PEP: Post-exposure Prophylaxis

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What We Will Talk About

- Considerations When Thinking about Post-Exposure Prophylaxis (PEP)
  - Steps to Initiating PEP
  - Key Decision Points
  - HIV Testing
  - Antiretroviral Therapy
- HIV Testing: HIV Screen versus HIV RNA or DNA PCR
- PrEP

STEPS TO IMPLEMENTING PEP

TAKING THE HISTORY & MAKING DECISION TO USE PEP

If it has been > 72 hours since exposure, do not use PEP

- Step 1: Establish Risk of HIV Transmission Based on Exposure Type
- Step 2: Establish Risk of HIV Transmission Based on Source Person's HIV Infection Status
- Step 3: Decide approach to the use of PEP

Risk of Transmission

Exposure Type	Risk of Transmission per 10,000 Exposure	Exposure Risk Category
Cutaneous Exposures		
Fluid on intact skin Bite without break in skin Mutual masturbation	No risk	No risk identified
Skin with compromised integrity		Low to intermediate
Mucous Membranes Exposures		
Kissing	No Risk	No risk identified
Oral sex Splash to eye or mouth	Risk of HIV transmission from oral sex is not known, although HIV rarely transmitted .	Low
Vaginal sex without trauma	**Unprotected receptive vaginal intercourse: 1 – 30 per 10,000** **Unprotected insertive vaginal intercourse: 3-9 per 10,000**	**Intermediate**
Receptive anal intercourse **Traumatic sex with blood**	**Unprotected receptive anal intercourse: 50-320 per 10,000**	**High**
Percutaneous Exposure		
Bite with break in skin		Low

Risk of Transmission

Type of HIV Exposure	Risk of Transmission per 10,000 Exposure Events
Blood transfusion	9,500
Perinatal exposure	1,300 to 4,500
Needle sharing (injection drug use)	67
Needle stick (health care professional)	32
Ingestion of human milk	0.1

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Risk of HIV Transmission Base on Source Person's HIV Status

HIV Infection Status of Exposure Source	Risk of Transmission
Known not to have HIV	No risk
HIV status/risk status unknown/unknown source.	Unquantified
HIV status unknown; does not have risk factors	**Low**
HIV status unknown: has 1 or more risk factors	**Intermediate**
Known to have HIV infection	High

The following persons might be considered at high-risk for HIV: individuals with (1) history of multiple sexual partners; (2) STIs; (3) history of sex with MSM; (4) history of needle-sharing; (5) history of trading sex for goods or services. **Decisions for prophylaxis should not be made based on the likelihood that the perpetrator has HIV.**

TAKING THE HISTORY & MAKING DECISION TO USE PEP

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One Approach to the Use of PEP

Exposure Risk Category	HIV Infection Status of Source	Suggested Approach
No risk identified	Any	No PEP
Any	Known to not have HIV	No PEP
Low, intermediate, or high	**Unknown**	**Consider PEP**
Low or intermediate risk	HIV infected	Consider PEP
High risk	HIV infected	Recommend PEP

IMPLEMENTING PEP

If it has been > 72 hours since exposure, do not use PEP

- Step 4: Deciding the Medications to Include in PEP
- Step 5: Arranging Medications
- Step 6: Recommended Baseline Laboratory Testing for HIV and PEP

Medications Recommended for PEP

Patient Category	PEP Recommendation
Persons ≥ 40 kg Can swallow pills	Dolutegravir 1 50 mg tablet daily AND Truvada 1 tablet PO daily:
Persons < 40 kg Can chew tablets	Zidovudine AND Lamivudine (3TC) AND Raltegravir chewable tablets
Children 2 weeks to 2 years of age Persons > 2 yrs who cannot swallow pills or chew tablets	AZT AND 3TC AND Kaletra Oral Solution

Guidelines for HIV Prophylaxis after Sexual Assault in Children and Youth (Havens)

IMPLEMENTING PEP

- Step 4: Deciding the Medications to Include in PEP
- **Step 5: Arranging Medications**
- Step 6: Recommended Baseline Laboratory Testing for HIV and PEP

