

Module 8: Prevention of HIV in Children

Session 1: Mother-to-child Transmission (MTCT) of HIV and Its Prevention (PMTCT)



Total Session Time: 75 minutes

Learning Objectives

By the end of session, participants will be able to:

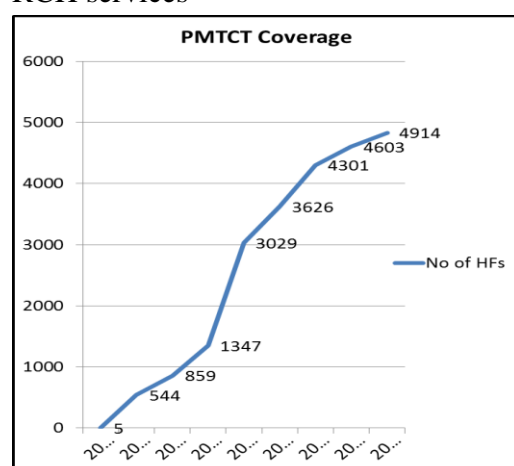
- Describe the interaction between HIV and pregnancy
- Explain Mother-to-child-transmission (MTCT)
- Describe the factors affecting the transmission of HIV from mother-to-child
- Explain the interventions to prevent the transmission of HIV from mother-to-child

Overview

MTCT of HIV occurs during pregnancy, delivery, or post-natally through breast milk. Without interventions MTCT is 20 – 45%. The majority of children infected with HIV acquire the virus through MTCT.

PMTCT in Tanzania

It is documented 4,914 sites by December 2013 (97% of RCH sites). PMTCT integrated into RCH services



Effects of Pregnancy on HIV

In pregnancy, the immune function is suppressed in both HIV-infected and non-infected women. Studies have shown that pregnancy does not seem to have an effect on the progression of HIV disease. HIV-infected women experience more complications than women who are not HIV-infected. Some studies have shown that CD4 count do decline faster in pregnant than in non pregnant women.

Effects of HIV on Pregnancy

Pregnancy-related complications for women with HIV include:

- Increased risk of spontaneous abortions and still births
- Double the rate of pre-term deliveries
- Increased risk of low birth weight (LBW) infants
- Increased risk of bacterial pneumonia, UTI, postpartum infections and other illnesses
- Timing of Transmission

- Pregnancy----- - (5 – 10%)
- Delivery----- (10 – 15%)
- Breastfeeding ---- (5 – 20%)

The timing of transmission is important for targeting prevention

Factors Enhancing HIV Transmission

- Viral factors
- Maternal Factors
- Obstetric and Foetal Factors
- Postnatal Factors
- Viral Factors
 - Viral load: high maternal viral load and low CD4 count
 - Virulence of transmitted strain: HIV-1 is more virulent than HIV-2
 - Viral strain: HIV-1 subtype C is more readily transmitted to newborns and infants
 - Viral resistance: Pre-existing resistance to available ARV medicines increases the risk of HIV transmission

ARVs during pregnancy reduce the risk of MTCT by decreasing viral replication in the mother. Combination therapy reduces the risk of developing medicine resistance.

Maternal Factors During Pregnancy

- High maternal viral load and low CD4 count
- Placenta infection e.g. malaria
- Febrile illness
- Genital tract infection
- Behavioural factors e.g. unprotected sex
- Micronutrient and vitamin deficiency e.g. Vitamin A, Zinc & Selenium
- Antepartum haemorrhage
- Pre-mature rupture of foetal membranes
- Chorioamnionitis

Note that:

- That > 80% of all vertically infected children have a mother with CD4 < 350.
- That >80% of maternal mortality is in mothers with CD4 < 350.
- Transmission rate in mothers on ART is below 2%.
- All pregnant women with HIV should start on ART treatment regardless of CD4 and clinical stage, not prophylaxis.
- Obstetric (Labour and Delivery) and Fetal Factors
 - Prolonged labour
 - Early rupture of membranes > 4hrs before delivery
 - Invasive delivery procedures e.g. episiotomy, artificial rupture of membranes
 - Complicated delivery
 - Breech delivery
 - Forceps delivery

National programmes should ensure that antenatal care, labour and delivery and postpartum services provide a user-friendly environment for women living with HIV to minimize the risk of MTCT. Care during labour and delivery include a greater access to high-quality labour, delivery and postpartum care, including counselling and support for infant feeding.

- Obstetric (Labour and Delivery) and Fetal Factors (cont.)
 - Chorioamnionitis
 - Pre-term delivery and low birth weight
 - Intrapartum haemorrhage
 - Twin or multiple pregnancy
 - First twin has an increased risk compared to subsequently delivered twin(s)
- Postnatal (Breastfeeding) Factors
 - High maternal viral load and low CD4 count
 - Duration of breastfeeding
 - Mixed feeding
 - Oral disease in the baby
 - e.g. thrush or mouth sores
 - Poor maternal nutritional status
 - Breast disease (abscess, nipple fissures, mastitis)

Women who become infected with HIV during pregnancy or while breastfeeding are likely to have a very high risk of transmitting the virus to their infants due to high viral load during the acute retroviral infection

Interventions to Prevent HIV Transmission from Mother-to-Child

- Comprehensive approach to PMTCT
 - Elements of PMTCT
- ARVs
- Obstetric practices
- Infant feeding practices

REFER to Handout 8.1.1: Elements in a comprehensive approach to PMTCT on page 331 of participant handbook for more input.

Measures to Reduce MTCT for HIV Infected (PMTCT)

- Provision of comprehensive antenatal care
- Provision of antiretroviral medicines to HIV infected pregnant women
- Provision of appropriate obstetric care
- Modification of infant feeding practices through:
 - Exclusive breast-feeding for the first 6 months
 - The exclusive use of replacement feeding (no mixed feeding)

Provision of Comprehensive Antenatal Care

Successful implementation of PMTCT programs requires the following ANC service:

- Health information and education
- Education about safer sex practices and HIV
- HIV counseling and testing for women and their partners
- Intervention to reduce the risk of MTCT
- Infant feeding counseling
- Support for safer motherhood, including malaria and TB treatment
- Initiate ART for HIV-infected women at RCH
- Diagnosis and treatment of STIs

Note that: Sexually active women and men should be encouraged to use safer sex practices including barrier methods such as condom use, to reduce the number of sexual partners and to stay faithful to their sexual partner. Healthcare workers at RCH clinics should ensure that HIV counselling and testing is integrated and offered to all women of childbearing age, their partners and children. Every woman living with HIV who intends to stop using contraceptives and become pregnant should be provided with adequate counselling on PMTCT. Gender concerns and equality should be considered when offering PMTCT services.

Provision of Comprehensive Antenatal Care includes monitoring of pregnancy progress, early diagnosis and prompt treatment of pregnancy related complications such as STIs, malaria and anaemia, prevention of malaria and TB, and educating the mother on good nutrition. All health care providers should emphasize the early diagnosis and treatment of STIs in their practice.

- For HIV positive pregnant women:
 - Clinical evaluation and WHO clinical staging (for the purpose of disease monitoring)
 - Start Cotrimoxazole preventive therapy (CPT)
 - Provide prompt and adequate treatment of OIs

Preventing and treating OIs and other infections can reduce rates of illness and death among pregnant women who are living with HIV. It can also reduce the risk of adverse pregnancy outcomes, such as preterm birth, and the risk of other conditions that increase MTCT, such as STIs.

Note that:

- Pregnant women should be assessed for signs and symptoms of infection and receive prompt treatment according to national protocols. These infections may include:
 - All STIs, including syphilis
 - Urinary tract and respiratory infections
 - Vaginal candidiasis
 - Tuberculosis
- Pregnant women should receive prophylaxis against common infections or illnesses during pregnancy, including:
 - Ferrous sulphate, folic acid and multivitamin supplementation
 - Tetanus Toxoid immunisation

PMTCT Interventions During Labour and Delivery

- Administer ARV therapy according to National Guidelines
- Use standard precautions to minimize infection transmission
- Minimize vaginal examinations
- Avoid artificial rupture of membranes
- Avoid unnecessary trauma during delivery e.g. episiotomy, instrumental delivery
- Minimize risk of postpartum haemorrhage

NOTE that:

- The use of standard infection prevention control (IPC) for all patients (use protective gear, safely use and dispose of sharps, sterilise equipment and safely dispose of contaminated materials)
- Avoid prolonged labour by using oxytocic drugs to shorten labour when appropriate, non-invasive foetal monitoring and a partogram to measure the progress of labour, and record all medications used during labour, including ARV.
- Avoid early artificial rupture of membranes (before 7 cm dilation) unless necessary, invasive procedures including scalp electrodes or scalp sampling and routine episiotomy.
- Minimise the risk of postpartum haemorrhage by careful management of all stages of labour to prevent infection and avoid prolonged labour. Actively manage the third stage of labour by using oxytocic, ergometrine or misoprostal drugs and controlled cord traction with uterine massage. Repair genital lacerations carefully remove all products of conception.
- Elective caesarean section reduces transmission risks but post operative complication (e.g. infection) rate is higher than in HIV negative women

PMTCT Interventions After Delivery

- Avoid nasal suction unless life saving
- Clean all maternal secretions and blood from the newborn immediately
- Support infant feeding option chosen by mother
 - If choice is breastfeeding, encourage exclusive breastfeeding for 6 months
 - If replacement feeding is chosen, ensure AFASS is met and provide support
- Administer immunizations according to National Guidelines
- For non-breastfed infants, administer vitamin A 50,000IU at birth or on first encounter within 6 months
- Give ARV prophylaxis according to guidelines
- Discuss and refer mother for Family Planning services

Cotrimoxazole Preventive Therapy (CPT)

- All HIV positive pregnant women should be given CPT regardless of the WHO clinical stage at a dose of 960mg daily until delivery
- All children born to HIV positive women, should start on CPT at 4 – 6 weeks of life or as soon as possible thereafter
- CPT for the exposed infant should continue until the risk of HIV transmission ends or HIV infection has definitively been excluded

Cotrimoxazole should not be administered to clients with a history of allergy to sulfa-containing medicines. Healthcare workers should monitor clients receiving CPT closely for side effects and for rare adverse events such as severe skin reactions, renal and hepatic insufficiency and haematologic toxicity. CPT should be stopped if the patient develops significant side effects and replaced with Dapsone 2mg/kg in children (100 mg daily in adults).

