Human Papilloma Virus
HPV
CERVICAL WARTS and HSIL
CERVICAL WARTS and HSIL
Other sites of Warts
CERVICAL CANCER
Human Papilloma Virus (HPV) (More than 100 types)

- Infects only humans
- High risk (oncogenic) types
  - 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 69, 82
- Low risk (non-oncogenic) types
  - 6, 11, 40, 42, 43, 44, 54, 61, 72, 81
HPV Types-Low & High Risk

“Low risk” types
6, 11 (Genital warts)

“High risk” types (11)
16, 18, 31, 33, 45, 56
Human Papilloma Virus

- Anogenital Disease: cervix, vulva, vagina, anus, penis
  - Condylomata accuminatum
  - Squamous intraepithelial neoplasia
  - Cancer
- Head/Neck Disease:
  - Mouth, tongue, tonsils
  - Sinuses
  - Oropharangeal
  - Respiratory mucosa (children; type 6, 11)
  - Cancer: usually HPV 16
- Cofactors: Smoking, Alcohol
HPV DNA Detection

- Hybrid capture II assay by Digene Diagnostics
  - Only pos. or neg. for Hi Risk HPV: not type specific

- Research techniques
  - In-situ hybridization
  - Polymerase chain reaction
  - Dot blot
  - Filter hybridization
  - Southern transfer hybridization
## HPV Nomenclature

### Cervical / Vaginal / Vulvar / Anal / Penile

<table>
<thead>
<tr>
<th>Dysplasia</th>
<th>Mild Dysplasia</th>
<th>Moderate Dysplasia</th>
<th>Severe Dysplasia Carcinoma in-situ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intraepithelial Neoplasia</strong></td>
<td>CIN I</td>
<td>CIN 2</td>
<td>CIN 3</td>
</tr>
<tr>
<td></td>
<td>VIN 1</td>
<td>VIN 2</td>
<td>VIN 3</td>
</tr>
<tr>
<td></td>
<td>VAIN 1</td>
<td>VAIN 2</td>
<td>VAIN 3</td>
</tr>
<tr>
<td><strong>Squamous Intraepithelial Lesion (SIL)</strong></td>
<td>Low Grade SIL (LSIL)</td>
<td>High Grade SIL (HSIL)</td>
<td>High Grade SIL (HSIL)</td>
</tr>
</tbody>
</table>
Acute (Incident) HPV Infection

- 5 – 10 years to develop cancer from time of infection
- Infects only the epithelium – no viremia
- Most cases – no histologic or cytologic changes (66% - 90%)
  - Resolution of infection and cytologic changes occurs secondary to antibodies, and NKC, activated CD-4 and T lymphocytes
Cervical Carcinogenesis

The Three Steps of Cervical Carcinogenesis.
The steps can be conceptualized as infection with specific high-risk types of human papillomavirus (HPV), progression to a precancerous lesion, and invasion. HPV infections are usually transient and are often associated with mild cytologic abnormalities. Persistent infection with high-risk types of HPV is uncommon and is required for progression.
Natural History of HPV & Cervical Cancer

- Persistence
- Normal Cervix
- Infection
- HPV Infection
- Progression
- Pre-cancer
- Invasion
- Cancer
- Clearance
- Regression
Transmission of HPV

- Genital contact
- Vaginal intercourse not required
- Number of partners; partners number of partners
- New partner greater risk
- Smoking: 4 times R.R.
- **Persistence of Hi Risk HPV: increases risk of SIL**
- Viral load correlates with developing SIL
- **Immunosuppression:** HIV, Rheumatoid Arthritis, Cancer
- **Condoms:** not very good at preventing HPV
- Spermide nonoxynol-9: not protective
What is the HPV Test?

- The HPV test is a very accurate way to tell if high-risk HPV is present in a woman’s cervix.
- This test can use the same sample of cells taken for the Pap test.
- A positive test result means a woman has high-risk HPV. A positive HPV test does not mean that a woman has cancer.
When Should an HPV Test be Done?

