Finding the Positives: Routine HIV Testing and Prevention

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ADOLESCENT INITIATIVE PROGRAM
Doctors, nurses, and health care systems can test patients for HIV as a regular part of medical care.
Objectives

• Understand the on-going HIV epidemic
• Increase understanding of Routine HIV Testing
• Understand HIV infection and importance of early detection and treatment
• Highlight promising practices in implementing HIV testing
EPIDEMIOLOGY
HIV is not over

In the US
• 40,000 new infections per year
• 1.2 million people living with HIV

Worldwide
• 2 million new infections per year
• 37 million people living with HIV

CDC, 2015
HIV Prevalence and Incidence

- People living with HIV
- New HIV infections using back-calculation methodology
- New HIV infections using incidence surveillance methodology
- New HIV infections using updated incidence surveillance methodology

This trend continues.....2014...

Source: CDC, 2016
Rates of Diagnoses of HIV Infection Among Adults and Adolescents, by Area of Residence, 2014 — United States and 6 Dependent Areas
N = 44,608

Notes: Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. Estimated numbers resulted from statistical adjustment that accounted for reporting delays, but not for incomplete reporting.
Inset maps not to scale. Map colors based on www.colorbrewer2.org
Pennsylvania Rates of Persons Living with Diagnosed HIV, 2013
Diagnoses of HIV Infection among Adults and Adolescents, by Sex, 2010–2014—United States and 6 Dependent Areas

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.
Diagnoses of HIV Infection among Adults and Adolescents, by Transmission Category, 2010–2014—United States and 6 Dependent Areas

Note: Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing transmission category, but not for incomplete reporting.

a Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

b Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.
Rates of Diagnoses of HIV Infection among Adults and Adolescents, by Age at Diagnosis, 2010–2014—United States

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.
Diagnoses of HIV Infection among Adults and Adolescents, by Race/Ethnicity, 2010–2014—United States and 6 Dependent Areas

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

*a Hispanics/Latinos can be of any race.
Lifetime Risk* of an HIV Diagnosis by Risk Group

- MSM: 6
- Female PWID: 23
- Male PWID: 36
- Female heterosexual: 241
- Male heterosexual: 473

*from age 13 years
MSM = men who have sex with men, PWID = people who inject drugs

Source: Hess et. al., CROI 2016
### Lifetime Risk* of an HIV Diagnosis among MSM

<table>
<thead>
<tr>
<th></th>
<th>“One in n”</th>
<th>95% CI</th>
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<tbody>
<tr>
<td>MSM</td>
<td>6</td>
<td>6-6</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>12</td>
<td>11-13</td>
</tr>
<tr>
<td>Asian</td>
<td>14</td>
<td>13-14</td>
</tr>
<tr>
<td>Black/African American</td>
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<td>2-2</td>
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<td>Hispanic/Latino</td>
<td>4</td>
<td>4-5</td>
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<tr>
<td>Native Hawaiian/other Pacific Islander</td>
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<td>4-7</td>
</tr>
<tr>
<td>White</td>
<td>11</td>
<td>10-11</td>
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</tbody>
</table>

*from age 13 years
MSM = men who have sex with men

Source: Hess et. al., CROI 2016
Complacency & Denial
High Risk Behavior
Stigma & Stigmatization
Access to Care
Immune Function
Co-morbidities & Co-infections
Poverty
Sexism & Gender inequality
Stigmatization
Lack of Knowledge
Complacency & Denial
HIV
Homophobia & Transphobia
Discrimination
Co-morbidities & Co-infections
Source: CFAR, Univ of Penn, 2016
HIV ROUTINE SCREENING
Case #1

• Samuel is a 32 year-old male who comes to you for an initial PCP appointment
• No significant past medical history
• Employed as a service rep for a major financial services company
• Drinks socially, does not smoke
• Denies illicit drug use
• States that he is single
Case # 1

• Based on current guidelines would you recommend HIV testing for Samuel?
  • A. Yes, all adults should be screened for HIV
  • B. No, prevalence of HIV in my area is low, so we do not test our patients
  • C. No, based on his history he has no risk factors, so he is not a candidate for testing
  • D. I would only test him if he requested it.
  • E. No, HIV testing is not available at my practice.
Case #1

• You ask Sammy if he has sex
• He does
• You ask him if he has sex with men, women, or both
• He says yes
Recommendations
Adults and Adolescents

• Routine, voluntary HIV screening for all persons 13-64 in health care settings, not based on risk

• All patients with TB or seeking treatment for STDs should be screened for HIV

• Repeat HIV screening of persons with known risk at least annually

Source: CDC, 2016
Recommendations
Adults and Adolescents

• Opt-out HIV screening with the opportunity to ask questions and the option to decline testing
• Separate signed informed consent should not be required
• PA no longer requires pre- and post-test counseling

