing Education (Box 7-2). Similarly, the content of a Neuman Systems Model–based doctor of nursing practice program curriculum is consistent with the Essentials of Professional Nursing Doctorate Education (Box 7-3).

The Challenge of Education for Interdisciplinary, Multidisciplinary, and Transdisciplinary Practice

As noted in the practice guidelines (Chapter 8), interdisciplinary practice calls for collaboration among practitioners from two or more health care fields to resolve client system problems using discipline-specific conceptual models or an integration of concepts from the various conceptual models. Multidisciplinary research focuses on client system problems requiring the attention of members of diverse health care fields though use of

BOX 7-2

Essentials for Baccalaureate Nursing Education

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

Essential II: Basic Organizational and Systems Leadership for Patient Safety and Quality Care

Essential III: Scholarship for Evidence-Based Practice

Essential IV: Information Management and Application of Patient Care Technology

Essential V: Health Care Policy, Finance, and Regulatory Environments

Essential VI: Interprofessional Communication and Collaboration for Improving Patient Health Outcomes

Essential VII: Clinical Prevention and Population Health for Optimizing Health

Essential VIII: Professionalism and Professional Values

Essential IX: Baccalaureate Generalist Nursing Practice

Source: AACN, 2008.

BOX 7-3

Essentials of Professional Nursing Doctorate Education

Essential I: Scientific Underpinnings for Practice

Essential II: Organizational and Systems Leadership for Quality Improvement and Systems thinking

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

Essential V: Health Care Policy for Advocacy in Health Care

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

Essential VIII: Advanced Nursing Practice

Source: AACN, 2008.

discipline-specific conceptual models as the client is treated sequentially by practitioners of each field. Transdisciplinary practice again focuses on common client system problems but the practices of members of various health care fields are guided by a single conceptual model. Interdisciplinary, multidisciplinary, or transdisciplinary education for the health professions is regarded as a way to integrate the concepts of client-centered care, evidence- based practice, quality improvement, and the use of informatics (Barger, 2004). Use of the model in formal education programs, as well as in academic practice centers, service learning courses, and disaster preparedness courses and programs, can be an effective way to promote interprofessional communication and collaboration that will improve patient health outcomes (AACN, 2009).

ACADEMIC PRACTICE CENTERS Academic Practice Centers typically are designed to combine teaching and practice, using information technology to communicate, manage knowledge, and

make decisions regarding client health issues (Barger, 2004). Interdisciplinary, multidisciplinary, and transdisciplinary health care teams collaborate to provide integrated client care. For example, the Neuman System Model was used successfully in an academic nursing center by nurses and students working collaboratively to assess and intervene with clients (Newman, 2005). In addition, discussions about interdisciplinary, multidisciplinary, and transdisciplinary Neuman Systems Model–based education were held with physical therapy and business administration faculty and students. The model provided a strong foundation for development of the information management system and for research at the center (Newman, 2005).

SERVICE LEARNING Service learning, which combines community service with specific learning objectives (Galantino, House, Olsen, Fayter, & Frank, 2006), is a teaching-learning strategy that may involve interdisciplinary, multidisciplinary, or transdisciplinary health care teams. Service-learning experiences may provide an opportunity for students to work with culturally diverse populations (Hunt, 2007) and learn about the health needs of communities (Gupta, 2006). Interdisciplinary service learning can involve nursing, elementary or secondary education, physical therapy, occupational therapy, social work, and medical students. Table 7-4 presents an example of a proposal for a Neuman Systems Model–guided curriculum for an interdisciplinary service-learning course.

EMERGENCY PREPAREDNESS Emergency preparedness, which is described as the knowledge and skills required to actively respond to natural and human-created disasters

TABLE 7-4 Example of a Neuman Systems Model–Based Curriculum for an Interdisciplinary Service Learning Course

Neuman Systems Model Client System Variable	Course Content
Physiological Variable	Caregiver–client communication Health and well-being Nutrition Client systems stressors
Sociocultural Variable	Poverty Culture, race, ethnicity, heritage Civic engagement and strategies for change Affordable housing
Developmental Variable	Perceptions of development stressors for clients and families
Spiritual Variable	Ethics Social and economic justice
Psychological Variable	Violence Abuse Neglect

(Slepski, 2005), is increasingly important for health professionals. The Neuman Systems Model provides an appropriate framework for teaching emergency preparedness to interdisciplinary, multidisciplinary, and transdisciplinary health care teams, including students and practitioners. The content of the model facilitates understanding of client and caregiver perceptions of sources of stressors and their impact on the client system during an emergency. Moreover, the physiological, psychological, sociocultural, developmental, and spiritual client system variables, when applied to individuals, families, and communities, provide a structure that facilitates assessment of client system and caregiver safety.

Primary, secondary, and tertiary prevention interventions can be used for clients who experience various emergency situations, including but not limited to exposure to chemical, biological, radiological, nuclear, or explosive agents, as well as natural disasters, such as earthquakes and severe storms. Psychomotor skills related to each specific health care discipline are addressed according to the prevention-as-intervention modalities. Nurses, for example, may provide primary prevention interventions, such as administration of medications and immunizations. Secondary prevention interventions include appropriate protection, isolation, and decontamination due to exposure to chemicals or other agents, and tertiary prevention interventions include maintenance of client system safety through transport, splinting, immobilization, monitoring, therapeutic interventions, and end-of-life care (Stanley, 2005).

Accurate communication between caregivers and clients in any disaster, especially when the disaster involves mass casualties, is crucial. The Neuman Systems Model provides a unified language that can facilitate communication, appropriate documentation, and resource referrals after a mass casualty incident or other disaster (see Table 7-5).

TABLE 7-5 Neuman Systems Model–Based Documentation for a Mass Casualty Incident

Neuman Systems Model Assessment and Prevention Interventions	Client System
Physiological, psychological, developmental, sociocultural, and spiritual assessments based on intrapersonal, interpersonal, and extrapersonal environmental stressors	Threats, potential impact on the client system Emergency nursing and medical system Resource acquisition and preparedness planning
Assess the extrapersonal environment, the community in which the client system resides	What is the potential for exposure to contaminated water, air, food? What shelter and protection are available for displaced persons?
Tertiary Prevention Intervention	Authority of public health agencies to protect the community from threats Management of public reactions to bioterrorism Implementation of control measures Isolation Quarantine Identify how the mass casualty incident reduces access to pharmaceuticals and medical supplies

TABLE 7-5 (continued)

Neuman Systems Model Assessment and Prevention Interventions	Client System
Secondary Prevention Intervention	Intentional biological attack A natural disease outbreak Principles of containment and decontamination Treatment of casualties
Primary and Secondary Prevention Interventions	Physiological and psychological stressors that have invaded the flexible and normal lines of defense Detection and reporting of unusual out break or syndrome

Conclusion

Guidelines for Neuman Systems Model–based education were discussed in this chapter, and educational tools derived from the model were identified and described. Additional discussion of Neuman Systems Model–based practice is provided in Chapters 11, 12, 13, and 14.

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CHAPTER 8

Neuman Systems Model–Based Practice: Guidelines and Practice Tools

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Although the Neuman Systems Model was developed as a way to organize the content of clinical nursing courses (Neuman & Young, 1972), the use of the model as a guide for nursing practice was recognized almost immediately. Later, the use of the model as a guide for practice in the full array of health care fields was recognized (Neuman, 1982).

When the Neuman Systems Model is used as a guide for practice, the nursing metaparadigm concept *human beings* is the client system. The metaparadigm concept *environment* encompasses the internal, external, and created environments. The metaparadigm concept *health* refers to optimal client system stability. The metaparadigm concept *nursing*—or the concept that refers to another health care discipline, such as physical therapy—focuses on development and utilization of primary, secondary, and tertiary prevention as intervention.

In this chapter, guidelines for Neuman Systems Model–based practice are identified, as are several practice tools that have been derived from the model for use with individuals, families, communities, and organizations. A special feature of this chapter is a discussion of how the Neuman Systems Model can be used to guide nursing care of an entire health care team as the client system, which was contributed by chapter author Barbara Freese. All of the guidelines are applicable to practice in any health care field. The chapter includes a discussion of each guideline and an explanation of how the Neuman Systems Model facilitates wholistic, interdisciplinary, multidisciplinary, and transdisciplinary practice.

THE NEUMAN SYSTEMS MODEL PRACTICE GUIDELINES

Rudimentary guidelines for Neuman Systems Model–based nursing practice were extracted from the content of the model several years ago (Fawcett, 1989) and were refined over time (Fawcett, 1995a, 2000, 2005; Freese, Neuman, & Fawcett, 2002). The most recent refinements, which are the result of dialogue among the authors of this chapter, are presented in Table 8-1. Although the guidelines initially were targeted to nursing, interest in the interdisciplinary, multidisciplinary, and transdisciplinary use of the Neuman Systems Model calls for extrapolation of the guidelines to other disciplines concerned with the health of individuals, families, and communities. The guidelines listed in Table 8-1 have been written for practitioners of all health care fields.

According to Grey and Connolly (2008), interdisciplinary practice calls for collaboration among practitioners from two or more health care fields to resolve client system problems using discipline-specific conceptual models or an integration of concepts from the various conceptual models. Multidisciplinary research focuses on client system problems requiring the attention of members of diverse health care fields though use of discipline-specific conceptual models as the client is treated sequentially by practitioners of each field. Transdisciplinary practice again focuses on common client system problems but the practices of members of various health care fields are guided by a single conceptual model.

Purpose of Practice

The first guideline stipulates that the purpose of practice is to assist clients in retaining, attaining, or maintaining the optimal system stability achievable at a given point in time. *Optimal stability* means that there is harmony among the five client system variables—physiological, psychological, sociocultural, developmental, and spiritual. The client's potential for optimal system stability varies with time and across the life span.

Practice Problems of Interest

The second guideline stipulates that practice problems of interest are the client's actual or potential reactions to stressors, which may arise from within the client (intrapersonal stressor), from interactions between the client and others (interpersonal stressors), or from the external environment (extrapersonal stressors). Although stressors are intrinsically neutral, they are typically perceived as positive or negative by the client. Actual stressors are those that already have occurred; potential stressors are those that may occur. The client's perception of and reaction to stressors determines the extent of system stability.

Settings for Practice

The third guideline stipulates that practice occurs in any health care or community-based setting, as well as in situations that involve virtual contact between clients and caregivers using distance technology and the Internet. Thus, practice is not limited to designated health care facilities, but occurs in any physical or virtual setting in which health care team members are engaged in helping clients to retain, attain, or maintain optimal system stability.

TABLE 8-1 Guidelines for Neuman Systems Model–Based Practice

Guideline	Description
1. Purpose of Practice	The purpose of practice is to assist clients in retaining, attaining, or maintaining the optimal system stability achievable at a given point in time.
2. Practice Problems of Interest	Practice problems of interest are the client's actual or potential reactions to stressors.
3. Settings for Practice	Settings for practice include any health care or community-based setting, as well as situations that involve virtual contact between clients and caregivers using distance technology and the Internet.
4. Participants in Practice	Participants in practice include client systems who are faced with actual or potential stressors, along with their health professional or layperson caregivers, who come together in physical or virtual spaces. Individuals, families, groups, communities, and entire health care teams are regarded as client systems.
5. Client–Caregiver Relationship	The client system and the caregiver are engaged in a reciprocal partnership, the goal of which is to assist the client to achieve the highest possible level of system stability.
6. The Practice Process and Practice Tools	The practice process is the Neuman Systems Model Process Format, which encompasses three components—diagnosis, goals, and outcomes. (Neuman Systems Model–based practice tools are listed in Table 8-2.)

Participants in Practice

The fourth guideline stipulates that participants in practice include clients who are faced with actual or potential stressors, along with their caregivers. Individuals, families, groups, and communities are regarded as clients, as are entire health care teams. The caregiver may be a professional person, such as a nurse, or a layperson who has acquired the health care information needed to care for a particular client in a particular situation. In keeping with the third guideline, clients and caregivers may come together in both physical and virtual spaces.

Client–Caregiver Relationship

The fifth guideline stipulates that the client system and the caregiver are engaged in a reciprocal partnership, the goal of which is to assist the client to achieve the highest possible level of system stability. Inclusion of both client and caregiver is based on the belief that ownership of the client's health belongs to the client. Consequently, if health care is to be effective, it must involve the client as an active participant, to the extent possible.

The Practice Process and Practice Tools

The sixth guideline stipulates that the practice process is the Neuman Systems Model Process Format, which encompasses three components—diagnosis, goals, and outcomes. Caregivers

TABLE 8-1 (continued)

Guideline	Description
7. Diagnostic Taxonomy	Diagnoses may be classified in a taxonomy, using five organizing principles derived from the Neuman Systems Model—(1) client system (individual, family, group, community), (2) level of response (primary, secondary, tertiary), (3) client variable responding to the stressor (physiological, psychological, sociocultural, developmental, spiritual), (4) source of the stressor (intrasystem, intersystem, extrasystem), and (5) type of stressor (physiological, psychological, sociocultural, developmental, spiritual).
8. Goals	Goals for practice are determined through a process of negotiation between client and caregiver that involves the client as a full participant in determining the desired result(s), to the extent possible.
9. Typology of Caregiver Actions	Caregiver actions used to assist the client in achieving optimum system stability occur as primary, secondary, or tertiary prevention interventions, in accord with the degree to which stressors have penetrated the client system's lines of defense and resistance.
10. Typology of Outcomes	Outcomes may be general or specific to the particular client system—general outcomes are statements about the concepts of the Neuman Systems Model that are derived from the content of the model; client system–specific outcomes involve application of the general statements to particular situations.
11. Practice and Research	Practice effectiveness depends on the application of research findings—that is, evidence—to direct practice. In turn, problems encountered in practice give rise to new research questions.

use the Neuman Systems Model Process Format to assist clients to reach their unique system stability level at a particular time in the life span and to document their actions. The term *process format* is used to connote use by practitioners in all health care fields. When particularized for a certain health care field, the name of that field is added as the modifier for each process component. For example, the components are nursing diagnosis, nursing goals, and nursing outcomes for nursing practice. Similarly, the components are physical therapy diagnosis, physical therapy goals, and physical therapy outcomes for physical therapy practice. The process format is compatible with use of the scientific method to solve problems and to achieve desired outcomes across the array of health care practices.

NEUMAN SYSTEMS MODEL–BASED PRACTICE TOOLS The Neuman Systems Model Process Format is operationalized in whole or part in several practice tools. Those tools and their functions are listed in Table 8-2. Detailed explanations about many of the tools listed in Table 8-2 are available in Russell (2002).

The development of practice tools derived from the Neuman Systems Model has been a natural evolution of this wholistic perspective. The first practice tools derived from

TABLE 8-2 Practice Tools Derived from the Neuman Systems Model

Tools and Citations	Description
Individual as Client System	
Neuman Systems Model Assessment and Intervention Tool (Mirenda, 1986; Neuman, 1989, 1995, 2002; Russell, 2002)	Guides client assessment and permits documentation of goals, intervention plan, and outcomes from the perspective of both clients and caregivers.
Nursing Assessment Guide (Beckman et al., 1998; Russell, 2002)	A modification of the Neuman Systems Model Assessment and Intervention Tool.
Nursing Assessment Form (Burke et al., 1989; Russell, 2002)	Guides identification of client's and nurse's perceptions of stressors and coping mechanisms, using open-ended questions.
Assessment Tool (Fulbrook, 1991; Russell, 2002)	Guides assessment and documentation of client's (or advocate's) and nurse's perceptions and provides a framework for nursing diagnoses; fosters assessment of client and family.
Assessment and Analysis Guideline Tool (McHolm & Geib, 1998; Russell, 2002)	Guides health assessment and formulation of nursing diagnoses.
Guide for Assessment of Structural Components of a System (Johnson et al., 1982; Russell, 2002)	Permits documentation of the status of the basic structure and the lines of defense and resistance across variable areas for individuals, groups, families, or communities.
Maternal/Fetal Assessment Tool (Dunn & Trépanier, 1989; Trépanier et al., 1995; Russell, 2002)	Guides assessment of a pregnant woman and her fetus.
Perinatal Risk-Grading Tool (Trépanier et al., 1995; Russell, 2002)	Permits categorization of perinatal risks.
Early Weaning Risk Screening Tool (Murphy, 1990; Russell, 2002)	Permits identification of pregnant women at risk for early weaning from breast-feeding.
Depression Symptom Assessment Checklist (Clark, 1982; Russell, 2002)	Guides assessment and documentation of depression.
Nursing Assessment of the Elderly Form (Gunter, 1982; Russell, 2002)	A modification of the Neuman Systems Model Assessment and Intervention Tool for use with elderly clients.
Systematic Nursing Assessment Tool for the CAPD Client (Breckenridge et al., 1982; Russell, 2002)	Guides assessment of continuous ambulatory peritoneal dialysis (CAPD) clients.
Grid for Stressor Identification (Johnson et al., 1982; Russell, 2002)	Guides assessment of types and sources of stressors.
Client Perception of Transfer as a Stressor Tool (Dunbar, 1982; Russell, 2002)	Measures a client's perception of readiness for transfer from a surgical intensive care unit.
Interdisciplinary High-Risk Assessment Tool of Rehabilitation Inpatient Falls (Cotten, 1993; Russell, 2002)	Permits prediction of adult rehabilitation inpatients at risk for falling.

TABLE 8-2 (continued)

Tools and Citations	Description
Occupational Health Nursing Risk Profile (McGee, 1995; Russell, 2002)	Guides assessment of environmental stressors and stressor impact on workers' lines of defense and resistance, along with calculation of relative risk and attributable risk.
Assessment/Intervention Tool (Beitler et al., 1980; Russell, 2002)	Guides assessment, using an interview format, and documents associated interventions.
Assessment/Intervention Tool for Postrenal Transplant Clients (Breckenridge, 1982; Russell, 2002)	Guides assessment of stressors and lists appropriate interventions for clients who have had a renal transplant.
Modified Assessment/Intervention Tool for Critical Care (Dunbar, 1982; Russell, 2002)	A modification of the Neuman Systems Model Assessment and Intervention Tool for use in the critical care setting.
Nursing Health Assessment Tool and Nursing Care Plan (Felix et al., 1995; Russell, 2002)	A modification of the Neuman Systems Model Assessment and Intervention Tool for use with elderly residents of chronic care facilities.
Guide for Data Synthesis to Derive Nursing Diagnosis (Johnson et al., 1982; Russell, 2002)	Permits documentation of client system responses to stressors and etiology of each stressor.
Neuman Systems Model Nursing Diagnosis Taxonomy (Ziegler, 1982; Russell, 2002)	Provides a taxonomy of nursing diagnoses directly derived from the Neuman Systems Model; permits documentation of nursing diagnoses based on the Neuman Systems Model.
Decision Matrix for Nursing Intervention (McGee, 1995; Russell, 2002)	Facilitates planning of nursing interventions.
Guide for Planning Theoretically Derived Nursing Practice (Johnson et al., 1982; Russell, 2002)	Permits documentation of nursing diagnoses; theoretically derived plan, goals, and intervention; and expected outcomes and evaluation.
Care Plan (Fulbrook, 1991; Russell, 2002)	Permits documentation of problems, goals, interventions, and evaluation of interventions.
Nursing Process Tool (Stepans & Knight, 2002)	Provides a structure for organizing and analyzing client assessment data in terms of client boundaries, a physiological variable within the boundaries, environmental stressors affecting the boundaries, and the client's responses and reactions to the stressors affecting the boundaries, and the client's responses and reactions to the stressors in terms of variance from wellness, as well as a structure to record a nursing diagnosis, nursing goals and outcome criteria, nursing interventions, and evaluation of outcomes.
Summary of Practitioner–Client Goals and Rationale in Treating Depressed Clients (Clark, 1982; Russell, 2002)	Presents a list of goals and associated prevention interventions goals for depressed clients.

(*continued*)

TABLE 8-2 (continued)

Tools and Citations	Description
Intervention Plan to Support Goals (Clark, 1982; Russell, 2002)	Presents a list of prevention interventions for depressed clients.
Minimum Data Set Format (Schlentz, 1993; Russell, 2002)	Presents a minimum data set for prevention interventions in long-term care facilities.
Patient Classification Worksheet (Hinton-Walker & Raborn, 1989; Russell, 2002)	Permits classification of patients in terms of personnel required for treatments within the context of physiological, psychological, sociocultural, and developmental variables.
Spiritual Care Scale (Carrigg & Weber, 1997; Russell, 2002; Young, Taylor, & McLaughlin-Renpenning, 2001)	Measures spiritual care for clients and distinguishes spiritual care from psychosocial care.
Format of Care Planning for the Acute Cardiac Surgical Client Using the Neuman Systems Model (McInerney, 1982; Russell, 2002)	Presents a comprehensive nursing care plan for clients who have had cardiac surgery.
Protocol of Potential Interventions for the Psychological Needs of the Patient with COPD (Baker, 1982; Russell, 2002)	Presents a list of psychological needs and associated nursing interventions for clients with chronic obstructive pulmonary disease.
Nursing Protocol for Management of Immobilization (Cardona, 1982; Russell, 2002)	Presents a list of goals and associated interventions, rationales, and outcomes for clients at risk for complications from immobilization due to skeletal traction for treatment of a hip fracture.
Nursing Protocol for Management of Mental Confusion (Cardona, 1982; Russell, 2002)	Presents a list of goals and associated interventions, rationales, and outcomes for clients who are mentally confused.
Protocol for Pain (Cunningham, 1982; Russell, 2002)	Presents a list of interventions, rationales, and outcomes for reduction of pain experienced by clients who do not request pain relief due to attitudes toward pain relief measures and cultural group affiliation.
Clinical Evaluation of the Nursing Care Plan Tool (Dunbar, 1982; Russell, 2002)	Measures a nurse's perception of a nursing care plan.
Theoretical Evaluation of the Nursing Care Plan (Dunbar, 1982; Russell, 2002)	Measures a nurse's perception of a nursing care plan in terms of the concepts of the Neuman Systems Model.
Format for Evaluation (McGee, 1995; Russell, 2002)	Permits documentation of evaluation of outcomes of nursing interventions.
Format for Evaluation of Theoretically Derived Nursing Practice (Johnson et al., 1982; Russell, 2002)	Permits documentation of evaluation of expected and actual outcomes in terms of each nursing diagnosis, goal, and intervention.
Guide to Critical Thinking with the Neuman Nursing Process (Sohier, 2002)	Provides specific nurse and client guidelines for assessment.

TABLE 8-2 (continued)

Tools and Citations	Description
Family as Client System	
Guide for Family Assessment (Reed, 1982; Russell, 2002)	A modification of Neuman Systems Model Assessment and Intervention Tool for use with families.
Neonatal/Family Assessment Tool (Dunn & Trépanier, 1989; Trépanier et al., 1995; Russell, 2002)	Guides assessment of neonates and families.
FAMLI-RESCUE (Flannery, 1991; Russell, 2002)	Guides collection and evaluation of data on family functioning and resources for use by neuroscience nurses working in acute care settings.
Family Health Assessment/Intervention Tool (Mischke-Berkey et al., 1989; Russell, 2002)	Guides assessment and documentation of family and caregiver perceptions of family health.
Family Systems Stressor-Strength Inventory: Family Form (Mischke-Berkey & Hanson, 1991; Russell, 2002)	Guides assessment of a family's perceptions of general and specific family system stressors and family system strengths.
Family Systems Stressor-Strength Inventory: Clinician Form (Mischke-Berkey & Hanson, 1991; Russell, 2002)	Guides assessment of a clinician's perceptions of general and specific family system stressors and family system strengths.
Community as Client System	
Community Assessment Guide (Benedict & Sproles, 1982; Russell, 2002)	Guides assessment of communities, including intracommunity, intercommunity, and extracommunity factors, and community's and health planner's perceptions of stressors.
Community-as-Client Assessment Guide (Beddome, 1989, 1995; Russell, 2002)	Guides collection of data about geopolitical and aggregate needs, community resources, and resource utilization patterns from the perspective of clients and caregivers.
Organization as Client System	
Neuman Systems Management Tool for Nursing and Organizational Systems (Kelley & Sanders, 1995; Kelley et al., 1989; Neuman, 1995; Russell, 2002)	Permits a nurse administrator to assess, resolve, prevent, and evaluate stressors in any type of administrative setting; measures the total system response to an environmental stressor.
Systems-Based Assessment Tool for Child Day-Care Centers (Bowman, 1982; Russell, 2002)	Guides assessment of stressors in child day care centers.

the model emphasized systematic, wholistic assessment of individual clients. The goal of assessment was identification of prevention interventions. Neuman first presented the Neuman Systems Model Assessment and Intervention Tool in 1974, and she has continued to use the tool ever since then (Neuman, 1974, 1982, 1989, 1995, 2002). The tool includes guidelines for assessment of stressors; a form for documenting goals and the rationale for those goals, categorized by type of prevention intervention (primary, secondary, tertiary); and a form for documenting the prevention-as-intervention plan. This tool is presented in Appendix C.

As the contents of Table 8-2 demonstrate, several other assessment and intervention tools have been developed as modifications of the original Neuman Systems Model Assessment and Intervention Tool. In the early 1980s, nurses developed Neuman Systems Model–based assessment tools for a wide variety of individual clients. Most of those assessment tools focused on assessment of client system strengths and weaknesses, identification of stressors, and development of prevention interventions (see Table 8-2). Based on a decade of use and experience, Neuman (1989) altered the content of the Neuman Systems Model in four important ways. First, she added the spiritual variable, which originally was subsumed within the sociocultural variable. Second, she expanded the concept of environment to include the created environment, in addition to the internal and external environments. Third, she explicitly identified health promotion as a part of primary prevention as intervention. Fourth, she described a process of determining a nursing diagnosis that is consistent with the model. These changes facilitated clear and more comprehensive client system assessment and data for relevant prevention interventions. Subsequently, nurses developed several new tools that were tailored for the specific client populations served by particular clinical agencies. In addition, some practice tools have been developed by nurse educators to facilitate students' use of the Neuman Systems Model as a guide for nursing practice.

A taxonomy of nursing diagnoses, which is discussed later in this chapter as the seventh practice guideline, has been derived directly from the Neuman Systems Model (Ziegler, 1982). And, as can be seen in Table 8-2, the Neuman Systems Model has been used to guide development of protocols for practice.

Neuman (1989, 1995, 2002) provided a case example to demonstrate the use of her Assessment and Intervention Tool when the family is the client system. The family case example features assessment of the family's major stressors; documentation of the family's perception of their condition and the caregiver's perception of the family's condition; the statement of a nursing diagnosis based on the family's variance from wellness; and prevention interventions to stabilize the family. Other tools for assessment of families, as well as for communities and organizations, also have been developed (see Table 8-2).

Diagnostic Taxonomy

The seventh guideline stipulates that diagnoses may be classified in a taxonomy, using organizing principles derived from the Neuman Systems Model. A diagnostic taxonomy establishes a common language for communication among health care providers across disciplines and can provide a uniform approach for computer-based client information systems. The five organizing principles of the Neuman Systems Model diagnostic taxonomy are: (1) client system (individual, family, group, community), (2) level of response (primary, secondary, tertiary), (3) client variable responding to the stressor (physiological, psychological, sociocultural, developmental, spiritual), (4) source of the stressor (intrasystem, intersystem, extrasystem), and (5) type of stressor (physiological, psychological, sociocultural, developmental, spiritual) (D. M. L. Newman, personal communication, June 15, 2000; Ziegler, 1982).

Goals

The eighth guideline stipulates that goals for optimal client system stability are determined through a process of negotiation between client and caregiver that involves the client as a full participant in determining the desired result(s), to the extent possible.

Typology of Caregiver Actions

The ninth guideline stipulates that caregiver actions to assist the client to achieve optimum system stability occur as primary, secondary, or tertiary prevention interventions, in accord with the degree to which stressors have penetrated the client system's lines of defense and resistance. According to the Neuman Systems Model, prevention interventions vary in accord with the degree to which stressors have threatened or affected client system stability. Thus, prevention interventions are selected based on the actual or potential impact of stressors on client system stability. Primary prevention interventions should help clients to retain optimal system stability when stressors have not yet occurred but threaten them. Secondary or tertiary prevention interventions should help clients to attain or maintain optimal system stability when they have already experienced the impact of stressors.

Typology of Outcomes

The tenth guideline stipulates that outcomes may be general or specific to a particular client system. General outcomes are statements about the concepts of the Neuman Systems Model, such as "strengthened flexible line of defense" or "higher level of client system stability" that are derived from the content of the model. A comprehensive list of general outcomes remains to be developed. Client system–specific outcomes involve application of the general statements to particular situations, such as "The client drank additional fluid with replacement electrolytes prior to exercise on a hot day."

Practice and Research

The eleventh guideline stipulates that practice must be directed by the use of research findings, that is, evidence, to be fully effective. This concept has been well documented in health care literature. Coopey, Nix, and Clancy (2006) emphasized the importance of translating research findings into "actions and usable tools that can be implemented into care delivery at the local setting" (p. 195). Newman (2005) pointed out that the "identification of a nursing model . . . offers a strong foundation for research" (p. 223). Neuman Systems Model–based studies should advance nursing knowledge by increasing understanding of how the model can be used in practice to promote optimal client system stability (Fawcett, 1995b). More specifically, research findings can serve as the evidence needed for recommendations regarding use of particular prevention interventions in practice (Louis, 1995). In turn, problems encountered in practice give rise to new research questions. For example, if a prevention intervention did not have the expected outcome, a retrospective case study could be conducted to determine what factors in the internal, external, or created environment might have contributed to the unexpected outcome.

IMPLEMENTING THE NEUMAN SYSTEMS MODEL IN INTERDISCIPLINARY, MULTIDISCIPLINARY, AND TRANSDISCIPLINARY PRACTICE

Use of a conceptual model by members of various health care fields requires that the model provide a comprehensive and systematic approach to the care of client systems. The Neuman Systems Model is ideal because its wholistic systems focus allows all health care team members to coordinate their individual efforts.

Three of the many issues that have an impact on the delivery of care in the current health care arena support and even mandate the use of the Neuman Systems Model in practice. These issues are (1) an emphasis on productivity and efficiency, (2) perspectives that represent functional diversity rather than unity, and (3) fragmented specialization instead of wholistic care.

All three issues are impediments to practitioners' efforts to implement a practice approach that requires a considerable amount of time for comprehensive assessment and determination of client system goals. The Neuman Systems Model can be used to advantage in such situations because it enables health care team members to work within a common framework to motivate and empower the client to retain, attain, and maintain optimal system stability over time. Furthermore, use of the Neuman Systems Model makes it possible for each health care team member to focus on concepts of particular interest, such as one of the five client system variables or a particular type of stressor. Acting as the care manager or care coordinator (Anderson, 1999), the nurse ensures that all five client system variables and all stressors are taken into account in a coordinated manner. The case study presented in Box 8-1 illustrates multidisciplinary use of the Neuman Systems Model with an adolescent boy who experienced orthopedic trauma.

BOX 8-1

Case Study: Application of the Neuman Systems Model Guidelines for Practice to a Client System

Victor, a 13-year-old Mexican American boy, has been hospitalized for 5 weeks due to multiple internal and orthopedic injuries sustained in a motor vehicle accident. Victor lives with his mother and three younger siblings. His mother is employed full-time at minimum wage. The family's primary language is Spanish.

During hospitalization, Victor's physician, respiratory therapist, and physical therapist, respectively, have been concerned with his physical injuries, respiratory status, and physical rehabilitation (*physiological variable*). His counselor has been concerned with helping him deal with the experience as a situational crisis (*psychological variable*). His social worker has been concerned with home care planning and discharge coordination (*sociocultural variable*). His minister has been concerned with pastoral care for the young boy and his family (*spiritual variable*). His teacher has been concerned with helping him adjust to hospital-based schooling and to achieve age-appropriate academic progress (*developmental variable*). The nurse's role as care manager or coordinator during hospitalization has been to ensure that Victor's care was coordinated appropriately to deal with the multiple stressors that have affected all five client system variables.

Victor is now being released from the hospital to home care. Following discharge, Victor's mother will be the primary caregiver; the home health nurse will coordinate services for home care.

Application of Neuman Systems Model Practice Guidelines

1. Purpose of Practice: The purpose of practice is to assist Victor to attain full stability in all variables, and to assist the family to maintain system stability.
2. Practice Problems of Interest: During hospitalization, Victor experienced problems in each variable.
3. Settings for Practice: Victor's case illustrates practice in the hospital and in his home following discharge.
4. Participants in Practice: Victor's caregivers in the hospital included his physician, nurse, respiratory and physical therapists, counselor, social worker, minister, teacher, and his mother. Following discharge, his caregivers will include his mother, his home health

nurse, and all health care providers who assist after he leaves the hospital.

5. Client–Caregiver Relationship: Victor's case illustrates multiple caregivers. It is important for each caregiver to collaborate with Victor and his mother.
6. Practice Process: The practice process encompasses diagnosis, goals, and outcomes for each problem of interest in Victor's case.
7. Diagnostic Taxonomy: Victor's case illustrates multiple possible diagnoses, due to the impact of his injuries on all five variables, as well as on both Victor and his family. Each diagnosis would include client system, level of response, client variable, source of stressor, and type of stressor. For example: "Acute pain due to extensive soft tissue injury as evidenced by client's report of pain" illustrates client system (individual/Victor), level of response (secondary), client variable responding to stressor (physiological), source of stressor (intrasystem), and type of stressor (pain/physiological).
8. Goals: The goal for each diagnosis is determined through negotiation between the client and caregiver. For example, using the diagnosis of acute pain, the goal might be that Victor would experience pain relief.
9. Typology of Caregiver Actions: Victor's case illustrates the need for caregiver actions as primary, secondary, and tertiary prevention interventions. For example, his respiratory therapist has helped him to retain normal respiratory function (primary). His minister has helped him to deal with the experience as a situational crisis (secondary). His physical therapist has helped him to maintain full range of joint mobility following orthopedic trauma (tertiary).
10. Typology of Outcomes: Outcomes relate to the goals for each diagnosis, and should be client centered and measurable. They may be general or specific to the particular client. For example, for the goal of pain relief, an outcome might be, "Client reports pain relief within 30 minutes following use of pain relief measures."
11. Practice and Research: To be fully effective, practice must be guided by the use of research findings. For Victor's case, the caregivers should be able to apply current findings related to pain relief, mobility following orthopedic injuries, impact of home schooling on early adolescent development, and so on. In turn, problems encountered in practice engender new research questions. For example, Victor's nurse may question how best to coordinate future home care for a Spanish-speaking family across cultural barriers.

The Health Care Team as a Client System

The fourth practice guideline stipulates that one participant in practice is a client system made up of an entire health care team. Indeed, the Neuman Systems Model provides a useful tool to lead and support an entire health care team as a client system. The client as the focus of concern is the health care professionals and any laypersons who are team members. All five client system variables are relevant when considering the health care team as a client system, and effective leadership involves supporting the team's wellness in each variable area. When viewing the health care team, the physiological variable includes the physical status and abilities of each team member. The psychological variable includes the emotional status of each team member, and how that emotional status is influenced by the team's work environment. The sociocultural variable includes the interpersonal relationships among team members and the effects of each member's cultural background on team processes. The developmental variable includes the impact of generational differences on the team's relationships and age-based differences in stamina and abilities. The spiritual variable includes differences among team members in spiritual awareness and in denominational beliefs and practices.

A health care team is vulnerable to stressors that can disrupt its stability. The team's flexible line of defense is its ability to respond quickly to stressors that threaten its effective functioning, such as the unplanned absence of one member. The normal line of defense is the usual wellness level of the team as a system, which depends on the usual wellness level of all persons on the team. A stressor that could threaten the normal line of defense would be the simultaneous long-term illnesses of several team members. The team's lines of resistance are the resources that support its ability to function following disruption of the normal line of defense, such as having team members who could assume the responsibilities of colleagues experiencing an extended absence. Stressors that could threaten the lines of resistance would be factors such as administrative policies or conflicting time demands that interfere with mobilization of these resources.

Prevention as intervention for a health care team includes actions to promote the team's wellness before, during, and after reactions to stressors. An example of a primary prevention intervention is providing education to protect against known stressors in the workplace. An example of a secondary prevention intervention is screening for early symptoms of workplace-related illnesses. An example of a tertiary prevention intervention is policies that support team members in returning to wellness following workplace-related illnesses.

A case study of the health care team as the client system is given in Box 8-2. The case study is a description of use of the Neuman Systems Model as a guide to leading a medical mission team to Honduras. The case study also includes a summary of Neuman Systems Model–based nursing care, including diagnoses, goals, and outcomes. The model served as a powerful tool for working with the diverse group of health care professionals and laypersons that comprised this medical team. The model enabled the team leader to conceptualize the group as a client, and to use prevention as intervention to address stressors related to each client system variable.

BOX 8-2

Case Study: The Health Care Team as a Client System

The people who made up the mission team comprised the aggregate client system. There were 22 persons from six states, including physicians, nurse practitioners, nurses, allied health professionals, students, and laypersons. The team ranged in age from 14 to 70+. The trip leader's responsibilities included helping this diverse group to unite as a team, and helping each person to perform the activities associated with his or her role on the team.

Numerous potential physiological stressors threatened the team, including tropical diseases (such as malaria) and gastroenteritis caused by noxious bacteria. Team members needed to protect themselves against malaria (by preventing mosquito bites and by taking the appropriate medicine on schedule) and against food poisoning (by avoiding the offending bacteria).

Potential psychological stressors included fear of the unknown and frustration due to living and working in difficult conditions. To address these stressors, team members were given information and structure ahead of time in order to reduce the fear of the unknown and to diminish frustration caused by unrealistic expectations. To strengthen the psychological variable, it was important to help each person to find a role on the team in which he or she could contribute and feel valued.

Sociocultural stressors included language barriers and cultural differences (such as time

management). Team members who had not traveled previously in Honduras needed to know about the cultural differences they would encounter and about potentially dangerous situations—such as walking alone or displaying expensive jewelry. Providing adequate translators who could speak both Spanish and English fluently and had some medical background also helped address this stressor.

The developmental levels for this health care team reflected an age range of 14 to the mid-70s. Potential developmental stressors included intergenerational differences, such as the needs of adolescents to answer such questions as "Who am I?" and of adults to answer such questions as "How can I make a difference?" The team also had significant differences in physical stamina. Planning is needed to accommodate physical differences in terms of work assignments and recreational activities.

Potential spiritual stressors included distress that the team was not able to do more for the patients they treated, and discomfort when confronted with the difference between life in America and life in Honduras (including access to basic health care). Group discussions helped team members to share and debrief about their daily experiences, and to come to grips with the reality of what could be accomplished in a short time frame in Honduras. Daily devotionals and opportunities to share and discuss experiences supported spiritual growth.

Neuman Systems Model–based nursing care for the medical mission team, including nursing diagnoses, goals, and outcomes, is summarized below.

Nursing Diagnosis	Nursing Goals	Nursing Outcomes
(Primary Prevention) Knowledge deficit concerning vector-borne diseases in tropical regions	Client wellness will be supported by education regarding protection from mosquito bites.	Team members will experience no mosquito-borne illnesses during and following travel in Honduras.
(Secondary Prevention) Potential for fluid and electrolyte depletion related to ingestion of toxic bacteria	Early symptoms of food poisoning will be managed appropriately to prevent fluid and electrolyte loss.	Team members will experience no lost days from clinic or recreational activities as the result of food poisoning.
(Tertiary Prevention) Potential for spiritual distress related to impact of experiences with health discrepancies encountered among patients in Honduras	Clients will have an opportunity to grow spiritually from experiences shared on the mission trip.	Team members will report positive spiritual development as a result of experiences in Honduras.

For more information about medical missions, see Volunteers in Medical Missions at http://www.vimm.org.

Conclusion

Guidelines for Neuman Systems Model–based practice were discussed in this chapter, and practice tools derived from the model were identified and described. Additional discussion of Neuman Systems Model–based practice is provided in Chapters 15, 16, and 17.

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CHAPTER 9

Guidelines for Neuman Systems Model–Based Administration of Health Care Services

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Although the Neuman Systems Model was developed as a way to organize clinical course content and wholistic nursing practice (Neuman, 1982; Neuman & Young, 1972), the model is easily adapted by administrators for the management of health care services in all fields, including nursing, medicine, physical therapy, occupational therapy, respiratory therapy, and so on. Consequently, both practitioners and administrators from all health care fields can use the same frame of reference for their activities, which strengthens interdisciplinary, multidisciplinary, and transdisciplinary communication. Moreover, the use of a common conceptual model, common language, and a common commitment to wholistic health care offers a unique opportunity for provision of the highest quality of health care, as well as for managerial excellence.

Recall from Chapter 8 that interdisciplinary practice calls for collaboration among practitioners from two or more health care fields to resolve client system problems using discipline-specific conceptual models or an integration of concepts from the various conceptual models. Multidisciplinary research focuses on client system problems requiring the attention of members of diverse health care fields though use of discipline-specific conceptual models as the client is treated sequentially by practitioners of each field. Transdisciplinary practice again focuses on common client system problems but the practices of members of various health care fields is guided by a single conceptual model.

The application of the Neuman Systems Model for use in the administration of health care services requires a modification in the focus of the four nursing metaparadigm concepts. *Human beings* become the staff of a clinical agency, the department of nursing

as a whole, and the entire clinical agency, as well as any larger health care organization with which the clinical agency is affiliated. *Environment* becomes the surroundings of the staff and the setting in which nursing administration occurs, as well as the relevant surroundings of the department, agency, and organization. *Health* becomes the wellness or illness state of the staff, as well as of the entire clinical agency and the larger health care organization. *Nursing* (or other health care field) becomes the management strategies and the administrative policies used by administrators on behalf of or in conjunction with the staff and the entire health care organization.

In this chapter, guidelines for Neuman Systems Model–based administration of health care services are identified. These guidelines are applicable to the administration of services in any field of health care. The chapter includes a discussion of each guideline and an explanation of how the Neuman Systems Model facilitates implementation of wholistic administration of health care services.

THE NEUMAN SYSTEMS MODEL ADMINISTRATION GUIDELINES

Guidelines for Neuman Systems Model–based nursing practice were extracted from the content of the model several years ago (Fawcett, Botter, Burritt, Crossley, & Fink, 1989). Those guidelines were refined by Sanders and Kelley (2002), further refined as the result of earlier dialogue among the authors of this chapter (Shambaugh, Neuman, & Fawcett, 2002), and still further refined for this chapter. Although the guidelines initially were targeted to nursing, our interest in the use of the Neuman Systems Model across all health care fields called for the extrapolation of the guidelines for use by administrators of all health care services. Consequently, the guidelines listed in Table 9-1 have been written for the administrators of all health care services.

Focus of Health Care Services

The first guideline stipulates that the focus of Neuman Systems Model–based health care services is the client system, which can be individuals, families, groups, and communities. The administrator regards the collective staff as a client system that is a composite of physiological, psychological, sociocultural, developmental, and spiritual variables. The administrator also may regard each department of a health care institution as the client system.

The client system is the focal point for the administrators' activities. Thus, the identification of a particular entity as the client system of interest to the administrator is a crucial first step in the use of the Neuman Systems Model as a guide for the administration of health care services. The client system most likely is identified by virtue of the administrator's particular role in the health care organization. For example, the chief executive officer most likely would identify all personnel in the entire health care organization as the client system, whereas a nurse manager most likely would identify the staff of a particular clinical unit in the organization as the client system.

Regardless of the client system of interest, the administrator realizes that that the system is made up of human beings and attends to the physiological, psychological, sociocultural, developmental, and spiritual aspects of that client system. In addition, the administrator always remembers that health care is directed to human beings, so that the services exist for the sake of those human beings rather than for the organization per se.

TABLE 9-1 Guidelines for Administration of Neuman Systems Model–Based Health Care Services

Guideline	Description
1. Focus of Health Care Services	The focus of Neuman Systems Model–based health care services is the client system, which can be individuals, families, groups, and communities. The administrator regards the collective staff as a client system that is a composite of physiological, psychological, sociocultural, developmental, and spiritual variables. The administrator also may regard each department of a clinical agency or the larger health care institution as the client system.
2. Purpose of Administration of Health Care Services	The purpose of the administration of health care services is to facilitate the delivery of the primary, secondary, and tertiary prevention interventions that will best help client systems to retain, attain, and maintain optimal stability.
3. Characteristics of Health Care Personnel	Health care personnel, including administrators and practitioners, must have knowledge of the content of the Neuman Systems Model, as well as a willingness to implement this conceptual model as a guide for administration and practice. Personnel also must appreciate systems thinking.
4. Settings for Health Care Services	Each setting is regarded as a health care client system. Health care services are located in settings in which primary, secondary, and tertiary prevention is appropriate, including but not limited to ambulatory clinics, acute care medical centers, community hospitals, rehabilitation units, elementary and secondary schools, colleges and universities, prisons, retirement communities, life care communities, assisted living facilities, nursing homes, hospices, clients' homes, community centers, and neighborhood streets and sidewalks.
5. Management Strategies and Administrative Policies	Management strategies and administrative policies focus on the staff, the departments, or the total institution as the client system of the administrator, who uses management practices that take into account the impact of stressors on the client system and promote optimal client system stability.

Purpose of Administration of Health Care Services

The second guideline stipulates that the purpose of the administration of health care services is to facilitate the delivery of primary, secondary, and tertiary prevention interventions that will best help client systems to retain, attain, and maintain optimal stability. This guideline focuses attention on the need to think within a prevention perspective. That is, all interventions are directed toward preventive practices that will foster optimal client system stability and prevent the occurrence or extension of stressor reactions. Moreover, this guideline focuses the administrator's attention on the management strategies and administrative policies that best facilitate the delivery of prevention interventions.

Characteristics of Health Care Personnel

The third guideline stipulates that health care personnel, including administrators and practitioners, must have knowledge of the content of the Neuman Systems Model, as well as a willingness to implement this conceptual model as a guide for administration and practice. Comprehensive understanding of the content of the Neuman Systems Model is, of course, mandatory for any application. Readers are referred to the primary source—Chapter 1 of this book—as well as to Fawcett's (2005) analysis and evaluation of the Neuman Systems Model.

The willingness to implement the Neuman Systems Model as the guide for administration and practice requires a commitment to a particular wholistic frame of reference and a particular way of thinking about the administration of health care services and the focus of those services. It follows, then, that the third guideline also stipulates that personnel also must appreciate systems thinking. Indeed, the key to successful Neuman Systems Model–based administration of health care services is comprehensive understanding of general systems theory, as explained by Bertalanffy (1968) in his landmark treatise on living open systems. Successful administration also is facilitated by understanding knowledge from various adjunctive disciplines that contributed to the development of the Neuman Systems Model, such as de Chardin's (1955) philosophical beliefs about the wholeness of life and various perspectives of stress (Lazarus, 1981; Selye, 1950).

Settings for Health Care Services

The fourth guideline stipulates that each setting is a health care client system, and that health care services are located in settings in which primary, secondary, and tertiary prevention is appropriate, including but not limited to ambulatory clinics, acute care medical centers, community hospitals, rehabilitation units, elementary and secondary schools, colleges and universities, prisons, retirement communities, life care communities, assisted living facilities, nursing homes, hospices, clients' homes, community centers, and neighborhood streets and sidewalks. This means that administration of health care services is not limited to designated health care organizations but also is needed in any setting in which all members of the health care team are engaged in helping clients to attain, retain, or maintain optimal system stability.

Management Strategies and Administrative Policies

The fifth guideline stipulates that management strategies and administrative policies focus on the staff, the departments, or the total institution as the client system of the administrator, who uses management practices that take into account the impact of stressors on the client system and promote optimal client system stability. Optimal stability means that there is harmony among the five client system variables—physiological, psychological, sociocultural, developmental, and spiritual. The client system's potential for optimal stability may vary with events that occur within a particular department or health care organization, as well as events and policies that affect the delivery and financing of all health care services. Thus, the administrator must devise and use dynamic management strategies and administrative policies that are sensitive to changes in the organization, the client system, and the larger health care arena.

IMPLEMENTING THE NEUMAN SYSTEMS MODEL IN HEALTH CARE ADMINISTRATION

A turbulent health care landscape provides both challenges and opportunities for the administration of health care services. Changes in practice sites, payment methods, insurance programs, and population demographics have upset the vision of established organizations and clinicians. New visions must be bold and progressive. The administration and delivery of health care services require a new web of relationships between and among multidisciplinary administrators and clinicians, new services to constituents, and a business environment focused on wholistic services. Use of the Neuman Systems Model by administrators can greatly facilitate development of requisite relationships, services, and a humanistic business environment. In particular, the Neuman Systems Model guides identification of political, regulatory, and ethical stressors that affect the administration and delivery of health care services. The economic viability of the health care organization is protected when such stressors are identified and appropriate prevention interventions are developed.

The Neuman Systems Model can guide articulation of the philosophy, vision, and mission of the health care organization and each unit of that organization. Management practices and administrative policies, which can be structured according to primary, secondary, and tertiary prevention interventions, follow from those statements. For example, primary prevention administrative interventions could include recruitment and retention of well-qualified personnel for all positions in an organization, in-depth education and a strong orientation program for all administrators and staff, promotion of ongoing professional development of all administrators and staff through attendance at local seminars and national and international conferences, clear lines of communication, promotion of effective interpersonal relations, and responsible and equitable use of economic resources. Secondary prevention administrative interventions could include clarification of communications to all client systems, early identification of noxious stressors, problem solving by individuals and groups within the organization, and use of economic and other resources to support the organization, administrators, and staff. Tertiary prevention administrative interventions could include articulation of a renewed commitment to the Neuman Systems Model and the promotion of optimal client system stability, use of negotiation as a management strategy, continued education of administrators and staff, and, once again, clear communication.

The cost containment measures undertaken by health care organizations during the past several years have resulted in a flattening of organizational structures through removal of various layers of managers and supervisors. Consequently, there is considerable need for further development of the leadership capabilities of staff through continuing education, mentoring, and coaching. The Neuman Systems Model is an ideal conceptual model for such activities because its wholistic perspective fosters a broad view of situations, events, and services that can accommodate changes in policies, while at the same time inform policy.

Moreover, inasmuch as the systems perspective in which the Neuman Systems Model is grounded is prevalent in many contemporary health care organizations, it is easily understood and accepted by administrators and practitioners of all health care fields. Furthermore, the systems perspective of the Neuman Systems Model provides a context

for processing the large amounts of critical and sometimes conflicting information that come to the administrator. The Neuman Systems Model goal of optimal client system stability provides an additional and more specific context for information processing. Thus, the administrator does not have to wonder what to do with all the information—the goal of information processing is decisions that will promote optimal stability of the client system of interest. As Neuman (1982) pointed out many years ago, "We must emphatically refuse to deal with single components, but instead relate to the concept of wholeness. We need to think and act systematically. Systems thinking enables us to effectively handle all parts of a system simultaneously in an interrelated manner, thus avoiding the fragmented and isolated nature of past functioning in [health care]" (p. 1).

The strength of the Neuman Systems Model for administration of health care services is the organizing framework it provides for administrative activities. Paraphrasing Tyler's (1949) admonition to educators, administrators are encouraged "to recognize that [administrative] experiences need to be organized to achieve continuity, sequence, and integration, and that major elements must be identified to serve as organizing threads for these [administrative] experiences. It is also essential to identify the organizing principles by which these threads shall be woven together" (p. 95). Excellent organizing principles flow, of course, from the content of Neuman Systems Model.

Conclusion

Guidelines for Neuman Systems Model–based administration of health care services were presented in this chapter. Discussion of Neuman Systems Model–guided administration of health care services in two hospitals is provided in Chapters 19 and 20. A list of health care organizations that have used the Neuman Systems Model as a guide for health care services is given in Appendix F.

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CHAPTER 10

Neuman Systems Model–Based Research: Guidelines and Instruments

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The Neuman Systems Model was initially envisioned as an organizing schema for clinical courses (Neuman & Young, 1972). Within just a few years, however, the model was being used to direct nursing research. When used as the basis for research, the focus of the four nursing metaparadigm concepts—human beings, environment, health, and nursing—must be modified. *Human beings* become the research participants and the researchers; *environment* becomes the setting in which the research takes place or the situation that is required for a prevention intervention; *health* becomes the wellness or illness state of the research participants; and *nursing*—or the concept that refers to another health care discipline—becomes the research procedures(s) employed in the resolution of the problem under study, which results in the data collected and analyzed to answer the study questions or test the study hypotheses.

In this chapter, guidelines for Neuman Systems Model–based research are identified, as are many research instruments that have been derived directly from the Neuman Systems Model to measure various concepts of the model. The guidelines are applicable to research in any health care discipline and to interdisciplinary, multidisciplinary, and transdisciplinary research. The chapter includes a discussion of each guideline and an overview of the research instruments, as well as an explanation of how use of the Neuman Systems Model leads to middle-range theory development, which is the essence of evidence-based practice.

THE NEUMAN SYSTEMS MODEL RESEARCH GUIDELINES

Guidelines for using Neuman Systems Model–based nursing research were extracted from the content of the model several years ago (Fawcett, 1989) and were refined over time

(Fawcett, 1995a, 2000, 2005; Louis, Neuman, & Fawcett, 2002). The refinements were initiated by a conversation among the Neuman Systems Model trustees (personal communication, April 24, 1993) and discussions of Neuman Systems Model–based research found in the literature (Gigliotti, 1997; Grant, Kinney, & Davis, 1993; Neuman, 1996). The most recent refinements are the result of dialogue among the authors of this chapter. The guidelines initially were targeted to nursing but they can be used by other disciplines concerned with the study of the health of individuals, families, and communities. Consequently, the guidelines listed in Table 10-1 have been written for researchers in all health care disciplines.

Purpose of Research

The first guideline stipulates that the purpose of Neuman Systems Model–based research is to predict the effectiveness of primary, secondary, and tertiary prevention interventions on retention, attainment, and maintenance of client system stability. This means that the ultimate focus of the research is to determine whether prevention interventions are effective ways to retain, attain, or maintain the stability of a client system. This guideline must be considered within the context of the progression of research necessary for building the knowledge base of a discipline. To build a strong Neuman Systems Model–based science, tests of prevention interventions should be based on or follow adequate descriptions and explanation of the phenomena being studied. In other words, descriptive and correctional research is needed prior to quasi-experimental or experimental research to test the effectiveness of prevention interventions (Fawcett, 1999).

The first guideline also stipulates that Neuman Systems Model–based research is used to determine the cost, benefit, and utility of prevention interventions with attention paid to the efficiency of prevention interventions. Efficiency is best viewed within an economic context. Fawcett and Russell (2001) explained that the "economic principle of efficiency demands that the services produced by a society have the highest attainable total value, given limited resources and technology" (p. 111).

To adequately assess efficiency, both production and allocative efficiency must be considered. Production efficiency refers to producing or delivering effective prevention interventions at the lowest possible cost, focuses attention on the costs of delivering particular preventions interventions associated with Neuman Systems Model practice processes, and is determined by cost-effectiveness analysis. This type of economic analysis involves the systematic study of effects and costs of alternative methods or programs for achieving the same objective. In the case of Neuman Systems Model–based research, the objective is optimal client system stability.

In contrast, allocative efficiency refers to maximizing population health given existing constraints; and it focuses attention on the level of personnel, technology, and expenditures that produce the maximum effect, as well as on the frequency and dose of prevention interventions that produce the maximum effect and are determined by cost-benefit analysis. This type of economic analysis involves study of one or more methods or programs for achieving a given objective—optimal client system stability in the case of the Neuman Systems Model—and measurement of both benefits and costs in monetary units.

Phenomena of Interest

The second guideline stipulates that the phenomena to be studied encompass the concepts of the Neuman Systems Model: physiological, psychological, sociocultural, developmental,

TABLE 10-1 Guidelines for Neuman Systems Model–Based Research

Guideline	Description
1. Purpose of Research	One purpose of Neuman Systems Model–based research is to predict the effectiveness of primary, secondary, and tertiary prevention interventions on retention, attainment, and maintenance of client system stability. Another purpose is to determine the cost, benefit, and utility of prevention interventions.
2. Phenomena of Interest	The phenomena of interest encompass the physiological, psychological, sociocultural, developmental, and spiritual variables; the properties of the central core of the client/client system; the properties of the flexible and normal lines of defense and the lines of resistance; the characteristics of the internal, external, and created environments; the characteristics of intrapersonal, interpersonal, and extrapersonal stressors; and the elements of primary, secondary, and tertiary prevention interventions.
3. Problems to Be Studied	The precise problems to be studied are those dealing with the impact of stressors on client system stability with regard to physiological, psychological, sociocultural, developmental, and spiritual variables, as well as the lines of defense and resistance.
4. Research Methods	Research designs encompass both inductive and deductive research using qualitative and quantitative approaches and associated instruments. (Instruments directly derived from the Neuman Systems Model are listed in Table 10-2.) Data encompass both the client system's and researcher's perceptions, and may be collected in inpatient, ambulatory, home, and community settings.
5. Research Participants	Research participants can be a client system of individuals, families, groups, communities, organizations, or collaborative relationships between two or more individuals. The researcher also is a participant in the research and contributes his or her perceptions of the client system's perceptions and responses.
6. Data Analysis Techniques	Data analysis techniques associated with both qualitative and quantitative research designs are appropriate. Quantitative data analysis techniques should consider the flexible line of defense as a moderator variable and the lines of resistance as a mediator variable. Secondary data analysis techniques may be used to recast existing research findings within the context of the Neuman Systems Model.
7. Contributions to Knowledge Development	Neuman Systems Model–based research findings advance understanding of the influence of prevention interventions on the relation between stressors and client system stability.
8. Research and Practice	Research is linked to practice through the use of research findings to direct practice. In turn, problems encountered in practice give rise to new research questions.

and spiritual variables; the central core of the client system; the flexible and normal lines of defense and the lines of resistance; the internal, external, and created environments; interpersonal, intrapersonal, and extrapersonal stressors; and primary, secondary, and tertiary prevention interventions. Although the most comprehensive studies would incorporate all of those concepts, any one study may involve one, two, or a few of the concepts. Accordingly, a description of types of stressors or an explanation of the relation between a particular type of stressor and a physiological stressor reaction, for example, is appropriate subject matter for Neuman Systems Model–based research.

