

Be Prepared With PEP: Emergency Management of HIV, HBV, and HCV Exposures



John T. Brooks, MD

Co-editor, NIH/HIVMA/IDSA Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents With HIV

Atlanta, GA



1

Financial Relationships With Ineligible Companies (Formerly Described as Commercial Interests by the ACCME) Within the Last 2 Years

Dr Brooks reported no relevant financial relationships with ineligible companies. (Updated December 3, 2025)

2

Learning Objectives

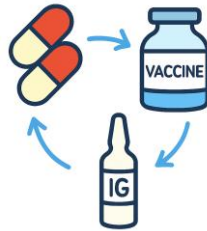
After attending this presentation, learners will be able to:

- Conduct an assessment to determine an exposed patient's need for HIV postexposure prophylaxis (PEP)
- Describe the medications used for HIV PEP and the recommended follow-up to determine HIV status after completion of a prescribed course of HIV PEP

3

What is post-exposure prophylaxis (i.e., PEP)?

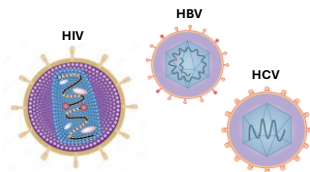
- A time-limited course of medical treatment to prevent infection after a potentially infectious exposure.
- Modalities can include:
 - Medications
 - Vaccines
 - Immunoglobulin concentrates



6

Primary Focus on HIV PEP

This presentation focuses on HIV PEP but will also cover how to manage HBV and HCV exposures, as well as STI considerations for sexual exposures.



7

Non-Occupational and Occupational HIV PEP

- CDC manages two separate HIV PEP guidelines:
 - Occupational (oPEP)
 - Non-occupational (nPEP)
- Recommendations now (finally...) harmonized in terms of recommended HIV antiretrovirals
- I'll try and do the same for you...

**Both guidelines
updated in 2025**



Source: MMWR Recomm Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep;150(9)

8

When to Start HIV PEP

Exposure to HIV is an emergency.

PEP with antiretrovirals prevents:

- HIV replication in exposed tissues
- Systemic viral dissemination
- Establishment of latent HIV reservoirs



Source: MMWR Recomm Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep15;46(9)

Slide 9

9

When to Start HIV PEP

Exposure to HIV is an emergency.

Initiate PEP **as soon as possible**:

- Optimally **within 24 hours**
 - 30-90 minutes for occupational
- Within 72 hours acceptable



Source: MMWR Recomm Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep15;46(9)

Slide 10

10

When to Start HIV PEP

Do not delay seeking evaluation and starting HIV PEP, if indicated.

You can start PEP pending labs or information about the source.

You can amend or stop treatment, if needed.

Low risk of harm from one or two doses of antiretrovirals.



Source: MMWR Recomm Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep15;46(9)

Slide 11

11

Indications for HIV PEP

PEP is recommended for an exposure that presents a substantial risk for HIV transmission

*PEP is **not** recommended* if an exposure presents no substantial risk for HIV transmission

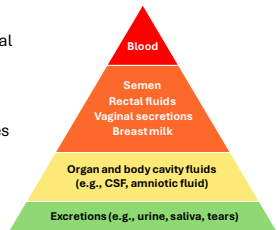
Source: MMWR Recomm Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep15;46(9)

Slide 12

12

HIV Exposure Risk Varies By Body Fluid and Route

- Body fluid exposures can be both occupational and non-occupational
- Risk varies by:
 - Fluid concentration of virus
 - Mode of exposure
 - Susceptibility of exposed tissues



Slide 13

13

Recommendations for HIV PEP by Exposure Type



<https://www.pottuckpress.com/products/sex-drugs-rock-n-roll/>

Slide 14

- Sexual and other physical contact
- Shared drug injection equipment
- Other needle and body fluid exposures