NOTE that; HIV exposed infant and child is defined as a child born to mother living with HIV or a child breastfeeding from a mother living with HIV until HIV exposure stops (six weeks after complete cessation of breastfeeding) and infection can be excluded. To these exposed infants and children, CPT should continue until the risk of HIV transmission ends or HIV infection has definitively been excluded. (Confirmed negative by testing and no longer at risk of acquiring HIV through breastfeeding)

Adherence to ART During Pregnancy and After Delivery

- Difficulty of adherence is greater in pregnant and postpartum women
- Obstacles to adherence: morning sickness, GI upset, fears about ARV harming the fetus
- If need to temporarily discontinue therapy during pregnancy, stop all drugs and then re-start simultaneously
 - This reduces the potential for emergence of resistance Pregnant women on ART are at increased risk of poor adherence, therefore adherence support is important.
- Treatment adherence is difficult during postpartum period
 - Physical changes of postpartum period coupled with stresses and demands of caring for a newborn infant
- Important to provide additional supports for maintaining adherence to therapy during ante- and post-partum periods

Male Partner Involvement

Male participation in PMTCT program is an important factor for a successful intervention. Use male role models to deliver messages that promote role of “responsible husbands and fathers. Encourage men and partners to attend RCH appointments together. Male partner participation is an important factor in the acceptance of a PMTCT programme within a community. Men have much to offer as fathers, husbands, brothers and sons in assuming a greater role in PMTCT and care and treatment programmes. The support of male partners can encourage women to adhere to PMTCT interventions, infant feeding choices and increase compliance to family planning methods of choice.



HIV and Infant Feeding: The Dilemma



Infant-Feeding Options for HIV-Infected Women

There are 2 main infant-feeding options that a mother can choose:

- Exclusive Breast Feeding
- Exclusive Replacement Feeding

Note : After making a choice, women need ongoing infant-feeding counselling and support. Tanzania's guidelines for HIV-infected women are to exclusively breastfeed for the first 6 months of life unless there is access to acceptable, feasible, affordable, sustainable and safe replacement feeding options. Mixed feeding during the first 6 months of life is never recommended and should be avoided by all women, regardless of HIV status

Exclusive Breast Feeding

- Breastfeeding exclusively for the first 6 months of life dramatically reduces risk of MTCT
- Women who opt to breastfeed should do so exclusively for the first six months of life and then introduce complementary foods while continuing breastfeeding up to 12 months of age

Exclusive Breastfeeding means breast milk only with no other foods or fluids not even water for the first 6 months of life.

At 12 months:

- Breastfeeding should stop gradually if a nutritionally adequate and safe diet is provided
- If the child is known to be HIV-infected continue breastfeeding as per the recommendations for the general population, that is, up to 24 months or beyond

Exclusive Replacement Feeding

- During the first six months of life, the only replacement feed that meets an infant's nutritional requirements is commercial infant formula milk
- An infant fed on commercial infant formula milk should neither breastfeed nor be given any other food, water or other types of liquids except for multivitamins or medicines when indicated

Exclusive replacement feeding for the first 6 months of life with commercial infant formula is recommended only when it is acceptable, feasible, affordable, sustainable and safe.

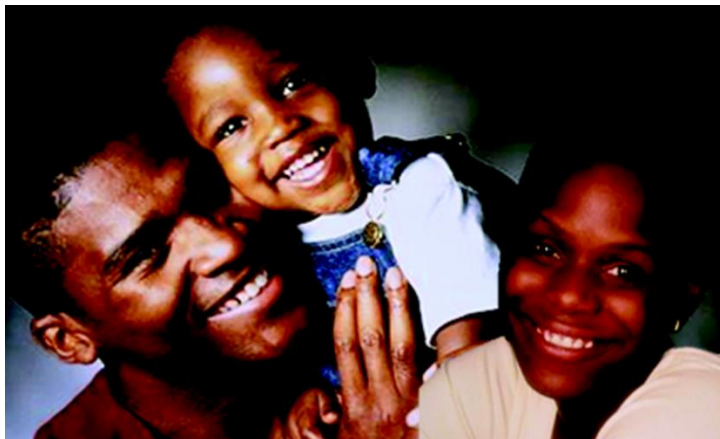
Replacement Feeding Options

- Replacement feeding should not be recommended unless the mother meets all five of the AFASS conditions
- Home-modified animal milk should be considered as an option only when commercial formula is not available or affordable

REFER to Handout 8.1.2: AFASS Criteria for Replacement Feeding Options on page 333 of their Participant Handbook for more input.

REFER to Worksheet 8.1.1 Case Study on page 335 of their Participant Handbook

Securing the Future



Key Points

- Measures to reduce MTCT of HIV include
- Prevention of HIV infection in young women
- Promoting knowledge of HIV status before pregnancy
- Improved antenatal care for all women
- Modifying labour and delivery practices
- Providing specific interventions for HIV+ women and their exposed infants, including ART



Handout 8.1.1: Elements in a comprehensive approach to PMTCT

**Element 1:
Prevention
of Primary
HIV
infection
including the
ABC
approach**

**Element 2:
Prevention of
unintended
pregnancies
among HIV-
infected women**

**Element 3:
Prevention of
transmission
from an HIV-
infected woman
to her infant**

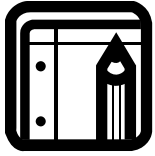
**Element 4:
Provision of Treatment, Care and support to women
infected with HIV, their infants, and their families**



Handout 8.1.2: AFASS Criteria for Replacement Feeding

It is advisable that the following criteria should be met if a mother is to exclusively formula feed:

- *It should be acceptable to her family and friends.* There are social and cultural barriers to formula feeding in many poor communities. In some communities women may be afraid of not breastfeeding.
- *It should be feasible to formula feed.* The mother must have the knowledge and skills to make up formula correctly.
- *It must be affordable to formula feed.* Formula is expensive. Free formula may be provided in some areas.
- *It should be sustainable.* Formula must be available. Mothers often live far from shops in rural areas.
- *It should be safe.* Clean water must be available. The mother should be able to prepare feeds hygienically and be able to clean the bottles, teats and cups.
- *Access to primary healthcare* is particularly important if infants are formula fed.



Worksheet 8.1.1: Case Study

Instructions: Work in pairs of 5 and spend 10 minutes to answer the question

An additional 10 minutes should be spent on group discussion during which the facilitator should call some volunteers to present the answers.

Scenario 1:

A mother comes with her 3yrs old daughter to the clinic. The child was started on ARV's 3 months ago. The mother finally agreed to test herself and brings the referral letter from the VCT site, showing a positive result. She also states that she is pregnant (3rd month). What are your next steps?

ANSWERS

SCENARIO 1:

Confirm diagnosis and pregnancy.

Start ART treatment

NB: Do staging and CD4 count to identify other co-morbidities and for the purpose of monitoring

Session 2: Linking PMTCT and Care of the HIV Exposed Infant



Total Session Time: 45 minutes

Learning Objectives

By the end of session, participants will be able to:

- Explain the difference between HIV-exposed and HIV-infected infants
- Outline the goals of care for HIV-exposed infants
- Explain routine care for HIV-exposed infants
- Explain the operational linkages between PMTCT and care for the HIV exposed infant

Introduction

HIV Exposed and Infected Infants. All infants born to HIV infected women are perinatally exposed to HIV infection – hence the term ‘HIV-exposed’. HIV exposure continues throughout the period of breastfeeding. The term ‘HIV-infected’ is a more specific term for those children whose infection status has been confirmed through laboratory tests. HIV exposure: infants and children born to mothers living with HIV until HIV infection in the infant or child is reliably excluded and the infant or child is no longer exposed through breastfeeding. For those <18 months of age, HIV infection is diagnosed by a positive virological test (HIV DNA or HIV RNA) six weeks after complete cessation of all breastfeeding. For a HIV-exposed children >18 months of age, HIV infection can be excluded by negative HIV antibody testing at least six weeks after complete cessation of all breastfeeding.

Care for the HIV-Exposed Infant

Pediatric HIV disease can progress very rapidly and often requires treatment before a positive diagnosis can be confirmed. HIV-infected infants are susceptible to many opportunistic infections (OIs) including PCP, TB, and bacterial infections that are associated with high rates of mortality. Parents or caregivers should receive counselling related to HIV exposed-infant care and HIV testing.

Goals of Care of an HIV Exposed Infant

- Early identification of exposure status and ensure early diagnosis of HIV infection
- Health promotion and health maintenance
- Anticipate and prevent common infections and OIs
- Treat illnesses early
- Prevent further exposure to HIV, hence prevent infection

Factors Facilitating Quality Care for the HIV-Exposed Infant

- Strong linkages of CTC with PMTCT
- Careful and frequent clinical monitoring
- Systematic follow up is vital and needs the following:
 - Appointment systems
 - Medical records
 - Family education and support

- Mothers with HIV and their families will need additional ongoing HIV care, treatment and support services. The postpartum period is the time to implement the follow-up plan to connect mothers and their families with medical and support services.
- Healthcare workers should facilitate referrals and linkages to HIV treatment, care and support services. Healthcare workers are responsible for ensuring that the mother knows the time, location, contact person and purpose of all follow-up appointments.