Problems to Be Studied

The third guideline stipulates that the precise problems to be studied are those dealing with the impact of stressors on the stability of the client system with regard to physiological, psychological, sociocultural, developmental, and spiritual variables, as well as the flexible and normal lines of defense and the lines of resistance. This guideline should not be interpreted to mean that descriptive and/or correlational studies cannot be conducted. Rather, the guideline directs researchers to consider how the types of stressors encountered by a person, a family, or a community might be used in future research designed to examine the impact of those stressors on one of the lines of defense, the lines of resistance, and/or one or more of the client system variables.

Research Methods

The fourth guideline addresses research methods. It stipulates that research designs encompass both middle-range theory–generating and –testing research using qualitative, quantitative, and mixed method designs, as well as relevant samples, instruments, and data collection procedures. To date, no specific research methodologies have been derived from the Neuman Systems Model. Consequently, any qualitative, quantitative, or mixed method research design that is logically compatible with the model may be used. Here, it is important to recognize the need to uncouple or separate the particular methods from the frame of reference from which it was derived when used within the context of the Neuman Systems Model. For example, grounded theory methods were developed within the context of a sociological frame of reference that encompasses a basic social problem, a social process, and a trajectory (Glaser & Strauss, 1967). If a researcher wished to use grounded theory methods to study Neuman Systems Model phenomena, the techniques of grounded theory, such as theoretical sampling and constant comparative analysis, would have to be uncoupled or separated from the original sociological frame of reference. If a particular research technique cannot be separated from its original frame of reference, it would not be appropriate for use with the Neuman Systems Model.

Furthermore, the methods selected must take into account another aspect of this guideline, namely, that data encompass both the client's and the researcher's perceptions. This aspect of the fourth guideline is a direct derivative of the Neuman Systems Model Process Format, which takes into account both the client's and the caregiver's perceptions when formulating diagnoses, goals, and outcomes.

Still another aspect of the fourth guideline stipulates that data may be collected in inpatient, ambulatory, home, and community settings. This aspect is a direct derivative of the sites considered appropriate for Neuman Systems Model–based practice.

RESEARCH INSTRUMENTS DERIVED FROM THE NEUMAN SYSTEMS MODEL Finally, the fourth guideline stipulates that research instruments should be appropriate measures of Neuman Systems Model concepts. Knowledge is developed and expanded through the generation, testing, and utilization of middle-range theories. Every theory-development effort is guided by a particular conceptual model that provides the sociohistorical and intellectual context for thinking about theories, for conducting research to generate and test the theories, and for utilizing the theories in practice. The success of every theory-development effort depends in large part on the selection of appropriate research methods, especially the instruments that measure the concepts of the theory. Instruments used with qualitative research designs should yield word data that are dependable and credible, and instruments used with quantitative designs should yield numerical data that are reliable and valid (Fawcett & Garity, 2009). The research instruments that have been directly derived from the Neuman Systems Model are listed in Table 10-2. Detailed explanations about many of the instruments listed in Table 10-2 are available in Gigliotti and Fawcett (2002).

To date, 25 different instruments have been directly derived from the Neuman Systems Model. As can be seen in Table 10-2, instruments derived from the Neuman Systems Model can be used to measure stressors, client system perceptions, client system

TABLE 10-2 Research Instruments Derived from the Neuman Systems Model

Research Instruments and Citation	Description
Measurements of Stressors	
Smoking Questionnaire (Cantin & Mitchell, 1989; Gigliotti & Fawcett, 2002)	Measures stressors in the form of nurses' age, sex, education, work area, and setting.
Smoking Habits Questionnaire (Stepans & Fuller, 1999; Stepans & Knight, 2002)	Measures the smoking habits of the mothers as an indicator of their infants' exposure to environmental tobacco smoke.
Needs Assessment Interview Schedule (Decker & Young, 1991; Gigliotti & Fawcett, 2002)	Measures caregivers' (of home hospice patients) life situation.
Neuman Stressors Inductive Interviews (Blank, Clark, Longman, & Atwood, 1989; Gigliotti & Fawcett, 2002)	Measures home care needs and stressors of cancer patients and their caregivers.
Telephone Interview Schedule and Health Interview Schedule (Bowdler & Barrell, 1987; Gigliotti & Fawcett, 2002)	Measures physical, mental, social, economic, and general health of homeless persons and care providers.
Self-identified Needs Questionnaire (Grant & Bean, 1992; Gigliotti & Fawcett, 2002)	Measures self-identified needs of caregivers of head-injured adults.
Hospital and Home Visits (Johnson, 1983; Gigliotti & Fawcett, 2002)	Measures stressors and coping patterns.
Semi-structured Interview Guide (Maligalig, 1994; Gigliotti & Fawcett, 2002)	Measures parents' (of children who had day surgery) perceptions of stressors.

TABLE 10-2 (continued)

Research Instruments and Citation	Description
Logs of Problems, Solutions, Actions (Skipwith, 1994; Gigliotti & Fawcett, 2002)	Measures physical and psychological problems of caregivers of elders.
Cancer Survivors Questionnaire (Loescher et al., 1990; Gigliotti & Fawcett, 2002)	Measures physiological, psychological, and sociocultural changes and problems/concerns of long-term cancer survivors.
Interview Schedule (Gries & Fernsler, 1988; Gigliotti & Fawcett, 2002)	Measures perception of the intubation experience of mechanically ventilated patients.
Neuman Model Nursing Assessment Guide (Hoch, 1987; Gigliotti & Fawcett, 2002)	Measures the impact of aging and retirement.
The Perceived Stress Level Tool (Open-Ended Stressor Rank) (Montgomery & Craig, 1990; Gigliotti & Fawcett, 2002)	Measures stressors of wives of alcoholics.
Patient Stressor Scale (Wilson, 1987; Gigliotti & Fawcett, 2002)	Measures patients' perceptions of surgical intensive care unit stressors.
Measurement of Coping Strategies	
Coping with Breast Cancer Threat Instrument (Lancaster, 2004)	Measures primary prevention and early detection coping strategies used by women with family histories of breast cancer in response to their appraised breast cancer threat.
Measurement of Lines of Defense and Resistance and Client System Responses	
Semi-structured Interview Schedule (Semple, 1995; Gigliotti & Fawcett, 2002)	Measures stressors and experiences of family members of persons with Huntington's disease.
Cancer Survivors Questionnaire (Loescher et al., 1990; Gigliotti & Fawcett, 2002)	Measures needs of long-term cancer survivors.
Needs Assessment	
Semi-structured Interview Guide (Bass, 1991; Gigliotti & Fawcett, 2002)	Measures needs of parents of infants in a neonatal intensive care unit.
Measurement of Various Neuman Systems Model Concepts	
The Safety Assessment Tool (Gellner et al., 1994; Gigliotti & Fawcett, 2002)	Records demographic data and risk factors, safety issues, and incident prevention/ intervention for community health nurses.
Measurement of Client System Perceptions	
Semi-structured Interview Guide (Cava, 1992; Gigliotti & Fawcett, 2002)	Measures long-term cancer survivors' major stress area, coping strategies, changes in lifestyle, views of the future, and expectations of support from others.

(*continued*)

TABLE 10-2 (continued)

Research Instruments and Citation	Description
Patient Perception Interview Guide (Breckenridge, 1997b; Gigliotti & Fawcett, 2002)	Measures end-stage renal disease patients' perceptions of why, how, and by whom dialysis treatment modality was chosen.
Elder Abuse Questionnaire (Kottwitz & Bowling, 2003)	Measures perception of abuse of elderly persons; items reflect the five client system variables.
Measurement of Client System Variables	
Structured Interview Guide (Clark et al., 1991; Gigliotti & Fawcett, 2002)	Measures trust, support, and respect.
Client Perception Interview Guide (Breckenridge, 1997a; Gigliotti & Fawcett, 2002)	Measures factors influencing dialysis treatment modality decision.
Demographic Profile (Montgomery & Craig, 1990; Gigliotti & Fawcett, 2002)	Records demographic information.
Measurement of Prevention Interventions	
Telephone Counseling Intervention (Skipwith, 1994; Gigliotti & Fawcett, 2002)	Protocol for telephone counseling primary, secondary, and tertiary prevention interventions for caregivers of elders.
Documentation of Nursing Care Spiritual Care Scale (Carrigg & Weber, 1997; Gigliotti & Fawcett, 2002)	Measures spiritual care and psychosocial care given by nurses.

needs, the five client system variables, coping strategies, the lines of defense and resistance, and client system responses. In addition, one instrument is a protocol for a prevention intervention, and another is an instrument used to document Neuman Systems Model–guided nursing care. Most of the instruments yield quantitative data. A few, such as the Patient Perception Interview Guide, the Semi-Structured Interview Guide, and the Neuman Stressors Inductive Interviews, yield qualitative data.

Two of the instruments appear more than once in Table 10-2. The Patient Perception Interview Guide was used to measure patients' perceptions of why, how, and by whom dialysis treatment modality was chosen in one study. Data from the same instrument, but labeled the Client Perception Interview Guide, was used to measure factors influencing dialysis treatment modality decision in another study. The Cancer Survivors Questionnaire was used in the same study to measure cancer survivors' physiological, psychological, and sociocultural changes and problems/concerns, as well as their needs.

Many other existing instruments, which were not derived from the Neuman Systems Model, have been explicitly linked to specific concepts of the model, including stressors,

lines of defense and resistance, client system variables, client system responses, environmental factors, and health. In addition, several existing instruments have been used to measure outcomes of prevention interventions. Details about the linkages of existing instruments to concepts of the Neuman Systems Model are provided in Gigliotti and Fawcett (2002).

Research Participants

The fifth guideline stipulates that research participants can be client systems composed of individuals, families, groups, communities, or organizations. This means that the legitimate participants in Neuman Systems Model–based research encompass all client systems of interest in the model. Care must be taken to clearly identify the client system of interest. For example, if families are to be the study participants, then each family is considered the unit of analysis, rather than the individuals who comprise the family. Feetham (1991) and Sullivan and Fawcett (1991) note that the responses of individuals who are members of particular families should not be considered family data; rather they refer to those responses as family-related or individual-level data. In contrast, family data are the responses of the family unit as a whole or the conversion of data from two or more members of each family into a single score. Similarly, if the client system is a group or a community, the entire group or community must be considered the unit of analysis, rather than the individuals who happen to be members of the group or community.

In addition, the fifth guideline stipulates that the researcher also is a study participant. This portion of the guideline follows from the fourth guideline, which specifies that both clients' and researchers' perceptions should be taken into account. Accordingly, the researcher must be a participant in the study. Although researchers participate in all studies by virtue of their selection of the research questions and methodology, the Neuman Systems Model requires researchers to document their perceptions of client systems' responses to the questions posed. For example, if a study focuses on clients' levels of anxiety about an extrapersonal stressor, such as laboratory test, the researchers must record the clients' responses to the instrument that measures anxiety, as well as their own perceptions of each client's level of anxiety.

Data Analysis Techniques

The sixth guideline stipulates that data analysis techniques associated with both qualitative and quantitative research designs are appropriate. This guideline requires that care must be taken to select the data analysis technique that is logically compatible with the particular research design used and also with the Neuman Systems Model. As noted in the discussion of the fourth guideline, it is important to uncouple the data analysis technique from its parent frame of reference. Furthermore, in keeping with the fifth guideline, data analysis techniques must permit comparisons of study participants' own perceptions and the researchers' perceptions of the study participants.

The sixth guideline also stipulates that quantitative data analysis techniques should consider the flexible line of defense as a moderator variable that cushions or reduces the impact of stressors. Gigliotti (1997) explained that inasmuch as the flexible line of defense is a cushion or buffer that is activated in response to a stressor, any variable representing

this line of defense should be regarded as a moderator variable, which specifies "the conditions under which effects will hold" and "has no correlation to the predictor or outcome variable" (pp. 138–139). Quantitative data analysis techniques also should consider the lines of resistance as a mediator variable that comes between or blocks the stressor from having effect on the central core response. Gigliotti (1997) explained that inasmuch as the lines of resistance are viewed as coming between a stressor and the central core, or blocking the stressor from entering the central core, any variable representing these lines should be regarded as a mediator variable, which enhances understanding of "why certain effects occur" (p. 141). In particular, a mediator variable specifies the following linear path: x (the stressor) → m (the lines of resistance) → y (the central core). The term *variable* as used here should not be confused with the five client system variables. Here, *variable* is used in the research sense of empirical data. For example, the flexible line of defense might be represented in a study by the number of hours of sleep during the past 24 hours experienced by each individual in a study. The research variable in this example would be "number of hours of sleep in the past 24 hours." The "number of hours of sleep in the past 24 hours" then would be treated as a moderator variable in the data analysis.

In addition, the sixth guideline stipulates that secondary data analysis, which involves reanalysis of data collected for another purpose, can be used. More specifically, secondary data analysis is a data analysis technique that can be used to recast data from an existing study into the context of the Neuman Systems Model. Making use of existing data for a different research purpose has economic benefits, in that the time, effort, and personnel required for data collection are not necessary. Although frequently used for reanalysis of quantitative data—data that are numbers—secondary data analysis also can be used for reanalysis of qualitative data—data that are words. An example of secondary data analysis is given in Box 10-1.

BOX 10-1
Example of Secondary Data Analysis

The purpose of the original study was to identify parishioners' needs as the basis for evidence-based parish nursing. Responses to a survey questionnaire were obtained from 2,565 individuals who attended weekend church services. The questionnaire included several multiple-choice items, as well as two open-ended items. The purpose of the secondary analysis study was to identify Neuman Systems Model concepts in the data, including recoding of some data using the five client system variables as a priori categories.

Analysis of the data addressing the client system variables revealed that no questionnaire data addressed the physiological variable. The results of the secondary analysis for the psychological, sociocultural, and developmental variables are given in Table 10-3.

Further analysis revealed that programs and services in and for the parish reflected the Neuman Systems Model internal environment. The high rate of participation in parish activities indicated strong flexible and normal lines of defense. The analysis also revealed that the internal environment of the parish social ministry is a main reason for existence of the parish. The social ministry is particularly vulnerable to penetration of the central core, which would be reflected in an inability of the parish to meet the spiritual needs of the parishioners.

TABLE 10-3 Results of a Secondary Analysis of Data*

Client System Variable and Questionnaire Item	*n*	%
Psychological Variable		
Help with life changes (*n* = 1,836)		
Family illness	210	11.4
Elder parent	126	6.9
Parenting classes/guidance	221	12.0
Loss	226	12.3
New child in family	92	5.0
Multiple areas	961	52.3
Sociocultural Variable		
Race/ethnicity (*n* = 2,574)		
African American	74	2.8
Asian	139	5.4
Caucasian	1,290	50.1
Filipino	521	20.4
Hispanic	311	12.1
Pacific Islander	49	1.9
Multiple	190	7.4
Developmental Variable		
Age in years (*n* = 2,565)		
<18	148	5.8
18 to 30	329	12.8
31 to 50	908	35.4
51 to 70	905	35.3
71 and older	275	10.7
Spiritual Variable		
Participate in faith programs other than weekly services (*n* = 2,394)		
Yes	534	2.3
Motivation to participate in faith programs other than weekly services (*n* = 2,325)		
Increased spiritual growth	1,083	46.6
Multiple reasons	782	33.6
Give service to others	172	7.4
Make new friend	169	7.3
Needs of my children	119	5.1

*Sample size varies for each item.

Contributions to Knowledge Development

The seventh guideline stipulates that Neuman Systems Model–based research findings, which are in the form of implicit or explicit middle-range theories (Fawcett & Garity, 2009), advance understanding of the effects of prevention interventions on the relation between stressors and client system stability. Such an understanding is the ultimate goal of Neuman Systems Model–based research. It must not be forgotten, however, that each of the many steps required to attain understanding of the effects of prevention interventions contributes in its own equally valuable way to knowledge development. That is, descriptive research designed to generate and test descriptive theories, and correlational research designed to test explanatory theories, are as valuable in terms of knowledge development as is experimental research designed to test predictive theories of the outcomes of prevention interventions.

Research and Practice

The eighth guideline stipulates that research is linked to practice through the use of research findings to direct practice, and that, in turn, problems encountered in practice give rise to new research questions. This guideline means that the findings of Neuman Systems Model–based studies can be used to formulate recommendations regarding use of particular prevention interventions in clinical practice (Fawcett, 1995b; Louis, 1995). Furthermore, practice problems can serve as a catalyst for new questions to be studied.

ISSUES IN THE APPLICATION OF THE NEUMAN SYSTEMS MODEL RESEARCH GUIDELINES

Interdisciplinary, Multidisciplinary, and Transdisciplinary Research

The Neuman Systems Model is a conceptual model that is appropriate for use by members of all health care disciplines; it is truly a transdisciplinary perspective that fosters collaboration among members of various health care disciplines. Furthermore, the model's transdisciplinary perspective is in keeping with the promotion of interdisciplinary and multidisciplinary approaches in contemporary practice and research and transdisciplinary approaches to research (Grey & Connolly, 2008; McCloskey & Maas, 1998). Interdisciplinary research calls for collaboration among researchers from two or more disciplines on a single study of a common problem that is guided by discipline-specific conceptual models or an integration of concepts from the various conceptual models (Grey & Connolly). This approach to research is thought to be superior to single-discipline research when the quality and cost of health care are being considered (McCloskey & Maas).

Multidisciplinary research also focuses on problems that are common across disciplines but that researchers from various disciplines have examined in concurrent parallel studies or one after the other using discipline-specific conceptual models (Grey & Connolly, 2008). This research approach also has merit when health care quality and cost are of concern, as well as when members of diverse disciplines contribute to identification of client system diagnoses, design of prevention interventions to attain client system goals, and evaluation of client system outcomes.

Transdisciplinary research again focuses on a common problem but the study is conducted by a team of researchers from the various disciplines who are guided by a

single conceptual model (Grey & Connolly, 2008). This approach to research is thought to hold great potential for development of new methodologies that will decrease the time usually taken for translating research findings into practice (Grey & Connolly).

Despite considerable long-standing enthusiasm for interdisciplinary and multidisciplinary research, and more recent emphasis on the merits of transdisciplinary research, all three approaches are not without risks to advancement of the discipline of nursing. As McCloskey and Maas (1998) explained:

> Nurses who always have wanted to be an equal partner on a health care team are eagerly participating in and promoting the team approach. . . . [However,] some nurses are abandoning discipline-specific successes because they have been led to believe that a disciplinary focus is not consistent with an interdisciplinary approach. We believe that a real danger for the profession of nursing exists if this happens and that patient care will suffer from the loss of the nursing perspective and the accountability of nurses for their interventions. (p. 157)

Elaborating, Grey and Connolly (2008) noted: "For our discipline, the use of transdisciplinary approaches might be seen as a threat because nursing science is still so new and often needs to be defined for and defended to scientists from other fields. The potential exists for nursing's unique contribution to the solution of complex problems to be lost" (p. 106).

Use of the Neuman Systems Model should help nurses avoid the risks and contribute clearly and directly to the advancement of nursing knowledge. Although the Neuman Systems Model research guidelines can and should be used to study the outcomes of interdisciplinary, multidisciplinary, and transdisciplinary research, it is important that the members of each discipline tailor the research guidelines to their discipline to identify the distinctive outcomes of their discipline's prevention interventions, thereby advancing knowledge in all disciplines. For example, the first guideline directs all health researchers to focus on the costs, benefits, and utility of prevention interventions. This guideline can be tailored by nurse researchers to their special interest in identifying nurse-sensitive outcomes and documenting those as outcomes of nursing practice to justify the utility of and payment for nursing services. This guideline can be considered a mandate for nurse researchers to design studies that include the collection and analysis of data related to the costs and benefits of nursing prevention interventions for individuals, families, and communities.

The ideal Neuman Systems Model–based study would clearly reflect all eight Neuman Systems Model research guidelines and would be conducted by a team of researchers from diverse health care disciplines. Such a study would consider all five client system variables, the three types of stressors, the lines of defense and resistance, the central core, and one or more types of prevention interventions. In addition, such a study would include the clients' perceptions as well as the researchers' perceptions of the clients.

Evidence-Based Practice

The current emphasis on evidence-based practice in all health care fields focuses on a technical-rational model of empirical research methods and evidence and denies or ignores the

existence of the conceptual and theoretical components of research (Fawcett & Garity, 2009). Lack of attention to the conceptual model component of research prevents understanding of the sociohistorical and intellectual context of a study. Lack of attention to the middle-range theory component of research prevents understanding of the type of evidence generated or tested. Specifically, empirical research and other forms of inquiry yield evidence in the form of empirical, aesthetic, ethical, personal knowing, and sociopolitical middle-range theories (Fawcett & Garity; Fawcett et al., 2001). Lack of attention to the theoretical component of research also prevents understanding of why one variable is related to another variable or why a particular prevention intervention is related to a particular client system outcome. Acknowledging the conceptual and theoretical components of research and thinking about theory as evidence removes any gap between theories and practice and expands thinking from evidence-based practice to conceptual model–based, theory-guided practice, as evidence-based practice is equivalent to theory-guided practice (Fawcett & Garity; Walker & Redman, 1999).

Conclusion

Guidelines for Neuman Systems Model–based research were discussed in this chapter, and research instruments derived from the model were identified and described. Inasmuch as the ultimate goal of all research is to develop conceptual model–based middle-range theories (Fawcett & Garity, 2009), the contributions of the Neuman Systems Model to theory development are highlighted in Section Seven of this book. Chapter 21 in that section focuses on derivation and empirical testing of a middle-range theory from the Neuman Systems Model. Readers are referred to that chapter for a diagram depicting linkages between the Neuman Systems Model, middle-range theory, and empirical indicators for a theory-testing study of multiple role stress in mothers attending college (Figure 21-1), and a diagram of the linkages for a theory-testing study of the etiology of maternal-student role stress (Figure 21-2). Chapter 22 focuses on strategies used to link an existing middle-range nursing theory with the Neuman Systems Model.

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SECTION FOUR

The Neuman Systems Model and Nursing Education

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CHAPTER 11

Nursing Education at Loma Linda University

Margaret A. Burns

External environmental stressors are often a catalyst for change (Bennis, Benne, & Chin, 1969; Lewin, 1951). The purpose of this chapter is to describe the response of the Loma Linda University School of Nursing faculty to the stressor of a recommendation that a nursing curriculum framework be documented, which stemmed from an external review of the baccalaureate nursing program curriculum.

LOMA LINDA UNIVERSITY

Loma Linda University is a coeducational, Seventh-Day Adventist educational health-sciences institution with more than 4,000 students. The university, which is located in Southern California, was founded in 1905. The School of Nursing offers various options for undergraduate and graduate study in nursing.

EVOLUTION OF THE NEUMAN SYSTEMS MODEL–BASED CURRICULUM

During the 1989–1990 school year, the nursing faculty began to review several nursing conceptual models that could be used as a guide for the baccalaureate nursing curriculum. The process of choosing a nursing conceptual model began in small groups. Each group chose a model framework the members thought would be useful as a structure to guide the nursing curriculum and would be consistent with the School of Nursing mission and philosophy.

In the spring of 1990, each group presented one conceptual model and identified reasons why it should be selected. Following lengthy discussions, faculty came to a consensus that the Neuman System Model fit best with the school mission and philosophy and was congruent with the faculty's perception of the focus of nursing in the future.

In keeping with the literature about change (Benne et al., 1969; Lewin, 1951), the importance of involving the entire faculty was underscored. Without "buy in" by all faculty,

implementation of the model would not be successful. A recognized restraining force (Lewin, 1951) was the need for faculty to "think outside the box" of a more traditional medically oriented curriculum. Accordingly, the curriculum committee members spent time discussing how to involve the whole faculty as much as possible. Subsequently, during the next 2 years (1990–1991, 1991–1992), all-faculty meetings were held at the end of quarters, during breaks, and at the end of the school year to work on ideas and cope with the change.

Initial work focused on developing a working model, which took most of a school year. Dialogue about how the Neuman Systems Model concepts would appear in the curriculum, what curriculum strands should be included, and what were the appropriate levels were central to the discussions. The working model for the curriculum is illustrated in Figure 11-1.

The faculty discussed how current courses could be adapted and new courses developed within the context of the Neuman Systems Model and level objectives throughout most of the 1992–1993 school year. Initially, it was thought that the nursing prevention-as-interventions modalities (primary, secondary, tertiary) would be a way to organize the sequence of the curriculum. However, it became clear that courses could not be "leveled" according to the prevention-as-intervention modalities, as all three modalities frequently have to be considered in the same situation. Dialogue then focused on categories of illness and optimal wellness as a way to organize courses, but that approach was not deemed feasible. The faculty finally determined that most feasible and logical leveling of courses was the client system of interest—individuals, families, and communities.

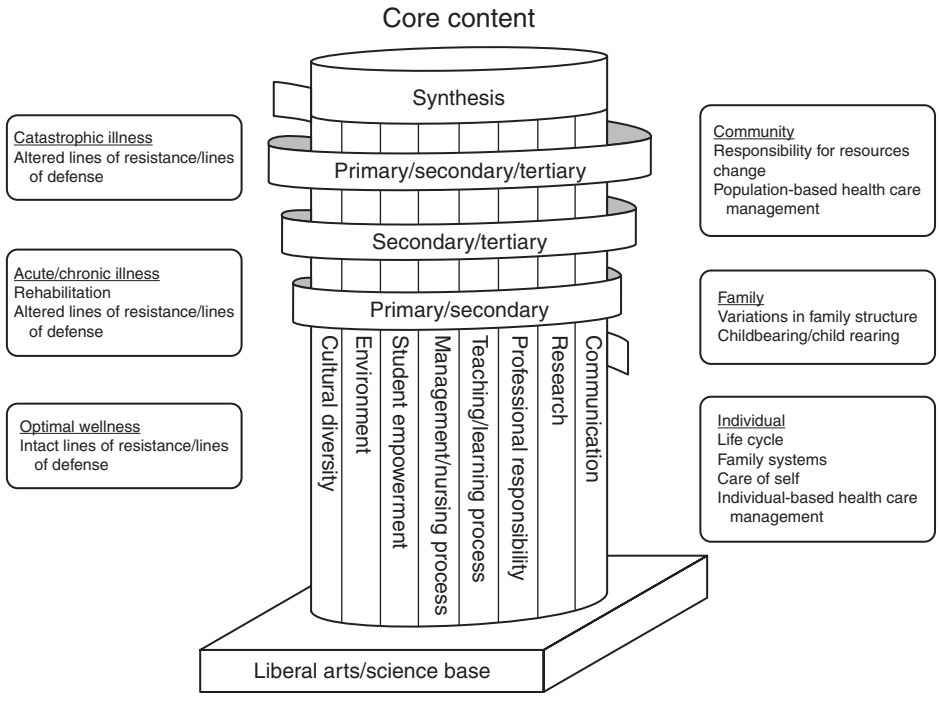

FIGURE 11-1 Diagram of the Loma Linda University nursing curriculum model.

Beginning students work primarily with individuals; at the next level, students work with individuals as members of families and entire families; and at the senior level, students work with communities and groups.

As the curriculum evolved, faculty identified concept strands that should be incorporated throughout the curriculum, such as research, communication, cultural diversity, management, and leadership. The content for each strand is expanded at each level of the curriculum (see Figure 11-1).

At that time, the only community-as-client system experience was in the senior year last-quarter community health nursing course. In recognition of nursing's increasing emphasis on community-based care settings, and the Neuman Systems Model concept of optimal wellness, the faculty decided that students should have community-based health promotion experiences prior to the end of the senior year.

As faculty developed courses, they presented each course to the curriculum committee for discussion, after which the course was presented to the entire faculty for discussion and approval. By fall 1993, the sophomore-year courses were ready to be offered.

Sequence of the Curriculum

The curriculum sequence and specific nursing courses are presented in Table 11-1. This table does not, however, include the specific cognate courses that support the strands and the Neuman Systems Model.

Students are introduced to the model in the sophomore year, in the Fundamentals of Professional Nursing course. Relevant stressors and client system variables, as well as the lines of defense and resistance, are discussed within the context of the individual as client system. Inasmuch as practicum experiences are in acute care settings, secondary and tertiary prevention interventions are emphasized.

TABLE 11-1 Loma Linda University Baccalaureate Nursing Program Curriculum Sequence

Year	First Quarter	Second Quarter	Third Quarter
Sophomore	Required Cognates	Fundamentals of Professional Nursing	Psychiatric/Mental Health Nursing
		Basic Nursing Skills/Health Assessment	Nursing of the Older Adult
			Nursing Pathophysiology
Junior	Adult/Aging Client	Health Promotion Across the Lifespan	Childbearing Family
	Pharmacology	Adult/Aging Family I	Child Health Nursing
Senior	Adult/Aging Family II (critical care)	Community Health Nursing	Professional Nursing Practice Elective
	Home Health Nursing	Community Mental Health Nursing	Nursing Management
	Professional Nursing Issues	Clinical Nursing Research	

In the junior year, the focus becomes the individual as a family member and the family as a unit. All three prevention-as-intervention modalities are emphasized.

Early in the junior year, students work with older adults at community senior centers, as well as with adults who reside in nursing homes. Later in the semester, students care for adults with acute and chronic illnesses primarily in acute care settings. The impact of acute and chronic illness on the individual and the family is considered.

Recognition of the importance of optimal client system wellness in the Neuman Systems Model led to development of a new course—Health Promotion. The focus on health promotion facilitated student involvement with individuals as members of families and with entire families. Practicum experiences take place in community settings, such as outpatient clinics and Head Start programs, as well as in acute care settings. Experiences in community settings include administration of immunizations to well children and child health assessments. The family as the client system is introduced in junior-year courses focused on childbearing and child-rearing families.

At the senior level, groups, communities, and unit staff are considered relevant client systems. All aspects of the Neuman System Model are considered broadly in group- and community-focused courses—Community Health Nursing, Community Mental Health Nursing, and Nursing Management. Noteworthy is that faculty who teach the Nursing Management course have found use of the Neuman Systems Model to be helpful in demonstrating to students that the model content is applicable to management issues and staff nurse–nurse leader relationships. The formal nursing research course also is offered in the senior year.

Current Status of the Curriculum

By the fall of 1997, the entire Neuman Systems Model–based curriculum had been implemented. The model is still being used as a guide for course development and refinement. The curriculum framework is sustained by annual end-of-school-year faculty meetings to discuss need for changes in course content and how each course reflects the Neuman Systems Model.

The framework has been in place for more than 10 years. As the faculty once again faces external stressors in the form of evaluation, the words of one evaluator will remain in mind—"If it [*sic*] works for you, stay with it."

THE STUDENTS

The nursing students reflect considerable diversity. Although the majority of current students are part of the "millennial" generation, many are seeking a second career, others are single parents looking for better career opportunities, and many are from diverse cultural and ethnic groups.

TEACHING-LEARNING STRATEGIES

A variety of teaching methods are used in response to diverse student learning needs and learning styles. Some faculty have used learning styles inventories to help them understand student learning styles, which facilitates selection of appropriate teaching-learning strategies.

Explanations of the Neuman Systems Model and its application to nursing are presented in numerous ways. Active teaching-learning strategies are emphasized, such as concept mapping, role playing, articulation of learning objectives by students, and online class preparation. Inasmuch as active teaching-learning strategies engage students in critical thinking (Fink, 2003; Rogers, 1969; Ulrich & Glendon, 1999), they have experience with critical thinking in many different ways, including care plans, concept papers, and group activities.

Conclusion

Change is a constant, and for this curriculum, use of the Neuman Systems Model has facilitated incorporation of changes in health care delivery within the curriculum. Although specific course content may vary over time in response to changes in health care, the focus of nursing remains constant—the interaction between the nurse and the client, and the nursing care provided. Use of the Neuman Systems Model as a base for the curriculum enables graduates of the program to use creativity, knowledge, and critical thinking in whatever setting they may practice. And, the Neuman Systems Model continues to provide the flexibility needed by students and graduates to adapt to change yet always retain a strong focus on *nursing*.

Note: The author of this chapter served as the Curriculum Chair from 1989 to 1997.

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CHAPTER 12

Nursing Education at Anna Maria College

Barbara Cammuso
Audrey Silveri
Paulette Remijan

The Neuman Systems Model has been used for many years as the curriculum framework for the nursing program at Anna Maria College. The purpose of this chapter is to describe how the Neuman Systems Model was introduced and incorporated into the registered nurse to baccalaureate degree nursing program. The chapter includes a discussion of the evolution and creative use of the model in the current curriculum as nurses are prepared to provide comprehensive care in the 21st century.

ANNA MARIA COLLEGE

Anna Maria College is a 4-year, private, coeducational, Catholic, liberal arts institution founded in 1946 by the Sisters of St. Anne. The college, which is located in central Massachusetts, offers many programs that integrate liberal education and professional preparation. The Nursing Department offers an associate degree nursing program and a registered nurse to baccalaureate degree nursing program, as well as certificate programs.

INITIAL DEVELOPMENT AND EVOLUTION OF THE CURRICULUM

The Bachelor of Science Program in Nursing was introduced in 1979 to meet the needs of registered nurses who were seeking a baccalaureate degree in nursing (RN to BSN program). The Neuman Systems Model was quickly selected as a guide for the curriculum but not fully integrated into the curriculum until several years later. In the interest of full integration, in 1987, Barbara Fulton, then chairperson of the Department of Nursing, contacted Dr. Betty Neuman to assist the faculty prepare for the initial accreditation of the program. Dr. Neuman recommended contacting Rosalie Mirenda, who conducted a curriculum workshop based on the Neuman Systems Model (Mirenda, 1986; Mirenda & Wright, 1987). This workshop helped the faculty comprehend the interrelated concepts of the Neuman Systems Model, which was prerequisite to successfully integrating the model as an organizing framework for the nursing curriculum. Subsequently, the Nursing

Faculty Committee met weekly to develop a philosophy and curriculum based on the Neuman Systems Model. Each member of the committee was enthusiastic as they revised their teaching modules to embrace integration of the model.

The current curriculum continues to develop use of the Neuman Systems Model as students are prepared to face current and future health care challenges, including the following:

- A more culturally diverse population with unique health care needs and perspectives
- Threats to health from environmental pollutants due to an increase in world population and an increase in industrialization of third world countries
- A resurgence of infectious diseases due to resistance to antibiotics along with an increased risk of worldwide pandemics
- An increase in the elder population with an accompanying increase in chronic illnesses
- A change in the distribution of disease patterns due to global warming
- An increased coverage to basic health care with a decreased access to advanced curative technologies
- An increased number of military personnel who have suffered devastating physical and psychological illnesses requiring lifelong care
- A greater emphasis on complementary healing modalities including the healing potential of spirituality

Students as Client Systems

The faculty has identified the nursing student as the client system. The curriculum is designed to strengthen each student's flexible line of defense by developing a strong learning environment that addresses the physiological, psychological, sociocultural, developmental, and spiritual client system variables (Table 12-1).

Nature and Sequence of Content

As a result of early Nursing Faculty Committee work, the Neuman Systems Model has been used as an organizing framework for the selection and sequencing of content for many years. Courses are organized in levels following the format of primary, secondary, and tertiary prevention-as-intervention modalities. A circle diagram (Figure 12-1) is used to illustrate placement of nursing courses within the context of the prevention interventions. The diagram provides a visual representation of the curriculum sequence for faculty and students.

The specific sequence of courses is guided by the complexity of concepts introduced in each course. Curriculum threads are woven throughout all three prevention-as-intervention modalities to provide continuous exposure to the key elements of the baccalaureate nursing program. The faculty believes that with appropriate and timely prevention intervention, students will attain mutual goals and successfully complete the program. Nursing program courses are listed in Table 12-2.

PRIMARY PREVENTION-AS-INTERVENTION COURSES The nursing courses designated at the primary prevention-as-intervention level are designed to offer students an introduction to the sociocultural setting of the nursing program within the larger setting of the campus and extended colleges of the area consortium. Courses at this level are designed

TABLE 12-1 Strategies to Strengthen Student Nurses' Flexible Line of Defense

Client System Variable	Strategies
Physiological Variable	Timely faculty advising and Registrar services for a balanced course offering to promote efficient use of students' energy and resources
	Communication systems in place for correspondence between students and faculty/staff
	Online resources available for prompt access to information
	Health and Counseling Service for health promotion and disease management
	Environmentally controlled classrooms
	Infection control and personal protection equipment to reduce transfer of infectious agents
	Ergonomically designed nursing laboratory and computer station
	Handicapped access to state-of-the-art Nursing Laboratory, Computer Lab, and Simulation Practice Stations
	Food services available during late afternoon and evening classes
Psychological Variable	Nursing course objectives in level 200 and 300 courses help define and promote professional nursing
	Mentoring by preceptors and support of the Anna Maria College nursing faculty and fellow students
	Student Affairs services to support students' needs and provide referral base
	Health and Counseling Service for emotional support and counseling
	Campuswide Security Department to promote a secure and safe learning environment
	Choice among nursing courses to empower students and address their special professional interests and goals
	The availability of faculty to respond to students within 48 hours of receiving e-mail messages from students
	Development of a supportive student learning community through various strategies
Developmental Variable	Faculty advising and Career Center Service
	Adult learning theory utilized to developmentally address the diverse needs and learning styles of the adult learner
	Nursing course assignments designed from the simple to the most complex cognition

to provide students with the skills needed to be successful in the baccalaureate program and in professional nursing. The skills include critical thinking and writing, oral and written communication, comprehensive physical assessments, research utilization, and increased awareness of the interrelationship of societal changes within the nursing profession. At this level, the curriculum includes integration of wholistic nursing based on the Neuman Systems Model, environmental causes of illness, spirituality in nursing, and

TABLE 12-1 (continued)

Client System Variable	Strategies
	Learning Center to support, enhance, and retool academic skills for students who are returning to college after many years
	Library resource staff to advise, support, and instruct on research tools and resources
	An emphasis on experiential learning throughout the curriculum
	NUS 301 is designed to equip students with the skills necessary for success in the BSN program, as well as prepare them for professional nursing practice
Sociocultural Variable	Anna Maria College nursing community to support students' efforts to achieve academic goals
	Availability of financial aid to lessen the stress of financial obligation
	Scholarships to lessen the stress of financial obligations and recognize the professional accomplishments of the students and nursing community
	Sigma Theta Tau International Honor Society membership for qualified students
	Anna Maria College Alumni Association
	Curriculum thread and discrete course, NUS 415, designed to prepare culturally competent practitioners
Spiritual Variable	Anna Maria College Mission Statement includes spirituality
	The campus atmosphere expresses the charisma of the Sisters of St. Anne, the college founders
	Spirituality is introduced in NUS 301 Professional Nursing to enhance a holistic perspective and system stability
	Spirituality in nursing is a curriculum thread
	Parish Nursing, a spiritual ministry, is offered as an option in the nursing curriculum
	The study of humanities enhances an understanding of spirituality
	The Pinning Ceremony is spiritually based and includes the blessing of nursing pins
	Spiritual counseling through Campus Ministry
	Chapel and meditation areas are available
	Religious services, such as daily Mass, are available

cultural competence. These curriculum threads and themes become central as the students are exposed to secondary prevention as intervention.

The learning environment is designed at this phase of primary prevention as intervention to include efficient and effective interaction between students and faculty through direct contact and electronic communication using e-mail and Internet classroom programs. Additional resources for students include library services on campus and at an area medical school; a state-of-the-art nursing laboratory including simulation stations,

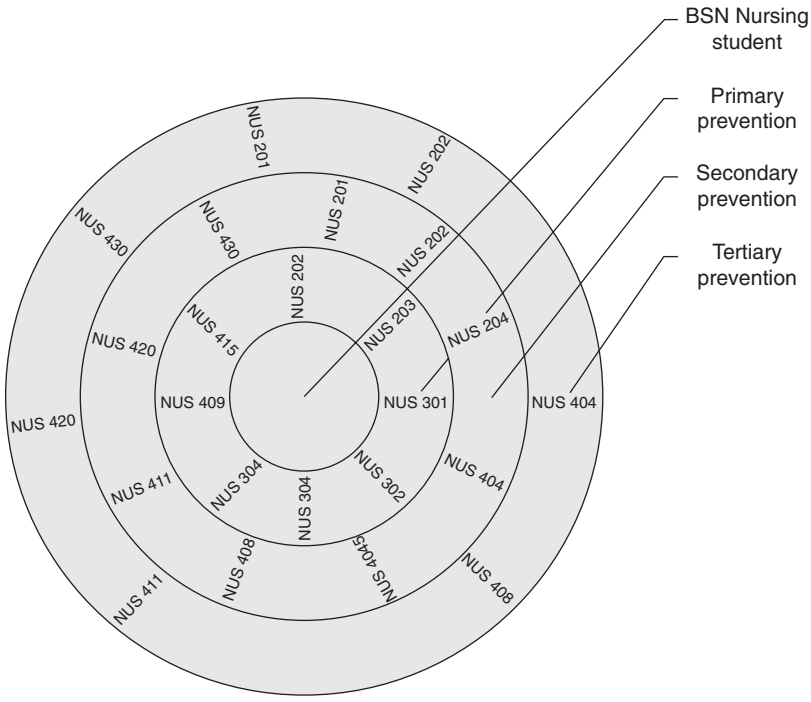

FIGURE 12-1 Nursing curriculum course sequence at Anna Maria College.

which is staffed by a nurse laboratory manager; an academic learning center; online databases; informatics; and evidence-based nursing practice standards.

To prepare students to embrace current and future health care challenges, the curriculum emphasizes prevention and public health. Curriculum threads of cultural competency, environmental causes of illness, and spirituality in nursing address these challenges directly, and additional curriculum threads of critical thinking, writing, and the therapeutic use of the fine arts help students assess and analyze new challenges to nursing care and to use nontraditional methods in their practice.

Nursing primary prevention interventions are developed to strengthen the client system lines of resistance. Students study the impact of the physical, psychological, sociocultural, developmental, and spiritual variables on the health of client systems in several courses—Professional Nursing, Nursing Research Utilization, Environmental Illness, History of Nursing in the United States, and Public Health Nursing.

In addition, students develop prevention interventions to assist clients to develop stronger lines of defense. The courses addressing those prevention interventions are Working with the Elderly, The Human Dilemma, Complementary Health Care, Physical Assessment, Chronic Illness, Acute Care Nursing, Gerontological Nursing, Parish Nursing, School Nursing, Transcultural Nursing, and Cardiac Nursing. The skills and tools that enable students to develop appropriate and effective prevention interventions throughout the curriculum are high-level critical thinking and writing, oral and written communication skills, use of informatics and evidence-based practice guidelines, awareness of current health care issues, and participation in the political process to advocate for health care issues. The

TABLE 12-2 Anna Maria College Baccalaureate Nursing Program Courses

Nursing Courses Required for All Students*	Choices of Required Nursing Courses
NUS 301 Professional Nursing (3 credits); prerequisite for all other nursing courses	One of the following clinical nursing courses (6 credits): NUS 404 Acute Care Nursing NUS 411 School Nursing NUS 420 Gerontological Nursing NUS 430 Parish Nursing
NUS 302 Physical Assessment and Health Education (3 credits)	NUS 405 Nursing Leadership and Management OR NUS 409 History of Nursing in the United States
NUS 304 Nursing Research Utilization (3 credits)	One of the following nursing courses: NUS 201 Chronic Illness NUS 202 The Human Dilemma: Dealing with Grief and Loss NUS 203 Complementary Health Care NUS 204 Working with Older Adults NUS 412 Case Management NUS 416 Cardiac Care
NUS 408 Public Health Nursing with Practicum (6 credits)	
NUS 414 Environmental Illness (3 credits)	
NUS 415 Transcultural Nursing (3 credits)	

*300 level courses must be taken before clinical courses.

curriculum threads related to this focus include spirituality in nursing, the liberal arts, and the arts in nursing practice and education, as well as cultural competence for nurses.

Emphasis in the curriculum on public health nursing is an effective way to provide primary prevention interventions to the population as a whole. The strategies for primary prevention-as-intervention activities include increased awareness of environmental health stressors for health care professionals and health advocacy through education, media, and political processes to reduce and/or mediate the effects of environmental stressors. The relevant courses are Professional Nursing, Physical Assessment, Chronic Illness, Environmental Illness, and Public Health Nursing.

The 200 level courses—Managing Chronic Illness, The Human Dilemma: Dealing with Grief and Loss, Complementary Health Care, and Working with Older Adults—are designed to allow students to explore a particular aspect of health science. An overview of each course is given in Box 12-1. The 300 level courses are designed to provide the broader prospective of professional nursing. An overview of each of these courses is given in Box 12-2. Courses at the 400 level are designed to provide deeper understanding and knowledge of the assessment, diagnosis, planning, intervention, and evaluation of nursing client systems. Overviews are given in Box 12-3.

BOX 12-1

Overview of 200 Level Primary Prevention-as-Intervention Courses

NUS 201 Chronic Illness

The fundamental concepts of the Neuman Systems Model are used to examine the actual and potential effects of chronic illness as stressors for various client systems, including the ill person, the family/caregivers, the health professional, and the health care system. The concepts of chronicity, illness roles, stigma, body image, and powerlessness associated with chronic illness are examined. The problems of chronic pain, social isolation, altered mobility, fatigue, sexuality, and compliance with health care regimen also are examined. Nursing care and the use of complementary therapies are explored as ways to retain, attain, and maintain optimal health of the client system.

NUS 202 The Human Dilemma: Dealing with Grief and Loss

This course deals with the concepts of grief and suffering from the spectrum of everyday crises to dealing with profound stressors of suffering and grief. Students are taught to understand the intrapersonal, interpersonal, and extrapersonal stressors that may be a potential source of loss and grief. This highly interactive class utilizes classic literature, art, and film to expand students' understanding and interpretation of the human experience. An analysis of the transformation and transcending bereavement model supports the role of health care workers to provide primary, secondary, and tertiary prevention interventions and counsel persons dealing with the human dilemma of suffering and grief.

NUS 203 Complementary Health Care

This course provides an overview of nontraditional therapies. Alternate therapies such as manual healing methods, pharmacological and biological treatments, herbal medicine, diet and nutrition, Chinese medicine, and Ayurvedic medicine are presented. These therapies are viewed within the context of primary, secondary, and tertiary prevention interventions.

NUS 204 Working with Older Adults

This course provides an overview of gerontological nursing, using a multidisciplinary approach. The unique strengths and abilities of older persons are emphasized and reflected in the physiological, psychological, sociocultural, developmental, and spiritual variables. Issues related to ethical, legal, and societal views of aging are addressed.

BOX 12-2

Overview of 300 Level Primary Prevention-as-Intervention Courses

NUS 301 Professional Nursing

This course focuses on several topics, including building a supportive learning and nursing community, current health care problems, ethics in nursing practice, spirituality in nursing, nursing theory, nursing informatics, critical thinking and writing, the fine arts in nursing practice and education, political awareness and advocacy of health care issues, and development of the ability to give meaningful oral presentations. In this course, students complete an assignment related to spiritual nursing care that reflects the client system spiritual variable. To increase awareness of current health care issues related to the physiological, psychological, and sociocultural client system variables, students are required to scan the daily newspapers for news items related to current health care issues, and contact a politician about an issue. In addition, students study the concepts and propositions of the Neuman Systems Model and compare and contrast the content to that of another nursing theory or model. Students disseminate their work in a paper and an oral presentation, which reinforces the importance of nursing theory

to guide practice and education and effectively demonstrates the strengths and wide applicability of the Neuman Systems Model.

NUS 302 Physical Assessment and Health Education

This course focuses on advanced physical assessment across the life span, health advocacy, and current health care problems, particularly those amenable to public health nursing. Students assess physiological, psychological, sociocultural, developmental, and spiritual variables for the purpose of developing health promotion, protection, and prevention plans of care. The Neuman Systems Model is utilized as a framework for comprehensive wellness assessments, health promotion activities, health education, and illness prevention. The relationship of the environment to health, the nurse's role as a healer, and the use of the fine arts in health promotion are integrated into health assessment, care planning, and health education. The students view museum paintings, sculptures, and artifacts; report any findings about the physiological alterations; and propose reasons for the artist's presentation. In addition, students may take a field trip to view museum exhibits related to health care, such as "Body Works," which incorporates actual anatomical body displays. The students' practice problems may be categorized within the context of stressors for the five client system variables. They also are encouraged to make use of research guided by concepts of the Neuman Systems Model.

NUS 304 Nursing Research Utilization

This course prepares students for evidence-based practice. Students learn to use appropriate databases and evaluate research reports as they become competent consumers of health care research. Each student identifies a practice problem, searches the literature for information about solutions to the problem, and then develops a proposal for studying the problem in practice. The Neuman Systems Model is utilized to categorize problems and organize data for such client systems as health care agencies or units. The model enables students to assess practice problems in a systematic manner and develop appropriate prevention interventions, goals, and outcomes. Many proposals are subsequently implemented in the students' practice settings.

BOX 12-3

Overview of 400 Level Primary Prevention-as-Intervention Courses

NUS 405 Nursing Leadership and Management

This course focuses on leadership styles and strategies, management skills, networking, problem solving, and current health care problems. The student demonstrates the use of the Neuman Systems Model by identifying stressors in the work environment, developing prevention interventions to mediate environmental hazards, and strengthening the staff's flexible line of defense and lines of resistance. The knowledge and skills developed during this assignment contribute to primary prevention intervention. Upon completion of the course, students are prepared to meet the challenges in the workplace and in more advanced and care-centered nursing courses.

NUS 409 The History of Nursing in the United States

The course deals with the relationship of nursing practice and education to global and national social, political, and economic events. Emphasis is placed on the leadership styles of and effective policies and strategies used by early nursing leaders in their struggle to improve nursing practice and education in the United States. The Neuman Systems Model lens clarifies nursing history by facilitating differentiation among various aspects of nursing care. By viewing the history of nursing through physical, psychological, sociocultural, developmental, and spiritual lenses, students can more readily understand how nursing has been shaped by historical developments and how primary, secondary,

(*continued*)

BOX 12-3 (continued)

and tertiary prevention interventions are fundamental to competent nursing practice and education. The conceptualization of the nurse's role in assisting client systems to strengthen the lines of defense and resistance is illustrated in the study of the historical development of nursing interventions.

NUS 414 Environmental Illness

This seminar course reflects the Neuman Systems Model recognition of environmental stressors. Newman (2007) pointed out that within the context of the Neuman Systems Model, "prevention as an intervention strategy is a systematic strategy to address environmental stressors invading the client or client system" (p. 20). Course content focuses on selected environmental hazards that may lead to human disability, morbidity, and mortality. The Neuman Systems Model emphasis on prevention interventions is implemented by teaching students to assess risks for environmentally related illnesses and to design relevant prevention interventions. Course topics include air quality, water quality, food sources and food borne illnesses, soil quality, and animal vectors. Assignments are designed to raise students' awareness of environmental hazards. The first assignment is an assessment of the student's personal risk factors in the home and the workplace. Other assignments include assessment and mediation of environmental risk factors at the local, state, national, and international levels.

NUS 415 Transcultural Nursing

This course is a capstone seminar course that prepares students to deliver culturally competent care to diverse populations. Students are expected to utilize health assessment, environmental assessment, care planning, and research skills to develop a comprehensive health care plan for members of a culturally diverse population in the area. The health care plan integrates Catholic social teaching, historic and cultural knowledge, and the Neuman Systems Model, with emphasis on the sociocultural and spiritual client system variables. For the final assignment, students lead a seminar discussion on the health care plan they have developed for their chosen population group.

NUS 416 Cardiac Nursing

This course focuses on recognition of risk factors related to cardiovascular disease and the nurse's role in primary, secondary, and tertiary prevention interventions. Neuman Systems Model–based comprehensive and wholistic assessment of adults with cardiac disease is emphasized. Neuman Systems Model–based care plans include interventions for the prevention of, protection from, and treatment of cardiovascular disease.

SECONDARY PREVENTION-AS-INTERVENTION COURSES Nursing courses designated at the secondary prevention-as-intervention level are designed to stabilize the students' knowledge base by reinforcing what has been learned in the earlier nursing courses and further developing critical thinking and writing skills as they begin to understand research data, environmental influences, leadership concepts, and clinical nursing. Assessment of the students' ability to engage in high-level critical thinking and their willingness to engage in cooperative and independent learning, as well as engage in logical reasoning, is essential for evaluation of adequacy of the prevention interventions in addressing potential stressors. The learning environment is enhanced by activities and assignments that emphasize theoretical and clinical nursing. Support at this secondary phase of prevention intervention involves providing expanded resources with online access in all classrooms, library databases, conferences, visits to state legislative venues, and availability of fine arts on and off campus. Additional support is offered through exposure to a community of nurse leaders, nurse preceptors, political leaders, guest speakers, and health care professionals. Wholistic nursing using the Neuman Systems Model is central to the delivery of

care to diverse populations in the clinical settings of acute care nursing, gerontological nursing, school nursing, and parish nursing. Overviews of acute care nursing and school nursing, which are designed to provide clinical experience in working with client systems in need of both primary and secondary prevention interventions, are given in Box 12-4.

TERTIARY PREVENTION-AS-INTERVENTION COURSES Nursing courses designated at the tertiary prevention-as-intervention level are designed to maintain students' level of stability and foster independent learning. The clinical courses focus on secondary and tertiary prevention interventions due to the continuum of adaptation for the students. The courses at this level—Public Health Nursing, Gerontological Nursing, and Parish Nursing—emphasize the complex integration of all Neuman Systems Model concepts in a wholistic manner. Overviews of the three courses are given in Box 12-5.

BOX 12-4

Overview of Selected Secondary Prevention-as-Intervention Courses

NUS 404 Acute Care Nursing

In this course, students identify variances in physiological, psychological, sociocultural, developmental, and spiritual health using the Neuman Systems Model. Based on the assessment, plans of care for acute and potential health problems are developed. This course prepares students to take the American Nurses Credentialing Center Certification Examination.

NUS 411 School Nursing

This didactic course is designed to introduce the registered nurse to school nursing as a practice specialty. Topics include the history of school nursing, the role of the school nurse, and the American Nurses Association Standards of Practice for School Nurses. Discussions and assignments involve assessment of environmental stressors that may influence student learning, development of nursing care plans for acute injury and chronic disease management that incorporate the five client system variables, as well as implementation of health promotion teaching utilizing the Neuman Systems Model for primary, secondary, and tertiary prevention interventions. Students collaborate within an interdisciplinary team to plan mutual goals to retain, attain, and maintain an optimal level of wellness for school-age clients. State laws, rules, and regulations that guide policies and procedures and standards for mandatory health screenings for the care of school-aged children are highlighted. This course prepares the registered nurse to take the National Association of School Nurses National Certification Examination. A clinical course may be taken concurrently with the didactic course.

BOX 12-5

Overview of Tertiary Prevention-as-Intervention Courses

NUS408 Public Health Nursing

This course uses the Neuman Systems Model as an organizing framework with a focus on the work of the public health nurse caring for populations rather than individuals or family groups. The didactic course and clinical practicum provide students with a broad overview of public health nursing, including learning opportunities in clinical placements in selected public health agencies, such as town boards of health, the Massachusetts

(*continued*)

BOX 12-5 (continued)

Public Health Association, and several free health clinics that provide primary care for clients who have no health insurance. Ethical, environmental, economic, legal, political, spiritual, and sociocultural stressors affecting health and access to health care are targeted for inquiry and development of decision-making ability.

NUS 420 Gerontological Nursing

This course provides an overview of gerontology for nurses working with older adult clients. The Neuman Systems Model provides the framework for assessing the physiological, psychological, sociocultural, developmental, and spiritual aspects of aging. The model focuses on the strengths and vulnerabilities of the individual clients in relation to the internal and external stressors in their lives and guides nursing interventions to achieve goals developed by the client and the nurse. The unique responses of aging individuals to health problems are explored in evaluating therapeutic approaches for individuals and groups. Students learn to understand the actual and potential stressors on the elder population relating to the impact of the health care system and federal regulations and policies that regulate their care. Respect for the older person and their rights of choice and decision making are explored. Students follow the proposed Department of Health and Human Service's age-specific health screening and health promotion/maintenance guidelines to strengthen the lines of resistance and promote optimal health. A clinical component for this course prepares students for certification by the American Nurses Association Credentialing Center.

NUS 420 Parish Nursing

This course provides an opportunity for students to demonstrate caring for mind, body, and spirit. The roles of the parish nurse—integrator of faith and health, health counselor, advocate, educator, and community liaison—are explored in depth. Students develop strategies to encourage and assist in the continued growth of parishioners' spirituality as an essential aspect of wellness. An important assignment in Parish Nursing is a parish needs assessment. The Neuman Systems Model guides the student's assessment of parish needs, listening to parishioners' voices as they express their understanding of the parish needs, and also guides development of appropriate prevention interventions and identification of outcomes, which are based on the parishioners' spiritual, psychological, physiological, developmental, and sociocultural needs.

Conclusion

The faculty at Anna Maria College has used the Neuman Systems Model as a basis for the development of a strong learning environment and a caring learning community, which heeds and responds to our students as client systems' voices and needs. The model has demonstrated great flexibility and comprehensiveness in this unique educational application, in which the registered nurse to baccalaureate degree program is designed within the context of the student population as the client system. The five client system variables, stressors, lines of defense and resistance, and primary, secondary, and tertiary prevention as intervention are utilized in this program to help students reach their maximum potential and to maximize their contributions to the nursing profession.

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CHAPTER 13

Nursing Education at Indiana University-Purdue University Fort Wayne

Sarah Beckman
Lois Lowry
Sanna Boxley-Harges

Nursing education is a continuing journey that involves immersion at every step as the process unfolds. The purpose of this chapter is to describe the journey of nurse educators who selected the Neuman Systems Model as the organizing framework for the curricula of the baccalaureate nursing program at Indiana University-Purdue University Fort Wayne.