Arranging Medications

- PEP needs to be started early…preferably within 2 hours, but always before 72 hours
- Should not interrupt PEP. Clients need the meds when they leave your facility if at all possible
- Consider giving a start packet
- Talk with pharmacy you are sending the script to—make sure they have the meds or can get them quickly
- If nausea a concern can use zofran
- Call to client next day to see how they are doing, taking meds correctly, have questions, and actually have all the meds
- Calls to remind youth of follow up testing

IMPLEMENTING PEP

- Step 4: Deciding the Medications to Include in PEP
- Step 5: Arranging Medications
- Step 6: Recommended Baseline Laboratory Testing for HIV and PEP

Baseline Testing

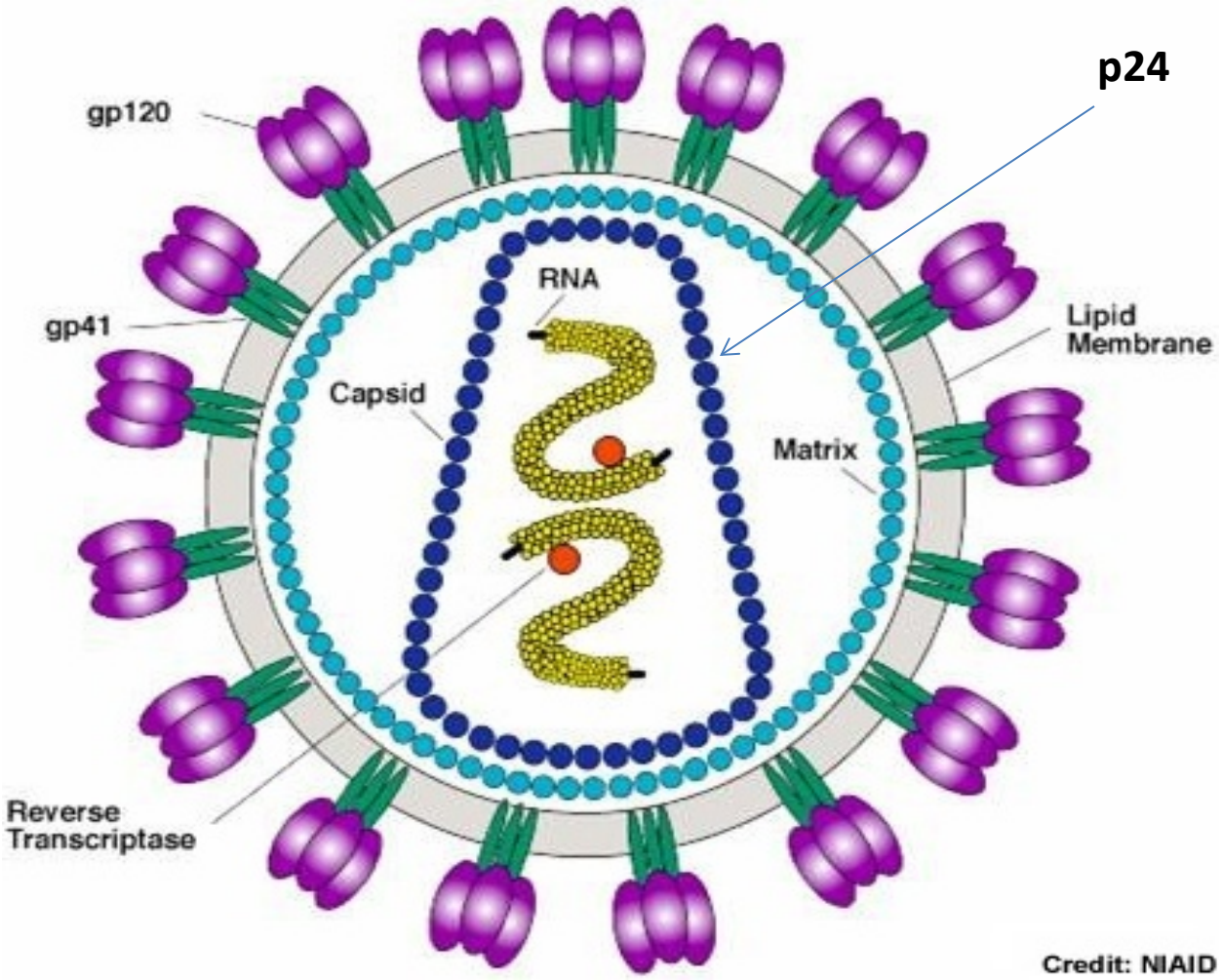
- CBC with auto differential
- If Kaletra or AZT ordered – add ALT to baseline testing,
- If Truvada ordered--add creatinine to baseline testing.
- Check Hepatitis C antibody.
- Check a Hepatitis B panel (Hep B surface antibody, surface antigen, core antibody)
  - If exposed patient not fully Hepatitis B immunized: patient should complete the vaccination series-give the next dose immediately
  - If Hepatitis B surface antibody present-no further action
  - If Hepatitis B surface antibody negative and patient completed vaccine series administer booster vaccine and re-evaluate serologic status in 1 month to determine if full revaccination is necessary.
  - If Hepatitis B surface antibody negative and the source is known to be Hepatitis B Surface Antigen positive—give the exposed patient Hepatitis B immune globulin (per FDA 0.06 ml/kg as a onetime dose)