Identifying the HIV-Exposed Infant

- Whether infected or not, infants of HIV infected women have special needs
- Knowledge of maternal HIV infection status facilitates identification and planning for an exposed infant
- Indicate the infant's HIV exposure status (or ARV exposure status) on RCH card

Note that; during RCH the following has to be considered:

- Ask whether a woman took an HIV test
- Ask about and if possible verify her results
- If status unknown, offer the woman and/or her newborn/infant an HIV test

Components of Care

Infant ARV Prophylaxis

- Encourage all women to deliver at health facilities
- Initiate NVP syrup for the infants
- Advise mothers who deliver at home to bring their infants to the health facility for NVP administration

All women living with HIV should be strongly encouraged to deliver at a healthcare facility where they and their children can benefit from safer delivery practices and have access to HCWs who are knowledgeable about interventions that reduce the risk of transmission.

Infant Feeding Recommendations

- Counsel about infant feeding practices
- Exclusive breastfeeding for the first 6 months is recommended
- Mixed feeding (breast and replacement feeds) should be avoided in the first 6 months
- The mother should make final choice about the feeding method
 - Whatever her choice is, health care provider should provide support to ensure optimal nutrition of mother and child

Follow-Up of the Exposed Infant

- The newborn should be seen in the postpartum standard visits (within 48hrs, day 7 and 28 days)
- Thereafter, subsequent visits are scheduled as follows:
 - 6 weeks, 10 weeks and 14 weeks to coincide with the immunization schedule
 - Once a month from 1 weeks to 1 year
 - Quarterly from 1 to 2 years
 - At 18 months for confirmatory HIV testing with antibody test if PCR has not been done
- Assessment at each visit should include:
 - Interim history and parental concerns
 - Physical examination
 - Growth and developmental
 - Nutrition
 - OI prophylaxis

- Evaluation of infection status
- Plan for follow-up and care
- Support mother's choice about infant feeding

HIV-exposed infants should be discharged from HIV care only after final determination of HIV infection status. Strategies for a proper follow up:

- Clinics need to develop protocols to maximize adherence to care, identify those who do not return and who miss appointments.
- Keep a mother/child follow-up register that contains information of all interventions offered.
- Keep an appointment system.
- Emphasizing the importance of return visits to improve adherence to care.
- Monitor appointment attendance.
- Follow up missed appointments or missed opportunities for testing.

Clinical Management of HIV Exposed Children

- All children should be fully immunised according to Guideline
- Treatment and prophylaxis of opportunistic infections
- CPT beginning at 4-6 weeks of age, until HIV is excluded
- For children 8 months of age or older, continue CPT based on confirmed positive HIV status
- Vitamin A supplementation starting at 6 months and repeated every 6 months up to 5 yrs of age
- Reinforce infant feeding counselling at each visit

All children should be fully and appropriately *immunized*, and their *opportunistic infections should be diagnosed and treated*. Cotrimoxazole for *pcp prophylaxis* is recommended for all babies born to hiv positive mothers— from age 4 - 6 weeks until the child is proven to be hiv negative. PCP prophylaxis should continue to all children < 5 years of age regardless of symptoms or cd4%

Early Infant Diagnosis (EID)

All exposed infants (infected and non-infected) will test antibody positive during the first few months of life. While the child with HIV infection can often be identified during the first months of life, HIV infection often cannot be excluded until > 9-18 months of age, unless there is access to DNA PCR or other antigen based tests

The primary goal of early infant diagnosis to identify the HIV-infected child early prior to the development of clinical disease during the first months of life NOT to exclude infection. EID is important to reduce mortality and morbidity , promote growth & development and improves quality of life of the HIV infected child.

Assessment Plan

- What is the child's HIV status?
- Are there clinical and/or lab findings suggestive of HIV?
- Does the child have any new problems?
- Does the child require any laboratory studies?
- Has the child received proper vaccinations? Medications? OI Prophylaxis?
- When should the child return to clinic?

Family Health and Well Being

- Families should benefit from open and honest exchange of information about the child
- Use simple language to explain the difference between exposure to HIV and HIV infection
- Make sure to repeat the information at each visit
- All family members (infected and non-infected) can benefit from psychosocial support

Treatment in the Family Care Context

- Offer testing or Inquire about HIV testing of women attending RCH clinic
- Inquire about the HIV status of the child's siblings and parents, in order to provide comprehensive care to the family
- When treating an HIV-positive adult, inquire about the HIV status of offspring and partner

Role of the Multi-Disciplinary Team (MDT)

- Ongoing communication between the members of the MDT is crucial for supporting the family and caring for the exposed infant
- Members of the team will have different perspectives and information about the family and infant which facilitate care delivery
- Engaging parents in care and treatment helps to decrease disease burden, prevent orphanage and keep families healthy

Key Points

- HIV exposed infants are at risk for HIV infection and rapidly progressive disease hence close monitoring is important
- It is important for providers to:
- Identify the exposed and infected infants early
- Manage and prevent opportunistic infections
- Maintain and support healthy families
- MDT are crucial in supporting the family and providing comprehensive care

Session 3: Horizontal HIV Transmission in Children



Total Session Time: 30 minutes

Learning Objectives

By the end of session, participants will be able to:

- Describe the modes of horizontal HIV transmission in children
- Explain the management of a sexually assaulted child
- Explain measures to prevent horizontal HIV transmission in children

Modes of Horizontal Transmission

Modes of horizontal transmission include:

- Sexual transmission
- Use of contaminated needles or sharing needle among intravenous drug users
- Unsterile procedures (scarification, uvulectomy, traditional circumcision, skin piercing)
- Exposure to unscreened blood and blood products as well as exposure to other body fluids

Horizontal transmission of HIV in children is rare. For children, > 90% of HIV infection is vertical. This is in contrast to HIV infection in adults. Non-adherence greatly increase the risk of HIV transmission

- Sexual Transmission in Children
- Rape and sexual assault
- High risk behavior e.g. sex for survival
- Married adolescents

Note: Children under the age of 16 years cannot consent to sex and therefore any exposure to sexual activity is considered to be sexual assault

Risk of HIV Transmission From Sexual Assault

Risk from consensual sexual exposures estimated at 0.1% to 3% per episode Risk is significantly higher in rape because of mucosal tears related to:

- Lack of lubrication
- Forceful penetration

Other factors:

- Disease status of rapist (risk increases with viral load)
- Presence of STIs

REFER to Handout 8.3.2: on page 347

Although the estimated risk from consensual sexual exposures estimated at 0.1% to 3% per episode, the risk transmission varies widely. Rapists should be assumed to be HIV positive unless proven otherwise.

Management of a Sexually Assaulted Child

- Admit the child where possible
- Take history to establish circumstances leading to the sexual assault

- Examine the child (under anaesthesia or sedation) to determine the extent of injury and whether the assault is acute or habitual
 - Should preferably be done by a health care provider of same sex
 - Ideally should be done in the presence of a mother/father
- Collect blood for HIV, HBV, and syphilis screening and plan to repeat them at 6 weeks, 3 months and 6 months after the assault
- Collect specimens of genital secretions to be examined for sperm and seminal fluid
- Take swabs for bacterial STIs and *Trichomonas vaginalis* if feasible
- Give prophylaxis against HIV, other STI's and pregnancy following sexual assault
 - Offer PEP as appropriate. The first dose should not be delayed by baseline HIV testing
- Empirically treat for bacterial STIs
- Vaccinate against HBV
- Offer emergency contraception to adolescents if they have any evidence of sexual maturation
- Management of a Sexually Assaulted Child (4)
- Provide supportive care:
 - Offer trauma counseling to the child and parents
 - Provide follow up HIV testing and counseling
 - Alert authorities as appropriate
 - Refer as appropriate for legal services
 - Keep good records keeping in mind that sexual assault is a criminal offence
- Use ARVs to reduce risk of HIV transmission following sexual exposures

In case the assaulted child is a male, that child should be examined by a male (or female if there is no male) health care provider but in the presence of a caretaker to reassure the child. Study in a high-risk group, given PEP following consensual exposure. Average annual risk of transmission 3.4% in this group. In group receiving PEP risk of HIV was 0.6 infections/100 person years. In group not receiving PEP risk of HIV was 4.2 infections/100 person years. This study suggests efficacy. Studies in the context of rape are very difficult because of the obvious ethical considerations

REFER to Handout 8.3.1: Emergence Contraceptives on page 343 of Participant Handbook for more information.

Recommended PEP for children

For a sexually assaulted child, give:

- AZT + 3TC + EFV Twice a day for 28 days OR
- AZT + 3TC + LPV/r Twice a day for 28 days

For a sexually assaulted adolescents

- TDF 300mg once a day + 3TC 300mg once a day + EFV 600mg once a day for 28 days

PEP for the assaulted child should be started as soon as possible preferably within 2 hours after exposure. PEP should not be started if more than 72 hours post exposure.

Key Points

- Horizontal transmission of HIV in children is rare, and > 90% of HIV infection is vertical
- PEP should be initiated within 72 hours of exposure
- There are multiple steps to managing a child who has been sexually assaulted
- Use ARVs to reduce risk of HIV transmission following sexual exposures



Handout 8.3.1: Emergency Contraceptives

Definition of Emergency Contraception

Emergency contraception, or post-coital contraception, refers to methods of contraception that can be used to prevent pregnancy in the first few days after intercourse. It is intended for emergency use following unprotected intercourse, contraceptive failure or misuse (such as forgotten pills or torn condoms), rape or coerced sex.

