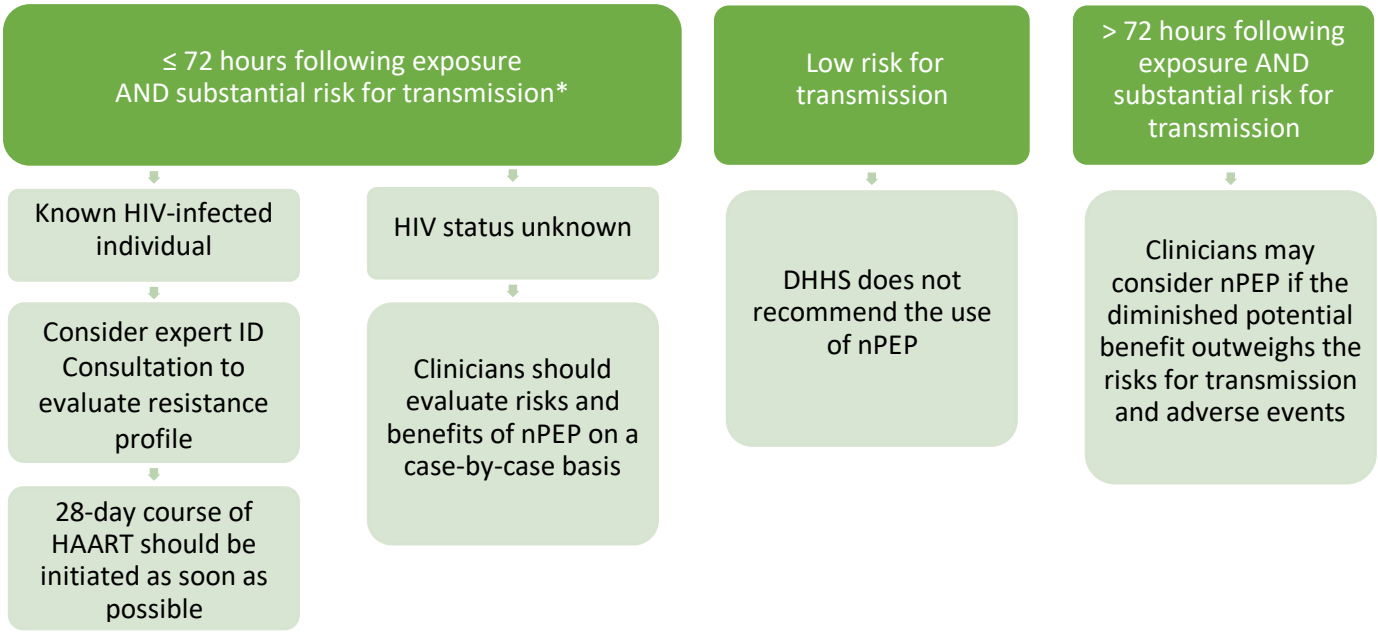
CARILION CLINIC
Antimicrobial Stewardship

# Guidelines for the Utilization of Postexposure Prophylaxis for the Prevention of HIV Infection

***Background:*** In order for HIV to be transmitted, exposure of infectious body fluids (e.g., blood, genital secretions, breast milk) to a portal of entry (i.e., percutaneous, mucous membranes, non-intact skin) must occur. Postexposure prophylaxis may be utilized following both occupational and nonoccupational exposures to minimize risk of transmission.

***Nonoccupational Postexposure Prophylaxis (nPEP)***

The U.S. Department of Health and Human Services (DHHS) made the following recommendations regarding administration of nPEP to patients seeking care after **nonoccupational exposure to blood, genital secretions, or other potentially infectious body fluids**:




- Other health risks resulting should be considered and prophylaxis administered when indicated (see ED: FORENSIC PATIENT STANDING ORDERS AND POST-EXPOSURE PROPHYLAXIS [1997])
- Risk reduction counseling and intervention services should be provided to reduce the risk for recurrent exposures

****Estimated per-act transmission risk:***

| Exposure route | Risk per 10,000 exposures to an infected source |
|---|---|
| **Parenteral** | |
| **Blood transfusion** | 9,250 |
| **Needle-sharing injection-drug use** | 63 |
| **Percutaneous needle stick** | 23 |
| **Sexual** | |
| **Receptive anal intercourse** | 138 |
| **Receptive penile-vaginal intercourse** | 8 |
| **Insertive anal intercourse** | 11 |
| **Insertive penile-vaginal intercourse** | 4 |
| **Oral intercourse** | Not Quantified; low |

# Guidelines for the Utilization of Postexposure Prophylaxis for the Prevention of HIV Infection

***Occupational Postexposure Prophylaxis (PEP)***

The 2016 US Public Health Service recommendations for the management of occupational exposures in healthcare personnel provided updated PEP regimens and monitoring guidelines. Guidance is similar to that provided for nPEP.

