# HIV IN PREGNANCY

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Presentation is for educational purposes only not for commercial activity

# Human Immunodeficiency Virus

- RNA Retrovirus
- Type : HIV 1-India ,

  HIV 2-more in Africa

  slow & mild in initial stages.
- Very fragile Virus
- Susceptible to heat,

  boiling for few seconds kills virus.

  1% Na Hypochlorite inactivate virus.

# Pathogenesis

**Main targets of the Virus are Human CD4` helper' Lymphocytes**

↓

**Start Producing new virus particle**

↓

**Significant fall in CD4 cells**

↓

**Inability of ß- Lymphocytes to produce antibody to HIV**

↓

**Causes Progressive Immunosuppression**

**Ultimately development of AIDS—takes 8 to 10 yrs**

# HIV Infection

- Incubation period is 1-3 weeks
- After exposure to HIV infection there is a

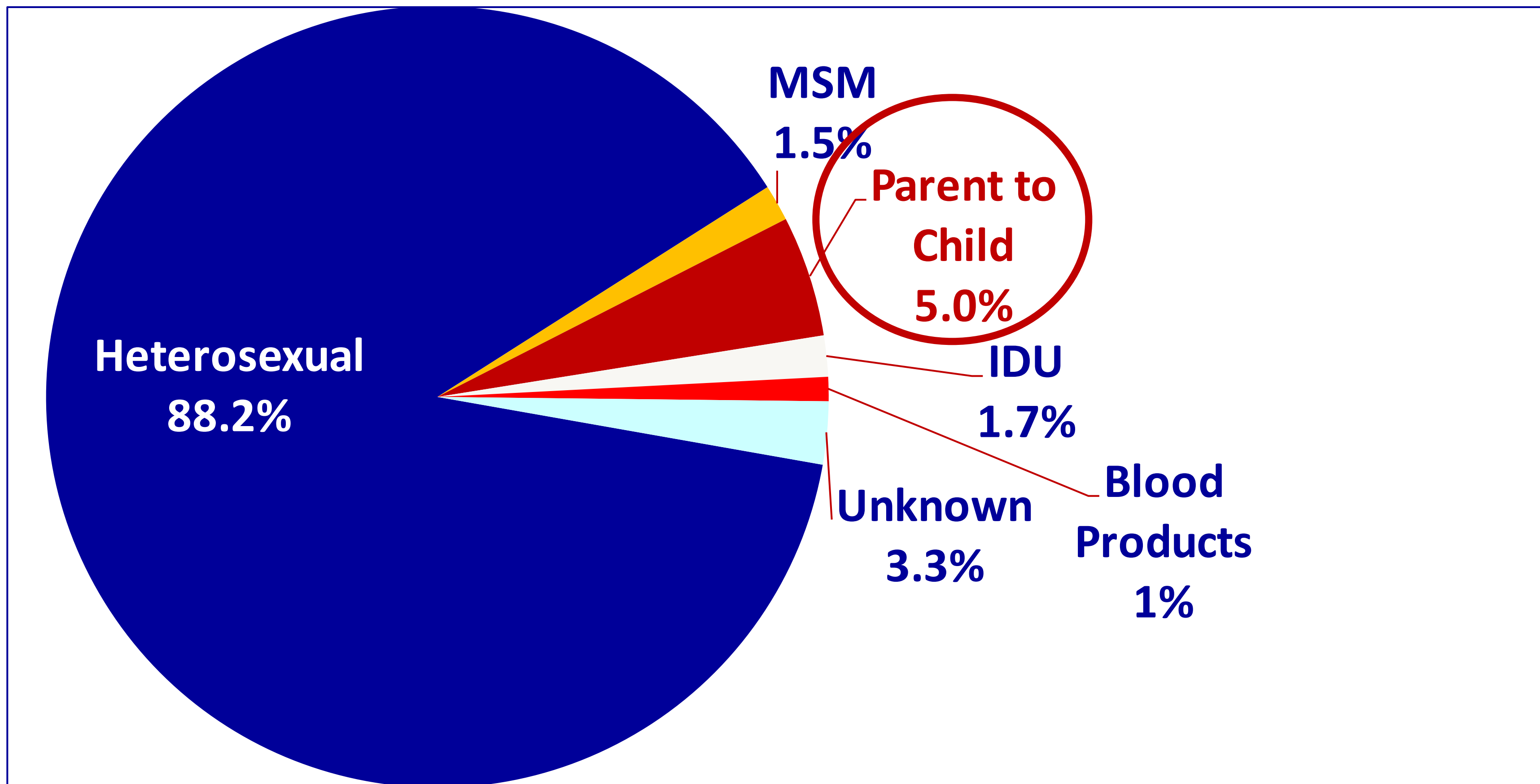
  **window period of 12 weeks**

  in which antibody titre is not detectable .

# Routes of Transmission of HIV

- **Sexual Route**
  - Male-to-Female; Female-to-Male
  - Male-to-Male
- **Parenteral Route**
  - Transmission of infected blood
  - Sharing of infected needles
- **Parental Route**
  - Mother-to-Child

# What is the magnitude of problem?




*NACO Annual Report 2011-12*

# Prevention Methods

## Sexual Route

- Sexual abstinence
- Being Faithful to sexual partner
- Reducing number of sexual partners
- Correct and consistent use of Condoms
- Less risky sexual practices

## Parenteral Route

- Safe blood
- Safe injecting

## Parental Route - Mother to Child transmission

- PPTCT

# Parent to Child Transmission-PTCT

- Known as vertical or Perinatal Transmission
- In most other countries known as Mother to Child transmission (MTCT)
- Prevalence of HIV in pregnant women 0.3%
- Vertical transmission rate to fetus is about 30%
- There are proven interventions to reduce likelihood of PTCT.

