HIV Screening, Testing and Prevention: Adolescents and Young Adults

Dr. Dora Martinez, MD, AAHIVS
Administrative Medical Director, Westbrook Clinic – Valley AIDS Council
South Central AETC Clinical Director – Valley AIDS Council
Learning Objectives

- Analyze the rationale for HIV screening and testing recommendations.
- Assess clinical benefits of routine HIV screening and testing.
- Formulate application and approaches for simplifying routine HIV screening in practice.
- Evaluate and select appropriate HIV tests.
- Recognize opportunities for HIV prevention strategies in practice.
Definitions:

Per the World Health Organization (WHO):

- An **adolescent** is any person between ages **10 and 19**.

- Adolescents are a subset of **young people**, which refers to individuals between ages **10 and 24**.
Stage 3 (AIDS) Classifications of Deaths of Persons with HIV infection Ever Classified as Stage 3 (AIDS), among Adults and Adolescents, 1985-2011 – United States 6 Dependent Areas

- UPDATE -

Estimated Number of Persons Living with HIV Among Persons Aged >13 – United States 1981-2008


Rates of HIV Diagnoses Among Adults and Adolescents in the US by State, 2016

Discussion

Do you routinely offer (opt-out) HIV testing in your clinical setting?

1. Yes
2. No
A 20-Year-Old, Single Male…

- Presents for an annual physical
- Upon physical exam, you find that he:
  - Does not smoke
  - Drinks weekly (2-6 beers)
  - Does not use illegal substances
  - Has an exam otherwise unremarkable
  - Is sexually active and occasionally uses condoms, but not always

- Would you offer an HIV test?
  - Yes
  - No
A 17-Year-Old Female…

- Presents for refill of birth control
- Not married, has a 1 yo child
- Has no other significant history

Would you offer an HIV test?
- Yes
- No
HIV Screening Recommendations
Criteria that Justify Routine Screening

1. Serious health disorder that can be detected before symptoms develop.
2. Treatment more beneficial when begun before symptoms develop.
3. Reliable, inexpensive, acceptable screening test.
2006 CDC Revised Recommendations

CDC’s Recommendations

- HIV screening for all patients aged 13 to 64 years
  - *Opt-out screening*: patients should be told screening will be performed but may decline testing
- Written consent and prevention counseling not required
- Annual HIV screening for those at high risk for HIV
- Prompt clinical care for HIV-infected persons

American Academy of Pediatrics
2017 Recommendations

Summary of Changes Made to the Bright Futures/AAP Recommendations for Preventive Pediatric Health Care (Periodicity Schedule)

This schedule reflects changes approved in February 2017 and published in April 2017. For updates, visit www.aap.org/periodicityschedule. For further information, see the Bright Futures Guidelines, 4th Edition, Evidence and Rationale chapter (https://brightfutures.aap.org/Bright%20Futures%20Documents/894_Evidence_Rationale.pdf).

Changes Made in February 2017

HEARING

• Timing and follow-up of the screening recommendations for hearing during the infancy visits have been delineated. Adolescent risk assessment has changed to screening once during each time period.

• Footnote 8 has been updated to read as follows: “Confirrm initial screen was completed, verify results, and follow up, as appropriate. Newborns should be screened, per ‘Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs’ (http://pediatrics.aappublications.org/content/120/4/898.full).”

• Footnote 9 has been added to read as follows: “Verify results as soon as possible, and follow up, as appropriate.”

• Footnote 10 has been added to read as follows: “Screen with audiometry including 6000 and 8000 Hz high frequencies once between 11 and 14 years, once between 15 and 17 years, and once between 18 and 21 years. See ‘The Sensitivity of Adolescent Hearing Screens Significantly Improves by Adding High Frequencies’ (http://www.jahonline.org/article/51054-1399116/0004/3/fulltext).”

PSYCHOSOCIAL/BEHAVIORAL ASSESSMENT

• Footnote 13 has been added to read as follows: “This assessment should be family centered and may include an assessment of child social-emotional health, caregiver depression, and social determinants of health. See Promoting Optimimal Development: Screening for Behavioral and Emotional Problems (http://pediatrics.aappublications.org/content/133/2/384) and Poverty and Child Health in the United States (http://pediatrics.aappublications.org/content/137/4/e20160339).”

TOBACCO, ALCOHOL, OR DRUG USE ASSESSMENT

• The header was updated to be consistent with recommendations.
Screening for HIV has been updated to occur once between 15 and 18 years of age (to be consistent with recommendations of the USPSTF).