14

Sexual Contact

Anal or vaginal intercourse
without consistent use of barrier protection

Source Has HIV Unsuppressed*	Source Has HIV Suppressed**	Source HIV Status Unknown
↓	↓	↓
Offer PEP	Not routinely recommended	Case-by-case determination

* Includes unknown viral load status

** For ≥6 months

Source: MMWR Recomm Rep. 2025 May 8;74(1)

SS09 13

15

Other Sexual or Physical Contact

Exposures for which PEP is not routinely recommended:

- Anal/vaginal sex with consistent barrier protection
- Anal/vaginal sex with a person whose HIV is durably undetectable (remember that U=U)
- Oral sex
- Non-penetrative sex (e.g., mutual masturbation)
- Exposure to body fluids not associated with HIV transmission: tears, sweat, urine, nasal secretions, saliva/spit, feces, vomit

Source: MMWR Recomm Rep. 2025 May 8;74(1)

SS09 16

16

Human Bites



- HIV PEP **not** indicated for bites in the absence of blood exposure
- Rare documented transmissions have involved exposure to bloody oral secretions
- If blood exposure from a high-risk source (e.g., source patient with detectable viremia), consider PEP on a case-by-case basis

Source: MMWR Recomm Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep15;46(9)

SS09 17

17

Shared Drug Injection Equipment

Shared drug injection equipment.
(e.g., needles, works, medication vial)

Source Has HIV Unsuppressed*	Source Has HIV Suppressed**	Source HIV Status Unknown
↓ Offer PEP	Case-by-case determination	

* Includes unknown viral load status

** For ≥6 months

Source: MMWR Recomm Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep 15;46(9)

Slide 18

18

Occupational Needlestick, or Blood or Body Fluid
Splash on Mucous Membrane or Non-Intact Skin

Occupational exposure to source patients
with known or suspected HIV infection

Source Has HIV Unsuppressed*	Source Has HIV Suppressed**	Source HIV Status Unknown
↓ Offer PEP	Consult an expert and use shared decision-making	

* Includes unknown viral load status

** For ≥6 months

Source: Infect Control Hosp Epidemiol. 2025 Sep 15;46(9)

Slide 19

19

Discarded Needle Exposures

Discarded needle in the community

- HIV PEP not recommended unless exceptional circumstances (e.g., freshly bloody discarded needle)

HBV more stable in environment

- Infectious ≥7 days on surfaces in controlled experiments
- Real-world data suggest HBV infection in this context is exceptionally uncommon



Courtesy of <https://www.jmhazmatremoval.com.au/used-needle-syringe/>

Source: MMWR Recomm Rep. 2025 May 8;74(1)

Slide 20

20

The IAS–USA Annual Virtual Course Update: Emerging Challenges in HIV Medicine, December 4, 2025

Page 6

Preferred and Alternative HIV PEP Regimens Adults and Adolescents Aged ≥ 12 years			
Preferred:		2 NRTIs	
INSTI	NRTI #1	NRTI#2	
Bictegravir (BIC)	Emtricitabine (FTC)	Tenofovir alafenamide (TAF)	
Dolutegravir (DTG)	Emtricitabine (FTC) or Lamivudine (3TC)	Tenofovir alafenamide (TAF) or Tenofovir disoproxil fumarate (TDF)	
Alternative:		2 NRTIs	
INSTI	NRTI #1	NRTI#2	
Darunavir + cobicistat (DRV-cobi)	Emtricitabine (FTC) or Lamivudine (3TC)	Tenofovir alafenamide (TAF) or Tenofovir disoproxil fumarate (TDF)	
Darunavir + ritonavir (DRV-rit)	Lamivudine (3TC)	Tenofovir alafenamide (TAF) or Tenofovir disoproxil fumarate (TDF)	

21

Preferred and Alternative HIV PEP Regimens Adults and Adolescents Aged ≥ 12 years

