Barcode-Enabled Medication Administration (BEMA)
Objectives

- Describe Barcode-Enabled Medication Administration
- Describe Hardware
- List Describe and evaluate software
- Describe and review Information System
- Describe advantages and disadvantages
- Examine ethical and legal issues
- 'Describe the technology-related competencies of the professional nurse working with Barcode-Enabled Medication Administration
- 'Describe the functions of the informatics nurse working with Barcode-Enabled Medication Administration
Barcode-Enabled Medication Administration

- Reduces medication administration errors
- Requires the use of linear barcodes on prescription drugs
- Confirms the patient’s identity
- Matches the patient with the medication order
- Confirms that administering nurse has the authority to dispense the medications
- Records transaction information and stores it on an electronic Medication Administration Record

(Perry, Shah, & Englebright, 2007)
Barcode-Enabled Medication Administration

- Improves Medication Safety within hospital settings
- Utilized at bedside via a computerized database with a barcode scanning system
- Ensures the five rights of medication administration
Hardware Model

- Wireless PC
- Barcodes
- Keyboard
- Scanner

BEMA
Hardware

- Handheld barcode scanning device
- Wireless mobile computer and cart
- Patient Identification Bracelet
- Keyboard
- Nursing Identification Barcode Badge
- Optional palm PDA scanners can be utilized

(Siemens 2005)
Barcode Scanning Device

- Light weight and comfortable hand held design
- Built in decoder
- Emits high intensity red aiming beam
- Trigger button
Software

- Siemens Med Administration Check (MAC)
- Siemens Pharmacy
- INVISION
- Chart-Assist
- Interface with LCR and PYXIS Connect
  (Siemens 2005)
Software MAC

- MAC is a nursing application
- Database collects, sorts, organizes, and stores information
- Database allows nurse to easily retrieve select and aggregate data
- Open MAC application using login id and password
- Select patient from database
- All patients information is stored on database
Software Database

- Name of patient
- Room number
- Patients identification number
- Patients sex/age
- Patients Length of stay
- Attending physician
### Scheduled:

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<th>Time</th>
<th>Drug Name</th>
<th>Dose</th>
<th>Route</th>
<th>Frequency</th>
<th>Directions</th>
<th>Inj Site</th>
<th>Reason</th>
<th>Last Charted</th>
<th>Admin Dose</th>
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<td>13:00</td>
<td>VERAPAMIL HCL</td>
<td>80 MG = 1 TABLET</td>
<td>PO</td>
<td>Q8H</td>
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<td>PO</td>
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<td>D5W</td>
<td>1000 ML</td>
<td>LVP</td>
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<td>130 MG = 1 ML</td>
<td>IV</td>
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### PRN:

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<th>Dose</th>
<th>Route</th>
<th>Frequency</th>
<th>Directions</th>
<th>Inj Site</th>
<th>Reason</th>
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<th>Admin Dose</th>
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<td>650 MG = 2</td>
<td>PO</td>
<td>Q48HP</td>
<td>PRN</td>
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<td>FOR FEVER</td>
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Usability

- User friendly
- Easily learned
- Overall department satisfaction with use
- Access information easily
- Interface achieves particular goals
- Error tolerance
Siemens Information System

- Offers a network of hardware, software, and telecommunications
- Goals are to collect create and distribute data
- Primary function is to eliminate medication errors within a hospital setting
- Processes data for analysis in the form of reports, documents, summaries, alerts and outcomes

(McGonigle, D., & Mastrian, K. 2009).
(Siemens 2005)
Health Information System Review

- End-user satisfaction
- Quality of care improvements
- Increased ability to document at point of care
- Increased clinician productivity due to increased mobility
- Improves nurse satisfaction
- Overall cost savings

(Technology for Long Term Care. 2008).
Advantages

- Improves medication administration flow with online work list
- Checks for five rights at the point of care with bar code technology
- Drives online MAR documentation, charging, inventory control
- Uses proven point of care technology options
- Is designed for acute, ambulatory, long term care environment

(Bowman, M. 2008).
Advantages

- Provides value added clinical and operation integration
- Can include assessment and process redesign consulting services
- Compatible with any automated drug dispensing device and drug wholesaler
- Assesses for pain by prompting a pain scale when administering analgesics (Bowman, M. 2008).
Disadvantages

- Not foolproof
- Bar codes mismatch with drug, dose, and patient at times
- Bar code sometimes function erroneously
- Unable to scan bar codes properly at times
- Nurses override alerts for medication administration at 4.2% of individual patient (Neale, T. 2008, July 1).
Disadvantages

- Duplicate patient identification bar codes have been scanned for multiple patients
- Carrying several patients pre-scanned medications on one tray
- Disabling system alarms to avoid disturbing their patients
- Unreadable bar codes
- Emergency Situations
- Time consuming

(Neale, T. 2008, July 1).
Ethical/Legal Issues

- Potential problems in regards to HIPPA
- Leaving the computer in the hallway with patient name and identity exposed
- Nurses not logging off of software application
- Unethical/ethical in regards to override overrides (Perry, Shah, & Englebright, 2007).
Competencies

- Clinicians have various technological backgrounds
- Super users were accessible to staff every shift Q 24 hours
- Workshops are initiated
- Need successful completion of the course
- Staff representatives include inpatient pharmacist, ICU nurse, ward nurse, and a nursing instructor
- Ongoing refresher courses offered
Competencies

- Job shadowing

- Multidisciplinary cross training techniques increase staff understanding and competency (Siemens, 2005).
Roll of Informatics Nurse

- Identify the issue or problem
- Identify alternatives
- Choose and develop a solution
- Implement the solution
- Evaluate and adjust the solution

(McGonigle, & Mastrian, 2009).
Conclusion

- Siemens MAC wave of the future
- Technology at work at the bedside
- Increasing safety
- Increasing continuity of care
- Increasing satisfaction among staff
- Increasing communication
Conclusion

- Decreases medication errors
- Decreases law suits
- Regardless of some small disadvantages, the application can be improved over time
- Opens new windows and doors for communication and safety
References


References


References