Situations in which emergency contraception can be used

Emergency contraception can be used in a number of situations following sexual intercourse.

- When no contraceptive has been used.
- When there is a contraceptive failure or incorrect use, including:
 - Condom breakage, slippage, or incorrect use;
 - Three or more consecutively missed combined oral contraceptive pills;
 - The progestogen-only pill (minipill) taken more than three hours late (or more than 12 hours late if taking a 0.75mg desogestrel-containing pill);
 - Norethisterone enanthate (net-en) progestogen-only injection taken more than two weeks late;
 - Depot-medroxyprogesterone acetate (dmpa) progestogen-only injection taken more than four weeks late;
 - The combined estrogen-plus-progestogen monthly injection taken more than seven days late;
 - Dislodgment, delay in placing, or early removal of a contraceptive hormonal ring or skin patch;
 - Dislodgment, breakage, tearing, or early removal of a diaphragm or cervical cap;
 - Failed withdrawal (e.g. Ejaculation in the vagina or on external genitalia);
 - Failure of a spermicide tablet or film to melt before intercourse;
 - Miscalculation of the periodic abstinence method, or failure to abstain or use a barrier method on the fertile days of the cycle;
 - Expulsion of an intrauterine contraceptive device (IUD) or hormonal contraceptive implant.
- In cases of sexual assault when the woman was not protected by an effective contraceptive method.

Methods of emergency contraception

There are two methods of emergency contraception:

- Emergency contraception pills (ECPS)
- Copper-bearing intrauterine devices (IUDS).

1. Emergency contraception pills

WHO recommends levonorgestrel for emergency contraceptive pill use. Ideally, this progestogen-only method should be taken as a single dose (1.5 mg) within five days (120 hours) of unprotected intercourse. Alternatively, a woman can take the levonorgestrel in two doses (0.75 mg each; 12 hours apart).

Mode of action

Levonorgestrel emergency contraceptive pills prevent pregnancy by preventing or delaying ovulation. They may also work to prevent fertilization of an egg by affecting the cervical mucus or the ability of sperm to bind to the egg.

Levonorgestrel emergency contraceptive pills are not effective once the process of implantation has begun, and they will not cause abortion.

Effectiveness and safety

Based on reports from nine studies including 10 500 women, the WHO-recommended levonorgestrel regimen is 52–94% effective in preventing pregnancy. The regimen is more effective the sooner after intercourse it is taken.

Levonorgestrel-alone emergency contraception pills are very safe and do not cause abortion or harm future fertility. Side-effects are uncommon and generally mild.

Medical eligibility criteria and contraindications

- Emergency contraceptive pills should not be given to a woman who already has a confirmed pregnancy. However, if a woman inadvertently takes the pills after she becomes pregnant, the available evidence suggests that the pills will not harm either the mother or her fetus.
- Emergency contraceptive pills are for emergency use only and are not appropriate for regular use as an ongoing contraceptive method because of the higher failure rate compared with non-emergency contraceptives.
- Frequent use of emergency contraception can result in side-effects such as menstrual irregularities.
- There are no medical contraindications to the use of levonorgestrel emergency contraception pills.

2. Copper-bearing intrauterine devices (IUDs)

WHO recommends that a copper-bearing IUD, as an emergency contraceptive, be inserted within five days of unprotected intercourse.

Mode of action

Copper-bearing IUD primarily prevents fertilization by causing a chemical change that damages sperm and egg before they can meet.

Effectiveness and Safety

When inserted within five days of unprotected intercourse, a copper-bearing IUD is over 99% effective in preventing pregnancy. This is the most effective form of emergency contraception available. Once inserted, the woman can continue to use the IUD as an ongoing method of contraception, and she may choose to change to another contraceptive method in the future.

A copper-bearing IUD is a very safe form of emergency contraception. The risks of infection, expulsion or perforation are low.

Medical eligibility criteria and contraindications

The only situation in which a copper-bearing IUD should never be used as emergency contraception is if a woman is already pregnant.

Guidelines for Pregnancy Prevention after Sexual Assault

Emergency contraceptive (EC) should be offered to non-pregnant, female Gender-based violence (GBV) survivors of child-bearing age in the case of sexual violence.

- A baseline pregnancy test should be done first, though this should not delay the dose of EC.
- Girls who have started menstruating are at risk of unwanted pregnancies and should also receive EC.
- EC is most effective when given within 120 hours (5 days) of assault.
- Another pregnancy test should be done 6 weeks after the incident at the follow-up visit, whether or not they took EC after the rape.

Emergency Contraception Regimes and Doses used in Tanzania

Type of contraceptive	Dose
Progestine only pills	Postinor 2®(Levonogestrel) 1tab every 12 hours (total 2 tabs per day) or 2 tabs once a day at the same time
Combined oral contraceptive pills with high dose of oestrogen (50µg)	Ovral® 2tabs every 12 hours (total 4 tabsper day)
Combined oral contraceptive pills with low dose of oestrogen (30µg)	Nordette® 4tabs every 12 hours (total 8 tab per day)

Note: The survivor can be given any of the above three regimens.

Reference: WHO Medical eligibility criteria for contraceptive use; 2014.



Handout 8.3.2: High-Risk Cohort

One nonrandomized study of a high-risk cohort (annual HIV incidence of 3.4%) given PEP "starter packs" (medications to be initiated in the case of a potential exposure prior to evaluation by a clinician) has provided preliminary data suggesting efficacy in that setting, with 1 infection detected among 66 participants taking PEP (0.6 infections per 100 person-years) and 10 seroconversions in 131 non-PEP users (4.2 infections per 100 person-years), with a mean of 24.2 months of follow-up.(39) Importantly, no risk behavior data comparing the two groups have been presented, thus the difference in infection rates may reflect a difference in risk behavior between these two groups rather than an effect of PEP.

In June 1999, a CDC-sponsored registry began assessing the availability of non-occupational PEP nationwide in the United States (Table 2). The objectives of the registry study include evaluating exposures that lead to PEP prescription, describing prescribed PEP regimens and adverse events, comparing seroconversion among those who do and do not receive PEP prescriptions, and providing data for a future case-control study to determine the efficacy of non-occupational PEP. Initial findings were presented at the International AIDS Conference in Barcelona in 2002.(40)

Data were presented on 424 exposed patients, 92% with sexual exposures. There were 233 reports from Massachusetts and 146 from California, where PEP study sites have contributed data to the registry. There were 15 reports from New York, and nine additional states contributed between one and nine reports. Exposures included receptive anal sex (reported in 44% of cases), receptive oral sex (in 25%), receptive vaginal sex (in 23%), insertive anal sex (in 23%), and insertive vaginal sex (in 8%). Multiple exposures were reported. Twenty-nine percent reported knowing that the source of exposure was HIV infected.

Data from a 4- to 6-week follow-up were submitted for 160 patients (38%), 159 of whom received PEP. Of these treated participants, 53% received three drugs, and 42% received two drugs. Zidovudine and lamivudine were included in 85% of regimens. Seventy-five percent of the 159 patients completed their initial regimen, 9% had the regimen modified, and 14% stopped early. Of the changes or discontinuations, 55% resulted from adverse effects.

Of the 160 patients with at least 4-6 weeks of follow-up data, 68% had an HIV test at 4-6 weeks, 13% had a test at 6 months, and 6% had a test at 12 months. One seroconversion was reported in an individual with multiple exposures involving a partner who had started antiretroviral therapy with a viral load of 180,000 copies/mL 2 weeks before the presenting exposure. The PEP regimen of stavudine and lamivudine was initiated 11 hours after an insertive anal exposure, and the HIV test was positive 2 months later. It is unclear if this was a PEP failure given the multiple additional exposures that occurred before, during, and after the PEP course. Investigators are attempting to improve the geographic representation of the sample and to increase data acquisition regarding exposed patients who do not take PEP.

Session 4: Standard Precautions and Post-Exposure Prophylaxis (PEP)



Total Session Time: 60 minutes

Learning Objectives

By the end of session, participants will be able to:

- Explain standard precautions
- Describe post-exposure prophylaxis (PEP)

Standard Precautions

Standard precautions, as per the IPC pocket guidelines:

Standard Precautions are a simple set of effective practice guidelines (creating a physical, mechanical or chemical barrier) to protect HCWs and patients/clients from infection with a range of pathogens including bloodborne pathogens.

Standard precautions apply to blood, all body fluids, secretions and excretions (except sweat), non-intact skin and mucous membranes. Because no one really knows which organisms clients or patients may have at any time, it is essential that Standard Precautions be used all of the time. Developed to prevent exposure to and transmission of blood-borne pathogens. Should be practised at all times

- By all health-care providers and caregivers
- In all settings (hospital, clinic, community settings, and patients' homes)

Note: Healthcare workers cannot always know if a patient's bodily fluids are infectious, so standard precautions should be used with ALL patients

REFER to Handout 8.4.1: IPC Definition of Standard Precautions on page 459 for further information.

Increased attention for correct and safe handling and disposal of sharps and all infected materials:

- Sharp instruments and equipment, including needles and syringes
- Waste contaminated with blood or bodily fluids

Hand washing with soap and water before and after:

- All procedures
- Contact with any patient
- Use of protective barriers, such as gloves, gowns, masks, and goggles when in direct contact with potentially infected bodily fluids
- Proper disinfection of instruments and other contaminated equipment

Ensuring safety involves not just the use of standard precautions related to patient contact but the management of the environment in the patient-care setting. These procedures are designed to keep all health-care workers safe and to protect the public health against infectious waste that could be of risk. The single most important personal action that the health-care worker can take is hand washing with soap and water before and after all procedures.