Preferred:		INSTI		2 NRTIs	
INSTI		NRTI #1		NRTI#2	
Bictegravir (BIC)		Emtricitabine (FTC)		Tenofovir alafenamide (TAF)	

Single Tablet Options

Alternative:		Boosted-PI		2 NRTIs	
INSTI		NRTI #1		NRTI#2	
Darunavir + cobicistat (DRV-cobi)		Emtricitabine (FTC)		Tenofovir alafenamide (TAF)	

Source: WHO Recomm. Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep;15:46(8)

10/26/25

22

HIV PrEP: Special Clinical Circumstances	
Clinical circumstance	Recommended Preferred and Alternative ARVs and their Dosages
Pregnancy	Same as for adults and adolescents age ≥ 12 years except no DRV-cobi (inadequate drug levels)
Children age < 12 years	See tables in guidelines for specifics - nPEP guidelines – Tables 4 and 5 - oPEP guidelines – Table 2 Seek expert consultation including pharmacist
Moderate/severe renal dysfunction (CrCl < 50 mL/min)	
Hepatic impairment (Child-Pugh class A, B, or C)	

23

Duration of Treatment with HIV PEP



Recommended treatment is **28 days**

- Non-completion has been associated with breakthrough infection
- Contemporary options are
 - highly **effective**
 - have very **few side effects**
 - are **simpler** (1-2 pills once daily)

Source: MMWR Recomm Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep15;46(9)

24

Patients Currently Taking HIV PrEP

Consider PEP, if

- patient has **been inconsistent** with taking their PrEP as prescribed
- only **very recently started** PrEP



Source: MMWR Recomm Rep. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep15;46(9)

25

Transitioning from PEP to PrEP

For persons who report ongoing HIV exposure risks (e.g., recent STI diagnosis, injection drug use) or who repeatedly seek HIV PEP:

- Recommend HIV PrEP
- Prescribe or refer to a PrEP provider



Source: MMWR Recomm Rep. 2025.74(No. 1) and Infect Control & Hospital Epidemiology (2025)

26

Assessment of HIV, HBV, and HCV Exposure

Assess the exposure:

- *Type* of exposure (e.g., blood, genital fluids)
- *Mode* of exposure (e.g., sex, needlestick, splash)
- *Site* of exposure (e.g., vagina/anus, non-intact skin)
- *Tissue integrity* (e.g., sexual assault, deep cut)

Source: MMWR Recomm Rep. 2025 May 8;74(1). Infect Control Hosp Epidemiol. 2025 Sep 15;46(9). MMWR Recomm Rep. 2018 Jan 12;67(1).
MMWR Recomm Rep. 2020 Jul 24;69(6). MMWR Recomm Rep. 2021 Jul 23;70(6).

Slide 27

27

Assessment of Source

Assess the source, if possible:

- Ascertain HIV, HBV, and HCV status
- If source has HIV, then determine if treated, and if so, then obtain any available data on antiretroviral resistance to inform HIV PEP
- INSTI resistance is rare but if there is concern, then consider PI-based PEP. (e.g., darunavir-based PEP)

Antiretroviral Resistance?



Source: MMWR Recomm Rep. 2025 May 8;74(1). Infect Control Hosp Epidemiol. 2025 Sep 15;46(9). MMWR Recomm Rep. 2018 Jan 12;67(1).
MMWR Recomm Rep. 2020 Jul 24;69(6). MMWR Recomm Rep. 2021 Jul 23;70(6).

Slide 28

28

Assessment of Patient after Exposure

Assess the patient's clinical status:

- Medical comorbidities, current medications, drug allergies
- Obtain patient's HBV vaccine history and most recent lab testing for vaccine response

Assess metabolic laboratory values:

- Creatinine, AST/ALT, pregnancy test

Source: MMWR Recomm Rep. 2025 May 8;74(1). Infect Control Hosp Epidemiol. 2025 Sep 15;46(9). MMWR Recomm Rep. 2018 Jan 12;67(1).
MMWR Recomm Rep. 2020 Jul 24;69(6). MMWR Recomm Rep. 2021 Jul 23;70(6).

