HIV
Post-exposure Prophylaxis

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Learning Objectives

1. Describe the indications for the use of HIV PEP
    1. Occupational PEP (oPEP)
    2. Non-occupational PEP (nPEP)
2. Summarize appropriate antiretroviral therapy regimens and duration of therapy for PEP
3. List the recommended clinical and laboratory monitoring following exposure to HIV

Occupational PEP (oPEP)

oPEP – Guidance

Updated U.S. Public Health Service guidelines for the management of occupational exposures to HIV and recommendations for postexposure prophylaxis.

9/25/2013 Update

(May 23, 2018)

By Kuhar, David T. ; Henderson, David K. ; Struble, Kimberly A. ; ...

CLINICAL GUIDELINES PROGRAM

NEW YORK STATE DEPARTMENT OF HEALTH AIDS INSTITUTE | HIV · HCV · SUBSTANCE USE · LGBT HEALTH

PEP to Prevent HIV Infection

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https://www.ncbi.nlm.nih.gov/books/NBK562734/

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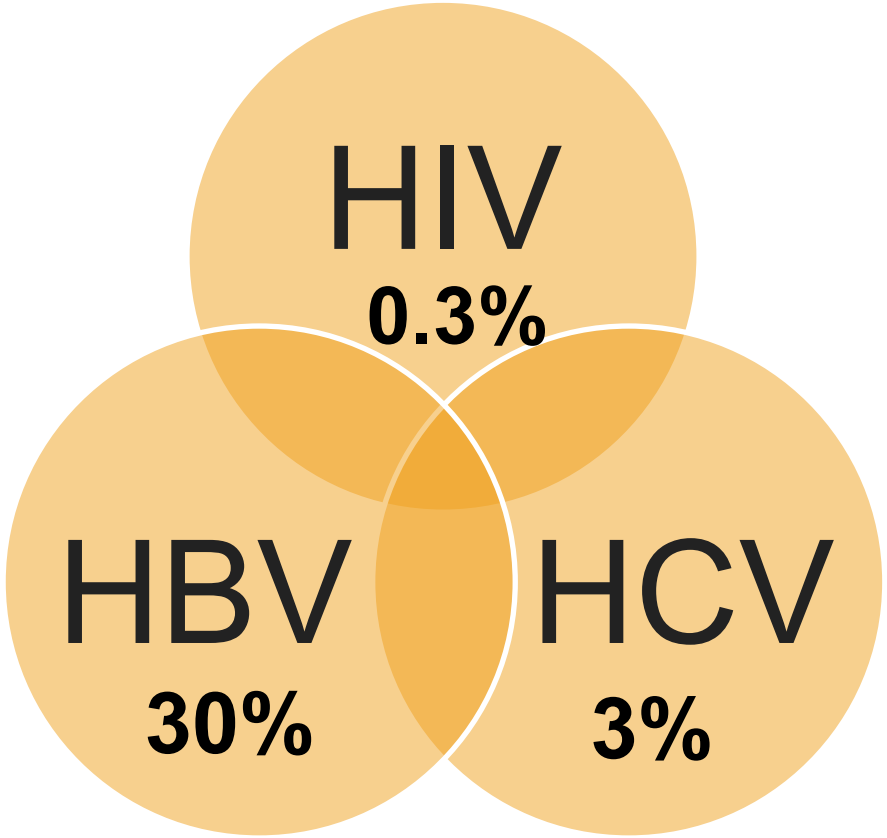
Risk of Transmission

S/p needlestick exposure to an infected patient, risk of infection depends on the **pathogen involved,** the **immune status of the worker**, the **severity of the needlestick** injury, and the **availability and use of appropriate postexposure prophylaxis**



Source	Risk
HBV	
HBeAg+	22.0% - 30.0%
HBeAg-	1.0% - 6.0%
HCV+	1.8%
HIV+	0.3%

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Hepatitis C and PEP

- Needle stick exposure from a hepatitis C-positive source is estimated at between 2-10%
  - Chronic infection develops in 75% to 85% of patients with Hep C
- Risk of transmission depends upon the concentration of HCV RNA in the blood and the volume of the inoculum
- **No PEP indicated**
  - PEP with immune globulin was used in the past --- ineffective

Risk of HIV Transmission In Healthcare Setting

- 0.3% percutaneous exposure to the blood [Cardo, et al. 1997]
- 0.09% after a mucous membrane exposure [Kuhar, et al. 2013].

- There is a calculated overall HIV seroconversion rate of 0.13%
  - October 2016 – Review of 17 articles that documented 10 seroconversions among 7,652 healthcare-related exposures
- CDC reports:58 cases of confirmed occupational HIV transmission to health care personnel in the US. An additional 150 possible transmissions
    - 1 since 1999

https://www.cdc.gov/hiv/workplace/healthcareworkers.html
https://www.ncbi.nlm.nih.gov/books/NBK562734/

Risk of HIV Transmission– with oPEP

- CDC Needlestick Surveillance Group study, use of zidovudine (as PEP) by healthcare workers reduced the risk of HIV acquisition by 81% overall for percutaneous exposures [Cardo, et al. 1997].
  - The use of a 3-drug PEP regimen, with high bioavailability would significantly reduce this risk further

- In a cohort of 266 healthcare workers who had percutaneous or mucocutaneous injuries and exposure to HIV-contaminated body fluids, there were zero seroconversions over a 13-year period. [Nwaiwu, et al. 2017]
  - 21.1% received PEP

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https://www.ncbi.nlm.nih.gov/books/NBK562734/

Risk of HIV Transmission

Estimated Per-Act Probability of Acquiring HIV from an Infected Source, by Exposure Act*