- To see if a woman with a borderline Pap test result (one that shows unusual cells but not dysplasia) needs additional tests.
- To screen for cervical cancer, along with the Pap test, in women aged 30 or older.
HPV Vaccine
On what parameter the efficacy of HPV vaccine should be evaluated?

A. Antibody titers
B. Efficacy against CIN2/3 or AIS

CIN – Cervical Intraepithelial Neoplasia, AIS – Adenocarcinoma in situ
Natural History of HPV Infection: Surrogate Markers for Cervical Cancer

0-1 Year

HPV Infection

0-5 Years

Low Grade Lesions

1-20 Years

High Grade Lesions

Demonstrate efficacy against high grade lesions

LSIL (CIN1) or HSIL (CIN2/3), low- or high-grade squamous intraepithelial lesion.

CIN= Cervical Intraepithelial Neoplasia
Vaccine should demonstrate efficacy against CIN2/3 rather than focusing on antibody titers.
What is the relevance of neutralizing and non-neutralizing antibodies?
Neutralizing Antibodies and HPV Infection

Neutralizing antibodies prevent HPV infection
Non-neutralizing antibodies do not prevent infection
No antibodies – viral infection

Cell surface receptors

Antibody color legend:
Blue = Neutralizing antibodies
Yellow = Nonneutralizing antibodies
Types of antibodies after HPV vaccination

- Neutralizing and Non neutralizing antibodies
  - ELISA Assay – ELISA units/ml
    - Bivalent HPV Vaccine measures
  - cLIA Assay – milli Merck units/ml
    - Quadrivalent HPV Vaccine measures

Neutralizing + Non neutralizing antibodies
Does HPV vaccine protect any disease other than cervical cancer?
## Vaccine profile

<table>
<thead>
<tr>
<th>Product</th>
<th>Quadrivalent vaccine – HPV 6,11,16,18</th>
<th>Bivalent vaccine HPV 16,18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Merck: Quadrivalent HPV vaccine</td>
<td>Glaxo Smith Kline: Bivalent vaccine</td>
</tr>
<tr>
<td><strong>Indications</strong></td>
<td>Prevention of: HPV 6, 11, 16, 18 related</td>
<td>Prevention of HPV 16, 18 related</td>
</tr>
<tr>
<td></td>
<td>- Cancer Cervix</td>
<td>- Cancer Cervix</td>
</tr>
<tr>
<td></td>
<td>- Adenocarcinoma in Situ (AIS)</td>
<td>- Adenocarcinoma in Situ (AIS)</td>
</tr>
<tr>
<td></td>
<td>- Vulvar &amp; Vaginal cancers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Ano -Genital warts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Recurrent Respiratory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Papilomatosis</td>
<td></td>
</tr>
<tr>
<td><strong>USFDA Approval</strong></td>
<td>Approved</td>
<td>Not Approved</td>
</tr>
</tbody>
</table>
What is the efficacy of HPV vaccine?
Efficacy of Gardasil

HPV induced lesions

- Cervical Cancer & Precancers (Grade 2/3)¹
- Vulvar/ Vaginal Precancers (Grade 1-3)²
- Genital Warts²

Protection by QHPV

- 98%
- 100%
- 99%

¹ The Future II Study Group. Lancet 2007; 369: 1861-68  
Bivalent vaccine: Efficacy

- Clinical trials with 3 doses at 0, 1 & 6 mnths, >18,000 women globally show
  - **90% efficacy** against types 16, 18 related CIN-2/3 and AIS in modified intention to treat analysis at 15 month follow up
  - Follow up studies in a subset of participants over 4-5 years show no evidence of waning immunity.

 modified intention to treat analysis - included women who were at baseline negative for HPV DNA of vaccine type virus and who received at least 1 dose of the vaccine
What is the difference between two HPV vaccines?
Quadrivalent Vs Bivalent Vaccine