****Estimated transmission risk:***

| Exposure route | Risk (95% CI) |
|---|---|
| Percutaneous exposure | 0.3% (0.2 – 0.5) |
| Mucous membrane | 0.09% (0.006 – 0.5) |
| Nonintact skin | Not quantified; less than that of mucous membrane exposure |

Exposures at Carilion Clinic are managed through Employee Health. Guidance for medical providers can be accessed from the intranet**. Additionally, the Clinicians' Post-Exposure Prophylaxis Hotline (PEPline) offers assistance about appropriate medical treatment: 888-448-4911, 11:00 am – 8:00 pm EST.**

***Carilion Clinic Guidance for nPEP and PEP***

- Each regimen must contain **three** drugs
- Regimens are a **28-day** course

| **≥ 13 years old OR ≥ 40 kg** | | |
|---|---|---|
| **Medication** | **Dosing** | **Administration** |
| dolutegravir (TIVICAY) 50 mg tablet | • 1 tablet PO daily | • Without regard to food<br>• Administer ≥ 2 hours before or ≥ 6 hours after administration of cation-containing medications or products |
| emtricitabine-tenofovir (TRUVADA) 200/300 mg tablet | • 1 tablet PO daily | • Without regard to food |

| **2 to 12 years old AND < 40 kg** | | |
|---|---|---|
| **Medication** | **Dosing** | **Administration** |
| emtricitabine (EMTRIVA) oral solution 10 mg/mL | • 6 mg/kg (max: 240 mg) PO daily | • Without regard to food<br>• Cotton candy flavor |
| emtricitabine (EMTRIVA) 200 mg capsule | • > 33 kg: 200 mg PO daily | • Must be able to swallow capsules whole<br>• Without regard to food |
| tenofovir (VIREAD) oral powder 40 mg/g | • 8 mg/kg (max: 300 mg) PO daily | • 1 level scoop = 1 g powder = 40 mg tenofovir<br>• Mix with 2-4 ounces of soft food that does not require chewing and swallow immediately; do not mix in liquid<br>• Without regard to food |

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|---|---|---|
| tenofovir (VIREAD) tablets 150, 200, 250, 300 mg<br>*Only 300 mg tablet available at Carilion | • 17 to < 22 kg: 150 mg PO daily<br>• 22 to < 28 kg: 200 mg PO daily<br>• 28 to < 35 kg: 250 mg PO daily<br>• ≥ 35 kg: 300 mg PO daily | • Without regard to food |
| dolutegravir (TIVICAY) pediatric soluble tablet 5 mg tablet | • 3 to <6 kg: 5 mg PO daily<br>• 6 to <10 kg: 15 mg PO daily<br>• 10 to <14 kg: 20 mg PO daily<br>• 14 to <20 kg: 25 mg PO daily | • May be administered dispersed in water as an oral suspension or swallowed whole<br>• If swallowing whole, do not swallow more than 1 tablet at a time to reduce risk for choking<br>• Do not chew, cut, or crush tablet<br>• Without regard to food<br>• Administer ≥ 2 hours before or ≥ 6 hours after administration of cation-containing medications or products |
| dolutegravir (TIVICAY) 50 mg tablet | • ≥20 kg: 50 mg PO daily | • Tablets may be split into halves (with both halves then administered) or crushed, added to a small amount of semisolid food or liquid, and consumed immediately<br>• Without regard to food<br>• Administer ≥ 2 hours before or ≥ 6 hours after administration of cation-containing medications or products |

| **4 weeks AND postmenstrual age > 42 weeks to < 2 years old** | | |
|---|---|---|
| **Medication** | **Dosing** | **Administration** |
| lamivudine (EPIVIR) 10 mg/mL oral solution | • 4 weeks to 3 months: 4 mg/kg (max: 150 mg) PO q12h<br>• 3 months to 2 years: 5 mg/kg (max: 150 mg) PO q12h | • Without regard to food<br>• Strawberry-banana flavor |
| zidovudine (RETROVIR) 10 mg/mL oral syrup | • 4 to <9 kg: 12 mg/kg PO q12h<br>• 9 to <30 kg: 9 mg/kg PO q12h<br>• ≥ 30 kg: 300 mg PO q12h | • Without regard to food<br>• Strawberry flavor |
| raltegravir OR lopinavir-ritonavir<br>may be used for the third drug in the regimen | | |