Type of Exposure	Risk per 10,000 Exposures
Parenteral[3]	
Blood Transfusion	9,250
Needle-sharing during injection drug use	63
Percutaneous (needle-stick)	23
Sexual[3]	
Receptive anal intercourse	138
Insertive anal intercourse	11
Receptive penile-vaginal intercourse	8
Insertive penile-vaginal intercourse	4
Receptive oral intercourse	low
Insertive oral intercourse	low
Other^	
Biting	negligible[4]
Spitting	negligible
Throwing body fluids (including semen or saliva)	negligible
Sharing sex toys	negligible

* Factors that may increase the risk of HIV transmission include sexually transmitted diseases, acute and late-stage HIV infection, and high viral load. Factors that may decrease the risk include condom use, male circumcision, antiretroviral treatment, and pre-exposure prophylaxis. None of these factors

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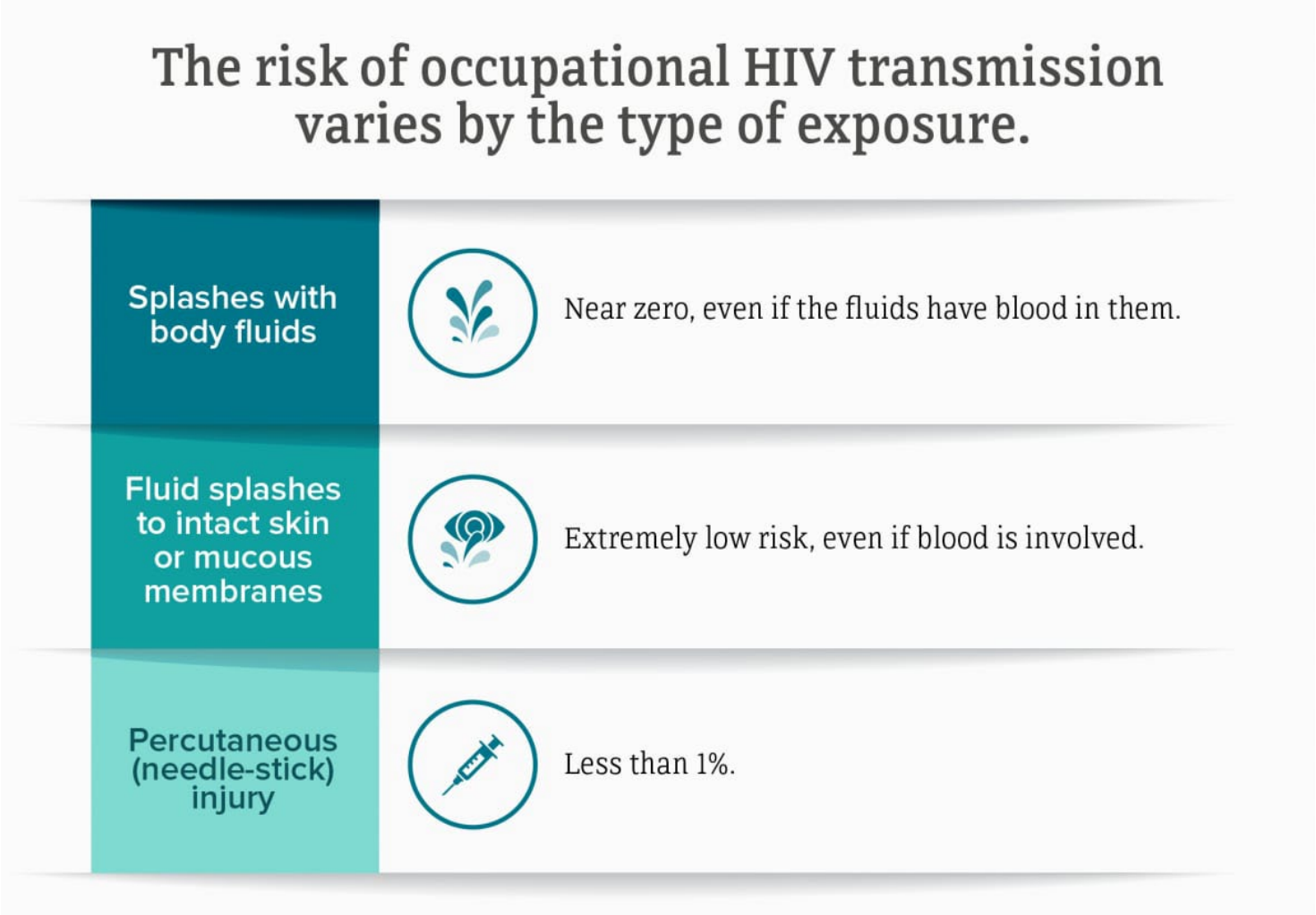
Summary of Risk



https://www.cdc.gov/hiv/workplace/healthcareworkers.html

Risk from Discarded Needles

- Consider prevalence in community BUT
- HIV transmission through exposure to dried blood found on syringes is extremely low [Zamora, et al. 1998]. Discarded needles should not be tested for HIV because of low yield

NY Guidelines link
https://www.ncbi.nlm.nih.gov/books/NBK562734/

Factors that influence the decision

Appendix 1

Table 1. Factors to consider in assessing the need for follow-up of occupational exposures

Type of exposure	Percutaneous injury Mucous membrane exposure Non-intact skin exposure Bites resulting in blood exposure to either person involved
Type and amount of fluid/tissue	Blood Fluids containing blood Potentially infectious fluid or tissue (semen, vaginal secretions, and cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluid Direct contact with concentrated virus
Infectious status of source	Presence of HBsAg Presence of HCV Antibody Presence of HIV antibody
Susceptibility of HCP	Hepatitis B vaccine and vaccine response status HIV and HCV, HBV immune status