Slide 29

29

Assessment of Patient after Exposure

Assess infectious diseases status:

- HIV Ag/Ab test and HIV NAT
- HBV antigen (HBsAg) and serology (anti-HBs, anti-HBc)
- HCV serology with reflex HCV RNA NAT
- Syphilis serology, gonorrhea and chlamydia NAAT

Establish if any infections are already present at baseline to determine what PEP and follow-up testing is needed

Source: MMWR Recomm Rep. 2025 May 8;74(1). Infect Control Hosp Epidemiol. 2025 Sep 15;46(9). MMWR Recomm Rep. 2018 Jan 12;67(1). MMWR Recomm Rep. 2020 Jul 24;69(6). MMWR Recomm Rep. 2021 Jul 23;70(6).

Slide 30

30

Assessment of Patient after Exposure

Assess infectious diseases status:

- **HIV Ag/Ab test and HIV NAT**
- HBV antigen (HBsAg) and serology (anti-HBs, anti-HBc)
- HCV serology with reflex HCV RNA NAT
- Syphilis serology, gonorrhea and chlamydia NAAT

Do not use an oral fluid HIV tests.
Confirm any point-of-care (rapid) HIV Ag/Ab test with lab-based test.

Source: MMWR Recomm Rep. 2025 May 8;74(1). Infect Control Hosp Epidemiol. 2025 Sep 15;46(9). MMWR Recomm Rep. 2018 Jan 12;67(1). MMWR Recomm Rep. 2020 Jul 24;69(6). MMWR Recomm Rep. 2021 Jul 23;70(6).

Slide 31

31

Assessment of Patient after Exposure

Assess infectious diseases status:

- HIV Ag/Ab test and HIV NAT
- **HBV antigen (HBsAg) and serology (anti-HBs, anti-HBc)**
- **HCV serology with reflex HCV RNA NAT**
- Syphilis serology, gonorrhea and chlamydia NAAT

HBV and HCV labs are to assess for current infection or protective immunity

Source: MMWR Recomm Rep. 2025 May 8;74(1). Infect Control Hosp Epidemiol. 2025 Sep 15;46(9). MMWR Recomm Rep. 2018 Jan 12;67(1). MMWR Recomm Rep. 2020 Jul 24;69(6). MMWR Recomm Rep. 2021 Jul 23;70(6).

Slide 32

32

Assessment of Patient after Exposure

Assess infectious diseases status:

- HIV Ag/Ab test and HIV NAT
- HBV antigen (HBsAg) and serology (anti-HBs, anti-HBc)
- HCV serology with reflex HCV RNA NAT
- Syphilis serology, gonorrhea and chlamydia NAAT

Testing is generally recommended for sexual exposures.
Collect gonorrhea/chlamydia NAAT from the involved anatomic sites.
If sexual assault, then provide presumptive STI treatment.

Source: MMWR Recomm Rep. 2025 May 8;74(1). Infect Control/Hosp Epidemiol. 2025 Sep 15;49(5). MMWR Recomm Rep. 2018 Jan 12;67(1).
MMWR Recomm Rep. 2020 Jul 24;69(30). MMWR Recomm Rep. 2021 Jul 23;70(30).