INDIANA UNIVERSITY-PURDUE UNIVERSITY FORT WAYNE

Indiana University-Purdue University Fort Wayne (IPFW), which is the most comprehensive public university in northeastern Indiana, was established in 1964. The university offers a vast array of undergraduate and graduate programs. Nursing has always been regarded as an important program at IPFW. The evolution of the nursing programs demonstrates the vision and flexibility of nurse educators as they prepare culturally competent, caring, and accountable professionals. At the present time, the Department of Nursing offers a nursing program with multiple entry and exit points. As can be seen in Figure 13-1, two options are now available to the beginning student: pursuit of a 4-year baccalaureate degree with a major in nursing or exiting after 2 years with an associate degree with a major in nursing. In addition, the current curriculum includes entry for registered nurses at the junior year for completion of the baccalaureate degree and for licensed practical nurses at the sophomore year with the option of exiting with either an associate or baccalaureate degree.

IMPLEMENTING THE NEUMAN SYSTEMS MODEL IN THE CURRICULUM

The IPFW curricula for the associate degree and the baccalaureate degree nursing programs were initially distinct. In 1982, the Neuman Systems Model was adopted as the guide for the

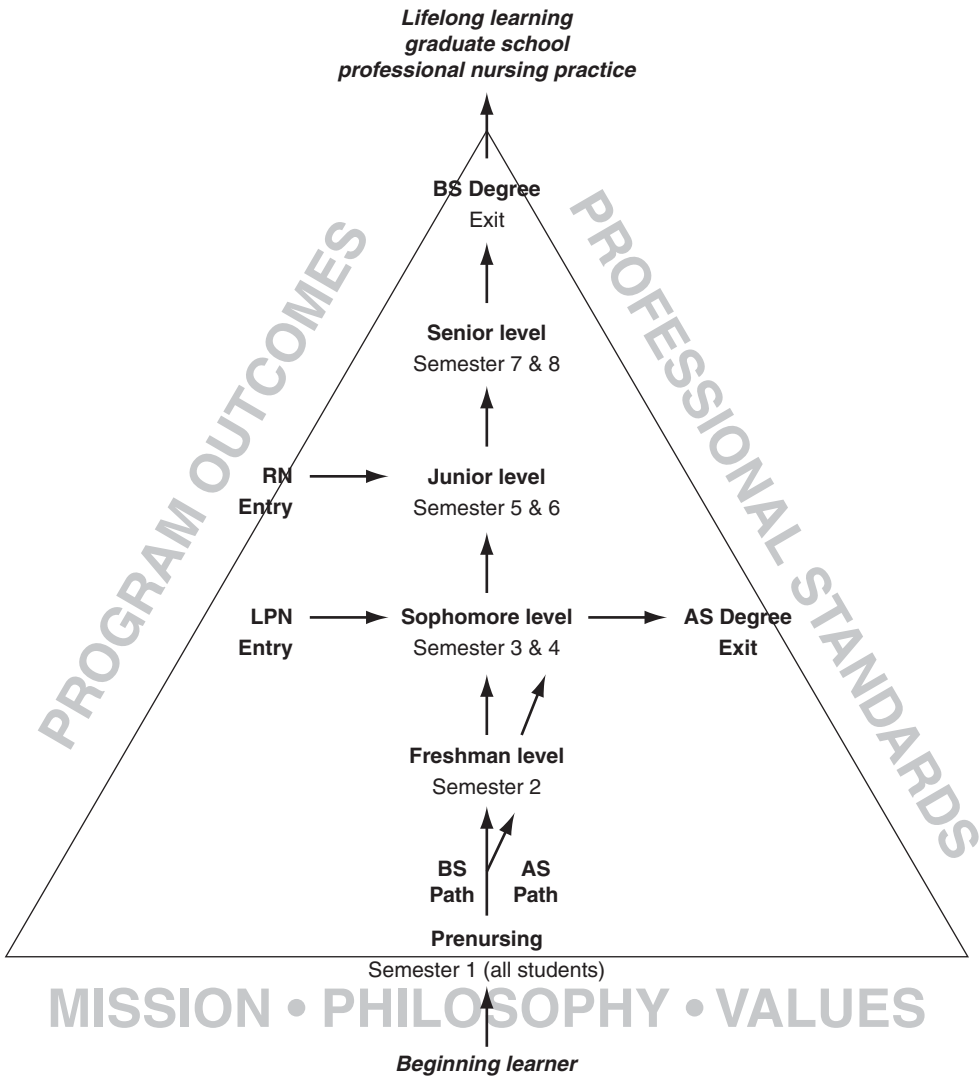


FIGURE 13-1 Career steps program model.

associate degree program. Implementation of a revised baccalaureate program curriculum, in which the Neuman System Model is strongly emphasized, occurred in the fall of 2006. Prior to implementing the revised curriculum, the faculty spent more than 2 years of intense review and revision of the associate and baccalaureate degree nursing program curricula. The current one curriculum with multiple entry and exit points (see Figure 13-1) was designed to educate students to become culturally competent, caring, and accountable professionals.

The undergraduate conceptual framework, illustrated in Figure 13-2, is envisioned as a fluid interaction among the student learner, client, and faculty, all of whom are regarded as unique, wholistic human beings. The three-way interaction among student learners, clients, and faculty in a variety of health care environments is a driving force for the curriculum.

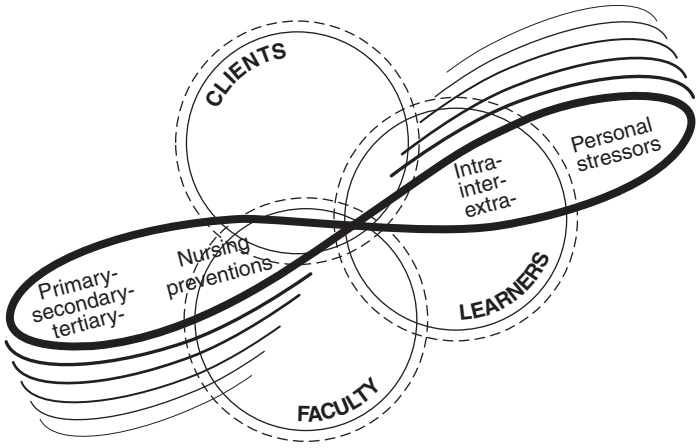


FIGURE 13-2 Basic concepts of the undergraduate conceptual framework. Used with permission of Sanna Harges, RN, MA, ANP, IPFW Department of Nursing, Fort Wayne, IN.

The curriculum flows from the faculty's philosophical beliefs about health, client, nursing, and environment and the organizing conceptual framework that was developed by the faculty. The conceptual framework reflects the integration of various concepts and theories into an expansive and unique body of nursing knowledge. Although the faculty acknowledges a variety of theories within the curriculum, the Neuman Systems Model was adopted as the overarching conceptual model to guide curriculum development. The core strands of the curriculum are professionalism, leadership, critical thinking, evidence-based practice, communication, and information literacy.

Congruence of the philosophy, conceptual framework, and program outcomes for the core strand of evidence-based practice is evident in Table 13-1. The same core strand is utilized to demonstrate the interrelatedness of the curriculum and professional competencies in Table 13-2. The National League for Nursing (NLN; 2000) *Educational Competencies for Associate Degree Nursing Programs* and the American Association of Colleges of Nursing (AACN; 1998) *Essentials of Baccalaureate Education for Professional Nursing Practice* are the professional competencies with which curriculum and course objectives are correlated.

As curriculum revision progressed, considerable effort was expended to ensure inclusion of all Neuman Systems Model concepts. Focus groups were established to develop various aspects of the curriculum, with senior faculty members, well-versed in the Neuman Systems Model, paired with junior faculty members who were beginning to internalize the application of the Neuman Systems Model to nursing education. The work of the focus groups culminated in development of definitions of the major curriculum constructs—health, client, nursing, and environment—within the context of the Neuman Systems Model. The definitions, as refined and unanimously approved by the faculty, are given in Box 13-1.

As curriculum revision continued, new focus groups were established to facilitate correlation and placement of nursing course content with consideration of complexity of concepts and themes and faithfulness to the Neuman Systems Model. Three different groups focused on three areas—clinical pathophysiology across the life span, professional issues, and leadership content. The focus group dealing with clinical pathophysiology

TABLE 13-1 Congruence of Philosophy, Conceptual Framework, and Program Outcome with Objectives for the Core Strand of Evidence-Based Practice

Philosophy	Major Construct	Conceptual Framework	Program Outcome Objectives with Related Core Strands for AS and BS Programs*
All individuals have inherent worth and dignity, are part of a larger sociocultural network, and are continually developing and adapting.	Client	The client system is a unique, dynamic composite of relationships among the wholistic physiological, psychological, sociocultural, developmental, and spiritual variables. The client is an active participant guiding his/her care to achieve and maintain optimal client system stability.	**AS:** Utilize the Neuman Systems Model (NSM) with evidence-based practice to guide and direct the delivery of culturally competent nursing care. **BS:** Integrate the delivery of culturally competent nursing care in a variety of settings through the utilization of the NSM, other theories, and research.
Wholistic and compassionate practice incorporates knowledge and theory from nursing science, physical sciences, psychological and social sciences, humanities, and the arts to understand and address human needs.	Nursing	Nursing is a profession in which science and art are skillfully integrated. It is based on scientific knowledge, empirical knowledge, and research leading ultimately to evidence-based practices.	**AS:** Utilize the NSM with evidence-based practice to guide and direct the delivery of culturally competent nursing care. **BS:** Integrate the delivery of culturally competent nursing care in a variety of settings through the utilization of the NSM, other theories, and research.
Various levels of nursing practice can be differentiated by skills in conducting and applying research.			

*AS: associate degree; BS: baccalaureate degree

across the life span deliberated on how the Neuman Systems Model could guide the placement of content in all practice specialty areas, such as medical-surgical, pediatrics, maternity, community health, and psychiatric nursing. Inasmuch as the client system can be an individual, a family, a group, or a community, each of the five client system variables must be considered for each type of client system. Although all client system variables are relevant, the physiological variable played a prominent role in deciding

TABLE 13-2 Interrelatedness of Curriculum and Professional Competencies for the Core Stand of Evidence-Based Practice

Freshman	Sophomore	AS Outcome	Junior	Senior	BS Outcome
Examine principles of evidence-based practice within the Neuman Systems Model (NSM).	Apply principles of evidence-based practice within the planning of culturally competent nursing care.	Utilize the NSM with evidence-based practice to guide and direct the delivery of culturally competent nursing care.	Analyze culturally competent nursing interventions using evidence-based practice in the clinical setting.	Evaluate effectiveness of evidence-based practice and research findings when applied to nursing practice.	Integrate the delivery of culturally competent nursing care in a variety of settings through the utilization of the NSM, other theories, and research.

NLN (AS)	AACN (BS)	Course Objectives
Clinical decision making Caring interventions Teaching and learning	**Core Competency** Critical thinking Assessment Technical skills	**NUR 115:** Identify basic principles of evidence-based practice related to the NSM. **NUR 202:** Demonstrate comprehension of evidence-based practice through utilization of critical thinking to problem solve actual or simulated clinical situations. **NUR 224:** Apply principles of evidence-based practice when planning care for adult clients with diverse health problems. **NUR 279:** Apply research findings in planning care for children within the context of the family. *(Also refer to NUR 225, NUR 240)* **NUR 337:** Analyze nursing interventions, including those applicable to cultural competence, using evidence-based practice. **NUR 346:** Using an evidence-based practice model, perform health assessments on individuals from diverse backgrounds. **NUR 434:** Use research in designing evidence-based interventions for patients across the continuum of care. **NUR 442:** Integrate research findings in decision-making relevant to the practice setting. *(Also refer to NUR 309, NUR 334, NUR 336, NUR 339, NUR 342, NUR 344D, NUR 368, NUR 377D, NUR 379, NUR 418, NUR 419, NUR 445)*
	Core Knowledge Health promotion, risk reduction, and disease prevention Illness and disease prevention Ethics	

BOX 13-1

Conceptual Framework Construct Definitions

Health

Health is a continuum from wellness to illness that is dynamic and ever changing. If homeostasis is maintained, health is maintained. If homeostasis is threatened, a state of disharmony occurs and illness may result with a potential outcome of death. Integral to the concept of health is the availability of energy to preserve and enhance client system integrity. Wellness is preserved when stored energy levels exceed energy expenditures. Illness occurs as energy is disrupted by stressors, with death resulting if energy levels are insufficient to support life. The process of reconstitution establishes the health of the client/client system at the state of optimal client system stability.

Client

The client/client system may be defined as a person, patient, individual, family, group, community, or social issue. The client system is a unique, dynamic composite of relationships among the wholistic physiological, psychological, sociocultural, developmental, and spiritual variables. This open system continually exchanges matter, energy, and information with the environment. Stressors within the client system's internal and external environments disrupt the client's equilibrium; however, the client helps maintain system stability through reconstitution. The client is an active participant guiding his/her care to achieve and maintain optimal client system stability.

Nursing

Nursing is a profession in which science and art are skillfully integrated. It is based on scientific knowledge, empirical knowledge, and research leading ultimately to evidence-based practice. The profession of nursing is unique in that it is concerned with the wholistic variables affecting an individual's response to stressors. Nursing is an art demonstrated by empathy, compassion, caring, wisdom, and sensitivity to diversity. Therapeutic nursing interventions and communication target prevention as intervention. The nurse's perception impacts the care received by the client; therefore, the nurse must give full consideration to assessment of both the client and the nurse's perceptions of health care needs. The nurse actively participates in critical thinking and diagnostic reasoning to determine and prioritize primary, secondary, and tertiary preventions as intervention to achieve optimal wellness. The nurse collaborates with the client and the interdisciplinary health care team to promote optimal client system stability with consideration of available resources. Operating within the legal scope of practice, the nurse leads, supervises, teaches, delegates, advocates, and delivers client-centered care and acts as a change agent in a variety of settings. The nurse strives to empower others through transformational leadership.

Environment

Environment consists of internal, external, and created environments. Within these environments are internal and external stressors that have an impact on the client system. The internal environment includes intrapersonal variables such as health or illness, genetic makeup, knowledge level, emotions, opinions, and problem-solving ability. The external environment includes interpersonal or extrapersonal stressors such as relationships with other persons and society, socioeconomic variables, and cultural, ethnic, and religious influences. The created environment is primarily intrapersonal and is unconsciously developed by the client for coping. Changes to any one of the environments will create change in the others as the client continuously strives to achieve optimal client system stability.

Source: IPFW BS Curriculum Committee; edited January 4, 2007, October 16, 2007.

content placement. That variable seemed an obvious place to begin client assessment, regardless of whether the client system was a pregnant family, a laboring mother, a sick child, an aging adult, or a community experiencing an epidemic.

The physiological variable focus group considered the interface of wholism and prevention-as-intervention modalities with collection of physiological data. The group emphasized the importance of maintaining strength of application of the Neuman Systems Model in clinical nursing courses by intentionally deciding to continue the use of the Neuman Systems Model Nursing assessment guide and glossary as a foundational clinical tool (Figure 13-3). This decision facilitated maintenance of a wholistic focus and incorporation of client perceptions. The assessment tool is the basis of major clinical care study papers in several courses across the curriculum. Repeated use of such a detailed assessment guide grounds the student in the language and processes of the model. Thus, by the time of graduation, students have internalized the Neuman Systems Model as a comprehensive process for providing care.

The focus group for professional issues recommended placement of three professional seminar courses across the curriculum—first required nursing course, first course in

NURSING ASSESSMENT GUIDE
(Based on the Neuman Systems Model)

Notes:

- Throughout this form the symbol * identifies each item defined and discussed in the glossary.
- Use APA format for documentation.

I. INTRODUCTORY INFORMATION:

Student Name: _____ **Adm. Dx:** _____
Date: _____ **Dx:** _____
(Day of Care/Assessment) (Day of Care/Assessment, if different than Adm. Dx)

II. HEALTH STATUS & HISTORY

A. Current Health Conditions (Medical and/or Surgical) with definitions and discussion
1. Signs & Symptoms
2. Pathophysiology
3. Incidence
4. Prognosis *

B. Client's Actual Prognosis *:
C. Chronic and/or Other Health Conditions * - with brief definitions and indication of how impacts (or does not impact) current health problem:
D. Medications * (If appropriate, use medication data form.):
E. Diagnostic Tests * (If appropriate, use diagnostic data form.):
F. Initial Impression/General Survey *:

FIGURE 13-3 IPFW NSM Nursing Assessment Guide, Nursing Diagnosis Guide, and Nursing Assessment Guide Glossary. Used with permission of Dr. Carol Sternberger, IPFW Department of Nursing, Fort Wayne, IN.

G. Nutritional Status *:
H. Supportive & Monitoring Equipment *:

I. Activity Level/Sleep & Rest Pattern:

III. STRESSORS/FACTORS: Specific to Current Health Problem *

CLIENT'S Perception of Stressors/Factors (subjective—what the client/family define as stressors).	**NURSE'S Perception of Client's Stressors/Factors (objective—what evidence you [nurse] see to validate or invalidate the client's report). Draw conclusions.**

A. Signs & Symptoms of Major Health Concern: What do you consider your major health problem, stress area, or area of concern?

B. Changes in Activities of Daily Living as a Result of Altered Wellness (ADLs include bathing, dressing toileting, transferring, eating/feeding, etc.). How do your present circumstances differ from your usual pattern of living?

C. Coping Reaction to Altered Wellness: What are you doing to help yourself?

D. Lifestyle Changes Resulting From Altered Wellness: e.g., changes in employment, living arrangements, marital status, etc.

E. Knowledge or Understanding of Altered Wellness: What have you been told about your illness?

F. Identification of Need for Support During Altered Wellness: What do you expect caregiver, family, friends, or others to do for you?

IV. INTRAPERSONAL STRESSORS/FACTORS: Forces Within the Individual

A. Allergies *:
B. Physiological
Head-to-Toe Physical Assessment Guide (Integrated Review of Systems)
Details available upon request; deleted due to limited publication space.
C. Developmental *
1. a. State Erikson's developmental stage appropriate to client's age and define degree of task achievement. * (Refer to Erikson's Adult Developmental Stages—Chart)
   b. Describe the effect(s) of current health status on task achievement.
2. State your general impressions of the client's sexuality and whether or not his/her sexuality is an actual or potential stressor to his/her health. *

FIGURE 13-3 (continued)

D. Spiritual *
1. Religious preference:
   Does client practice his/her religion?
2. Religious beliefs/practices related to health, illness, and treatment:
3. Spirituality * What brings hope or comfort to the client? How does the client deal with sadness or despair?

V. INTERPERSONAL STRESSORS/RACTORS: Forces Between One or More Individuals *

A. Psychosocial *
1. Communication *: Patterns and/or manner of relating to others (verbal and nonverbal)
2. Relationships *
   a. Marital status:
   b. Relationships to family:
   c. Relationships to friends:
   d. Relationships to caregivers:

B. Sociocultural *
1. Ethnic background/ancestry:
2. Current/contemporary culture:
3. Health beliefs/practices related to culture:

VI. EXTRAPERSONAL STRESSORS/FACTORS: Forces Outside the Individual *

A. Economical*
1. Employment status:
2. Financial stressors:
   Does the client have adequate financial support? Insurance?
3. Work environment:
   What impact will health problem have on client's ability to work?

B. Community*: What community resources will the client need?

C. Discharge Needs*: What specific teaching or intervention does the client need for a successful transition to home and for optimal recovery?

Reviewed annually 1984 to current.
2005 Undergraduate Curriculum Committee.
Revised 3/90, 5/93, 5/94, 5/97, 8/03, 5/04.
1984 Associate Degree Curriculum Committee.
1984 Sanna Boxley-Harges, Linda Meyer, Jean Ross.

NURSING DIAGNOSIS GUIDE

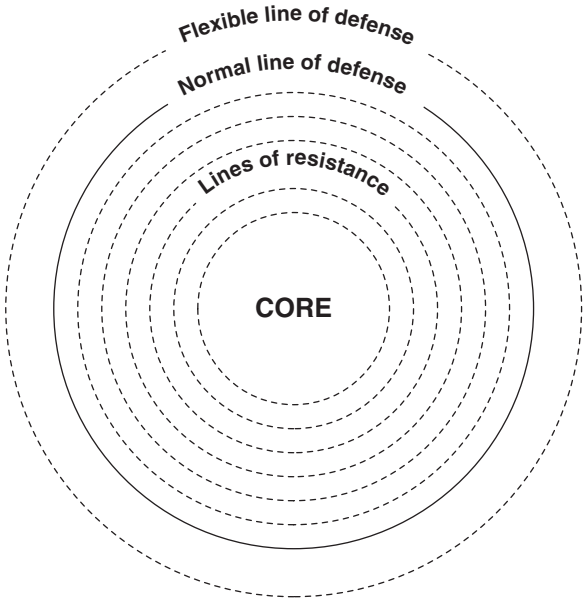
This guide is to assist in the thought process of developing nursing diagnoses as identified from the assessment guide.

1. Identify and list stressors from your assessment.

INTRAPERSONAL	INTERPERSONAL	EXTRAPERSONAL

FIGURE 13-3 (continued)

2. Identify how deeply each stressor penetrates from the flexible line of defense through the normal line of defense and lines of resistance to the core. (Indicate degree of penetration by drawing arrows on the diagram; include brief written explanation of degree of penetration as needed for each stressor.)



3. How can the client's flexible line of defense be strengthened or maintained? (For example, what are the implications for teaching, health promotion or wellness, etc.?)
4. Formulate nursing diagnoses to include every stressor. (Write in PES format.)
5. Prioritize the nursing diagnoses according to Maslow's Hierarchy of Needs (as reflected in the penetration of the arrows) by numbering each.

Reviewed 7/99 SBH; rev. 11/99 SBH; rev. 8/00 SBH & KJV.

NURSING ASSESSMENT GUIDE GLOSSARY

THE NEUMAN SYSTEMS MODEL DEFINITIONS:

CORE/BASIC STRUCTURE: Consists of basic survival factors common to all persons, such as genetic structure, organ function, self-image, cognitive potential, age, and sex.

STABILITY: The client or a system successfully copes with stressors; it is able to maintain an adequate level of health. Functional harmony or balance preserves the integrity of the system.

STRESSORS: Environmental forces that may alter system stability.

A. EXTRAPERSONAL STRESSORS/FACTORS: Forces that occur *outside* the individual; such as, financial circumstances, employment environment, and relationship to community health agencies. These forces could influence intrapersonal and interpersonal stressors/factors.

FIGURE 13-3 (continued)

B. **INTERPERSONAL STRESSORS/FACTORS:** Forces that occur *between* one or more individuals, such as role expectations and resources and relationship of family, friends, or caregivers, which either influence or could influence intrapersonal factors.
C. **INTRAPERSONAL STRESSORS/FACTORS**: Forces that occur *within* the individual; such as, physical bodily functions, cognitive processes, developmental stages, spirituality, etc.; also includes pathological alterations.

NORMAL LINE OF DEFENSE: The normal line of defense is the model's outer solid circle. It represents a stability state that is unique for each individual and reflects a state of health that is maintained over a period of time.

FLEXIBLE LINE OF DEFENSE: The flexible line of defense is the model's broken outer ring. It is dynamic, can be rapidly altered over a short period of time, and is perceived as a protective buffer for preventing stressors from breaking through the solid line of defense. The relationship of the variables can affect the degree to which an individual is able to use his/her flexible line of defense against possible reaction to a stressor or stressors, such as loss of sleep. It is important to strengthen this flexible line of defense to prevent a possible reaction.

LINES OF RESISTANCE: The series of broken rings surrounding the basic core structure. These rings represent resource factors that help the client defend against a stressor.

PENETRATION OF STRESSOR: Stressors can penetrate both the flexible and normal lines of defense. For example:

1. Penetration to or through the normal lines of defense may equate to the client being hospitalized for diagnostic tests.
2. Penetration of lines of resistance may indicate how acutely/critically ill the client is.
3. Penetration to the core probably indicates terminal illness or impending death of the client.

RECONSTITUTION: Return and maintenance of system stability following treatment of stressor reaction.

ABDOMEN: (Note: Order of examination: inspection, auscultation, palpation)

Inspection: contour, umbilicus, lesions (incisions, scars, striae, stomas, etc.), pulsations, hernia, distention (abdominal/bladder).
Auscultation: bowel sounds (frequency, character).
Palpation: tenderness, firmness, masses (hernias, distended bladder, etc.).

ALLERGIES: Note allergens (medicines, foods); also state if no known allergens (NKA or NKDA—no known drug allergies).

BOWEL AND BLADDER - ELIMINATION: Patterns/habits, problems, observation of urine and stool as to color, odor, consistency, and amount. Anything that influences the normal elimination pattern.

BREAST: Appearance—inspect size, shape, dimpling and symmetry (breasts normally round and fairly symmetrical). Nipple (discharge, everted/inverted, lesions). Lumps (size, location, shape, mobility, tenderness). Lymph nodes—inspect clavicular and axillary nodes for swelling or tenderness.

CHRONIC HEALTH AND/OR HEALTH CONDITIONS: A condition marked by long duration or frequent recurrence, e.g., obesity, malnutrition, or arthritis, etc. Include medical, mental health and surgical problems that affect the client's health status.

FIGURE 13-3 (continued)

CLIENT REPORT: Where indicated, a client's description may be relied on without actual nurse examination.

CIRCULATION, MOVEMENT, SENSATION (CMS): A CMS assessment or check refers to assessing the circulation, movement, and sensation of the upper and lower extremities.

CIRCULATION: Assess pulses for quality, volume, and presence; capillary filling; edema; color; warmth; and pain or increase in pain upon movement. Compare bilaterally using pulse volume scale.

PULSE VOLUME SCALE
0 Absent, not discernible
1 Thready or weak, difficult to feel
2 Detected readily, obliterated by strong pressure
3 Bounding, difficult to obliterate

MOVEMENT: Assess client's ability to move body parts.

Assessment of Upper Extremity Innervation:
Hyperextend thumb (radial nerve), abduct fingers (ulnar nerve) and opposition of 1st and 5th digit and wrist flexion (median nerve).
Assessment of Lower Extremity Innervation:
Dorsiflex toes (peroneal nerve) and plantar flex toes (tibial nerve).

SENSATION: Touch the extremities at various locations and ask if client has any tingling or numbness. This assessment would be done to establish a database (initial assessment on admission) and whenever indicated by a client's diagnosis or condition e.g., traction, fracture, sprain, peripheral vascular disease, surgery; or anytime there is the potential for impaired circulation from a cast, Ace bandage, splint, brace, etc.

COMMUNICATION (**VERBAL AND NONVERBAL**): Speaks English and/or other language. Extent of vocabulary (simple, nontechnical words, complex technical words, or other descriptive terms). Pattern—Does client express ideas or needs effectively?

COMMUNITY: Availability and accessibility of community resources, support groups, home health care, outpatient therapies, etc.

DEVELOPMENTAL: Use Erikson's developmental stages. Assess tasks appropriate to age level and correlate with current health status; identify ability to accept dependent or independent role when appropriate.

SEXUALITY: A multidimensional component of one's holistic self. It is characterized by all physical, sociocultural, psychological, developmental, and spiritual attributes that are associated with one's gender. Sexuality is expressed through attitudes, values, and behaviors.

To assess sexuality, as opposed to sexual health, identify the following in your client:
1. Wholeness of person; self-image, body image, self-esteem, sense of identity.
2. Comfort with self; with touching, eye contact, self-awareness.
3. Comfort with surgical process; loss of organs—especially reproductive; loss of body parts—amputation, visible scarring, or ostomy, etc.
4. Comfort with medical process; cancer, AIDS, "wasting away" pathology, etc.
5. Comfort with mental health process; anorexia, depression, etc.

DIAGNOSTIC TESTS: Correlate results with pathology/client's diagnosis.

FIGURE 13-3 (continued)

DISCHARGE NEEDS: Anticipating and planning for needs of the client after discharge in collaboration with the client and family. This may include: teaching regarding diet, medication, health condition; use of adjunctive therapies; changes in the home environment; referrals to community resources, etc.

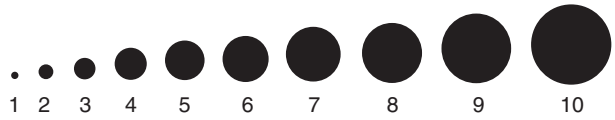
EARS: Auricle and pinna—color, nodules, lesions; canal—patency and drainage; hearing level—normal voice tone, whispers.

ECONOMIC:

> **FINANCIAL STRESSORS**: Stressors related to financial concerns, including employment, health insurance arrangements, and adequacy of income. Assess effects of current health status on future income.
> **WORK ENVIRONMENT**: Stressors and/or satisfaction with environment and their effects on the client's current health status.

EXTRAPERSONAL STRESSORS/FACTORS: See the Neuman Systems Model.

EYES: Eyelid—closed completely, edema, lesions; eyelashes and brows—presence; conjunctiva—color, inflammation; sclera—clear, cloudy, smooth; cornea—clear, smooth; **PERRLA**; **p**upils—**e**quality, shape (**r**ound), **r**eaction to **l**ight and **a**ccommodation. Size: pre- and post-light stimulation utilizing the pupil size scale expressed in millimeters. Corrective/prosthetic devices: contact lenses, glasses, lens implant, glass eye.



PUPIL SIZE SCALE (Measured in millimeters—mm)

FACIAL APPEARANCE/SYMMETRY: Expression, color, lesions, and facial hair; position and alignment of facial features.

HEAD: Hair, scalp—texture, cleanliness, quantity, distribution, pattern of loss or gain of hair, scalp condition (scaling, flaking, infestation, lesions). Newborn/Pediatric: skull contour, head circumference, condition of fontanels. Mental status—see neuro checks/assessment.

HEALTH PROMOTION: Measures that the individual initiates to maintain health and wellness, such as, exercising regularly, eating appropriately, controlling or avoiding health hazards, controlling stress, and health screening.

INITIAL IMPRESSION/GENERAL SURVEY: General body development, approximate age, race, sex, state of health, presenting appearance (dress, grooming, personal hygiene, behavior/activity), level of awareness and speech pattern. (Done by inspection only; no measurements; a statement of exactly what you see with no judgment.)

> **Example**: Well-developed young adult black male in respiratory distress in hospital gown, hair combed and face shaven, no body odor, in bed in Semi-Fowler's with eyes closed, alert, responds to caregiver with interrupted, logical speech pattern.

INTERPERSONAL STRESSORS/FACTORS: See the Neuman Systems Model.

INTRAPERSONAL STRESSORS/FACTORS: See the Neuman Systems Model.

FIGURE 13-3 (continued)

MEDICATION: Correlate results with pathology/client's diagnosis.

MOUTH: Lips—color, moisture, lesions, cracking, pursing; tongue—color, coating, lesions, mobility; teeth—presence, absence, loose, dentures, bridgework, caries; gums—receding, edema, inflammation; mucous membrane (color, moisture, lesions); oropharynx (deviation of uvula, presence or absence of tonsils).

NEUMAN SYSTEMS MODEL: See the Neuman Systems Model Definitions at the beginning of glossary.

NEURO CHECK/ASSESSMENT: *The following items comprise a basic neuro check *but* do not fulfill the requirements of a comprehensive neurological assessment.

> **Mental status:** Level of consciousness (LOC)—alert, drowsy, inattentive, confused, semi-comatose, comatose; orientation to person, place, and time (or alert to surroundings); response to simple commands; and mood (observations of facial expression, voice, and bodily movement in addition to client's own perceptions of feelings).
> **Pupils:** PERRLA (see EYES).
> **Movement:** Voluntary or involuntary; response to painful stimuli or to command.
> **Hand Grip:** Bilateral equality of strength.

NUTRITIONAL STATUS: Current prescribed diet, tube feedings, hyperalimentation (TPN), supportive IV therapy—maintenance of fluid and electrolyte balance. General eating patterns with likes or dislikes and cultural or religious practices. Assess overall nutritional status; compare ideal body weight (IBW) to actual body weight.

PROGNOSIS: A prediction of the probable course and outcome of the pathological processes for the current medical or surgical diagnosis.

PROGNOSIS, CLIENT'S ACTUAL: Specify how this client's pathological disease process will alter his/her future health status including comparison to the outcome as predicted by the textbook and the client's chronic health conditions.

PSYCHOSOCIAL: See COMMUNICATION and INTERPERSONAL STRESSORS.

PUPILS:

> **PERRLA**: **p**upils—**e**quality, shape (**r**ound), **r**eaction to **l**ight, and **a**ccommodation.
> Size: pre- and post-light stimulation utilizing the pupil size scale expressed in millimeters.
> Corrective/prosthetic devices: contact lenses, glasses, lens implant, glass eye.

PUPIL SIZE SCALE (Measured in millimeters—mm)

RELATIONSHIPS: Describe whether the client's relationships are a source of stress and/or support related to his/her current health status. Describe observations and give evidence to validate if at all possible.

SEXUALITY: See DEVELOPMENTAL.

SOCIOCULTURAL: Social class and cultural values as related to health beliefs, practices, and perceptions of care. This includes attitudes, values, expectations, behavior patterns, nature of

FIGURE 13-3 (continued)

coping patterns, and factors that may alter reaction to illness, hospital, and therapy. Identify ethnic background and contemporary culture/lifestyle as to effects on health beliefs and practices. Health beliefs and practices may include faith healing, home remedies, taboos against foods, medicines, and certain therapies, e.g., blood transfusions. Additional beliefs may affect display or denial of emotion, response to stressors including pain, and inclusion of family members or larger sociocultural groups in caregiving.

Examples of lifestyle include: Single-parent families, traditional families, single/living alone, heterosexual, homosexual, street people/homeless, and income groups (high- to low-income.

SPIRITUAL/SPIRITUALITY: The NSM (1995) identifies the spiritual variable as an innate component of people that permeates all other variables. Dr. Lois Lowry (NSM Trustee) states that the spiritual dimension of person hood includes a better understanding of the connections of body, mind, and spirit. Spiritual, ethnic, and cultural beliefs are often interrelated.

Religious or spiritual beliefs that give meaning to life may involve specific practices or an individual's inner sense of spirituality. These beliefs and one's sense of spirituality are also related to end-of-life issues. A client's sense of spirituality during illness may be reflected in his/her attitude of hope or despair. Spirituality can also be reflected in how joy, happiness, comfort, sadness, grief, etc., is experienced by an individual.

Examples of specific spiritual/religious practices include: baptism, communion, circumcision, anointing rites, care of the body at death (burial or cremation), and observation of the Sabbath and/or Holy Days. Spiritual/religious beliefs may influence use of accepted therapies, birth control, organ donation, autopsy, and extraordinary means to prolong life.

STRESSOR: Environmental forces that may alter system stability.

See Definitions under the Betty Neuman Systems Model.

SUPPORTIVE AND MONITORING EQUIPMENT: Any therapeutic device that facilitates client recovery and/or rehabilitation. Examples include: oxygen, chest tubes, intravenous lines, TPN, NG suction, cardiac monitor, urinary catheter, crutches, walker, and therapeutic (egg crate) mattress, etc.

UPPER TRUNK (THORAX AND BACK): Assess shape of chest, deformity of thorax, symmetry of chest expansion, use of accessory muscles and retraction of intercostal muscles, impairment of respiratory movement, position of comfort, and spinal contour.

Reviewed annually 1984 to current.
2005 Undergraduate Curriculum Committee.
Revised 3/90, 5/93, 5/94, 5/97, 8/03, 5/04.
1984 Associate Degree Curriculum Committee.
1984 Sanna Boxley-Harges, Linda Meyer, Jean Ross.

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FIGURE 13-3 (continued)

junior year, and final senior year capstone course. The American Nurses Association (ANA; 2008) Standards of Professional Performance, ANA Code for Nurses, and the Indiana Nurse Practice Act, along with the Neuman Systems Model, are foundational to these seminar courses, thereby positioning the student firmly into the profession. A general introduction to nursing conceptual models and theories is provided in the first seminar class. The Neuman Systems Model is introduced more fully in the first clinical nursing course. The model is discussed further in the second seminar course. One group of students presents the Neuman Systems Model, and other groups present other nursing conceptual models or theories. In addition to nursing theories, seminar content includes professional practice issues, electronic (e) portfolio development, therapeutic communication, cultural diversity, computer literacy, professional writing, accessing information, teaching-learning principles, and professional representation.

The leadership focus group addressed delivery of care to increasing numbers of clients in a variety of long-term care, hospital, and community health care settings. In the leadership course offered in the last semester of the associate degree program, wholistic care is delivered to small groups of clients under the supervision of a registered nurse preceptor in acute care settings. In the senior year leadership course, the prevention interventions are applied to work groups in a wide variety of health care settings under the supervision of a registered nurse who has a leadership role. Major concepts addressed with the leadership content area include application of Neuman Systems Model–based care to groups of clients and/or application of the model to the work group, critical thinking, cultural competence, evidence-based practice, and information literacy.

Course Descriptions

The curriculum plan to produce Neuman Systems Model–based outcomes requires constant and consistent attention by all members of the faculty. The detailed descriptions of several courses given here exemplify application of the Neuman Systems Model in the IPFW nursing curriculum.

NUR 115 ADULT NURSING I—INTRODUCTION TO NURSING The Neuman Systems Model is introduced to students in their first clinical nursing course, Adult Nursing I—Introduction to Nursing. The introduction of the model occurs close to the midpoint of the semester via a PowerPoint presentation and class discussion. Small-group discussion allows students to relate the stressors they may be experiencing to the Neuman Systems Model. At this point, students typically find the model to be overwhelming and confusing.

Concurrently, in college laboratory, small groups of students practice application of the Neuman Systems Model to case scenarios reflecting clients experiencing diverse health situations. Directions for the case scenario lab activity are listed in Box 13-2. At the conclusion of this lab activity, students seem more comfortable with use of the model.

The practicum experience for this course emphasizes the physiological client system variable, with weekly written assessments about various body systems. As the semester progresses, students become more conversant and familiar with Neuman Systems Model language and the Neuman Systems Model resource documents. A major course paper requires presentation of an extensive Neuman Systems Model assessment, medication data, diagnostic data, and a beginning plan of care addressing four prioritized client problems, at least one of which must be nonphysiological.

BOX 13-2

NUR 115: Introduction to Neuman Systems Model Lab Activity—Analysis of a Case Scenario

1. List your client's strengths according to Neuman's five wholistic variables.
2. Identify and list your client's stressors (intra-, inter-, and extrapersonal).
3. Identify how deeply stressors penetrate from the flexible line of defense through the normal line of defense and lines of resistance to the core. Indicate degree of penetration by drawing arrows on the diagram; include a brief written explanation of degree of penetration as needed for each stressor. (A diagram of the client portion of the Neuman Systems Model is included for drawing).
4. Identify the area in which the client's flexible line of defense can be strengthened or maintained (e.g., implications for teaching, health promotion or wellness, etc.).
5. List and prioritize all of the actual and potential nursing diagnoses that pertain to your client using the PES format. (Do not list more than eight nursing diagnoses.)
6. Using the attached form or the form that you may download from WebCT, develop the two nursing diagnoses with the highest priority.

BOX 13-3

Building a "Live" Neuman Systems Model

1. The Core: Faculty member or someone of importance to students.
2. Solid Circle around Core: Faculty member's clinical student group holds hands to form a solid circle around the core (8 students).
3. Lines of Resistance: Additional clinical groups (*not* holding hands) form two or three broken circles around the core (20 or more students).
4. Normal Line of Defense: Additional clinical groups hold hands to form a solid circle around the lines of resistance and core (12 or more students).
5. Flexible Line of Defense: Additional clinical student groups (*not* holding hands) form a broken circle around the normal line of defense (16 or more students).
6. Stressors: Remaining clinical group acts as stressors (8 students).

Note: The size of the "live" Neuman Systems Model depends on the number of students and amount of space available. The approximate time to build the "live" model is 5 to 10 minutes.

NUR 202 ADULT NURSING II The second clinical adult nursing course, Adult Nursing II, begins with a creative review of how the Neuman Systems Model is operationalized in the building of a "live" model (see Box 13-3). While the "live" model is being assembled, a faculty narrator, who plays the role of the central core, builds a story of a client with increasingly poor health affecting two or more client system variables. For example, the client might be an overstressed, fatigued person who catches a cold that progresses into pneumonia with potential for respiratory failure. One group of students is taken aside, out of hearing from the "live" model, and instructed to assume the role of multiple intrapersonal,

interpersonal, and extrapersonal stressors and try to break through the lines of defense and resistance to attack the central core; two or more stressors usually manage to reach the core. This activity facilitates active discussion of the Neuman Systems Model concepts.

As the semester progresses, application of Neuman Systems Model concepts is evident in classroom lectures and discussion, model-based teaching tools, test items, and student assignments. A required assignment is a teaching project for which a student group selects a course topic and presents a 15-minute lecture to the entire class. Students also submit a paper focused on the process of developing the teaching project.

An optional assignment encompasses two experiential components, one involving the spiritual variable and the other involving the psychological variable (see Box 13-4). This assignment is offered for extra credit; students may choose to do either or both of the experiential components. By the end of this course, students begin to demonstrate their ability and comfort in utilizing the Neuman Systems Model concepts.

NUR 344 INTRODUCTION TO HEALTH CARE INFORMATICS This junior year–required nursing course, offered online in asynchronous format, focuses on exploration of the past, present, and projected future impact of nursing informatics on the management and delivery of nursing care. Through class discussion, literature and health care database surveys, assigned readings, electronic communication, written assignments, and group projects, the three informatics competencies as defined by the ANA (2008) are addressed: computer literacy, information literacy, and professional development/leadership. Within the context of the evidence-based practice curriculum strand, the three foundational building blocks of the course are informatics textbook, informatics competencies, and the Neuman Systems Model; the anchoring points are nursing informatics, information literacy, and cultural competency (see Figure 13-4).

The inclusion of the Neuman Systems Model in the informatics course is most evident in the final project, which consists of a paper and student-created health teaching Web page targeted to a diverse population (see Figure 13-5). With tertiary prevention intervention as the focus, students consider the client, family, and environment within the context of the five client system variables. Evidence of student creativity and inclusion of relevant course content are evident in the screen shots from the health teaching Web pages displayed in Figure 13-6.

BOX 13-4

"The Wearing of an Ostomy Bag": Experiencing the Psychological Variable

1. Wear an ostomy bag for 24 hours.
   (If no ostomy bag, may wear a ziplock plastic bag *turned upside down*.)
2. Ostomy bag *must* contain *leakable contents with an odor*, pleasant or otherwise.
   (Suggested contents: pudding, lotion, and coffee grounds with additional liquid.)
3. Have witness form signed by designated faculty or staff.
   (Witness *must* see actual ostomy bag.)
4. Write a reaction paper regarding your feelings *before, during,* and *after* "wearing the ostomy bag."

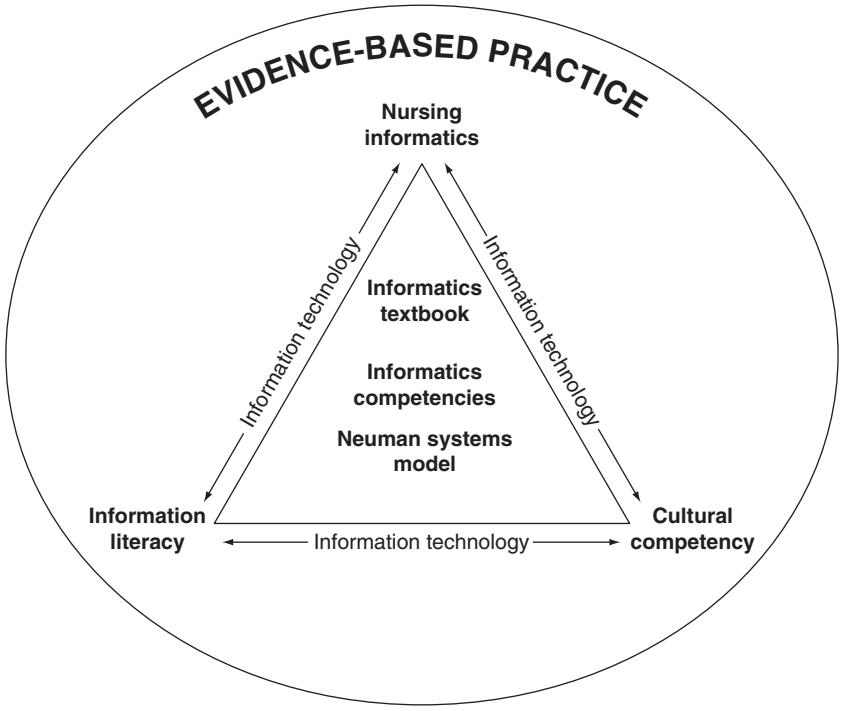


FIGURE 13-4 NUR 344 Informatics Course framework (Schulte, 2008) Reprinted with permission by Dr. Linda Meyer.

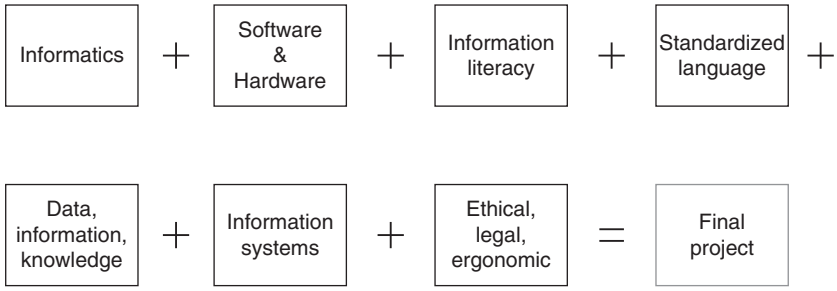
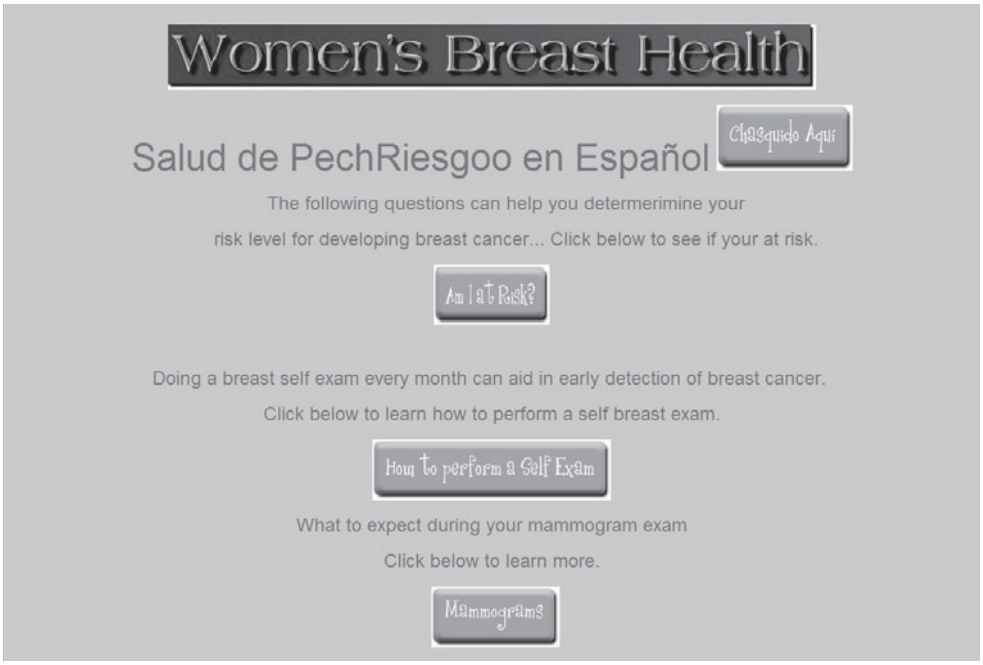


FIGURE 13-5 Informatics: Addition of unit information equaling final project.



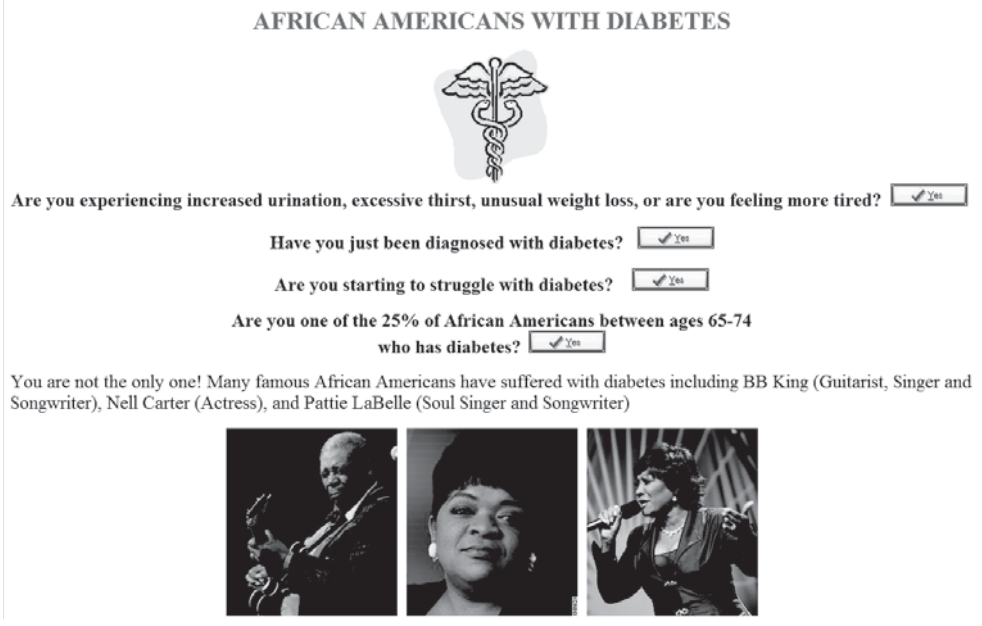


FIGURE 13-6 Three student-created health teaching Web pages. Used with permission of Dr. Linda Meyer and Dr. Carol Sternberger, IPFW Department of Nursing, Fort Wayne, IN.

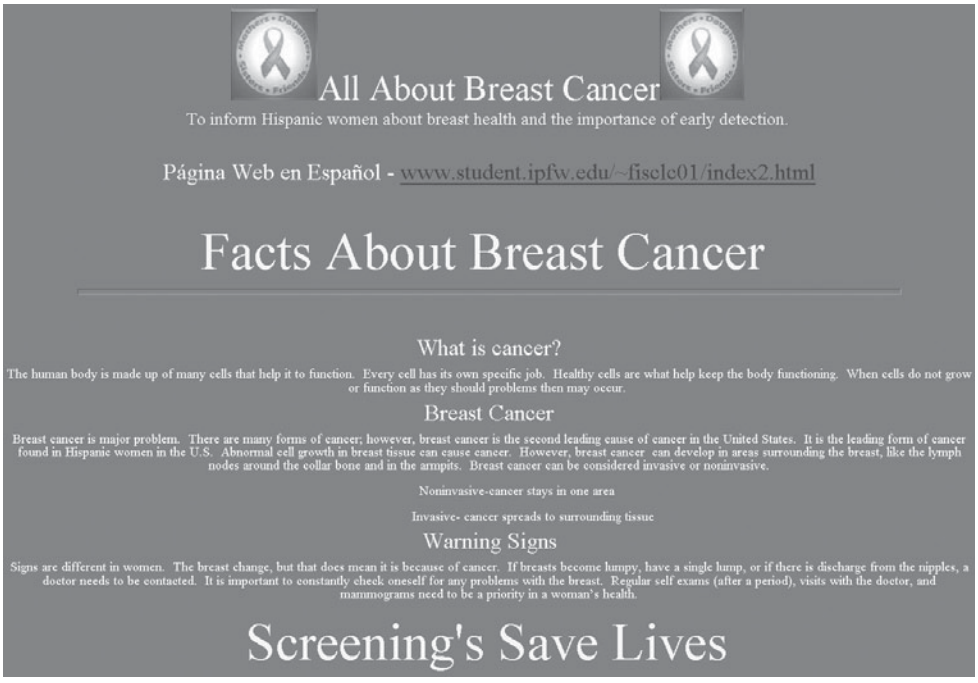


FIGURE 13-6 (continued)

Conclusion

The innovations developed by the IPFW faculty are responsive to changing trends in nursing education. The Neuman Systems Model has and continues to direct organization of content in the undergraduate nursing program curriculum, with the ultimate goal providing evidence-based knowledge grounded in theory and psychomotor skills to deliver safe care within the context of an explicit conceptual model of nursing. The use of one nursing conceptual model across all courses allows students to build on prior learning and gain depth and breadth of understanding with applications in practice. Although continuing to emphasize the Neuman Systems Model, midway in their program of studies, students explore other nursing models and theories, thereby expanding their perspectives of the frames of reference for nursing practice.

The Neuman Systems Model continues to have a significant impact on the educational process at IPFW. Ultimately, formal and informal education exists to assist students to know themselves and realize their capabilities as professional nurses to influence client care worldwide. "Nurses whose practice is guided by an explicit conceptual model will have the knowledge, skills, and practice tools necessary for provision of high touch care in a high-tech society and health care environment" (Lowry, Beckman, Gehrling, & Fawcett, 2007, pp. 228–229).

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CHAPTER 14

Psychiatric Nursing Education at Douglas College

Michel A. Tarko
Anna M. Helewka

The purpose of this chapter is to describe the application of the Neuman Systems Model to curriculum for the Douglas College Department of Psychiatric Nursing baccalaureate degree in psychiatric nursing program. Work done by the faculty to enhance understanding of the client system as an individual, a family, a group, or a community was presented in Chapters 2 and 3 of this book.

DOUGLAS COLLEGE

Douglas College, which is located in western British Columbia, Canada, has long been a leader in health care education. In keeping with a commitment to lifelong learning, the college serves 13,000 credit students and 7,300 continuing education learners every year. The Department of Nursing and the Department of Psychiatric Nursing are situated within the Faculty of Health Sciences, one of six faculties that comprise the Education Division of Douglas College. The Department of Nursing offers a generic Bachelor of Science in Nursing degree program. The Department of Psychiatric Nursing offers a generic Bachelor of Science in Psychiatric Nursing (BSPN) degree program, a Diploma in Psychiatric Nursing program, and access by distance education to a BSPN degree completion program for returning registered psychiatric nurses and registered nurses working in a mental health context.

CURRICULUM DEVELOPMENT PROCESS

In September 2006, the Department of Psychiatric Nursing (DOPN) added a four-year Bachelor of Science in Psychiatric Nursing program to the existing three-year Diploma in Psychiatric Nursing program. The baccalaureate degree program curriculum focuses on health promotion and prevention within the context of the Neuman Systems Model, which is used as a guide for the didactic and practicum dimensions of the curriculum.

The decision to introduce undergraduate students to the Neuman Systems Model was a new venture for the DOPN faculty. In the past, the faculty believed that the Neuman

Systems Model was too complex for undergraduates. The Neuman Systems Model had, however, been used for many years as the guide for the curriculum of the Advanced Diploma in Psychiatric Nursing program (ADPN), a post diploma program designed for practicing registered psychiatric nurses and other registered nurses working in mental health settings (Crawford & Tarko, 2002); this program is currently phasing out and is being replaced by the BSPN degree completion program. Consequently, only the faculty members who taught in the ADPN program were experienced in the application of the Neuman Systems Model.

The DOPN faculty decided to introduce the Neuman Systems Model at the beginning of the new baccalaureate degree program and add complexity gradually during each semester. This decision has required a great deal of curriculum revision and faculty professional development activities. The initial step was to develop a curriculum conceptual framework that integrated the Neuman Systems Model perspectives of human beings, environment, health, and psychiatric nursing with curriculum threads and universal experiences relevant for psychiatric nursing (see Table 2-1 on p. 38).

Curriculum Threads

The curriculum threads include the four interrelated constructs listed here:

1. ***The Wellness–Illness Continuum.*** The person experiences health on a wellness–illness continuum. The wellness–illness continuum includes the concepts of wholism, determinants of health, variance from wellness, and prevention as intervention—primary, secondary, tertiary—as well as the universal experiences of crisis, comfort, hope, loss, power, integrity, and resiliency.
2. ***Professional Values.*** Professional values represent the beliefs inherent in psychiatric nursing practice. This curriculum thread includes the professional attributes of compassion, comportment, commitment, conscience, competence, confidence, and collegiality; legal and ethical guidelines; standards of practice; professional role; cultural competence; and advocacy.
3. ***Professional Caring.*** Professional caring refers to the activities inherent in professional psychiatric nursing practice involving cognitive, affective, behavioral, and psychomotor processes. The development of critical thinking, problem-solving, and communication skills is facilitated. This curriculum thread includes knowledge and application of the nursing process, therapeutic use of self, clinical skills, teaching-learning process, and group processes.
4. ***Health Care Delivery System.*** The health care delivery system involves a multifaceted, interdisciplinary approach to delivery of health care services to diverse population groups. Psychiatric nursing is an integral component within the health care system. This curriculum thread includes primary health care, psychosocial rehabilitation, case management, program management, interprofessional collaborative practice, leadership, and information technology.

Faculty Professional Development Activities

Once the overall curriculum framework was designed (see Table 2-1), the next step taken toward implementation of the curriculum focused on ensuring that the Neuman Systems Model became an integral part of every nursing course in the program, as well as in the Clinical Learning Outcomes documents used for evaluation of students' practice. The

success of the curriculum venture rested on all faculty becoming proficient with the Neuman Systems Model concepts and language. All faculty members attended a series of Neuman Systems Model professional development workshops to facilitate their understanding of the content of the model and strategies to enhance its application in practice.