- The highest risks are scenarios where a significant number of viruses in the inoculum
  - Source with high HIV viral loads
  - Hollow /large bore needles are more likely to contain blood

Follow Procedures

If exposure occur, take the following steps:

- Wash needlesticks and cuts with soap and water
- Flush splashes to the nose, mouth, or skin with water
- Irrigate eyes with clean water, saline, or sterile irrigants
- Report the incident to your supervisor
  - Immediately seek medical treatment per institutions protocol

https://www.cdc.gov/hiv/workplace/healthcareworkers.html

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Needlestick Occurrence: Protocol Considerations

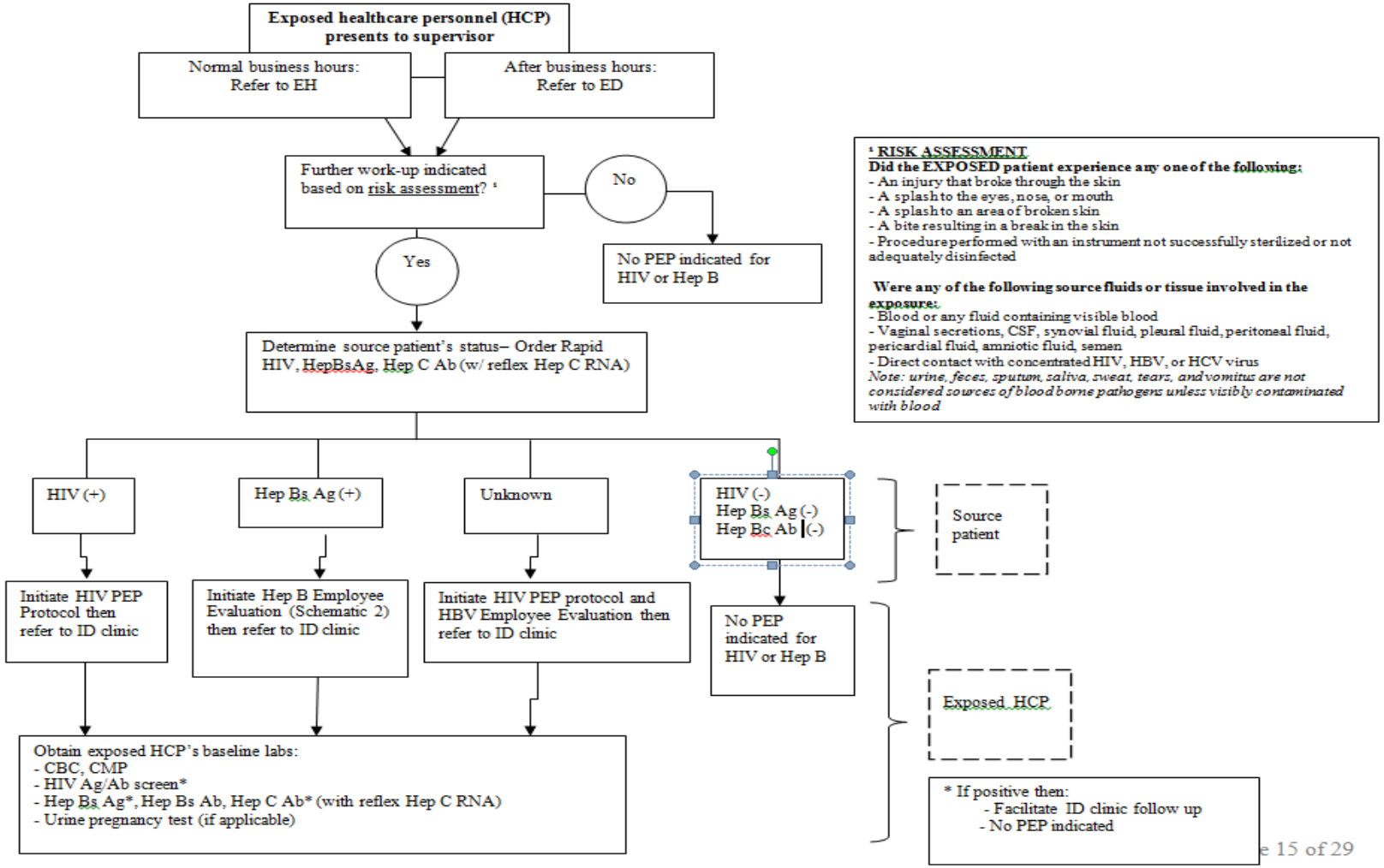
- Antiretrovirals?
  - Which
  - Cost
    - Who pays
    - Copay, Pt assistance
  - Tolerability
- Process?
- Duration
- Side effects?

Guidance considers 72 hours post-exposure as the outer limit of opportunity to initiate PEP

A delay of that scale is believed to compromise PEP efficacy.

The 72-hour outside limit recommendation is based on animal studies; no human data are available that establishes the outer limit of PEP effectiveness.