Baseline HIV Diagnostic Testing

- **HIV antibody or antigen/antibody test**
  - Be sure to obtain verbal consent and document
  - If < 14 need parental consent
  - If 14 and older, youth must consent to testing
- If the patient had multiple sexual exposures in the recent past, they may already have early HIV infection. **In addition to the HIV antibody or Ag/Ab test** please obtain an **HIV RNA PCR** at baseline

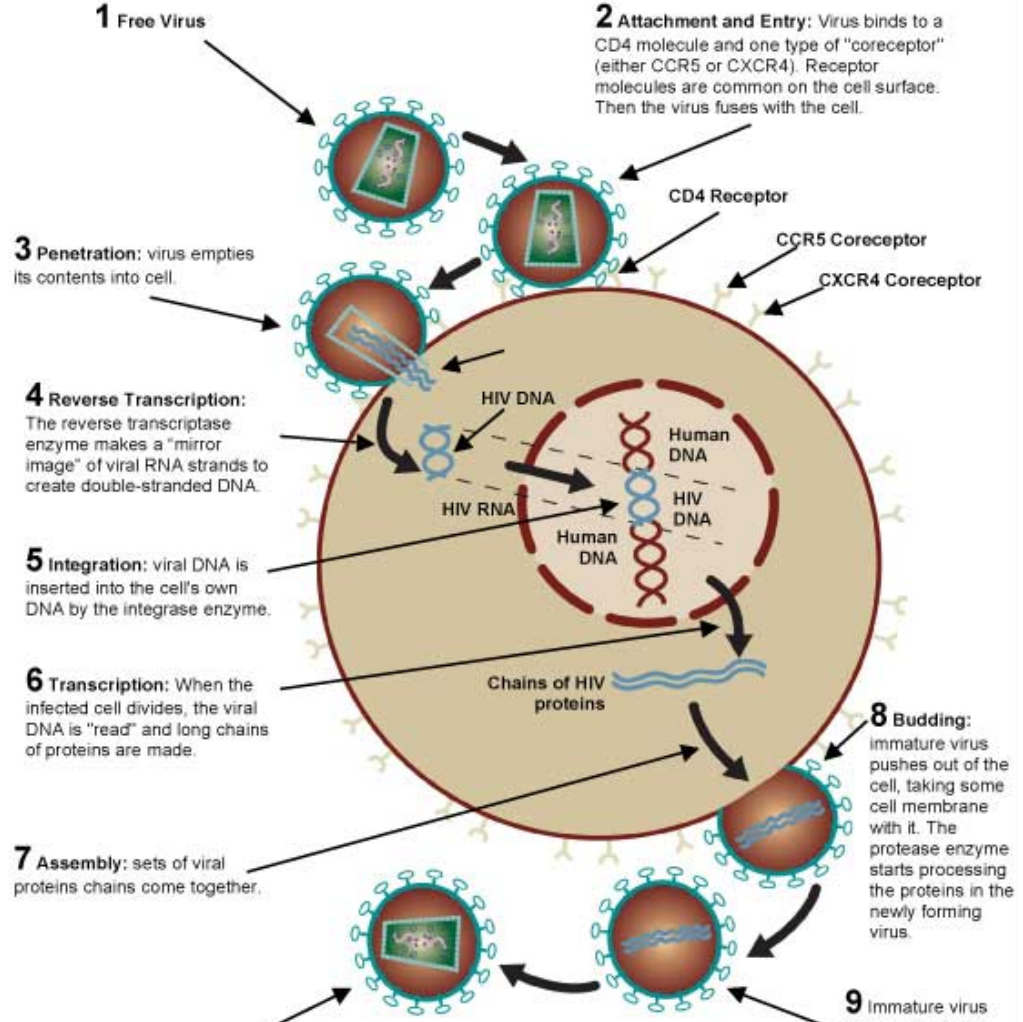
HIV TESTING

HIV: The Virus
This is the Culprit



AIDS InfoNet www.aidsinfonet.org Fact Sheet Number 106

HIV LIFE CYCLE



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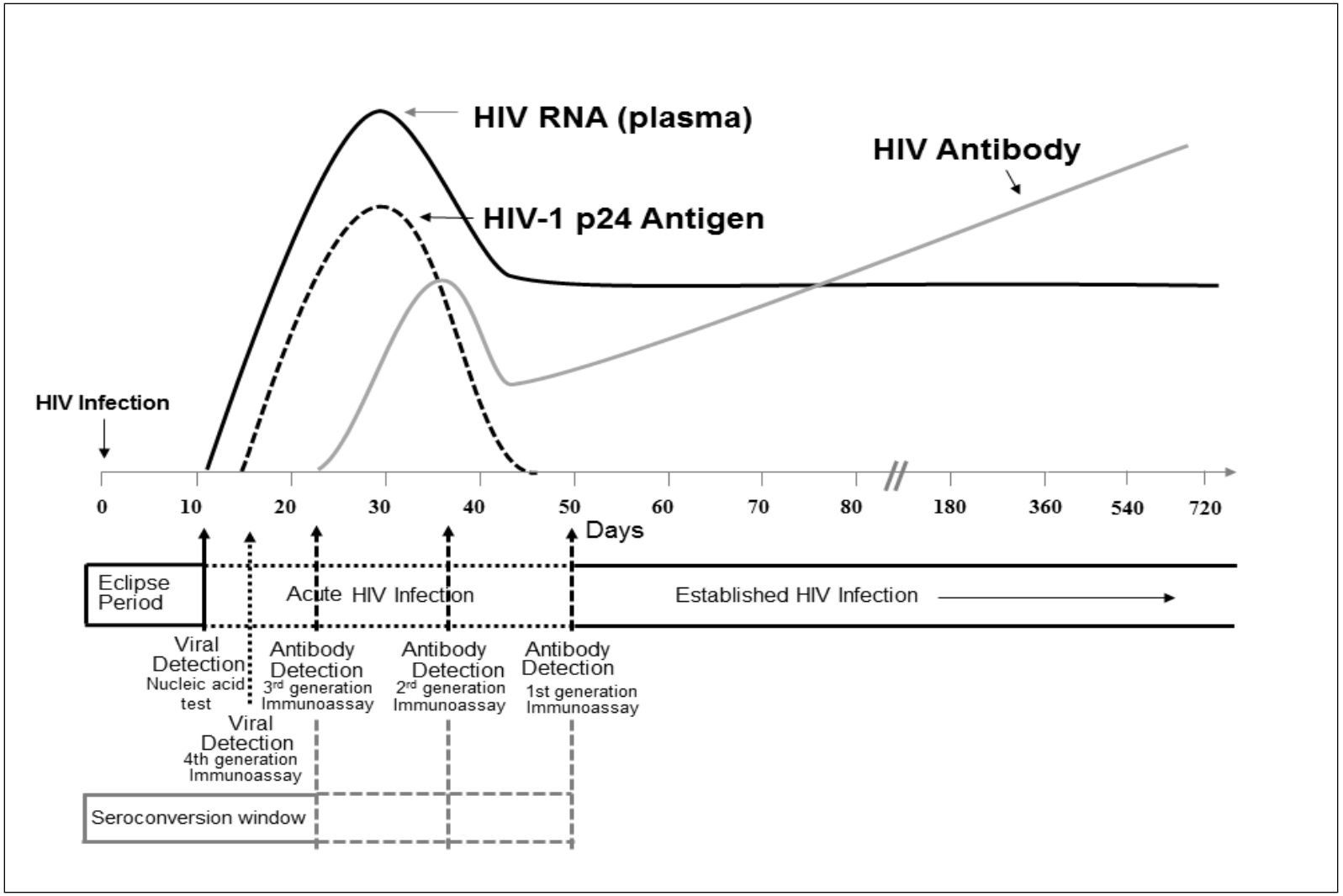
Fact Sheets can be downloaded from the Internet at http://www.aidsinfonet.org