# PTCT of HIV

Is the main cause of HIV infection in children

Can occur during

- Pregnancy
- Labour and delivery
- Breast feeding

# Estimated Risk of Mother to Child transmission in absence of any intervention

| Risk of HIV Transmission | Transmission Rate |
|---|---|
| During pregnancy | 5-10% |
| During labour and delivery | 10-15% |
| During breastfeeding | 5-20% |
| Overall without breastfeeding | 15-25% |
| Overall with breastfeeding up-to six months | 20-35% |
| | |



*Source: WHO*

# **Maternal risk factors influencing-** PTCT

- High viral load (lower the CD4 count , greater the risk of transmission)
- HIV subtype (HIV – 2 is less pathogenic)
- Advanced clinical stage of HIV disease
- Concurrent STI
- Recent infection
- Viral, bacterial & parasitic (esp malaria) placental infection
- Malnourishment

# **Obstetric risk factors influencing-** PTCT

- Uterine manipulations (ECV)
- Prolonged rupture of membrane >4 hrs
- Placental disruption (Abruptio, Chorioamnionitis)
- Intrapartum Haemorrhage
- Invasive fetal monitoring, scalp blood sampling
- Invasive delivery techniques (episiotomy,forceps, metal cup in Vacuum delivery)

# Why PPTCT Programme

**Parent to Child** –Major route for transmission.

If diagnosed / Untreated

- 35% mortality by 1year
- 50% mortality by 2year
- 60% mortality by age 3 year.

# 4 prongs for PPTCT

*Prong 1:* Primary prevention of HIV

*Prong 2:* Prevent unintended pregnancies

*Prong 3:* Prevention of MTCT

Prong 4: Care, support and treatment

women of child bearing age eg.
Adolescents Sex & Reproductive Health services

In HIV+ve women
Safer sex practices
Effective FP contraceptions dual protection

Prevent HIV transmission from HIV +ve pregnant woman to her child

to women living with HIV, her children and family

# PPTCT Service
# Intervention during pregnancy

- Provide HIV information to all pregnant women attending ANC  OPD (**Pretest  Counseling**)

