Module 1

HIV epidemiology, transmission and prevention

HIV basic knowledge and stigma reduction in health care settings

Session 2

Module goals

Module 1: HIV epidemiology, transmission and prevention

Module 1	Participants will be able to: -offer an insight into the epidemiological situation in the country and worldwide -present the HIV transmission modes and the broad approaches to prevention -implement post-exposure prophylaxis for HIV in the health care environment.
Module 2	Participants will be able to: -describe the natural history of the HIV infection -expose the main circumstances in which the HIV infection is discovered -describe some of the clinical manifestations of the HIV/AIDS infection.
Module 3	Participants will be able to: - name the techniques used for the biological diagnosis of the HIV infection - argue the need to comply with ethical and confidentiality imperatives in the health care environment - name the interventions to reduce HIV stigma and discrimination in health care settings.
Module 4	Participants will be able to: - inform a PLHIV about how care is organized in the country - inform a PLHIV about the principles of care - inform parents about the care available for a newborn baby, infant or child infected by HIV - argue the need for optimal adherence to antiretroviral therapy.

Module 1: HIV epidemiology, transmission and prevention

Module 1

Participants will be able to:
-offer an insight into the epidemiological situation in the country and worldwide
-present the HIV transmission modes and the broad approaches to prevention
-implement post-exposure prophylaxis for HIV in the health care environment.

Module 2

Participants will be able to:
-describe the natural history of the HIV infection
-expose the main circumstances in which the HIV infection is discovered
-describe some of the clinical manifestations of the HIV/AIDS infection.

Module 3

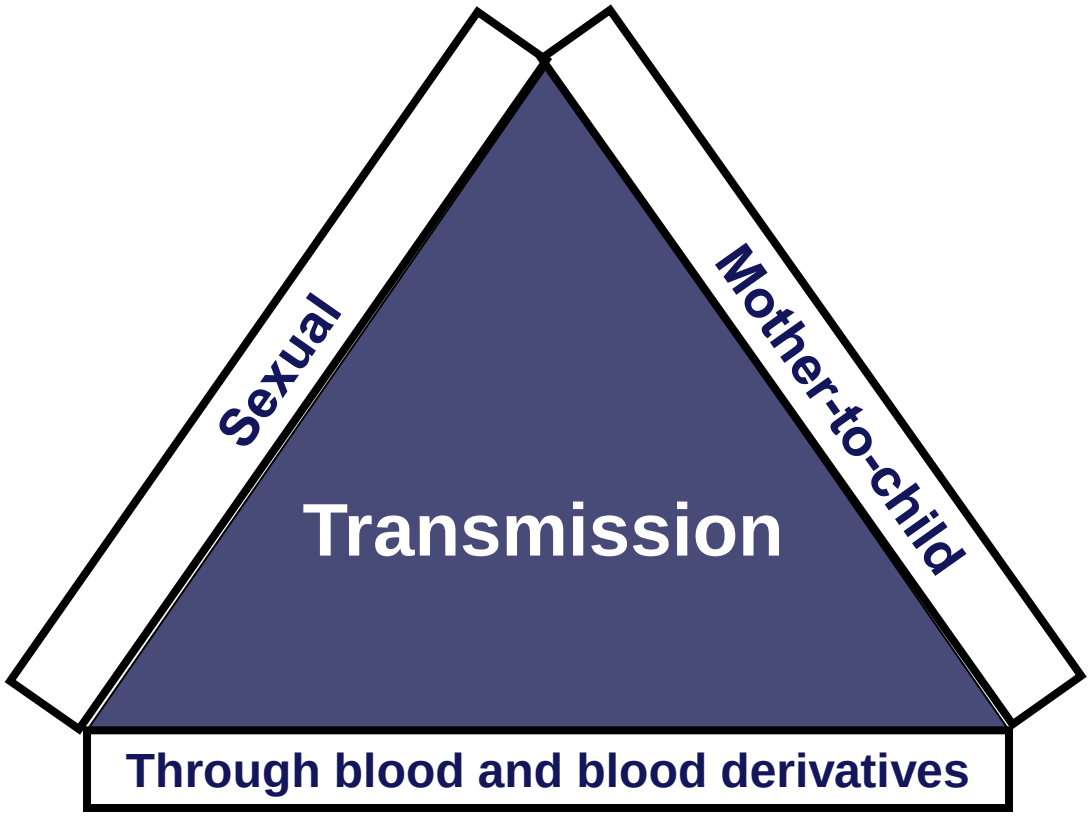
Participants will be able to:
- name the techniques used for the biological diagnosis of the HIV infection
- argue the need to comply with ethical and confidentiality imperatives in the health care environment
- name the interventions to reduce HIV stigma and discrimination in health care settings.