It was expected that as students entered the second and third years of study, increasing faculty professional development activities would be needed for the faculty who had not been involved in teaching courses earlier in the curriculum. However, faculty did not seem to need as much professional development as was expected—faculty were not only learning from each other but were also learning from the students. Indeed, students were able to articulate the Neuman Systems Model concepts so well that faculty who were new to the Neuman Systems Model easily developed an understanding of the concepts. An essential step in the curriculum development process has been the development of the DOPN Neuman Systems Model taxonomy of nursing diagnoses (see Figure 2-7 on p. 68).

CURRICULUM SEQUENCE

The plan of study for the baccalaureate degree in psychiatric nursing program is given in Table 14-1. As can be seen, nursing courses begin in the first semester of the second year

TABLE 14-1 Plan of Study for the Bachelor of Science in Psychiatric Nursing Program

Year 1	Year 2	Year 3	Year 4
Semester One	**Semester Three**	**Semester Five**	**Semester Seven**
PHIL 3125 Philosophy for Psychiatric Nurses (3)	PNUR 1101 Concepts I (4.5)	PNUR 2301 Concepts III (4.5)	PNUR 4503 Comprehensive Geriatric Theory (1.5)
ENGL 1130 or approved substitution (3)	PNUR 1141 Group Theory I (1.5)	PNUR 2321 Therapeutic Relations III (1.5)	PNUR 4573 Children & Adolescents (3)
BIOL 1103 Human Biology I (3)	PNUR 1121 Therapeutic Relations I (1.5)	PNUR 2330 Clinical Procedures III (1.5)	PNUR 4521 Therapeutic Relations V (1.5)
PSYC 1100 (3)	PNUR 1130 Clinical Procedures I (1.5)	PNUR 2351 Psychiatric Nursing Pharmacology II (1.5)	PNUR 4575 Psychiatric Nursing Research (3)
MATH 1160 (3)	BIOL 2401 (3)	PNUR 4585 Concurrent Disorders (3)	PNUR 3272 Psychiatric Nursing Community Concepts (3)
OR	Microbiology	PNUR 2361 Clinical Practice II (5)	PNUR 4561 Clinical Practice IV (5)
PSYC 2300 (3)	PSYC 2341 Abnormal Psychology (3)		
Total 15 Credits	**Total 15 Credits**	**Total 17 Credits**	**Total 17 Credits**

(*continued*)

TABLE 14-1 (continued)

Year 1	Year 2	Year 3	Year 4
Semester Two	**Semester Four**	**Semester Six**	**Semester Eight**
ENGL Elective (3)	PNUR 1201 Concepts II (3)	PNUR 2401 Concepts IV (4.5)	PNUR 4601 Leadership/ Trends and Issues (3)
BIOL 1203 Human Biology II (3)	PNUR 1221 Therapeutic Relations II (1.5)	PNUR 2421 Therapeutic Relations IV (1.5)	PNUR Elective (3)
PSYC 1200 (3)	PNUR 1230 Clinical Procedures II (1.5)	PNUR 2430 Clinical Procedures IV (1.5)	PNUR 4646 Clinical Practice V: Preceptorship (9)
Elective (3)	PNUR 1250 Psychiatric Nursing Pharmacology I (1.5)	PNUR 2461 Clinical Practice III (5)	
Elective (3)	PNUR 1261 Clinical Practice I (5)	PNUR 3171 Family Health Promotion (3)	
	PNUR 3341 Group Theory II (1.5)		
Total 15 Credits	**Total 14 Credits**	**Total 15.5 Credits**	**Total 15 Credits**

and culminate with a precepted practicum in the second semester of the fourth year. The content of the various nursing courses focuses on the client system as an individual, a family, a group, or a community. Detailed descriptions of the essential content about each type of client system were presented in Chapters 2 and 3 of this book.

Students are introduced to the constructs of health promotion and primary prevention as intervention in the first nursing course when they learn about the content of the Neuman Systems Model. They are required to apply the model concepts to themselves and to well individuals. Their understanding of the curriculum framework is largely dependent on their understanding of the Neuman Systems Model language and concepts—central core and the lines of defense and resistance—and how those concepts relate to stressors, adaptation, and coping. As students progress in the program, they utilize the curriculum framework to guide their practice across the spectrum of wholistic mental health care for individuals, families, groups, and communities, thereby developing their knowledge and competence in primary, secondary, and tertiary prevention-as-intervention modalities aimed at attaining, retaining, and maintaining client system stability and promoting optimal client system wellness.

Conclusion

Nursing is engaged in reciprocal relationships with the larger health care system and the social system of the larger society. Psychiatric nursing, as a subsystem of the larger system of nursing, interacts with the mental health care system within the larger health care system in providing mental health care for clients. Psychiatric nursing focuses on these reciprocal relationships

and the interrelatedness of the parts to the whole. This perspective is broader than the traditional medical and biological disease-focused views wherein the diagnosis and cure of illness states is all-important. Utilizing the Neuman Systems Model as a lens for practice ensures that intervention and/or prevention does not focus solely on how disease or illness influences the client system but rather on the client's total response to illness or disease.

The curriculum development, implementation, and evaluation process will continue with the implementation of the fourth year nursing courses in September 2008. The curriculum framework is continuing to evolve as the result of lessons learned from the dynamic interactions of faculty and students informing each other about the curriculum in general and the use of the Neuman Systems Model as a guide for the curriculum in particular.

Reference

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SECTION FIVE

The Neuman Systems Model and Nursing Practice

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CHAPTER 15

Using the Neuman Systems Model to Guide Pediatric Nursing Practice

Betsy M. McDowell

The purpose of this chapter is to apply the Neuman Systems Model practice guidelines, which were presented in Chapter 8, to pediatric nursing practice and to present a comprehensive discussion of pediatric nursing practice processes. The chapter also includes six case studies of pediatric nursing practice guided by the Neuman Systems Model.

APPLICATION OF THE NEUMAN SYSTEMS MODEL PRACTICE GUIDELINES TO PEDIATRIC NURSING PRACTICE

Purpose of Practice

Pediatric nursing practice involves providing care for well and ill children and their families in various settings [American Nurses Association and the Society of Pediatric Nursing (ANA/SPN), 2003]. (The term *children* denotes people younger than 18 years of age, including neonates, infants, children, or adolescents.) From the perspective of the Neuman Systems Model, the purpose of pediatric nursing practice is to assist children and their families in retaining, attaining, and maintaining optimal system stability, that is, optimal wellness.

Practice Problems of Interest

The problems of interest to pediatric nurses are broad, and include health promotion and disease prevention via anticipatory guidance with children and families, developmental foundations of interventions with children and families, preservation of the family unit, and children's responses to separation, loss, and bereavement (ANA/SPN, 2003). More specifically, the practice problems of interest in pediatric nursing include the actual or potential reactions to intrapersonal, interpersonal, or extrapersonal stressors arising from the internal and external environments of children and their families. These problems might

TABLE 15-1 Examples of Stressors by Type of Stressor and Client System

	Client System			
Type of Stressor	**Individual (-personal)**	**Family (-familial)**	**Group (-group)**	**Community (-community)**
Intra-stressors	Decreased oral intake	New baby added to the family	Only four members attend meetings	Entire college goes tobacco-free
Inter-stressors	Altered maternal-infant bond	Neighbors' dogs keep children awake	Area immigrants speak limited English	County is competing for new business
Extra-stressors	Teen has three offers for summer employment	Father loses job when plant closes	External funding available to continue group	State plans to reroute interstate around city

involve fluid volume deficit following a 1-day history of watery diarrhea (intrapersonal stressor), a knowledge deficit concerning medication compliance while at school (interpersonal stressor), accidental injuries from faulty play equipment (extrapersonal stressor), or maximizing the potential for a child with special health care needs (intrafamilial stressor). Table 15-1 includes examples of stressors arising from the environment for individual, family, group, and community client systems, each of which may be perceived by the client system as positive and/or negative.

Settings for Practice

The settings for pediatric nursing practice are as diverse as the clinical problems mentioned earlier. Pediatric nursing practice guided by the Neuman Systems Model can be provided anywhere children and their families are found. Pediatric nursing can involve traditional bedside care provided in inpatient settings and homes; follow-up care or wellness care provided in ambulatory clinics, offices, schools, and homes; child and family advocacy through participation in community groups, on advisory or policy-making boards, or publication of newspaper articles on child health and safety issues; and/or illness and injury prevention by provision of anticipatory guidance to children and families in multiple venues or by targeted programming with high-risk groups in the community.

Participants in Practice

The participants in pediatric nursing practice include caregivers, who are nurses, and children and their families, who are the primary client systems. Other client systems of interest in pediatric nursing are children's groups or communities that include children (ANA/SPN, 2003).

The Client–Caregiver Relationship

A philosophy of family-centered care is central to contemporary pediatric nursing practice (Lewandowski & Tesler, 2003). Thus, although focused on children as their clients,

pediatric nurses must incorporate the family into their care. The eight elements of family-centered care first identified by the Association for the Care of Children's Health in the 1980s are congruent with the Neuman Systems Model (Table 15-2). Accordingly, in current pediatric nursing practice, the child and family/client system are in a partnership with the nurse/caregiver with the ultimate goal of assisting the child to achieve the highest possible level of wellness/system stability.

TABLE 15-2 The Elements of Family-Centered Care Linked with the Neuman Systems Model

Elements of Family-Centered Care (Lewandowski & Tesler, 2003)	Neuman Systems Model
1. The Family at the Center (recognize that the family is the constant in the child's life; illness or injury of the child affects all members of the family system)	The client system for pediatric nursing practice is the child in the context of the family; client–caregiver relationships involve the family, including siblings and extended family members.
2. Family/Professional Collaboration (facilitate a family/professional partnership at all levels of care)	Mutual goal setting involves the family; parents/family and child participate actively with caregivers as a team in decision making about care.
3. Family/Professional Communication (transmit information between families and professionals that is complete, unbiased, and supportive)	All team members (client/family and caregivers) must be fully informed to make decisions about care; communication must be mutually respectful and supportive.
4. Cultural Diversity of Families (acknowledge and respect the rich diversity of families)	Holistic assessment of the client includes assessing the client's sociocultural, developmental, and spiritual variables as well as the physiological and psychological variables; care must be culturally competent and congruent with the family system's beliefs and practices.
5. Coping Differences and Support (respect and acknowledge the multiple ways families respond to events and differing levels of support they require)	Clients respond to stressors in multiple ways, whether positive or negative, and different levels of support are required by their responses; the family's needs and desires for support must be included in a wholistic assessment and appropriate support included in care.
6. Family-Centered Peer Support (foster networking and family-to-family support)	The client is a dynamic, open system in interaction with the environment; interaction with peers is an important resource for the client system.
7. Specialized Service and Support Systems (provide children and their families with services and support systems that are flexible, accessible, and comprehensive)	Nursing interventions are provided at three levels of prevention—primary, secondary, and tertiary—depending on the degree of stressor invasion; these services are comprehensive and coordinated in nature.

(*continued*)

TABLE 15-2 (continued)

Elements of Family-Centered Care (Lewandowski & Tesler, 2003)	Neuman Systems Model
8. Holistic Perspective of Family-Centered Care (realize the uniqueness of families and children, recognizing their diverse strengths, concerns, emotions, and aspirations beyond their needs for health and developmental services)	Wholistic assessment of the client system, i.e., children and their families, including assessment all five variables, is a basic tenet of nursing care using the Neuman Systems Model.

The Practice Process and Practice Tools

The Neuman Systems Model Process Format consists of three components—determining nursing diagnoses, setting nursing goals, and examining nursing outcomes (see Appendix C). Regardless of the type of client system involved—individual, family, group, or community—both clients and caregivers actively engage in these three processes as informed equals and with mutual respect and support for decisions.

Assessment and diagnosis using the Neuman Systems Model involves examining the client system wholistically by including the five client system variables—physiological, psychological, sociocultural, developmental, and spiritual. Client strengths, resources, stressors, and responses to stressor encounter(s) are examined in a wholistic appraisal. The methods and practice tools utilized to perform this comprehensive assessment will vary according to the client system being assessed as well as the purpose of the assessment. Examples of assessment data for each client system variable and each client system in pediatric nursing practice are given in Table 15-3.

TABLE 15-3 Examples of Pediatric Assessment Data Using the Neuman Systems Model

	Client System			
Variable	**Individual**	**Family**	**Group**	**Community**
Physiological	Infant on home apnea monitor	Genetic defects in family tree	Lice found in a preschool class	Fluoride added to city water supply
Psychological	Toddler exhibits regression	Authoritative parenting style	Group has a sponsor/coach	Citizens consider everyone family
Sociocultural	Teen lives with grandparents	Family receiving welfare	School uniforms required	One-quarter of the population is Hispanic
Developmental	Neonatal reflexes present in young infant	New baby added to the family	Children's support group in place for 9 years	Average age of town's residents is 33 years
Spiritual	Child's favorite Bible story	Family attends local synagogue	School day begins with prayer	"Blue laws" regulate Sunday sales

ASSESSMENT OF THE CHILD AS CLIENT Early in the evolution of her model, Neuman developed the Neuman Systems Model Assessment and Intervention Tool. This practice tool assists nurses in determining stressors and identifying goals and prevention interventions, and allows documentation of the prevention-as-intervention strategies. Several practice tools are available for assessing clients and client systems (see Chapter 8) but only the Neonatal/Family Assessment Tool is targeted to pediatric clients (Trépanier, Dunn, & Sprague, 1995). Other practice tools are generally system-specific instruments intended to identify necessary prevention-as-intervention strategies rather than wholistic client assessment tools. Torakis (2002; Torakis & Smigielski, 2000) described two Neuman-based documentation forms, the Pediatric Admission Database and the Neuman Process Summary, which were developed at Children's Hospital of Michigan when that institution adopted the Neuman Systems Model as its conceptual model for client system care across the inpatient units. Inasmuch as most assessments of children utilize practice tools that are not based on the Neuman Systems Model, pediatric nurses must ensure that the five Neuman variables are included in their comprehensive assessments along with the child's perception of his/her condition.

When an individual child is the client being assessed, several characteristics of the *physiological variable* that differ from the adult must be included in the assessment. Depending on the age of the child, such unique anatomical differences and physiological processes as the child's gestational age, fontanels, dentition, patterns of physical growth, speech patterns, nutritional requirements, patterns of genetic inheritance, and mechanisms of injury must be contained in the pediatric nurse's assessment. Other physiological parameters may require alternate assessment techniques based on the child's age and/or size, such as determining fluid, electrolyte, and elimination status; assessing the child's neurological-sensory-motor function; and appraising pain/comfort levels. "Normal" assessment findings for the pediatric client often differ from those of adult clients with, for example, a positive Babinski reflex, a heart rate of 132 beats per minute, and absence of secondary sexual characteristics as expected clinical findings for a young infant but not expected findings for an adult.

Assessing the *psychological variable* when caring for pediatric clients includes, among other areas, identification of the child's psychological processes, including regressive behaviors; determination of past experiences with traumatic life events; delineation of the child's usual coping mechanisms, such as use of pacifiers, security objects, massage, meditation, and music therapy; recognition of the child's significant others and reactions to stimuli and strangers; and notation of any stressors associated with hospitalization or other settings as appropriate.

Areas included during assessment of the *sociocultural variable* in children include the child's family context, such as family structure and birth order; family dynamics, including the child's role within the family, patterns of parenting, and methods of discipline; the family's ethnic/cultural origins, including primary language spoken in the home; method of child care; the child's school performance and extracurricular activities; high-risk behaviors engaged in by the child, such as smoking, substance abuse, and violence; and the presence of environmental risk factors/stressors, such as lead-based paint or a nonworking smoke detector in the home.

Assessing the *developmental variable* is a key component of wholistic assessment of the child. Comparison of the child's status with major benchmarks identified in developmental theories such as those of Erikson, Piaget, and Freud, as well as temperament

and moral maturity, and achievement of developmental milestones, including personal/social, fine motor-adaptive, language, gross motor abilities, and expected growth parameters must be included in the assessment. Additional areas to be noted in a wholistic assessment are the child's activities of daily living, including feeding, dressing, and toileting; usual play patterns, including favorite toys and activities; signs of any developmental delays; the developmental stage of the family; and the child's perception of his or her condition.

Regardless of the child's age, assessing the *spiritual variable* is required to obtain a complete picture of the child as an individual client. Assessing a child's spiritual variable may encompass determining the family's religious affiliation; usual pattern of attendance at church, synagogue, mosque, or other place of worship; the child's favorite Bible story or hymns; morning or bedtime rituals that include prayer, scripture, and/or devotions; blessings recited before a meal; health and dietary boundaries related to religious practices; the child's understanding of death and dying; and the child's and family's long-range goals and personal aspirations, such as an indication of hopefulness.

ASSESSMENT OF THE FAMILY AS CONTEXT FOR THE CHILD Inasmuch as the child must be viewed in the context of the family, assessment of the family is necessary in pediatric nursing practice. Several tools are available to assess selected aspects of the family system, such as stressors or lines of defense, but few address the family as a whole from a Neuman Systems Model perspective. Reed (1982) modified Neuman's original assessment tool so that it is applicable to families as clients. Regardless of the practice tool that is used for assessing the family, family characteristics such as family structure, family functioning, and roles of the various members within the family must be determined along with the family's perceptions of the child's condition, the presence of additional stressors to the family system, and family strengths and resources (Russell, 2002).

Diagnostic Taxonomy

Neuman Systems Model–based diagnoses are developed based on the wholistic assessment of the client system. Analysis of the assessment data reveals diagnoses related to the client system, the level of response, the client variable responding to the stressor, the source of the stressor, and/or the type of stressor. In pediatric nursing practice, for example, an assessment might reveal that the nurse is caring for a young boy in the hospital (client system) with physical injuries (client variable responding to the stressor) after being hit by a car as he chased a ball into the street (level of response and source of stressor) who has signs of a possible closed head injury, abrasions on his extremities, and expresses pain and discomfort in his legs (type of stressor). Using the Neuman Systems Model diagnostic taxonomy, this child requires secondary prevention interventions for intrapersonal stressors to his physiologic variable to attain an optimum level of wellness.

Goals

Once the child and family have been assessed wholistically and diagnoses developed, the child/family's expressed priorities for care are identified. The nurse's care goals must be considered also, since they have to be congruent with those of the child/family or else each participant's actions in the therapeutic relationship will be nonproductive rather than fruitful. The Neuman Systems Model views this as mutual goal setting that involves

respecting each participant's views and beliefs while balancing them with the other team members' focus of care. For example, if the family's priority for care for a child following surgery is to keep the child quiet and "let him sleep," while the nurse's main concern for this child is to prevent postoperative complications, such as development of atelectasis from immobility, the family may become upset with the nurse's hourly attempts to have the child turn, cough, breathe deeply, and utilize an incentive spirometer. If, however, care goals have been set collaboratively involving the child/family as well as the nurse, a plan that incorporates scheduled administration of pain medication, pulmonary care, and periods of uninterrupted rest can be developed that allows both the child/family and the nurse to meet their expressed priorities for care.

Delivering developmentally appropriate and culturally sensitive care for children and their families is another component of pediatric nursing practice. Nursing care is provided in light of the cultural background and developmental status and needs of both the child and the family. Allowing children to actively participate in their own care decisions within developmental boundaries is important. For example, preoperative teaching is tailored to the child's cognitive and developmental level, and family visiting is allowed within the context of parental work schedules and sibling school activities. Family authority is respected in decision making, and an attitude of family inclusion rather than of family exclusion in care decisions permeates the pediatric nurse's actions. Attention is directed toward normalizing the situation as much as possible and recognizing that life events continue for each family outside the child's injury or illness trajectory (ANA/SPN, 2003). The dynamic nature of the family over time must be considered and modifications in plans of care incorporated on a frequent basis.

Pediatric nursing practice also involves advocating for children and families within various health care settings and the greater community. Access to care, payment for pediatric health care, and quality of life issues confront pediatric nurses every day. Many families receive health care from multiple sources, so coordination of care is an essential activity for contemporary pediatric nurses. No longer can pediatric nurses concentrate on delivering high-quality pediatric nursing at the bedside without attending to the changes in the world around them and their clients (ANA/SPN, 2003).

Typology of Caregiver Actions

A major *primary prevention intervention* strategy in pediatric nursing practice is anticipatory guidance, which involves empowering families with knowledge about their child's expected developmental milestones and the health promotion measures that families can use to foster healthy outcomes. Anticipatory guidance incorporates broad areas of health teaching, such as pending growth and developmental milestones, nutrition, sleep/physical activity, oral/dental health, mental health, relationships, and injury and disease prevention, most frequently provided at well-child visits.

Many other pediatric nursing activities focus on disease and injury prevention. Examples of other primary prevention intervention activities in pediatric nursing include:

- teaching parents about safe infant sleeping practices to prevent sudden infant death syndrome,
- educating young children and their families about the importance of hand washing and good toileting practices,
- conducting bicycle safety classes,

- instructing families about safe toy selection,
- administering immunizations, which strengthen the body's resistance to specific infectious organisms.

Care delivery in pediatric primary prevention can be provided via direct contact with children and their families, pamphlets or articles in newspapers and lay publications, videos and television programs, and the Internet. Primary prevention activities result in retention of wellness for the child and family.

Inasmuch as *secondary prevention interventions* in pediatric nursing address care for children who are ill or injured, they involve care delivery in hospitals, ambulatory clinics, schools, and homes, and usually consist of direct contact between the pediatric nurse and the child/family. Examples of secondary prevention interventions with pediatric clients include:

- collecting specimens for analysis and assistance with diagnostic procedures such as bone marrow aspiration and lumbar puncture,
- performing continuous and/or frequent intermittent monitoring for status and changes,
- utilizing positioning, distraction, and other nonpharmacological measures to promote comfort,
- administering medications and fluids for symptom management and disease treatment,
- employing nasopharyngeal suctioning and other methods to promote airway clearance,
- assisting with bathing, eating, toileting, and other activities of daily living when the child has a physical limitation or a medical intervention that limits movement,
- giving wound care and maintaining invasive lines and tubes,
- using aseptic techniques to prevent cross-contamination or development of infection,
- instituting external and internal thermoregulation measures, including environmental temperature adjustments, delivery of warmed fluids and feedings, tepid water baths, swaddling and clothing/hats, and application of a cooling/heating blanket,
- implementing safety measures such as safe sleeping practices, seizure precautions, fall prevention systems, hand hygiene programs, and safe transportation practices.

Separation, loss, and bereavement are additional issues that pediatric nurses must address using secondary prevention intervention strategies, whether forced separation of an infant or toddler from family members due to hospitalization, loss of a sense of normalcy for a family following their child's diagnosis with a chronic illness, or bereavement over the accidental death or suicide of a teenager. Successful secondary prevention interventions result in the child and family's regaining of wellness.

Tertiary prevention interventions may be delivered in acute care settings as well as in nonacute locations, such as day care centers, rehabilitation settings, community shelters, retail malls, churches, and youth activity sites. Examples of tertiary prevention interventions with pediatric clients and their families include:

- conducting play therapy in a day care center for children displaced by a hurricane or tornado,
- providing follow-up visits of children discharged from the emergency room,

- coordinating rehabilitative care for a child following an automobile accident,
- performing in-home tracheostomy care and ventilator maintenance for a child with special health care needs,
- organizing a developmental follow-up clinic for neonatal intensive care unit (NICU) "graduates,"
- providing educational sessions for children and their siblings attending a diabetes summer camp,
- conducting a weekly support group for children in the local domestic violence shelter.

Another important tertiary prevention intervention utilized by pediatric nurses is assisting with the transition of adolescents into the adult health care system. The pediatric nurse coordinates this process and supports the teen and family so that the change is as seamless as possible, ensuring that the needs of the child and family are met by the new providers (ANA/SPN, 2003). Tertiary prevention interventions result in wellness maintenance for the child and family.

Typology of Outcomes

The overall goal of Neuman Systems Model–based pediatric nursing practice is promoting optimum wellness of children and their families regardless of physical or developmental limitations, settings, or age. Utilizing the Neuman Systems Model to guide pediatric nursing practice promotes continuity of care across all settings. When all health care providers use the model as the basis for their care, the strengths, resources, and needs of the children and families who are participants in care are wholistically determined and then collectively addressed by the health care providers, resulting in fewer chances for client system needs to be forgotten or overlooked. Torakis (2002; Torakis & Smigielski, 2000) noted that adoption of the Neuman Systems Model as the framework for pediatric nursing practice throughout the inpatient units of the Children's Hospital of Michigan also fostered increased professionalism among the nursing staff.

Practice and Research

Providing evidence-based pediatric nursing practice is facilitated when the Neuman Systems Model is used to direct both research and nursing practice. Neuman Systems Model–based research with children and their families has increased in recent years, as documented by the growing number of master's theses and doctoral dissertations based on the Neuman Systems Model, as well as several recently published model-based journal articles focused on children (Cazzell, 2008; Fuller & Hartley, 2000; Hanson, 1999; Kinservik & Friedhoff, 2000; McDowell, 2006; McDowell, Chang, & Choi, 2003). When the Neuman Systems Model guides both nursing research and practice, it is easier for pediatric nurses to identify practice problems that need to be addressed by nursing research as well as to incorporate the findings from nursing research into their practice, thereby maintaining this vital link between research and clinical practice. Evidence-based practice also calls for clinical expertise and research findings to be combined with client system preferences and values to make the best-informed decisions about client care. Inasmuch as the Neuman Systems Model can be used as the framework for determining clinical expertise, translating research findings, and identifying client system preferences and values, evidence-based pediatric nursing care can be more readily provided.

IMPLEMENTING NEUMAN SYSTEMS MODEL–BASED PEDIATRIC NURSING PRACTICE

Six case studies of pediatric nursing practice guided by the Neuman Systems Model are presented in Boxes 15-1 to 15-6. Aliases are used to maintain confidentiality of the children and families involved.

BOX 15-1
Case Study: A Child Experiences a Bee Sting

A 9-year-old boy, Joe, was seen in the emergency room in acute respiratory distress following a bee sting. Assessment using the Neuman Systems Model revealed that this was the first time Joe had been stung by a bee and he reported no other medical conditions; Joe wanted to learn about how to treat allergic reactions to bee stings; he lived with both parents and was an only child; Joe participated in age-appropriate activities and was in the fourth grade in a new school; and he attended Catholic mass weekly. Analysis of stressors using the Neuman Systems Model approach identified the intrapersonal stressor of narrowed bronchioles resulting from the bee sting, the interpersonal stressor of knowledge deficit of the child and family about allergic reaction to bees, and extrapersonal stressors of acquiring a new allergy and attending a new school. Neuman Systems Model–based nursing strategies for Joe included teaching about ways to avoid bee stings (primary prevention intervention), education of the child and family on the early recognition and prompt treatment of anaphylactic shock following a bee sting (secondary prevention intervention), notification of the school nurse and other school employees of Joe's new allergy, and carrying an EpiPen at school (tertiary prevention intervention). After medical treatment of his anaphylactic reaction to the bee sting resulted in his breathing easier and decreased swelling at the site of the bee sting, Joe was discharged home.

Source: K. Myers, personal communication, September 24, 2006.

BOX 15-2
Case Study: An Infant Is Placed on a Home Apnea Monitor

Susie, a 12-day-old infant, is discharged from the hospital on a home apnea monitor. From a Neuman Systems Model perspective, Susie's family is the client system of concern. The basic core of the family system is the infant who was recently placed on a home apnea monitor, the infant's mother, plus any other persons living in the home—in this scenario, Susie's father plus one older sibling. Incorporating a new family member into the existing family structure is an intrafamilial stressor for this family, while the home apnea monitoring experience serves as an extrapersonal stressor for this client system (Barnes-McDowell, 1997). The role of the nurse in this situation would be to explore the responses of individual family members and the family as a whole to these stressors in order to design specific prevention interventions to facilitate positive coping. These interventions might include providing and reinforcing information for this new mother regarding all aspects of Susie's condition (secondary prevention intervention), encouraging family members to adopt healthy lifestyle behaviors and to utilize available social supports such as a monthly support group for families with infants on home monitors (tertiary prevention interventions), teaching

about normal growth expectations of the infant, encouraging more time together as a family on leisure activities or other common pursuits, providing support for existing family roles, and fostering effective conflict management skills within the family (primary prevention interventions).

Source: Barnes-McDowell, 1997.

BOX 15-3

Case Study: Toilet Training a Toddler

Kinservik and Friedhoff (2000) applied the Neuman Systems Model to a toddler's possible control issues in relation to toilet training. They noted that stressors can result in instability in the available client system resources leading to tension affecting the process of toilet training. The toddler's need to succeed in toilet training and characteristic search for autonomy comprise intrapersonal stressors in this situation. Parental expectations that toilet training will be accomplished within a reasonable length of time with few accidents and minimal regression were identified as interpersonal stressors in toilet training. Societal expectations that all children will be toilet trained by a certain age plus a day care center's requirement that the toddler be toilet trained before she or he is allowed to attend the center were listed as extrapersonal stressors during the toilet training process. The primary prevention intervention utilized by these authors was an anticipatory guidance protocol for accomplishing toilet training which started before the child's first birthday and continued through successful completion of the toilet training process, which might be at the 36-month checkup or even later.

Source: Kinservik & Friedhoff, 2000.

BOX 15-4

Case Study: A Child in a Shelter

A 7-year old boy accompanies his mother to the local shelter for abused women and their children after a domestic violence episode with his father over the weekend. Tommy reports that his father becomes violent with anyone who is within reach when he is drinking so whenever his father begins to drink, Tommy hides in the closet until his father passes out. Wholistic assessment of Tommy from a Neuman Systems Model perspective includes noting the presence of any physical injuries (physiological variable); obtaining Tommy's views on witnessing the violence between his parents and moving to the shelter, and the presence of guilt and/or divided loyalties about his parents (psychological variable); separation from Tommy's friends and familiar environments, plus disruptions in routines such as school attendance because of coming to the shelter (sociocultural variable); the presence of regression to an earlier developmental level, loss of usual childhood activities, or assumption of a more adult role within the altered family structure (developmental variable); and the presence of strong feelings of powerlessness (spiritual variable) (McDowell, 2006). Tommy's participation in the children's support group offered weekly at the shelter promotes self-esteem and provides opportunities for him to interact with adults in a nonthreatening manner (secondary prevention interventions). The support group also prepares Tommy with safety skills for the future since children who have witnessed or who are victims of domestic violence are at increased risk for future

(*continued*)

BOX 15-4 (continued)

domestic violence, becoming "latchkey" kids, and/or victims of violent crimes (tertiary prevention intervention). Because Tommy is already a victim of domestic violence, primary prevention interventions in this situation would be directed at changing the society in which he lives, including offering nonviolent conflict resolution programs and family-life classes; increasing the community's awareness level concerning the presence and impact of domestic violence; reducing the availability of handguns locally; minimizing children's exposure to the violence on television, in video games, and in the movies; and lessening society's overall tolerance of domestic violence.

Source: McDowell, 2006.

BOX 15-5

Case Study: A Child with a Rare Autoimmune Disease

Fuller and Hartley (2000) present a case study of James, a 12-year old with the rare autoimmune disease of linear scleroderma, which he has had since he was 8 years old. Wholistic assessment of James noted physical findings consistent with linear scleroderma, including hyperpigmented lesions, muscle spasms, and contractures (physiological variable). James expressed distress about his diagnosis, his disease symptoms, and his parents' divorce (psychological variable). His parents were going through divorce proceedings and his father was not paying any child support; James was the youngest of four children and the only boy, but maintained close relationships with several extended family members (sociocultural variable). He appeared to be at the appropriate developmental level, as evidenced by his placement in the gifted class in school; and the family occasionally attended church (spiritual variable). The stressors requiring nursing intervention were developed into three nursing diagnoses—fear, disturbed self-concept, and impaired mobility (Fuller & Hartley, 2000). Primary prevention intervention consisted of child and family education about James' disease and his medications to reduce his fear. Secondary prevention interventions to address the stressor of disturbed self-concept included establishing supportive relationships with the nurses and other professionals involved in his care, allowing James opportunities to actively participate in his care within his abilities such as administering his own medications, using touch and humor to illustrate acceptance, and James's online interaction with a group of children who also had scleroderma. Tertiary prevention interventions focused on his impaired physical mobility and involved physical and occupational therapy, use of orthotic devices and splints, hot packs, and stretching exercises, and participation in a tai chi group that emphasized stretching. At the time the article was written, James was 19 years old, was ready to begin college, and was able to join his peers, ride a bike, and play golf.

Source: Fuller & Hartley, 2000.

BOX 15-6

Case Study: Comparing Children from the United States and South Korea

McDowell and colleagues (2003) compared children's health indicators in South Korea with the corresponding children's health indicators in the United States. Based on the results of this comparison, primary prevention interventions which were tailored to the demographics and cultural characteristics of each country were proposed. The risk factors chosen for this comparison included the

percent of low-birth-weight babies; infant mortality rates; rates of child mortality; rates of teen deaths due to accidental injuries, suicides, and homicides; rates of teen births; percent of childhood immunizations; and the percent of children with no health insurance coverage. While the percentage of low-birth-weight babies in South Korea had decreased during the time frame covered by the analysis, the percent of low-birth-weight babies in the United States of America (USA) had risen during that same time period. Therefore, primary prevention interventions suggested to lower the rates of low-birth-weight babies in the USA included increasing the use of strategies to reduce teen pregnancies; promoting the increased use of early and adequate prenatal care for American mothers; implementing peer programs to reduce substance abuse; and increasing health insurance coverage for all American children. Primary prevention interventions were also proposed for the other child health indicators for each country.

Source: McDowell, Chang, & Choi, 2003.

Conclusion

The purpose of Neuman Systems Model–based pediatric nursing practice is to assist children and their families in retaining, attaining, and maintaining optimal system stability, that is, optimal wellness. Pediatric nursing practice most often focuses on the individual child as the client system within the context of the family but also may address the additional client systems of family, group, or community. Pediatric nursing practice based on the Neuman Systems Model can be delivered in any setting and with any client system, because the first step in the process includes performing a wholistic assessment of the five client system variables and determining the client's and family's expressed priorities for care. Such a wholistic assessment reveals the strains to the child client's functioning that have arisen from the environment, that is, the intrapersonal, interpersonal, and extrapersonal stressors. Nursing care consists of primary prevention interventions directed at wellness retention by the child and family, secondary prevention interventions intended to assist the child and family to attain wellness, and tertiary prevention interventions aimed at promoting the child's and family's continued wellness maintenance.

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CHAPTER 16

Reflections on Neuman Systems Model–Based Advanced Psychiatric Nursing Practice

Mary Jeanne Groesbeck

My use of the Neuman Systems Model began years ago when I learned about conceptual models of nursing in graduate school. I also learned that advanced nursing practice not only includes direct client care but also can encompass coordination of care, leadership for staff development, and teaching students. The purpose of this chapter is to describe ways I have used the Neuman Systems Model in my roles as a psychiatric clinical nurse specialist, nurse practitioner, nurse administrator, and nurse educator.

USING THE NEUMAN SYSTEMS MODEL IN HEALTH CARE AGENCIES

Before completing my doctoral dissertation in the 1980s, I took a position as a nurse manager of a psychiatric discharge unit at a Neuropsychiatric Veterans Medical Center in Coatesville, Pennsylvania. Because clients with serious mental illness and substance abuse disorders were difficult to discharge directly from inpatient units, a special discharge unit was established. The discharge unit was in a separate building and was staffed by a psychiatric multidisciplinary team who assisted clients to reintegrate into the community.

A Neuman Systems Model–Based Nursing Care Plan

While working on the discharge unit, I developed a Neuman Systems Model–based nursing care plan to address the complexity of client problems in a wholistic manner. Although brief, the nursing care plan helped the staff nurses and me to identify stressors associated with each of the five client system variables—physiological, psychological, sociocultural, developmental, and spiritual.

The care plan, which I called the "Betty Neuman Health Care Systems Model Nursing Care Plan," was in the form of a cardex. The half-page cover of the care plan contained a small circle inside a larger circle, which was divided into five sections. The smaller inner circle contained the term *self-care,* to remind all nurses that the client has to be included in the process of care planning. Each of the sections of the larger circle contained the label for one of the client system variables. The inside of the cardex was a letter-size page with sections for the client's goals, the nurse's goals for the client, and mutually agreed-on goals. Nursing orders for prevention interventions were also included in the cardex to emphasize that as a profession, nursing is not limited to carrying out physician orders. Since that time, I have used this nursing care plan format formally and informally in my practice in various psychiatric settings.

Selecting and Implementing the Neuman Systems Model at a Neuropsychiatric Veterans Medical Center

In the mid-1980s, while I was the associate chief nurse for psychiatry at the medical center in Coatsville, a colleague, Kathleen Newman, and I coordinated a conference about conceptual models of nursing, attended by approximately 200 nurses. I presented a paper about the Neuman Systems Model, and Cynthia Capers explained how the model was being used to guide nursing practice at a hospital in Philadelphia, Pennsylvania (see Capers, O'Brien, Quinn, Kelley, & Fenerty, 1985).

The conference generated considerable interest in nursing models among the medical center nursing administrators and staff. Subsequently, I introduced the idea of using a conceptual model of nursing to guide client care. Discussions at nursing administration meetings reflected enthusiasm for the idea, along with diverse opinions about which conceptual model of nursing would be most appropriate for the medical center clients and nursing staff. After narrowing the choice to the Neuman Systems Model and Orem's Self-Care Framework, a committee made up of nurse managers, staff nurses, clinical specialists, the associate chief for education, and myself was formed to select one of the two conceptual models. After 2 months of weekly meetings devoted to debates about the merits of each nursing model, the Neuman Systems Model was selected.

A NEUMAN SYSTEMS MODEL–BASED ASSESSMENT TOOL The committee continued its work by focusing on how to implement the Neuman Systems Model in practice. Toward that end, we revised our nursing assessment tool to reflect the Neuman Systems Model. The result was a six-page Neuman Systems Model Assessment Tool containing items addressing stressors associated with each of the five client system variables defined as follows:

1. The physiological variable items encompassed all body systems typically assessed in a medical history of the client's body functions.
2. The psychological variable items encompassed typical mental and behavioral symptoms of serious mental illness and substance abuse disorders.
3. The sociocultural variable items encompassed military history, family support, significant others, friends and other social supports, and a history of any past or current legal problems.
4. The developmental variable items encompassed level of education, job status, volunteer work, and regular chores, as well hobbies and leisure time activities.

5. The spiritual variable items encompassed belief in a religion and spiritual practices, such as attending services, belief in God, prayer, meditation, yoga, sitting in nature, belief in a higher power, working a 12-Step program, or anything the client identified as spiritual practice, as well as values clarification.

Use of this Neuman Systems Model assessment tool provided a broad health assessment and facilitated identification of clients' strengths as well as weaknesses.

Psychiatric Nursing Practice and Education at Another Veterans Medical Center

Later in my career, I assumed the position of co-coordinator of an inpatient and outpatient substance abuse program at a veterans medical center in Miami, Florida. There, I have used the Neuman Systems Model to guide development of care plans and to deal with various clinical problems. After assuming a clinical specialist role for psychiatry, I was able to assist in resolving many client care problems and crises by using the Neuman Systems Model to assess and implement prevention interventions for stressors in each of the five client system variables.

A Practice Tool for Students

When I assumed the role of an adjunct instructor in a nursing education program in Florida, I identified several objectives for the Psychiatric and Geropsychiatric Nursing course practicum, which are listed here:

- Facilitate students' comfort with assessment of the client with serious mental illness.
- Assist students to use therapeutic communication skills as they identify clients' perceptions of stressors associated with the five client system variables.
- Help students to differentiate client goals for wellness from their goals for the client. Develop the habit of collaboration with the client with a serious mental illness by discussing mutual client and student goals (Edelman & Lunney, 2000).
- Assist students to gather information from clients hospitalized on an acute psychiatric unit that can be used to formulate nursing diagnoses from the North American Nursing Diagnosis Association (NANDA) taxonomy.

One way in which the students are able to achieve the objectives is through use of the Neuman Systems Model Daily Student Worksheet, which is shown in Figure 16-1. I developed the worksheet by revising and extending the Neuman Systems Model Assessment Tool. The worksheet, which helps students to see a nursing conceptual model in action in the practice setting, is based on guidelines for Neuman Systems Model–based practice (Freese, Neuman, & Fawcett, 2002; see also Chapter 8 in this book).

The student practicum experiences are primarily with clients who are patients on locked acute psychiatric units in various community medical centers. The initial step in using the worksheet is to identify the client's perceptions of stressors associated with each of the five client system variables and then classify each stressor as intrapersonal, interpersonal, or extrapersonal. Identifying the stressors for each client system variable assists students to change their focus from a tendency to emphasize physical aspects to a more wholistic perspective. For example, several students initially focused only on weight loss related to delusions and hallucinations. Physical aspects of care for clients with serious

Care Plan for Neuman Systems Model
Daily Student Worksheet
for Client on Inpatient Psychiatric Unit:
Student:_____
Date:_____
Client's initials:_____

Client System Variables and Stressors	Source of Stressors
Physiological	**Intrapersonal: Within the person**
Obesity High blood pressure Noncontributory HIV+	Severe anxiety and suicidal ideation. "I want to stop hearing voices." **Interpersonal: From client's interactions with others** "I don't trust people because they want to hurt you."
Psychological	**Extrapersonal: From the environment**
Client is worried about being sick in front of his daughters. Auditory hallucinations telling him to kill himself. "I need a stronger antipsychotic to help me with the demons that want to kill me." Alcohol abuse since age 14, now sober for 4 years.	"You know I am different from the people outside, but they don't understand; they are mean and offensive." "I cannot sleep well in the hospital—it is not my bed." "I want to be on the street where I meet people."
Spiritual	
Thoughts of worthlessness and asks God why he deserved this sickness. Client is Catholic; cannot attend church, which he misses, due to lack of transportation. Catholic, strong faith, no spiritual issues "I love to read the Bible." If misses one day, gets anxious.	
	PSYCHIATRIC DIAGNOSES
Developmental	Bipolar, delusional, agitated mania
Likes to paint. Failure to get certified as a teacher in Florida. Was a teacher 7 years ago in another state. Unable to perform usual activities of daily living at this time.	

FIGURE 16-1 Neuman Systems Model Student Daily Worksheet. *Note*: The contents of Figure 16-1 represent a composite of several clients and several student nursing care plans. The worksheet format was developed using a Microsoft Word Project Form.

	PSYCHIATRIC MEDICATIONS
Sociocultural Enjoys dancing and smoking; gets upset when he can't do these things. Lost all of his friends. Lives with mother; brother in group home in another location.	Olanzapine 5 mg (1/day) Trazadone 50 mg (HS)
NURSING DIAGNOSES (2–3)	**CLIENT'S GOALS**
Social isolation related to lack of family support, as manifested in verbalization of loneliness and living in the street.	Client will count up to 10 if feeling upset with anyone in the unit and then walk away, starting today.
Risk for self-directed violence related to delusional thinking, as manifested by verbalizing desire to kill himself.	Within a week, he will recognize signs of anxiety, and he will not want to hurt himself.
Disturbed sensory perception—auditory hallucinations related to withdrawal into self, as evidenced by verbal report.	"I just want to get better."
Risk for injury related to suicidal ideation and previous attempt, evidenced by overdose of Vicodin.	"I don't want to use drugs anymore."
STUDENT NURSE'S GOALS FOR CLIENT	**MUTUAL GOALS**
Teach patient compliance with medications, and ask him to repeat back how important it is to take medications daily.	In one week, student nurse and client will increase level of education about community resources that give support to isolated people.

FIGURE 16-1 (continued)

STUDENT NURSE INTERVENTIONS	OUTCOMES OF TODAY'S INTERACTION
Secondary Prevention Discuss the importance of leisure in life. Teach two friendship skills today.	Client agreed to interact with two other clients on the floor.
Discuss how to socialize better with the client.	Client verbalizes understanding of coping mechanisms, is enthusiastic about performing activities he likes and will keep him busy. He will attend groups in hospital and visit family and friends when discharged. He also agreed to take walks on the beach and ride his bike.
Teach relaxation techniques to improve sleep. Educate client about signs and symptoms of depression, coping mechanisms, and medications.	He said he will talk to another client. Now out of room, watching TV.
Encourage client to perform activities that will help him to cope with depression—start one activity today.	Client agreed to find a group in the community to attend by identifying one before discharge. Client says he will visit his daughters and mother after discharge.

FIGURE 16-1 (continued)

mental illness certainly are important and historically have not been given sufficient attention. However, providing wholistic nursing care of acutely mentally ill clients requires attention to all five client system variables.

Following identification of stressors, students identify at least three nursing diagnoses related to the stressors. Although some nursing diagnoses may be related to physiological client system variable medical problems, at least two have to be related to stressors associated with the other client system variables (psychological, sociocultural, developmental, spiritual). Such stressors represent adversity for seriously mentally ill clients, that is, "an extremely unfavorable experience or event; a difficulty, danger, or state of affliction" (Gehrling & Memmott, 2008, p. 135).

Clients experiencing adversity require initial stabilization by means of secondary prevention interventions and then use of tertiary prevention interventions to foster reconstitution to rebuild and maintain strong lines of defense and resistance (Gehrling & Memmott,

2008). Accordingly, students most frequently use secondary prevention interventions to help clients regain a level of system stability and wellness that will allow the client to function effectively in the community. In addition, individual or pairs of students provide educational group counseling, which usually emphasizes primary prevention interventions, such as good nutrition. They also implement tertiary prevention interventions as they help clients to maintain a level of wellness compatible with their return to the community.

Additional experiences with clients who are receiving tertiary prevention interventions are provided at a mental health outpatient consumer drop-in center in the community. The experience helps students to appreciate continuity of care for seriously mentally ill clients and to observe chronically mentally ill clients in a state of improvement on the illness–wellness continuum.

The student worksheet includes a section for documentation of clients' responses to student–client interactions (see Outcomes of Today's Interactions in Figure 16-1). Inclusion of this section facilitates students' recognition of the beneficial effects of *every* interaction with clients, regardless of the length of contact with clients, especially in this era of short hospital stays.

Undergraduate nursing students typically are expected to complete a generic nursing care plan for one or two clients during each practicum experience. The generic care plan frequently emphasizes the pathophysiology of the client's medical diagnosis and may include documentation of developmental milestones. The generic care plan also may require specification of a theoretical rationale for prioritization of nursing diagnoses. Although the Neuman Systems Model Daily Student Worksheet may not be as comprehensive as a generic care plan, it is useful for daily documentation of psychiatric nursing practice during 1- or 2-day per week practicum experiences.

A major challenge for faculty who teach the practicum portion of an undergraduate psychiatric nursing course is helping students overcome their anxiety and lack of familiarity with clients who have serious mental illness. Students' anxiety may be compounded by hospital policies that do not permit them to administer medications, remain in clients' rooms, or document their assessments and interventions in the medical record during the psychiatric nursing practicum. Use of the Neuman System Model Daily Student Worksheet facilitates students' communication with clients and provides a concrete guide for assessment and documentation. Specifically, the worksheet helps the students to elicit information about stressors from clients because clients experiencing an acute episode of a mental illness often can respond to very specific questions rather than such general questions as, "How are you feeling today?" The worksheet also helps students to identify nursing diagnoses related to stressors associated with the five client system variables (Reed, 2002; Stepans & Knight, 2002). As the students use the worksheet, they realize that it is appropriate to document clients' perceptions as they talk with them.

Conclusion

As Torakis and Smigielski (2000) pointed out, using a nursing conceptual model to guide practice simplifies and expedites nursing care. Use of the Neuman Systems Model Daily Student Worksheet helped me to engage students in the nursing process and in communication with acutely mentally ill clients. Students have expressed their appreciation for

the learning experiences. Some students have had difficult experiences with a mentally ill client or may have heard stigmatizing comments about mentally ill clients. For example, a student commented that when he was caring for a client with cancer during a medical and surgical nursing course practicum, the nurses told him, "Don't talk to him, he's a mental patient." Overcoming stigmatization and isolation of clients with serious mental illness remains a challenge. I have found that teaching undergraduate nurses about the Neuman Systems Model and explaining how to use the Neuman Systems Model Student Daily Worksheet promotes a positive attitude toward mentally ill clients.

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CHAPTER 17

The Neuman Systems Model and Evidence-Based Nursing Practice

Diane Breckenridge

The eleventh guideline for Neuman Systems Model–based practice stipulates that practice effectiveness depends on the application of research findings—that is, evidence—to direct practice and that, in turn, problems encountered in practice give rise to new research questions (see Chapter 8). The Research Approach in Nursing (RAIN) program is an innovative example of the operationalization of that practice guideline. The purpose of this chapter is to describe the development and implementation of the RAIN program.

DEVELOPMENT OF THE RESEARCH APPROACH IN NURSING PROGRAM

RAIN is an evidence-based practice program focused on facilitating nurses' understanding of reports of nursing research and translation of research findings into best practices. The RAIN program was developed in 2003 in a 666-licensed-bed community hospital in Pennsylvania as part of the hospital's quest for Magnet designation in recognition of the excellence of nursing practice (American Nurses Credentialing Center, 2008).

RAIN has been refined over the years, evolving into a nursing theory–guided, evidence-based practice program by 2006 (Figure 17-1 and Table 17-1). The RAIN program emphasizes nurse-driven research. Nurses engage in evidence-based literature searches to find existing evidence, determine gaps in the literature, and generate new evidence by conducting studies. The nurses then translate existing and new evidence into best practices.

By 2007, 45 evidence-based practice projects were part of the RAIN program. The Neuman Systems Model has guided 12 of those projects, which are focused on clients, family members, and caregivers, including primarily nurses but also interdisciplinary health care team members, such as the social worker. These projects have focused on perceptions, stressors, and prevention interventions.

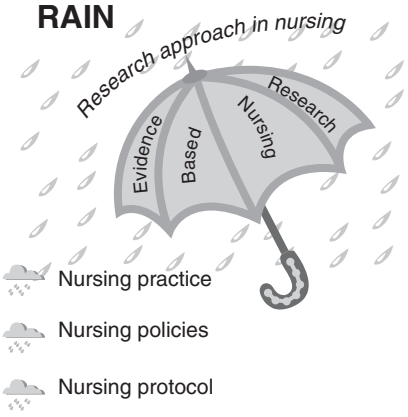
2003–2005

The Educational and Research Council of a community teaching hospital seeking Magnet-designation charged Breckenridge, a practice and education nurse researcher with coordinating Research Approach in Nursing (RAIN) as a joint education and practice research program. RAIN was designed to assist staff nurses, nurse managers, advanced practice nurses, and nurse educators to study patient and nurse-focused questions and proceed with the RAIN program. Initially, 14 staff nurses took part in monthly research sessions, with a coordinator and other faculty. RAIN included coursework, teamwork, and implementation of the research process to address problem identification, literature review, ethics in nursing research, theoretical and research frameworks, qualitative and/or quantitative designs, and dissemination of the findings.

RAIN
2003–Present

OBJECTIVES

- Educate nurses based on RAIN
- Assist nurses with the application of evidence-based practice to identify relevant problems to enhance nursing practice
- Engage nurses in professional growth and development of evidence-based research
- Disseminate research findings for unit-based practice and the nursing community



2006–Present

RAIN was refined as a hospital-wide and community health care evidence-based professional practice model by Breckenridge in 2006. This cohort model was designed to facilitate studies of patient and nurse-focused questions conducted by staff nurses, nurse managers, advanced practice nurses, nurse educators, and student nurses. By 2007, 45 studies had been completed or were in the RAIN program. Monthly research sessions continue to consist of coursework, teamwork, and implementation of the research process, with an increased emphasis on a nursing theory-guided, evidence-based practice approach (Breckenridge, 2007a, 2007b). Nurses who have completed the RAIN Program continue to facilitate research programs and serve as mentors in the self-governance of this professional practice model to enhance evidence-based practice.

FIGURE 17-1 The RAIN program.

TABLE 17-1 Refinement of RAIN: Nursing Theory–Guided Evidence-Based Practice Approach

Step 1	Step 2	Step 3	Step 4	Step 5
Identify a clinical problem.	Literature search to find background evidence and gaps in evidence. • Key words • Databases	Identify a nursing model or theory based on concepts related to a clinical problem—a continuous dynamic process ongoing throughout the literature search; as evidence emerges or is lacking, make decisions for research.	Develop a theoretical framework based on the concepts of interest, guided by a nursing model or theory (e.g., Neuman Systems Model). Emphasize nursing theory–guided, evidence-based practice and research versus medically driven evidence-based practice and research.	Evidence from literature search and/or active research program will be translated into best practices. Implement and continuously evaluate solutions to clinical problems to determine best practices.

Source: Adapted from Breckenridge, 2007a, 2007b.

A NEUMAN SYSTEMS MODEL–GUIDED RESEARCH PROGRAM

The catalyst for RAIN program projects was a program of research focused on patients' perceptions of selection of dialysis treatment modality (Breckenridge, 1995a, 1995b, 1997a, 1997b, 1999, 2002). That research program has been guided by the Neuman Systems Model and Degner and Beaton's (1987) life–death decisions in health care framework. As can be seen in Figure 17-2, the research program is specifically framed within the context of the Neuman Systems Model concept of patients' (clients') perceptions and the Degner and Beaton framework concept of control over the type of treatment. Data for the descriptive theory–generating qualitative study illustrated in Figure 17-2 were collected using a Patient Perception Interview Guide (Figure 17-3), and analysis of the data led to the discovery of the middle-range descriptive classification theory, "Patient's Choice of a Treatment Modality versus Selection of Patient's Treatment Modality" (Breckenridge, 1997b, 2002).

RESEARCH APPROACH IN NURSING PROGRAM PROGRESS

Other Neuman Systems Model–guided projects in the RAIN program focus on patients' and/or family members' perceptions about various health situations. The interview guide used for the Breckenridge (1997b, 2002) selection of treatment modality study serves as a template for interview guides for ongoing projects. Using an interpretive method of naturalistic inquiry (Fawcett, 1999; Glaser & Strauss, 1967; Sandelowski, 1995a, 1995b; Strauss & Corbin, 1990), responses to interview guide questions are coded and emerging

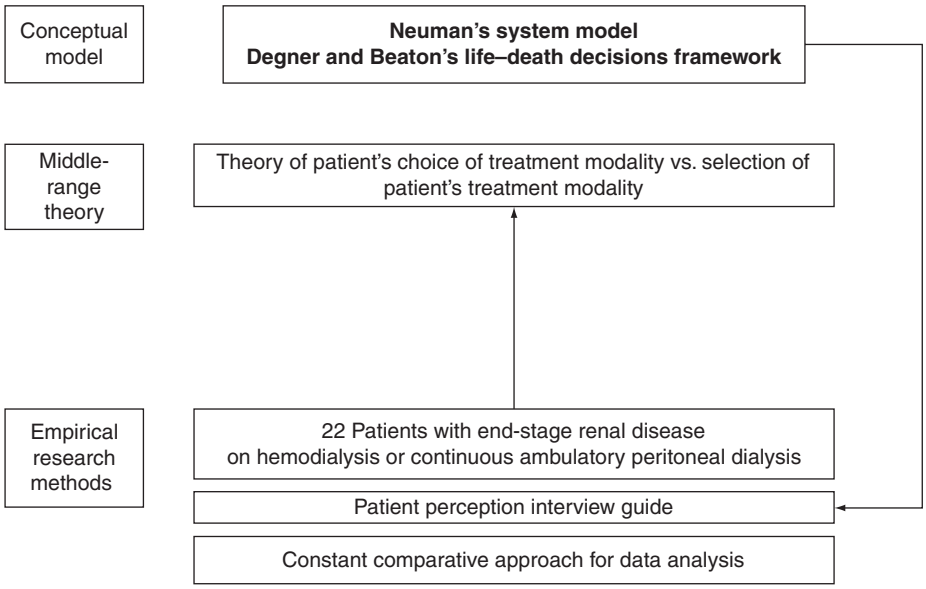


FIGURE 17-2 Conceptual-theoretical-empirical structure for study of decisions about dialysis modality (From Breckenridge, 2002, p. 178).

1. Please tell me how the treatment that you have received or are receiving was selected?
   Possible probes:
   a. What options were presented to you or did you consider? What did you view as the pros and cons of each option?
   b. What factors did you think about or weigh when making your decision?
   c. Please walk me through the way the decision was made.
      –To what extent did your own opinions influence the selection of treatment?
      –To what extent did your physician's recommendations influence the selection of treatment?
      –To what extent did your nurse influence the selection of treatment?
      –To what extent did a social worker influence the selection of treatment?
      –To what extent did your family influence the selection of treatment?
      –To what extent did someone else (who?) influence the selection of treatment?
      –To what extent did your insurance coverage influence the selection of treatment?
   d. What kind of information was made available to you? What were the sources? Did you actively seek information about the treatment options? If so, what kind of things did you do? With whom did you talk in order to learn more about the treatment options?
2. What do you like about the treatment you received and/or are receiving?
3. What are the drawbacks to the treatment you received and/or are receiving?
4. Is the treatment you received and/or are receiving still your preferred choice? If no, please explain what other option you would prefer and why you now prefer that option?

FIGURE 17-3 The patient perception interview guide (from Breckenridge 2002).

themes are classified as middle-range theory concepts that represent evidence of patient and family member perspectives. The evidence is then used to guide best practices assessments of other patients and family members experiencing similar health situations and development of prevention interventions to promote optimal client system stability. Examples of potential primary, secondary, and tertiary prevention interventions for clients with end-stage renal failure are given in Figure 17-4 (Breckenridge, 1982, 1989, 1995). The diagram depicts the most appropriate type of prevention interventions for clients who are in community, acute care, or long-term care settings. The goal of each type of prevention intervention is to help clients reconstitute to what they perceive as an optimal level of wellness.