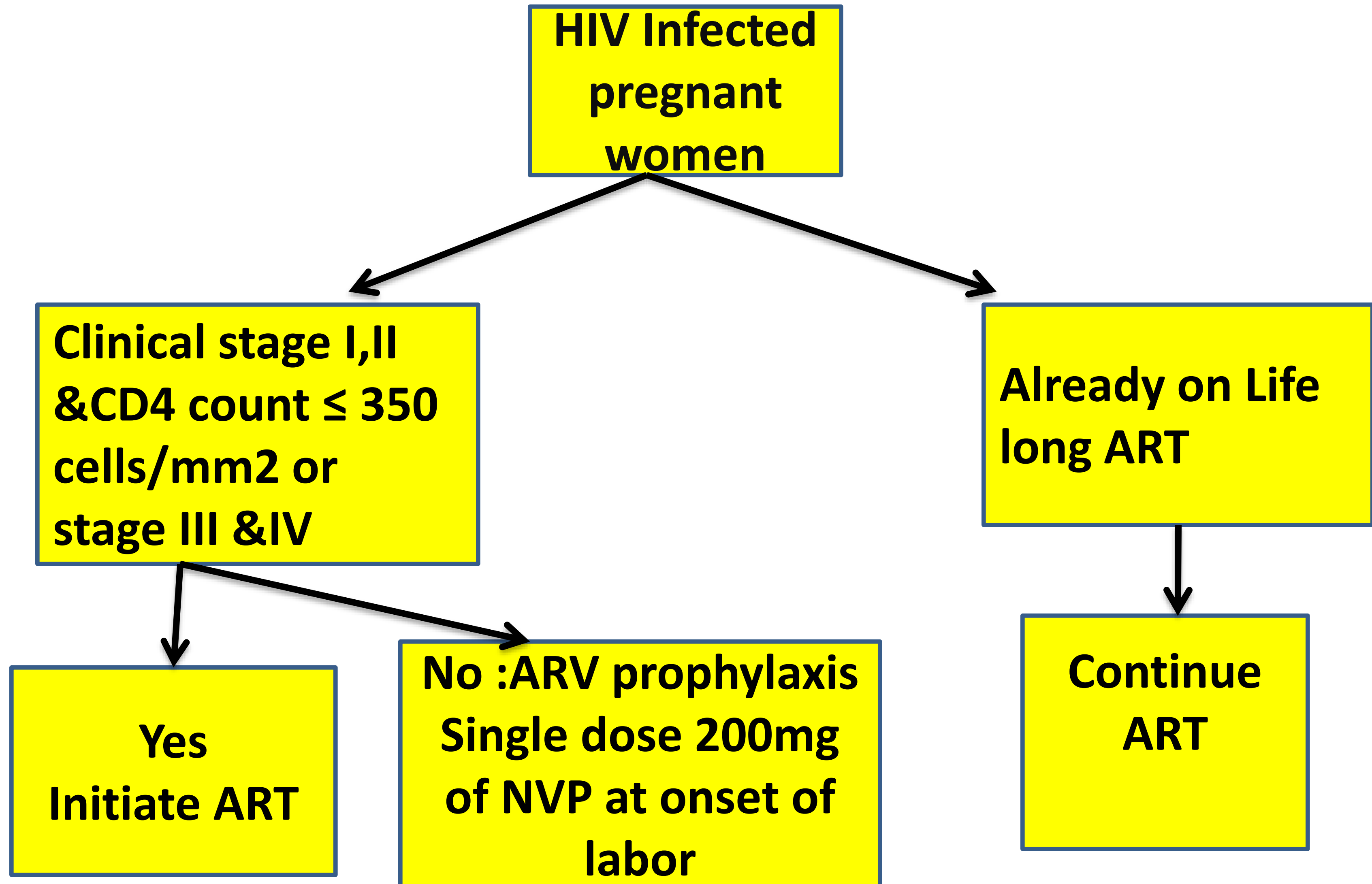
- Voluntary confidential counseling & **testing** (VCT) to be given to all pregnant women

- **Post test counseling**
- Counseling and enable to her to make decision either to continue or termination of pregnancy
- Availability of safe abortion services & sterilization

# HIV positive who wants to continue the pregnancy

- Ensure Hospital delivery
- Provide similar antenatal care to HIV positive women as for HIV negative women
- Counseling about infant feeding
- They should have the same number of antenatal visits and investigations
- Refer to ART center & CD4 count