Work flow example



- Exposure is a urgent medical concern
- PEP less effective after 72 hrs – animal studies
- 28 days appeared protective in animals

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HIV- oPEP: Medication

US PHS Guidelines for the Management of Occupational Exposures to HIV *Page 38*

APPENDIX A: HIV Postexposure Prophylaxis Regimens

PREFERRED HIV PEP REGIMEN
Raltegravir (Isentress®; RAL) 400mg PO Twice Daily Plus Truvada™,1 PO Once Daily [Tenofovir DF (Viread®; TDF) 300mg + emtricitabine (Emtriva™; FTC) 200mg]

ALTERNATIVE REGIMENS **(May combine one drug or drug pair from the left column with 1 pair of nucleoside/nucleotide reverse transcriptase inhibitors from the right column. Prescribers unfamiliar with these agents/regimens should consult physicians familiar with the agents and their toxicities.)*^**	
Raltegravir (Isentress®; RAL)	Tenofovir DF (Viread®; TDF) + emtricitabine (Emtriva™; FTC); available as Truvada™
Darunavir (Prezista®; DRV) + ritonavir (Norvir®; RTV)	Tenofovir DF (Viread®; TDF) + lamivudine (Epivir®; 3TC)
Etravirine (Intelence®; ETR)	Zidovudine (Retrovir™; ZDV; AZT) + lamivudine (Epivir®; 3TC); available as Combivir®
Rilpivirine (Edurant™; RPV)	Zidovudine (Retrovir®; ZDV; AZT) + emtricitabine (Emtriva™; FTC)
Atazanavir (Reyataz®; ATV) + ritonavir (Norvir®; RTV)	
Lopinavir/ritonavir (Kaletra®; LPV/RTV)	
The following alternative is a complete fixed-dose combination regimen and no additional antiretrovirals are needed: Stribild™ (elvitegravir, cobicistat, tenofovir DF, emtricitabine)	

Occupational Post-Exposure Prophylaxis

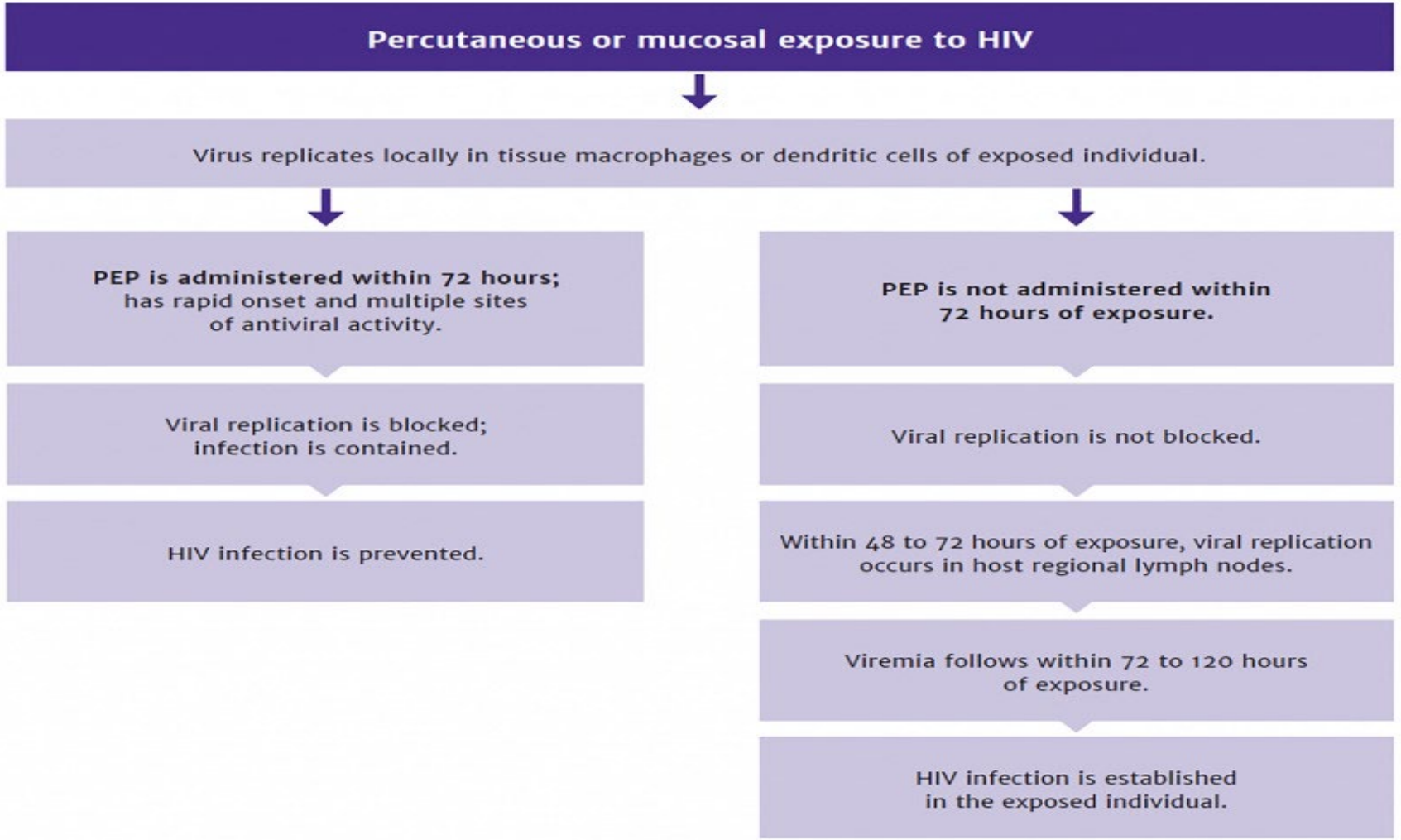
Title and Description	Publication Year	Status
Updated (2013) U.S. Public Health Service Guidelines for the Management of Occupational Exposures to Human Immunodeficiency Virus and Recommendations for Postexposure Prophylaxis (oPEP) Updates U.S. Public Health Service recommendations for the management of health-care	2018	✓