Module 4

Participants will be able to:
- inform a PLHIV about how care is organized in the country
- inform a PLHIV about the principles of care
- inform parents about the care available for a newborn baby, infant or child infected by HIV
- argue the need for optimal adherence to antiretroviral therapy.

HIV contamination modes

Three transmission modes



HIV is not transmitted by:

Everyday acts

Hugging a PLHIV

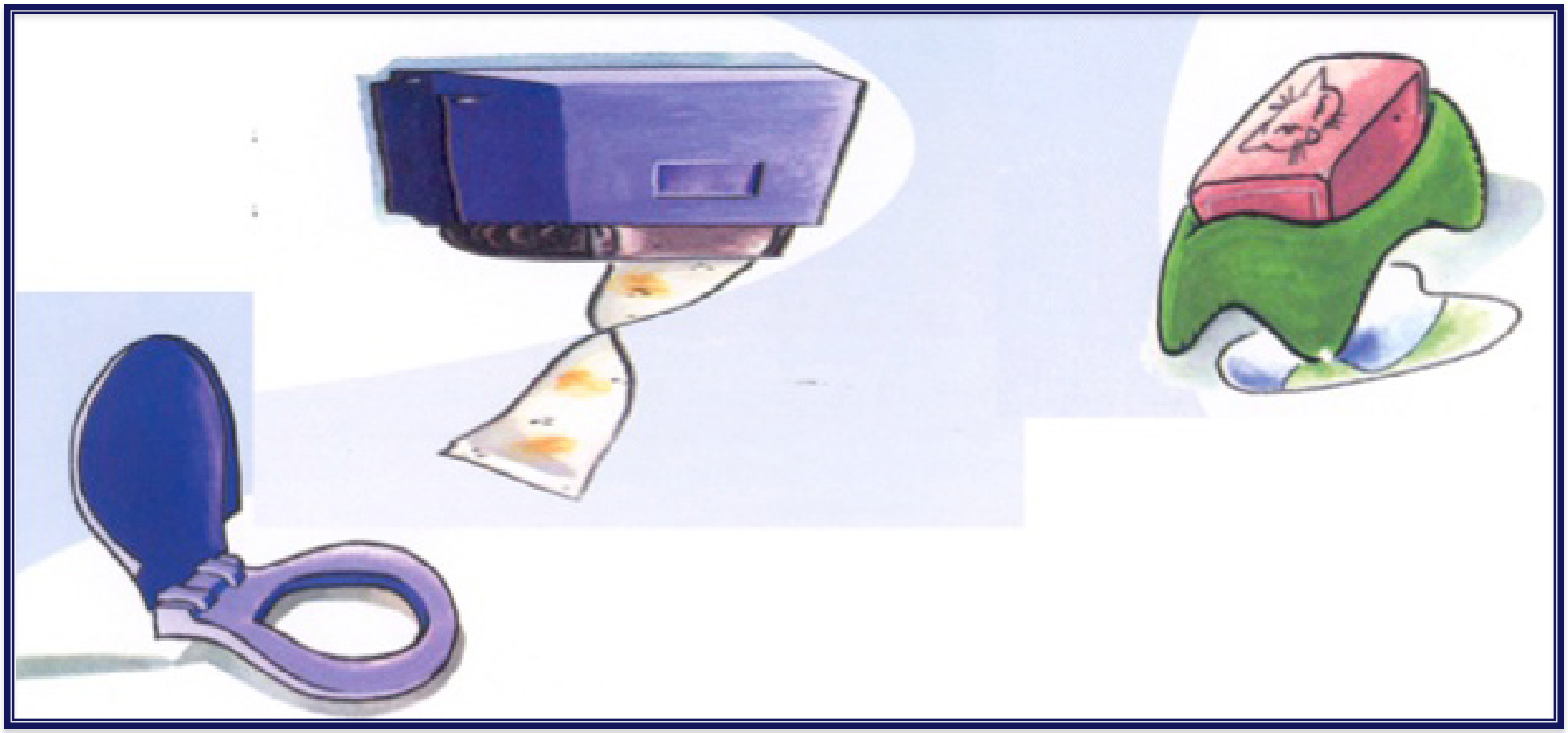
Drinking from the same glass

Shaking hands with a PLHIV

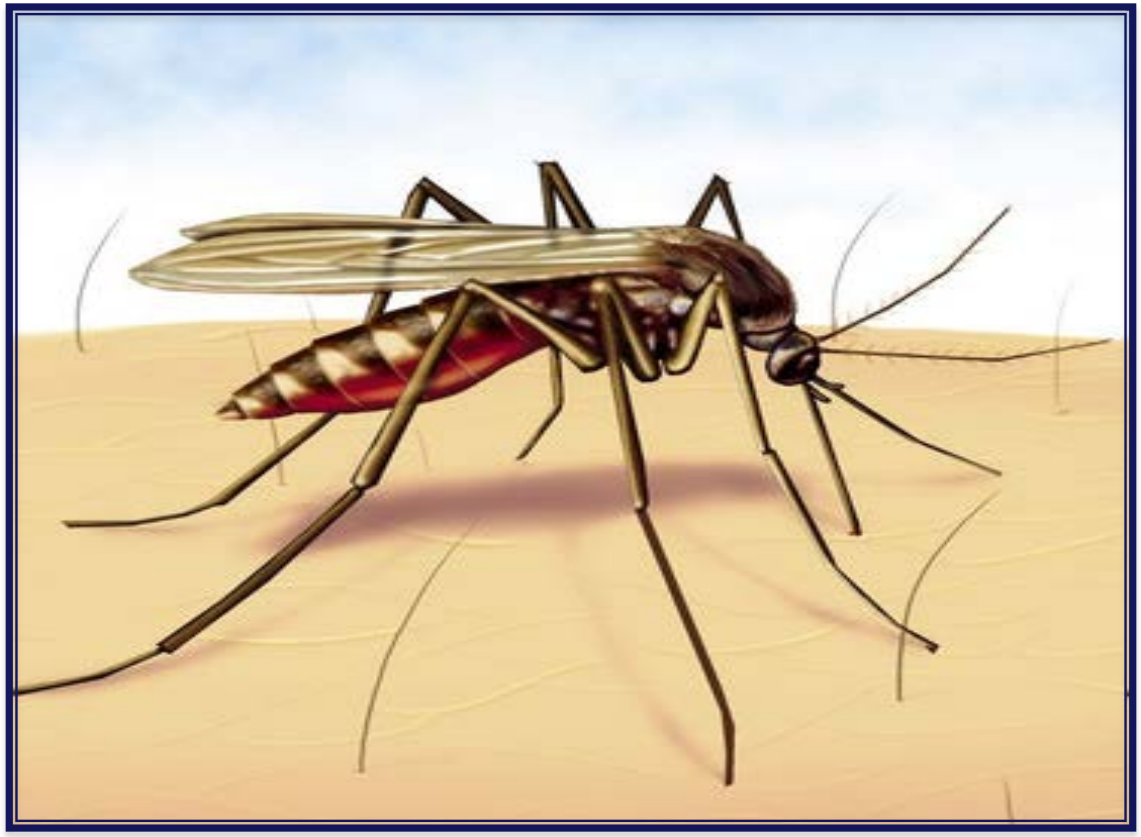
Eating from the same dish as a PLHIV

Working in the same office

HIV is not transmitted by:
Washrooms and shared towels and soap



HIV is not transmitted by:
Mosquitoes



Sexual transmission of HIV

Risk according to type of sexual intercourse

Insertive intercourse	< Receptive intercourse
Oral-genital intercourse	< Vaginal intercourse
Vaginal intercourse	< Anal intercourse

Estimation of transmission risk

Type of intercourse	Risk
Receptive anal	0.5%–3.2%
Receptive vaginal	0.05%–0.15%
Insertive vaginal and anal	0.03%–0.09%
Oral	Not quantified

STI and HIV viral load in the seminal fluid

- A STI multiplies the seminal viral load by 8. *(Lancet, 1997)*
- The antibiotherapy of a STI divides the seminal viral load by 4. *(JID, 1998)*
- The populational impact of care for STI on the rate of HIV seroconversion varies from no effect to a 40% reduction of seroconversion. *(Lancet 1995; Lancet, 1999)*

Factors impacting the risk of sexual transmission

• Intercourse type	• First-time intercourse
• Gender	• Bleeding during intercourse
• STI	• Viral load of sexual partner
• Genital lesions	• Circumcision
• Intercourse during menstruation	

Blood transmission of HIV

Transmission by blood and blood derivatives

- Blood transfusion
  - Transfusions must be made safe by subjecting all donors to HIV screening
  - The residual risk is very low but not nonexistent (1/2 000 000)
- Intravenous drug use
  - The risk of transmission is linked to equipment-sharing among intravenous drug users

Transmission by blood and blood derivatives

- Use of bloodstained invasive devices
  - The risk concerns reusable invasive equipment when the washing / decontamination / sterilization procedures are inappropriate
- Accidental exposure to blood
  - This exposure may occur in a health care environment but also outside hospitals (road crash, circumcision)

Risk of contamination after exposure to blood

	Percutaneous exposure
HIV	0.1% to 0.3%*
Needle-sharing	0.67%
HCV	2%*
HBV	6% to 60%*