# National Guidelines 2010



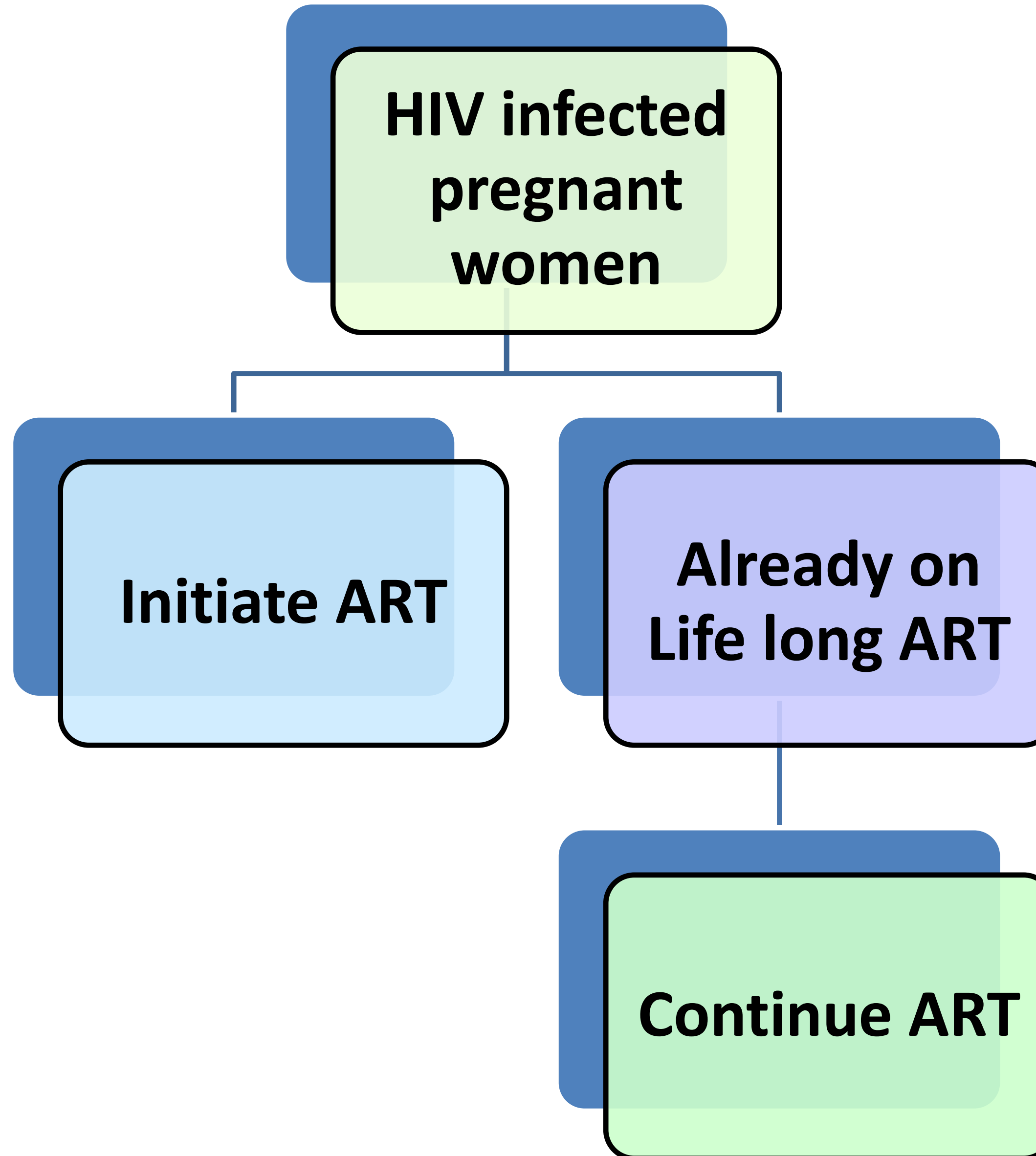
**There have been major changes in recommendation for ART during pregnancy**