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Quadrivalent HPV Vaccine</th>
<th>Bivalent HPV Vaccine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of follow-up</td>
<td>36 months (advanced)</td>
<td>15 months (interim)</td>
</tr>
<tr>
<td>HPV types included</td>
<td>6,11,16,18</td>
<td>16,18</td>
</tr>
<tr>
<td>Efficacy HPV 16 or 18 CIN 2+</td>
<td>Proven</td>
<td>Proven</td>
</tr>
<tr>
<td>Efficacy HPV 16 CIN 2+</td>
<td>Proven</td>
<td>Proven</td>
</tr>
<tr>
<td>Efficacy HPV 18 CIN 2+</td>
<td>Proven</td>
<td>Not yet proven(^a)</td>
</tr>
<tr>
<td>Efficacy 16 or 18 CIN 2</td>
<td>Proven</td>
<td>Proven</td>
</tr>
<tr>
<td>Efficacy 16 or 18 CIN 3</td>
<td>Proven</td>
<td>Not yet proven(^a)</td>
</tr>
<tr>
<td>Therapeutic efficacy</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Efficacy on VIN 2/3</td>
<td>Proven</td>
<td>Not yet reported</td>
</tr>
<tr>
<td>Efficacy on VAIN 2/3</td>
<td>Proven</td>
<td>Not yet reported</td>
</tr>
<tr>
<td>Efficacy on genital warts</td>
<td>Proven</td>
<td>Not in target</td>
</tr>
<tr>
<td>Safety at 6 years follow-up</td>
<td>Safe(^b)</td>
<td>Safe(^a)</td>
</tr>
<tr>
<td>Tolerability</td>
<td>Acceptable</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Cross protection (persistent HPV infection)</td>
<td>6 months</td>
<td>12 months</td>
</tr>
<tr>
<td>Cross protection (lesions)</td>
<td>Reported</td>
<td>Not yet reported</td>
</tr>
<tr>
<td>Duration of protection(^a)</td>
<td>5 – 6 years</td>
<td>5 – 6 years</td>
</tr>
<tr>
<td>Immunogenicity in preadolescents</td>
<td>Proven</td>
<td>Proven</td>
</tr>
<tr>
<td>Immunogenicity in older women</td>
<td>Proven</td>
<td>Proven</td>
</tr>
<tr>
<td>Immune memory at 6 years</td>
<td>Proven</td>
<td>Not yet reported</td>
</tr>
</tbody>
</table>

CIN=cervical intraepithelial neoplasia; HPV=human papillomavirus. \(^a\)Proven in combined analysis of Phase II and III trials. \(^b\)In postlicensing evaluation (http://www.who.int/vaccine_safety/en/). \(^c\)In clinical trials. \(^d\)Corresponds to duration of trials in 2007, Bosch et al. BJC 2008; 98: 15-21
For how long does HPV vaccine provide protection?
Long Term Protection

- The vaccines are highly immunogenic.
  - To date there is no immune correlate of protection, no antibody threshold has been defined that correlates with protection.

- Only Gardasil has demonstrated immune memory, the hallmark of long term protection.
  - Gardasil has shown an impressive anamnestic/recall response to antigen challenge, the functional read out for memory, 5 years post-immunization.
  - Gardasil has already demonstrated 98-100% efficacy even at the end of 5 years without any breakthrough cases.

- Longer-term follow-up in adolescents and adults is underway.
- As of now no booster is recommended.

QHPV: Demonstrated Immune Memory

Rapid and Strong Anamnestic Response to Antigen Challenge

Anti-HPV 16* response (GMT levels with 95% CI)

{n=78}

Placebo n=70

Immune memory

GMT = geometric mean titer

*Similar response with the other three types of HPV within vaccine

What is the efficacy in women aged 27 – 45 yrs against vaccine type related CIN 2/3?
Efficacy of Gardasil HPV 6/11/16/18-Related Persistent Infection or Cervical/ Vulvar/ Vaginal Disease (Women 24 - 45 yrs of Age)

**Per-Protocol Efficacy Population* – Primary Endpoint**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total Cases</th>
<th>GARDASIL Cases</th>
<th>Placebo Cases</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>24- to 45- Years-Olds</td>
<td>41</td>
<td>4</td>
<td>37</td>
<td>91% (74, 98)</td>
</tr>
<tr>
<td>24- to 35- Years-Olds</td>
<td>24</td>
<td>2</td>
<td>22</td>
<td>92% (67, 99)</td>
</tr>
<tr>
<td>35- to 45- Years-Olds</td>
<td>17</td>
<td>2</td>
<td>15</td>
<td>89% (52, 99)</td>
</tr>
</tbody>
</table>