Routine Hand Washing

- The most important precaution for the prevention of infections
- Washing hands with soap and water, an antibacterial agent, or a waterless, alcohol-based antiseptic hand rub to eliminate microorganisms from the skin and hands

This is a process which mechanically removes soil and debris from skin and reduces the number of transient microorganisms. Handwashing with plain soap and clean water is as effective in cleaning hands and removing transient microorganisms as washing with antimicrobial soaps and causes less skin irritation.

REFER to Handout 8.4.2: Handwashing Technique with Soap and Water on page 363

Barrier Protection and Handling Sharps

Wear disposable gloves to:

- Empty bedpans or urinals
- Clean up spills of blood, vomit, urine, or faecal matter
- Perform any invasive procedure, such as drawing blood or starting an IV line

Cover cuts, scrapes, hangnails, and rashes with bandages/plasters. Disposable needles and syringes should be used only once. Do not re-cap needles after use

Wearing gloves is not needed for casual contact such as giving a back rub or touching intact skin, nor are they needed for giving oral medications or bed making. Never reuse disposable gloves, if possible. Other barrier protection methods include:

- A mask if you think a procedure may splash your mouth or nose with blood;
- A gown or apron if you think fluids could splash or drip onto your clothing;
- Eye coverings or goggles if you think fluids could spray or splash into your eyes.

Do everything possible to avoid being stuck by a used needle. Needle-sticks generally occur when the health-care worker: Lacks concentration, inexperienced or improperly disposes of sharps.

Dispose of Sharp Instruments Safely

Discard the used disposable needle and syringe in a puncture-resistant container labelled “sharps box”. Burn the container in an incinerator or pit for burning. If puncture-resistant containers are not available, use empty water, oil, or bleach bottles made with plastic or another burnable material. Adapt them for use as puncture-resistant containers. As long as the “safe box” meets the standard, it can be used.



Sharps and Waste Containers

Do not break, bend, re-sheath/re-cap or reuse lancets, needles, or syringes Do not shake sharps containers to create space. Sharps containers must be

- Placed near workspace

- Closed when not in use
- Sealed when $\frac{3}{4}$ full

The safe disposal of sharps is easy to do. Home-made containers - “Safe boxes” - constructed with durable materials that have open tops and firm sides are ideal containers for sharps (e.g. used needles, scalpels, and suture materials.) If you don’t have one, should make one. Waste disposal — waste bandages, dressings, linens, or materials contaminated with blood or bodily fluids must be handled with gloved hands and placed in containers for safe disposal



Decontamination of Used Instruments and Other Items

- Put on surgical or examination gloves post-procedure or put on utility gloves
- Submerge all instruments in 0.5% chlorine solution for 10 minutes for decontamination immediately after completing the procedure
- Remove surgical gloves by turning inside out and dispose of gloves in a leakproof waste container or heavy-duty plastic bag
- Cover the decontamination container
- Using utility gloves, clean all surfaces contaminated during the procedure by wiping them with a cloth soaked in 0.5% chlorine solution
- Remove instruments from 0.5% chlorine solution after 10 minutes and immediately take them for cleaning
- Change the decontamination solution daily, or more often if necessary (change when it becomes dirty)

Decontamination is the first step in handling used instruments and other items. It is important to decontaminate instruments and objects that may have been in contact with blood or body fluids so that they are safer to handle by personnel who will clean them. Immediately after use, all instruments should be placed in an approved disinfectant such as 0.5% chlorine solution for 10 minutes to inactivate most organisms, including HBV, HCV and HIV.

Decontamination, one should use a plastic, non-corrosive container for decontamination to help prevent: dulling of sharps (e.g., scissors) due to contact with metal containers, and rusting of instruments due to a chemical reaction (electrolysis) that can occur between two different metals (i.e., the instrument and container) when placed in water. Healthcare workers should not soak metal instruments that are electroplated (i.e., not 100% stainless steel) even in plain water for more than an hour because rusting will occur.

NOTE: Do not mix chlorine solutions with either formaldehyde or with ammonia-based solutions because a toxic gas may be produced.

Post-Exposure Prophylaxis (PEP)

Definition:

- **Post:** after...
- **Exposure:** someone has been exposed to a disease or infection...
- **Prophylaxis:** the means by which that person may still be able to prevent disease

The use of therapeutic agents to prevent infection following exposure to a pathogen. Types of occupational exposure include: Percutaneous injury (needle-stick or cut through the skin). Contact of mucous membrane or non-intact skin with:

- Blood, tissue, or other bodily fluids that are potentially infectious
- Urine, sweat, and faeces only if bloody

For health-care workers, PEP is commonly considered for exposures to HIV and Hepatitis B. Other bodily fluids that are potentially infectious include cerebrospinal, synovial, pleural, pericardial, peritoneal, or amniotic fluids; semen or vaginal secretions; and pus.

The most common method of exposure to HIV infection is through unprotected sexual intercourse (sexual exposure) such as during sexual assault. Other potential areas of risk of HIV infection include contact with infectious bodily fluids, such as during accidents or when safety precautions are not followed (occupational exposure).

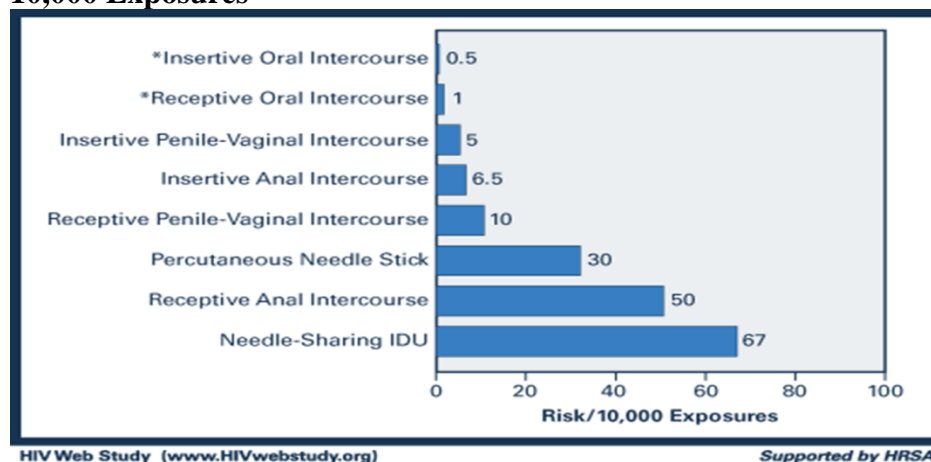
PEP: Risk of Transmission

Exposure characteristics increasing risk of transmission:

- Large quantity of blood
- Device visibly contaminated with source-patient's blood
- Injury involves needle placed directly into patient's vein or artery
- Deep injury
- Injury with hollow-bore needle
- Source patient with acute or late stage infection
- HCW not wearing gloves

It is important to know the stage of the HIV infection source point. The higher the viral load of the source point, the higher the potential risk of transmission.

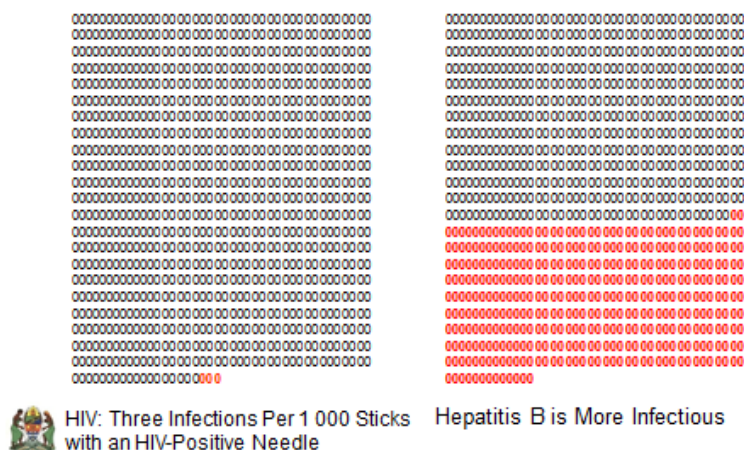
Exposure Risks (Average, Per Episode, Involving HIV-Infected Source Patient) per 10,000 Exposures



Transmission of Blood-Borne Pathogens

Which pathogen is more likely to be transmitted from a needle used on an infectious patient?

- HIV
- Hepatitis B



HIV is much less likely to spread after a needle-stick or mucous-membrane contact. If 1 000 people are stuck with a needle used on HIV-positive patients, only three people would be likely to get infected with HIV. If 1 000 people are stuck with a needle used on a person with Hepatitis B infection, many more could be infected. Patients who are Hepatitis B antigen positive are most infectious; other hepatitis patients are less infectious. The graphic on this slide shows that if 1 000 people are stuck with a needle with blood containing Hepatitis B, approximately 300 of them will become infected; the odds are much greater than for a needle-stick with HIV.

Preventive Strategies

Post-exposure programmes are key for a timely and effective response to occupational exposure. They should include standards and protocols for responding to exposures, including:

- Providing immediate post-exposure activities (first aid, disinfection, reporting, and referral)
- Assessing the exposure
- Counselling the exposed worker
- Referring for medical care
- PEP, testing, and follow-up for the exposed worker
- Obtaining information from the source person
- Selection and training of a designated personnel to play the following roles:
 - First point of referral for exposed worker
 - Assessment of exposure
 - Administration of post-exposure prophylaxis
 - Liaison with source person
 - Establishment of systems for timely and knowledgeable delivery of medical care, counselling, and follow-up
- Education and training of staff in the protocols, personnel, and systems involved in responding to exposures

Workplace programmes in which people are trained and educated regarding the protocols and procedures are key for effective responses to an occupational exposure. Regular trainings and refresher trainings should be established to ensure that everyone in the facility, regardless of role, is aware of what to do and who to talk to in case of an occupational exposure.