* WHO. International travel and health. 2011

Professional HIV seroconversions among health care personnel

Cases	USA	Europe	Rest of the world	Total
Documented	57	35	14	106
Possible	139	85	14	238
Total	196	120	28	344

Mother-to-child HIV transmission

Risk of transmission from HIV-positive mother to child

Pregnancy 5%–10%
Labour and delivery 10%–20%
Breastfeeding 5%–10%
Mother's plasmic viral load = Important factor influencing transmission

Brainstorming

Prevention of HIV transmission

Prevention of sexual transmission

- Risk reduction behaviour
  - Abstinence
  - Mutually faithful monogamous relationship
- Condoms
- Post-sexual exposure prophylaxis

Prevention of transmission by blood

- Safe transfusions and blood derivatives
- Risk reduction programme targeting intravenous drug users
- Prevention and care for blood exposure accidents
  - Standard precautions
  - Management of medical waste
  - Post-exposure prophylaxis

Prevention of vertical transmission

- During pregnancy
  - Antiretroviral prophylaxis
- During delivery
  - Antiretroviral prophylaxis
  - Scheduled Caesarian section
- After delivery
  - Antiretroviral prophylaxis for the newborn child
  - Safe breastfeeding

Question and answer sessions

Prevention of HIV transmission in the health care environment

Q1

Have you ever had blood splashed on your hand or face?

Q2

Have you ever been pricked by a needle previously used on a patient?

Q3

Have you ever witnessed a blood exposure accident sustained by a colleague?

Q4

Question for victims of blood splashing:

Describe the circumstances in which the blood was splashed

Q5

Question for victims of pricking by a needle:

Describe the circumstances in which the pricking occurred

Q6

What was your response to the accident?

Q7

Were you wearing gloves at the time of the blood exposure accident?

Q8

Do you have containers for the disposal of needles and scalpel blades?

Q9

Have you ever received training in blood exposure accidents?

Standard precautions in the health care environment

- Awareness-raising among personnel
- Compliance with safety procedures
- Hand washing
- Use of barriers:
  - Gloves
  - Protective glasses or goggles
  - Gowns
- Use of containers
- Management of hospital waste

Post-exposure prophylaxis for HIV in the health care environment

Rationale of PEP

- After exposure to HIV, systemic infection does not manifest itself immediately
- This offers a short-term opportunity for post-exposure antiretroviral treatment during which viral replication can be modified

Eligibility criteria for PEP

- The time lapse between exposure and consultation
- The HIV status of the exposed person
- The characteristics of the exposure
- The HIV status of the source patient when known

The time to start PEP

If there is a risk of transmission, PEP should be started
as soon as possible,
within hours
and no more than 72 hours after exposure

WHO/ILO guidelines. *PEP to prevent HIV infection.* 2010

The HIV status of the exposed person

- A rapid HIV test should be carried out for the exposed person
- PEP should only be applied to exposed persons who test HIV-negative

Characteristics of the exposure
Potentially contaminating body fluids

High risk	Very low risk
Blood	Faeces
Body fluids containing blood	Secretions
Cerebrospinal fluid	Saliva
Seminal fluid	Sputum
Vaginal secretions	Sweat
	Tears
	Urine
	Vomit

Estimation of risk of HIV transmission after exposure in a health care environment

Type of exposure	Transmission	
	Rate (%)	95% CI
Percutaneous	0.3	[0.2 to 0.5]
Splashing	0.09	[0.006 to 0.5]

Arch Intern Med 1993;153:1451-8

Evaluation of HIV status of the source person

- If the source person is HIV-negative, PEP should not be prescribed
- However, PEP should not be delayed by waiting for the source person to be tested
- If the test proves negative, PEP may be stopped

The exposed person is eligible for PEP if:

- Exposure occurred less than 72 hours ago

and

- The exposed person is not infected or is not known to be infected by HIV

and

- A mucous membrane or broken skin has been significantly exposed to a potentially contaminating body fluid

and

- The source patient is infected with HIV or has unknown HIV status

PEP regimens

- A dual therapy
- A tritherapy should be proposed in the event of a resistant HIV risk
- Length: 4 weeks

Immediate post-exposure measures

- Do not press or rub the lesion
- Wash the lesion with water and soap
- There is no proven benefit from the application of antiseptic or disinfectants:
  - Avoid chlorine-based or iodine-based products
  - WHO recommends the use of chlorhexidine gluconate solution
- If the exposure is on mucosa, wash with water only

Post-exposure prophylaxis procedure in the country

Conclusion

- Access to post-exposure prophylaxis for HIV does not obviate the need for health care personnel to apply standard precautions
- Access to PEP does contribute to improving the safety of health care personnel