**by**

**WHO (2013)**

**Which has been accepted by NACO (Jan.2014)**

# National PPTCT Algorithm 2013



# Initiation of ART
# in PLHIV with Pregnancy
# (India-New PPTCT National guidelines 2013)

| WHO Clinical Staging | CD4 (cells/cu.mm) |
| --- | --- |
| I , II, III & IV (regardless of clinical stage) | Start ART irrespective of CD4 Count - ART lifelong |

# What is ART?

- Anti-retroviral therapy (ART) is a combination of certain medicines given to people living with HIV
- This is a combination of **at least three drugs** from different groups
- It works to **control HIV replication** in the body and prevent the destruction of $CD_4$ Cells
- However, it **cannot** cure HIV/AIDS
- It is a **life long therapy**, similar to treatment taken for high BP and diabetes
- There are certain side-effects, but these are mostly manageable
- ART is given after proper evaluation of patients for eligibility and counseling for adherence

# ARV Drugs under National programme

| Nucleoside Reverse Transcriptase Inhibitors (NsRTI) | NNRTI | Protease Inhibitor (PI) |
|---|---|---|
| Azidothymidine (AZT), Zidovudine | Nevirapine (NVP)* | Lopinavir (LPV) |
| Stavudine (d4t) | Efavirenz (EFV) | Ritonavir (RTV) |
| Lamivudine (3TC) | | Atazanavir (ATZ) |
| Didanosine (ddI) | | |
| Abacavir (ABC) | | |
| NtRTI: | | |
| Tenofovir (TDF) | | |

# Guidelines for Antiretroviral Therapy

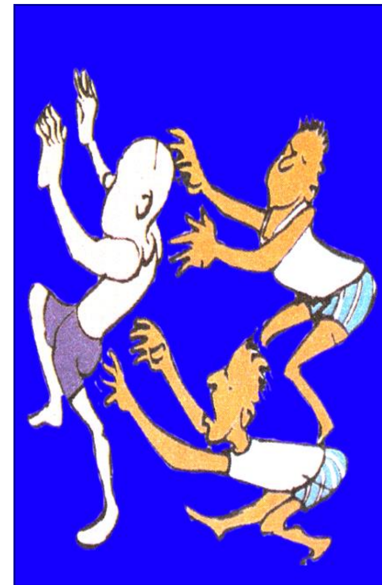
**No MONOTHERAPY or DUAL THERAPY**

**HAART: Highly Active Antiretroviral Therapy**

**Human Immunodeficiency virus (HIV) infection is currently treated with combination therapy using at least three drugs from NRTI & NNRTI/PIs over an indefinite period.**

**Possible combinations**

1. 2 NRTI's + 1 NNRTI
2. 2 NRTI's + 1 PI
3. 2 NRTI's + 1 More NRTI



# PPTCT Scenarios

- Pregnant women newly - initiating ART
- Pregnant women already receiving ART
- ART regimen for pregnant women having prior exposure to NNRTI for PPTCT
- Women presenting Directly-in-labour

# Pregnant women newly initiating ART

- Start ART as soon as possible after proper preparedness counseling and continue ART throughout pregnancy, delivery, and thereafter life long

- Even if the pregnant women present very late in pregnancy (including those who present after 36 weeks of gestation) the ART should be initiated promptly

- This ART shall be initiated at ART centers only, hence all efforts need to be made to ensure that pregnant women reach ART centers

**All pregnant women at ART centre shall be seen on priority**

# Choice of ART Regimen for HIV positive pregnant women

- The recommended first line ART regimen for HIV positive pregnant women

**Tenofovir(TDF) 300mg +**
**Lamivudine(3TC)300mg +**
**Efavirenz(EFV)600mg**

**Single tab**

**TDF(300mg) + 3TC(300mg) -- 1 tab OD**
**EFV (600mg) -- 1 tab OD**

# Pregnant women already receiving ART

- Pregnant women who are already receiving a NVP-based ART regimen should continue receiving the ART regimen
- Pregnant women who are already receiving EFV-based ART regimens:
  - Should be continued. DO NOT STOP
  - There is no indication for abortion/termination of pregnancy in women exposed to EFV in the first trimester of pregnancy.