Table 2: Preferred PEP Regimen for Patients Who Weigh ≥40 kg [a,b]	
Preferred Regimen	**Notes**
▪ Tenofovir disoproxil fumarate 300 mg/ emtricitabine 200 mg (TDF/FTC; Truvada) once per day ***or*** ▪ TDF 300 mg/lamivudine (TDF/3TC; Cimduo) 300 mg once per day ***plus*** ▪ Raltegravir (RAL; Isentress) 400 mg twice per day ***or*** ▪ RAL HD 1200 mg once per day [c] ***or*** ▪ Dolutegravir (DTG; Tivicay) 50 mg once per day	▪ **DTG:** ◦ Metformin dosing should be limited to 1 g by mouth per day when an individual is taking DTG concurrently. ◦ Magnesium- or aluminum-containing antacids may be taken 2 hours before or 6 hours after DTG; calcium-containing antacids or iron supplements may be taken simultaneously if taken with food. ◦ The recommendation regarding discussion of the small risk of teratogenicity with DTG in the first trimester and the need for birth control while completing the 28-day PEP regimen has been removed. DTG has been shown to be safe throughout pregnancy. See the MCCC's statement on Use of Dolutegravir in Individuals of Childbearing Capacity for further discussion [Zash, et al. 2022]. ▪ **RAL:** Magnesium- or aluminum-containing antacids are contraindicated; coadministration of calcium-containing antacids is not recommended with RAL HD. ▪ **TDF:** Requires dose adjustment for CrCl <50 mL/min. Alternatively, another agent can be considered, in which case consultation with an experienced HIV care provider is advised. ▪ **TDF/FTC and TDF/3TC:** Dosing should be adjusted in patients with baseline CrCl <50 mL/min

NY guidance

Timing of Meds

- Ideally within 2 hours and no later than 72 hours post-exposure.



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HIV oPEP – Follow up and Monitoring

Table 3: Monitoring Recommendations After Initiation of PEP Regimens Following Occupational Exposure

	Baseline	Week 1	Week 2	Week 3	Week 6	Week 16	6 Months
Clinic	✓				✓	✓	
Pregnancy Test	✓						
Serum liver enzymes, BUN, creatinine, CBC	✓		✓		✓[a]		
HIV test[b]	✓				✓	✓	
Hepatitis C Ab with reflex RNA[c]	✓				✓	✓	✓
Hepatitis B Hep Bs Ag, Hep Bs Ab,	✓	Refer to Schematic 2					

[a] If week 2 CBC laboratory values are abnormal
[b] Recommended even if PEP is declined
[c] Status post Hepatitis C exposure or unknown source

HIV testing
Baseline, 6wks, 16 wks
Vs
Baseline, 3 weeks, 3 mths, 6 mths

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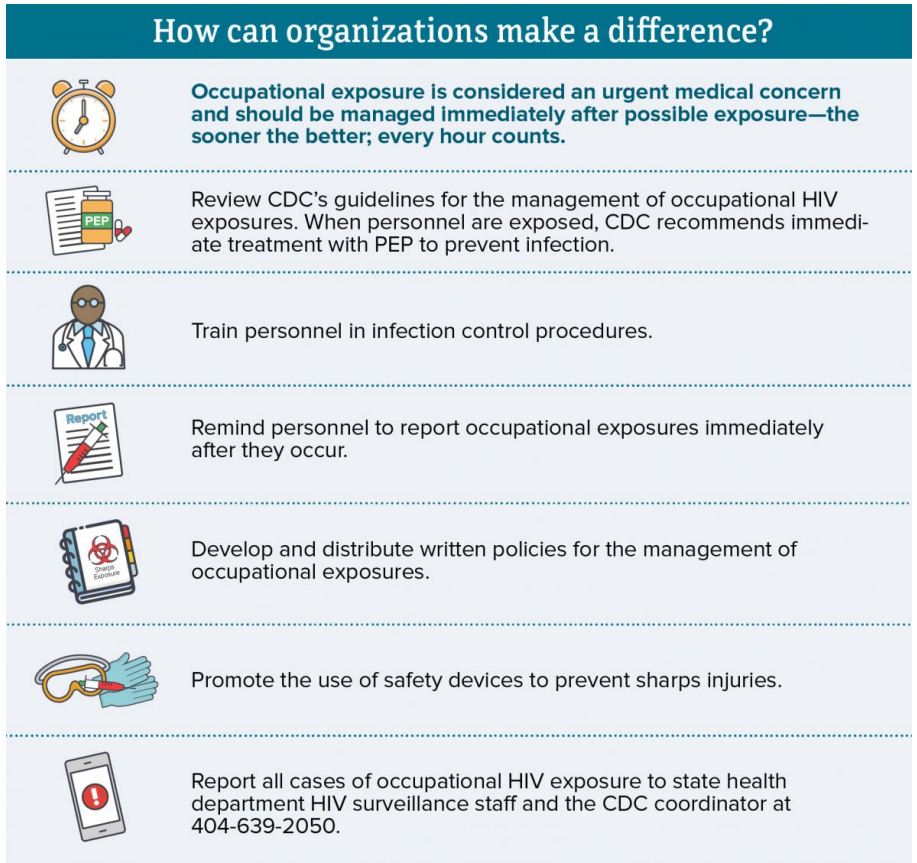
Risk Reduction in the Clinics/ Mobile units

- Focus on needlestick injuries as a key element
  - Vaccinations
  - Trash
  - Needle Safety

- Broader effort to prevent all sharps-related injuries and associated bloodborne infections



https://www.cdc.gov/hiv/workplace/healthcareworkers.html

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Knowledge Check

MA is completing a procedure on an HIV-positive patient, they get stuck with a needle and reports to the supervisor. Which of the following **INCREASES** the risk of HIV transmission?

A. The patient is on antiretroviral medications

B. The needle was used for a venous blood draw

C. The student was wearing nitrile gloves due to a latex allergy

D. The student did not have any bleeding from the site of the needle stick

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Knowledge check answer

Which of the following **INCREASES** the risk of HIV transmission?