Source: CDC, 2016
Recommendations
Pregnant Women

• Universal opt-out HIV screening during each pregnancy
  – Include HIV in routine panel of prenatal screening tests
  – Consent for prenatal care includes HIV testing
  – Notification and option to decline testing

• Second test in 3rd trimester for pregnant women:
  – Known to be at risk for HIV
  – In jurisdictions with elevated HIV incidence
  – In high HIV prevalence health care facilities

Source: CDC, 2016
American Academy of Pediatrics

- American Academy of Pediatrics, 2011
- Routine HIV screening to all adolescents at least once by 16-18 years of age (when HIV prevalence > 0.1%)
- EDs and urgent care facilities in high-prevalence areas should implement routine HIV testing
USPSTF

• GRADE A: Screen for HIV infection in adolescents and adults aged 15 to 65 years
• Younger adolescents and older adults who are at increased risk should also be screened
• Screen all pregnant women for HIV, including those who present in labor who are untested and whose HIV status is unknown
• Less specific about screening intervals
Criteria for Preventive Screening

• Serious health disorder that can be detected before symptoms develop
• Treatment is more beneficial when begun before symptoms develop
• Reliable, inexpensive, acceptable screening test
• Costs of screening are reasonable in relation to anticipated benefits
Case Study #2

- Elena is 17 years old and presents to her PCP for a driver’s permit physical
- She comes to the appointment with her mom, but she asks to be seen alone
- She is a junior in high school and has a boyfriend
- She started having sex a year ago. They use condoms most of the time
- She was treated for chlamydia last year
- She has never had an HIV test
Case Study #2

• You send a 4th generation HIV ag/ab combo test to the lab and comes back reactive, with a Multi-spot reactive for HIV-1

• You contact the patient on her cell phone and ask her to come back to clinic
HIV LABORATORY TESTS
CDC's new recommendations for HIV testing in laboratories capitalize on the latest available technologies to help diagnose HIV infections earlier – as much as 3-4 weeks sooner than the previous testing approach. Early diagnosis is critical since many new infections are transmitted by people in the earliest ("acute") stage of infection.

By putting the latest testing technology to work in laboratories across the United States, we can help address a critical gap in the nation's HIV prevention efforts.

**Step 1:** "Fourth generation" HIV test
*Detecting HIV sooner*

Detects HIV in the blood earlier than previously recommended antibody tests by identifying the HIV-1 p24 antigen, a viral protein which appears in the blood sooner than antibodies.

**Step 2:** HIV-1/HIV-2 antibody differentiation immunoassay
*Diagnosing HIV-1 vs. HIV-2*

Produces results faster than the previously recommended Western Blot.

Distinguishes between HIV-1 and HIV-2, which the previously recommended Western Blot cannot do – this distinction can have important treatment implications for a patient.

**Step 3:** Nucleic Acid Test (NAT)
*Acute HIV-1 infection or "false positive"?*

Ensures accurate detection of early infection or indicates a false positive from the fourth generation test.

This graphic is designed to illustrate key concepts of the new testing approach in laboratories. For more detail, please see the full guidelines here: http://www.cdc.gov/hiv/pdf/HIVtestingAlgorithmRecommendation-Final.pdf.
Case #3

• Al is a 21 year old male seen by his PCP
• HPI: Sore throat and fever x 2 days
• On PE:
  – Cervical lymphadenopathy
  – 101 temp
  – Erythematous tonsils
• Rapid strep negative. You send a throat culture
• Sent home with symptomatic management
  – Fluids, NSAIDs, warm salt water gargle
Case #3

- Al does not feel better and goes to the ED
- He has now had a worsening sore throat and fever x 4 days
- CRNP reviews his history in the EMR
  - Seen by his PCP 2 days ago
  - Psychosocial history 1 year ago said he identified as gay
  - Was tested for urine gc/ct
  - Said he only had oral sex
- Throat culture from PCP is negative
- Sent an oral gc/ct, HIV 4th generation test sent in the ED
Case #3

- HIV 4th generation Ag/Ab combo repeatedly reactive, multi-spot indeterminate, NAT is positive. HIV RNA viral load 1,456,876
- Pt is contacted by the ER and asked to come back in for results
- ER calls Action AIDS and asks for support
- Immediately connected to HIV care and seen the following week
Main symptoms of Acute HIV infection

Systemic:
- Fever
- Weight loss

Central:
- Malaise
- Headache
- Neuropathy

Pharyngitis

Mouth:
- Sores
- Thrush

Esophagus:
- Sores

Muscles:
- Myalgia

Liver and spleen:
- Enlargement

Lymph nodes:
- Lymphadenopathy

Skin:
- Rash

Gastric:
- Nausea
- Vomiting
Early Identification and Early Treatment

• Early diagnosis of HIV infection leads to better outcomes

• Patients who are diagnosed and treated earlier have a slower progression to AIDS and are more likely to restore immunologic function
  – 33% of the newly diagnosed are “late testers” with an AIDS diagnosis within one year

Source: CDC, MMWR, 2012
TREATMENT IS PREVENTION

A scientific breakthrough in 2011 showed that HIV treatment not only saves lives, but reduces the risk by 96% of transmitting the disease.
WE AREN’T TESTING ENOUGH
HIV Care Continuum

There is an urgent need to reach more people with testing and make sure people living with HIV receive prompt, ongoing care and treatment.