“Adolescents should be screened for HIV according to the USPSTF recommendations once between the ages of 15 and 18, making every effort to preserve confidentiality of the adolescent. Those at increased risk of HIV infection, including those who are sexually active, participate in injection drug use, or are being tested for other STIs, should be tested for HIV and reassessed annually.”
Medical Associations who Endorse HIV Screening

- USPSTF. Screening for HIV: Clinical Summary of USPSTF Recommendation. [http://www.uspreventiveservicestaskforce.org/uspstf/uspshivi.htm](http://www.uspreventiveservicestaskforce.org/uspstf/uspshivi.htm)
Desired Outcome of Routine HIV Screening

- HIV Screening
- HIV Diagnosis
- Link to Care

- Improve Survival and Quality of Life
- Prevent New HIV Infections
Why Routine Screening?

- Risk-based screening has not been successful.
- Risk assessment and prevention counseling are resource intensive.
- The HIV/AIDS epidemic affects all populations, and risk-based testing can fail to identify HIV in some patients.
- HIV continues to be among the top 10 leading causes of death in the 20- to 24-year age group.

Why Routine Screening?

- The 2009 Youth Risk Behavior Survey found that 46% of high school students reported having engaged in sexual activity (62% by the 12th grade), and 22% had consumed alcohol or used drugs before their last sexual intercourse.
- Patients do not always disclose or may not be aware of their risk.  
  - 39% of men who had sex with a man within the past year did not disclose to their health care provider.
  - 51% of rapid test positive patients identified in Emergency Department (ED) screening had no identified risk.

Importance of Screening, Early Diagnosis, and Treatment
Importance of Screening Recommendation for Adolescents

- The CDC estimate that **22% of new HIV** diagnoses occur in adolescents and young adults (AYA) aged **13–24 years**, and that nearly **61,000** AYA are now living with HIV in the U.S.

- However, HIV screening rates among AYA remain low: **12%** of U.S. high school students reported ever being screened in 2005, increasing **only to 13% by 2012**.

- Among older youth aged **18–24**, the proportion who had ever been screened **declined** over a similar period, from **37%** reported in 2000 to **30% in 2010**.

- Of all AYA 13–24 living with HIV, **51%** are estimated to be **unaware of their HIV** status, substantially higher than the **13%** of HIV-infected U.S. adults estimated to be unaware of their status.
Clinician's Role in Promoting Routine Testing

- Pediatric clinicians can play a key role in preventing and controlling HIV infection by promoting risk-reduction counseling and offering routine HIV testing to adolescent and young adult patients.
- Most sexually active youth do not feel that they are at risk of contracting HIV and have never been tested.
- Obtaining a sexual history and creating an atmosphere that promotes nonjudgmental risk counseling is a key component of the adolescent visit.
- Routine HIV testing is encouraged for all sexually active adolescents and those with other risk factors for HIV.
HIV Screening and Antiretroviral Therapy (ARV) Help Reduce Perinatally Acquired AIDS Cases

Uncontrolled HIV Replication May Have Implications in Other Clinical Conditions

<table>
<thead>
<tr>
<th>Cardiovascular disease</th>
<th>Increased risk of MI(^1) and of early carotid atherosclerosis(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatic disease</td>
<td>Faster progression of fibrosis and increased risk of cirrhosis, end-stage liver disease, and hepatocellular cancer in patients with hepatitis B or C coinfection(^3)</td>
</tr>
<tr>
<td>Renal disease</td>
<td>Increased risk of HIV-associated nephropathy, especially among African Americans and older patients and those with diabetes, hypertension, or a low CD4 count(^3)</td>
</tr>
<tr>
<td>Non-AIDS cancer</td>
<td>Possible role in non-AIDS cancers. The direct inflammatory effects of HIV infection can also raise the risk of some non-AIDS cancers(^3)</td>
</tr>
</tbody>
</table>

Baseline CD4 Count Associated with Cardiovascular Disease Events: HIV Outpatient Study (HOPS)

Cox Proportional Hazard: Relationship of Baseline CD4 and Risk of Subsequent Cardiovascular Events

Community Viral Load Mirrors Reduced Rate of New HIV Cases in San Francisco

ART, Serodiscordant Couples, and HIV Transmission: Study Results
(Undetectable = Untransmittable)

- ART initiation substantially protected HIV-negative sexual partners from acquiring HIV infections
  - **Group 1**: Early treatment group – only 1 partner infected by the HIV-infected participant, with a 96% reduction in risk of HIV infection
  - **Group 2**: Late treatment group – 27 partners infected by the HIV-positive participant.