A. The patient is on antiretroviral medications.

B. The needle was used for an venous blood draw.

C. The student was wearing nitrile gloves due to a latex allergy.

D. The student did not have any bleeding from the site of the needle stick.

EXPLANATION:

- ***The highest risks are scenarios where a significant number of viruses are transferred in the inoculum***
  - ***Patient with high HIV viral loads are more infectious***
  - ***Hollow /large bore needles are more likely to contain blood and are thus more infectious***

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Knowledge Check

- When is the ideal time to start meds s/p exposure to blood products via a needle stick to prevent HIV
  1. Within 72 hrs of exposure
  2. Within 96 hrs
  3. Anytime
  4. Not sure

Non-occupational HIV PEP (nPEP)

nPEP: Indications

- Condom broke/ no condom used
- Sexual assault
- Sharing needles, syringes, or other equipment to inject drugs, or

AETC-nPEP-guide-111721.pdf (aidsetc.org)

Exposure that do not Warrant PEP

- Kissing
- Spitting
- Oral-to-oral contact in the absence of mucosal damage (e.g., mouth-to-mouth resuscitation)
- human bites not involving blood;
- Exposure to needles or sharps that have not been in contact with an individual with or at risk of HIV

nPEP Effectiveness

- 49 seroconversions after nPEP use (1 case report and 6 studies [1-6] among MSM)
  - Case (Italy) -nPEP failure in an MSM, **100% adherence** to **ZDV, lamivudine (3TC), and indinavir (IDV)** and denial of ongoing HIV risk behaviors after completing nPEP; concomitant hepatitis C virus seroconversion
  - 48 of 1,535 MSM became HIV infected despite nPEP (6 studies)

1. Donnell D, Use of nPEP does not lead to an increase in high risk sex behaviors in men who have sex with men participating in the EXPLORE trial. *AIDS Behav.* 2010
2. Sonder GJB, Comparison of two HIV PEP regimens among MSMin Amsterdam: adverse effects do not influence compliance. *Sex Transm Dis.* 2010
3. Schechter M,. Behavioral impact, acceptability, and HIV incidence among homosexual men with access to postexposure chemoprophylaxis for HIV. *J Acquir Immune Defic Syndr.* 2004
4. McAllister. Raltegravir-emtricitabine-tenofovir as HIV nPEP in MSM: safety, tolerability and adherence. *HIV Med.* 2014
5. Jain S. Subsequent HIV infection among MSM who used nPEP at a Boston community health center: 1997-2013. *AIDS Patient Care STDS.* 2015
6. Foster R, Single-tablet emtricitabine-rilpivirine-tenofovir as HIV PEP in MSM . *Clin Infect Dis.* 2015:1-5.

nPEP Effectiveness

- 48 of 1,535 MSM became HIV infected despite nPEP (6 studies)
  - At least 40 of the 48 seroconversions likely resulted from ongoing risk after nPEP
    - 35 seroconversions occurred ≥ 180 days after nPEP initiation (not nPEP failure)
    - **8 seroconverters among 1,535 MSM participants (5.2 seroconverions/1,000 persons) may be classified as potential nPEP failures**.
      - 1 – indeterminate result and M184 resistance on day 28 , nPEP ≤ 48 hours
      - 4 patients seroconverted at 91; 133; 160; 168 days after nPEP initiation, including 3 who reported completing the 28-day regimen
      - Remaining 3 men who seroconverted after taking nPEP

1. Donnell D, Use of nPEP does not lead to an increase in high risk sex behaviors in men who have sex with men participating in the EXPLORE trial. *AIDS Behav.* 2010
2. Sonder GJB, Comparison of two HIV PEP regimens among MSMin Amsterdam: adverse effects do not influence compliance. *Sex Transm Dis.* 2010
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6. Foster R, Single-tablet emtricitabine-rilpivirine-tenofovir as HIV PEP in MSM . *Clin Infect Dis.* 2015:1-5.

nPEP Effectiveness: A Prospective Study

In a 2-year prospective study in Brazil [1]

- 200 seronegative MSM at high risk with education regarding nPEP and a 4-day starter pack with instructions to initiate its use for a suspected eligible exposure
  - A follow-up 24-day pack (to complete a 28-day course) was provided only for those men with eligible exposures.
  - 68 of 200 MSM initiated nPEP
    - The entire 28-day nPEP regimen was completed by 89% of men with eligible exposures including 1 participant who seroconverted
  - Ten of 11 seroconversions occurred among men who did not initiate nPEP.

1. Schechter M,. Behavioral impact, acceptability, and HIV incidence among homosexual men with access to postexposure chemoprophylaxis for HIV. *J Acquir Immune Defic Syndr.* 2004

nPEP Support Data: Sexual Assault

- 5 individual retrospective studies of nPEP limited to adult and/or adolescent sexual assault survivors
  - 3 reported no seroconversions at baseline or at follow-up among those sexual assault survivors who completed nPEP [1-3]
  - 2 did not report any information about HIV screening results or the number of nPEP failures[4,5]

1. Linden HIV PEP in sexual assault: current practice and patient adherence to treatment recommendations in a large urban teaching hospital. *Acad Emerg Med.* 2005;
2. Griffith Sexual assault: a report on human immunodeficiency virus postexposure prophylaxis. *Obstet Gynecol Int.*
3. Olshen E, . Use of HIV PEP in adolescent sexual assault victims. *Arch of Pediat Adolesc Med.* 2006
4. Carrieri MP Access to HIV prophylaxis for survivors of sexual assault: the tip of the iceberg. *Antivir Ther.* 2006
5 Krause KH, Current practice of HIV PEP treatment for sexual assault patients in an emergency department. *Women Health Iss.* 2014

nPEP: Medical Management

Table 5. Preferred and alternative antiretroviral medication 28-day regimens for nPEP[a,b]