PERCENT OF ALL PEOPLE LIVING WITH HIV

- Diagnosed: 86%
- Engaged in Care: 40%
- Prescribed ART*: 37%
- Virally Suppressed: 30%

*Antiretroviral therapy


www.cdc.gov/vitalsigns/HIV-AIDS-medical-care
Youth Continuum of HIV Care

Source: Zanoni & Mayer, 2014
Percentage of Sexually Experienced Students* Ever Tested for HIV, Overall and by Race/Ethnicity & Gender, 2005–2013

Source: Handel, & Kahn, 2016
Barriers

• Competing priorities
• Stigma
• Provider concerns
• Not enough time
• Confidentiality
WHAT HAS WORKED?
Public Health Management Corporation Routine HIV Screening

- Simplified goal to “screen all patients who are 13 years of age or older once per year”
- Medical Assistant initiated opt-out testing
- EMR Modifications
  - Screens for eligibility for testing and linkage services
PHMC Model

• Clinical staff buy-in increased dramatically once the first positive test occurred
• The first people newly diagnosed as HIV positive through this program were existing health center patients

Coyle & KwaKwa, 2016
Nurse Led HIV Screening

• Nurse-initiated HIV testing has been associated with greater receipt of HIV testing than physician-initiated testing in Veterans Affair primary care settings

Source: Chan& Hernandez, 2014
Lab test or rapid test?
FOLLOW-UP
Communicating HIV Test Results

• Positive HIV test results should be communicated confidentially, through personal contact
  – Friends or family members should not be used as interpreters
  – Patients should be linked to clinical care, counseling, support, prevention services
Linkage to Care

• Giving the positive result is only the first step
  – Newly diagnosed people might be in denial and may be difficult to contact
  – Testing provider is responsible for ensuring linkage to care
  – People who are engaged in care soon after diagnosis have a higher rate of remaining engaged in care
PREVENTION
Case Study #4

- 18 year old male came in for his routine adolescent exam
- He has no STD symptoms
- Tells you he had unprotected receptive anal sex
- He is tested for gonorrhea and chlamydia in 3 sites and positive for rectal gonorrhea.
- He comes back for treatment and is referred for prevention counseling including PrEP
iCondom

Find Nearest

Add New
PrEP

- PrEP is recommended as a part of comprehensive HIV prevention services for high-risk individuals, including:
  - Condoms
  - Risk-reduction
  - Adherence counseling
  - STI diagnosis and treatment

- Recommended by:
  - CDC
  - WHO
  - International AIDS Society
Pre- Exposure Prophylaxis or PrEP

• Daily oral PrEP with Truvada has been shown to be safe and effective in reducing the risk of sexual HIV acquisition in adults

• Currently the data on the efficacy and safety of PrEP for adolescents are insufficient
Four Scenarios of the Potential Impact of Expanded HIV Testing, Treatment and PrEP in the United States, 2015-2020

- **New infections**
- **HIV infections prevented due to expanded testing and treatment**
- **HIV infections prevented due to PrEP (assumes PrEP use among high-risk populations = 40% MSM; 10% PWID; 10% HET)**

Source: Centers for Disease Control and Prevention
THERE IS HOPE...
Trends in Death among Persons 25–44 Years Old, United States, 1987–2013

- Unintentional injury
- Cancer
- Heart disease
- Suicide
- Homicide
- Chronic liver disease
- Diabetes
- Stroke
- HIV infection

Deaths per 100,000 population

Years 1987-2013

CDC logo
Estimated Number of Perinatally Acquired AIDS Cases, by Year of Diagnosis, 1985-2005 – United States

- CDC HIV Testing Recs
- PACTG 076 & USPHS ZDV Recs

~95% reduction

Year of diagnosis

Number of cases
Diagnoses of Perinatally Acquired HIV Infection among Children Born During 2012—United States and 6 Dependent Areas

N = 120

Note: Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.
Summary: What can you do?

• Order an HIV test
• Test as part of routine care
• Don’t forget to keep acute or undiagnosed HIV infection on the differential
• Provide safer sex education and STD screening according to sexual behaviors
• Be prepared to give positive results
References


• Emmanuel PJ, Martinez J; Committee on Pediatric AIDS. Adolescents and HIV infection: the pediatrician’s role in promoting routine testing. Pediatrics. 2011;128(5):1023–1029


