Professional needle stick accidents should be dealt with within 48 hours. An ARC (**A**ids **R**eference **C**entre) or an emergency department must be contacted as soon as possible.

OUTLINE POST EXPOSURE PROPHYLAXIS (PEP)

FLUIDS, MATERIALS IMPLICATED IN HIV TRANSMISSION AND HUMAN BITES

Fluids potentially infectious: blood, body fluids containing visible blood, semen and vaginal secretions. Fluids potentially infectious with unknown risk of transmission: cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid.
Material not potentially infectious: faeces, nasal secretions, saliva, sputum, sweat, tears, urine, and vomitus.
Any direct contact (i.e., contact without barrier protection) to concentrated virus in a research laboratory or production facility is considered an exposure that requires clinical evaluation.
For human bites, the clinical evaluation must include the possibility that both the person bitten and the person who inflicted the bite were exposed to bloodborne pathogens. Transmission of HBV or HIV infection only has been rarely reported by this route.

OCCUPATIONAL RISK OF VIRAL TRANSMISSION WITH SHARP INJURY FROM INFECTED SOURCE:

Source	Risk
HBV (unvaccinated)	
Source HBeAg +	37-62 %
Source HBeAg -	23-37 %
HCV	1.8 %
HIV	0.3 %

OCCUPATIONAL RISK FOR MUCOUS MEMBRANE EXPOSURE FROM INFECTED SOURCE:

Source	Risk
HBV	Potential
HCV	Rarely
HIV	0.09%

SOURCE

1) **Testing** a **known source**: HBsAg, anti HCV (confirm positives as with RIBA), HIV antibody, and serology for syphilis.*

2) If the exposure source is **unknown** or cannot be tested: information's about where and under what circumstances the exposure occurred should be assessed epidemiologically for the likelihood transmission of HBV, HCV, and HIV.

3) For sources whose infectious status remains unknown (e.g., the source person **refuses** testing), consider medical diagnoses, clinical symptoms, and history of risk behaviour.*

*[Information to consider when evaluating an exposure source for possible HBV, HCV, or HIV infection: previous HBV, HCV, HIV test results or results of immunologic testing (e.g. CD4+), liver enzymes, acute syndrome suggestive of primary HIV infection or undiagnosed immunodeficiency disease, possible HBV, HCV, HIV exposure within 3/12 (i.e. injection-drug use or sexual contact with a known positive partner).]

HIV POSTEXPOSURE PROPHYLAXIS FOR PERCUTANEOUS INJURIES

Exposure	HIV+/Class 1*	HIV+/Class 2*	Unknown
Less severe (solid needle, superficial)	Recommended Basic 2-drug PEP	Recommended expanded 3-drug PEP	Usually none; consider basic 2-drug PEP°
Severe (large-bore , deep puncture, visible blood on device, or needle used in patient's artery/ or vein)	Recommend expanded 3-drug PEP	Recommend expanded 3-drug PEP	Usually none; consider basic 2-drug PEP°

* HIV-positive, Class 1: asymptomatic HIV infection or known viral load (e.g., < 1 500 RNA copies/mL)
* HIV-positive, Class 2: symptomatic HIV infection, AIDS, acute seroconversion, or known high viral load
° Consider 2 drug PEP if source is high risk for HIV or exposed is from an unknown source with HIV infection likely

HIV POSTEXPOSURE PROPHYLAXIS FOR MUCOUS MEMBRANE AND NON-INTACT SKIN

Exposure	HIV +/Class 1*	HIV +/Class 2*	Unknown
Small volume (drops)	Consider basic 2-drug PEP	Recommended basic 2-drug PEP	Usually no PEP; consider basic 2-drug PEP°
Large volume (major blood splash)	Recommended basic 2-drug PEP	Recommended expanded 3-drug PEP	Usually no PEP; consider basic 2-drug PEP°

¤ non-intact skin = dermatitis, abrasion, wound
* HIV-positive, Class 1: asymptomatic HIV infection or known viral load (e.g., < 1 500 RNA copies/mL)
* HIV-positive, Class 2: symptomatic HIV infection, AIDS, acute seroconversion, or known high viral load
° Consider 2 drug PEP if source is high risk for HIV or exposed is from an unknown source with HIV infection likely