33

Follow-up Assessment for HIV

Testing Recommendations	
Exposure	HIV Ag/Ab test (lab-based) and HIV NAT
4-6 weeks	HIV Ag/Ab test (lab-based) and HIV NAT
12 weeks	HIV Ag/Ab test (lab-based) and HIV NAT

• Testing at 4-6 weeks may be deferred *if* PEP started <24 hours after exposure and was taken consistently for 28 day

Source: MMWR Recomm Rep. 2025;74(No. 1) and Infect Control & Hospital Epidemiology (2025)

34

Management for HBV Exposure: Non-Occupational

Exposed Patient (2018)			
	Fully Vaccinated*	Partially Vaccinated	Unvaccinated
Source HBsAg Unknown:	No action	Complete vaccine	Full vaccination

* Documented fully vaccinated regardless of whether they were known to have serologically responded

Source: MMWR Recomm Rep. 2018 Jan 12;67(1) – Hepatitis B Vaccine recommendations

35

Management for HBV Exposure: Non-Occupational

Exposed Patient (2018)

	Fully Vaccinated*	Partially Vaccinated	Unvaccinated
Source HBsAg Unknown:	No action	Complete vaccine	Full vaccination
Source HBsAg Positive:	Vaccine booster	Vaccine + HBIG†	Vaccine + HBIG†

* Documented fully vaccinated regardless of whether they were known to have serologically responded
† Administer the HBIG and vaccine in separate locations, such as gluteal and deltoid muscles

Source: MMWR Recomm Rep. 2018 Jan 12;67(1) – Hepatitis B Vaccine recommendations

36

Management for HBV Exposure: Non-Occupational

Exposed Patient (2021)

	Fully Vaccinated*	Partially Vaccinated	Unvaccinated
Source HBsAg Unknown:	No action	Complete vaccine	Full vaccination
Source HBsAg Positive:	It depends...**	Vaccine + HBIG†	Vaccine + HBIG†

* Documented fully vaccinated regardless of whether they were known to have serologically responded
† Administer the HBIG and vaccine in separate locations, such as gluteal and deltoid muscles
** If never tested for anti-HBs response → give booster. If tested: anti-HBs <10 mIU/mL → give booster + HBIG
anti-HBs ≥10 mIU/mL → no action

Source: MMWR Recomm Rep. 2021 Jul 23;70(4) – STD Guidelines

37

Management for HBV Exposure: Occupational

- Greater risk of infectious exposure to HBV
 - High prevalence of chronic HBV infection
 - Greater risk of fresh blood exposure, especially with sharps
- More data available for decision making
 - Occupational requirement for documented HBV vaccination and documented anti-HBs status
 - Source can very often be (or has been) tested for HBsAg
- “More risk + more data = more tailored recommendations”

Source: MMWR Recomm Rep. 2018 Jan 12;67(1) – Hepatitis B Vaccine recommendations

38

Management for HBV Exposure: Occupational

TABLE 5. Postexposure management of health care personnel after occupational percutaneous or mucosal exposure to blood or body fluids, by health care personnel HepB vaccination and response status

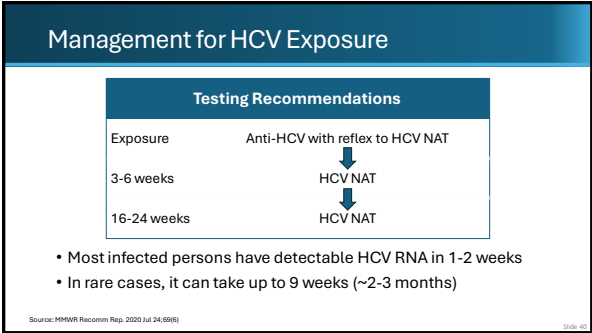
HCP status	Postexposure testing		Postexposure prophylaxis		Postvaccination serologic testing
	Source patient (HBsAg)	HCP testing (anti-HBc)	HBIG	Vaccination	
Documented responder after complete series	Positive/unknown	— ^a	No action needed	—	N/A
Documented nonresponder after two complete series	Negative	—	HBIG ± separated by 1 month	—	—
Response unknown after complete series	Positive/unknown	—	No action needed	—	—
	Negative	<10 mIU/mL	HBIG ±1	Initiate revaccination	Yes
	Any result	≥10 mIU/mL	None	Initiate revaccination	Yes
Unvaccinated/incompletely vaccinated or vaccine refusers	Positive/unknown	—	HBIG ±1	Complete vaccination	Yes
	Negative	—	None	Complete vaccination	Yes

Abbreviations: anti-HBc = antibody to hepatitis B surface antigen; HBIG = hepatitis B immune globulin; HBsAg = hepatitis B surface antigen; HCP = health care personnel; N/A = not applicable.