- The difference was statistically significant (P<0.0001)
Late Diagnosis of HIV in the United States

“Late diagnosis of HIV infections is common. Among persons with newly diagnosed HIV in 2008, 33% developed AIDS within 1 year of initial HIV diagnosis. These persons likely were infected an average of 10 years before diagnosis. During this period, they missed opportunities to obtain medical care and to prevent unwitting transmission of HIV to others.”

Survival Gains Due To Antiretroviral Treatment

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Disease</th>
<th>Per Person Survival Gain, months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemotherapy</td>
<td>Non–small cell lung cancer</td>
<td>7</td>
</tr>
<tr>
<td>Adjuvant chemotherapy</td>
<td>Node + breast cancer</td>
<td>29</td>
</tr>
<tr>
<td>Comprehensive post-MI care</td>
<td>Coronary artery disease</td>
<td>50</td>
</tr>
<tr>
<td>BMT</td>
<td>Relapsed non-Hodgkins lymphoma</td>
<td>92</td>
</tr>
<tr>
<td>OI prophylaxis</td>
<td>ART</td>
<td>160</td>
</tr>
</tbody>
</table>

MI, myocardial infarction; BMT, bone marrow transplant; OI, opportunistic infection; ART, antiretroviral therapy.

Discussion

What is responsible for the decline in perinatally acquired AIDS?

1. Widespread HIV screening of all pregnant women.
2. Antiretroviral use during the antenatal, perinatal, and newborn periods.
3. Overall reduction in cases of HIV
4. 1&2
Case Study
Case Study: MH

- 18 year old, Hispanic female, in a year long relationship with a male partner
- Identified as HIV+ at the American Red Cross when she went to donate blood
- She received a phone call from the Red Cross telling her she was HIV+ and should go to her doctor
- She and her partner present for rapid testing

- Donna Sweet MD, AAHIVS, MACP, Professor of Medicine, The University of Kansas School of Medicine – Wichita
MH: Laboratory

- CD4:
- HIV-1 RNA by PCR:
- Quantiferon –TB
- HCVAb
- HBsAb
- HBsAg
- Hep A Ab
- RPR

- 716
- 1,480 mL
- Negative
- <0.1
- <0.1
- Negative
- Negative
- Non-reactive
Case Study: JG

- 19 year old, Hispanic male
- Partner of MH who presented with her for HIV testing
- Found to be HIV+
Case Study: JG

- CD4: 203/uL
- HIV-1 RNA by PCR: 255,790 copies/mL
- HCVAb: Negative
- HBsAb: <0.1
- HBsAg: Negative
- Hep A Ab: Negative
- RPR: Non-reactive
Discussion

What are the benefits of universal screening for HIV?

1. Earlier diagnosis of HIV
2. Decreased transmission of HIV
3. Improved survival
4. Cost-effective strategy
5. All of the above
Establishing HIV Screening as Standard Care

- Offer routine HIV screening in conjunction with other standard preventive screenings/measures
  - Weight
  - STIs
  - Immunizations
  - Well checks

- Regardless of a patient’s
  - Race/ethnicity
  - Sexual orientation
  - Sex
  - Relationship status
  - Socioeconomic status
## Implementing HIV Screening

### Integrating HIV Screening into Practice

- Train staff to perform HIV opt-out screening
- Instruct nurses and physician assistants to review the wellness visit checklist
- Provide easily understood patient informational materials
- Include testing reminders in patient’s electronic medical record

### Address Patients’ Misperceptions

- Your patients may not know the basic facts about HIV
- Many patients believe they were previously tested for HIV, particularly if blood was drawn
- Many patients assume an HIV test was performed and if they didn’t receive a call from the doctor, that they do not have HIV
Commonly Asked Questions From Patients

- Why should I have an HIV test?
- How do you test for HIV?
- How is HIV infection diagnosed?
- Who will pay for my HIV test?

If a Patient Has Concerns about Undergoing an HIV Test

- Provide informational materials
- Listen and respond to the patient’s questions and concerns
- Emphasize that the HIV screening test is routine for all patients; suspicion of risk or disease is not the reason it is being performed
- Explain to the patient that he or she may never have been screened for HIV infection, even if other physicians have performed other types of blood tests
**Communicating the Negative HIV Test Result**

- Does not require direct personal contact

- Discuss how high-risk negative patients can remain HIV-negative
  - Periodic retesting for persons at high risk
  - Prevention measures

Communicating Positive HIV Test Result

- Provide result by direct personal contact
- Provide result confidentially
- Ensure patient understands test result
- Connect to services

Discussion

What is opt-out screening?