Age group	Preferred/ alternative	Medication
Adults and adolescents aged ≥ 13 years, including pregnant women, with normal renal function (creatinine clearance ≥ 60 mL/min)	**Preferred**	A 3-drug regimen consisting of tenofovir DF 300 mg ***and*** fixed dose combination emtricitabine 200 mg (Truvada[c]) once daily ***with*** raltegravir 400 mg twice daily ***or*** dolutegravir 50 mg once daily
	Alternative	A 3-drug regimen consisting of tenofovir DF 300 mg ***and*** fixed dose combination emtricitabine 200 mg (Truvada) once daily ***with*** darunavir 800 mg (as 2, 400-mg tablets) once daily ***and*** ritonavir[b] 100 mg once daily
Adults and adolescents aged ≥ 13 years with renal dysfunction (creatinine clearance ≤59 mL/min)	**Preferred**	A 3-drug regimen consisting of zidovudine ***and*** lamivudine, with both doses adjusted to degree of renal function ***with*** raltegravir 400 mg twice daily ***or*** dolutegravir 50 mg once daily
	Alternative	A 3-drug regimen consisting of zidovudine ***and*** lamivudine, with both doses adjusted to degree of renal function ***with*** darunavir 800 mg (as 2, 400-mg tablets) once daily ***and*** ritonavir[b] 100 mg once daily

2016 nPEP https://www.cdc.gov/hiv/pdf/programresources/cdc-hiv-npep-guidelines.pdf

Medical Management (Summary and Guidance from NY DOH

	To do	PEP Meds	Alternative	Pregnant	Renal
HIV	HIV screen	Tenofovir(TDF)/emtricitabine (FTC) (Truvada©) 300/200 mg +dolutegravir (Tivicay©) 50 mg – 1 tablet of each PO daily x 28 days	• Truvada+n/Darunavir • TAF/FTC + Dolu • Bictegravir/TAF/FTC, Biktarvy©). Previously Stribild©	TDF/ FTC 300/200 mg 1 tab PO daily + EITHER dolutegravir 50 mg 1 PO daily OR raltegravir (Isentress©) 400 mg 1 tab PO twice a day	No TDF of CrCl <60
STI RX - Includes ORAL		Ceftriaxone (500 mg IM x 1 [1,000 mg IM if ≥ 150 kg]) + Doxycycline 100 mg PO twice/day x 7 days+ Vagina- metronidazole 2g *1		Ceftriaxone **Azithro 1g PO *1** Flagyl	No adjustment
Emergency Contraception	Neg Preg test	What is available			No Adjustment
Hep B ppx		Discussed below			No Adjustment
HPV	Age 9 to 45 yrs	Offer vaccine if not done previously			NO adjustment

2016 nPEP https://www.cdc.gov/hiv/pdf/programresources/cdc-hiv-npep-guidelines.pdf
AETC-nPEP-guide-111721.pdf (aidsetc.org)

nPEP- Labs

Table 2. Recommended schedule of laboratory evaluations of source and exposed persons for providing nPEP with preferred regimens

Test	Source	Exposed persons			
	Baseline	Baseline	4–6 weeks after exposure	3 months after exposure	6 months after exposure
	For all persons considered for or prescribed nPEP for any exposure				
HIV Ag/Ab testing[a] (or antibody testing if Ag/Ab test unavailable)	✓	✓	✓	✓	✓[b]
Hepatitis B serology, including: hepatitis B surface antigen hepatitis B surface antibody hepatitis B core antibody	✓	✓	—	—	✓[c]
Hepatitis C antibody test	✓	✓	—	—	✓[d]
	For all persons considered for or prescribed nPEP for sexual exposure				
Syphilis serology[e]	✓	✓	✓	—	✓
Gonorrhea[f]	✓	✓	✓[g]	—	—
Chlamydia[f]	✓	✓	✓[g]	—	—
Pregnancy[h]	—	✓	✓	—	—
	For persons prescribed tenofovir DF+ emtricitabine + raltegravir or tenofovir DF+ emtricitabine + dolutegravir				
Serum creatinine (for calculating estimated creatinine clearance[i])		✓	✓	—	—
Alanine transaminase, aspartate aminotranferase		✓	✓	—	—
	For all persons with HIV infection confirmed at any visit				
HIV viral load	✓	✓[j]			
HIV genotypic resistance	✓	✓[j]			

https://www.cdc.gov/hiv/pdf/programresources/cdc-hiv-npep-guidelines.pdf

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Medical Management – Considerations