HCV post exposure prophylaxis

no IG or viral agents (interferon-ribavirin) is recommended

NON OCCUPATIONAL EXPOSURE: RISK OF HIV TRANSMISSION WITH SINGLE EXPOSURE FROM AN HIV-INFECTED SOURCE:

Exposure	**Probability/ 10,000 exposures**
Needle sharing	67
Percutaneous (as for occupational exposure)	30
Receptive anal intercourse	10-30
Receptive vaginal intercourse	8-20
Insertive vaginal sex	3-9
Insertive anal sex	3

IDU exposure:

Source person know as HIV positive :	
Needle or syringe exchange	PEP is Recommended
Any material* shared inside group	PEP is Considered
In case of HIV prevalence in IDU population > 15 %:	
Needle, syringe, any material* exchange	PEP is Considered
In case source person HIV status is unknown:	
Needle, syringe, any material* exchange	PEP is Discouraged

** cotton used as filter, water to rinse the syringe, cookers to melt the drug*

Other needle exposure:

Abandoned needle stick	PEP is Discouraged
Aggression with a needle	PEP is Discouraged
If needle from someone known as HIV positive, origin "high risk area" (HIV prevalence in IDU group of > 15 %), injection of blood or deep injury, fresh blood in syringe…	
Aggression with a needle, abandoned needle stick with visible fresh blood	PEP is Considered

PEP for sexual exposure:

HIV source person known as HIV OR unknown HIV status of the source person (but from a group or area of high HIV prevalence = at least 15 %):	
Receptive Anal sex	PEP is Recommended
Insertive Anal sex	PEP is Considered
Receptive Vaginal sex	PEP is Considered
Insertive Vaginal sex	PEP is Considered
Receptive Oral sex with the ejaculation	PEP is Considered
Splash of sperm into eye	PEP is Considered
Receptive Oral sex without ejaculation	PEP is Discouraged
Female to female sex	PEP is Discouraged

In case of raping or the existence of any high risk factors (for both, source person or exposed individual): high viral load of the source partner, menstruations, other bleeding during intercourse, genital ulcer, STD:

Insertive Anal sex	PEP is Recommended
Insertive Vaginal sex	PEP is Recommended
Receptive Vaginal sex	PEP is Recommended
Receptive Oral sex with ejaculation	PEP is Recommended

The source person does not belong to a high risk group or is from an area of low HIV prevalence:

Receptive Anal sex	PEP is Considered
All other Situations	PEP is Discouraged

In case of raping or the existence of any high risk factors (for source person or exposed individual): menstruations, other bleeding during intercourse, genital ulcer, STD:

Receptive Anal sex	PEP is Considered
Receptive Vaginal sex	PEP is Considered
Insertive Anal sex	PEP is Considered
Insertive Vaginal sex	PEP is Considered
Receptive Oral sex with ejaculation	PEP is Considered
All other situations	PEP is Discouraged

Data about Belgium:

No good HIV prevalence data are available for Belgian populations. For HIV counselling purposes we have to rely on rough estimates of orders of magnitude of HIV prevalence.

Population	**HIV-prevalence**: (rough estimates of orders of magnitude) **Cases per 10.000**
1. **Highest risk group** Known HIV-positive people	10.000
2. **High risk population** Homosexual males Sub-Saharan Africans	 ? 200 ? 100-3000
3. Bridge population	? 1
4. General population	? < < 1

This rough estimates underline however that 2 mayor HIV-epidemics exist in Belgium: among homosexuals and among Sub-Saharan Africans. Comparing with the general population the differences in order of magnitude is 100 up to 3000 times!

For some populations prevalence study data are available (small samples).

HIV-prevalence

Population	**HIV-prevalence**
Prostitutes: females Origin: Western-Europe Gent 2000 Gent 2002 Antwerp 2002 Sub-Saharan Africa Gent 2002: Antwerp 2002	 0/400 0/486 1/80 (1%) 1/96 (1%) 6/74 (8%)
Prostitutes: males Antwerp 2002 Brussels 2000	 3/11 (27%) 8/21 (38%) 20/23 (87%)
Injecting drug users: females Antwerp 2001 2002	 6/79 (7,6%) 6/88 (6,8%)
Injecting drug users: males Antwerp 2001 2002	 9/175 (5,1%) 10/171 (5,8%)

Notes:
Bridge population: Belgian general population with contacts with higher risk groups.