1. Patients may be screened without notification or consent.

2. Patients should be told screening will be performed, but they may decline testing.

3. Patients must request an HIV test.
Discussion

Which of the following are parts of the CDC screening recommendations?

1. HIV screening for all patients aged 13-64 years
2. Written consent and prevention counseling
3. Annual HIV screening for those at high risk for HIV
4. Prompt clinical care for HIV-infected persons
5. 1,3,& 4
6. All of the above
Update on HIV Testing:
New Tests, New Algorithms
Clinical Syndrome of Acute HIV

- 40-90% develop symptoms of Acute HIV\(^1\)

- 50-90% with symptoms seek medical care

- Of those diagnosed with Acute HIV, 50% of patients were seen at least 3 times before diagnosis\(^2\)

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### Clinical Manifestations

101 seroconverters, HIVNET cohort 1995–98

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Percent</th>
<th>Median Duration Days (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any symptom</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td>56%</td>
<td>9 (5-29)</td>
</tr>
<tr>
<td>Fever</td>
<td>55%</td>
<td>5 (4-10)</td>
</tr>
<tr>
<td>Pharyngitis</td>
<td>43%</td>
<td>7 (5-10)</td>
</tr>
<tr>
<td>Lymphadenopathy</td>
<td>36%</td>
<td>7 (4-14)</td>
</tr>
<tr>
<td>Rash</td>
<td>16%</td>
<td>8 (6-14)</td>
</tr>
</tbody>
</table>

Window Period and HIV Infection

Detecting Acute HIV Infection

We Cannot Close the Window

HIV Diagnostic Testing Algorithm

A1: 4th generation HIV-1/2 immunoassay

- A1+
  - HIV-1 antibodies detected
  - Initiate care (and viral load)
- A1(-)
  - Negative for HIV-1 and HIV-2 antibodies and p24 Ag
  - HIV-2
    - HIV-2 antibodies detected
    - Initiate care
  - HIV-1&2 (-)
    - RNA
      - RNA+
        - Acute HIV-1 infection
        - Initiate care
      - RNA (-)
        - Negative for HIV-1

Branson, B. Paper presented at 2010 HIV Diagnostics Conferences; March 24, 2010; Orlando, FL.
Risk of Sexual Transmission of HIV

HIV-1 Transmission, by Stages of Infection and Behavior Pattern

<table>
<thead>
<tr>
<th>Infection Stage</th>
<th>Transmission Hazard per Person-year</th>
<th>Mean Duration, Years (%)</th>
<th>No. (%) New Transmissions, by Sexual Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Serial Monogamy</td>
</tr>
<tr>
<td>Acute</td>
<td>2.76</td>
<td>0.24 (2%)</td>
<td>0.10 (9%)</td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>0.106</td>
<td>8.38 (82%)</td>
<td>0.77 (71%)</td>
</tr>
<tr>
<td>AIDS</td>
<td>0.760</td>
<td>0.75 (16%)</td>
<td>0.21 (20%)</td>
</tr>
</tbody>
</table>

Summary

- New HIV immunoassays are more sensitive during early infection; results are available more quickly.

- Increasingly important to identify highly infectious stage of acute HIV infection.

- Algorithms for HIV diagnostic testing are being updated to keep pace with technology.
Testing Minors

- Minors in Texas have the right to consent to the diagnosis and treatment of an infectious, contagious, or communicable disease that is reportable, including HIV (Texas Family Code Section 32.003).

- Providers should consider whether the minor has the capacity to consent. This means that the minor has the cognitive ability to understand the risks and benefits involved.
HIV Prevention Strategies
Risk Based Screening: Lessons Learned

- Risk-based testing not reliable

- Routine HIV screening can lead to earlier diagnosis

- Failure to diagnose HIV infection early can lead to morbidity, high health-care costs, and transmission of disease

- Late HIV diagnosis is common
HIV Prevention

- Obtain a sexual history that is unbiased/SOGI (It’s OK to ask parents to step out):
  - Do you have sex with men, women, both…? What types of sex do you have – oral, anal, vaginal…? How do you identify your sexual orientation – heterosexual, bisexual, gay/lesbian…? How many sexual partners…? Use of alcohol/drugs during sex…?
- Discuss importance of Routine HIV and STI screening
- Review safer sex practices:
  - Do they use condoms? How often? Are they used properly?
  - Do they use lubricants? Are they compatible with condoms?
HIV Prevention: PrEP

- Pre-exposure prophylaxis, or PrEP, is a way for people who do not have HIV but who are at substantial risk of getting it to prevent HIV infection by taking a pill every day.