*Efficacy after three doses in women 24 to 45 years of age naïve to the relevant type at baseline

Only Gardasil has demonstrated efficacy against CIN 2/3 in women aged 27 – 45 yr

Are HPV vaccines safe?
Vaccine Profile: Side Effects

<table>
<thead>
<tr>
<th>Side Effects</th>
<th>Quadrivalent</th>
<th>Bivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local: Pain at inj. Site (mild to moderate)</td>
<td>83%</td>
<td>90%</td>
</tr>
<tr>
<td>Local: Swelling and erythema</td>
<td>25%</td>
<td>40%</td>
</tr>
<tr>
<td>Systemic: Fever</td>
<td>4%</td>
<td>12%</td>
</tr>
</tbody>
</table>

No serious vaccine related adverse effects with both vaccine

Consensus Recommendations on Immunization, Indian Academy of Pediatrics Committee On Immunization (IAPCOI). Indian Pediatrics 2008; (45)635-648
What are the recommendations for HPV vaccine?
WHO position on HPV vaccines

- The primary target population is likely to be girls within the age range of **9 or 10 through 13 years**.
- Clinical efficacy trials for both vaccines demonstrate that protection lasts for at least 5 years.
- A need for booster doses has not been established.
Model projections on impact and cost-effectiveness of HPV vaccination

- Models predict that vaccination programs for young adolescent females (10–13 years) will substantially reduce the incidence of cervical cancers associated with vaccine-related HPV types.
- Models estimate that the reduction in the incidence of cervical cancer and mortality will be greatest in
  - Low income
  - Middle-income countries where there is no/limited screening
- Models predict that quadrivalent vaccine will also substantially reduce the incidence of HPV 6 & 11 related
  - anogenital warts,
  - low-grade cervical abnormalities and,
  - possibly, recurrent respiratory papillomatosis if coverage is high and vaccine protection lasts for ≥10 years.

Immunization Programs

- HPV vaccination should be included in national immunization programs provided that:
  - Prevention of cervical cancer and/or other HPV-related diseases constitutes a public health priority (i.e., to reduce disease burden and/or healthcare costs)
  - Vaccine introduction is programmatically feasible
  - Sustainable financing can be secured
  - The cost-effectiveness of vaccination strategies in the country or region is considered

### WHO Recommendations - Vaccines

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Quadrivalent HPV Vaccine</th>
<th>Bivalent HPV Vaccine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed for Cervical Precancers &amp; Cancers in females</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Licensed for vulvar/ vaginal Precancers &amp; Cancers in females</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Licensed for anogenital warts in females</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Licensed for anogenital warts in males</td>
<td>In some countries</td>
<td>No</td>
</tr>
<tr>
<td>Data available up to 5 – 6.5 yrs</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Data in HIV patients</td>
<td>Yes</td>
<td>Data not available</td>
</tr>
<tr>
<td>Co-administration with other vaccines</td>
<td>Can be give with other vaccines</td>
<td>Can be give with other vaccines</td>
</tr>
<tr>
<td>Partial Efficacy against HPV 31 &amp; 45</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Efficacy against CIN2/3</td>
<td>99%</td>
<td>90%</td>
</tr>
<tr>
<td>May be given in lactating women</td>
<td>Yes</td>
<td>Safety data not available</td>
</tr>
</tbody>
</table>
### Recommendations

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>IAP</th>
<th>FOGSI</th>
<th>ACOG</th>
<th>AAFP</th>
<th>SAM</th>
<th>ACHA</th>
<th>AAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine vaccination in females 11-12 years old &amp; catch-up vaccination in 13-26 year olds</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Females 9-10 years old may be vaccinated</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Vaccinate regardless of previous HPV infection or abnormal Pap test results</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Continue Pap testing after vaccination</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