| | | |
|---|---|---|
| raltegravir (ISENTRESS) 10 mg/mL oral suspension | • < 20 kg: 6 mg/kg (max: 100 mg) PO q12h | • Using a small cup pour packet contents into 10 mL water, swirl in circular motion for 45 seconds; do not shake<br>• Once mixed measure suspension dose with an oral syringe (suspension concentration 10 mg/mL)<br>• Administer within 30 minutes of mixing with water<br>• Discard any remaining suspension<br>• Without regard to food<br>• Administer ≥ 2 hours before or ≥ 6 hours after administration of cation-containing medications or products<br>• Products are NOT interchangeable<br>• Banana flavor |
| raltegravir (ISENTRESS) chewable tablet 25, 100 mg | • 11 to <14 kg: 75 mg PO q12h<br>• 14 to <20 kg: 100 mg PO q12h<br>• 20 to <28 kg: 150 mg PO q12h<br>• 28 to <40 kg: 200 mg PO q12h<br>• ≥ 40 kg: 300 mg PO q12 | • Without regard to food<br>• Administer ≥ 2 hours before or ≥ 6 hours after administration of cation-containing medications or products<br>• Products are NOT interchangeable<br>• Orange banana flavor |
| lopinavir-ritonavir (KALETRA) 400-100 mg/5 mL oral solution | Dosing based on lopinavir component<br>• < 15 kg: 12 mg/kg PO q12h<br>• 15-40 kg: 10 mg/kg PO q12h<br>• 40 kg: 400 mg PO q12h | • Must be given with food<br>• Many potential drug interactions<br>• Cotton candy flavor |

| **< 4 weeks old or postmenstrual age < 42 weeks** |
|---|
| Consult Infectious Diseases |

| **Medication Clinical Pearls** | | |
|---|---|---|
| **Medication** | **Common Adverse Effects** | **Less Common Adverse effects** |
| dolutegravir (TIVICAY) | • Insomnia<br>• Headache | • Hypersensitivity reactions including rash, constitutional symptoms and organ dysfunction |
| emtricitabine (EMTRIVA) | • Headache<br>• Insomnia<br>• GI: Diarrhea, nausea<br>• Rash<br>• Hyperpigmentation/skin discoloration on palms and/or soles | • Hepatitis exacerbations in HBV-coinfected patients<br>• Neutropenia<br>• Lactic acidosis/severe hepatomegaly with steatosis |

| | | |
|---|---|---|
| emtricitabine-tenofovir (TRUVADA) | See individual components | |
| lamivudine (EPIVIR) | • Headache<br>• Nausea | • Peripheral neuropathy<br>• Lipodystrophy/lipoatrophy<br>• Lactic acidosis<br>• Severe hepatomegaly with steatosis<br>• Hepatitis exacerbations in HBV-coinfected patients |
| lopinavir-ritonavir (KALETRA) | • GI: Nausea, vomiting, diarrhea<br>• Fatigue/weakness<br>• Headache<br>• Rash | • QT interval prolongation and Torsades de pointes<br>• PR interval prolongation<br>• Fat maldistribution<br>• Hyperlipidemia<br>• Hyperglycemia<br>• Elevated transaminases |
| raltegravir (ISENTRESS) | • Insomnia<br>• GI: Nausea, diarrhea<br>• Fatigue<br>• Headache<br>• Dizziness<br>• Itching | • Abdominal pain/vomiting<br>• Skin and hypersensitivity reactions<br>• Rhabdomyolysis |
| tenofovir (VIREAD) | • GI: Nausea, diarrhea, vomiting, flatulence | • Osteomalacia and reduced bone density<br>• Renal toxicity<br>• Lactic acidosis/severe hepatomegaly with steatosis |
| zidovudine (RETROVIR) | • Granulocytopenia (may be increased with concomitant lamivudine administration)<br>• Anemia<br>• Headache<br>• GI: Nausea, vomiting<br>• Insomnia<br>• Fatigue | • Myositis<br>• Lactic acidosis/severe hepatomegaly with steatosis<br>• Fat maldistribution |

References:

1. Patel P, Borkowf CB, Brooks JT. Et al. Estimating per-act HIV transmission risk: a systematic review. AIDS. 2014. doi: 10.1097/QAD.0000000000000298.
2. Updated Guidelines for Antiretroviral Postexposure Prophylaxis after Sexual, Injection-Drug Use, or Other Nonoccupational Exposure to HIV - United States, 2016. *MMWR Morb Mortal Wkly Rep*. 2016;65(17):458. Published 2016 May 6. doi:10.15585/mmwr.mm6517a5
3. DeHaan E, McGowan JP, Fine SM, et al. *PEP to Prevent HIV Infection*. Baltimore (MD): Johns Hopkins University; November 2021.
4. National Clinician Consultation Center. Translating Science into Care. https://nccc.ucsf.edu/clinical-resources/pep-resources/pep-quick-guide-for-occupational-exposures/. Published June 18, 2021. Accessed February 3, 2022.