When RAIN was initiated in 2003, the first cohort of nurses included a two-nurse psychiatric team who used a patient perception interview guide to collect data for a beginning program of research focusing on patients' choice of alternative therapies, such as aromatherapy, hand massage, guided imagery, Reiki, and music therapy, as prevention interventions to decrease the impact of stressors and promote relaxation (Kristiniak & Soniak, 2007). Another beginning program of research focuses on family members' perceptions of the hospital employees—nurses, physicians, patient care assistants—who care for their older adult family members (Shields & Maus, 2007). Nurse and social worker caregivers collected data with a family members' perceptions interview guide. Findings from their study revealed that family members do not think that hospital employee caregivers should address the family members' older parents as "honey" or "dear," but rather should address the parent as "Mrs. X" or "Mr. X," or use the parent's first name. The evidence from this study now is being translated into best practices regarding form of address when talking with patients.

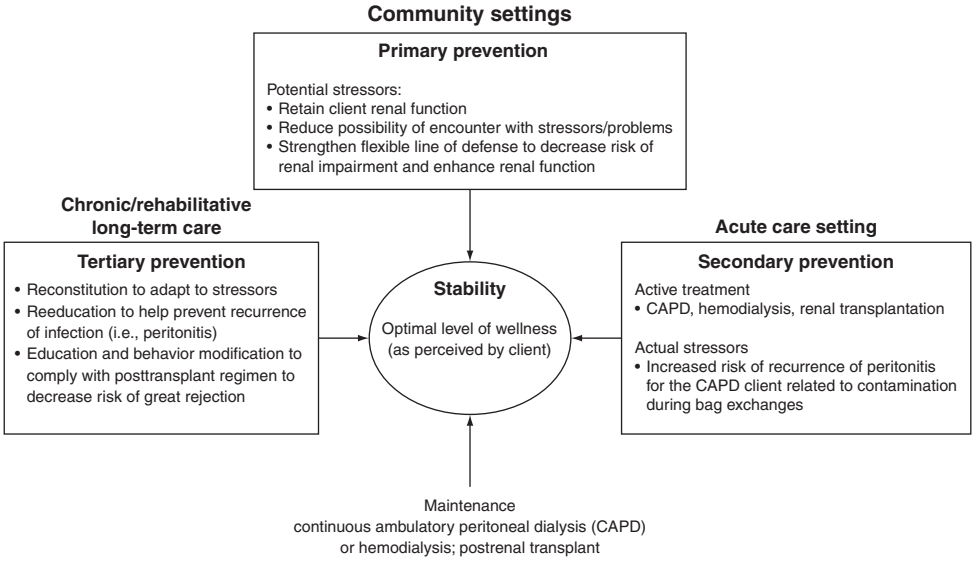


FIGURE 17-4 Neuman-based health care focus for renal clients (from Breckenridge 1995a).

FROM NOVICE TO EXPERT NURSE RESEARCHERS

The refined RAIN program (see Table 17-1), which emphasizes nursing theory–guided, evidence-based practice (Breckenridge, 2007a, 2007b), supports nurses' research capabilities progression from novice to expert (Benner, 1984). The RAIN program now includes monthly 3-hour research sessions, which address novice-to-expert needs of the nurses. The sessions are offered to three cohorts of nurses during the fall, winter/spring, and summer of each year. In addition, nurses receive individual mentoring that is appropriate to their level within the novice-to-expert continuum.

The RAIN program includes content that is comparable to a 3-credit nursing research course in an RN to BSN program and a bridge to a MSN program. The nurses, who are regarded as novice nurse researchers, search the literature using key words for best practices to translate into practice.

Some nurses with baccalaureate degrees who participate in the RAIN program are working toward the MSN degree. These nurses, who are regarded as close-to-competent nurse researchers, have the knowledge and technical skills to find evidence in the literature and, with the mentorship of the RAIN research director, write research proposals and receive Institutional Research Board approval to conduct research. With continued mentoring, they collect and analyze data, disseminate the research results at the hospital and to the community, and begin to translate the evidence into best practices.

Nurses enrolled in Doctor of Nursing practice or Doctor of Philosophy programs also participate in RAIN. They are regarded as close-to-expert nurse researchers who have the research knowledge and technical skills to develop programs of research, translate evidence into best practices, and evaluate the outcomes of those practices with guidance from a preceptor. These nurses also serve as mentors and preceptors for novice and competent nurse researchers who are part of the RAIN program research process.

FINDING THE EVIDENCE

The Patient-Intervention-Comparison-Outcome (PICO) approach to evidence-based practice (Melnyk & Fineout-Overholt, 2005) is used in the RAIN program to teach novice nurses how to search the literature. When the PICO components of Patient Population/Disease, Intervention, Comparison, and Outcome are linked to the Neuman Systems Model Nursing Process Format (Table 17-2), the nursing model becomes the guide for the research. As the nurse becomes increasingly competent, integration of an evidence-based practice model such as PICO with a nursing model such as the Neuman Systems Model helps the nurse to more clearly define phenomena of particular interest to nurses and nursing.

The first component of PICO is to identify the problem of interest, which corresponds to assessment in the Neuman Systems Model. The example of a problem given in Table 17-2 is the patient's perception of selection of treatment modality for end-stage renal disease (ESRD). The PICO component of intervention is linked with the Neuman

Table 17-2 Patient-Intervention-Comparison-Outcome Related to Breckenridge's Nursing Theory–Guided Evidence-Based Practice Approach Using the Neuman Systems Model

Patient-Intervention-Comparison-Outcome Evidence-Based Practice Approach (Breckenridge, 2007a, 2007b)	Neuman Systems Model	Nursing Theory–Guided Practice
1. Patient Population/Disease	1. Patient assessment	1. Patient's perception of selection of treatment modality for end-stage renal disease (ESRD)
2. Intervention	2. Prevention interventions	2. Secondary prevention interventions, e.g., continuous ambulatory peritoneal dialysis or hemodialysis
3. Comparison	3. Primary, secondary, and tertiary prevention interventions	3. Evidence found in the literature provides pros and cons for each of the two dialysis modalities
4. Outcome • Best practices based on the levels of evidence (Melnyk & Fineout-Overholt, 2005). Level I—Randomized Clinical Trial (e.g., Cochrane Database)—Medical Model Approach	4. Evidence for translation to best practices	4. Sidani, Epstein, and Miranda (2006) elicited patient treatment preferences as a strategy to integrate evidence-based and patient-centered care. Breckenridge's (1997a, 1997b) evidence demonstrates how the Neuman Systems Model was used to examine decision making in the ESRD population. Graham (2006) noted that Breckenridge had used the Neuman Systems Model to direct researchers to study patient perceptions

Systems Model concept of prevention interventions. Continuing with the example of selection of treatment modality for ESRD, the relevant secondary prevention intervention is continuous ambulatory peritoneal dialysis or hemodialysis. The comparison component of PICO includes existing research that points to the advantages and disadvantages of a particular intervention. This PICO component corresponds to a comparison of primary, secondary, and tertiary prevention interventions (see Figure 17-4), and is exemplified by identification of reported pros and cons for the two dialysis modalities. The PICO outcome component is rated using Melnyk and Fineout-Overholt's (2005) schema for levels of evidence. Their seven-level schema places integrated reviews of experimental research at the highest level (level 1), whereas integrated reviews of quantitative and qualitative descriptive research are regarded as level 5. Findings from a single descriptive study and expert opinion are at the next two lower levels, respectively. The outcome component corresponds to Neuman Systems Model–based evidence for best practices, exemplified by Sidani, Epstein, and Miranda's (2006) work, as well as Graham's (2006) interpretation of Breckenridge's (1997a, 1997b) research.

Conclusion

Evidence-based practice typically is defined as the integration of the best evidence available with nursing expertise and the values and presence of the individual, families, and communities who are served (Sigma Theta Tau International, 2003). Melnyk and Fineout-Overholt (2005) indicated that clinical expertise and patient preferences are important when considering practice changes and translating evidence into practice. Therefore, using a nursing model, such as the Neuman Systems Model, to find and interpret evidence for best practices is a continuous dynamic process throughout literature searches. As evidence emerges or gaps become apparent, decisions regarding the need to conduct research to find evidence need to be made. The RAIN program has been successful in helping nurses to search the literature and to begin to conduct their own research. The Neuman Systems Model is a particularly useful guide for literature searches and the conduct of research.

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CHAPTER 18

Excellence in Practice

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Caroline van Tilburg
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Assessment of the quality of a health care organization in Holland was catalyzed by Dutch public health laws, enacted in 1993, 1995, and 1996, to regulate agreements between clients and caregivers about treatment; the status of professions, including nursing; and demands for accountability for quality care, respectively. The purpose of this chapter is to describe how Emergis Institute for Mental Health Care in Zeeland, Holland, where practice is based on the Neuman Systems Model, used the European Foundation of Quality Management (EFQM) model as the framework for quality assessment of the organization and outcomes of the assessment. Quality assessment at Emergis is in keeping with Holland's rich tradition of concern for the quality of health care received by its citizens.

USE OF THE NEUMAN SYSTEMS MODEL AT EMERGIS

Some years prior to implementation of the EFQM, Emergis had adopted the Neuman Systems Model as the guide for patient care because the client-centered focus of the model was most congruent with the Emergis philosophy of nursing practice (de Munck & Merks, 2002). Emergis staff quickly became aware of the value of a nursing conceptual model to guide practice systematically and to achieve high-quality care. Prior to the 1980s, Dutch nursing practice was not guided by nursing theories or models, although the nursing process had been introduced in the 1970s. When the first master's degree in nursing program was started at the University of Maastricht, Holland, it introduced its own nursing models and theories (de Munck & Merks). Nursing models and theories developed in the United States were also studied in Holland during that time, and some were adopted to guide nursing practice.

EUROPEAN FOUNDATION OF QUALITY MANAGEMENT MODEL

A 1996 law on quality in health care mandated a quality assessment system for all health care institutes in Holland. Although the Neuman Systems Model guides practice, it does not explicitly address quality assessment. Therefore, Emergis searched for a model that

could guide the development of a system to assess the quality of Neuman Systems Model–based care. Emergis, along with many other Dutch health care organizations, had chosen the EFQM model as the framework for organizational quality assessment. This model quickly became the most widely adopted framework for quality assessment in Europe and now is the basis for the majority of national and regional quality awards in Europe. The EFQM model does not tell an organization exactly what it must do or how to do it. However, it does guide measurement of the effectiveness of each organization, according to criteria set by each organization to meet its own needs.

The EFQM is a nonprescriptive framework of nine criteria. Five of the criteria are "enablers"—leadership, people, policy and strategy, partnerships and resources, and processes; the other four criteria are "results"—people results, customer results, society results, and key performance results. The enablers criteria encompass what an organization does, how the organization conducts itself, how it manages its staff and resources, how it plans its strategy, and how it reviews and monitors key processes. The results criteria encompass what an organization achieves or its outcomes, such as the level of satisfaction among the organization's employees and customers, its impact on the wider community, and key performance indicators. Information gathered from results criteria provide feedback for modifying the enabling processes. The components of the EFQM model are illustrated in Figure 18-1.

ACCREDITATION AND EXTERNAL AUDITS

In Holland, several external audits are mandated to ensure that organizations maintain high-quality standards for primary health care processes. Accreditation is mandated for hospitals, and mental care institutions are evaluated by the International Organization for Standardization (ISO). These external audits are imposed over and above the adoption by institutions of models such as the Neuman Systems Model or the EFQM for the purpose of delivering quality care. ISO certification is prescriptive, and an ISO certificate is proof that customer requirements have been taken into account.

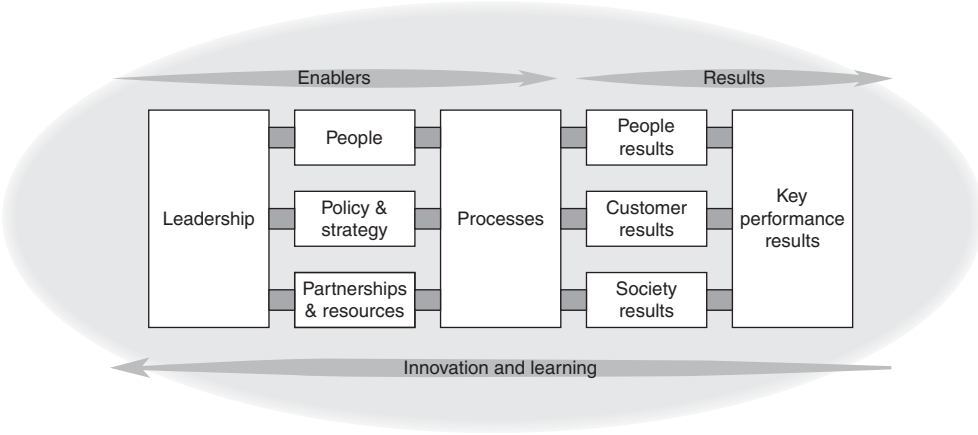

FIGURE 18-1 The European Foundation of Quality Management Model (Copyright © 1999–2003 EFQM, reprinted with permission).

The Dutch translation of the ISO standards for health care organizations was done by the HKZ (Harmonization of Quality Review in Health Care and Welfare). HKZ is a Dutch initiative of health care providers, patients/clients, and insurers that developed a generic conceptual framework for certification. This framework, which is applicable to all subsectors in health care and welfare, includes nine sections representing all organizational processes that are subject to review. The first three sections refer to primary processes. Standards in these sections are explicitly formulated from the perspective of the patient/client, an emphasis that is the main characteristic of HKZ certification.

The assumption that quality originates from an effective quality management system is central to the external audit that is necessary for ISO/HKZ certification. The process-oriented approach of the audit focuses on several activities, from input, to throughput, to output. Those activities are carried out by means of deploying people and resources. The focus of the audit is the question of how the process is controlled and how possible deviations are adjusted. For health care institutions, this means the auditor is looking for formal documentation of planning and implementation of the vision of care in written materials and/or described by the people who carry out the primary process. Quality assurance is also investigated, and nursing care is evaluated from the client's perspective. In ISO terms, this means adjusting the product to customer requirements. The auditor evaluates how employees in actual practice interpret the process, that is, how employees act in accordance with the quality system, and how they provide individualized, high-quality care. An institution that is based on quality models will likely achieve ISO certification.

THE EVALUATION RESEARCH PROJECT AT EMERGIS

Legislation, use of the EFQM model, and the external audit process have heightened interest in nursing conceptual models as guides for achievement of quality in health care organizations in Holland. Emergis was ahead of many health care institutes in the selection of the Neuman Systems Model as the guide for client care. In keeping with the EFQM model, evaluation of the implementation process (the EFQM model enabler processes) and the effects of using a nursing conceptual model (the EFQM model people and customer results) were undertaken at Emergis.

Baseline data were collected before the Neuman Systems Model was implemented on the wards at Emergis, so that any changes following implementation could be measured. After baseline data were collected, the staff was trained to use the Neuman Systems Model, a new care plan was introduced, and team coaching was implemented. Data were collected for six research variables derived from a review of the literature—organization or ward culture, knowledge of Neuman Systems Model concepts, implementation of the nursing process, client satisfaction, employee job satisfaction, and quality of care (Figure 18-2).

Knowledge of the ward culture is critical for successful implementation of a nursing model, so culture was assessed first. The two research variables that are directly related to the implementation of the Neuman Systems Model—knowledge of the model concepts and their use in practice, and implementation of the nursing process—were assessed next. Quality of care, client satisfaction, and employee job satisfaction were assessed last. We expected that nurses who internalize the concepts of the Neuman Systems Model and use this knowledge in their daily practice were more likely to provide high-quality care. We also expected that use of the nursing process would have a positive effect on the quality and continuity of care (Berkhout, 2000). In addition, we expected that nurses who use

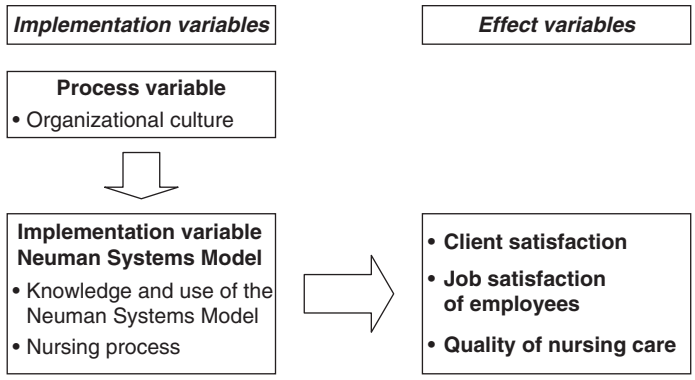

FIGURE 18-2 Relationships between research variables.

the Neuman Systems Model would experience greater job satisfaction and provide more professional care; thus, clients would be more satisfied. Ultimately, Emergis would benefit as an organization from the provision of high-quality care.

Measurement of the Research Variables

The six research variables were measured with existing instruments with adequate validity and reliability. Table 18-1 displays the six variables, the instruments used to measure each variable, and the validity and reliability data.

ASSESSMENT OF WARD CULTURE Organizational culture is a determining factor for successful implementation of a new nursing or caregiver method. Thus, assessment of the culture is a primary step in the research process (van Linge, 2006), to be completed before implementation of the nursing model. Culture was assessed using the "competing values model" (CVM; Cameron & Quinn, 1999). The CVM has four quadrants, separated by horizontal and vertical axes (Figure 18-3). External focus is contrasted with internal focus on the horizontal axis, and flexibility and discretion are contrasted with stability and control on the vertical axis.

Each quadrant has basic assumptions, orientations, and values, all of which are elements found in organizational cultures. The four types of cultures and their assumptions, orientations, and values are:

1. Clan culture: based on cohesion and morale, with emphasis on human resources and training. People are seen not as isolated individuals, but as cooperating members of a common social system with a common stake in what happens.
2. Adhocracy culture: based on an organic system, emphasis is on adaptability, readiness, growth, resource acquisition, and external support. These processes bring innovation and creativity. People are inspired rather than controlled.
3. Hierarchy culture: based on hierarchy, emphasis is on measurement, documentation, and information management. These processes bring stability and control. Hierarchies seem to function best when the task to be done is well understood and when time is not an important factor.

TABLE 18-1 Measurement of Research Variables

Variable	Instrument	Validity	Reliability
Culture	VOKIPO Derived from Quinn & Rohrbaugh (1983) 39 items, 4 subscales, 4-point Likert scale Self-report questionnaire Nurses, other disciplines	Content validity, factor analysis, based on OKIPO (Organizational Climate Index for Profit Organizations)	Cronbach's alpha 0.75–0.86
Neuman Systems Model	LJNMEI; Lowry (1998), based on the Neuman Systems Model 89 items, 9 subscales, 5-point Likert scale Self-report questionnaire Nurses, other disciplines	Content validity	Test-retest r = 0.90 Split-half alpha 0.99
Nursing Process	Bombelt (1996) 53 items, 6 subscales, 5-point Likert scale Interview by research assistant Nurses, other disciplines, clients, administration	Face validity, based on existing similar instruments	Cronbach's alpha 0.64–0.88
Quality of (Nursing) Care	Merks & Mels (1997), based on van Bergen, Hollands, & Nijhuis (1980) 69 items, 3-point Likert scale Interview by research assistant Nurses, other disciplines, clients, administration	Face validity, derived from existing, similar instruments	Cronbach's alpha 0.50–0.64
Job Satisfaction	MAS-GZ, based on Landeweerd, Bouwmans, & Nissen (1996) 21 items, 4 subscales, 5-point Likert scale Self-report questionnaire Nurses, other disciplines	Construct validity Factor analysis, based on OKIPO	Cronbach's alpha 0.60–0.85
Client Satisfaction	Client quick scan, Emergis 29 items, 4 subscales, 5-point Likert scale Self-report questionnaire Clients	Face validity, based on existing similar instruments	Cronbach's alpha 0.79–0.89

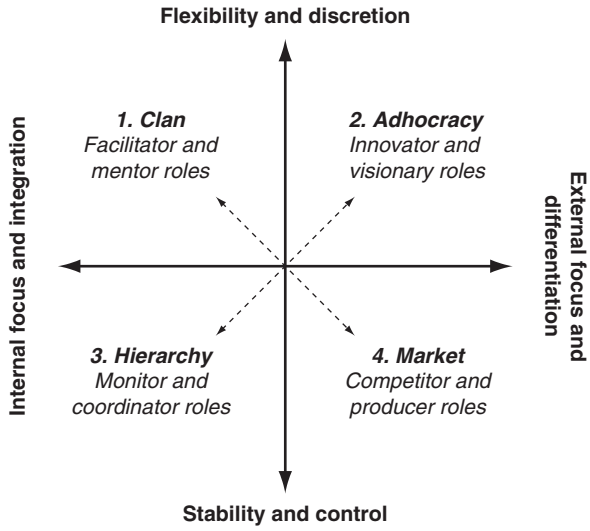

FIGURE 18-3 The Competing Values Model (Cameron & Quinn, 1999, p. 58, reprinted with permission).

4. Market culture: based on profit, emphasis is on rational action. Planning and goal setting are assumed to result in productivity and efficiency. Tasks are clarified; objectives are set, and action is taken.

Results of the organizational culture assessment of Emergis showed a "hybrid" situation, a composition of the "adhocracy" and "clan" configurations, which combines transition with transformation. This means that small adaptations in competencies and work processes are necessary to reinforce what is already present as long as there is a willingness to change. Successful implementation of the Neuman Systems Model required determination of whether the basic philosophy of the Neuman Systems Model could be combined with the existing culture at Emergis. The wholistic philosophy of the Neuman Systems Model is best combined with a culture that can be described as externally oriented and innovative (van Linge, 2006). This type of organizational culture is aligned with developments and changes outside the organization, such as the social aspects of illness, changes in the professions, insurance companies, and other health care organizations. The equality of people is strongly emphasized. The cultural assessment revealed that the Neuman Systems Model was a good fit with the organization.

ASSESSMENT OF KNOWLEDGE AND USE OF THE NEUMAN SYSTEMS MODEL Knowledge of the Neuman Systems Model and how well it was applied to practice was assessed using the Lowry-Jopp Neuman Evaluation Instrument (LJNMEI; Lowry, 1998). Although this instrument was initially developed to measure the efficacy of using a nursing model as a curriculum framework in a nursing program, consultation with Lowry indicated that the LJNMEI was suitable for evaluation of clinical nurses' use of the Neuman Systems Model. The instrument is an 89-item self-report questionnaire that is divided into two sections. The first section includes items related to the concepts of person, stressors, wellness, and nursing process; the second section includes the roles of a nurse: care provider,

TABLE 18-2 Lowry-Jopp Neuman Evaluation Instrument Mean Scores

	Subscale	Basic Data Collection 2000 (*n* = 73)	Second Data Collection 2004 (*n* = 94)	Third Data Collection 2007 (*n* = 46)
Concepts of Neuman Systems Model	Person	3.2	3.5*	3.4**
	Stressors	2.2	3.0*	3.0
	Wellness	2.7	3.1*	3.1
	Nursing process	2.5	3.0*	3.0
Use Neuman Systems Model in Daily Practice	Care provider	2.1	2.8*	2.6**
	Communicator/teacher	2.4	2.8*	2.5**
	Manager of holistic care	2.5	3.1*	2.8**
	Member of the discipline	1.6	2.9*	2.1**

*$p < 0.05$, difference between baseline (2000) and second data collection (2004).
**$p < 0.05$, difference between second (2004) and third data collection (2007).

communicator, teacher, manager, and member of the profession. Responses are scored on a Likert scale in which 4 = strongly agree, 3 = agree, 2 = disagree, and 1 = strongly disagree; the higher the mean score, the greater the knowledge and use of the model in practice. The LJNMEI subscale scores at baseline and at the second and third data collection points are given in Table 18-2.

An independent *t* test of means was conducted for each item in each subscale to compare the year 2000 baseline data (n = 73) with scores after implementation of the Neuman Systems Model (n = 94) in 2004. There was a statistically significant increase in both knowledge and use of the Neuman Systems Model for all subscales (p = 0.05). The third data collection point was 2.5 years after the implementation of the Neuman Systems Model, in 2007 (n = 46). Knowledge of the Neuman Systems Model was still evaluated highly; however, there was a significant decrease in the use of the model in practice. We concluded that the nurses were using the Neuman Systems Model sufficiently despite the lower scores. The findings, however, indicated a need for further education, which now is ongoing.

Originally, the implementation of the model was intended only for nurses. During the implementation period, however, other disciplines became interested in using the model; thus, we implemented the Neuman Systems Model across disciplines. A *t* test of means revealed no significant difference between nurses and psychiatrists or psychologists for knowledge of the Neuman Systems Model and use of the model in practice. We concluded that the Neuman Systems Model offers the possibility for members of other disciplines to work from an integrated approach to motivate and stimulate clients to reach a level of optimal stability. The breadth of the model enables other disciplines to understand its principles and provides a means for professionals to speak the same language. Thus, we discovered that the Neuman Systems Model is suitable not only for nurses but also for members of the other disciplines involved in psychiatric care.

TABLE 18-3 Mean Scores for Use of the Nursing Process

Subscale	*Care Plans/Administration*		*Nurses*	
	Basic Data Collection 2000 (*n* = 60)	**Second Data Collection 2004 (*n* = 76)**	**Basic Data Collection 2000 (*n* = 68)**	**Second Data Collection 2004 (*n* = 74)**
Nursing Assessment	2.4	2.8*	3.9	4.4*
Nursing Problems	2.8	3.3*	3.7	4.2*
Nursing Goals	3.0	2.8	3.5	3.7*
Planning	3.5	3.1*	3.8	3.7
Nursing Interventions	2.6	2.5	3.2	2.8*
Evaluation	1.4	1.3	3.3	3.1
Nursing Assessment	2.4	2.8*	3.9	4.4*

*$p < 0.05$, difference between the first (2000) and the second data collection (2004).

ASSESSMENT OF NURSING PROCESS We anticipated that using the Neuman Systems Model would have a positive effect on use of the nursing process to assist clients and nurses in setting goals efficiently and effectively. Data were collected through interviews with all nurses and clients on the wards and review of written care plans by administrators. Table 18-3 displays the mean scores at baseline in 2000 and after implementation of the Neuman Systems Model in 2004. Nurses responded to interview questions on a 5-point Likert scale ranging from 1 (no use) to 5 (maximum use). Scores for assessment and formulation of nursing problems increased after implementation of the Neuman Systems Model. Nurses also reported that they formed better goals after implementing the model. There was no evidence of a change in the other elements of the nursing process after implementing the Neuman Systems Model (Table 18-3). These findings were validated through chart reviews.

ASSESSMENT OF THE QUALITY OF CARE The first effect variable assessed was quality of care. We defined quality of care as the characteristics of a product, process, or service that are important to meet stated or implicit needs. The tool used to measure care quality is based on van Bergen, Hollands and (1980) philosophy of nursing, which identifies the desired tasks for nurse professionals at Emergis. The tool contains only process variables, which are those variables that actually are connected to the professional's practice. Van Bergen, Nijhuis et al. stated that the nurse professional aims for continuity of client-oriented care. The tool is used to compare the desired quality of care (criterion) and the actual (measured) quality of care. A disadvantage of the tool is that it is not based on specific criteria derived from the Neuman Systems Model. Nurses and clients on the wards were interviewed, and their care plans were examined (2000, $n = 14$; 2004, $n = 19$).

Independent t tests of means were conducted for each of the 69 items. Statistical significance was achieved in a positive direction for information given by the nurses

about the clients (medical treatment and role of the client in his or her own care). Involvement of family and relatives of the client in (nursing) care also increased. More attention was given to client individuality (for example, religion, special days such as birthday, sleeping pattern). There also was more frequent contact between the nurse and client, and their communication improved. In addition, using the nursing process steps of nursing diagnosis and planning nursing care based on the nursing diagnoses increased.

ASSESSMENT OF EMPLOYEE JOB SATISFACTION Employee job satisfaction was the second effect variable assessed to determine if job satisfaction changed on the wards in which the Neuman Systems Model was implemented. The Maastricht Employee Satisfaction Scale (MAS) includes 21 items arranged in 7 subscales (Table 18-4). A *t* test of means indicated that there was a significant improvement in the general satisfaction of the employees. The subscales "promotion possibilities," "developmental possibilities," and "structure" showed statistical significance at the second data collection point in 2004, as determined by the Mann-Whitney test. There was no evidence of a statistically significant change in the other four subscales. We concluded that nurses experienced greater appreciation of their worth after working with the Neuman Systems Model. They were able to use their knowledge and skills in giving patient care, had opportunities to collaborate with their colleagues, and had greater opportunities for promotion.

ASSESSMENT OF CLIENT SATISFACTION We anticipated that the application of the Neuman Systems Model would positively affect client-centered nursing and application of

TABLE 18-4 Maastricht Employee Satisfaction Scale Scores

	Basic Data Collection 2000 (*n* = 60)		Second Data Collection 2004 (*n* = 55)		Mann-Whitney Tests	
Subscales	***M***	***SD***	***M***	***SD***	***Z-value***	***p (2-tailed)***
Manager	3.63	0.60	3.74	0.75	–1.152	0.249
Promotion Possibilities*	3.06	0.62	3.55	0.68	–4.101	0.001
Quality of Care	3.68	0.63	3.84	0.48	–1.117	0.264
Developmental Possibilities*	3.63	0.55	3.89	0.62	–2.728	0.006
Contact Colleagues	3.90	0.38	4.04	0.53	–1.611	0.107
Contact Clients	3.71	0.44	3.83	0.45	–0.880	0.379
Structure*	3.62	0.50	3.88	0.48	–3.250	0.001
MAS total*	**3.61**	**0.35**	**3.83**	**0.43**	–3.091	0.002

*$p < 0.05$, difference between first (2000) and the second data collection (2004).

the nursing process, and that, in turn, client satisfaction would be affected positively, because clients and nurses would communicate to negotiate the care. The tool used was a self-report questionnaire consisting of 29 items that address client satisfaction with information concerning treatment, the influence the client has on treatment, and relationships between clients and caregivers, as well as the way clients spend their time and the extent to which they can influence this themselves.

A *t* test of means was conducted for each of the 29 items (2000, $n = 47$; 2004, $n = 78$). Statistically significant increases were found for 14 of the 29 items after the Neuman Systems Model had been implemented. The data analysis revealed that the client-centered approach of the Neuman Systems Model led to increased understanding of both the client's role and the professional's role in the care process. When doing assessments, nurses made more use of the information given by clients. Also, the specific wishes of clients had a more prominent part in the assessment. Clients reported an increase in their influence on their own treatment. Furthermore, conversations between clients and caretakers improved, and clients reported an increase in their trust of nurses.

Interpretation of the Findings

The assessment of the culture prior to the implementation of the Neuman Systems Model indicated that Emergis exhibited characteristics of both clan and adhocracy configurations, both of which are compatible with the philosophy of the model. As the project was implemented, Emergis staff were coached to become more innovative as they began to understand and use the Neuman Systems Model in their daily practice. The Neuman Systems Model proposes that interaction between nurses and clients incorporate recognition of perceptions of both parties. Nurses have more concern for the clients' perspectives and clients are encouraged to engage in development of their own plans of care. Nurses used the assessment and diagnosis steps of the nursing process more frequently after adopting the Neuman Systems Model as a framework for caring. When doing assessments, nurses collected data about the five client system variables and described the lines of defense. These findings indicate that nurses had a better understanding of the concepts "client" and "health" and applied that knowledge in their practice. They also were more aware of the effect of stress and stressors on clients' health.

The Neuman Systems Model provides a framework to organize client care. We were struck by the finding that through use of the model, nurses perceived the boundaries of the nursing profession as less strict and more open.

When nurses were asked to what extent using the Neuman Systems Model influenced their jobs, they indicated that they see more possibilities within their own functions to differentiate horizontally, that is, to specialize in their daily work. Nurses now have a better understanding of what is expected of them when they practice according to the model.

Following implementation of the Neuman Systems Model, clients stated that they appreciated the nursing care they received, and that they believed that nurses were more attentive to their questions and wishes. The questions used by nurses when assessing clients now are more direct, so that clients can respond directly regarding their wishes for treatment. They also have more faith in the nurses and responded positively to the client-centered approach.

Conclusion

The Dutch health care system is changing into an integrated health care system in a managed care market, due primarily to the nationally mandated quality of care laws. Such a health care system values efficiency and effectiveness, improved patient and consumer satisfaction, and documentation of health outcomes. The EFQM model, which has been selected by many health care organizations as the framework for organizational quality assessment, emphasizes improvement. It can be said to be a practical representation of Total Quality Management. But no improvement whatsoever happens just by using the EFQM model. Instead, improvement happens by implementing actions after using the EFQM model as a diagnostic tool to identify areas needing improvement.

Emergis selected the EFQM model to measure its effectiveness in combination with evaluation research implemented to assess the efficacy of using the Neuman Systems Model to guide the delivery of high-quality nursing care. The model considers all the variables that affect a client's health and proposes how optimal wellness can be achieved. The client-centered focus of the Neuman Systems Model is consistent with current developments in society, as well as with the quality of care laws in Holland. Furthermore, the culture of Emergis is consistent with the philosophical underpinnings of the Neuman Systems Model, enabling a smooth transition as the organization evolves. External auditors reported that the consistent and integrated application of the Neuman Systems Model as implemented in Emergis contributes to a well-functioning system of quality improvement. The auditors also reported that the model has been implemented well and serves as an instrument for the organization and coordination of the primary processes in the organization.

The use of nursing conceptual models in conjunction with quality assessment models can diagnose how an organization can target actions to improve the function and quality of care within the institution, resulting in greater staff and client satisfaction. The EFQM model and the accreditation criteria, coupled with the internal evaluation research project at Emergis, have produced data that support use of the Neuman Systems Model for achievement of high-quality client care.

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SECTION SIX

The Neuman Systems Model and Administration of Nursing Services

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CHAPTER 19

Nursing Services at Allegiance Health

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The purpose of this chapter is to present a detailed description of the process of implementation of the Neuman Systems Model as a guide for nursing services at Allegiance Health.

ALLEGIANCE HEALTH

Allegiance Health serves residents in a six-county area of southern mid-Michigan. As a health care system, we offer comprehensive health services in many locations that ensure health care excellence availability close to home. We are the only acute care facility in our county and offer a full range of services with the mission of "leading our community to better health and well-being at every stage of life."

Allegiance Health has 411 beds, with a full complement of inpatient services, including medical/surgical, intensive and coronary care, and cardiac universal beds, and women and children services. Allegiance Health also has several specialty services, including but not limited to cardiac/pulmonary rehabilitation, pain management, diabetes and wound centers, radiation oncology, a sleep disorders center, senior services, and cardiac surgery. Allegiance Health employs 689 registered nurses and 78 licensed practical nurses.

Allegiance Health is intimately involved in the health improvement of the community through education, active programs, and support of area projects and county activities. The people in our demographic area experience a high level of health problems. For example, a 2007 community survey identified 70 percent of residents as overweight or obese, a 14 percent rate of diabetes, and higher rates of pulmonary and cardiac disease than similar-sized communities. Therefore, we offer many outreach services to the community, such as support for respite care, home meals, prescriptions for the underserved, and support for the Center for Family Health, which is a federally funded clinic for the underserved.

ADMINISTRATIVE VISION

In December 2002, the nursing administrator at Allegiance Health presented a challenge to our Division Nurse Practice Committee: to investigate choosing a nursing conceptual model or theory to guide nursing practice. A subcommittee of nursing staff, key leaders, and faculty from Jackson Community College was formed to review our options. The subcommittee examined 12 nursing models and theories, which was narrowed to two theorists whose work components fit best with our mission and vision statements and standards of practice—Orem's Self-Care Framework and Neuman's Systems Model.

Two teams from the subcommittee compared the content of Orem's and Neuman's conceptual models to Joint Commission on Accreditation of Healthcare Organization (JCAHO) standards, our structural strengths and weakness, applicability to an interdisciplinary approach, and our documentation system. In August 2003, the Neuman Systems Model was selected based on our belief that use of this nursing conceptual model would best promote wholistic care inclusive of evidence-based practice.

EVOLUTION OF IMPLEMENTING THE NEUMAN SYSTEMS MODEL AT ALLEGIANCE HEALTH

The Neuman Committee was established in October 2003. Education of the staff and implementation of the Neuman Systems Model into the organization's nursing practice were ready to begin. The initial meeting was well attended by representatives from all departments as nursing managers, educators, and directors were interested in learning how adoption of an explicit nursing model would affect patient care within each nursing unit. We anticipated that implementation would take a considerable amount of work and time. Although some nurses were unable or unwilling to make a time commitment and our membership dropped after the next few meetings, we developed a core Neuman Committee of clinical nurse specialists, clinical quality specialists, educators, nurse managers, and staff nurses.

Our goals included ensuring that the Neuman Systems Model was incorporated into the nursing process through inclusion in the philosophy, standards of care, and electronic medical records system. We expected the implementation process to take a minimum of 3 years, as we worked with staff and management to overcome the obstacles of change and to embrace the enhancements that the Neuman Systems Model would bring to our nursing practice. Although the effectiveness of Neuman Systems Model–guided practice is evident, continual evaluation and modification was required as we adapted to integration of conceptual model–guided client care.

Staff Education Strategies

Holding the attention and commitment of middle management amid competing projects took a significant toll on efforts to implement the Neuman Systems Model. Educational efforts were evaluated and adjusted frequently to facilitate understanding of nursing conceptual models. A staff demographic that may have impeded implementation of the Neuman Systems Model was the high percentage of associate degree–prepared registered nurses, who had not been exposed to nursing conceptual models in their educational programs. The educational plan continuously evolved to meet nurses' needs and create a high level of understanding. Currently, approximately 50 percent of Allegiance Health

nurses hold baccalaureate degrees, which should facilitate readiness for Neuman Systems Model–guided practice.

Education about the Neuman Systems Model was introduced through slide presentations at unit meetings beginning in 2004. The presentations were done by a Neuman Committee member who worked on that unit or the nurse manager. Neuman Committee members also participated by presenting the slides at "lunch and learn" seminars in the hospital cafeteria for a week. Although nursing staff could drop in at any time to see the slide presentation and ask questions, attendance was lower than expected. However, the nursing staff who did attend the presentations indicated that the slides were informative and facilitated understanding of the Neuman Systems Model. They also indicated that after viewing the slides, they could identify the importance of conceptual model–guided nursing practice.

In February 2004, the Neuman Committee began to create computer-based learning (CBL) for staff. The CBL was designed to provide education focused on how nursing conceptual models and theories guide nursing practice, as well as how the Neuman Systems Model could be incorporated into nursing practice.

During Nurse's Week in May 2004, we had the honor of Dr. Betty Neuman's participation with us in a daylong conference. Our goal was that staff would gain an understanding of the Neuman Systems Model, and we anticipated that Dr. Neuman's presence and discussion of the development of her model would generate a lot of excitement for staff and encourage them to grasp the model and begin to apply it to client care.

In February 2005, the CBL module was released to nursing staff. All nursing staff were required to complete the module, as were all new nursing staff. In 2007, the CBL for new nursing staff was replaced with a live presentation by the chair of the Neuman Committee or a committee member. The live presentation allowed for discussion and questions, and also facilitated the committee member's evaluation of learning by the new nursing staff. The positive evaluations received from new staff revealed that the live presentation was a better strategy than CBL.

Also in 2005, an Eastern Michigan University faculty member presented an educational session focused on the Neuman Systems Model and how to incorporate a nursing model into nursing practice. A case study utilizing the Neuman Systems Model enhanced learning during the session. This session was offered prior to implementing Neuman Systems Model–based questions in our admission database.

In April 2005, several Neuman Committee members were selected to participate in the poster presentation demonstrating our hospital implementation process at the Biennial Neuman Systems Model Symposium in Akron, Ohio. Networking at the symposium resulted in making important contacts for future reference related to hospital-based implementation of the Neuman Systems Model.

Although Nursing Grand Rounds had not been done at Allegiance Health for several years due to decreasing interest of nursing staff, the Research Committee decided to reintroduce Nursing Grand Rounds in 2005. Nursing Grand Rounds were then scheduled bimonthly, and each Grand Rounds incorporated the Neuman Systems Model along with evidence-based practice related to the issues identified in a case study. Six Neuman Systems Model–based questions were asked by the presenter, and six volunteers from the audience answered the questions by role playing the client or family members who were described in the case study. This approach was an informal and fun way to learn about Neuman Systems Model as a guide for client care.

The year 2006 continued with new nursing staff orientation presentations and Nursing Grand Rounds. During Nurse's Week in 2007, several Neuman Systems Model educational sessions were offered to nursing staff to refresh their understanding of the model and to emphasize how to apply the model to nursing practice. Unfortunately, few nursing staff attended the sessions.

Pilot Unit Implementation Process

In October 2005, we selected one of our medical-surgical units to be our pilot unit. We began pilot unit implementation planning with staff from the 5 South unit, meeting every 2 to 4 weeks. A core group, including the nurse manager, nurse educator, clinical information systems staff, case management staff, and rehabilitation therapy staff, devised a plan to incorporate the Neuman Systems Model in our assessment and documentation process. Although the pilot unit staff were excited to be chosen as the first to implement the Neuman Systems Model, it was difficult for nursing staff to consistently attend all meetings due to a high census on the unit. The rehabilitation therapy staff and Neuman Committee members were, however, able to attend all meetings.

The core group decided to use six Neuman Systems Model questions (Neuman questions) as part of the admission database (see Box 19-1). The questions were adapted from the Neuman Systems Model Assessment and Intervention Tool (see Table C-3 in Appendix C). All questions were to be asked when the client was admitted to the unit, and questions 4, 5, and 6 were also be asked at 24 to 36 hours after admission to update any changes in the client's condition.

In May 2006, we began to provide additional education about how to utilize the Neuman Systems Model, how to ask the Neuman questions (Box 19-1), and where to document answers in the computer charting system. A preimplementation survey was administered to pilot unit staff to determine whether they thought the Neuman questions would help with client care plans and discharge planning. The few staff who returned completed surveys indicated that the questions would facilitate care planning and the discharge process.

In July 2006, the pilot unit staff began to ask all clients the six Neuman questions at the time of admission (Box 19-1). Although questions 4, 5, and 6 were to be again asked at 24 to 36 hours after admission, staff indicated that the timing was not appropriate. Specifically, due to an average length of stay of 3.6 days, the nursing staff thought repeating the questions at the specified time might be a barrier. In addition, inasmuch as the

BOX 19-1

Neuman Systems Model–Guided Client System Assessment at Allegiance Health

Client system assessment is facilitated by asking six questions:

1. What is your major health problem?
2. Has this ever happened before?
3. How does your ability to function differ from before you came to the hospital?
4. What level of independence do you hope for yourself?
5. What can you do to help in your care?
6. What can caregivers, family, and friends do for you?

unit had a high census and cared for high acuity level clients, the nursing staff indicated they had no time nor could they remember to repeat questions 4, 5, and 6 at 24 to 36 hours of stay. Instead, the staff began to ask clients about their goals for the hospitalization at the time of admission to the unit, and wrote those goals on a white board in the client's room and in the Neuman Systems Model–based plan of care. This approach was successful in that communication of client priorities improved.

In fall 2006, the pilot unit qualitative evaluation was begun. That evaluation confirmed that very few clients were asked Neuman questions 4, 5, and 6 at 24 to 36 hours after admission because the nursing staff did not have time or forgot to ask the questions. The Neuman Committee, therefore, decided to ask only questions 1, 2, and 3 at the time of admission and ask questions 4, 5, and 6 (Box 19-1) later as part of the functional status assessment.

At the same time, the Clinical Information Systems department began to redesign our computer documentation system utilizing Horizon Expert Documentation (HED). Neuman Committee members attended the design sessions to provide input with regard to where to place the admission questions (Box 19-1). Nursing staff who were part of the HED design team provided their input about the Neuman charting.

In January 2007, all of the more than 700 nurses were required to attend an HED class, during which education addressing the Neuman admission questions was provided. All nurses were asked to complete survey regarding their perceptions of applying the Neuman Systems Model to nursing care. Data from the small number of completed surveys indicated that nursing staff thought it was important to have a nursing conceptual model as an explicit framework for care plans and discharge planning.

In February 2007, the Neuman questions were implemented on all inpatient nursing units. Initially, some nursing staff did not realize they needed to open the Neuman section of the database and ask the questions.

In April 2007, the Neuman Committee merged into the Practice Council, which is a division of our professional practice model. The Practice Council, along with medical/surgical educators and managers, suggested simplifying documentation by eliminating the separate Neuman section on the database and integrating the questions into the overall admission assessment. Planning meetings were also held with rehabilitation staff, which resulted in integrating Neuman questions 4, 5, and 6, which focus on functional ability and ability to care for oneself, into the functional screen charting. Accordingly, in June 2007, the Neuman questions were integrated into the admission database and the functional screen. This strategy resulted in a greater number of the nursing staff asking the Neuman questions.

In July 2007, our Home Health Department began to explore developing a Neuman template to incorporate the Neuman questions in client care. Other outpatient specialty clinics, including Hospice Home, Care Link, and the Emergency Department, may incorporate the Neuman questions at a later date.

INTEGRATION OF THE NEUMAN SYSTEMS MODEL WITH AN EVIDENCE-BASED PRACTICE MODEL

At the same time that the Division Nurse Practice Committee was looking for a theorist whose work matched the mission and vision of nursing at Allegiance Health, the Research Council was trying to identify a research model that would support the commitment of the hospital to evidence-based practice and would be consistent with the nursing model

selected to guide care delivery. The Practice Committee selected the Neuman Systems Model, and the Research Council selected the Iowa Model of Evidence-Based Practice to Promote Quality Care (Titler et al., 2001).

The Iowa Model encompasses two components—a problem-focused arm and knowledge-focused triggers. This evidence-based practice model begins with determination of the triggers or problems that exist and impede high-quality practice and outcomes. The Neuman Systems Model is a problem-focused approach that emphasizes identification of concerns by the client, with appropriate prompting from the care delivery team. Both the Neuman Systems Model and the Iowa Model embrace the Allegiance Health mission and vision of caring for our patients at every stage of living towards optimal wellness. The Iowa Model focuses on improved outcomes for populations, and the Neuman Systems Model goal is to improve client care, one client system at a time (see Box 19-2). Both models have several parallel components, which include:

- identification of problems,
- ranking the problems in order of priority,
- assembly of relevant information/research that will facilitate the development of a plan,
- synthesizing how the plan may work, who it touches, and the potential ramifications of the plan,
- specification of what each member has to contribute and verification of their skills and abilities to participate as planned,
- determination of whether the plan or change is research-based and appropriate for adoption,
- identification of how individual or group outcomes are monitored and measured for success.

Use of the Neuman Systems Model helps nurses to establish relationships with clients, identify their goals, determine whether the same health event happened in the past, and determine how previous illnesses were managed. Nurses can begin to plan client care to optimize outcomes after that information is obtained, including management of the current health problem, and identification of available assistance, needed nursing services, and needed collaboration with other health care team members.

The Neuman Systems Model also can be applied to evidence-based practice. For example, nurses can ask themselves and their colleagues the following questions:

- How do we embrace new information?
- What is our relationship with each other, processes, and policies?
- Have we had experience with similar situations, and if so, how did we manage it?
- Is there a better way to manage the situation to further improve outcomes?
- Who else needs to be involved to maximize the outcome for all involved?

Many other questions about the Neuman Systems Model and evidence-based practice can be asked each day. When striving toward improvement of client care, we need to look forward and not accept "that is the way we have always done it."

Integrating evidence-based practice is a sign of professionalism, a hallmark of high-quality care, and one of the first steps toward Magnet Recognition (American Nurses Credentialing Center, 2008). Nurses at Allegiance Health are empowered to make changes with sound information. Allegiance Health has integrated the Neuman Systems Model

BOX 19-2

Simple Steps to Great Outcomes: Utilizing the Iowa Model and Neuman System Model to Drive Evidence-Based Practice

As a starting point, the Iowa Model identifies the issue as a problem-focused trigger or a knowledge-focused trigger. For example, a question or statement that might be proposed is:

Patients with pressure ulcers have poorer outcomes.

This would be identified as a problem-focused trigger, leading the researcher down a specific path of the Iowa Model. Other steps in the Iowa Model flow sheet and related Neuman Systems Model (NSM) questions in the process include:

Iowa: What do we know about this issue?

NSM: Has this happened before? Is this the major health problem?

With regard to pressure ulcers, what is the most current research, who is accountable for the assessment and care, and what are the national guidelines and standards?

Iowa: Is this a priority for the organization?

NSM: How does your ability to function differ from before you came to the hospital?

Yes! It has significant potential for poor outcomes if not dealt with in a consistent and timely manner. New regulations look at avoidable and unavoidable incidences and can cost the hospital reimbursement.

Iowa: Assemble a relevant team.

NSM: Using an interdisciplinary approach, what can caregivers, family, and friends do for you?

A team has been assembled to review the processes currently in place, needs for education, and level of monitoring currently in place.

Iowa: Review of current research for implementation in practice if there are sufficient data.

NSM: Has this ever happened before? What level of independence do you hope for yourself?

There is much research and evidence available. The hospital has three nurses certified as wound, ostomy, and continence nurses (WOCNs).

Iowa: Need to create a plan.

NSM: Collectively looking at the variable and answers to the above questions to complete the analysis and move forward with the plan.

- *Collect baseline data—We have our spot checks on prevalence.*
- *Design evidence-based practice (EBP) protocol—The policy and algorithm are being reviewed.*
- *Implement—Plan is being generated now.*
- *Evaluate process and outcomes—Staff should be involved in this to best understand the opportunities of these steps and the value of research.*

Iowa: Adopt the change.

NSM: What can you do to help in your care?

- *Monitor and analyze structure, process, outcomes, client/family affect/outcomes, staff effects/outcomes, cost, and environment.*
- *This is a process for change—How different is it from the nursing process? How different is it from the Neuman Systems Model for client care and high-quality outcomes for coordination of care?*
- *Change is good—A process to direct the investigation and potential change gives the problem structure and an organized approach to look at the question.*
- *Research and use of EBP knowledge is not scary, but is necessary to elevate our profession and practice to a professional level. Critical thinking with knowledge and research facilitates organized thought toward change.*

into our care delivery model, and the Research Council identified the Iowa Model as the framework for evidence-based practice and research at the hospital.

OUTCOMES OF USING THE NEUMAN SYSTEMS MODEL

Our goal is to utilize the Neuman Systems Model to improve client care plans and facilitate discharge planning. Desired outcomes include a decrease in length of stay, a decrease in readmissions, and an increase in Press Ganey (2008) patient satisfaction scores.

We currently are in the development phase of monitoring the desired outcomes within the context of the Neuman Systems Model. At this time, we are tracking the results of three Press Ganey questions to monitor care improvement:

1. Amount of attention paid to a patient's special or personal needs
2. Extent to which a patient felt ready to be discharged
3. Degree to which hospital staff addressed a patient's emotional needs

Preliminary findings revealed no statistically significant differences in mean scores for the three questions since implementing the Neuman Systems Model into our nursing care. In addition, the readmission index is below expectations. In contrast, our Press Ganey scores for standard of nursing care have improved since we implemented the model. It is unclear, however, exactly how Neuman Systems Model–guided client care directly affects length of stay, readmission, and Press Ganey patient satisfaction scores, as many factors other than nursing care may affect those particular outcomes.

Following implementation of the Neuman Systems Model, an 11-question Likert scale survey, which took no more than 5 minutes to complete, was electronically distributed to all nursing staff. The survey was designed to determine the extent to which the nursing staff thought that the Neuman questions helped them with care planning and discharge planning, which in turn might improve employee satisfaction and increase patient satisfaction. A total of 221 nurses completed the survey. Findings revealed that the vast majority (96%) of respondents were aware that a nurse theorist's work was used at Allegiance Health, and almost three-quarters (73%) indicated that the Neuman questions are helpful. Almost all (99%) respondents indicated that they thought clients are informed about their health; more than four-fifths (86%) thought that clients' past health experiences affect their hospitalization, and almost all (98%) indicated they were able to gather enough information for patient care plans. Furthermore, the vast majority (97%) of respondents thought that client expectations related to their function or independence were realistic. More than three-fifths (64%) of respondents indicated that discharge planning has improved since implementing the Neuman Systems Model.

Currently, we are trying to decrease the amount of time required to complete the admission process by decreasing the overall number of questions asked of clients. We are also attempting to improve the discharge process.

Conclusion

As a wholistic wellness model, the Neuman Systems Model is consistent with our mission, which declares, "We lead our community to better health and well-being at every stage of life." Allegiance Health subscribes to a Nursing Professional Practice Model, which

includes use of a nursing conceptual model to guide nursing practice. We will continue to teach new nursing staff about the benefits of using a nursing conceptual model to guide practice during orientation. We will also continue to provide ongoing education to nursing staff to enhance knowledge of Neuman Systems Model implications for client care and to measure their knowledge of the model and their job satisfaction.

Any change is difficult and time-consuming to implement. It is a challenge to make changes in nursing practice especially when explicit nursing conceptual models and theories may not be familiar to all nurses. It is important that all leadership staff support any new changes to facilitate the entire process.

Future plans call for continued improvement in the admission and discharge processes, and to expand implementation of the Neuman questions (Box 19-1) from inpatient settings to outpatient settings, such as the Emergency Department, home health, hospice care, and IV therapy.

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CHAPTER 20

Utilizing the Neuman Systems Model to Maintain and Enhance the Health of a Nursing Service: Riverside Methodist Hospital

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The client in the Neuman Systems Model can be as varied as an individual person or an entire health care organization. This chapter presents a description of the adoption and use of the Neuman Systems Model within a large urban hospital for both purposes.

RIVERSIDE METHODIST HOSPITAL

As the flagship of OhioHealth, a multihospital system in the Midwest, Riverside Methodist Hospital (Riverside) is licensed for 1,059 beds. Riverside has a strong tradition of approaching the delivery of health care from a wholistic perspective, attested to by OhioHealth being recognized nationally by *Fortune* Magazine in 2007 and 2008 as one of the "100 Best Companies to Work For." Inasmuch as two-thirds of the magazine's score is based on a survey of randomly selected OhioHealth employees (our associates), it is clear that our associates not only understand and appreciate the opportunity to participate in our mission but also know how much they are valued. Riverside believes that this strong culture of valuing associates results in better care for our patients.

Riverside's long history of excellent patient care has also centered on a wholistic consideration of the nurse–patient relationship. Contemporary nursing practice at

Riverside advances because of the responsibility, autonomy, and expertise with which nurses approach their professional development. Documentation of the excellence of nursing practice at Riverside comes from Magnet Recognition, which the nursing service received from the American Nurses Credentialing Center in 2006. Prior to receiving Magnet designation, Riverside nurses worked for 4 years to articulate, implement, and formalize the aspects of excellent nursing practice required for the Magnet Recognition Program (American Nurses Credentialing Center, 2008).

USING THE NEUMAN SYSTEMS MODEL AT RIVERSIDE METHODIST HOSPITAL

Utilizing the Neuman Systems Model to guide administration of nursing services requires the implementation of primary, secondary, and tertiary interventions to promote system stability. The Riverside system associates recognized the potential value of the Magnet Recognition program not only as a designation about the current health of our nursing service but also as a process and vehicle to facilitate evolution to an exceptional nursing service. Desire for Magnet status became a beneficial stressor from an external source for the organization.

A Primary Prevention Intervention

Primary prevention intervention involved a gap analysis performed by an outside consultant. This "health assessment" was a complete examination of our policies, processes, and outcomes. We received a satisfactory report with a number of recommendations.

The first recommendation centered on direct patient care delivery. A formal conceptual model that could be used as a guide for nursing service delivery and nursing practice had not yet been identified. Although a few elements of a model were evident, we needed a conceptual model that was broad enough to address the entire scope of nursing practice over a variety of inpatient, outpatient, and community services and that would also be consistent with our mission and vision statements.

The second recommendation involved the health of our nursing service. We had an operational gap that was evident in nursing units that functioned in silos and in a rudimentary shared governance structure.

Secondary Prevention Interventions

Based on those two recommendations from our "health assessment," we decided to enhance our well-being through two secondary prevention interventions. First, to address the lack of a formal conceptual model to guide nursing practice, we implemented the Neuman System Model because the focus and content of that model best exemplifies the patient care provided at Riverside. This systems approach is concerned with the whole situation and all variables involved, and could be used to acknowledge the complexity of clients and their relationships within a large health care setting.

Second, we soon realized that beyond its focus on individual client care, the Neuman Systems Model applied more broadly to care of our nursing service as a client system. We adopted shared governance as the secondary prevention intervention to break down our "silo mentality" and increase staff nurse participation in decision making.

Implementation of the two secondary interventions met with a positive response—the Neuman Systems Model was universally accepted by Riverside nurses practicing in various health care settings. We had done a good job of identifying a conceptual model that "made sense" to our nursing staff. The same held true for shared governance. An external consultant, with expertise in shared governance, helped create a structure that generated excitement and "buy in" from the nursing staff. Open communication and intellectual stimulation were constants in the process of the development of the first shared governance council, the Staff Nurse Leadership Council (SNLC). The SNLC membership included council chairs from all nursing units at Riverside.

Tertiary Prevention Interventions

The result was a nursing service with a more optimal state of wellness that had the potential to activate strengthened lines of resistance. To sustain these gains, we implemented several tertiary prevention interventions. Nurses working on various units developed case studies based on their specific patient populations to ensure the Neuman Systems Model remained a vital part of client care. The shared governance council structure was expanded to include other nursing voices in addition to the staff nurse perspective, including the Nurse Educator Council, the Advanced Practice Council, and the Nurse Manager Council.

Systems thinking became integrated into our work in both nursing administration and practice. Within our hospital system, we provide a continuum of patient care in acute inpatient units, ambulatory clinics, home care, hospice, and diagnostic services. All utilize the Neuman Systems Model in guiding both clinical practice and the administration of these nursing services.

We utilize the Neuman Systems Model in all of our education efforts. For example, Nursing Grand Rounds highlight aspects of nursing practice throughout the organization. The Neuman Systems Model informs and is cited in these monthly presentations through case studies. Nurses are able to see direct and practical application of this conceptual model in multiple clinical settings.