SEQUENCE OF MARKER APPEARANCE

Sequence of HIV Testing

Day after HIV Acquisition	HIV Test	Then what happens
Day 0	HIV Infection	
Day 10	**HIV RNA or DNA PCR**	Peaks about day 30 after infection. Plateaus around day 40.
Day 15	4th generation **(HIV antibody/antigen test)** Detects antigen (p24)	The antigen marker, p24 peaks about 30 days after infection, rapidly decreases & may become undetectable about 45 days after infection
Day 22	3rd generation **(HIV antibody screen)** Detects IgM & IgG	The test marker, IgM, peaks at about 35 days then decreases until about 38 days when IgG antibodies are detectable using a 2nd generation test
Day 38	2nd generation **HIV antibody screen & antibody differentiation tests (monospot)** Detects IgG	The test marker, IgG continues to increase until they are detectable by first generation tests and the western blot by day 45-50

Appearance of Laboratory Markers for HIV-1 Infection



17 Year Old with Newly Diagnosed HIV: Testing Sequence

- Baseline Test: HIV DNA PCR was positive (Friday)
- After baseline testing returned we performed the following tests on the SAME blood sample
  - antigen/antibody screen negative
  - viral load > 10,000,000
- By Monday the antigen/antibody screen was reactive

GOAL OF PEP

GOAL of ARV in PEP

- Reduce viral load to prevent HIV infection

FOLLOW-UP CARE

- Step 8: Educate the Patient/Family about Follow-up Care
- Step 9: Follow-up Testing

Follow up Testing

- Follow-up Lab testing:
  - **HIV antibody or Ag/Ab test** at 4 to 6 weeks and 4 months after exposure
  - For patients with **multiple sexual exposures** in the recent past, perform an HIV DNA PCR with the 4-6 week HIV antibody or HIV Ab/Ag test.
  - Recheck patient's Hepatitis C antibody status at 4 month post exposure.
  - Hepatitis B follow-up testing depends on baseline results.

PEP works

- A case-control study demonstrating an 81% reduction in the odds of HIV transmission among health care workers with percutaneous exposure to HIV who received zidovudine (ZDV) prophylaxis.

PrEP

- We owe it to youth who participate in high risk activity to discuss PrEP
- Truvada-1 pill daily works effectively to prevent HIV infection
- PrEP= Pre post exposure prophylaxis
- For youth at high risk for HIV infection

References

- http://www.cdc.gov/hiv/pdf/programresources/cdc-hiv-npep-guidelines.pdf
- WI HIV Primary Care Support Network "Guidelines for HIV Prophylaxis after Sexual Assault in Children and Youth"

- Please call/email if you ever have questions about PEP or PrEP