Responsibility of PEP Focal Person

- Assign one person per healthcare facility responsible for PEP (“PEP Responsible”)
- Hold a meeting for all staff, including cleaners, to ensure they know about PEP
- When PEP Responsible is off duty, inform the staff who replace(s) him or her
- Make sure the key to the cupboard with PEP drugs is always accessible for PEP Responsible!
- Guarantee confidentiality

It is important to remember that not just medical personnel can have an occupational exposure. Cleaning staff and others may also come in contact with infectious objects and materials and should be trained on PEP and PEP protocols.

Management of Occupational Blood Exposure

- Manage exposure site
- Report and document exposure
- Assess exposure risk
- Treat appropriately
- Follow-up and counselling

1. Manage Exposure Site

- Flush mucous membranes with clean water
- Flush exposed eyes with clean water or saline solution
- Get a tetanus immunization or booster, if indicated, for a needle stick

Follow-up for HIV exposure (source with positive HIV serology or acute HIV with positive HIV RNA) include:

- Determine HIV serology of exposed individual at baseline, 6 and 12 weeks, and 6 months
- Re-evaluate and adjust regimen within 72 hours if taking PEP
- Pregnancy test for all exposed females of reproductive age if pregnancy status is unknown
- Monitor for drug toxicity

When assessing risk and evaluating both the source and the exposed healthcare worker, the healthcare worker should be evaluated within 2 hours (rather than days) after their exposure and started on prophylaxis, if indicated, and not later than 72 hours after exposure. The first dose of prophylaxis should be started regardless of whether he/she has accessed HTC services or not.

- The HCW should be counselled and tested for HIV; baseline testing and further follow-up of the exposed person is necessary.

- Baseline testing of the exposed HP should include the following tests: Full blood count, liver function tests, renal function tests and pregnancy testing for female HP if the status is not known
- Exposed individuals who either are known to be HIV-positive or found to have positive results on HIV testing should not be offered prophylaxis. They should be referred to the care and treatment clinic (CTC) for long-term management of their HIV infection.

2. Report and Document Exposure

When an occupational exposure occurs, it should be evaluated immediately, preferably within 2 hours, and the following information should be recorded:

- Date and time of exposure
- Details of procedure being performed, use of protective equipment at time of exposure
- Type, severity, and amount of fluid to which worker was exposed
- Details of exposure source person
- Details about post-exposure management

3. Assess Exposure Risk

Worker exposed to HIV should be evaluated as soon as possible, preferably within hours of exposure: Include information on exposed persons – current medications, underlying medical conditions

- Starter pack should be initiated within 2 hours of exposure, before testing exposed person
- PEP is not indicated for exposures of more than 72 hours
- Counsel and test for HIV, HBV, and HCV:
- In case of refusal of test, PEP should not be continued

Depending on sero-status of source person, these criteria can be used to determine severity of exposure:

- Percutaneous injury
- Mucus membrane exposure
- Non intact skin exposure
- Bites resulting in blood exposure for either person involved

A high risk exposure is associated with:

Large quantity of blood

- Device visibly contaminated with source patient's blood
- Procedure involving needle placed directly into patient's vein or artery
- Deep injury

Injury with hollow bore needle

High viral load in source patient

- Acute infection
- Advance HIV disease (AIDS)

A low risk exposure is associated with:

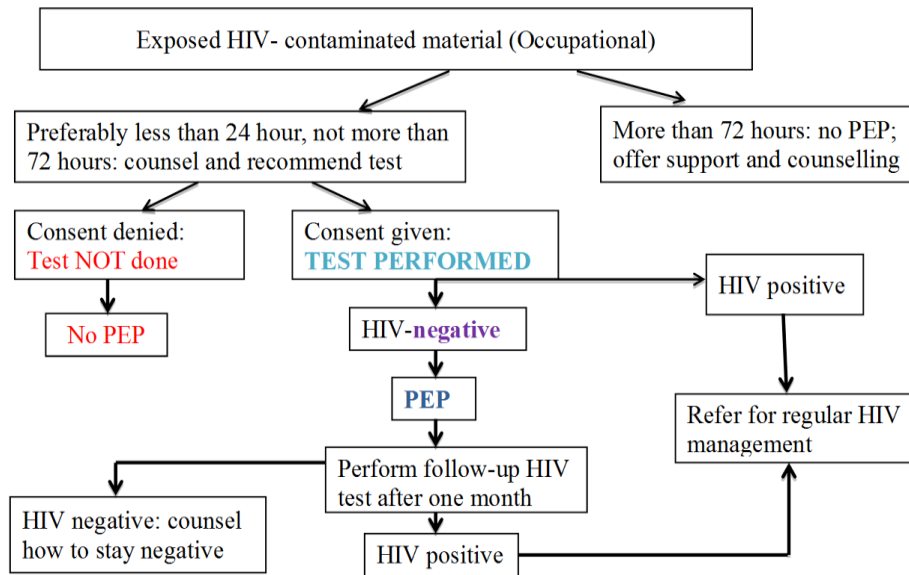
Exposure to small volume of blood

Blood contaminated with fluids from asymptomatic HIV-infected patient with low viral load

Exposure following an injury or blunt needle

Any superficial injury or mucocutaneous exposure

Exposed to HIV-Contaminated Material (Occupational)



REFER to Handout 8.4.3: on page 365 for a more clear flow-chart. GO through each of these steps with participants.

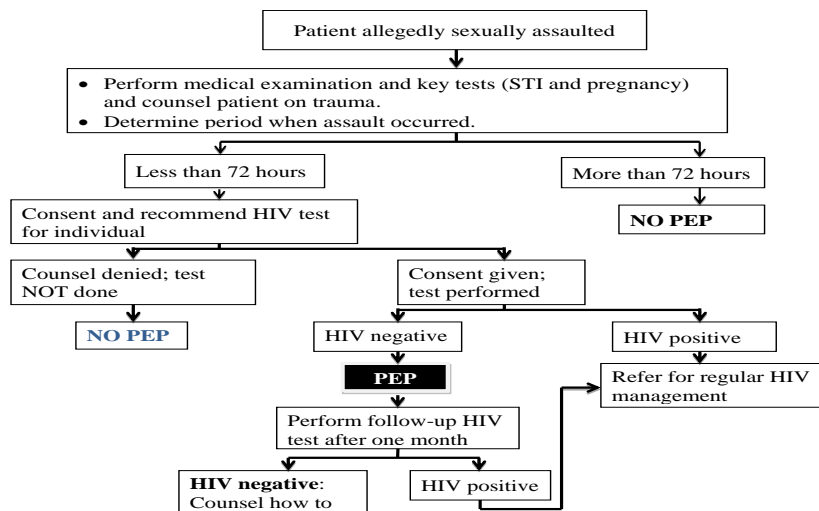
A starter pack of PEP Drugs is substantially effective when given within the first two hours of the exposure even before counselled and tested for HIV.

Non-Occupational Exposure to HIV

- Rape is a common example of non-occupational exposure
- When deciding whether to offer PEP, consider whether any of these factors were present during the assault:
- Blood
- Survivor or attacker with a sexually transmitted infection with inflammation
- Significant trauma to survivor
- Ejaculation by attacker
- Multiple attackers or multiple penetrations by assailant(s)

There are some instances where PEP may be used that are not associated with workplace duties. If someone is sexually assaulted/raped, PEP can be used to reduce the risk of becoming infected with HIV. Patients who have been assaulted should be informed of the risk to them and educated on the options available to them. Sexually transmitted infections with inflammation can include: gonorrhoea, Chlamydia, herpes, syphilis, bacterial vaginosis, and trichomoniasis. It is important to explain the risk of not only HIV but other sexually transmitted infections (STIs) as a result of the assault. The presence of Blood from any part of the Assailant or victim body may contribute to spread of infection.

Non-Occupational Exposure to HIV



**Administering PEP on a HIV + individual could lead to resistance development.*

REFER to Handout 8.4.4: on page 367 on Non-Occupational Exposure to HIV to see this graphic.

The graphic to participants. This graphic shows the steps that the health-care worker should take if a person comes in who has been recently sexually assaulted. Sexual assault can include rape, molestation, or any type of unwanted anal, oral, or vaginal penetration.

4. Treat Appropriately

Administer prophylactic ARV treatment as soon as possible, or within 72 hours of exposure:

- AZT 300mg bd + 3TC 150 mg bd for 4 weeks
- Consider additional 3rd drug (EFV or a PI) if:
- Source individual is symptomatic
- Large volumes of blood are transferred or
- In case of multiple perpetrators, anal penetration, or trauma
- Prophylaxis should be continued for four weeks

PEP should be initiated as soon as possible preferably within 2 hours after exposure. Studies suggest that PEP may be substantially less effective if started more than 24-36 hours post-exposure and not effective after 72 hours. In the case of a high risk exposure, consider using the 3rd drug option—usually EFV. However, if EFV is contraindicated, (i.e., woman is pregnant) a PI can be substituted. The use of PIs for PEP:

- Low risk category: use dual therapy (2 drugs): Zidovudine (ZDV) + Lamivudine (3TC)
- High risk category: used triple therapy (3 drugs): Zidovudine (ZDV) + Lamivudine (3TC) + Efavirenz (EFV), or Lopinavir/r

5. Follow up and counselling

Exposed person should be re-evaluated within 72 hours as additional information about the source is obtained, including:

- Serologic status
- Viral load
- Current treatment
- Any resistance test results

- Information about factors that would modify recommendations
- HIV antibody test should be used to monitor for seroconversion
- If PEP is given, the HCW should be monitored:
- For drug toxicity at two weeks with Full Blood Picture and liver-function tests
- HCWs should be asked to commit to behavioural measures, such as sexual abstinence or condom use, for several weeks to two months.
- Greatest risk is during first 6-12 weeks after exposure
- Female HCWs should be:
- Advised for family planning
- Involved in a discussion about alternate drug regimens if there is a known or possible pregnancy

Laboratory monitoring of client on PEP:

Timing	In persons taking PEP	In persons <i>not</i> taking PEP
Baseline (within 72 hours)	HIV, HCV, HBV, FBP, BUN Transaminases (ALAT/ASAT)	HIV, HCV, HBV
Week 2	Hb, Transaminases	
Week 6	Transaminases, FBP, BUN, HIV	HIV
Month 3	HIV, HCV, HBV	HIV, HCV, HBV
Month 6	HIV, HCV, HBV	HIV, HCV, HBV

Key Points

- Standard precautions should be practised in all patients, regardless of infection status
- PEP programmes are key to a timely and effective response to “both” occupational and “non occupational” exposure



Handout 8.4.1: IPC and Standard Precautions

Definition

Standard Precautions are a simple set of effective practice guidelines (creating a physical, mechanical or chemical barrier) to protect HPs and patients/clients from infection with a range of pathogens including blood borne pathogens. The practices are used when caring for all patients/clients regardless of diagnosis.

