

KITSO AIDS Training Program

Lecture 13:
**Post-Exposure Prophylaxis
(PEP)**

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Learning Objectives

1. To become familiar with factors affecting rates of transmission following exposure to HIV-infected materials.
2. To become familiar with available PEP regimens and how best to access these regimens.

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Outline

1. Types of Exposure
2. Risks of Transmission
3. Prophylactic Regimens
4. Botswana PEP Guidelines (2008)

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Post-Exposure Prophylaxis (PEP)

A government-provided program through which exposed individuals (health care workers and others) are offered antiretroviral medication(s) to reduce the risk of acquisition of HIV infection. Over-all, the risk of workplace HIV infection is very low, as long as universal precautions are carefully observed, and the PEP protocol is followed.

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PEP: Types of Fluids/Secretions

- Infectious: PEP may or may not be indicated, depending upon type of exposure
 - Blood
 - Amniotic Fluid
 - Pericardial Fluid
 - Pleural Fluid
 - Breast milk
 - Ascitic Fluid
 - Synovial fluid
 - Cerebro-Spinal Fluid
 - Genital Secretions
- Non-Infectious: PEP not indicated, unless there is visible contamination with blood
 - Urine, feces
 - Saliva, tears, perspiration
 - Sputum, nasal discharge, pus

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PEP: Types of Exposure

- Percutaneous: injury causing break in the normal skin barrier and exposure to infectious fluids, usually via needle or scalpel injury
- Mucosal: oral or conjunctival exposure to infectious material
- Cutaneous: exposure of skin to infectious material.

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PEP: Risk of Transmission

- **Percutaneous:** over-all 0.3% risk per needle-stick (i.e., over-all average risk of 3 sero-conversions per 1000 exposures, without any PEP), which varies according to nature of individual exposure:
 - Greater risk: hollow-bore needle, visible source patient blood on device prior to injury, needle was in source patient's vein or artery, and deep injury.
 - Lesser risk: non-hollow-bore device (e.g., scalpel, suture needle), no source patient blood visible on needle prior to injury, device not in source patient vein or artery, and superficial injury.

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PEP: Risk of Transmission (2)

- **Mucosal** (0.09% risk per contact, probably less)
 - Risk is probably affected by estimated volume and length of exposure, integrity of mucosal surface (e.g., underlying inflammation or infection), cleansing interventions at time of exposure.
- **Cutaneous** (unknown, but < < mucosal exposure)
 - Risk is affected by integrity of skin at exposure site, duration of contact, and cleansing interventions at time of exposure. Intact skin is an excellent barrier to HIV infection.
- **For all exposures:** Stage of HIV infection (e.g., acute infection, AIDS) and viral load in source patient are important determinants of exposure risk.

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Indications for PEP

- **Percutaneous:** usually indicated if the fluid is infectious for HIV, regardless of the characteristics of a particular needle-stick injury and the viral load of the source patient
- **Mucosal:** may or may not be indicated, even if fluid is infectious for HIV
 - National guidelines recommend case-by-case assessment re: exposure risk, including volume of infectious material, integrity of mucosal surface, length of exposure, and any cleansing interventions taken at time of exposure. For difficult cases, consult an HIV Specialist, if necessary, *without delaying PEP initiation.*
- **Cutaneous:** not indicated, even if fluid is infectious for HIV, unless there is significant breakdown of skin integrity (e.g., eczema, psoriasis)

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PEP: Choosing a Regimen

- Low rates of seroconversion make PEP difficult to study, and randomized, placebo-controlled studies would be unethical, impractical, and too costly.
- Early studies suggested that **AZT**-containing regimens conferred ~80% risk reduction when used for 4 weeks.
- Success of PMTCT proves transmission can be reduced, suggesting the same would apply to PEP.
- In rare cases, PEP may have to be individualized according to ARV treatment status of the source patient. Consult HIV Specialist in such cases, *without delaying PEP initiation with AZT/3TC.*

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PEP: 2008 Botswana Guidelines

- Exposure management and reporting:
 - Exposure management (unproven efficacy): wash exposed wounds with soap and water, flush mucous membranes with water. Do *not* use caustic agents, bleach, antiseptics
 - Immediately report to AIDS counselor or supervisor
 - Complete Incident and Needle-stick forms
- Requisite HIV counseling and rapid HIV testing:
 - Exposed HCW: if HCW refuses HIV test, PEP must not be given.
 - Source patient: if source patient refuses, guidelines mandate that HIV test must still be done, but that source patient is not told the results.
 - PEP is not required if HCW is previously known to be HIV-infected.