# ART regimen for pregnant women having prior exposure to NNRTI for PPTCT

- A small number of HIV-positive pregnant women have had previous exposure to **Single Dose NVP for PPTCT** prophylaxis in prior pregnancies
- Because of the risk of resistance to NNRTI drugs in this population, an NNRTI-based ART regimen such as TDF/3TC/EFV may not be effective
- Thus, these women will require a protease inhibitor-based ART regimen.

**Tenofovir(TDF) 300mg +Lamivudine (3TC) 300mg -- 1 tab OD**

**LPV(Lopinavir) (400mg)/r(Ritonavir) (100mg)----------1 tab BD**

# Women presenting Directly-in-labour
# NEW PPTCT Prophylactic Regimen

- **Women on life long ART** should continue to receive ART as per the usual schedule including during labour and delivery. Women do not require any other additional ARV dosing
- HIV status – not known-**Whole blood finger prick test-** if negative no further test. If positive give 3drugs ART & ref. to PPTCT Centre for rapid test

# Dosage schedule and side effects with ARV drugs

| Name of ARV | Dose Schedule | Side-effects |
|---|---|---|
| Tenofovir (TDF) NRTI | 300mg OD | Nephrotoxicity, hypophosphetemia |
| Lamivudine (3TC) NRTI | 300mg OD | Rarely pancreatitis |
| Efavirenz (EFV) NNRTI | 600 mg HS | CNS toxicity: Vivid dreams, nightmare, insomnia, dizziness, headache, impaired concentration, depression, hallucination, exacerbation of psychiatric disorders (usually subsides by 2-6 weeks) |
| Lopinavir/Ritonavir (LPV/r) PI | 400/100 mg BD | Gastro intestinal disturbance, glucose intolerance, Lipo dystrophy, dyslipdemia |

# Cotrimaxazole prophylactic therapy (CPT) for Pregnant Women

- **Cotrimoxazole should be started if CD4 count is < 250 cells/mm3** and continued through pregnancy, delivery and breast-feeding as per national guidelines
- Ensure that pregnant women take their folate supplements regularly
- Cotrimoxazole prophylaxis therapy (CPT) prevents Opportunistic Infections (OIs) such as
  **Pneumocystis pneumonia ,**
  **toxoplasmosis, diarrhea**
  **bacterial infections**

# Considerations Regarding Mode of Delivery

- Caesarean section can decrease the risk of vertical transmission when performed before the onset of labour and rupture of the membrane

- **In India Recommendation by WHO & NACO (2013), cesarean delivery is to be done only for obstetric indications, otherwise vaginal delivery can be allowed**

- **Use of ART can reduce risk of PTCT better and with less risk than a C-section**

# Interventions during Labor & Delivery for reducing MTCT

- Safe delivery practices / Universal Precaution
- Vaginal cleaning with 0.25% chlorhexidine
- Minimize cervical examination
- Always use clean technique
- Avoid
  - Routine rupture of membrane
  - Prolonged labour
  - Instrumental deliveries if instrumental delivery is necessary then forceps are better than vacuum
  - Episiotomy, unnecessary trauma during child birth
- Active management of third stage.

# Interventions for Newborn

- Don’t milk the cord
- Cut cord under cover of light gauge
- Do not use suction unless absolutely necessary
- Handle infant with gloves
- Clean inj site with spirit before any inj
- Determine mother’s feeding choice before attaching the baby to breast

# Intervention for safe feeding practices

- **Infant feeding as per mother's choice**
- Replacement feeding only when it is  acceptable, affordable, feasible sustainable & safe

- According to 2013 National Guidelines

**exclusive breast feeding for 6 months**, continue feeding till 12 months if possible.

- Infectious diseases and malnutrition are the primary causes of infant deaths in developing countries.