^a Not indicated.

Source: MMWR Recomm Rep. 2018;Jan 12;67(1) – Hepatitis B Vaccine recommendations

39



Where to get expert help with PEP

• National Clinician Consultation Center (UCSF) Post-Exposure Prophylaxis Hotline at 888-448-4911 and <https://aidsetc.org/directory/nccc>

• CDC Emergency Operations Center: 770-488-7100



NATIONAL CLINICIAN CONSULTATION CENTER

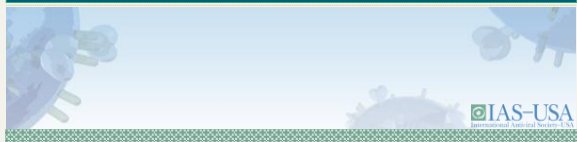


CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Slide 43

42

Q and A Session



IAS-USA
International Association of HIV Specialists

45

When to Start HIV PEP

Exposure to HIV is an emergency.

In cases of exposure with substantial risk of transmission, >72 hours might be considered: consult an expert* and consider on case-by-case basis

* "Healthcare professional with expertise in HIV treatment, antiretroviral medication use, and the determination of HIV exposure risk"



Source: HMRP Recomm. 2025 May 8;74(1) and Infect Control Hosp Epidemiol. 2025 Sep;150(9)

Slide 46

46

The IAS–USA Annual Virtual Course Update: Emerging Challenges in HIV Medicine, December 4, 2025

Page 14

HIV PEP in the context of breast-feeding requires shared-decision making

- Goal: prevent maternal HIV infection, minimize infant exposure to ARV
- Options include:
 - Breastfeed using a regimen with low risk of infant ARV exposure
 - Stop breastfeeding
 - Pump and store breastmilk until source HIV infection excluded
- Reach out to the National Clinician Consultation Center (UCCSF) Post-Exposure Prophylaxis Hotline at 888-448-4911 and <https://aidsetc.org/directory/nccc>

Source: MMWR Recomm Rep. 2025 May 8;74(1). Infect Control Hosp Epidemiol. 2025 Sep 15;146(9). J Antimicrob Chemother. 2022;77(12):3436-3442.

Slide 47

47

Follow-up Assessment for HBV

HBV testing after vaccination is recommended only for people who need to know their immune status*

- Check anti-HBs 1–2 months after the last vaccine dose
- Revaccinate if anti-HBs <10 mIU/mL and retest as above
- If anti-HBs <10 mIU/mL again, check HBsAg and anti-HBc for acute infection

* Such as for work, clinical care, or because of ongoing exposure. Examples include: as health care workers, persons with HIV and other immunocompromising disorders (e.g., hematopoietic stem cell transplant, chemotherapy), hemodialysis patients, sex and needle-sharing partners of HBsAg-positive persons.

Source: MMWR Recomm Rep. 2018 Jan 12;67(1) and MMWR Recomm Rep. 2021 Jul 23;70(4)

Slide 48

48

Management for STI Exposure

- Test of cure not recommended
- If patient reports symptoms, repeat STI testing
- If syphilis in the source cannot be ruled out, then repeat patient's syphilis serologies at 4–6 weeks and 12 weeks

Source: MMWR Recomm Rep. 2021 Jul 23;70(4)

Slide 49

49

Exposed Patients Who Are Immunocompromised

- Seek expert consultation, including laboratory expertise, to interpret test results and determine if additional testing might be warranted when seeking to rule out HIV, HBV, and HCV infection.

Slide 40

50