They apply to blood, all body fluids, secretions and excretions (except sweat), non-intact skin and mucous membranes. Because no one really knows which organisms clients or patients may have at any time, it is essential that Standard Precautions be used all of the time.

Components of Standard Precautions

The following actions create protective barriers to prevent infections in clients, patients and HPs, and provide the means for implementing Standard Precautions:

- Consider every person (patient or staff) as potentially infectious and susceptible to infection
- Use appropriate hand hygiene techniques including handwashing, hand antisepsis, antiseptic handrub and surgical hand scrub
- Wear Personal Protective Equipment (PPE) including gloves, masks, goggles, caps, gowns, boots and aprons
- Appropriately handle sharps, patient care and resuscitation equipment, linen, and appropriately manage patient placement and patient environmental cleaning
- Safely dispose of infectious waste materials to protect those who handle them and prevent injury or spread to the community
- Process instruments by decontamination, cleaning and then either sterilization or high level disinfection (HLD) using recommended procedures.

How Standard Precautions Break the Disease Transmission Cycle

Proper infection prevention practices are fundamental to quality of care. A safe work environment is essential to protect HPs, patients and communities. Standard Precautions break the disease transmission cycle in one of the following four ways:

1. Reducing the number of infection-causing microorganisms present (e.g., through practicing hand hygiene, cleaning instruments and prepping skin prior to intravenous [IV] insertion);
2. Killing or inactivating infection-causing microorganisms (e.g., through hand hygiene with an antiseptic or waterless, alcohol preparation or reprocessing of instruments);
3. Creating barriers to prevent infectious agents from spreading (e.g., through wearing PPE or covering the mouth when sneezing); or
4. Reducing or eliminating risky practices (e.g., by passing sharps using hands-free technique, using disposable gloves instead of none, disposing of syringes at point of use).

Airborne Precautions

Definition: These precautions are designed to reduce the nosocomial transmission of particles 5µm or less in size that can remain in the air for several hours and be widely dispersed. Microorganisms spread wholly or partly by the airborne route include chicken pox (varicella virus) and measles (rubeola virus).

Airborne precautions are recommended for patients with either known or suspected infections with these agents.

Respiratory Hygiene/Cough Etiquette

The following measures to contain respiratory secretions are recommended for all individuals (staff, patients and visitors) with signs/symptoms of a respiratory infection.

- Cover the nose/mouth when coughing or sneezing;
- Use tissues to contain respiratory secretions and dispose of the tissue in the nearest waste container after use;
- Perform hand hygiene (e.g., handwashing with non-antimicrobial soap and water, alcohol-based handrub or antiseptic handwash) after having contact with respiratory secretions and contaminated objects/materials.

Hand Hygiene

Hand hygiene practices (handwashing, handrub and surgical hand scrubbing) are intended to prevent hand-borne infections by removing dirt and debris and inhibiting or killing microorganisms on skin. This includes not only most of the organisms acquired through contact with patients and the environment (transient), but also some of the permanent ones that live in the deeper layers of the skin (resident).

Hand hygiene includes care of hands, nails and skin. It significantly reduces the number of disease-causing microorganisms on hands and can minimize cross-contamination (e.g., from HP to patient) and is a key component in minimizing the spread of disease and in maintaining an infection-free environment. Hence, failure to perform appropriate hand hygiene is considered to be a leading cause of nosocomial infections.

Hand washing

Hand washing should be done:

- Before and after performing any procedure on the same patient or between patients
- Before and after examining a patient
- Before putting on gloves, and after removing gloves
- Following any situation in which hands might become contaminated

Personal Protective Equipment (PPE)

PPE are gears which provides a physical barrier between microorganisms and the wearer, thereby preventing contamination from pathogens. Although PPE reduces the risk of acquiring infection by preventing transmission of microorganisms, they do not completely eliminate the risk.

With the emergence of blood borne viral infections (HIV, HBV, HCV, Ebola), PPE is vital for protecting HCWs as well as clients.

Principles for using PPE

- Assess the risk of exposure to blood, body fluids, or secretions and choose PPE appropriately
- Use the correct PPE for the right purpose.
- Avoid any contact between contaminated PPE and surfaces, clothing, or people
- Discard used PPE appropriately in designated site/container/area
- Do not share PPE; unless are of re-usable type after decontamination or sterilization
- Change PPE completely and meticulously wash hands before and after attending a patient

Remember: Use of PPE does not replace the need to follow IPC measures such as hand washing.

Safe Handling of Sharps

Sharps (needles, scalpels, etc.) must be handled with extreme care to avoid injuries during use or disposal. Handling should be according to the following orders:

- Do not pick up a handful of sharps simultaneously
- Position the sharp/pointed end of instruments away from self and others.
- Wear heavy-duty utility gloves while decontaminating, cleaning, and disinfecting instruments.
- Dispose of used sharps immediately in designated puncture- and leak-proof containers that has a biohazard symbol.
- If injured by sharps, contact the assigned PEP personnel/administration.

NOTE: IPC emphasizes on Safe Injections. A safe injection is an injection that does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous for others.

Patient-Care Equipment

Patient care involves the use of different supplies and equipment, some of which for surgical procedures hence they are either disposed of or sterilized. Patient-care equipment should be handled as follows:

- Clean and reprocess reusable equipment and linen that have been in contact with a patient before utilizing them in the care of another patient.
- Decontaminate equipment that has been soiled with blood or body fluids
- Clean any equipment that is being sent for repair or service with an approved disinfectant.
- Decontaminate and disinfect bedpans and urinals after use
- Clean toilets and commodes regularly and when soiled.
- Disinfect soiled patient-care equipment in a manner that prevents contaminating self and/or the environment.
- Do not reuse disposable patient-care equipment

Reference: National Infection Prevention and Control Guidelines for Healthcare Services in Tanzania; February 2007



Handout 8.4.2: Proper Hand Washing Technique with Soap and Water.

Proper hand-washing techniques

Removing all dirt and contaminants from the skin and your hands is extremely important. Hands and other soiled parts of the body should be cleaned at least after any procedure, at the end of each work period, prior to breaks, or when visiting the toilet.

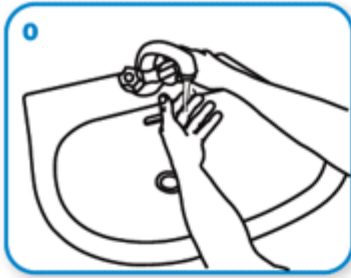
Good hand-washing techniques include washing your hands with soap and water or using an alcohol-based hand sanitizer. Antimicrobial wipes are just as effective as soap and water in cleaning your hands but aren't as good as alcohol-based sanitizers.

Antibacterial soaps have become increasingly popular in recent years. However, these soaps are no more effective at killing germs than is regular soap. The combination of scrubbing your hands with soap and rinsing them with water loosens and removes bacteria from your hands.

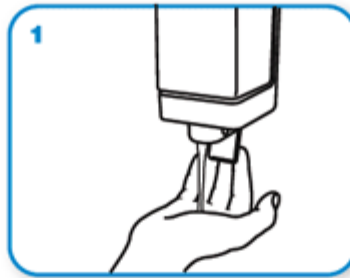
Follow these instructions for washing with soap and water:

- Wet your hands with warm, running water
- Apply enough liquid soap or use clean bar soap.
- Rub your hands vigorously together for at least 15 to 20 seconds.
- Scrub all surfaces as follows:
 - Rub hands palm to palm
 - Right palm over the other hand with interlaced fingers and vice versa
 - Palm to palm with fingers interlaced
 - Backs of fingers to opposing palms with fingers interlocked
 - Rotational rubbing of left thumb clasped in right palm and vice versa
 - Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa
- Rinse hands with water
- Dry thoroughly with towel. Duration of procedure: At least 15 seconds

Reference: World Health Organisation: Hand washing technique.



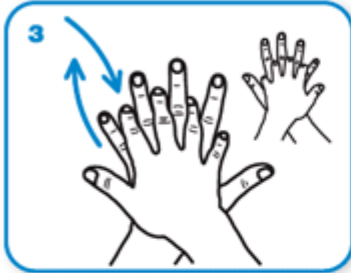
Wet hands with water



apply enough soap to cover all hand surfaces.