Our management style also is influenced by the Neuman Systems Model. Leadership within a shared governance framework promotes effective horizontal and vertical communications. Shared governance centers on accountability, partnership, equity, and ownership and emphasizes the relatedness between people and systems (Crow, 2008). As such, each Shared Governance Council aligns itself with Riverside's Balanced Scorecard. The scorecard has four quadrants, each of which represents current assessment of one of our areas of wellness—quality of care, quality of work-life, customer service, and finance. Through the accountability required by the Balanced Scorecard, all aspects of the nursing service support the mission, vision, and goals of the organization.

Along with shared governance, we implemented management policies and practices that support systems thinking. Our policy review process requires periodic examination of external evidence and current internal best practices throughout the organization from each unit council. Moreover, every morning and afternoon, all units send a representative to a daily operations meeting to coordinate staffing, information flow, and new initiative implementation throughout nursing and other services. In addition, evaluations promote the principles of relatedness and integration by utilizing the 360 degree process described by Maxwell (2006) in *The 360 Degree Leader*. This management style emphasizes the importance of leading up, leading across, and leading down.

Reaction to a Noxious Stressor

All interventions we used to improve the health of the nursing service were tested with the arrival of a noxious stressor when the organization experienced the unanticipated loss of five specialty physicians within the same procedural area. Their exodus created an immediate financial crisis for the organization. This stressor, although internal to Heart Services and external to the most of the nursing service, required a response from the entire Riverside administrative team. As the whole system reacted to the introduction of this external noxious stressor, administrators determined that we would like to achieve an optimal state of wellness, to completely heal, and return to wholeness. We did not want to have a diminished state of wellness and live with lower bottom-line revenue. The Riverside executive team, including the chief nursing officer (CNO), prescribed a secondary prevention intervention. Inasmuch as our greatest expense was our payroll, productivity was the most efficient way to address the financial stressor. Accordingly, productivity was mandated to increase to 103 percent for all services. As the largest service, it was essential that the nursing service achieve the outcome of this prevention intervention.

Fortunately, the current state of health for our nursing service was excellent due to the success of the primary, secondary, and tertiary prevention interventions we had been using. Our lines of defense were healthy and flexible enough to adjust to the prescribed intervention of 103 percent productivity. Physiologically, our shared governance structure was firmly in place. Through the councils, our CNO carried the message of the importance of "tightening our belts" to meet the crisis. Informing and empowering the entire nursing service through these forums allowed nurses and nursing councils to be creative in this endeavor and to demonstrate strong evidence of our current psychological well-being. Lack of "silo thinking" prevented our nursing service from developing a we/they mentality with the heart specialty area; we were all together in this sociocultural "boat." Our developmental strength was documented by having evaluation procedures already in place, such as an online tool to monitor productivity in real time. Our basic value system held us in good stead, and we were able to maintain our spiritual core throughout this time.

Much to the gratification of all Riverside associates, the 103 percent productivity goal was achieved in a very short period of time and sustained throughout the year. Furthermore, the openness and transparency fostered additional creative solutions for reducing expenses. By the end of the fiscal year, the original budget goal was attained—financial health was restored.

The nursing service's response to this noxious stressor and its extremely positive commitment were the key factors in stabilizing the situation and returning the organization to an optimal state of wellness. This was clearly evident to the executive team and resulted in an enhanced reputation for the nursing service throughout the organization. There was also an increased sense of cohesiveness within nursing—sense of a job well done when asked to respond.

Conclusion

With a new state of health comes the need to be ready to respond to the next stressor. Riverside adopted 103 percent productivity as our goal as a tertiary prevention intervention to meet financial challenges of the future. However, not all secondary prevention

interventions designed to meet and reduce the harmful effects of a stressor can be continued indefinitely as they evolve to tertiary prevention interventions to preserve gains. Already there are some signs that it might not be possible to sustain the 103 percent productivity goal over time without other sequelae developing. Although we do not know exactly what will happen, we do know that all systems are dynamic and in a constant state of change. We are confident that our knowledge and implementation of the Neuman Systems Model as a guide for nursing practice and administration of nursing services will hold us in good stead.

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SECTION SEVEN

The Neuman Systems Model and Theory Development

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CHAPTER 21

Deriving Middle-Range Theories from the Neuman Systems Model

Eileen Gigliotti

Any conceptual model, including the Neuman Systems Model, is too abstract and general for direct empirical testing by means of research. Grand theories, which are somewhat more concrete and general than conceptual models, and middle-range theories, which are even more concrete and general than conceptual models, can be derived from or linked with conceptual models. Middle-range theories then can be tested by means of research.

The Neuman Systems Model, like all nursing conceptual models, provides a context and structure for research. Just as a frame provides structure for a house, dictating the types of walls, plumbing, and other parts to be used, as well as their placement and relation to each other, the Neuman Systems Model provides a structure for research, including guidelines for the study of its concepts and how the concepts are related to each other (see Chapter 10).

The purpose of this chapter is to describe the process of using the Neuman Systems Model as a context for deriving and testing middle-range theories. The chapter, which extends the content of Fawcett and Gigliotti's (2001) paper, presents the details of a five-step process that involves: (1) understanding the content of the Neuman Systems Model, (2) reviewing existing Neuman Systems Model–based research, (3) constructing a conceptual-theoretical-empirical structure (C-T-E), (4) clearly communicating the C-T-E structure, and (5) evaluating the empirical adequacy of the middle-range theory and the legitimacy of the Neuman Systems Model. The chapter includes an example of the five-step process used to develop and test the theory of maternal-student role stress (Gigliotti, 1997a, 1999, 2004, 2007).

A FIVE-STEP PROCESS TO DERIVE AND TEST MIDDLE-RANGE THEORIES

Step 1: Understand the Content of the Neuman Systems Model

The researcher who plans to use the Neuman Systems Model to guide research needs to understand the content of the model. The Neuman Systems Model concepts and the nonrelational propositions, which are the definitions of the concepts, provide a starting point for the derivation of theory concepts that are congruent with the model. The relational propositions of the Neuman Systems Model are statements of the relations between its concepts and statements of the effect of one concept on another; they provide a starting point for the derivation of theory propositions that are congruent with the model.

The concepts and relational propositions of the Neuman Systems Model are given in Boxes 21-1 and 21-2, respectively. The nonrelational propositions of the model, that is, the concept definitions, are provided in Appendix A.

The relational propositions are particularly important because if they are incorrectly specified, the hypotheses specified in the middle-range theory will be flawed (Gibbs, 1972). After the Neuman Systems Model relational propositions are identified, the gap between the conceptual model language and any test of the derived middle-range theory, which requires a mathematical language (Blalock, 1961), must be bridged. Gigliotti (1997b) provided one example of the conceptual and empirical considerations necessary when using the Neuman Systems Model as a guide for research. In that paper, she explained how the conceptual-empirical gap is bridged for the Neuman Systems Model lines of defense and resistance and the appropriate statistical procedures for quantitative studies. In addition, Gigliotti (2001a) presented the results of her integrative review of reports of 10 quantitative studies that included explicit relational statements. In that paper,

BOX 21-1
Concepts of the Neuman Systems Model

- Client system
  - Individual
  - Family
  - Community
  - Social issue
- Interacting variables
  - Physiological
  - Psychological
  - Sociocultural
  - Developmental
  - Spiritual
- Stressors
  - Intrapersonal
  - Interpersonal
  - Extrapersonal
- Basic structure or central core
- Flexible line of defense
- Normal line of defense
- Lines of resistance
- Internal environment
- External environment
- Created environment
- Optimal client system stability
- Variances from wellness
- Reconstitution
- Prevention as intervention
  - Primary prevention as intervention
  - Secondary prevention as intervention
  - Tertiary prevention as intervention

BOX 21-2

Relational Propositions of the Neuman Systems Model

- The client is a system capable of both input and output related to intrapersonal, interpersonal, and extrapersonal environmental influences, interacting with the environment by adjusting to it or, as a system, adjusting the environment to itself.
- Input, output, and feedback between the client and the environment is of a circular nature; client and environment have a reciprocal relationship, the outcome of which is corrective or regulative for the system.
- Many known, unknown, and universal environmental stressors exist. Each differs in its potential for disturbing a client's usual stability level, or normal line of defense. The particular interrelationships of client variables—physiological, psychological, sociocultural, developmental, and spiritual—at any point in time can affect the degree to which a client is protected by the flexible line of defense against possible reaction to a single stressor or a combination of stressors.
- When the cushioning, accordion-like effect of the flexible line of defense is no longer capable of protecting the client/client system against an environmental stressor, the stressor breaks through the normal line of defense. The interrelationships of variables—physiological, psychological, sociocultural, developmental, and spiritual—determine the nature and degree of the system reaction or possible reaction to the stressor.
- Lines of resistance in the client (internal and external resources) are activated to combat potential or actual stressor reactions.
- The client is an open system interacting in total interface with both internal and external environmental forces or stressors. Furthermore, the client is in constant change, with reciprocal environmental interaction, at all times moving either toward a dynamic state of stability or wellness or toward one of illness in varying degrees.
- The process of interaction and adjustment results in varying degrees of harmony, stability, or balance between the client and the environment. Ideally, there is optimal client system stability.
- The major concern for nursing is in keeping the client system stable through accuracy both in assessing the effects and possible effects of environmental stressors and in assisting client adjustments required for an optimal wellness level.
- In keeping the system stable, the nurse creates a linkage among the client, environment, health, and nursing.

she identified which Neuman Systems Model and middle-range theory concepts were linked in relational propositions, the congruency between Neuman Systems Model and middle-range theory relational propositions, the congruency between relational propositions at the conceptual, theoretical and empirical levels, and interpretation of the results within the context of the Neuman Systems Model.

Step 2: Review Existing Neuman Systems Model–Guided Research

As the researcher becomes increasingly familiar with the content of the Neuman Systems Model, it is useful to carefully review existing Neuman Systems Model–guided research and published reviews of that research. Several excellent integrative reviews of Neuman Systems Model–guided research are now available. Fawcett and Giangrande's (2001, 2002) reviews focused on identifying all Neuman Systems Model–based studies conducted through 1997. They classified each study according to type of research, Neuman Systems

Model phenomena studied, extent of Neuman Systems Model usage, findings, and scientific merit. They also drew conclusions about existence of Neuman Systems Model–based programs of research and offered directions for future research. Gigliotti and Fawcett (2002) identified research instruments used to operationalize Neuman Systems Model concepts. They reviewed 63 studies and identified instruments used, middle-range theory concepts measured, and the link between the instrument and the Neuman Systems Model. Skalski, DiGerolamo, and Gigliotti (2006) reviewed the Neuman Systems Model–based research literature addressing stressors and identified common stressor themes in five patient populations. Contemporary researchers may want to use these three integrative literature reviews as templates for reviews of more recent Neuman Systems Model–based research.

When conducting a Neuman Systems Model–based literature review, attention should focus on the level of relational statement testing. Building on Silva's (1986) three-level schema for categorizing use of a conceptual model as a guide for research (minimally integrated, used to organize the study, and explicitly tested), Gigliotti (2001a) identified four levels in her review of the Neuman Systems Model–based research (Box 21-3). She found that 14 of 92 Neuman Systems Model quantitative studies were classified as Level 1; 34, as Level 2; 34, as Level 3; and only 10, as Level 4.

Step 3: Construct a Conceptual-Theoretical-Empirical Structure

A C-T-E structure for research is similar to a blueprint because it illustrates concepts and their relations to each other in a diagram. A diagram of the C-T-E structure is vital to deriving and testing theories guided by a conceptual model because the process of moving from the conceptual model concepts to the empirical indicators that operationalize the middle-range theory concepts is complicated and can be confusing if not illustrated clearly. As the C-T-E structure diagram is created, the vertical linkages between the conceptual model concepts, any grand theory concepts, the middle-range theory concepts, and the empirical indicators must be clearly illustrated. If a diagram of the C-T-E structure is not created, it is easy to lose track of what the linkages are, which can result in flaws in logical reasoning. The C-T-E structure also provides an outline for the critical review of literature that provides the theoretical and empirical support for selection of theory concepts and propositions.

BOX 21-3

Levels of Use of the Neuman Systems Model as a Guide for Research

- ***Level 1:*** Research reports that include only a brief mention of the Neuman Systems Model or describe the model in detail but never make clear how the middle-range theory concepts are related to the Neuman Systems Model concepts.
- ***Level 2:*** Research reports that include use of the Neuman Systems Model as an organizing framework, such as needs assessment or stressor categorization.
- ***Level 3:*** Research reports that include rudimentary relational propositions. For example, a relation between a stressor and an outcome may be proposed but the outcome is not clearly derived from Neuman Systems Model concept.
- ***Level 4:*** Research reports that include explicit middle-range theory relational propositions that are clearly congruent with relational propositions of the Neuman Systems Model.

Step 4: Clearly Communicate the Conceptual-Theoretical-Empirical Structure

The legitimacy of the Neuman Systems Model can be tested only indirectly, due to its high level of abstraction. Therefore, the linkages between the Neuman Systems Model concepts and the relevant grand and middle-range theories must be explicit not only in a diagram (Step 3) but also in narrative form. The narrative form of the C-T-E structure begins by identifying the Neuman Systems Model as the conceptual model that provides the guide for the research. A brief overview of the relevant Neuman Systems Model concepts, nonrelational propositions, and relational propositions follows, along with statements that clearly link the model concepts and propositions with the theory concepts and propositions. If the research involves the Neuman Systems Model, a grand theory, and a middle-range theory, all relevant concepts and propositions must be identified at the three levels of abstraction. If the research involves only the Neuman Systems Model and a middle-range theory, the concepts and propositions must be identified at the two levels of abstraction. Once the middle-range concepts are identified, statements that link those concepts with relevant empirical indicators are added to the narrative.

Statements about data analysis techniques then can be included to explain how the middle-range theory relational propositions, which may be stated as hypotheses, are to be tested.

It is important to note that only the Neuman Systems Model concepts and propositions that are relevant to the study should be included in the C-T-E structure diagram and narrative. Sometimes, a research report includes a description of the entire conceptual model but it is never made clear which concepts were used for the study, which creates confusion for readers and prevents other researchers from replicating or building on the study.

The Neuman Systems Model concepts and propositions also can be used as the headings for various sections of the review of relevant theoretical and empirical literature that provides the rationale for the study. This strategy reinforces the linkage of the conceptual model with the other components of the study, that is, the theory and the empirical methods.

Step 5: Evaluate the Legitimacy of the Neuman Systems Model

The final step in using an explicit conceptual model to guide research is to evaluate both the empirical adequacy of the middle-range theory concepts and propositions—that is, the congruency of those concepts and propositions with the theory that was generated or tested—as well as the legitimacy of the conceptual model—that is, whether the study design and findings support the utility, soundness, and believability of the conceptual model (Fawcett & Garity, 2009).

The evaluation starts with examination of the extent to which the data that were collected are consistent with the concepts and propositions of the middle-range theory that was tested. The conclusion reached serves as the basis for statements about the empirical adequacy of the middle-range theory concepts and propositions, the adequacy of any grand theory concepts and propositions that were included in the C-T-E structure, and the legitimacy of the Neuman Systems Model. The statements typically are presented in the results, discussion, and conclusion sections of research reports. For example, a brief paragraph that includes the overall results and their implications for the legitimacy of the

Neuman Systems Model can be included at the beginning of the results section. The final paragraph of the results section should be a summary of the findings in terms of the middle-range theory concepts and propositions, as well as any grand theory concepts and propositions, and then their Neuman Systems Model counterparts.

The discussion and conclusion sections usually begin with an interpretation of the results in terms of the middle-range theory concepts and relational propositions. Once the meaning of the results for the empirical adequacy of the middle-range theory has been discussed, the meaning of the results for the adequacy of any grand theory concepts and propositions is discussed. Finally, the meaning of the results for the legitimacy of the Neuman Systems Model should be discussed. Throughout the discussion and conclusion sections, any conceptual, theoretical, or empirical flaws that were found should be noted, along with any statistical problems. Delineation of any flaws or problems will lay the groundwork for future research and may identify elements of the Neuman Systems Model that require refinement, which reinforces its dynamic nature.

USING THE FIVE-STEP PROCESS: MATERNAL-STUDENT ROLE STRESS THEORY

Study 1 (Gigliotti, 1997a, 1999)

The purpose of Gigliotti's first study of maternal-student role stress was to test an explanatory middle-range theory of conditions under which multiple role stress develops in women who are mothers and who are returning to college. The psychological and sociocultural flexible line of defense (FLD) variables were regarded as a buffer between the stressor (being a mother and a student) and normal line of defense (NLD) invasion (multiple role stress).

STEP 1: UNDERSTAND THE CONTENT OF THE NEUMAN SYSTEMS MODEL The Neuman Systems Model was initially chosen as a framework because the study included Kahn, Wolfe, Quinn, and Snoek's (1964) systems-based grand theory of role stress. Kahn et al. proposed that environmental role stressors may result in experienced role stress if not mitigated by personality characteristics and interpersonal relations. Role stress may then lead to role strain, again if not mitigated by interpersonal relations and personal characteristics. Kahn et al.'s work is congruent with two Neuman Systems Model propositions which assert that (1) stressors exist in the environment and may result in a stress response, or NLD invasion, if not buffered by the FLD; and (2) the initial stress response may result in a central core response if not mediated by the lines of resistance. Due to its complexity, it was not possible to test the entire Neuman Systems Model (Gigliotti, 1997b). Instead, it was decided to concentrate on the relations between stressors, the FLD, and the NLD.

While developing an understanding of the Neuman Systems Model content and of Kahn et al.'s (1964) grand theory, simultaneous work was under way to locate and understand congruent middle-range theory concepts. Although the process of translating stressors and NLD invasion to middle-range theory concepts was straightforward, defining the FLD proved more difficult, because this concept needed to be represented by rapidly changing client system variables that buffer the response to stressors.

Moreover, it was decided to use only two FLD variables because the relational propositions dictated the use of hierarchical multiple regression with interaction terms

(Gigliotti, 1997b); use of all five FLD variables (physiological, psychological, sociocultural, developmental, and spiritual) would result in severe multicollinearity. It was decided to use the sociocultural and psychological client system variables in the FLD, along with their interaction, because they were most congruent with Kahn et al.'s (1964) conceptualization of personality characteristics and interpersonal relations. However, it could be argued that other Neuman Systems Model concepts also could be personality characteristics, which highlights the need for careful attention not only to the Neuman Systems Model concepts but also to all other concepts included in a study. Clearly, the process of linking the Neuman Systems Model to grand theory and middle-range theory is an iterative, back-and-forth process.

STEP 2: REVIEW EXISTING NEUMAN SYSTEMS MODEL–GUIDED RESEARCH A review of then available Neuman Systems Model–guided research did not uncover any Level 2 studies (see Box 21-3) concerning the needs or stressors of women experiencing role stress. However, two studies (Ziemer, 1983; Herald, 1993) that included similar Neuman Systems Model concept relations were found—the relations among stressors, the FLD, and the NLD. Those studies were noteworthy especially because they had explicit relational statements (Gigliotti, 2001a).

Interestingly, both Ziemer (1983) and Herald (1993) had operationalized stressors as sample limitations. Another commonality was that both researchers conceptualized the FLD and the NLD as one variable. Careful reading of the theoretical rationale for each study revealed that their conceptualization of the FLD and NLD is congruent with Neuman Systems Model relational propositions. In particular, "both (researchers) envisioned that the FLD and NLD had the capacity to be strengthened, thereby having greater joint ability to ward off stressors" (Gigliotti, 2001a, p.151).

Those earlier studies were invaluable as the C-T-E structure for the study began to be constructed. The final decision for the study was that the FLD and NLD should be separate variables and that the five client system variables (physiological, psychological, sociocultural, developmental, and spiritual) in the FLD also should be separate. The earlier studies also provided the solution to the problem of operationalizing myriad environmental role stressors in the lives of women who are mothers returning to college. These included college major, previous degree status, ages of children, and marital and immigration status. Following the lead of Ziemer (1983) and Herald (1993), these role stressors were controlled for in the inclusion and exclusion criteria for the sample.

STEP 3: CONSTRUCT A CONCEPTUAL-THEORETICAL-EMPIRICAL STRUCTURE The role stress experienced by adult women who are mothers pursing their first college degree is a complex problem and is of interest to many disciplines, including sociology, psychology, women's studies, higher education counseling, and nursing. Simultaneous review of this literature was facilitated and organized by the Neuman Systems Model concepts and propositions. In particular, although Kahn et al.'s (1964) grand theory proposes that conflicting and ambiguous role expectations can result in role stress if not mitigated by personality characteristics and interpersonal relations, middle-range theory concepts were needed to bring those relatively abstract concepts to a more concrete level that permits operationalization. Accordingly, middle-range theory concepts that could "stand in" for role expectations, personality characteristics, interpersonal relations, and role stress were considered in light of the Neuman Systems Model concepts of stressors, the FLD, and the

Neuman systems model concepts	→	Interpersonal and extrapersonal environmental stressors	Psychological variable in the flexible line of defense	Sociocultural variable in the flexible line of defense	Normal line of defense invasion
		↓	↓	↓	↓
Kahn et al.'s grand theory concepts	→	Objective role conditions	Personality characteristics	Interpersonal relationships	Subjective role stress
		↓	↓	↓	↓
Middle-range theory concepts	→	Occupying the maternal and student roles	Psychological involvement in maternal and student roles	Perceived social support	Perceived multiple role stress
		↓	↓	↓	↓
Empirical indicators	→	Sample inclusion and exclusion criteria	Maternal role involvement questionnaire student role involvement questionnaire	Norbeck social support questionnaire	Perceived multiple role stress scale

FIGURE 21-1 Conceptual-theoretical-empirical structure for the study of multiple role stress in mothers attending college (Gigliotti, 1997a, 1999). Reprinted with Sage Publishing permission.

NLD, as well as the relational propositions linking those concepts. The vertical linkages from the Neuman Systems Model concepts to the Kahn et al.'s grand theory concepts to the middle-range theory concepts are illustrated in Figure 21-1 (C-T-E structure).

Continuing review of the literature revealed that maternal role behaviors involve nurturance and training of a child (Bergum, 1989), whereas student role behaviors involve nurturance and training of oneself (Mezirow, 1978). Those role behaviors can result in role conflict when enacted simultaneously. The student role also involves looking at role assumptions in a new way (Mezirow, 1981), which creates ambiguity. Viewing women who are both mothers and students as enacting two roles with conflicting and ambiguous expectancies is congruent with the Neuman Systems Model concept of environmental stressors and with Kahn et al.'s (1964) concept of conflicting and ambiguous role expectations.

However, within the context of the Neuman Systems Model, stressor strength also must be considered, which required accounting for differences in the ages of the women's children, the women's marital and immigration status, and their college major. Following the lead of Ziemer (1983) and Herald (1993) in their handling of stressors, stressor strength was controlled for through sample inclusion and exclusion criteria. Accordingly, the sample was limited to women who had at least one child younger than 19 years of age presently living at home, all were married, and all were majoring in nursing (see Figure 21-1). This strategy was particularly helpful because the intent was to test the Neuman Systems Model relational proposition asserting that when the FLD is no longer capable of protecting the client system against an environmental stressor, the stressor breaks through the NLD, and the interrelationships of the physiological, psychological, sociocultural, developmental, and spiritual variables in the FLD determine the nature and degree of client system reaction to the stressor.

Additional literature review revealed that psychological involvement in a role made one more susceptible to problems in that role (Kanungo, 1982). This idea was appealing because it is congruent with Kahn et al.'s (1964) grand theory concept of personality characteristics and provided a way to conceptualize the psychological variable in the FLD as role involvement, while indirectly accounting for environmental stressors (role problems). Because the women were enacting two roles (mother and student), role involvement was ultimately operationalized using the Maternal and Student Role Involvement Questionnaires (see Figure 21-1).

Furthermore, Epstein (1987) claimed that the woman's ultimate interpretation of her multiple role experience as either exhilarating or debilitating is dependent on her social support. That idea is congruent with Kahn et al.'s (1964) concept of interpersonal relations and with the Neuman Systems Model sociocultural variable in the FLD. Social support was operationalized by using the Norbeck Social Support Questionnaire (Norbeck, Lindsey, & Carrieri, 1981, 1983; see Figure 21-1).

After much deliberation, Kahn et al.'s (1964) concept of role stress was conceptualized for this study as perceived multiple role stress, or the feeling that meeting the demands of either role interferes with meeting the demands of the other role and that it is not clear exactly how the demands of both the maternal and student roles should be met. The Kahn et al.'s concept of role stress and the middle-range theory concept of perceived multiple role stress, which was measured by the Perceived Multiple Role Stress Scale (Gigliotti, 2001b), are congruent with the Neuman Systems Model conceptualization of NLD invasion (see Figure 21-1).

STEP 4: CLEARLY COMMUNICATE THE CONCEPTUAL-THEORETICAL-EMPIRICAL STRUCTURE

The C-T-E structure for the study was communicated in a nine-paragraph conceptual framework section of the research report (see Gigliotti, 1999, pp. 36–38). The first two paragraphs describe the relevant Neuman Systems Model concepts and relational propositions and set the stage for a description of Kahn et al.'s (1964) grand theory concepts. That is, though there are many Neuman model relational propositions, only those used in the study (stressors, FLD, NLD) were described and their relations made clear: Environmental stressors can invade the NLD if not protected by the FLD, which acts as a buffer.

The contents of paragraphs four and five provided the connections between the Neuman model concepts and Kahn et al.'s (1964) concepts—stressors and role expectancies; psychological FLD variable and personality characteristics; sociocultural FLD variable and interpersonal relations; and NLD invasion and role stress. The linkages were summarized in the fifth paragraph and the diagram of the C-T-E structure (Figure 21-1). In brief, invasion of the NLD (role stress) occurs when stressors (objective conditions of stress) are not adequately buffered by the FLD's sociocultural (interpersonal relations) and psychological (personality characteristics) variables.

Each Neuman Systems Model concept was linked to the relevant Kahn et al.'s (1964) concept and then to the relevant middle-range theory concept and empirical indicator in paragraphs six through eight. Briefly, invasion of the NLD/role stress became perceived multiple role stress; stressors/objective conditions of stress became being a mother and a student; and the FLD's sociocultural variable/interpersonal relations became social support, while the psychological variable/personality characteristics became role involvement. The operational definitions of each middle-range theory concept also were given.

The first sentence of the final paragraph summarized the relations. The literature review section of the research report was structured according to Neuman Systems Model concepts that guided the study—environmental stressor strength, NLD invasion, and psychological and sociocultural FLD variables.

STEP 5: EVALUATE THE LEGITIMACY OF THE NEUMAN SYSTEMS MODEL The legitimacy of the Neuman Systems Model was addressed in the first part of the results section of the research report:

> There were no statistically significant main or interaction effects for maternal and student role involvement and perceived social support on perceived multiple role stress. Thus it can be said that the psychological variable in the flexible line of defense didn't exert positive pressure to increase likelihood of normal line of defense invasion. It can also be said that the sociocultural variable in the flexible line of defense didn't exert counter pressure to decrease likelihood of normal line of defense invasion. Nor did these two variables in the flexible line of defense interact to ward off the environmental stressor and prevent invasion of the normal line of defense. (Gigliotti, 1999, p. 41)

The final paragraph of the results section was a summary of the results in terms of both the middle-range theory concepts and the Neuman Systems Model. The contents of that paragraph included a statement that the study results revealed that the proposed relations between the FLD psychological and sociocultural variables and NLD invasion were not supported by the data and a Neuman Systems Model–guided preliminary explanation of those surprising results. Specifically, although it was proposed that the psychological and sociocultural FLD variables would interact to ward off stressor invasion of the NLD, the relation held for women 37 years of age and older but not for younger women. The initial explanation for why an interaction between the two FLD variables was not found focused on the thought that the women's age should have been included in the study as the FLD developmental variable.

That line of reasoning was then expanded in the conclusion section of the research report, with considerable discussion of the relevancy of the developmental variable. Implications for further development of the Neuman Systems Model through empirical testing also were described in the conclusion section by acknowledging that the relations posed by the Neuman Systems Model are highly complex and require a great deal of specificity at the theoretical and empirical levels and that attention needs to be paid to all relevant FLD variables. Suggestions for ways of statistically testing these complex relations also were offered.

Study 2 (Gigliotti, 2004)

The purpose of Gigliotti's second study of maternal-student role stress was to test a refinement of the original explanatory middle-range theory that was tested in study 1 (Gigliotti, 1999). Specifically, the age-related differences found in study 1 were tested in a new sample from the same population. It was hypothesized that maternal role involvement and social support would explain maternal-student role stress development for women aged 37 years and older but not for women younger than 37 years.

STEPS 1 AND 2: UNDERSTAND THE CONTENT OF THE NEUMAN SYSTEMS MODEL AND REVIEW EXISTING NEUMAN SYSTEMS MODEL–GUIDED RESEARCH Much deliberation followed the publication of study 1. The findings of that study led to a deeper understanding of the complexity of the Neuman Systems Model. Although the study 1 conclusion had been that the women's age was reflective of the FLD developmental variable, this interpretation was later rejected because it was not congruent with the Neuman Systems Model proposition that FLD variables change rapidly, whereas the developmental changes that surround midlife transition occur over time and are more accurately conceptualized as a process.

A review of women's developmental literature led to the work of Meleis, Sawyer, Im, Messias, and Schumacher (2000) concerning transitions. They proposed that developmental transition is one of several types of transitions and that the patterns of transitions can influence one's experience. They also proposed that it is likely simultaneous transitions affect each other, which is congruent with the Neuman Systems Model idea of simultaneous intrapersonal, interpersonal, and extrapersonal stressors. Moreover, Meleis et al. noted that transition conditions such as personal perceptions facilitate or inhibit transitions, which is congruent with the Neuman Systems Model FLD and NLD variables. Thus, the transition framework was deemed a good conceptual fit with the Neuman Systems Model. Furthermore, Meleis et al.'s conceptualization of types and patterns of transitions and transition conditions fit well with the middle-range theory concepts of role conditions, role involvement, and social support.

STEP 3: CONSTRUCT A CONCEPTUAL-THEORETICAL-EMPIRICAL STRUCTURE Meleis et al.'s (2000) work on transition patterns and properties facilitated further development of the Neuman Systems Model concept of stressors. In particular, according to Meleis et al., transitions occur over time, stem from change, foster further change, and lead to shifts in role relations. They also proposed that engagement, awareness, time span, change/difference, and critical points/events are essential properties of transitions, which facilitated a richer conceptualization of environmental stressor strength surrounding a woman's decision to return to college.

Although it had initially been proposed in study 1 that being a mother and a student was an environmental stressor because the two roles held conflicting and ambiguous expectancies, the decision to return to college as well as adjustment to being a mother and a student occurs over time, stems from change (becoming a midlife woman), leads to further change, which has been called perspective transformation (Mezirow, 1978, 1981). Accordingly, midlife was conceptualized in study 2 as a developmental transition that leads to the situational transition of becoming a college student. Other transitions, such as immigration and divorce or separation were controlled for through sample inclusion and exclusion criteria as was done in study 1. Furthermore, because engagement and awareness of the transition are critical elements, it was reasoned that college major would affect engagement in the transition and former college experience would affect awareness of the perspective transformation that college offers. Thus, the sample was again limited to nursing majors who were attending college for their first postsecondary school degree.

The other elements of the C-T-E structure for study 1 were retained but enhanced by Meleis et al.'s (2000) work—transition conditions were represented by personality characteristics (role involvement) and interpersonal relations (social support), and perceived well-being was represented by role stress. In addition, the concept of maternal/student

Neuman systems model concepts	→	Concurrent environmental stressors	Flexible line of defense psychological variable	Flexible line of defense sociocultural variable	Normal line of defense invasion
		↓	↓	↓	↓
Meleis' transition framework concepts	→	Patterns and properties of situational & developmental transitions	Transition conditions (personal meanings)	Transition conditions (community influences)	Pattern of response
		↓	↓	↓	↓
Middle-range theory concepts	→	Being a mother and undergraduate student during midlife transition	Psychological involvement in the student role	Children's social support	Maternal-student role stress
		↓	↓	↓	↓
Empirical indicators	→	Sample delimitations	Student role involvement questionnaire	Norbeck social support questionnaire	Perceived multiple role stress scale

FIGURE 21-2 Conceptual-theoretical-empirical structure for the study of etiology of maternal-student role stress (Gigliotti, 2004). Reprinted with Sage Publishing permission.

role stress replaced the more generic concept of role stress. The diagram of the C-T-E structure for study 2 is presented in Figure 21-2.

STEP 4: CLEARLY COMMUNICATE THE CONCEPTUAL-THEORETICAL-EMPIRICAL STRUCTURE As was written in the report of study 1 (Gigliotti, 1999), the first paragraph of the theoretical rationale section briefly introduced the Neuman Systems Model and the proposed relational propositions of interest. The next paragraph introduced Meleis et al.'s (2000) transition framework and explicated the congruence between the Neuman Systems Model concepts and relevant transition framework concepts. The next three paragraphs focused on presentation of relational propositions that were refined on the basis of the study 1 findings by placing developmental transition at the forefront of the environmental stressors, and linking that concept to Kahn et al.'s (1964) role conditions concept and to the middle-range theory concept of being a mother and a student during midlife transition. Two more paragraphs focused on transition conditions. The last paragraph was a summary of the proposed relational propositions and referred the reader to the diagram of the C-T-E structure for the study (see Gigliotti, 2004, pp. 156–157 for the complete narrative conceptual framework).

The literature review section of the report was structured according to the Neuman Systems Model concepts augmented by the transition framework concepts. More specifically, the content about environmental stressors was divided into two subsections—developmental/situational transition and patterns/properties of transitions—to communicate linkages between the Neuman Systems Model and Meleis et al.'s (2000) transitions frameworks and underscore development of the propositions of the theory of maternal-student role stress.

STEP 5: EVALUATE THE LEGITIMACY OF THE NEUMAN SYSTEMS MODEL The results of study 2 led to further refinement in the relevant placement of the Neuman Systems Model concepts in the theory of maternal-student role stress. In particular, in both studies 1 and

2, the FLD psychological variable was conceptualized as both maternal and student role involvement. However, the study 2 results revealed that only student role involvement interacted with social support, which represented the FLD sociocultural variable. Therefore, the results were first presented in terms of middle-range theory concepts and then an ancillary analysis was reported for this newly found relation, preceded by a discussion about how the Neuman Systems Model propositions were further refined, in light of the study 2 results (see the Ancillary Analysis section in Gigliotti, 2004, pp. 162–163).

The content of the discussion and conclusion sections focused on statistical implications of testing the Neuman Systems Model moderating FLD variables, followed by an evaluation of the Neuman Systems Model, Meleis et al.'s (2000) transitions framework, Kahn et al.'s (1964) role theory, and the theory of maternal-student role stress. It was concluded that maternal role involvement was not rapidly changeable and, therefore, not an appropriate representative for the FLD variable. It was recommended that role involvement be considered as part of midlife developmental transition in future research (see Discussion and Conclusions sections in Gigliotti, 2004, p.163).

Study 3 (Gigliotti, 2007)

One aim of study 3 (Gigliotti, 2007) was to improve the external validity of the theory of maternal role stress by generalizing results from women who were mothers and who were married nursing majors born in the United States (studies 1 and 2) to women who were mothers, and who were of all marital and immigration statuses and diverse college majors. Another aim of study 3 was to improve internal validity by improving measurement of the middle-range theory concept of social support.

STEPS 1 AND 2: UNDERSTAND THE CONTENT OF THE NEUMAN SYSTEMS MODEL AND REVIEW EXISTING NEUMAN SYSTEMS MODEL–GUIDED RESEARCH Given the extensive statistical experience of working with the data from studies 1 and 2, the advisability of testing interaction effects of Neuman Systems Model FLD variables was questioned as study 3 was being planned. More specifically, during the conceptualization of the FLD for study 1, the impossibility of operationalizing and statistically testing all five FLD variables (physiological, psychological, sociocultural, developmental, and spiritual) led to testing only the psychological and sociocultural FLD variables. However, the findings for studies 1 and 2 revealed that when strong main effects are present, very little variance is left to be explained by an interaction term. Specifically, although FLD variables are thought to interact, if each FLD variable also contributes strongly to the regression equation, there is little to be explained by the interaction of the variables. Accordingly, it was decided to consider the Neuman Systems Model FLD variables as working together but not interacting and to use a simultaneous multiple regression statistical technique.

STEPS 3 AND 4: CONSTRUCT A CONCEPTUAL-THEORETICAL-EMPIRICAL STRUCTURE AND CLEARLY COMMUNICATE THE CONCEPTUAL-THEORETICAL-EMPIRICAL STRUCTURE Because the purposes of study 3 were to improve the external and internal validity of the theory of maternal-student role stress, the literature review emphasized the middle-range theory concept of social support. Inasmuch as it was expected that a more inclusive sample might lead to decreased variance explained by the FLD variables, social support measurement, which represented the FLD sociocultural variable, needed to be improved. Specifically, a more heterogeneous sample might improve external validity but decrease

internal validity through introduction of extraneous variables, such as marital and immigration status. Such an increase in external validity and decrease in internal validity might result in a decrease in the amount of explained variance. Therefore, efforts to improve internal validity were directed to measurement of situation-specific social support.

The narrative explanation of the C-T-E structure for study 3 included identification of the relevant Neuman Systems Model concepts, as well as the linkages between those concepts, Meleis et al.'s (2000) transition framework concepts, Kahn et al.'s (1964) role theory concepts, and the middle-range theory concepts of role involvement and social support. The C-T-E structure narrative also included a rationale for using situation-specific and source-specific social support. The diagram of the C-T-E structure was essentially the same as the diagram displayed in Figure 21-2. The concepts of the Neuman Systems Model and Meleis et al.'s transition framework provided the outline for the literature review section.

STEP 5: EVALUATE THE LEGITIMACY OF THE NEUMAN SYSTEMS MODEL The Neuman Systems Model was explicitly evaluated in a separate section of the research report (see Gigliotti, 2007, p. 168 for discussion of the Neuman Systems Model) by noting the need to consider the FLD variables as working together rather than interacting. The findings had revealed that the sociocultural variable, represented by children's social support, explained so much variance as a main effect that interaction effects would not be statistically significant without a very large sample. The feasibility of increasing sample size was discussed, and it was recommended that each middle-range theory concept and its likely contributions be considered when testing theories derived from the Neuman Systems Model.

Conclusion

The Neuman Systems Model is an abstract conceptual model that cannot be tested directly. Rather, the content of Neuman Systems Model requires linkage with successively more concrete concepts—such as concepts of grand theories and then concepts of middle-range theories—which are then operationalized by empirical indicators. Inasmuch as misspecification at any level can result in erroneous conclusions, it is important that the logical process that was used to forge the linkages be transparent. Transparency is accomplished through adhering to the five steps discussed in this chapter.

The content of this chapter has demonstrated that middle-range theory development, like house building, is a dialectical process requiring constant consideration and adjustment. All Neuman Systems Model researchers share a responsibility to communicate their work clearly and concisely. It is recommended that researchers who want to use the Neuman Systems Model to guide their studies develop and clearly explicate the C-T-E structure in narrative and diagrammatic forms for each study in their research proposals and in reports of completed research. Such clear communication of the influence of the Neuman Systems Model on the derivation of the middle-range theory and the way in which the theory is tested is crucial to the continued advancement of the model.

The names of several middle-range theories that have been derived from the Neuman Systems Model are given in Table 21-1.

TABLE 21-1 Middle-Range Theories Derived from the Neuman Systems Model

Middle-Range Theory	Citation
Theory of Adolescent Vulnerability to Risk Behaviors	Cazzell, 2008
Theory of Dialysis Decision Making	Breckenridge, 1997, 2002
Theory of Infant Exposure to Environmental Tobacco Smoke	Stepans & Knight, 2002
Theory of Maternal Role Stress	Gigliotti, 1997a, 1999, 2004, 2007
Theory of Optimal Client System Stability	See Chapter 1 of this book
Theory of Optimal Student System Stability	Lamb, 1999
Theory of Prevention as Intervention	See Chapter 1 of this book
Theory of Reactions to Mechanical Ventilation	Lowry & Anderson, 1993
Theory of Well-Being	Casalenuovo, 2002

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CHAPTER 22

Integrative Theorizing: Linking Middle-Range Nursing Theories with the Neuman Systems Model

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Like so many new ideas, the seeds for this chapter were planted at a nursing conference. The conference focused on the Neuman Systems Model and, after many presentations, discussions were lively and forward thinking. Though most of the conference presentations focused on applications of the Neuman Systems Model in different cultures and settings, a few presentations offered compelling reasons for adding the explanatory power of middle-range theories, which were thought to complement the Neuman Systems Model. Discovering links and insights between appropriate middle-range theories and the Neuman Systems Model intrigued some of us as the benefits of doing so became apparent.

The purpose of this chapter is to present a strategy, called integrative theorizing, that can be used to link a nursing conceptual model with an existing nursing middle-range theory. More specifically, the chapter presents a discussion of criteria for and benefits of juxtaposing two levels of conceptualizations—a conceptual model of nursing and a middle-range nursing theory. The example used is the juxtaposition of the Neuman Systems Model (a conceptual model) with Kolcaba's comfort theory (a middle-range theory). This example represents a departure from what has been done before with shared and borrowed theories (Villarruel, Bishop, Simpson, Jemmott, & Fawcett, 2001), because both the Neuman Systems Model and comfort theory originated within nursing and both retain their unique and original identities. The general benefit for this juxtaposition is that additional insights are created, contributing to a more comprehensive vision of nursing that was not apparent in either the Neuman Systems Model or comfort theory alone.

INTEGRATIVE THEORIZING

Meleis (2007), who proposed that an integrative view of truth represents a natural evolution for nursing knowledge because it denotes a holistic way of thinking and being a nurse, provided the idea for a label for the linkage of a nursing conceptual model with an existing middle-range nursing theory. An integrative view of truth takes into account more than one perspective, justification, pattern, or explanation when examining nursing problems and their solutions. An integrative view is based on perceptions of both patients and nurses and better enables researchers and practitioners to identify, define, address, and measure discipline-driven quality care outcomes. The term *integrative theorizing* is used in this chapter to describe the process of deriving insights from the Neuman Systems Model that provide additional explanatory capabilities for comfort theory, whereas comfort theory adds definition and measurement capabilities to the Neuman Systems Model. The example given in this chapter can be used as a prototype for future integrative theorizing using other pairs of conceptual models and theories.

Levels of Nursing Knowledge

Before discussing criteria and advantages for this type of integration, distinctions between levels of conceptualization (conceptual models and theories) need to be explained to clarify exactly what is being integrated and to clarify levels for possible future integration. Nursing knowledge is theoretical in a number of ways. The whole of nursing knowledge as expressed by language is theoretical in involving one or more conceptual claims (Higgins & Moore, 2000). Fawcett, Watson, Neuman, Walker, and Fitzpatrick (2001) follow Merton (1968) in describing a theory as a group of logically interconnected propositions. This broad definition of theory makes the term *theory* ubiquitous. Nurses cannot escape theory because practice and research require reading, discussion, and thinking about nursing phenomena using concepts and interrelated propositions. Nursing as a historical and scientific discipline, however, requires using theory in other senses: for interpretation, for suggesting hypotheses, for explanation, and for providing ethical systems. Some kinds of nursing conceptualizations need to be distinguished from other kinds in order to understand the boundaries of models and theories important in nursing activity and research.

For example, in all sciences there is concern for explaining and predicting phenomena. Both are conceptual enterprises and involve systematic thought, but on occasion we need to understand which views are explanatory and which are predictive, as well as the defining features of each. Nurse theorists, doing theory as conceptual inquiry, have developed nursing conceptualizations into a number of levels. Fawcett (2005) characterizes a conceptual model as comprising very abstract and general concepts and the propositions that relate those concepts together in a meaningful way. The Neuman Systems Model is a prime example of a conceptual model based on systems theory; Fawcett identified additional types of conceptual models as interaction models, needs-based models, and outcomes-based models. All of those types of conceptual models provide the broadest view of what occurs in a discipline. For this reason, they are useful in reporting observations, interpreting observations, and thinking about observations.

Conceptual models demonstrate the techniques of conceptual inquiry. These techniques include analysis, synthesis, and various kinds of inference. The conceptual relations in a model are useful for interpreting phenomena that can result in insightful

descriptions and the development of new knowledge. Fawcett (2005) also states that a conceptual model may be testable but is not sufficient by itself to thoroughly explain phenomena. The model stands by itself independent of its application in descriptions of phenomena or states of affairs. As a further point, conceptual models may provide the broad rationales for policies and procedures used in making decisions (Fawcett, 2005).

At a different level of nursing conceptualization, middle-range theories come between the very specific hypotheses tested through empirical research and conceptual models (Merton, 1968). They engage empirical claims, of which some are testable. They are designed to play a heavy predictive role. Because middle-range explanations reveal reasons, causes, or purposes for phenomena, the same reasons, causes, and purposes can be used to predict phenomena. Middle-range theories are employed in designing nursing research and informing practice. Meleis states, "The majority of middle-range theories describes and provides frameworks to deal with the clients' experiences with symptoms, and provides the means to understand responses to health and illness situations" (2007, p. 231). The scope of a middle-range theory, therefore, is more focused than that of a conceptual model. A conceptual model, however, can unify a number of middle-range theories in order to link with studies and applications in practice (Merton, 1968).

These distinctions are complicated by the fact that each discipline has its own conceptualizations at these different basic levels. For many years, nurse researchers have been utilizing linkages between levels of conceptualizations and between disciplines in different ways. It is not within the scope of this chapter to review all of these methods that nurses have used. Rather, we present an example for integrating a conceptual model and a middle-range theory, and in this case, both are from nursing. Given the purposes of this book, the example on which we build is the integration of Neuman Systems Model and comfort theory. In our method, neither the conceptual model nor the middle-range theory is altered, nor is either dependent on the other. The goal for integration is to generate more complete and fruitful insights for and about definition and measurement, and to derive more comprehensive methods for nursing research. This example points the way for how the Neuman Systems Model specifically, and conceptual models generally, can be translated from abstract descriptions of nursing activity into explanatory, predictive, and decisional contexts. Our method can also be applied between any grand theory and any middle-range theory, as long as the pairing meets relevant compatibility criteria set forth later in this chapter. Additionally, at least one of the pairings should be from nursing to ensure the goal of coming from a nursing perspective. This caveat is important so that any research is firmly rooted in the nursing perspective, and can be identified as a nursing study rather than simply a study done by nurses.

Criteria and Strategies for Integrative Theorizing

The success of integrative theorizing is relative to the compatibility of conceptual models and middle-range theories. So first, we present a list of questions to ask about issues of compatibility. Second, we discuss strategies for integrative theorizing that can build knowledge about relations among conceptual models and middle-range theories. Third, we address applications, looking at how integrative theorizing can provide insights in addition to those already gleaned from either the conceptual model or middle-range theory alone.

CRITERIA FOR COMPATIBILITY The empirically tested roots of a middle-range theory are the touchstone for rationalizing conceptual models. In nursing, we expect that middle-range theories should be compatible with a number of conceptual models. On the other hand, the productivity of integrative theorizing is its primary rationale for research and practice. Some models and theories may not be sufficiently compatible with a middle-range theory to allow for productive integrative theorizing. Several heuristic criteria can be applied to determine compatibility. The eight factors that should be considered are:

1. *Shared assumptions.* These assumptions pertain especially to the metaparadigm concepts: health, human beings, environment, and nurse. (If one of the pairings is borrowed from an outside discipline, the concept of nurse is excluded.) The kinds of questions to raise about shared assumptions are as follows: Do both views describe *human beings* as holistic beings or as possessing particularistic systems? Do both views describe recipients of care as a community, a group, a family, or an individual? Do both views hold that the *environment* blends with the recipient(s) of care, as with energy fields, or that there are natural boundaries between the environment and the recipient(s)? Is *health* defined by both views as a continuum that encompasses chronic illness, death, and deficits or as a state of well-being defined by a person and his/her family, an employer, a medical system, or politics?

2. *Cultural applicability.* Are both conceptualizations appropriate for the mix of cultures inherent in health care research today? In which culture(s) has the conceptual model and middle-range theory been applied and found to be generalizable? This is a particular burden for transcultural research because most nursing theories, as systems of concepts, presently originate in English language and by Western nurses. Integrating the Neuman Systems Model with a middle-range theory from a non-Western culture would help bridge that gap. (Although comfort theory originated in the United States, the concept of comfort has direct transcultural translations and understanding.)

3. *Disciplinary boundaries.* Are both parts of the pairing limited to the discipline of nursing, or does one come from another discipline? Perhaps one of the pairings has language that is appropriate across disciplines, bridging disciplinary barriers inherent in nonstandard specialized language.

4. *Nursing education.* Is the pairing suitable or parallel for enlightening or completing the nursing process which remains a standard in nursing education? And will the pairing render one or both systems more translatable to electronic databases found in clinical settings where students learn how to document their observations, interventions, and results?

5. *Focus of care.* Are both parts of the pairing suitable for the targeted care setting such as illness or trauma care, preventive care, long-term care, or home care? Are both views suitable for targeted populations such as pediatrics, gerontology, women's or men's health care, psychiatric care, and other subpopulations such as cognitively impaired, out-of control, unconscious, or dying patients?

6. *Process or product distinction.* Do both parts of the pairing describe the process of patient care or the desired outcomes (product) of quality health care? Or, does the process-oriented part inform the outcome-oriented part, whereby one describes actions and behaviors of health care providers as interventions while the other describes desirable, measurable, and logical outcomes related to those actions?

7. *Shared values.* Are techniques for establishing therapeutic relationships between health care providers and patients important in each part of the pairing? Does the pairing further inform providers about ways to perceive patients, interpret their needs, and provide a therapeutic presence? Does one part of the pairing describe ways of *being* a nurse?

8. *Scientific orientation.* Are the research methods inherent in each part similar or commensurable? Are those methods suitable for the specific research problem and the gathering of evidence for practice?

Giving consideration to those questions is a fluid process with much give-and-take. The objectives of an inquiry decide if a suitable degree of compatibility exists. If a nurse seeks only a few insights among the levels of theory, then only some compatibilities may suffice. If a rather thorough integration of the pairings is sought, however, then most of the compatibility questions should be addressed. In the latter case, if only one or two of the criteria are met, then it may be more fruitful to think about a different pairing.

STRATEGIES FOR INTEGRATIVE THEORIZING With compatibility issues aside, we turn to strategies for integrative theorizing. We have four types of inference at our disposal. An inference is a conclusion drawn from other claims. How the conclusion is drawn gives us the type of inference. In other words, the type of reasoning going from some statements to a conclusion fits into several categories. The first type of inference is inductive inference, which typically originates from observation (Bishop & Hardin, 2006). Here, we can reason from experience to a generalization about that experience, or from a narrow generalization to a wider one. We also can take data derived from a less abstract theory and try to generalize the data into a broader category inherent in a conceptual model.

The second type of inference is deductive reasoning, which typically involves derivation from general principles (Bishop & Hardin, 2006). Here, we take broader principles, or more abstract ones, and apply them to narrower principles or less abstract ones. The conceptual relations in the Neuman Systems Model and their supporting propositions are ready for deductions into a wide range of empirical contexts, including evidence for best practices. The question asked in deduction is, "Does the truth of the broader principle ensure the truth of the narrower one?" If the answer is yes, we have a successful deductive argument. If the answer is no, we have an unsuccessful deductive argument.

The third type of inference is retroductive, which typically can result in new ideas (Bishop & Hardin, 2006). Retroduction is a kind of inductive reasoning in which similarities between different cases lead us to infer that one case will further conform to characteristics of others. This is straightforward analogical reasoning. If the analogy holds up in some ways, evidence that it is likely to hold up in others is evident. In diagnostic nursing, current symptoms lead us into decision trees about a diagnosis and treatment. In integrative thinking, a theory or model such as Neuman Systems Model would be similar to a middle-range theory in some respects. We would retroduct the conclusion that it or another middle-range theory would conform to the conceptual model in other respects.

A fourth type of inference is abductive. According to Peirce (Peirce et al., 1931), abductive inference is taken as inference to the best explanation. Abduction is based in the logical reality that a phenomenon can have more than one explanation. Since alternate explanations are possible, the researcher uses experiential background to abduct the best, or most likely, explanation. For example, we could abduct that the experience of pain intensity in childbirth is best explained by a holistic theory rather than a theory only

about pain management. Furthermore, we could abduct that a middle-range explanation would increase in explanatory power if it were supplemented with a comprehensive explanation from a conceptual model. Abduction, therefore, involves making conceptual leaps or educated guesses about relations between observations based in experience and explanations based in beliefs, patterns, or generalizations.

Through the course of inquiry, these four types of inference would be used in applying evidence to practice and using practice as a source of data. Understanding evidence, practice, and their relations is a task guided by a theory, a conceptual model, or the conceptual context for a conceptual model (Fawcett, 2005). Typically, concepts from a conceptual model or a grand theory can help with describing practice. Concepts from a middle-range theory can be operationalized, give parameters of what appropriate evidence would look like, and offer insights into relevant research methods. Integrative theorizing can be used to bring the worlds of general description, empirical research, and implementation of findings together.

The most opportune time to engage in integrative theorizing is when developing a new research proposal. A clinical problem is identified, and no one middle-range theory or conceptual model seems to be useful for framing the study. Often, nurses have turned to conceptual models, grand theories, or middle-range theories outside of nursing to satisfy the gap between existing nursing theories and clinical phenomena of interest. This choice is enhanced when the researcher then integrates the outside view with a nursing theory. Another option is to integrate two nursing views from different levels. Either option will ensure that the study is rooted in nursing.

If data have been collected and analysis has begun, integrative theorizing can be utilized to offer insights into recalcitrant data or unexpected findings that are not explained by the single theoretical framework that guided the design of the study. Even when statistical significance is achieved, a body of evidence may remain that does not conform to expectations. Insights from a second theory or model, used in conjunction with the first, may explain these remaining data (Quine & Ullian, 1978). Results from this process, where one of the theories is from nursing, may also point the way to further nursing inquiry and gathering of evidence for practice. The integrated theories can be used in subsequent research to more fully frame the question and methods.

Regardless of whether integrative theorizing is used a priori or post hoc, it is typified by the five types of intentional actions listed here:

1. Identification of proximal, measurable concepts in a less abstract theory that are instances of distal, abstract concepts from its paired item at a higher level. Measurement of the former operationalizes the distal concept, at least in part. These proximal concepts may be described as mediators or moderators and can provide instruments that inform us about the nature of proximal concepts' influence on the distal concept (Mark, Hughes, & Jones, 2004).
2. Dissection or analysis of abstract constructs on the higher level to form separate measurable components (concepts). These may have been operationalized previously to test the paired middle-range theory. The research question can be rewritten to discover if this dissection helps with measurement of all or part of a construct from the conceptual model (Mark et al., 2004).

3. Modification of the context of one of the pairings to bring it into alignment with its complementary theory for a specific research problem or setting. A middle-range theory may be designed for testing in a unique setting, and that setting could be specified when choosing a complementary conceptual model.
4. Explication of the normative values or descriptions of how nurses "should be" inherent in one of the views, and integrating those values in the other one. Theories that are technical or physiological in nature can thus be cast in a more humanistic light.
5. Juxtaposition of the two levels of theories with some sort of schematic to depict shared criteria. Recently scholars have depicted ways to juxtapose two levels of theories: (a) by substruction, as presented by Villarruel et al. (2001), who diagrammed linkages between a nursing conceptual model and a middle-range sociology theory; and (b) by knowledge mapping, as presented by Dluhy (1995), where widely accepted and cogent insights from two or more theories were interwoven and diagramed on a two-dimensional grid.

A third way is to construct a Venn diagram. The use of a Venn diagram to illustrate how the Neuman Systems Model and comfort theory intersect and set up new insights or conceptual leaps is shown in Figure 22-1 and discussed in the example given in the next section of this chapter. It is important to note that integrative theorizing goes beyond the methods described by Villarruel et al. (2001) and Dluhy (1995) because integrative theorizing resulted in new insights about definition, measurement, methods, and interpretation of findings to be applied in future research, while the goal of substruction and conceptual mapping was to find areas of shared knowledge in post hoc exercises.

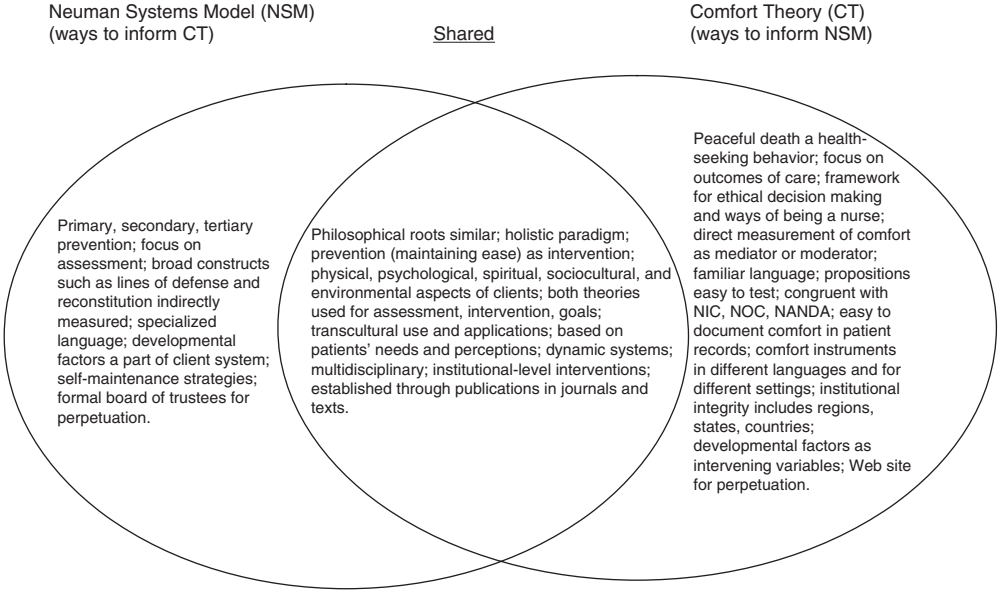

FIGURE 22-1 Venn diagram of the Neuman Systems Model and comfort theory. Dowd, Kolcaba, Steiner, and Fashinpaur, (2007).