- Avoiding addition of supplements or mixed feeding which enhances HIV transmission

# ARV Prophylaxis for infants born to HIV +VE Women

- **All infants born to HIV +VE pregnant women will receive Nevirapine syrup once daily for 6 weeks- irrespective of infant feeding option,**

- if ART to mother was started in late pregnancy, during or after delivery and has not been on adequate period of ART as to be effective to achieve optimal viral suppression (which is at least 24 weeks), and opt for breast feeding then the infant NVP should be increased to 12 weeks. **( Extended NVP Regimen )**
- **This recommendation not applies to those on exclusive replacement feeding**

# Dose & duration of NVP prophylaxis for HIV Exposed Infant

(1ml of NVP suspension =10mg NVP)

| Infants Birth Weight (gm) | NVP daily dose (mg) | NVP daily dose (ml) | Duration |
|---|---|---|---|
| Birth weight less than 2000 gm | 2 mg /kg. once daily | 0.2 ml /kg. once daily | Up to 6 weeks* irrespective of exclusive breast feeding or exclusive replacement feeding |
| Birth weight between 2000 – 2500 gm | 10 mg. once daily | 1 ml once a day | |
| Birth weight more than 2500 gm | 15 mg. once daily | 1.5 ml once a day | |

*Extended NVP duration up to 12weeks to infant of exclusive breast feeding , mother has been < 24 weeks duration of ART

# ARV prophylaxis for Infant of HIV +VE pregnant women -Received Single Dose NVP for PPTCT prophylaxis in prev. pregnancies

Zidovudine (2.5ml) 25mg/day

- **Up to 6 weeks** irrespective of exclusive breast feeding or exclusive replacement feeding
- **Up to 12 weeks** if mother has received ART for <24 weeks duration and infant on breast feeding .

# Effectiveness of PPTCT

| Intervention | Transmission |
| --- | --- |
| No Intervention | 20- 35% |
| sd-NVP | 11% |
| Triple drug ART | 2-5% |

# Mother and Infant follow up schedule

- Routine follow up for mother and infant
- Follow up at 6 wks, assess and record status of mother & infant.
- All HIV exposed infants should receive cotrimaxazole prophylactic therapy (CPT)
- Follow standard immunization schedule
- DBS- Direct Blood Spot for HIV-1 DNA PCR of child between 6weeks & < 6 month of age

- Follow up at 6 months HIV test & CPT
- Follow up at 12months HIV test & CPT
- Follow up at 18 months HIV test & CPT

# CPT Starting & Stopping criteria for HIV exposed infants and children

| Group | Start Cotrimoxazole | Stop Cotrimoxazole |
| --- | --- | --- |
| All HIV exposed infants & children <18 months | Any time from 6 weeks of age | at 18 months of age<br><br>When HIV infection has been excluded |
| Infants & children <18 months diagnosed HIV+ve by HIV DNA PCR / HIV rapid test at 18 months of age | As above, and<br><br>any time afterwards if not already on Cotrimoxazole | Continue CPT till 5 yrs of age |

# CPT Dosage

| | Cotrimoxazole once a day | |
|---|---|---|
| **Weight ( kg)** | **Syrup 5ml** (40mg trimethoprim & 200mg sulphamethoxazole) | **1 tablet** (20mg of trimethoprim & 100mg sulphamethoxazole) |
| <5 | 2.5ml | 1 tablet |
| 5-10 | 5ml | 2 tablets |
| 10-15 | 7.5ml | 3 tablets |
| 15-22 | 10ml | 4 tablets |

# Evidence based newer initiatives

- Initiation of ART
- Exclusive Breast feeding
- Whole blood finger prick test- if negative no further test. If positive give ART & ref. to PPTCT centre for rapid test
- CPT-Cotrimoxazole prophylactic therapy
- Extended PPTCT regimen
- DBS- Direct Blood Spot for HIV-1 DNA PCR of child between 6weeks & < 6 month of age confirmation by whole blood DNA PCR
- HIV testing of HIV exposed baby at 6 , 12, and 18 months

# Contraception for HIV +ve women

- HIV +ve women are strongly advised to use **dual contrception**
- **Barrier method** to reduce the risk of sexual transmission of the virus to the partner

**In combination with**

- Combined oral pills, progestogen only pill and DMPA can be given in HIV and AIDS (**category 1 WHO**)
- IUCD is **category 2** for HIV infected and **category 3** for AIDS

# An HIV Free Generation

# THANK YOU