Risk settings: the division in risk groups is artificially, used for didactical reasons. People can change from risk group; people at low HIV risk can get in HIV risk situations (e.g. while travelling in HIV endemic regions; etc.).

ARV REGIMEN

2 drug combinations

- AZT + 3TC
- 3TC + d4T
- [d4T + ddI (not any more in CDC 2003 ARV guidelines)]

3 drug combinations

- 2 nucleosides (above list) + **IDV** (not during the last trimester of pregnancy), **NFV**, EFV, ABC, SQV, AMP, DLV, RTV, **LPV/r**

[NVP is not indicated for a full course of PEP because of the reported severe hepatotoxicity (including 2 cases of fulminant hepatitis), and could be considered only when NRTIs or PIs are not an option (i.e. know drug resistant HIV that is sensitive to the NNRTIs) [9]. An initial single dose of Nevirapine could be considered, on a case-by-case evaluation]

Decision should be made based in part on information about the source, including antiretroviral therapy, response to therapy, viral load and any data on HIV resistance testing. Decisions should not delay initiation of PEP, and modification can be made after treatment has started.

Antiretroviral drugs during pregnancy

- Efavirenz has been associated with teratogenicity in monkeys and should not be used in pregnant women
- Amprenavir should be avoided in the second and third trimesters because it may induce fetal skeletal ossification
- ddI and d4T should be avoided due to an increased risk of mitochondrial toxicity in pregnant women
- IDV during the last trimester can cause hyperbilirubinemia in the new-born

Timing of PEP

PEP should be initiated as soon as possible. Although animal studies suggest that PEP probably is substantially less effective when started more than 24-36 hours post exposure, the interval after which no benefit is gained from PEP for humans is undefined. Therefore, if appropriate for exposure, PEP should be started even when interval since exposure exceeds 36 hours; initiating therapy after a longer interval (i.e. 1 week) might be considered for exposures that represent an increased risk for transmission

Late initiation of PEP may blunt initial viremia and block the clinical signs and symptoms associated with seroconversion, yet rebound of viral replication and the appearance of clinical symptoms would occur with cessation of PEP [9].

Duration of PEP for ARV

PEP should be administered for 4 weeks.

Patient follow up:

Lab tests	Baseline	Week 2 (if in PEP)	Week 4-6	Month 3 and month 6
HIV Ab	yes		yes	yes
HBV	Anti HBs (if vaccinated); IgM/IgG anti HBc + HBsAg (if unvaccinated)			to evaluate response to 3 dose vaccine1-2 months after completion
HCV Ab	yes			yes
Serology for syphilis	yes		yes	yes
STDs examinations (in case of sexual assault)*	yes	yes (if pt symptoma-tic or empiric treatment not done)		
CBC	yes	yes	yes	
Renal and liver function tests, glycaemia, amylasemia	yes	yes	yes	
Pregnancy test	yes			
Medical visit: counselling, compliance assessment, adverse events, clinical seroconversion	yes	yes	yes	yes

cultures for N. gonorrhoea and C. trachomatis, wet mount and culture for T. vaginalis and BV

Special considerations: the exposed should be advised to practice safe sex or abstain until serology is negative at 6 months post-exposure; the greatest risk is the first 6-12 weeks. If signs and symptoms of acute HIV infection appear during therapy the patient should be tested for p24 antigen, HIV viral load essays. The AIDS Reference Laboratory Centres in Belgium do the complete antigens and antibodies panel for sexual exposures and IDU post exposure at 3 weeks, 3 months and 6 months. Consider temporary discontinuation of B/feeding during antiretroviral therapy. Assess tetanus vaccination status for exposed to dirty material. Remember prophylactic recommended regimen in case of STDs exposure and emergency contraception:

Ceftriaxone 125 mg IM in a single dose

PLUS

Metronidazole 2 g orally in a single dose

PLUS

Azithromycin 1 g orally in a single dose

OR

Doxycycline 100 mg orally twice a day for 7 days

References and links

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