Conceptual Leaps (Insights)

1. By definition, the concepts of stability (NSM) and comfort (CT) are similar. A measurement of comfort, previously operationalized, could be a proxy indicator for stability.
2. Primary prevention techniques (NSM) are described as the teaching of maintenance techniques and keeping patient in ease (CT) which *strengthen* (NSM and CT) the client's flexible line of defense (NSM). These techniques facilitate stability (NSM) or prolonged comfort (CT) when faced with future stressors (tertiary prevention).
3. Problems with conceptual and operational definitions of *reconstitution* may be partially addressed if *comfort* is used as a mediator in path analysis.
4. Problems with conceptual and operational definitions of *created environment* may be partially addressed if *comfort* is used as a moderator in path analysis.

Recalcitrant Data

1. Why did healing touch (HT) group have shorter maintenance capabilities than coaching or coaching plus HT?
   - Because maintenance strategies (tertiary prevention, NSM) were not taught to this group.
2. Why did wait-list group in stress reduction study return to comfort baseline at the end of the study, and before interventions were administered?
   - They reacted to their stressors with natural and learned resistance (NSM).

(Dowd, Kolcaba, Steiner, & Fashinpaur, 2007)

FIGURE 22-1 (*continued*)

INTEGRATIVE THEORIZING UTILIZING THE NEUMAN SYSTEMS MODEL AND COMFORT THEORY: AN EXAMPLE

In a recent study, the effects of healing touch (HT) and coaching were measured in three groups of younger college students who self-identified as having symptoms of situational stress (Dowd, Kolcaba, Steiner, & Fashinpaur, 2007). Dowd et al. explained that comfort theory (Kolcaba, 2003, 2007) is a middle-range theory that guided the research from design of the interventions to selection and measurement of the desired outcomes of reduced stress-related symptoms and increased holistic comfort. The study results revealed that HT had better immediate beneficial results on stress and comfort, but had minimal carryover effects. The coaching group had short-term effects that were similar to the HT group, but more sustained long-term effects. The group that received both interventions had "inconsistent" findings that were difficult to explain by comfort theory alone; that is, students in the combined group demonstrated less comfort and more stress symptoms 10 days after the last set of interventions than did the coaching group. Some students in the combined group stated anecdotally that coaching was better for stress management, and that HT was better for comfort. However, comfort was not sustained by the HT group or the combined group at time 3 while the coaching group continued to improve on comfort (Dowd et al., 2007).

In post hoc integrative theorizing, the Neuman Systems Model provided an explanatory insight for the recalcitrant data. As designed, the HT intervention did not include instructions in practices that would help maintain the immediate benefits of HT reported by students who received it. On the other hand, the interventions of coaching, by definition, entailed maintenance strategies and when added to the HT intervention (as in the

combined group), the coaching intervention provided necessary strategies for maintenance of stress management techniques but not for maintenance of HT techniques (Dowd et al., 2007). The Neuman Systems Model emphasizes maintenance in the broad definition of tertiary care, that is, tertiary prevention interventions. The model included insights about practitioners who provide tertiary care to maintain stability gained from beneficial effects of treatments, after primary and secondary interventions have been implemented.

Had all students received some measure of tertiary care, the students in the HT group might have demonstrated stronger carryover effects from their intervention. Additionally, the combined group might have demonstrated the strongest positive effects on both stress and comfort compared to the other groups, as was expected when pairing these complementary therapies. Furthermore, the outcome of comfort would have been placed in a broader context if it had been conceptualized as a mediator for client stability and a moderator for client reconstitution. Both of these latter concepts from the Neuman Systems Model would also have gained operational status. Had comfort theory and the Neuman Systems Model been integrated, the abstract concepts from the Neuman Systems Model would then be more easily operationalized by other disciplines interested in stress management. In this example, the Neuman Systems Model had more conceptual richness than had the middle-range theory, which was the initial organizing framework.

The Venn diagram (Figure 22-1) illustrates a central intersection when the Neuman Systems Model and comfort theory are paired using integrative theorizing. The central area depicts shared foundational elements, such as philosophical roots, assumptions, insights, values, and focus. The outer rings respectively depict areas that can inform the synergistic partner in order to more fully describe and develop evidence for practice. The bolded elements in the diagram depict insights relevant to the study with college students (Dowd et al., 2007). Examples of additional general conceptual leaps that could be applied to other research programs are listed below the diagram. New explanations of recalcitrant data can be formulated through this type of diagram which facilitates solutions, beginning with more complete definitions of concepts/constructs that are necessary to fill in the blanks in the recalcitrant data.

ADDITIONAL USES OF THEORETICAL INTEGRATION

Toward a More Structured Knowledge Base

Results from atheoretical studies or those that have no nursing theoretical link cannot be easily incorporated into the structure of nursing knowledge, and are at risk for losing their identity as nursing studies. In these cases, nurse researchers can easily conduct some integrative theorizing and find an "umbrella" nursing conceptual model to which their study can be linked. Such linkages help place nursing studies within the structure of knowledge most useful to the discipline and most readily translated to practice.

A purist approach to integrative theorizing would have nurse researchers only look for complementary pairs of theories among nursing theories. However, valuable knowledge also can be gained by looking for explanations in a theory or body of knowledge outside of nursing. With the high value placed on interdisciplinary practice and research regarding health care, outside disciplines can offer insights about variables that were previously unexamined by nurses. Linking such variables back to nursing, as demonstrated, incorporates that variable into nursing's body of knowledge.

The functioning system of knowledge is a dynamic engine for gaining new knowledge. A systematic body of knowledge requires searching for the potential complementary nature of discrete frameworks that have been used to explain and re-create desired outcomes. When new evidence is linked to these frameworks the result is better organization, retention, and application of that evidence. Rather than determining the "best" explanation for a given phenomenon, this task involves determining how recalcitrant data are explained using two (or more) widely accepted but different levels of theories (integrative model). An integrative model not only gives an additional rationale for unexpected evidence but points to the sorts of comprehensive explanations that could account for new classes of observations. New observations or perspectives linked to common interventions then provide occasions for the formation of new hypotheses, setting up the next round of research.

Creating "Wow Moments"

Perhaps one of the most important benefits of theoretical integration is that ways *of being a nurse* can be explicated by pairing a physiological theory, for example, with a humanistic theory (as mentioned briefly earlier). Nurses and patients want to experience intentional and meaningful moments with each other and family members, the kind that patients might call *wow moments*. ("Wow! I'll always remember that nurse.") Nurses usually sense when this happens, and these instances are sustaining, satisfying, and profound for them as well as for their patients. But nurses often fail to share how the moment intentionally came to be created, especially when they practice without a theory. These special instances require appropriate theories in order to add both personal and disciplinary structure and meaning to such experiences. When nurses are able to describe their wow moments *in terms of theory or theories,* the nature of their interactions becomes purposeful and repeatable, and these transformative interactions become associated with the power of nursing in general, not just with one nurse (Chinn, 1997).

In the example of integrative theorizing presented earlier, comfort theory could inform the abstract Neuman Systems Model about an important way of *being* a nurse (Chinn, 1997), that is, as a comforting nurse. Comfort theory states that the process of comforting a patient entails the *intention* to comfort, to be present, and to deliver comforting interventions based on the patients' and loved ones' unmet comfort needs (Kolcaba, 2003, 2007). If the patient needs time to voice concerns and questions, the nurse listens attentively and provides culturally appropriate body language (a comforting intervention). He or she knows exactly why and when to do this, because the nurse is tuned in to the whole person as patient and because the nurse wants to provide comfort, to soothe in times of distress and sorrow. Such an explanation of how to *be* a nurse is lacking in the Neuman Systems Model. Integrative theorizing between the conceptual model and the theory adds context, humanism, and therapeutic explanation that neither alone provided, and more thoroughly articulates the comforting nature of intentional nursing interactions.

Shared Resources

Currently, perpetuation and dissemination of theory and evidence linked to specific theories can be achieved through diverse avenues such as Web sites, textbooks, journals, databases for practice and reference, conferences, translations of texts and articles into different languages, and/or organized trusteeships. But in nursing, each of these avenues service a contained group of nurses and other providers who are focused on a particular

theory. In general, Web sites posted by theorists do not contain links to theories that may be complementary to their own, such as a link between a conceptual model and a middle-range theory. An integrated model for perpetuation and dissemination of complementary theories would facilitate a wider forum for generating ideas, discovering new candidates for theoretical integration, and developing visionary methods for inquiry required by emerging health care trends and transcultural nursing. Such an approach would be especially useful across cultures and nations, where one theory translated from English could be enlightened by integration with a different level of theory originating in the native language.

Evidence for Best Practices

Gaining empirical evidence for practice is not the main rationale for integrative theorizing, because a focus solely on empirics is not consistent with the nursing perspective, nursing process, human caring, and professional accountability (Fawcett et al., 2001). Indeed, theory determines what counts as evidence, and what is included in current, humane clinical practice. To date, much evidence from empirical studies has not been applied to actual patient care. Perhaps some of this failure can be traced to the atheoretical or non-nursing nature of many of those studies and/or the atheoretical nature of our practice settings. Utilizing a theoretical umbrella under which the evidence can be joined, implemented, interpreted, and advanced across hospital units and specialties is an idea that is gaining currency in the United States. There are several areas in which this can be accomplished. Three areas are discussed briefly with applications at the individual level, the institutional level, and at the community level.

An example of a specific body of knowledge about individuals is the considerable work done on the clinical problem of urinary incontinence (UI). So much evidence had accrued from many different sources that researchers were able to develop clinical practice guidelines to be used in any setting where the patient is incontinent. The only weakness in this body of evidence about UI is that the studies and their findings were largely based in physiology so the evidence base lacked a consistent or systematic patient perspective essential for translation. This weakness was noted in a consensus summit in 2004, at which leaders in the field of UI came together to forge directions for future research and practice. One of their primary recommendations was to "encourage the use of theory and conceptual models to guide research design and methodology, including the development of incontinence interventions" (Wyman et al., 2004, p. 55). Patients' perspectives have been captured in nursing theories related to self-care or self-management, adaptation, health promotion, or comfort. Anyone of these patient perspectives would facilitate translation into patient outcomes.

At the community level, the Neuman Systems Model has been utilized nationally and internationally to guide public health nursing practice. Neuman believes that one type of prevention is primary nursing intervention and advocates for selection of desired outcomes by nurses and client systems. In this theory, community outcomes are not specified so it would be useful to integrate a middle-range theory that is oriented to community outcomes, such as Barker's (2001) tidal model. The concept of empowerment from the tidal model is measurable through a community survey and Barker's outcome of empowerment is relevant to nursing at the community level. Barker pointed out that a main aim of community interventions is to help people develop their awareness about the significant and positive

impact that small changes in community services or knowledge can make. From this grassroots awareness and empowerment, participation and success in creating change can occur.

At the institutional level, practice guidelines delineate minimum nursing actions and working conditions in specific settings of care, such as those developed by the Association for PeriAnesthesia Nursing (2003). Here, practicing nurses developed protocols for patient management throughout the perioperative stages, after having previously developed minimal staffing ratios within those settings. Their latter work was undergirded by a nursing theory (Kolcaba, 2001), which then was utilized to translate the protocols to actions that were meaningful to each patient in terms of a contract for comfort management. The theoretical consistency and efficiency with which this was accomplished was admirable and implementation was facilitated by including the perspectives of patients and nurses.

Nursing research that is broad in scope, compared to small intervention studies, is focused on administrative issues in health care such as composition of staffing, nurse-to-patient ratios, and number of hospitalized days. To date, most of this research is about how these issues influence negative and atheoretical outcomes associated with *subquality* care, such as decubiti ulcers, falls, medication errors, and nosocomial infections (Aiken, Clarke, & Cheung, 2003). On the other hand, value-added, theoretically based outcomes, such as recovery of function, comfort, preventive care, adequate discharge planning and education, and follow-up care, are what patients and families want and need from their health care system. These positive values are embedded in nursing conceptual models and middle-range theories and are, therefore, nursing sensitive.

Some middle-range theories entail measurable value-added outcomes along with specific relations between these positive outcomes and institutional factors such as favorable cost-benefit analyses and patient satisfaction. Evidence that these relations "hold up" under rigorous testing is important for improving policies that guide health care delivery. In this way, the "cash value" of theoretically based, positive nursing outcomes can effect positive changes in policy at the micro (hospital) and macro (regional and national) levels. Such outcomes also can be consistently identified with the discipline of nursing.

Best Policies

Best policies at the institutional level are formulated when value-added outcomes are related to characteristics of patient care settings such as registered nurse staffing levels, methods for assignments, value orientation, scheduling, salaries, benefits, attendance, and retention levels. Some of these settings have undertaken initiatives to improve the workplace environment, as in the quest for Magnet Recognition status granted by the American Association for Credentialing Nurses, or the Beacon Award granted by the Joint Commission on Accreditation of Healthcare Organizations. One way many nursing leaders proceed with this task is to choose a nursing conceptual model or theory as a unifying framework, and both the Neuman Systems Model and comfort theory have been utilized for this purpose (Kolcaba, Tilton, & Drouin, 2006). The advantages of doing so include having all personnel on the "same page" regarding connecting to their patients, formulating new approaches to achieve positive outcomes, and providing evidence that these new approaches and improved outcomes are empirically linked to institutional data such as cost-benefit ratios, nurse and patient satisfaction, or morbidity/mortality data. When the unifying framework is an abstract conceptual model, a middle-range theory that conceptualizes institutional outcomes, such as comfort theory, is useful for operationalizing selected desired outcomes.

Best policies at the regional or national level require even larger bodies of evidence to be created and implemented. Testing of the relations between theoretical value-added outcomes and different methods of care delivery and access will provide insights for best policies that specify how to achieve high-quality care. For example, this currently is being done in a large health care system that has facilities in several states across the United States. Anything that is done in one unit, if successful, must eventually be translated to the entire system. Accordingly, nurse leaders from three different units where different theories about optimal health care delivery—Watson's (1988) theory of caring, Kolcaba's (2003) theory of comfort, and Koloroutis's (2004) theory of relationship-based care—were adopted and embraced are currently triangulating the three theories for application across the entire system. The integration of these three theories has created a more comprehensive theory than if any one theory was used alone because the integrated theory will include *process* (nature of the nurse–client relationship from the theories of caring and relationship-based care), an immediate desired product or *outcome* (patient/family comfort from comfort theory), and a *business rationale* for administrators to embrace both the process and product (institutional integrity from comfort theory).

Electronic Databases

Taxonomies of nursing diagnoses, interventions, and desired outcomes are essential for the construction, wide utilization, and sharing of electronic databases. Ideally, these databases eventually will have some part of their languages in common so they can be utilized across institutional and state lines as well as national boundaries. The language of conceptual models may not be directly utilizable for classification purposes that call for a less abstract but articulated empirical vocabulary. A complementary middle-range theory may fill some of those language gaps.

Through association with their paired companions, theories become more applicable for electronic databases that are emerging across the country. These databases are invaluable for outcomes research conducted regionally, within and among hospital systems. Many of the variables included in the databases are names of specific interventions and patient and family goals (value-added outcomes). Some databases also are interdisciplinary. Intervening factors such as comorbidities, extent of social support, financial status, and living arrangements are included. Most of the language in these databases currently is unrelated to conceptual models, but contains the more ordinary language characteristic of middle-range theories. Through integrative theorizing, a systematic, theoretical body of evidence can be constructed about nursing's role in patient care. The humanistic or holistic aspects of nursing that enhance outcomes existentially can be explicated along with technical aspects of patient care and the contributions from other health-related disciplines. These holistic and humanistic aspects of patient care are our strength and identity as nurses and must be included in any body of knowledge about delivery of health care.

Conclusion

Theory as model or explanation is underdetermined by the data, in that the theoretical claims are broader than observations or evidence. The generalizations in conceptual models and middle-range theories apply to a boundless range of future cases. Conceptual models are forward

thinking and offer the broadest projections of a discipline. Middle-range theories address observable clinical phenomena that include new and sometimes unanticipated cases. Use of the two levels of generality in tandem promises a host of varied explanations, predictions, prescriptions, and visions of what is possible in nursing science. Theory drives cognition that in a given context helps form intentions. The cognitive and motivational inspiration for prescriptions traces its roots back to theory.

Levine (1995) stated that theory is the poetry of science. It is constructed creatively, and provides visions of what can and should be. With an efficient use of vision words, theory gently guides our thinking, and nudges us to ask questions: Why do it this way, instead of this way? What overall goal am I trying to get my patient to achieve? What can nurses do to help this family? Theories are the creative and organizing force behind objective, empirical research and evidence-based practice. The power of theorizing is enhanced by opening the constraining boxes of their separate languages and foci and creatively utilizing integrative methods to better organize and advance nursing knowledge, describe the human and holistic ways to "be" a nurse, identify meaningful evidence, test and translate the evidence in actual clinical situations, and document the value of nursing to patients, institutions, and societies.

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SECTION EIGHT

The Future

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CHAPTER 23

The Neuman Systems Model and the Future

Betty Neuman
Lois Lowry

The Neuman Systems Model is well positioned as a contemporary and future guide for health care practice, research, education, and administration far into the 21st century. The concepts and processes of the model are so universal and timeless that they are easily understood by all members of health care teams worldwide. The model provides a context for wholistic health care with an emphasis on wellness that is particularly useful within health care systems in all countries. As social and political events influence wellness and illness, comprehensive and flexible conceptual models will be required for nurses and other health care team members in all practice specialties, all areas of research, all types of health care professions education, and administration of all types of health care systems. The purpose of this chapter is to revisit the vision and values that spawned the origin of the Neuman Systems Model and will continue to frame future use of the model. The chapter also will present the insights and perspectives of several Neuman trustees who continue to work with the model.

BETTY NEUMAN LOOKS BACK

In the late 1970s, nurse leaders became aware that nursing must become a theoretically based science and practice. Those leaders accepted that nursing needed to focus on clients as participants in nursing care within a broad context. New roles and functions for nurses were emerging, such as the clinical nurse specialist who practiced in community settings. This new role required curricular changes that would support relevant practice. Toward that end, I developed the Neuman Systems Model in 1970. A colleague, Rae Jeanne Young, and I first used the model to teach graduate students at the University of California–Los Angeles (Neuman & Young, 1972). My pioneering teaching work with graduate students in the greater Los Angeles community mental health arena was a key influence for development of a comprehensive model that members of interdisciplinary health care teams could use to guide their practice.

The philosophic basis of the Neuman Systems Model encompasses wholism, a wellness orientation, and a dynamic systems perspective of client energy and interaction with the environment. The dynamism of systems and stress theories provided a broad view and new perspective as nursing activities expanded into community health arenas. Over the years, use of the Neuman Systems Model has expanded to virtually all health care specialties, thereby supporting the validity of its philosophic basis. My personal philosophy of *helping each other live* guided development of the Neuman Systems Model Assessment and Intervention Tool, which provides nurses with a comprehensive and systemic format for goal setting and interventions (see Appendix C).

BETTY NEUMAN LOOKS FORWARD

Through communications with students, nurse educators, administrators, and practitioners in many settings and countries, I have been gratified to learn that the model has proved to be applicable to current health care trends and relevant for the future. Hospitals seeking Magnet Recognition are mandated to select professional models of care to guide practice and research in their respective organizations. The Neuman Systems Model is greatly favored because of its comprehensive and wholistic structure. For example, Diane Breckenridge, Neuman trustee and associate director of research at the Abington Hospital in Pennsylvania, reports 16 Neuman-based studies in progress. Abington Hospital received its first Magnet Recognition in 2003 and a renewal in 2008. In addition, David Moore, administrative director of mental health services for South Jersey Healthcare, reports 2 years of Neuman-based studies in progress within their Magnet Recognition hospital complex.

Moreover, in the past 2 years, four educational programs at the baccalaureate and associate degree levels have adopted the Neuman Systems Model as the organizing framework for their curricula. Model users continue to test the propositions and conduct inquiries in search of greater understanding of the model components. New findings are presented at Biennial International Neuman Systems Model Symposia attended by educators, students, and researchers who are seriously invested in the future of the model.

I believe that theory is vital to the development of an autonomous and accountable nursing profession. The utility of the Neuman Systems Model as a starting point for theory development is underscored by Gigliotti (see Chapter 21), who provides details about deriving middle-range theory from the model, and by Kolcaba and Kolcaba (see Chapter 22), who provide a prototype for linking middle-range theories with the model.

The use of the model by clinicians and scholars clearly indicates that the Neuman Systems Model continues to be useful for directing nursing practice, education, and research. I believe that the model is relevant for the future because of its dynamic and systemic nature; its concepts and propositions are timeless. There is cumulative research evidence to support the broad use of the model concepts by the health care disciplines. The Neuman Systems Model will continue to be adopted and used by academic scholars and practicing nurses as nursing science continues to evolve.

LOIS LOWRY LOOKS FORWARD

We must ask if the values and philosophies that influenced the development of the Neuman Systems Model are relevant in today's world. Specifically, is the model as originally conceptualized helpful in meeting the challenges of today and in the future? Contemporary

health care is challenged by uncertainty, a shortage of nurses, overwhelming assignments, and concerns about client and caregiver safety and the quality of client system outcomes. The use of conceptual models of care, as well as research evidence that is translated into client care, are ways to meet those challenges.

All health care providers are faced with an array of decisions that must be based on the best evidence to ensure high-quality care. Research is typically regarded as the strongest source of evidence on which to base health care decisions (Fawcett & Garity, 2009). Both health care organizations and educational institutions are using information systems to enhance clinical documentation and to deliver educational courses. Furthermore, the middle-range theories of caring that embrace compassion, cultural sensitivity, and respect for patients and families must be maintained or the goal of providing safe, wholistic care will not be met. I believe that the philosophical foundation of the Neuman Systems Model continues to be appropriate for the many challenges nurses face today. As nurse researchers continue to test model propositions and educators propose creative strategies for helping others learn how to use the model, its credibility and usefulness are being demonstrated. Thus, we can conclude that the Neuman Systems Model has and will continue to contribute to high-quality care practice and relevance far into the future.

THE NEUMAN SYSTEMS MODEL TRUSTEES PRESENT THEIR INSIGHTS AND PERSPECTIVES ON THE FUTURE

Several Neuman Systems Model trustees responded to a call for insights and perspectives about the relevance of the Neuman Systems Model for the future in relation to trends and concerns identified in contemporary nursing literature. Each trustee offers views based on her or his own experiences with the model. Additional discussion of the future projections of the Neuman Systems Model by some trustees is available in the 20th anniversary issues of *Nursing Science Quarterly* (Lowry, Beckman, Gehrling & Fawcett, 2007; Neuman & Reed, 2007).

Lois Lowry: Theory development is the hallmark of any profession. Conceptual models of nursing provide a structure for nurses' images of reality from which middle-range theory can be developed and linked. The Neuman Systems Model provides a universal language linking parts and wholes into a unifying framework for wholistic care. The importance of understanding the relationship between stress and illness is vital in our complex world of accelerating change. Nurses will have the opportunity to choose from a vast repository of information and technological resources, but their presence and comforting touch will be critical to healing. The Neuman Systems Model concepts of wholism, wellness, and prevention interventions used to attain, retain, and maintain client system wellness are perhaps even more viable today than when the model was initially developed in 1970. The addition of the spiritual variable to the client system in 1989 provided a unique dimension to the model that is increasingly being recognized by physicians and other health care providers as a vital influence for client wellness.

Education is becoming high-tech with the advent of Internet courses for students, and the ability to diagnose and treat clients through television connections between medical centers and rural clinics. This raises questions about the importance of human contact and communication between nurses and clients that have been demonstrated through our nursing education programs. Human touch is foundational to the development of trust,

and communication requires body language to nurture relationships. To accommodate the era of high technology, I suggest that nursing education programs develop hybrid teaching models that combine human touch with technology. The Neuman Systems Model can provide the framework for the placement of content in educational programs. Educators are urged to internalize the model and develop strategies to communicate client care through technology as well as direct contact.

The Neuman Systems Model can be very helpful in the administration of health care services. It provides an integrated framework for organizing knowledge related to the nurse administrator's role, combined with the management process. As Kelley and Sanders (1995) wrote, "The framework provides a . . . comprehensive approach to assessing and resolving problems in nursing administration and to evaluate the total system's response to stressors."

Hospitals and other health care organizations in the United States are seeking Magnet status, which is a way of recognizing the excellence of nursing care. One of the keys to success is to demonstrate how professional models of care, selected by the nursing staff, are internalized and integrated into client care. Outcomes from nursing innovations based on the professional model must be demonstrated in populations throughout the institution (American Nurses Credentialing Center, 2008). Given its wholistic focus and documented use as a guide for nursing practice in diverse clinical specialties and for delivery of nursing services, the Neuman Systems Model is well positioned as a model of care for hospitals seeking Magnet status. Betty Neuman and some trustees are prepared to provide guidance about use of the Neuman Systems Model to health care organizations that are seeking Magnet status.

Eileen Gigliotti: The strict separation of disciplines is a thing of the past. Widespread cooperation among disciplines in the sciences and the arts is increasingly commonplace. Nursing has been at the forefront of this movement, having drawn on knowledge from other disciplines and framing that knowledge within nursing's unique perspective. As multidisciplinary collaboration builds, nurse researchers will increasingly turn to nursing models as a frame of reference; a way to reframe interdisciplinary work within nursing perspectives. The Neuman Systems Model is excellent for this purpose, given the nature of the five client system variables—physiological, psychological, sociocultural, developmental, and spiritual. Furthermore, the systems theory base for the model provides a common core within and across all health care fields. Thus, one can see how its historically interdisciplinary nature will serve as a logical guide for the research process with all its inherent richness for other caregivers, while still maintaining a unique nursing focus.

Marlou de Kuiper: I think that the Neuman Systems Model will be very useful in the future for the majority of people in Holland who depend on health care. Our population is aging, and people will have to live with chronic mental and physical disease for many years. Their quality of life will largely depend on how they cope with daily stressors and how they make the most of their resources. The quality of their negotiations with health care providers will influence the quality of their lives. People will have to take some responsibility for their health. Health care providers must help people to identify destructive behaviors and ineffective patterns. The Neuman Systems Model helps to organize the thinking of care providers so that they are a useful resource for the people they serve.

Sarah Beckman: The Neuman Systems Model has demonstrated efficacy in guiding development of middle-range theories that describe, explain, and predict phenomena that are particularly relevant to clients and caregivers. The model also guides research that provides the data needed to structure professional nursing practice, research, education, and administration of health care services. And, the Neuman Systems Model provides a common language that promotes global community building and scholarly works for the further advancement of nursing science.

Karen Gehrling: If theory is to survive, it needs to be tried and tested. Specifically, concepts and propositions need to be explained, compared, and studied. This means that research must be conducted, such as Gigliotti's (1997) work on the flexible and normal lines of defense, and my work on reconstitution (see Chapter 4 of this book).

Jacqueline Fawcett: I am especially impressed by the utility of the Neuman Systems Model as a guide for the research needed for evidence-based practice. I am also impressed by how easy it is to organize nursing courses in keeping with the concepts of the model. Research findings can be used to teach students how to assess clients, as well as to plan, implement, and evaluate prevention interventions.

Barbara Freese: The Neuman Systems Model is a powerful organizing framework to guide health care planning and delivery away from fragmentation to wholism. It has served nursing students and practicing nurses well since it was developed. It continues to offer an approach for comprehensive client-focused care for use by multidisciplinary health care professionals now and will continue to do so in the future.

Margaret Louis: I see the Neuman Systems Model continuing to be used for its original purpose to assist students in developing and implementing care for clients. Also, nurses today need to know how to use electronic data sets. The Neuman Systems Model can provide a focus and theoretical base for interpreting Electronic Patient Record data sets. The use of the Neuman Systems Model to organize and interpret these digitalized sources of health and disease data can improve and refine primary, secondary, and tertiary interventions that are efficacious and cost-effective.

Diane Breckenridge: The Neuman Systems Model guides nursing practice, education, administration, and research, which is the basis of my 35 years of work combining a nursing theory-guided (NTG) evidence-based practice (EBP) approach to patient care with an emphasis on teaching theory, practice, and research in both health care (e.g., hospital) and academic settings. This approach, beginning with the Neuman Systems Model as the conceptual framework in my practice, theoretical teaching, and research, evolved into my evidence-based professional practice model known as NTG-EBP approach. This NTG-EBP approach has been instrumental in mentoring nurses in their own evidence-based and research programs for hospitals seeking Magnet designation in the early 2000s, with a recent second-time hospital Magnet redesignation attained. The NTG-EBP approach has evolved into an integration of theories into the practice setting based on the patient, nurse, interdisciplinary, and systems-wide problems/concerns, ranging from individual patient care to programs (e.g., emergency preparedness) and focusing on groups of patients and communities served. Presently, the mentoring of nurses and other health care providers from six different hospitals pursuing Magnet status or recognition as centers of excellence includes the integration of middle-range theories as well as other theorists' (e.g., Watson,

Roy, Benner) concepts commencing with the problem/concern to the outcomes of evidence-based best practices. Nurses and other health care providers, locally and globally, through evidence-based best practices, will be able to provide safe, effective, timely, efficient, and equitable interdisciplinary client care, both for individual patients and to large groups in times of disasters.

Barbara Cammuso: Global environmental changes, political unrest, and the potential threat of biological and chemical terrorism have precipitated the need to develop innovative primary, secondary, and tertiary preventions as interventions for individuals, families, groups, communities, and countries around the world. Currently, there is concern about the possibility of the combination of biological and chemical terrorism with cyber-terrorism that could affect multiple hospitals and destroy their treatment plans. The Neuman Systems Model can be utilized to guide nurses to comprehensively identify system invasion and plan prevention interventions to treat victims seeking care in these hospitals. In addition, the model provides an excellent framework for curriculum plans involving technology in educational programs that will prepare students to assess cyber-terrorism and plan effective prevention interventions.

Diana Newman: I think that the Neuman Systems Model is especially appropriate for forward-looking movements in nursing and nursing education, such as the doctor of nursing practice degree and the baccalaureate degree to PhD degree accelerated programs. The Neuman Systems Model can be applied to Institute of Medicine Report (2001) goals for improving nursing's emergency preparedness, as well as for use as a guide for clinical immersion experiences, and for client system simulations and other technological advances.

Janet Sipple: The Neuman Systems Model will flourish in the future as a classic framework for the synthesis of complex human data relevant to the nursing care process for individuals, families, and communities in worldwide settings. This projection about the model is firmly rooted in my 50 years of nursing practice, education, and research, many of which involved working with the Neuman Systems Model.

Rae Jeanne Memmott: I see the Neuman Systems Model as an aid to interdisciplinary health care. It provides an assessment and intervention tool that can be used by all health care team members to promote a wholistic approach to client care. I have used it in this way in my interdisciplinary care to cultures in Guatemala.

Betsy McDowell: I predict that use of the Neuman Systems Model will increase exponentially in the practice, research, education, and administration arenas, based on the following characteristics of the model:

- Assumptions have been clearly delineated so the user easily understands the guiding principles on which the model is based.
- The model is comprehensive enough to be applicable regardless of setting: the home, workplace, hospice, critical care units, and so on.
- The model focuses on a dynamic client system in interaction with the environment, whether the client system is an individual, family, group, or community.
- Holistic assessment using the Neuman Systems Model perspective includes client strengths and resources as well as client needs and responses to negative stressors.

- The ultimate goal for using the Neuman Systems Model is to assist client systems to reach an optimal level of wellness that is specific and unique.
- The Neuman Systems Model has yielded several middle-range theories useful in research and to guide practice.

Future development of the Neuman Systems Model will focus on further explication of the concept of the created environment, quantitative and qualitative research to test the concepts of the model, and increased visibility of the model in practice, education, and administration.

Michel Tarko: The Neuman Systems Model has influenced psychiatric nursing education in Canada for nearly two decades. The influence continues to expand with the inclusion of the model across the curriculum for the Bachelor of Science in Psychiatric Nursing degree program at Douglas College. Over the past decades through my research, I had the privilege of developing a spiritual assessment tool to enhance the use of the Neuman Systems Model for health promotion and prevention. I have co-constructed two taxonomies using the model: a taxonomy of family nursing diagnoses by Tarko and Reed in the text on family nursing by Bomar (2004), and a taxonomy of nursing diagnoses by Tarko and Helewka (2010). As an educator, researcher, and administrator, I envision the utility of the Neuman Systems Model to be ever-expanding as more nurses are educated in the use of the model, and are able to influence change in their workplaces based on health promotion and prevention tools with all client systems locally, regionally, nationally, and internationally.

USE OF THE NEUMAN SYSTEMS MODEL WORLDWIDE

Neuman Systems Model international collaboration began in the 1980s in Canada, England, Sweden, Puerto Rico, the Netherlands, and the Pacific Rim countries of Taiwan, Thailand, and Korea. Some countries have adopted the model for guiding education (Canada, Puerto Rico); others have conducted research (Sweden, Holland) and still others emphasize Neuman-based practice (Korea, Thailand). For example, Susie Kim was awarded a World Health Organization grant for conducting research, the *Nest of Love* project, that returned psychiatric patients to the community under the guidance of advanced practice nurses. Other countries have joined the ranks of those who adopted the model over the past 20 years. Israel, Jordan, and Turkey adopted the model as a curriculum guide. Doctoral students in Turkey are conducting Neuman-based research for their dissertations.

The model concepts are easily understood by all cultures; thus, countries continue to request implementation information. Nurses in Japan translated the Neuman book into Japanese in the 1990s. The Netherlands reports the most integrated use of the model. Franz Verberk and Marlou de Kuiper translated the Neuman Systems Model book into Dutch in 1998, which contributes to the widespread use of the model in the Netherlands by nurses and health care professionals from other disciplines. Marlou de Kuiper, a Neuman trustee, serves as a resource and was instrumental in establishing an International Neuman Systems Model Association (INSMA), which offers annual programs to educate students and practitioners about the model. Andre Merks, another Neuman trustee, is conducting a longitudinal study at the Emergis Psychiatric Institute in Zeeland to test the efficacy of using a nursing model to guide practice. The comprehensive adoption of the Neuman Systems Model in Holland can serve as a prototype for other countries for organization, implementation, and evaluation of the model.

Conclusion

The Neuman Systems Model is meeting contemporary challenges to provide holistic care to individuals, families, groups, and communities. Betty Neuman and the members of the INSMA are committed to working with all health care team members to further develop and shepherd the utilization of the model in practice, education, research, and administration worldwide. Many INSMA trustees continue to serve as consultants in the use of the Neuman Systems Model to nursing education programs and health care organizations. Neuman Systems Model International sponsors a biennial international Neuman Systems Model Symposium to educate, network, and share knowledge and research findings about the model. The Neuman Systems Model Research Institute provides a network for researchers and awards funds to support small-scale studies (see Appendix D). Trustees and other nurse researchers conduct research to generate and test middle-range theories derived from the model (see the Research and Theory sections of the bibliography in Appendix G). A comprehensive bibliography of all articles and books published about the model is maintained by Trustee Jacqueline Fawcett (see Appendix G).

Internet availability greatly facilitates global communication, collaboration, and research. The Neuman Systems Model was initially developed for use in all fields of health care. That initial focus is consistent with and supportive of the contemporary emphasis on interdisciplinary, multidisciplinary, and transdisciplinary care as a means of achieving high-quality outcomes in all client system situations and settings in a global health care system. It is clear, then, that the value of the comprehensive, systemic nature of the Neuman Systems Model continues to increase as challenges to the health care system escalate.

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Appendices

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APPENDIX A

The Neuman Systems Model Definitions

Betty Neuman

Basic Structure: The basic structure or central core is the source of the five client system variables and represents human processes of living and dying within the context of the fluid intersection of the five interrelated and interacting client system variables. Basic survival factors common to human beings are located in the central core, including innate or genetic features and strengths and weaknesses of the client system parts. The basic structure represents the basic client system energy resources.

Boundary Lines: The flexible line of defense is the outer boundary of the client system. All relevant variables must be taken into account, as the whole is greater than the sum of the parts; a change in one part affects all other system parts.

Client/Client System and Client System Variables: A total open system in interaction with the internal and external environments. A composite of five variables (physiological, psychological, sociocultural, developmental, and spiritual), each of which is a subpart of all parts, forms the whole of the client. The client as a system is composed of a core, or basic structure, and surrounding protective concentric rings. The concentric rings are composed of similar factors, yet serve varied and different purposes in retention, attainment, or maintenance of system stability and integrity or a combination of these. The client is considered an open system in total interface and exchange of matter and information with the environment. The client is viewed as an open system, and the term can be used interchangeably with the client/client system; that is, individual, family, community, and social issues are considered a system with boundaries and identifiable interacting parts.

Degree of Reaction: The degree of reaction is the degree of system instability resulting from stressor invasion of the normal line of defense.

Environment: The environment consists of both internal and external forces surrounding the client, influencing and being influenced by the client, at any point in time, as an open system. The created environment is an unconsciously developed protective environment that binds system energy and encompasses both the internal and external client environments; it acts as a perceptual safety mechanism to maintain system stability.

Feedback: The process within which matter, energy, and information, as system output, provide feedback for corrective action to change, enhance, or stabilize the system.

Flexible Line of Defense: The flexible line of defense is a protective, accordion-like mechanism that surrounds and protects the normal line of defense from invasion by stressors. The greater the expansiveness of this line from the normal line of defense, the greater the degree of protectiveness. Examples are situational, such as recently altered sleep patterns or immune functions that could threaten system stability and lessen the potential for survival and optimal wellness.

Health: A continuum of wellness to illness, dynamic in nature, that is constantly subject to change. Optimal wellness or stability indicates that total system needs are being met. A reduced state of wellness is the result of unmet systemic needs. The client is in a dynamic state of either wellness or illness, in varying degrees, at any given point in time. Health is related to available energy to support the system.

Input/Output: The matter, energy, and information exchanged between client and environment that is entering or leaving the system at any point in time.

Lines of Resistance: Protection factors activated when stressors have penetrated the normal line of defense, causing the reaction of symptomatology. The resistance lines ideally protect the basic structure and facilitate reconstitution toward wellness during and following treatment, as the stressor reaction is decreased and client resistance is increased. All lines of defense and resistance are considered to contain both internal and external resources.

Negentropy: A process of energy conservation that increases organization and complexity, moving the system toward stability at a higher degree of wellness.

Normal Line of Defense: An adaptational level of health developed over time and considered normal for a particular individual client or system; it becomes a standard for wellness deviance determination.

Nursing: A unique profession concerned with all variables affecting clients in their environment. Nursing is preventive intervention.

Open System: A system in which there is a continuous flow of input and process, output and feedback. It is a system of organized complexity, in which all elements are in interaction. Stress and reaction to stress are basic components.

Prevention as Intervention: Intervention typology or modes for nursing action and determinants for entry of both client and caregiver into the health care system. *Primary prevention*: before a reaction to stressors occurs. *Secondary prevention*: treatment of symptoms following a reaction to stressors. *Tertiary prevention*: maintenance of optimal wellness following treatment.

Process/Function: The process, or function, of the system is the exchange of matter, energy, and information with the environment and the interaction of the parts and subparts of the client system. A living system tends to move toward wholeness, stability, wellness, and negentropy based on effective use of available energy resources.

Reconstitution: Represents the return and maintenance of system stability, following treatment of a stressor reaction, which may result in a higher or lower level of wellness than previously. It represents successful mobilization of client system energy resources.

Stability: A desired state of balance or harmony while system energy exchanges take place without disrupting the character of the system. The dynamic nature of stability is seen as the client, as a system, adequately copes with stressors to retain, attain, or maintain optimal health and integrity.

Stressors: Environmental factors that are intra-, inter-, and extrapersonal in nature and that have the potential for disrupting system stability by penetrating a system's lines of defense and resistance. Their outcome may be either positive or negative;

client perception and coping ability are major considerations for caregivers and clients. The effect of stressors that are perceived as negative is referred to as stress, whereas the effect of stressors that are perceived as positive is referred to as eustress.

Wellness/Illness: Wellness is a stable condition in which system subparts are in harmony with the whole system. Wholeness is based on the interrelationships of variables, which determine the amount of resistance to stressors. Illness is on the opposite continuum from wellness and represents instability and energy depletion among the system parts or subparts affecting the whole.

Wholistic: A system is considered wholistic when its parts or subparts can be organized into an interrelating whole. The ideal is one of keeping parts stable within their intimate relationships with the whole system, that is, individuals are viewed as wholes whose component parts are in dynamic interdependent interaction while adjusting to environmental stressors.

APPENDIX B

Betty Neuman's Autobiography and Chronology of the Development of the Neuman Systems Model

Betty Neuman

I was born in southeastern Ohio on September 11, 1924, on our 100-acre family farm. My father, a farmer, died at age 37, when I was 11 years old and my brothers were ages 5 and 16. My mother was a hardworking, enterprising housewife, managing well our limited financial resources.

My older brother, mother, and I engaged in several summers of hard physical labor to keep the family and farm intact. My younger brother escaped most of the labors, because my mother moved us to a nearby town, Marietta, Ohio, which is also where I completed my final year of high school. My older brother married and continued to maintain the family farm. I am proud of my early farming heritage, because it taught me the important values of simplicity, humility, and self-reliance.

Because my father always praised his nurses during six years of intermittent hospitalizations prior to his death from chronic kidney disease, I began to idealize the nursing profession early in life. I developed a strong commitment to becoming an excellent bedside nurse to repay a debt of gratitude to society. Another very important influence was the shared stories of my mother's charity experiences as a self-taught rural midwife. She was often called at night and rode by horse and buggy to perform home deliveries; a favorite memory is stealing away to read her battered general medical book.

When I graduated from high school in the summer of 1942, our country was six months into World War II. Local employment opportunities were limited. Being financially unable to attend nearby Marietta College as I had always wanted, I obtained a position at Wright Air Force Base in Dayton, Ohio, as an aircraft instrument repair technician. It was particularly exciting to install instruments in fighter warplanes following their repair. I recall refusing an offer of transfer to the New York–based Sperry Rand Company after receiving the highest test results in this specialty area. Deciding factors were continuing homesickness, my desire to accumulate money toward a nursing education, and my charitable involvement in the Dayton YWCA as a recreation hostess for servicemen. Later, during evening school classes, I was chosen as a draftsperson by an aircraft contracting agency, where I worked for a year at a higher salary. Concurrent with this position, I often worked evenings as a short-order cook to supplement my income and contribute to my mother and younger brother's needs.

By the time that I had nearly accumulated the necessary funds for entrance into nurse's training, the Cadet Nurse Corps Program became available, expediting my entrance into the three-year diploma nurse program at People Hospital, Akron, Ohio, now renamed General Hospital Medical Center. My goal of becoming an excellent bedside nurse was well under way when I graduated with honors as part of two combined graduating classes in the fall of 1947.

Although the diploma program followed the medical model, since the hospital was private in nature and had established a fine reputation, students were required to give excellent total care to clients.

During these years I had saved enough money to purchase a 1935 Ford Coupe for $275 from a family friend. Taking our mother with us, my younger brother and I drove south to Florida then west to Los Angeles, where an uncle lived. Three months after arriving, my mother and brother drove back home to Ohio, and I took up a staff position at the Los Angeles General Hospital as a communicable disease nurse. At the end of six months, I accepted a promotion to head nurse and remained there another year. Since I was eager to explore other areas of nursing, I assumed a 1-year school nurse position followed by a 1-year industrial nurse position, both in the greater Los Angeles area.

In 1950, I returned to the Los Angeles General Hospital as a private duty nurse and remained there until 1956. During that time I developed a broad knowledge base and skill in critical care for medical, surgical, pediatrics, and many other specialty areas, such as burns, polio, and head injuries. This was long before the development of critical care units. A variety of shift work accommodated the evening classes I was taking in preparation for a 1-year, full-time residency to complete the baccalaureate degree in nursing at UCLA. In 1954, I married a beginning resident obstetrician of the Good Samaritan Hospital, helping facilitate both our educational programs. I graduated with honors from UCLA in June 1957 with a major in public health nursing. My degree was the first among a large extended family of 125 first cousins; to travel so far from home was considered wayward. After helping initiate my husband's private practice, I worked as an office manager and nurse until the birth of a beautiful daughter, Nancy, in 1959.

Between 1964 and 1966, while pursuing a master's degree at UCLA, my weekend, evening, and summer nursing activities included special education projects for the Glendale Memorial Hospital, acting as relief psychiatric head nurse at the Queen of Angels Hospital, and volunteer crisis counseling at the Benjamin Rush Clinic, Venice Clinic, and Los Angeles Suicide Prevention Center. Donna Aquilera and I were chosen by UCLA faculty to represent the School of Nursing at these clinic facilities to determine the efficacy and relevancy of the nurse role as counselor within early community psychiatric settings. We were fortunate to be the first nurses to validate the nurse-counselor role within such settings, and we received excellent supervision from agency directors well known in subsequent psychiatric literature. As a result of this experience, I continued to accumulate volunteer counseling hours to become one of the first California Nurse Licensed Clinical Fellows of the American Association of Marriage and Family Therapy.

My master's program was completed in June 1966. It was a federal grant-funded specialty program to prepare public health/mental health nurse consultants to pioneer nurse role development within newly emerging community mental health centers, for which no specific functions or processes were yet developed. In January 1967, I became a UCLA faculty member, assuming chairmanship of the program from which I graduated, though I had no previous teaching or curriculum preparation. Initial activities included grant writing to secure funds for expanding the program to become the first in community mental health nurse education. It became an two-quarter postgraduate program for nurses who had completed a graduate degree in psychiatric nursing. It included one semester each in community organization and planning and mental health consultation. This program, which began in the fall of 1967, pioneered the first post-master's-level nurse involvement in role definition with interdisciplinary groups that were beginning to function in the newly emerging community mental health centers in the greater Los Angeles area. Early in the teaching program, an explicit teaching and practice model for mental health consultation was developed by me, validated by students, and published in 1971

in a coauthored mental health textbook for nurses. Entitled *Consultation and Community Organization in Community Mental Health Nursing,* the book has long been out of print; little interest existed in the area of community mental health for nursing during the late 1960s and early 1970s. Nevertheless, I am indeed grateful for the vital feedback and extraordinary pioneering and cooperative spirit of my students, particularly during the earliest period of this program implementation. They both reinforced and helped me expand my own knowledge and skill as I role-modeled for them the mental health consultation process and nurse role development within a variety of community mental health facilities.

In 1970, I developed the Neuman Systems Model to provide unity, or a focal point, for student learning. Graduate students requested an initial entry class that would provide an overview of the four variables of man (physiological, psychological, sociocultural, and developmental), which they would subsequently study in depth in their newly developed clinical specialty programs. I was chosen by the curriculum committee to develop and coordinate the course, in which guest faculty most knowledgeable in these four areas would lecture. Since my major concern was how to provide structure to best integrate student learning in a wholistic manner, I personally developed the model design as it exists today and received course-teaching faculty approval of its use for student integration of their lecture material. Because of heavy time commitments with the developing community mental health program, I asked for a co-coordinator and chose a young psychiatric faculty member, Rae Jeanne Young (now Neuman Systems Model trustee Rae Jeanne Memmott), who agreed that we should evaluate the effectiveness of the model design as a teaching tool. It is important to state that I was neither knowledgeable about nursing models nor had a clear trend yet begun in nursing for developing models. The Neuman Systems Model was developed strictly as a teaching aid, and use of the model proved positive for student learning following a 2-year evaluation period.

The model was first published in 1972 in the May-June issue of *Nursing Research*. The article, "A Model for Teaching Total Person Approach to Patient Problems," was the basis for "The Betty Neuman Health-Care Systems Model: A Total Approach to Patient Problems," a chapter in the first book on nursing conceptual models, Riehl and Roy's *Conceptual Models for Nursing Practice* (1974). Joan Riehl, a faculty colleague and friend, had invited me to coauthor the book, but because of an impending move east, I directed her to Sister Callista Roy, a former UCLA classmate of mine.

The community mental health program continued to expand, with students from throughout the United States and other countries. Two additional faculty were added; one was Kristine Gebbie, a particularly competent program graduate, who contributed significantly to further development of the program. Several articles were coauthored by the program faculty, including a research project on "Measurement of Change in Problem Solving Ability among Nurses Receiving Mental Health Consultation."

Concurrent with the 6½-year faculty position, beginning in the winter of 1967 I taught many on- and off-campus credit workshops (some extending through the winter of 1978), conferences, and seminars for the UCLA Extension Division Continuing Education Department and for the Western Interstate Council for Higher Education, Colorado, in states west of the Mississippi River. Teaching areas included group leadership, interviewing, family counseling, crisis intervention, mental health consultation, psychiatric community mental health issues, and curriculum development.

During this same time period, my professional activities also included community-based noncredit course teaching, workshops and conferences, interdisciplinary health

care consultation, guest lectures, paper presentations, and various facilitative and leadership functions within nursing and interdisciplinary groups in several states. Mental health consultation activities both fulfilled student learning needs through role modeling and provided community service to satisfy university requirements. I provided consultation for nursing and interdisciplinary caregiver groups in state mental hospitals, home health agencies, public health agencies, mental health centers, convalescent care centers, penal institutions, hospitals, Watts teen centers, schools, and industries. Facilitating factors for my personal and professional development during these years were both the professional need for creativity and the freedom to be creative. The challenges of continual ambiguity and risk taking, caused by rapid change and lack of mentors, also became motivational in themselves. A tribute must be paid to the UCLA School of Nursing dean, Lulu Wolfe Hassenplug, and nurse continuing education director, Marjorie Squaires, for providing many opportunities combined with a lack of constraints related to my functioning. During 1972, increased graduate student interest in the mental health consultation process and the Neuman Systems Model resulted in guest lectures in other UCLA clinical nurse specialist classes.

It was in the Neuman model chapter of Riehl and Roy's *Conceptual Models for Nursing Practice* that the model was first classified as a "systems" model. (Neuman, 1974). Development of the wholistic systemic perspective of the Neuman Systems Model was facilitated by my own basic philosophy of *helping each other live,* many diverse observations and clinical experiences in teaching and encouraging positive aspects of human variables in a wide variety of community settings, and theoretical perspectives of stress related to the interactive, interrelated, interdependent, and wholistic nature of systems theory. The significance of perception and behavioral consequences cannot be overestimated. The preventions adapted from Caplan's work provided an intervention typology for nursing consistent with the systemic perspective of the model.

During the summer of 1973, I made a permanent move east to maintain my mother within her home during her aging years of declining health. Sustaining factors that kept our family viable through many challenges, both personal and professional, were my beautiful daughter Nancy's presence, creativity, spontaneity, joy of life, and many personal talents and achievements, as well as my husband Kree's consistent support, understanding, and love.

From the fall of 1973 through the summer of 1977, a part-time position as the state mental health nurse consultant for the state of West Virginia provided many challenges and professional growth activities in the statewide mental hospital system, such as consultation to and for hospital administrators, interdisciplinary groups, and program development and evaluation. Organizational development activities included conflict resolution, third-party consultation, educational conferences, workshops, seminars, and program planning.

Having been one of the first nurses licensed as a marriage, family, and child counselor in the State of California (in 1970) and also as a clinical member of the American Association of Marriage and Family Therapists and Ohio Social Work Counselors, I have continually maintained a limited private counseling practice since licensure. In 1974, I taught clergy counseling for a local Ohio mental health center. During the same year I helped initiate, develop, and support continuance of a program called "Hope" in a West Virginia state facility for the retarded. The goal was to teach, through a short-term residential program, self-help skills to children with mental retardation so they could stay at

home, rather than be institutionalized; to redirect parents in their parenting efforts; and to support skill development to stabilize the home environment. This program evolved into a 14-year model program within the state system. I have also had limited involvement in Ohio as a licensed real estate agent, having secured original California licensure in 1971 and Ohio licensure in 1973. Continued love for the land has also led to involvement in securing selected Ohio-based land parcels for private brokerage to oil- and gas-drilling companies. Perhaps because of early work influence at Wright Field, Dayton, Ohio, I acquired a private pilot license while living in California. Another personal interest that has continued through the past few years has been in personal investments and rental housing.

In the fall of 1978, following my mother's death, personal activities focused on rental property management and other investments. These interests coincided with professional activities at nearby Ohio University, Athens, Ohio, including curriculum consultant to the School of Nursing, project planning director for development of a master's-level nursing program, and director of nursing and allied health within the University Extension Division to facilitate nursing continuing education workshops.

Following several years of accumulating credit hours toward a doctoral degree at Ohio University, Athens, Ohio, in 1985 I completed a doctoral degree in clinical psychology on transfer to Pacific Western University in Los Angeles. To my amazement and honor, in recent years, I received honorary doctoral degrees from Neumann College and Anna Maria College.

Several years ago, my husband Kree retired and began to pursue oil painting. We particularly enjoyed walking, reading, music, and gardening. Unfortunately, in the fall of 1992 a major stroke left him aphasic and physically debilitated. He died in 1995. Our daughter Nancy, following success in community theater during high school years, was motivated to complete an acting degree at UCLA. Now, she is a licensed psychologist in a private counseling practice. She has frequently been engaged in theater stage productions and television commercials. She has taught acting and had roles in both feature and television films. Nancy now lives in the state of Washington with my grandchild, Alissa, who was born in 1994. Our visits are, indeed, very special occasions.

Following the development of several nursing models during the early 1970s, it was not until the mid-1970s that planning for their implementation began within university settings. From 1976 to the present, my major professional roles have been consultant for Neuman Systems Model implementation, lecturer at conferences, and author. Within the role of consultant for the model, a major function has been that of networking among those using the model or considering its use; clarifying the model's intent, purpose, and components; and supporting implementation plans or existing programs incorporating it. Through international travel, I have enjoyed very much the courtesies, sharing, and comparative views of other nurse professionals, along with important feedback that the model is easily used in diverse cross-cultural settings. Within the lecturer role, I have presented the model to several larger international nurse audiences in the United States and many other countries, including England, Denmark, Canada, Puerto Rico, Australia, New Zealand, Kuwait, and the Far East.

My publications since 1980 include a revised chapter in the second edition of *Conceptual Models for Nursing* (1980), with practice tools developed to further facilitate Neuman Systems Model implementation and for use in nursing practice; the first edition (1982) of *The Neuman Systems Model: Application to Nursing Education and Practice*; a

chapter on family use of the model in *Family Health: A Theoretical Approach to Nursing Care,* edited by Clements and Roberts (1983); an article in *Senior Nurse* (London) (fall 1985); and an invitational chapter on the model in Sweden's annual *Nursing Care Book* (winter 1986). A second book edition entitled *The Neuman Systems Model* was published in 1989 and a comprehensive third edition book was published in 1995. The third edition contained chapters addressing newer areas of concern for research, international use of the model, and nurse administrative and research protocols. Dr. Jacqueline Fawcett joined me as coeditor for the fourth edition of the book, which included integrated reviews of the Neuman Systems Model–based literature about nursing practice, nursing research, nursing education, and administration of nursing services. That edition of the book also included chapters about practice and educational tools derived from the Neuman Systems Model, as well as chapters about research instruments derived from the model and other instruments used in Neuman Systems Model–guided nursing research. And now, the fifth edition of the book has been published. This edition provides updates to reflect increasing trends for practice excellence and new examples of use of the model in nursing education and administration.

Since 1980, several important changes have been made that have enhanced the model. A Nursing Process Format was designed, using the model terminology to facilitate its implementation. The many other practice tools that have been derived from the model are listed in Chapter 8. A list of educational tools derived from the model is given in Chapter 7.

A major theory for the model was identified in cooperation with Audrey Koertvelyessy, a colleague and former Neuman trustee member from Ohio—*the theory of client system stability*. Other theories that have been derived from the Neuman Systems Model are listed in Chapter 21 of this book.

In the 1989 book edition, a new perspective to expand the concept of environment—the created environment—was presented, and the spiritual variable was explicitly added to the model diagram as one of the client variables; further explication of the spiritual variable was presented in Chapter 1 of the fourth and fifth editions of the book. A clearer model explanation has been offered by segmenting the model components into the four concepts of the metaparadigm of nursing—client, environment, health, and nursing. The relationship of primary prevention and health promotion has been further clarified, as well as the defense and resistance lines utilization. In addition, Section Two of this fifth edition of the book includes chapters that present expansion of the client system as an individual, a family, a group, and a community, as well as advances in thinking about the created environment and reconstitution. That section also includes a chapter addressing critical thinking within the context of the Neuman Systems Model.

The initial term *patient* was changed to *client* in the 1980 publication to fulfill the need for a qualifying term that would indicate respect and imply a collaborative lateral relationship between caregivers and the clients they serve. The model title has changed over the years, as the following chronology of publications shows:

- ***1972:*** *A Model for Teaching Total Person Approach to Patient Problems* (Neuman & Young, 1972)
- ***1980:*** *The Betty Neuman Health Care Systems Model: A Total Approach to Patient Problems* (Neuman, 1980)
- ***1982:*** *The Neuman Health Care Systems Model* (Neuman, 1982)

- ***1989:*** *The Neuman Systems Model* (Neuman, 1989)
- ***1995:*** *The Neuman Systems Model* (Neuman, 1995)
- ***2002:*** *The Neuman Systems Model* (Neuman, 2002)
- ***2010:*** *The Neuman Systems Model* (Neuman, 2010)

Until and unless research proves the need for change, the original diagram for the Neuman Systems Model will remain the same as when it was developed in 1970, since its structure and concepts are easily understood and implemented around the world.

Ongoing development and contemporary use of the Neuman Systems Model is evident at international symposia. The First Biennial International Neuman Systems Model Symposium was held in 1986 at Neumann College in Aston, Pennsylvania. By the time this book is published, 12 other well-attended symposia will have since been held in various locations in the United States and in Vancouver, British Columbia, Canada. Each symposium has shown increased international participation with increasing levels of scholarship.