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PEP: 2008 Botswana Guidelines (2)

- If source patient is HIV negative, PEP may still be indicated: guidelines advise consideration of possibility that source patient might be in the "window period." Decisions regarding PEP initiation should be individualized, and an HIV Specialist consulted if necessary. However, *such consultation must not delay initiation of PEP.*
- PEP prophylactic ARV regimen:
 - Co-formulated **AZT + 3TC** for four weeks.
 - For exposed children, doses of **AZT** and **3TC** must be calculated or determined from WHO pediatric dosing charts.

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PEP: 2008 Botswana Guidelines (3)

- **Toxicity Monitoring**
 - Not in healthy asymptomatic individuals, but individualize according to HCW history (e.g., a patient with history of chronic anemia may require follow-up HgB).
- **Follow-Up**
 - Follow-up in 2 weeks, to monitor adherence and side effects, and to provide ongoing emotional support
 - Repeat HIV testing at 6 weeks, 3 months, 6 months
- **Safe sex and discontinuation of breast feeding.**

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PEP: 2008 Botswana Guidelines (4)

- Guidelines recommend PEP for rape, sodomy, and defilement within the previous 72 hours, ideally within 4 hours or less.
 - Rape victims must be brought first for PEP, before being taken to the police station. Decision for PEP should be based on patient history of penetrative sexual violence, and not on the police report. Do not wait for, or be bound by, the police report: only patient history of rape is necessary and sufficient for PEP. Do not adjudicate a “he-said-she-said” debate.
 - Violent rape, with obvious genital/rectal trauma, may justify addition of a 3rd ARV: consult an HIV Specialist, but do not delay initial initiation of at least AZT + 3TC.
 - Child rape must be managed exactly the same as with adults, including pre-PEP HIV testing.

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PEP: Care of Rape Victims

- Prompt referral for any significant genital-urinary or rectal injury
- Evaluation for STIs and indicated treatment
- Pregnancy test
- Consideration of emergency contraception
- Ongoing emotional support, including referral to social worker for psychological evaluation
- Counseling about safe sex
- For rape victims who do not receive PEP:
 - All of the above interventions
 - Baseline and, if negative, follow-up HIV testing in 3 months
 - If baseline test positive, then referral for CD4 screening

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PEP: Special Considerations

- Clinicians must not allow HCWs to pressure them about PEP decisions, i.e., to initiate PEP when not medically indicated.
- There is no provision for human bites, since human bites, unless contaminated with *the source patient's* (i.e., the biter's) blood, do not transmit HIV.
- PEP is most effective when initiated very soon after exposure (ideally within 4 hours, absolutely within 72 hours).
- Guidelines advise against pre- and post-sexual exposure prophylaxis (the so-called "the-condom-broke" scenario), except for instances of rape.

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Special Considerations (2)

- *Pre-operative evaluation of surgical risk in HIV-infected patients must follow exactly the same criteria as used for HIV-uninfected patients.* Surgery must not be delayed or cancelled solely because of a diagnosis of HIV infection.
- Pre-operative HIV testing as a precondition for surgery should not be done, unless there is a compelling clinical reason.
 - However, this policy should not deter routine "opt out" testing for hospitalized patients of unknown HIV status, which should be encouraged.

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Special Considerations (3)

- Evaluation for surgery in an HIV-infected patient must take into account the overall clinical condition of the patient, including cardiopulmonary status, coagulation profile, baseline level of physical activity, and other non-HIV-related parameters routinely used to judge surgical fitness for non-HIV-infected patients. Delay or postponement of surgery cannot be justified by asserting that the HIV-infected patient has a "terminal illness," since HAART has increased life expectancy for most patients to a normal life span.
- The full 2008 guidelines document outlines specific criteria for permitting referral of HIV-infected patients to South Africa for surgery not available in Botswana.

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