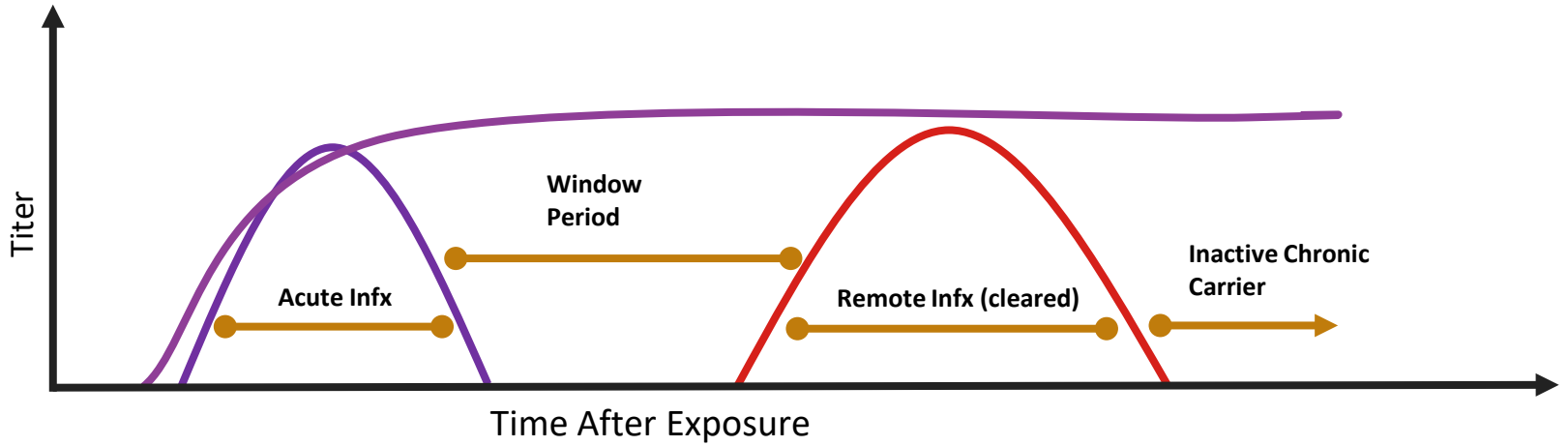
- Source of Meds/coverage
  - Collab with sexual assault victim unit
- Side effects: nausea, GI upset, headache, myalgias
- nPEP drug interactions: antacids, calcium, iron supplements
- Adherence to the nPEP regimen for 28 days, without interruption
- If Ongoing risk of HIV infection, offer PrEP initiation immediately after completion of the 28-day course of nPEP

Knowledge Check

- Persons who are initiated on nPEP requires follow up labs. How often should these be done
  1. Q 4weeks
  2. Baseline, 6 wks, 3-4 mths , +/-6 mths
  3. Baseline, 6 weeks
  4. What labs

Hepatitis B Transmission and PEP

HBV Serologies



Marker	Interpretation	Acute Infection	Window Period	Chronic Infection	Remote Infection (cleared)	Immunization	Inactive Chronic Carrier
HBcAb	Exposure	+	+	+	+	−	+
HBsAg	Infection	+	−	+	−	−	−
HBsAb	Immunity	−	−	−	+	+	−

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Transmission Risk – Hepatitis vs HIV

Table 1. Estimated per-act risk for acquiring human immunodeficiency virus (HIV) from an infected source, by exposure act[a]

Exposure type	Rate for HIV acquisition per 10,000 exposures
Parenteral	
Blood transfusion	9,250
Needle sharing during injection drug use	63
Percutaneous (needlestick)	23 (0.3%)
Sexual	
Receptive anal intercourse	138
Receptive penile-vaginal intercourse	8
Insertive anal intercourse	11
Insertive penile-vaginal intercourse	4

Hep B	Hep C
6-30%	1.8%
18-44%	

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Hep B Transmission Prevention

Plan based upon vaccination status

EXPOSED PERSON VACCINATION STATUS	TEST RECOMMENDED FOR EXPOSED PERSON	TREATMENT
Previously Vaccinated		
Responder after complete series[1] (HBsAb ≥10 mIU/mL)	None	No action needed
Response unknown after complete series[1]	HBsAb	If HBsAb ≥10mIU/mL: No action needed If HBsAb <10mIU/mL[2], check HBcAb (total) and administer HBIG x 1[3] and revaccinate (complete series)
HBsAb <10mIU/mL[2] after complete series[1]	HBcAb (total)	HBIG[3] x 1 and revaccinate
Non-responder (HBsAb <10mIU/mL after two complete series)	HBcAb (total)	HBIG[3] x 2 (one month apart)
Unvaccinated or Incompletely Vaccinated		
Unvaccinated or incompletely vaccinated[2]	HBcAb (total)	HBIG[3] x 1 and vaccinate/revaccinate

Post vaccination serological testing - should be performed 1-2 months after the last dose of the Hep B vaccine series (and 4-6 months after administration of HBIG to avoid detection of passively administered

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Expert Consultation

National Clinicians' Post-Exposure Prophylaxis Hotline (PEPline) at 888-448-4911.

TABLE 2: SITUATIONS FOR WHICH EXPERT CONSULTATION FOR HUMAN IMMUNODEFICIENCY VIRUS (HIV) POSTEXPOSURE PROPHYLAXIS (PEP) IS RECOMMENDED

Delayed (ie, later than 72 hours) exposure report	• Interval after which benefits from PEP are undefined
Unknown source (eg, needle in sharps disposal container or laundry)	• Use of PEP to be decided on a case-by-case basis Consider severity of exposure and epidemiologic likelihood of HIV exposure • Do not test needles or other sharp instruments for HIV
Known or suspected pregnancy in the exposed person	• Provision of PEP should not be delayed while awaiting expert consultation
Breast-feeding in the exposed person	• Provision of PEP should not be delayed while awaiting expert consultation
Known or suspected resistance of the source virus to antiretroviral agents	• If source person's virus is known or suspected to be resistant to 1 or more of the drugs considered for PEP, selection of drugs to which the source person's virus is unlikely to be resistant is recommended • Do not delay initiation of PEP while awaiting any results of resistance testing of the source person's virus
Toxicity of the initial PEP regimen	• Symptoms (eg, gastrointestinal symptoms and others) are often manageable without changing PEP regimen by prescribing antimotility or antiemetic agents • Counseling and support for management of side effects is very important, as symptoms are often exacerbated by anxiety
Serious medical illness in the exposed person	• Significant underlying illness (eg, renal disease) or an exposed provider already taking multiple medications may increase the risk of drug toxicity and drug-drug interactions
Expert consultation can be made with local experts (803-545-5350) or by calling the National Clinicians' Post-Exposure Prophylaxis Hotline (PEPline) at 888-448-4911.	

Introduction to HIV Non-occupational Post-exposure Prophylaxis

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