**Recommendations by US based organizations are only for Gardsil as it is the only USFDA approved HPV vaccine**

1. [http://www.acog.org/from_home/publications/press_releases/nr08-08-06.cfm](http://www.acog.org/from_home/publications/press_releases/nr08-08-06.cfm), visited on 7th March 2008
5. PEDIATRICS Volume 120, Number 3, September 2007

**IAP – Indian Academy of Pediatrics**  
**FOGSI - The Federation of Obstetric & Gynaecological Societies of India**  
**AAP = American Academy of Pediatrics**  
**ACHA = American College Health Association**  
**ACOG = American College of Obstetricians and Gynecologists**  
**AAFP = American Academy of Physicians**  
**SAM = Society for Adolescent Medicine**
Recommends preferentially the Quadrivalent vaccine over the bivalent vaccine due to

- Lack of prevention, by the bivalent vaccine, of lesions due to genotypes 6 and 11 of HPV (in particular genital condyloma and CIN)
- Absence of efficacy of the bivalent vaccine on grade 2 or more pre-cancerous vulvar lesions (VIN 2 or more)
- Efficacy not formally demonstrated although probable of the bivalent vaccine on CIN 2 or more associated with genotype 18
- Inadequacy of data concerning the long-term tolerance of adjuvant AS04

13. Notice regarding vaccination against human papillomavirus strains 16 and 18 by a bivalent vaccine - 14 December 2007
Screening & Vaccination

- Cervical cancer screening recommendations have not changed for females who receive HPV vaccine.
  - HPV types in the vaccine are responsible for approximately 70% of cervical cancers.
  - Females who are vaccinated could subsequently be infected with a HPV type for which the vaccine does not provide protection.
  - Furthermore, those who were sexually active before vaccination could have been infected with a vaccine type HPV before vaccination.

Should screening be done prior to vaccination?
Screening & Vaccination

- Pap testing and screening for HPV DNA or HPV antibody are not needed before vaccination at any age.
  - Benefits may be limited to protection against HPV genotypes with which they have not been infected.
  - Women infected with vaccine HPV-type and have cleared the cervical infection appears to have similar protective effects as in HPV naïve to the same vaccine HPV-type.
Should vaccine be administered in sexually active women/ women with abnormal cytology?
Sexually Active Women

- Sexually active women and women with previous abnormal cervical cytology can receive the HPV vaccine.
  - Benefits may be limited to protection against HPV genotypes with which they have not been infected.
  - Women infected with vaccine HPV-type and have cleared the cervical infection appears to have similar protective effects as in HPV naïve to the same vaccine HPV-type.


Can HPV vaccine be given in lactating women?
Lactation

- Lactating women can receive the HPV vaccine and still continue breastfeeding because it is a vaccine without live viral DNA.


Can HPV vaccine be given in Pregnant women?
Pregnancy

- The use of the vaccine in pregnancy is not recommended, although no teratogenic effect by vaccine has been reported.
  - No evidence to show that the HPV vaccine adversely affects fertility, pregnancy or infant outcome.
  - Women planning to conceive are advised to defer vaccination until after delivery.
- Women who become pregnant before completion of vaccination – Postpone remaining dose until after pregnancy.
- Termination of pregnancy is not indicated for women who become inadvertently pregnant during course of vaccination.


Summary

- USFDA and WHO - Reduction in incidence of CIN 2/3 or AIS caused by vaccine HPV types should be criteria for licensure.
- Vaccines generate a broad spectrum of antibodies, only neutralizing antibodies are important.
  - The major basis of protection against infection is neutralizing antibody
- Quadrivalent HPV vaccine has in addition to cervical cancer, demonstrable efficacy against vaginal & vulvar pre cancers, anogenital warts and RRP attributable to HPV 6,11,16 & 18.
- Screening is not mandatory prior to vaccination & should be continued after vaccination.
- HPV vaccine can be given to lactating women.
- HPV vaccine is not recommended during pregnancy

RRP - Recurrent Respiratory Papillomatosis
DOSE, METHOD OF ADMINISTRATION AND USAGE

GARDASIL® is recommended for females aged 9 through 26 years (see INDICATIONS).
DOSAGE