Although it is difficult to maintain an accurate count of the use of the Neuman Systems Model, publications, presentations, and anecdotal reports indicate that the model is used worldwide, in as many as 350 different nursing education and practice settings. Lists of educational and health care settings that are known to have used the Neuman Systems Model are given in Appendix F of this book. A comprehensive bibliography of publications based on the Neuman Systems Model and information about the Neuman Systems Model Web site are given in Appendix G.

The Neuman Systems Model Trustees Group was incorporated in 1988. The trustees have introduced and facilitated model implementation throughout the world through paper presentations, publications, and consultation. The name of the group was changed to the Neuman Systems Model International in 2007. A list of the current trustees with contact information is given in Appendix E of this book. The International Neuman Systems Model Association (INSMA) was established in Holland several years ago. INSMA is the first of potentially many associations devoted to Neuman Systems Model–based activities located in various countries around the globe. The Neuman Systems Model Research Institute was established in 2003 (see Appendix D).

My hope for the future remains the same as that for the past, that through continued nurturance, the Neuman Systems Model will live well into the 21st century to benefit nursing, and other health disciplines, at all levels, and across all cultural boundaries.

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APPENDIX C

Assessment and Intervention Based on the Neuman Systems Model

Betty Neuman

The Neuman Systems Model Nursing Process Format delineates the steps of the nursing process—nursing diagnosis, nursing goals, and nursing outcomes (Table C-1). The Neuman Systems Model Assessment and Intervention Tool is a methodology for implementation of the Nursing Process Format. The tool was first published in 1974 (Neuman, 1974). Throughout the intervening years, others have modified the original assessment and intervention tool for particular clinical situations and clinical populations. Anyone wishing to modify the original tool for other clinical situations and populations should consider that proper assessment includes knowledge of all stressors influencing the client's perceptual field, and that the meaning of a stressor should be validated by both the client and caregiver, highlighting discrepancies for resolution, and leading to relevant nursing actions.

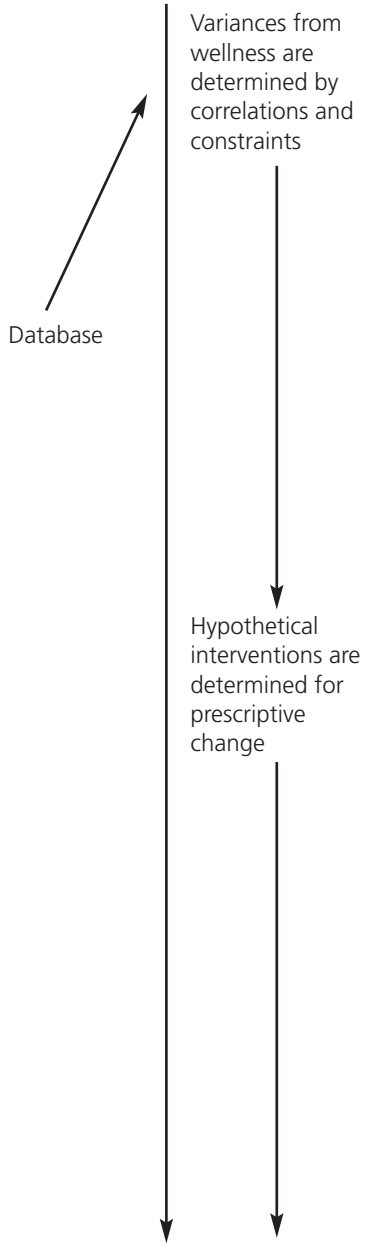
NEUMAN SYSTEMS MODEL ASSESSMENT AND INTERVENTION TOOL

The Assessment and Intervention Tool includes the major components of the Neuman Systems Model, as well as client system–specific needs, such as age, situational differences, and special requirements. The Assessment and Intervention Tool is a generic guide for assessment and intervention within the context of the Neuman Systems Model. It is, therefore, appropriate for use with any designated client system—an individual, a family, a community, or a social issue. A unique feature of the tool is that the data obtained from client system perceptions influence the overall goals for nursing action. It is suggested that caregivers use the tool as an interview guide rather than submitting it to clients for completion.

An overview of the Assessment and Intervention Tool is displayed in Table C-2. As can be seen, the type of stressors that are relevant, the reaction that occurs, the focus of assessment, and the intervention goals for each prevention-as-intervention modality are listed. The Assessment and Intervention Tool Overview can be used as a checklist in conjunction with the Assessment and Intervention Tool. The Assessment and Intervention Tool is displayed in Tables C-3, C-4, C-5, and C-6.

TABLE C-1 Neuman Systems Model Nursing Process Format

Nursing Diagnosis



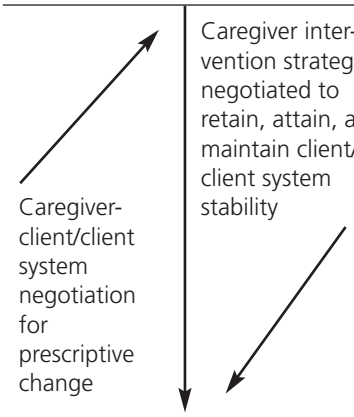
I. Nursing diagnosis
   A. Database—determined by:
      1. Identification and evaluation of potential or actual stressors that pose a threat to the stability of the client/client systems.
      2. Assessment of condition and strength of basic structure factors and energy resources.
      3. Assessment of characteristics of the flexible and normal lines of defense, lines of resistance, degree of potential reaction, reaction, and/or potential for reconstitution following a reaction.
      4. Identification, classification, and evaluation of potential and/or actual intra-, inter-, and extrapersonal interactions between the client and environment, considering all five variables.
      5. Evaluation of influence of past, present, and possible future life process and coping patterns on client system stability.
      6. Identification and calculation of actual and potential internal and external resources for optimal state of wellness.
      7. Identification and resolution of perceptual differences between caregivers and client/client system.

      Note: In all of the above areas of consideration the caregiver simultaneously considers five variables (dynamic interactions in the client/client system)—physiological, psychological, sociocultural, developmental, and spiritual.
   B. Variances from wellness—determined by:
      1. Synthesis of theory with client data to identify the condition from which a comprehensive diagnostic statement can be made. Goal prioritization is determinded by client/client system wellness level, system stability needs, and total available resources to accomplish desired goal outcomes.
      2. Hypothetical goals and interventions postulated to reach the desired client stability or wellness level, that is, to maintain the normal line of defense and retain the flexible line of defense, thus protecting the basic structure.

(*continued*)

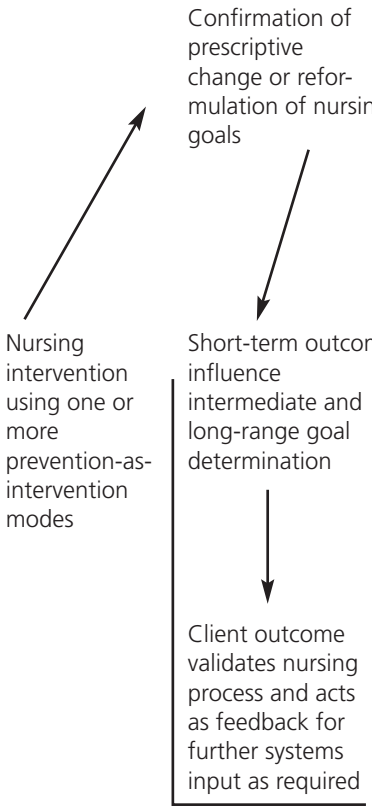
TABLE C-1 (continued)

Nursing Goals



II. Nursing goals—determined by:
- A. Negotiations with the client for desired prescriptive change or goal outcomes to correct variances from wellness, based on classified needs and resources identified in the nursing diagnosis.
- B. Appropriate prevention-as-intervention strategies are negotiated with the client for retention, attainment, and/or maintenance of client system stability as desired outcome goals. Theoretical perspectives used for assessment and client data synthesis are analogous to those used for intervention.

Nursing Outcomes



III. Nursing outcomes—determined by:
- A. Nursing intervention accomplished through use of one or more of three prevention-as-intervention modes:
  1. Primary prevention (action to retain system stability)
  2. Secondary prevention (action to attain system stability)
  3. Tertiary prevention (action to maintain system stability), usually following secondary prevention as intervention
- B. Evaluation of outcome goals following intervention either confirms them or serves as a basis for reformulation of subsequent goals based on systemic feedback principles.
- C. Intermediate and long-range goals for subsequent nursing action are structured in relation to short-term goal outcomes.
- D. Client goal outcome validates the nursing process.

TABLE C-2 Assessment and Intervention Tool Overview

Primary Prevention	Secondary Prevention	Tertiary Prevention
Stressors[a] Convert or potential	Stressors[a] Overt, actual, or known	Stressors[a] Overt, or residual—Possible convert
Reaction Hypothetical or possible, based on available knowledge	Reaction Identified symptoms or known stress factors	Reaction Hypothetical or known residual symptoms of known stress factors
Assessment Based on client assessment, experience, and theory Risk or possible hazard based on client and caregiver perceptions Meaning of experience to client Lifestyle factors Coping patterns (past, present, possible) Individual differences identified	Assessment Determined by nature and degree of reaction Determine internal and external available resources to resist the reaction Rationale for goals—collaborative goal setting with client	Assessment Determined by degree of stability following treatment and futher potential reconstitution for possible regression factors
Intervention as prevention Strengthen client flexible line of defense Client education and desensitization to stressors Stressor avoidance Strengthen individual resistance factors	Intervention as treatment Wellness variance—overt symptoms—nursing diagnosis Need priority and related goals Client strengths and weaknesses related to the five client system variables Shift of need priorities as client responds to treatment (primary prevention needs and tertiary prevention may occur simultaneously with treatment of secondary prevention) Intervention in maladaptive processes Optimal use of internal and external resources, such as energy conservation, noise reduction, and financial aid	Intervention as reconstitution Following treatment Motivation Education and Reeducation Behavior modification Reality orientation Progressive goal setting Optimal use of available internal and external resources Maintenance of client's optimal functional level

[a]Assessment should include information concerning the relationship of the four variables—physiological, psychological, sociocultural, and developmental. (Since 1989, a fifth variable has been added—spiritual.) Reproduced, with revision (1987), from B. Neuman, "The Betty Neuman Health Care Systems Model: A Total Approach to Patient Problems," in Conceptual Models for Nursing Practice, edited by J. P. Riehl and C. Roy (New York: Appleton-Century-Crofts, 1974).

TABLE C-3 Neuman Systems Model Assessment and Intervention Tool: Client Assessment and Nursing Diagnosis

Client

A. *Intake Summary*
   1. Name_____
      Age_____
      Sex_____
      Marital status_____
   2. Referral source and related information.

B. *Stressors as Perceived by Client (If client is incapacitated, secure data from family or other resources.)*
   1. What do you consider your major stress area, or areas of health concern? (Identify three areas.)
   2. How do present circumstances differ from your usual pattern of living? (Identify lifestyle patterns.)
   3. Have you ever experienced a similar problem? If so, what was that problem and how did you handle it? Were you successful? (Identify past coping patterns.)
   4. What do you anticipate for yourself in the future as a consequence of your present situation? (Identify perceptual stressors, that is, reality versus distortions—expectations, present and possible future coping patterns.)
   5. What are you doing and what can you do to help yourself? (Identify perceptual stressors, that is, reality versus distortions—expectations, present and possible future coping patterns.)
   6. What do you expect caregivers, family, friends, or others to do for you? (Identify perceptual stressors, that is, reality versus distortions—expectations, present and possible future coping patterns.)

C. *Stressors as Perceived by Caregiver*
   1. What do you consider your major stress area or areas of health concern? (Identify three areas.)
   2. How do present circumstances differ from your usual pattern of living? (Identify lifestyle patterns.)
   3. Have you ever experienced a similar problem? If so, what was that problem and how did you handle it? Were you successful? (Identify past coping patterns.)
   4. What do you anticipate for yourself in the future as a consequence of your present situation? (Identify perceptual stressors, that is, reality versus distortions—expectations, present and possible future coping patterns.)
   5. What are you doing and what can you do to help yourself? (Identify perceptual stressors, that is, reality versus distortions—expectations, present and possible future coping patterns.)
   6. What do you expect caregivers, family, friends, or others to do for you? (Identify perceptual stressors, that is, reality versus distortions—expectations, present and possible future coping patterns.)

D. *Summary of Impressions of Stressors:* Note any discrepancies or distortions between the client perception and that of the caregiver related to the situation.
   1. *Intrapersonal Stressors*
      a. Physical (examples: degree of mobility, range of body function)
      b. Psychosociocultural (examples: attitudes, values, expectations, behavior patterns, and nature of coping patterns)

(*continued*)

TABLE C-3 (continued)

c. Developmental (examples: age, degree of normalcy, stressors related to present situation)
d. Spiritual belief system (examples: hope and sustaining stressors)

2. *Interpersonal Stressors*
   Examples are resources and relationship of family, friends, or caregivers that either influence or could influence client/client system and caregiver perceptions.
3. *Extrapersonal Stressors*
   Examples are resources and relationship of community facilities, finances, employment, or other areas that either influence or could influence client/client system and caregiver perceptions, and formation of a nursing diagnosis.

E. *Formulation of a Comprehensive Nursing Diagnosis*
   This is accomplished by identifying and ranking the priority of needs based on total data obtained from the client's perception, the caregiver's perception, or other resources, such as laboratory reports, other caregivers, or agencies. Appropriate theory is related to the above data.
   Reassessment is a continuous process and is related to the effectiveness of intervention based on the prior stated goals. Effective reassessment would include the following as they relate to the total client situation:
   1. Changes in nature of stressors and priority assignments
   2. Changes in intrapersonal stressors
   3. Changes in interpersonal stressors
   4. Changes in extrapersonal stressors

   In reassessment, it is important to note the change of priority of goals in relation to the primary, secondary, and tertiary prevention-as-intervention categories. An assessment tool of this nature should offer a current, progressive, and comprehensive analysis of the client's total circumstances and relationship of the five client variables (physiological, psychological, sociocultural, developmental, and spiritual) to environmental influences.

DIRECTIONS FOR USE OF THE ASSESSMENT AND INTERVENTION TOOL

Table C-3. Neuman Systems Model Assessment and Intervention Tool: Client Assessment and Nursing Diagnosis

CATEGORY A–BIOGRAPHICAL DATA

A-1. This section includes general biographical data. However, certain agencies may require additional data in this area.

A-2. Referral source and related information are important. They provide the background history of a client and make possible any contacts with those who interviewed the client earlier. Requests from agencies for reciprocal relationships might be recorded in this area.

TABLE C-4 Neuman Systems Model Assessment and Intervention Tool: Summary of Goals with Rationale

Primary Prevention (Prevention of treatment)	Secondary Prevention (Treatment)	Tertiary Prevention (Follow-up after treatment)
Immediate Goals: 1. 2. 3. Rationale:		
Intermediate Goals: 1. 2. 3. Rationale:		
Future Goals: 1. 2. 3. Rationale:		

TABLE C-5 Neuman Systems Model Assessment and Intervention Tool: Intervention Plan to Support Stated Goals

Primary Prevention	Secondary Prevention	Tertiary Prevention
Date		
Goals[a]	Goals[a]	Goals[a]
1.	1.	1.
2.	2.	2.
3.	3.	3.
Intervention:	Intervention:	Intervention:
Outcome:	Outcome:	Outcome:
Comments:	Comments:	Comments:

[a]Goals are stated in order of priority.

TABLE C-6 Neuman Systems Model Assessment and Intervention Tool: Format for Prevention as Intervention

Nursing Action		
Primary Prevention	***Secondary Prevention***	***Tertiary Prevention***
1. Classify stressors that threaten stability of the client/client system. Prevent stressor invasion. 2. Provide information to retain or strengthen existing client/client systems strengths. 3. Support positive coping and functioning. 4. Desensitize existing or possible noxious stressors. 5. Motivate toward wellness. 6. Coordinate and integrate interdisciplinary theories and epidemiological input. 7. Educate or reeducate. 8. Use stress as a positive intervention strategy.	1. Following stressor invasion, protect basic structure. 2. Mobilize and optimize internal/external resources to attain stability and energy conservation. 3. Facilitate purposeful manipulation of stressors and reactions to stressors. 4. Motivate, educate, and involve client/client system in health care goals. 5. Facilitate appropriate treatment and intervention measures. 6. Support positive factors toward wellness. 7. Promote advocacy by coordination and integration. 8. Provide primary preventive intervention as required.	1. During reconstitution, attain and maintain maximum level of wellness or stability following treatment. 2. Educate, reeducate, and/or reorient as needed. 3. Support client/client system toward appropriate goals. 4. Coordinate and integrate health service resources. 5. Provide primary and/or secondary preventive intervention required.

Note: A first priority for nursing action in each of the areas of prevention as intervention is to determine the nature of stressors and their threat to the client/client system. Some general categorical functions for nursing action are initiation, planning, organization, monitoring, coordinating, implementing, integrating, advocating, supporting, and evaluating. An example of a limited classification system for stressors is illustrated by the following four categories: (1) deprivation, (2) excess, (3) change, and (4) intolerance.

CATEGORY B—STRESSORS AS PERCEIVED BY CLIENT

B-1. It is important to find out how a client perceives or experiences his or her particular health situation or condition. By clarifying the client's perception, data are obtained for optimal care planning.

B-2. The client should be encouraged to discuss how present lifestyle is related to past or usual lifestyle patterns. A marked change may be significantly related to the course of an illness or possible illness.

B-3. This area relates to coping patterns. It is important to learn what similar conditions may have existed in the past and how the client has coped with them. Such data provide insight about the type of resources available that were mobilized to deal with the situation. Past coping patterns may be significantly related to the present situation, making possible certain predictions as to what a client may or may not be able to accomplish based on system strengths and weaknesses. For example, symptoms of present loss might be exaggerated following unresolved past losses.

B-4. The area of client expectations is important in planning health care interventions. Goals for care could be inappropriate if not based on clarification of how the client perceives his or her situation or condition. For example, a client might erroneously think the situation is terminal while the caregiver attempts to prepare the client for living.

B-5. If the extent of client motivation to help him- or herself can be known, available internal and external resources can be more wisely used in the client's behalf.

B-6. The health care cost stressor can often be a source of stress for the client. Sufficient data should be obtained from the client about the health care services the client thinks are needed. However, the caregiver should bear in mind that the client frequently requires help in determining what services are realistic and how they can best facilitate wellness.

CATEGORY C—STRESSORS AS PERCEIVED BY CAREGIVER

The fact that caregivers have a perspective different from that of the client is considered a positive stressor. Education, past experiences, values, personal biases, and unresolved personal conflicts can, however, distort the caregiver's clear conception of the client's actual condition. Category C was included to reduce this possibility. Questions 1 through 6 are essentially the same as those in Category B so that the client's perception can be compared with the caregiver's perception of the client. The interviewer should know the basis for his or her own perceptions, as well as the client's, so that the reality of the client's situation or condition can be fairly accurately described in a summary of impressions.

CATEGORY D—SUMMARY OF IMPRESSIONS OF STRESSORS AS PERCEIVED BY BOTH CLIENT AND CAREGIVER

These categories deal with the intra-, inter-, and extrapersonal stressors. In order to assess an individual's total situation or condition at any point, it is necessary to know the relationships among internal environmental stressors, stressors occurring between the individual and the environment and external environmental stressors that affect or could affect the individual. This set of questions attempts to clarify these relationships so that goal priorities can be established.

CATEGORY E–NURSING DIAGNOSIS

A clear, comprehensive statement of the client condition requires the reconciliation of perceptual differences between client and caregiver. All pertinent aspects of client data must be ordered according to need priority before appropriate client goals can be determined.

Table C-4. Neuman Systems Model Assessment and Intervention Tool: Summary of Goals with Rationale

Once the major problem has been defined in relation to all stressors affecting the client situation or condition, further classification is needed. A decision must be made as to what form of intervention should take priority. For example, if a reaction has not yet occurred and the client has been assessed as being in a high-risk category, intervention should begin at the primary prevention-as-intervention level. Moreover, one should be able to state the logic or rationale for the intervention. If a reaction is noted on assessment (i.e., symptoms are obvious), intervention should begin at the secondary prevention level (treatment). When assessment is made following treatment, intervention should begin at the tertiary prevention level (this is known as maintenance following treatment).

By relating all stressors affecting the client, it is possible to determine fairly accurately what type of prevention intervention is needed (primary, secondary, or tertiary), as well as the rationale to support the stated goals. At whatever point interventions are begun, it is important to attempt to project possible future health care requirements. These data may not be readily available on initial assessment but should be noted when possible to provide a comprehensive and progressive view of the client's total condition. It is important to relate this section of the assessment and intervention tool to the intervention plan.

Table C-5. Neuman Systems Model Assessment and Intervention Tool: Intervention Plan to Support Stated Goals

This portion of the Assessment and Intervention Tool is in the form of a worksheet that provides progressive data about the type of intervention given, by goal, as listed and ranked by priority. The type of interventions and their outcomes are noted. The comment section might include data useful for future planning, such as new goal priorities based on changes in the client's condition or responses and success or failure of past or present intervention, or both. This format classifies each intervention in a consistent, progressive, and comprehensive manner to which any caregiver can meaningfully relate. This process of classifying data allows one to see the relationship of parts to the whole system thereby reducing care fragmentation and costs.

Because there are conflicting views about how to arrive at and state the nursing diagnosis, it is important to provide such information for use of the Neuman Systems Model. To date, no definitive or satisfactory answer has been offered to the question, How do you use theory in making a nursing diagnosis based on the Neuman Systems Model?

In addition to the general problem of conflicting views on how the nursing diagnosis is arrived at and best stated, there are some specific stressors that contribute to a confusing and faulty nursing diagnosis: (1) existing North American Nursing Diagnosis Association (NANDA) diagnostic nomenclature does not "fit" the entirety of nursing models; (2) interpretation of client data may be faulty or information may be insufficient; and (3) theory may not be explicitly used or it may be improperly related to client data. It is more common for theory to be explicitly related to intervention than to assessment and the nursing diagnosis.

Table C-6—Neuman Systems Model Assessment and Intervention Tool: Format for Prevention as Intervention

This portion of the Assessment and Intervention Tool lists the actions that can be taken as part of each prevention-as-intervention modality.

USING THE ASSESSMENT AND INTERVENTION TOOL: A FAMILY CASE STUDY

To best resolve the nursing diagnosis dilemma in using the Neuman Systems Model and the Neuman Systems Model Nursing Process Format (Table C-1), a brief family case study is presented here. The case study is followed by an illustration of the way client data and theory are synthesized into what is known as "variance from wellness," that is, the difference from the normal or usual wellness condition. The areas of wellness variance, or those of major concern that provide the basis for a wholistic and comprehensive nursing diagnostic statement, include the entire client-family condition as a system. Since theory is related to client data, defensible and logical client goals are readily determined from the diagnostic statement for subsequent appropriate intervention, in order to retain, attain, and maintain system stability or wellness. Theory appropriate to the nursing diagnostic statement also will be found to be relevant for nursing intervention.

The B Family

The B family moved from a metropolitan to a rural area, where Mr. B assumed the superintendent's position at the local school district. Mrs. B had worked very hard at various jobs to help her husband acquire his doctoral degree and to advance his career goals. She had not wanted to make this move because of her mother's terminal bone cancer, which would necessitate long trips every other weekend for family visits. At the time of the move, Mr. and Mrs. B. were both in their late thirties and had two teenage daughters (ages 14 and 16).

Mrs. B devoted all her time to family needs, keeping the home and environment immaculate. The family profile was one of happiness, togetherness, and religious centeredness, though there was little socialization in the home. Both daughters were obese and shy, with social contacts only while at school. The younger daughter was in competition with the older daughter, who was favored by the parents. There were frequent purchases of the newest styles in clothing for all family members. A public image of the ideal proper family prevailed.

Then, to supplement the family income, Mrs. B assumed a position in a nearby dairy, rising early in the morning and riding to work with a close neighbor, Mrs. P, who also worked there. Though all family members kept a low social profile, during their year-and-a-half stay, the family had won the respect of all residents of the small village in which they lived. Mr. B excelled in the school system.

During the winter preceding the elder daughter's high school graduation and soon following her eighteenth birthday, she suddenly told the family that she was "in love" with the neighbor's wife, the woman with whom Mrs. B rode to work. Following attempted violence toward Mrs. P, the mother collapsed and was hospitalized for hypoglycemic shock; the elder daughter promptly moved into Mrs. P's home, with her husband present.

Two days following hospital discharge, Mrs. B attempted suicide with an overdose of sleeping medication. Mrs. B improved to some degree because of counseling while hospitalized. Neither the younger daughter nor Mr. B became involved, but rather continued with usual school activities. The older daughter completed high school while continuing to live across the street with Mrs. P, whose husband finally moved out of their residence. She remained estranged from her family. Though the school system invited Mr. B to continue, he relinquished his position at the end of the school year, assuming a position near Mrs. B's mother, who died one week prior to their move. Mr. B's major concern was that he might lose his new position if the family crisis should become known. The younger daughter became more withdrawn and the crisis remained essentially unresolved for all family members. Since the family chose not to share their dilemma with distant family members, there was no support from relatives, neighbors were immobilized, and there was no appropriate follow-up therapeutic family intervention from the community agencies. The family moved away and failed to keep contact with the villagers.

MAJOR STRESSORS FOR EACH FAMILY MEMBER

1. Mr. B—loss of status
2. Mrs. B—questionable mothering role and loss
3. Younger daughter—unmet developmental needs
4. Older daughter—unmet developmental needs

FAMILY PERCEPTION OF THEIR CONDITION

Mrs. P had unjustly invaded the B family system, creating the major crises that occurred.

CAREGIVER PERCEPTION OF THEIR CONDITION

The parents had failed to relate effectively to their daughters' developmental needs and to those of the family as a system.

Rigid family interaction patterns were considered a major causal stressor in the crisis situation. Mr. B also failed to recognize and support the needs of his wife before and after the crisis. Community resources failed to provide appropriate family intervention, and unresolved family crises remained.

DETERMINATION OF THE NURSING DIAGNOSIS

Variance from wellness is first determined by the following synthesis or integration of the database, with various appropriate theories (placed in parentheses in relation to analyses of the database) as follows:

- The family's past accumulated energy drain weakened the flexible line of defense, allowing stressors to penetrate the solid or normal defense line of the family, causing a series of near-fatal crises. A serious threat to the basic structure of the family existed for which there had been no previous coping mechanisms developed as internal lines of resistance (crisis, systems, communication, and nursing process theories).
- Social role and function as well as educational differences can influence family behavior. Integrating differing expectations, which can become internal and external

stressors, into the intrafamily system is often difficult to accomplish while maintaining family stability (role and systems theories). Unless individual needs are identified and met, family integrity may be jeopardized, especially when new coping strategies are required (personality, developmental, change, and family theories).

- Excessive energy was required to maintain the public image of Mr. B, while the growth and development needs of the two daughters and their mother were grossly compromised over the years (growth and development theory). The autocratic, rigid family interaction patterns failed to allow for free expression of emotions, differences, ideas, and individuation. The needs of one family part or member, Mr. B, superseded the needs of the other three, creating a dysfunction of the family system (systems and family theories).

VARIANCE FROM WELLNESS

1. Mother's suicide attempt
2. Father's public image
3. Younger daughter's immobilization
4. Older daughter's abandonment

From the specific areas of variance from wellness (theory and database synthesis), the following holistic and comprehensive nursing diagnostic statement was made:

> Erosion of the family system because of the continuous, unresolved stressor of rigid family rules to maintain Mr. B's public image resulted in bankruptcy of family emotions and energy, negating sustaining family communications during the crises.

Once a meaningful and comprehensive diagnostic statement of the overall situation can be made, major areas for goal setting and subsequent intervention can logically be determined and defended as required. The use of theory, then, is circular; that is, the same theories used in determining major wellness variance also can be used for purposeful outcome goals and intervention. Nurse professionalism is related to skill in synthesis of established scientific theory with client data to frame an accurate client diagnostic statement and present a logical, defensible justification for the decisions made.

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APPENDIX D

The Neuman Systems Model Research Institute

Eileen Gigliotti
Jacqueline Fawcett

The idea for a Neuman Systems Model Research Institute originated with a proposal by Smith and Edgil (1995) for an Institute for the Study of the Neuman Systems Model. Their proposal focused on an organizational strategy that would facilitate generation and testing of middle-range theories derived from the Neuman Systems Model.

EVOLUTION OF THE NEUMAN SYSTEMS MODEL RESEARCH INSTITUTE

Formal approval for the Research Institute was given by the Neuman Systems Model Trustees at the 2003 Biennial Symposium in Philadelphia, Pennsylvania. Gigliotti (2003) then introduced the Research Institute and described the work that already had been done by individual scholars and members of informal interest groups to advance understanding of various concepts of the Neuman Systems Model and to integrate the growing body of literature about the use of the model in research, education, practice, and administration of nursing services.

Current work focuses on clarification of Neuman Systems Model concepts and their usage in the research literature, as well as continuing to establish ties with the national and international Neuman Systems Model research community. Toward that end, the first Neuman Systems Model Think Tank was held in June 2008 in New York City. The Trustees of Neuman Systems Model International, along with other invited researchers, focused on the meaning of the concept of the basic structure/central core. The result of dialogue was an expanded definition of this Neuman Systems Model concept, which is given in Chapter 1 and Appendix A of this book.

Research Institute Grants and Fellowships

At the 2005 Biennial Symposium in Akron, Ohio, the Neuman Systems Model trustees voted to establish Research Institute fellowships in an effort to build ties among researchers using the Neuman Systems Model and further the work of generating middle-range theories from the model. Caroleann Skalski and Louisa DiGerolamo were named the first Research Institute fellows in recognition of their work to identify commonalities among stressors in the Neuman Systems Model–based research literature. Their work, presented at the 2005 Biennial Symposium, as later published in the *Journal of Advanced Nursing* (Skalski, DiGerolomo, & Gigliotti, 2006).

At a 2008 meeting of the Neuman Systems Model trustees in New York City, the purpose and scope of the Research Institute fellowships were reexamined, and the trustees voted to establish two distinct awards—the Patricia Chadwick Neuman Systems Model Research Grant and the John Crawford Neuman Systems Model Research Institute Fellow Awards. The two awards are named for deceased trustee members of Neuman Systems Model International (see Appendix E of this book).

The purpose of the $1,000 Patricia Chadwick Neuman Systems Model Research Grant is to fund a research project by a novice researcher that will lead to the development of new nursing knowledge framed within the Neuman Systems Model. One grant is awarded biennially.

The purpose of the John Crawford Neuman Systems Model Research Institute Fellow Awards is to recognize outstanding contributions to the use of the Neman Systems Model as a research model. Up to five $100 awards are given biennially.

Information about the two types of awards is available on the Neuman Systems Model Web site (http://neumansystemsmodel.org/) and in Boxes D-1 and D-2.

BOX D-1

John Crawford Fellowship Award Announcement

THE JOHN CRAWFORD NEUMAN SYSTEMS MODEL RESEARCH INSTITUTE FELLOW AWARD

Purpose: The purpose of this award is to recognize an outstanding contribution to use of the NSM as a research model.

Funding: Up to five $100 NSM Research Fellow Awards will be made.

Eligibility:

1. Educational and/or experiential preparation in use of the NSM
2. Contribution to use of the NSM as a research model
3. Potential for future contribution to the NSM Research Institute
4. The fellow must be nominated by an NSM Trustee or a person knowledgeable in use of the NSM as a research model.
5. The fellow must agree to present his/her work at the next NSM symposium. Symposium Fees will be waived but the fellow must cover travel expenses. In the event that the Fellow cannot attend the symposium, arrangements must be made by the Fellow to have his/her work presented by a symposium attendee.

Application to include 5 copies of the following materials:

1. ***Nomination:*** Must include a formal statement by a nominator who is knowledgeable about the use of the NSM as a research model (nominator's NSM background statement necessary). This statement must address the above eligibility criteria.
2. ***Agreement to present at the next NSM symposium:*** Applicant must sign the agreement to present the work if award is made. Note that symposium registration fees will be waived but all other expenses are the responsibility of the applicant. As noted above, in the event that the Fellow cannot attend the symposium, arrangements must be made by the Fellow to have his/her work presented by a symposium attendee.
3. ***Biographical Sketch: (No CVs accepted):***
   - Education (institution/location, degree, year conferred, field of study)
   - Interest/work accomplished in use of the NSM as a research model
   - Current employment title and organization

- Neuman Systems Model Background: should include applicant's education and experience in using the NSM including any prior projects (research, education and/or practice).

Send applications to:

Professor Eileen Gigliotti
Department of Nursing,
College of Staten Island, City University of New York 2800 Victory Blvd.,
Staten Island, NY 10314
Direct all questions to Professor Gigliotti at gigliotti@mail.csi.cuny.edu

Consultation Services

Members of the Research Institute are available for consultation and can be contacted via an e-mail link on the Neuman Systems Model Web site (http://www.neumansystemsmodel.org). For example, Dr. Eileen Gigliotti visited Dokuz Eylul University in Izmir, Turkey,

BOX D-2

Patricia Chadwick Research Grant Award Announcement

THE PATRICIA CHADWICK NEUMAN SYSTEMS MODEL RESEARCH GRANT

Purpose: The purpose of this research grant is to fund a research project, by a novice researcher (see below), that will lead to the development of new nursing knowledge framed within the NSM.

Award Cycle: This is a biennial award. The work accomplished must presented at the next NSM Symposium, where the awardee will be formally recognized.

Completed proposals/documentation must be submitted no later than June 1 of even-numbered years.

Funding: One $1000 grant will be awarded. A proposed budget and budget agreement must be attached.

Eligibility

1. The awardee must be a novice researcher (e.g., doctoral candidate or within 3 years after graduation from a *research* doctoral program).
2. If a doctoral candidate, the proposal must have been accepted by the candidate's committee and a letter of support from the advisor must be attached.
3. The awardee must sign the agreement to present his/her findings at the next NSM symposium, if the award is made. In the event that the awardee cannot be present, it is the responsibility of the awardee to make arrangements with an attendee to present his/her work. Symposium fees will be waived but the awardee must cover travel expenses.
4. Award will be made based on the proposed contribution to the NSM of the candidate's project and his/her background with use of the NSM.

Send applications to:

Professor Eileen Gigliotti
Department of Nursing,
College of Staten Island, City University of New York 2800 Victory Blvd.,
Staten Island, NY 10314
Direct all questions to Professor Gigliotti at gigliotti@mail.csi.cuny.edu

in July 2008 to provide consultation regarding use of the Neuman Systems Model as a research model. She is currently working with a doctoral student from Dokuz Eylul University to provide an example of a nonphysiologically based basic structure/central core response. Interested researchers who would like to become active within the Neuman Systems Model Research Institute should contact Dr. Gigliotti via the Web site e-mail link for information.

REFERENCES

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APPENDIX E

Trustees of Neuman Systems Model International

Betty Neuman

When the Neuman Systems Model was first published, it was intended for nursing; I thought that if it proved valuable, the profession would recognize the fact and further develop, refine, and nurture it. Until such time as it either proved or disproved its utility, I considered myself a servant of the model, shepherding it during the struggles of its early years. My goal was to provide visibility through attempts to clarify its concepts, develop tools for its use, and motivate and network with those who were using or planned to use it, until it reached maturity. My hope is that the nursing profession, in its continuing efforts to be creative with the Neuman Systems Model, will preserve the integrity and identity of the model in future development and utilization of its concepts. The model is now used worldwide, providing new parameters, concepts, and terminology for nursing and other health disciplines appropriate for the 21st century.

I am most appreciative of the work of many fine people who in various ways have facilitated the visibility and mature state of the model. Much time, talent, faith, pioneering spirit, effort, and nurturance was required for it to withstand the test of time in proving its value for organizing health care activities and giving direction for high quality care.

The model is now officially placed with the Trustees of the Neuman Systems Model International, whose internalization of the model components, competency, and dedication offer assurance that the model will live on. The Neuman Systems Model Trustees Agreement follows.

THE NEUMAN SYSTEMS MODEL TRUSTEES AGREEMENT

Betty Neuman

Purpose

The purpose of this Neuman Systems Model Trustees Agreement, established in the fall of 1988 by the Trustor, Betty M. Neuman, RN, PhD, is to preserve, protect, and perpetuate the integrity of the model for the future of nursing.

Membership

The membership will be called The Neuman Systems Model Trustees Group, Inc., and will initially include professional nurses from the United States and other countries who for the past two years have been committed to and engaged in the development or use of the Neuman Systems Model. Upon resignation, the current member may appoint a successor with the above qualifications for majority-vote acceptance by the current membership group. A two-thirds vote is required for decision making.

Functions

1. Present or facilitate presentation of the model and its usage at conferences and meetings.

2. Achieve unanimous agreement on any future permanent changes in the original Neuman Systems Model diagram.
3. Consult or provide consultation activities for nursing education and practice implementation.
4. Provide information, networking, and support to those requiring or requesting it.
5. Trustee member sharing and updating of information and activities related to the model on a continuing basis with a commitment to its further development.
6. Plan, promote, and conduct national and international conferences on the Neuman Systems Model.
7. Establish by-laws or protocol for Trustee Group membership involvement as required for continued functional relevancy.

Active Membership

Current and former Neuman Systems Model International Trustees, as of August 2009, are listed here.

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APPENDIX F1

Use of the Neuman Systems Model as a Guide for Nursing Education

Betty Neuman
Lois Lowry
Jacqueline Fawcett

Publications and anecdotal reports reveal that the Neuman Systems Model has been used successfully as a guide for curriculum construction and revision in various types of nursing education programs in the United States and other countries, as well as a guide for continuing education and in-service education programs. The first program to adopt the Neuman Systems Model as a curricular framework was St. Xavier College in Chicago in 1974. Throughout the 1980s and early 1990s, many baccalaureate and associate degree programs in the United States adopted the model. Additionally, programs in several other countries have adopted the model as a curricular framework (Lowry, 2002). Over the years, some of the programs have moved to a more eclectic approach that combines concepts from other models with some Neuman Systems Model concepts, such as stress, systems, and primary prevention.

The names of the schools in which the Neuman Systems Model has been used at some time are listed here. A list of educational programs currently using the Neuman Systems Model Appears in Table F-1. The Neuman Systems Model has also been used to guide development of a physical therapy curriculum (Lowry, 2002; Toot & Schmoll, 1995).

PUBLICATIONS

Practical Nursing Programs

- Santa Fe Community College, Gainesville, Florida (Neuman, 1995)
- Texas Woman's University, Houston (Gerontic Nursing) (Gunter, 1982; Lowry, 2002)

Associate Degree Nursing Programs

- Athens Area Technical Institute, Athens, Georgia (Lowry, 2002; Lowry & Newsome, 1995)
- Cecil Community College, North East, Maryland (Johnson, 1989; Lowry, 1986, 1988, 1998, 2002; Lowry & Green, 1989; Lowry & Jopp, 1989; Lowry & Newsome, 1995; Strickland-Seng et al., 1996)
- Central Florida Community College, Ocala, Florida (Lowry, 2002)
- Contra Costa College, San Pablo, California (personal communication, Rita Ruderman, April 20, 2001)
- Indiana University–Purdue University at Fort Wayne (Beckman et al., 1998a, 1998b; Freiburger, 1998; Lowry, 2002; Lowry & Green, 1989; Lowry & Newsome, 1995)
- Los Angeles County Medical Center School of Nursing, Los Angles, California (Bloch & Bloch, 1995; Hilton & Grafton, 1995; Lowry, 2002)

TABLE F-1 Current Use of Neuman Systems Model by Nursing Education Programs

College/University	Level of Education	Date of Model Adoption
Anna Maria College; Paxton, MA	BS, MS	1980
Athens Area Technical Institute; Athens, GA	AD	1990
California State University; Channel Islands, Ventura, CA	BS	2002
California State University; Fresno, CA	BS, MS	1989
Cecil Community College; North East, MD	AD	1981
Central Florida Community College; Oceola, FL	AD	1994
Florida Hospital College of Health Sciences, Orlando, FL	BS	2002
Holy Names College; Oakland, CA	BS	2004
Gult Coast Community College; Panama City, FL	PN, AD	2000
Fitchburg State College; Fitchburg, MA	BS	1992
Holy Names College; Oakland, CA	BS	1994
Indiana University-Purdue University; Ft. Wayne, IN	AD/BS	1984
Lander University; Greenwood, SC	BS	1985
Loma Linda University; Loma Linda, CA	BS, MS	1992
Los Angeles County Medical Center; Los Angeles, CA	AD	1989
Louisiana College; Pineville, LA	BS	1984
Mansfield College; Mansfield, PA	BS	1987
Minnesota Intercollegiate Consortium; St. Olaf, MN	BS	1986
Neumann College; Aston, PA	BS	1980
Nova Southeastern University; Ft. Lauderdale, FL	BS	2000
Santa Fe Community College; Gainesville, FL	PN, AD	1985
Seattle Pacific College; Seattle, WA	BS	1982
Southern Adventist University; Collegedale, TN	AD	1999
St. Anselm's College; Manchester, NH	BS	1985
Texas Woman's University; Houston, TX	BS only	1979
University of Nevada; Las Vegas, NV	BS, MS only	1979
University of Tennessee; Martin, TN	BS	1989
INTERNATIONAL PROGRAMS		
Dutch Reformed University; Zwolle, Holland	BS	1997

- Santa Fe Community College, Gainesville, Florida (Lowry, 2002; Lowry & Green, 1989; Lowry & Newsome, 1995; Neuman, 1995; Sutherland & Forrest, 1998)
- Southern Adventist University, Collegedale, Tennessee (Lowry, 2002)
- University of Nevada, Las Vegas (Louis et al., 1989; Lowry, 2002; Lowry & Green, 1989)
- Yakima Valley Community College, Yakima, Washington (Evans, 1998; Lowry, 2002; Lowry & Newsome, 1995)

Baccalaureate Nursing Programs

- Anna Maria College, Paxton, Massachusetts (see Cammuso, Silveri, & Remijan in Section Four of this book)
- Aarhus University, Aarhus, Denmark (Johansen, 1989; Lowry, 2002)
- Avon and Gloucestershire College of Health, School of Nursing, Avon, England (Child care curriculum) (Vaughan & Gough, 1995)
- Brandon University, Brandon, Manitoba, Canada (Practicum courses) (Craig, 1995; Lowry, 2002)
- California State University in Fresno (Lowry, 2002; Stittich et al., 1989, 1995)
- Douglas College Department of Psychiatric Nursing, British Columbia, Canada (see Tarko & Helewka in Section Four of this book)
- Dutch Reformed University Department of Nursing, Zwolle, Holland (de Kupier, 2002)
- Escola Superior De Enfermagem De Maria Fernanda Resende, Lisbon, Portugal (Neuman, 1995)
- Fitchburg State College, Fitchburg, Massachusetts (Nursing Process with Families/Groups in Communities course) (Cammuso & Wallen, 2002)
- Indiana University–Purdue University at Fort Wayne (see Beckman, Lowry, & Boxley-Harges in Section Four of this book)
- Lander University, Greenwood, South Carolina (Hasell, 1998; Lowry, 2002; Reed-Sorrow et al., 1989; Sipple & Freese, 1989)
- Loma Linda University, Loma Linda, California (see Burns in Section Four of this book)
- Minnesota Intercollegiate Nursing Consortium: College of St. Catherine, St. Paul; Gustavus Adolphus College, St. Peter; St. Olaf College, Northfield (Glazebrook, 1995; Mrkonich, Hessian et al., 1989; Lowry, 2002; Mrkonich, Miller et al., 1989; Reed-Sorrow et al., 1989)
- Neumann College, Aston, Pennsylvania (Lowry, 2002; Mirenda, 1986; Strickland-Seng et al., 1996)
- North Dakota–Minnesota Nursing Education Consortium (Tri-College University): Moorhead State University, Moorhead, Minnesota; Concordia College, Moorhead, Minnesota; North Dakota State University, Fargo (Lowry, 2002; Nelson et al., 1989)
- Okanagan University, British Columbia, Canada (Beddome, 1995; Lowry, 2002)
- Queens University, Kingston, Ontario, Canada (Laschinger et al., 1989; Lowry, 2002)
- Ryerson Polytechnical Institute, Toronto, Ontario, Canada (Community Health Nursing course) (Craig, 1995)

- Saint Anselm College, Manchester, New Hampshire (Beyea & Matzo, 1989; Bruton & Matzo, 1989; Busch & Lynch, 1998; Lowry, 2002)
- Saint Xavier College, Chicago, Illinois (Lebold & Davis, 1980, 1982; Lowry, 2002)
- Simmons College, Boston, Massachusetts (Edwards & Kittler, 1991)
- State University of New York at Brockport (Weitzel & Wood, 1998)
- Texas Woman's University, Houston, Texas (Gerontic Nursing) (Gunter, 1982; Lowry, 2002)
- Union College, Lincoln, Nebraska (Beitler et al., 1980)
- University College of Caring Sciences, Eskilstuna, Sweden (Primary Health in Nursing courses) (Engberg, 1995; Lowry, 2002)
- University College of Health Sciences, Jönköping, Sweden (Primary Health in Nursing courses) (Engberg, 1995; Lowry, 2002)
- University of Calgary, Calgary, Alberta, Canada (Craig, 1995; Lowry, 2002)
- University of Missouri–Kansas City (Conners, 1982, 1989; Lowry, 2002)
- University of Moncton, Moncton, New Brunswick, Canada (Craig, 1995; Lowry, 2002)
- University of Nevada, Las Vegas (Louis et al., 1989; Lowry, 2002)
- University of Ottawa, Ottawa, Ontario, Canada (Community Health Nursing, Occupational Health Nursing, Nursing Management of the At Risk Gravida During Antepartum and Intrapartum, Nursing Management of the Neonate at Risk courses) (Bourbonnais & Ross, 1985; Craig, 1995; Lowry, 2002; Ross et al., 1987; Story & Ross, 1986)
- University of Pittsburgh, Pittsburgh, Pennsylvania (Knox et al., 1982; Kilchenstein & Yakulis, 1984; Lowry, 2002)
- University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada (Craig, 1995; Lowry, 2002)
- University of Saskatchewan, Saskatoon, Saskatchewan, Canada (Psychiatric Nursing course) (Craig, 1995; Dyck et al., 1989; Lowry, 2002; Peternelj-Taylor & Johnson, 1996)
- University of South Australia, Adelaide, Australia (Lowry, 2002; McCulloch, 1995)
- University of Tennessee at Martin (Strickland-Seng, 1995, 1998; Lowry, 2002)
- University of Texas at Tyler (Klotz, 1995; Lowry, 2002)
- University of Toronto, Toronto, Ontario, Canada (Craig, 1995; Lowry, 2002)
- University of Western Ontario, London, Ontario, Canada (Community Health Nursing course) (Craig, 1995)
- University of Windsor, Windsor, Ontario, Canada (Family and Community Health Nursing courses) (Craig, 1995; Lowry, 2002)
- University of Wyoming, Laramie (Dale & Savala, 1990; Nichols et al., 1989)

Masters Degree Nursing Programs

- California State University, Fresno (Lowry, 2002; Nuttall et al., 1998; Stittich et al., 1989)
- Fitchburg State College, Fitchburg, Massachusetts (forensic nursing) (Cammuso & Wallen, 2002)
- Ohio University, Athens, Ohio (Nursing Service Administration Program) (Lowry, 2002; Neuman & Wyatt, 1980)
- Northwestern State University, Shreveport, Louisiana (Lowry, 2002; Moxley & Allen, 1982)

- Texas Woman's University, Dallas and Houston, Texas (Conners et al., 1982; Johnson et al., 1982; Lowry, 2002; Neuman, 1995; Tollett, 1982)
- University of Missouri–Kansas City (Conners, 1982, 1989; Lowry, 2002)
- University of Nevada, Las Vegas (Louis et al., 1989; Lowry, 2002)
- University of Texas at Tyler (Klotz, 1995; Lowry, 2002)
- Continuing Nursing Education/Inservice Nursing Education (Baker, 1982a, 1982b; Capers, 1986; Engberg et al., 1995; Harty, 1982; Roberts, 1994; Story & DuGas, 1988)

ANECDOTAL REPORTS (NEUMAN, 2002)

- Akureye University, Baccalaureate Nurse Program, Akureye, Iceland
- Auburn University, Baccalaureate Nurse Program, Auburn, Alabama
- Bob Jones University, Greenville, South Carolina
- Bowie State University, RN-BSN Completion and Master Program, Bowie, Maryland
- Daemen College, RN-BSN Completion Program, Amherst, New York
- Delta State University, Cleveland, Mississippi
- East Tennessee State University in the Department of Professional Roles/Mental Health Nursing
- Escola Superior De Enfermagem Maria Fernanda Resende, Lisbon, Portugal
- Indiana Wesleyan College Marion, Indiana Baccalaureate and Master's Program level Community Health
- Gulf Coast University, Panama City, Florida, Associate Degree Program
- Linn-Benton College, Associate Degree in Nursing, Albany, Oregon
- The Los Angeles County USC Medical Center School of Nursing, Associate Degree in Nursing, Los Angeles, California
- Louisiana College, Baccalaureate Nurse Program, Pineville, Louisiana
- Mansfield University, Baccalaureate Nurse Program, Mansfield, Pennsylvania
- Maribor University, Baccalaureate Nurse Program, Maribor, Slovenia
- McNeese State University, Lake Charles, Louisiana (trilevel nurse program and a four-school intercollegiate consortium program for a master of science in nursing)
- Milligan College, Milligan College, Tennessee, Baccalaureate Program
- Queen's University, Kingston, Ontario, Canada
- Seattle Pacific University in Seattle, Washington
- Tri-County College Nursing Consortium (State University of North Dakota in Wells Fargo, North Dakota, and Concordia College in Moorhead, Minnesota)
- University of British Columbia, Vancouver, British Columbia, Canada
- University of Guam, Baccalaureate Nurse Program, Mangilao, Guam
- University of Maribor, Maribor, Slovenia
- University of Puerto Rico, San Juan
- University of Saskatchewan, Saskatoon, Saskatchewan, Canada
- University of Tennessee at Martin, Department of Nursing, Baccalaureate Nurse Program, Martin, Tennessee
- William Rainey Harper College, Associate Degree Nurse Program, Palatine, Illinois
- Veterans General Hospital Nursing, Taipei, Taiwan
- Yang Ming Medical College, Taiwan

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APPENDIX F2

Use of the Neuman Systems Model as a Guide for Nursing Services

Betty Neuman
Jacqueline Fawcett

The utility of the Neuman Systems Model in nursing service administration has been well documented. According to Sanders and Kelley (2002), who reported the results of an integrative review of the literature addressing use of the model as a guide for nursing services:

> The clarity, simplicity, and generalizability of the Neuman Systems Model is demonstrated by the frequency with which it has been implemented in clinical agencies as a framework for both administrative and clinical practice. . . . The use of the Neuman Systems Model in clinical practice agencies has been as pervasive in other countries as in the United States. Second only to the United States, Canada has adopted the Neuman Systems Model as the nursing model of choice for guiding nursing practice in a variety of health care agencies. (pp. 280, 283)

Publications and anecdotal reports have revealed that the Neuman Systems Model has been implemented successfully at the unit or organization level in many countries. The list of known health care organizations that have used the Neuman Systems Model is given here. See also Chapters 16, 19, and 20 of this book.

PUBLICATIONS

- Allied Home Health Association, San Diego, California (Pinkerton, 1974)
- Mount Sinai Hospital, Hartford, Connecticut (Caramanica & Thibodeau, 1987, 1989; Craig & Beynon, 1996; Moynihan, 1990)
- Kuakini Health Care System, Honolulu, Hawaii (Craig & Beynon, 1996)
- Francis Ashbury Manor United Methodist Homes, Ocean Grove, New Jersey (Schlentz, 1993)
- Senior Health Service Community Nursing Center, University of Rochester, Rochester, New York (Dwyer et al., 1995)
- Chester Community Nursing Center, Chester, Pennsylvania (Reitano, 1997)
- Community nursing center in eastern Pennsylvania (Newman, 2005)
- Friends Hospital, Philadelphia, Pennsylvania (Scicchitani et al., 1995)
- Hospital-Based Community Case Management Program, Sedgwick County, Kansas
- Collington Episcopal Life Care Community, Mitchellville, Maryland (Rodriguez, 1995)
- Children's Hospital of Michigan, Detroit, Michigan (Torakis, 2002; Torakis & Smigielski, 2000)
- Allegiance Health, Southern Michigan (see Burnett & Johnson-Crisanti in Section Six of this book)
- Jefferson Davis Memorial Hospital, Natchez, Mississippi (Craig & Beynon, 1996; Hinton-Walker & Raborn, 1989)

- Riverside Methodist Hospital, Ohio (see Kinder, Napier, Rubertino, Surace, & Burkholder in Section Six of this book)
- Hospice of Windsor, Windsor, Ontario, Canada (Echlin, 1982)
- Whitby Psychiatric Hospital, Whitby, Ontario, Canada (Craig & Beynon, 1996; Craig & Morris-Coulter, 1995)
- Geriatric Day Hospital, Parkwood Hospital, London, Ontario, Canada (Neuman, 1995)
- Middlesex-London Health Unit, Public Health Nursing Division, Ontario, Canada (Beynon, 1995; Craig, 1995; Craig & Beynon, 1996; Drew et al., 1989; Mytka & Beynon, 1994)
- Elgin–St. Thomas Health Unit, Public Health Nursing Division, St. Thomas, Ontario, Canada (Craig, 1995)
- Regional Neonatal Education Program of Eastern Ontario, Ottawa, Ontario, Canada (Dunn & Trépanier, 1989)
- Elizabeth Bruyere Health Center, Ottawa, Ontario, Canada (Craig & Beynon, 1996; Felix et al., 1995; Neuman, 1995)
- Manitoba Department of Health, Manitoba, Canada (Drew et al., 1989)
- St. Joseph Hospital, Reykjavik, Iceland (Craig & Beynon, 1996)
- Burford Community Hospital, Oxfordshire, England (Johns, 1991)
- Queen Alexandra Hospital, Intensive Therapy Unit, Portsmouth, England (Fulbrook, 1991)
- Paediatric Unit, Royal Infirmary, Blackburn, Lancashire, England (Kenyon & Barnett, 2001)
- Community Psychiatric Nursing Practice: Breconshire, Powys, Wales; Ystradgynlais, Powys, Wales (Davies, 1989; Davies & Proctor, 1995)
- Emergis, The Institute for Mental Health Care, Zeeland, Holland (de Munck & Merks, 2002; see also Merks, van Tilburg, & Lowry in Section Six of this book)
- Riagg Zuid Hollandse Eilanden (An agency for ambulatory mental health patients), Holland (Verbeck, 1995)
- Rykov Hospital, Jönköping, Sweden (Craig & Beynon, 1996)
- Primary Health Care Center, Savsjo, Sweden (Engberg, 1995)

ANECDOTAL REPORTS (NEUMAN, 2002)

Nurse-Managed Clinics

- Lander University, Greenwood, South Carolina
- Indiana University-Purdue University at Fort Wayne, Indiana
- U.S. Immigration and Naturalization Service Health Care Program

Health Care Organizations

- Tripler General Army Medical Center, selected nursing service areas, Honolulu, Hawaii
- Anderson Hospital, Nursing Service, Marysville, Illinois
- St. Patrick's Hospital, Lake Charles, Louisiana
- Lake Area Medical Center, Lake Charles, Louisiana
- Lake Charles Memorial Hospital Rural Health Program, Lake Charles, Louisiana

- West Calcasieu-Cameron Hospital Nursing Service, Sulphur, Louisiana
- University of Maryland, Baltimore, Institute for Emergency Medical Services–Critical Care Unit, Baltimore, Maryland
- The Collington Care Retirement Community Nursing Service and Clinic, Hyattsville, Maryland
- Boston City Health Department, Boston, Massachusetts
- St. Luke Hospital, Nursing Service, Fargo, North Dakota
- South West Medical Center Nursing Service, Oklahoma City, Oklahoma
- Oregon State Psychiatric Hospital Nursing Service, Salem, Oregon
- Mercy Catholic Medical Center, Fitzgerald Mercy Division, Darby, Pennsylvania
- Hospital of the University of Pennsylvania Neonatal Clinical Care Unit, Philadelphia, Pennsylvania
- Altoona Hospital, Altoona, Pennsylvania
- Oklahoma State Department of Public Health, Public Health Nursing Service, Oklahoma City, Oklahoma
- Mountain View Hospital, Nursing Service, Madras, Oregon
- Methodist Central Hospitals, Memphis, Tennessee
- Children's National Medical Center (personal communication to J. Fawcett, July 2008)
- Juan de Fuca Hospitals, Victoria, British Columbia
- Community Health Program, Winnipeg, Manitoba, Canada
- Centre de Sante, Elizabeth Bruvere Health Center (tertiary care), Ottawa, Ontario, Canada
- Riverside Acute Care Hospital Nursing Service, Ottawa, Ontario, Canada
- Peterborough Civic Hospital, Peterborough, Ontario, Canada.
- Chedoke-McMaster Hospital, Ontario, Canada
- Ottawa Civic Hospital, Ottawa, Ontario, Canada
- Victoria Hospital, Ontario, Canada
- University Hospital of Saskatchewan, Saskatoon, Saskatchewan, Canada.
- Psychiatric Centers for Interdisciplinary Care Continuity, Holland
- WHO Collaborative Center for Primary Health Care Nursing, Maribor, Slovenia

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APPENDIX G

Neuman Systems Model Bibliography and Web Site Information

Jacqueline Fawcett

Neuman Systems Model Web site: http://www.neumansystemsmodel.org

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http://www.neumann.edu/academics/undergrad/nursing/archives.asp

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