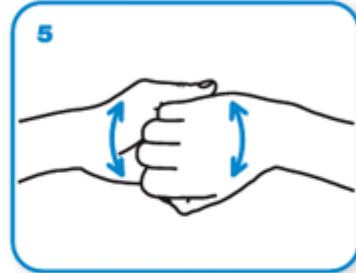
Rub hands palm to palm



right palm over left dorsum with interlaced fingers and vice versa



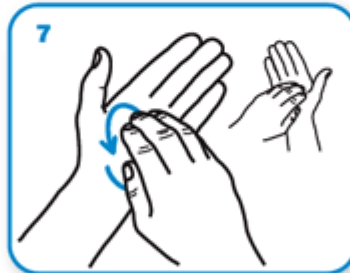
palm to palm with fingers interlaced



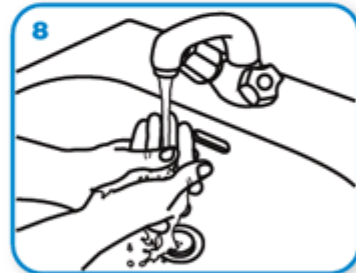
backs of fingers to opposing palms with fingers interlocked



rotational rubbing of left thumb clasped in right palm and vice versa



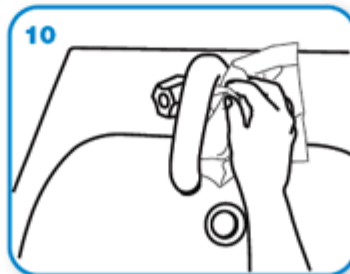
rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.



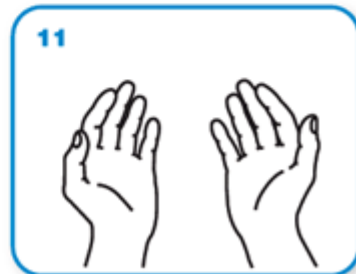
Rinse hands with water



dry thoroughly with a single use towel



use towel to turn off faucet

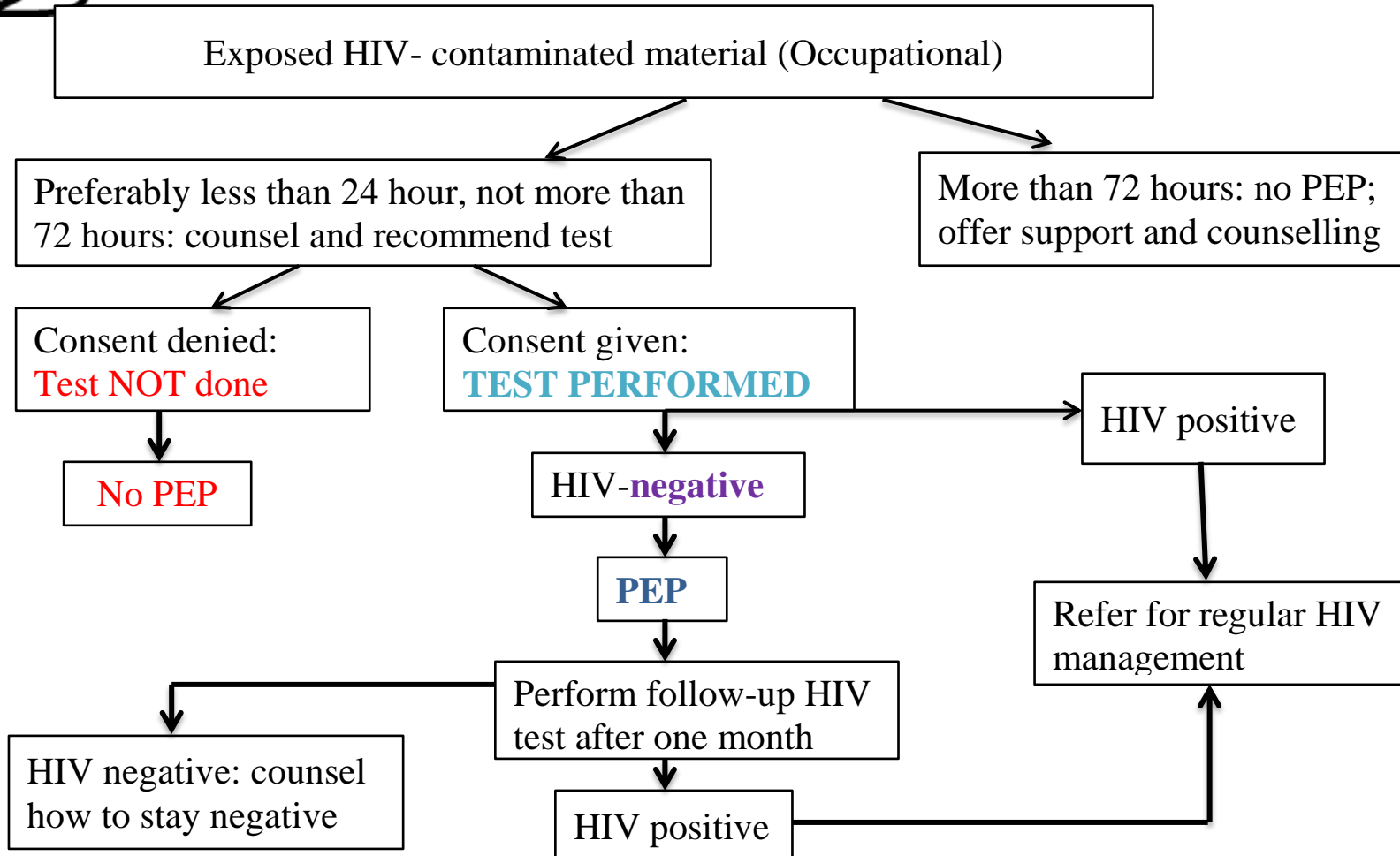


...and your hands are safe.

Reference: World Health Organisation (WHO): Hand washing technique.



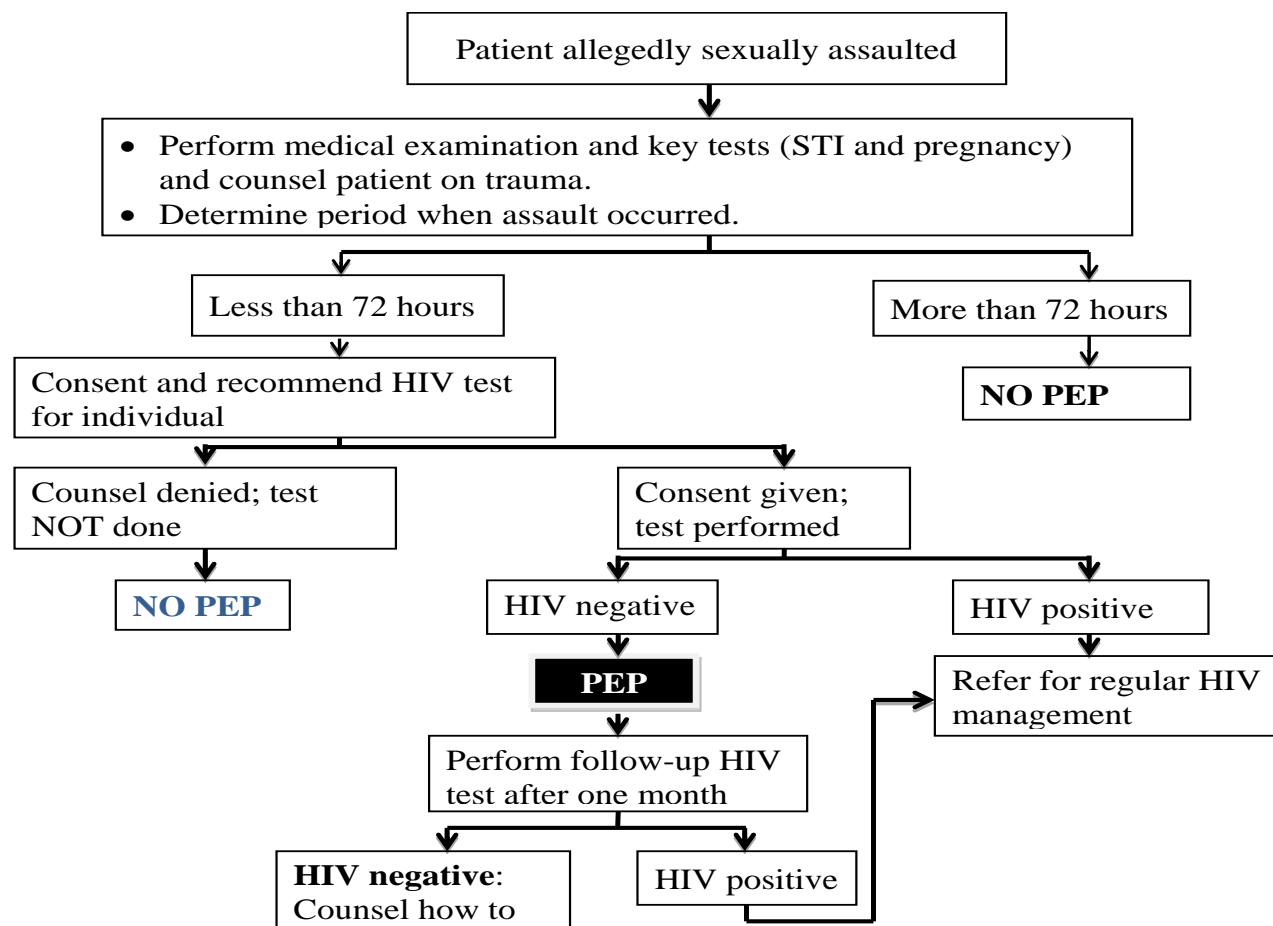
Handout 8.4.3: Assessment of Occupational Exposure



**Administering PEP on a HIV + individual could lead to resistance development.*



Handout 8.4.4: Non-Occupational Exposure to HIV



**Administering PEP on a HIV + individual could lead to resistance development.*