- GARDASIL® should be administered intramuscularly as 3 separate 0.5-mL doses according to the following schedule:
  - First dose: at elected date
  - Second dose: 2 months after the first dose
  - Third dose: 6 months after the first dose
- Individuals are encouraged to adhere to the 0, 2, and 6 months vaccination schedule. However, in clinical studies, efficacy has been demonstrated in individuals who have received all 3 doses within a 1-year period. If an alternate vaccination schedule is necessary, the second dose should be administered at least 1 month after the first dose, and the third dose should be administered at least 3 months after the second dose.
Method of Administration

- GARDASIL® should be administered intramuscularly in the deltoid region of the upper arm or in the higher anterolateral area of the thigh. GARDASIL® must not be injected intravascularly. Neither subcutaneous nor intradermal administration has been studied. These methods of administration are not recommended. Syncope (fainting) may follow any vaccination, especially in adolescents and young adults. Syncope, sometimes associated with falling,
- has occurred after vaccination with GARDASIL®. Therefore, vaccinees should be carefully observed for approximately 15 minutes after administration of GARDASIL® (See UNDESIRABLE EFFECTS, Post-Marketing Reports).
- The prefilled syringe is for single use only and should not be used for more than one individual.
Method of Administration

- The vaccine should be used as supplied; no dilution or reconstitution is necessary. The full recommended dose of the vaccine should be used.
- Shake well before use. Thorough agitation immediately before administration is necessary to maintain suspension of the vaccine. After thorough agitation, GARDASIL® is a white, cloudy liquid. Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration. Discard the product if particulates are present or if it appears discolored.
- Prefilled Syringe Use
- Inject the entire contents of the syringe.
Preventive Health Care is right of every woman. . . Let’s execute & offer;
Many opportunities!

- As women health care provider, Gynecologists have many opportunities to educate women & relatives apart from offering Clinical care.

- Her well being depends on:
  - Social factors
  - Educational level
  - Economic background
  - Availability of Services
  - Utility of accessible & available services
Let’s see why she comes to a Doctor?

- Teenage for period pains!
- Premarital counseling
- Birth planning
- Family planning
- Menstrual Problems
- Contraception follow up

➤ ALL these & many more visits to you is a chance for her to know about PREVENTIVE HEALTH CARE… Do not Miss It, she deserves the best!
A few situations in day to day practice

- Pre-marriage counseling
- Birth & Post delivery care
- Menstrual Problems & DUB
- Abortion care
- IUCD counseling & insertion
Mrs. Reena (25yr) Post Delivery

Her follow up visit @ 6weeks

ROUTINE Check up + Counseling PAP, 1st dose of HPV

Enroll in Reminder System

PAP Result

PAP Result Abnormal

Further Investigations

PAP Result Normal

Vaccination 2nd Dose

Vaccination 3rd Dose
Ms Rosy ~ DUB

Complaint of Bleeding P/V

Follow up ~ No bleeding

ROUTINE Check up + Contraception Counseling PAP, 1st dose of HPV

PAP Result Abnormal

Further Investigations

PAP Result Normal

Vaccination 2nd Dose

Investigation & Management

Enroll in Reminder System

Vaccination 3rd Dose
Kamini 22 yr ~ Spontaneous abortion

Complaint of Bleeding P/V

Follow up@ 6 wk ~ No bleeding

ROUTINE Check up + Contraception Counseling PAP, 1st dose of HPV

PAP Result Abnormal
- Further Investigations

PAP Result Normal
- Vaccination 2nd Dose

USG, D&E, Lab Ix

Enroll in Reminder System

Vaccination 3rd Dose + contraception counselling
Mrs. Sadhna (26yr) For IUCD Insertion

Clinic visit on day 5 of M.Cycle for IUCD Insertion

ROUTINE Check up + Contraception Counseling PAP, 1st dose of HPV

PAP Result

PAP Result Abnormal
Further Investigations

PAP Result Normal
Vaccination 2nd Dose

Enroll in Reminder System

Vaccination 3rd Dose
IUCD Up exam