- When taken consistently, PrEP has been shown to reduce the risk of HIV infection in people who are at high risk by over 90%.

- PrEP is a powerful HIV prevention tool and can be combined with condoms and other prevention methods to provide even greater protection than when used alone.

- Truvada approved since 2014 for PrEP.
Truvada Approved for PrEP in Adolescents

- **May 2018** FDA approved use of Truvada in adolescents.

- Truvada for PrEP is now indicated in combination with safer sex practices to reduce the risk of sexually acquired HIV-1 in at-risk adults and adolescents **weighing at least 35 kg/ 77lb.**
PrEP Basics

- Indications for PrEP:
  - Has partner(s) known to be HIV-1 infected, or
  - Engages in sexual activity within a high prevalence area or social network and one or more of the following:
    - Inconsistent or no condom use
    - Diagnosis of sexually transmitted infections
    - Exchange of sex for commodities (such as money, shelter, food, or drugs)
    - Use of illicit drugs, alcohol dependence
    - Incarceration
    - Partner(s) of unknown HIV-1 status with any of the factors listed above
PrEP Basics

- Screen for HBV infection/immunity
- Must have Creatinine Clearance > 60 ml/min
- Must have negative HIV test
- STI, HIV and renal screening every 3 months.
- Adherence = Efficacy
- May be taken with or without food
- Takes 1 week of use for protection in rectal tissue; 3 weeks for protection in oral, penile and vaginal tissues.
Connecting to Services

- Initiate or refer patients to appropriate treatment
- Help identify support services, if needed
- Refer patients to partner services
- Report an HIV-positive case per local or state laws
- Reference the National HIV/AIDS Clinician’s Consultation Center for any questions you have (http://nccc.ucsf.edu)

National HIV/AIDS Clinicians’ Consultation Center (NCCC)

- NCCC: [http://nccc.ucsf.edu](http://nccc.ucsf.edu)
- Warmline: 1-800-933-3413
  - National HIV Telephone Consultation Service
  - All aspects of HIV testing and clinical care
- PEPline: 1-888-448-4911
  - National Clinicians’ Post-Exposure Prophylaxis Hotline
  - Occupational HIV and hepatitis B & C exposures
- Perinatal Hotline: 1-888-448-8765
  - National Perinatal HIV Consultation and Referral Service
  - Advice on preventing mother-to-child transmission of HIV
HIV e-Inquiry Service

- Launched June 2012
- Provides e-mail response to HIV testing and linkage-to-care questions
  - Daily (weekday) review of inquiries
  - Same-day response to urgent/emergent inquiries
  - Two-business-day response for most inquiries
  - HIVtesting@nccc.ucsf.edu
State HIV Testing Laws

- NCCC Compendium of State HIV Testing Laws:
  - http://nccc.ucsf.edu

- Describes key state HIV testing laws and policies

- Compendium designed to help clinicians understand HIV testing laws and to implement sound HIV testing policies

HIV Screening. Standard Care™

- A program developed to help physicians establish HIV screening as a routine part of medical care
HIV Screening. Standard Care™

- Free materials for providers
  - Annotated Guide to CDC Recommendations
  - Resource Guide
  - AMA/AAHIVM CPT Coding Guide
  - ACP Guidance Statements
  - National HIV/AIDS Clinicians Consultation Center Flyer

- Free patient materials (available in English and Spanish)
  - Brochure
  - Poster

Linkage to Care
Find HIV Providers in Your Area

- AAHIVM - Referral Link
  - http://www.aahivm.org

- HIVMA Provider Directory
  - https://www.hivma.org/cvweb/cgi-bin/memberdll.dll/OpenPage?WRP=hivma_member_search.htm&wmt=none

- HealthFinder.gov
  - http://www.healthfinder.gov
Discussion

What factors should you consider when deciding whether to offer an HIV test?

1. Race/ethnicity
2. Sexual orientation
3. Relationship status
4. All of the above
5. None of the above
Conclusions

- If you’re human, are 13+ years old, you’ve had sex and/or have come in contact with someone else’s blood you should be screened for HIV.

- Persons at increased risk of acquiring HIV should consider and be offered PrEP (Pre-Exposure Prophylaxis) for HIV. (ALL PRIMARY CARE PROVIDERS SHOULD LEARN ABOUT PrEP.)

- Undetectable = Untransmittable. Early detection and treatment of HIV not only spares the individual extra morbidity and increased mortality, it decreases the risk of transmission to others and decreases your community’s viral load.

- ICD 10 Codes for HIV Testing: Z11.4, Z72.5(1,2,3)
Thank you!