Preventing HIV in Utah

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Disclosure: I have no conflicts of interest
Outline

• Background: A very brief history of HIV infection
• Screening for HIV
• How to Prevent HIV
• Post-Exposure Prophylaxis
• Pre-Exposure Prophylaxis
• Resources
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• Resources
1995: introduction of combination antiretroviral therapy (ART)

**Trends in Annual Age-Adjusted Rate of Death Due to HIV Infection, United States, 1987–2013**

**Note:** For comparison with data for 1999 and later years, data for 1987–95 are for ICD-9 codes instead of ICD-10 codes.

*Standard: age distribution of 1990 US population*

**Antiretroviral therapy for HIV infection**

*In the 1990s*
- Up to 20 pills daily, taken at different intervals throughout the day

*Today*
- As little as 1 pill per day, delivering multiple drugs

#35YearsOfAIDS
WHO HIV-1 Treatment Statistics

- 36.7 million people infected worldwide
- 18.2 million people are receiving ART as of June 2016 (50%)
- 1.8 million incident infections and one million deaths in 2016

Even with expansion of ART rollout, we are unlikely to treat our way out of the HIV-1 epidemic...

**Priorities:**
1. Test everyone for HIV, get everyone living with HIV on ART
2. Explore barriers to cure
3. Scale up prevention efforts
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HIV Diagnostic Testing

• Serial combination testing for detection of HIV antibodies and p24 viral antigen

• A two-part serologic diagnostic test – one of the most accurate tests in modern medicine

• **ELISA** is highly sensitive [99.5%] Am J Med 2000;109:568
• **Antibody immuno-assay** is highly specific [>99%]

• HIV antibodies are detectable within 3 weeks of primary infection and remain detectable for life
Who Should Get Screened?

- All patients in all health-care settings

- Persons at high risk for HIV infection should be screened for HIV at least annually

- HIV screening should be included in the routine panel of prenatal screening tests for all pregnant women

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5514a1.htm
Are We Screening for HIV?

• Nationally 54% of adults have ever been tested for HIV

• 25.6% adults (age 18-64) in Utah have ever been tested for HIV
  • 28.4% Salt Lake County
  • 17.9% and 17.6% Utah county and Bear River County

• Utah ranks last nationwide (50th out of 50) in HIV screening

CDC Behavioral Risk Factor Surveillance System (BRFSS) 2013-2016 Survey Results
HIV Testing in Adolescents in Utah

• Susana Keeshin M.D. surveyed Utah PCPs who care for adolescent and young adult patients (ages 15-24)

• n = 106 respondents

• Slightly over half felt comfortable screening for HIV

• 75% familiar with CDC screening guidelines

• 16% reported always or often screening youth

Survey results courtesy of Susana Keeshin M.D.
### Why are UT PCPs not Testing for HIV?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>My patient panel is not sexually active</td>
<td>79%</td>
</tr>
<tr>
<td>Low prevalence of HIV</td>
<td>79%</td>
</tr>
<tr>
<td>Uncomfortable taking a sexual history</td>
<td>61%</td>
</tr>
<tr>
<td>Not medically indicated</td>
<td>54%</td>
</tr>
<tr>
<td>Uncomfortable giving positive results</td>
<td>47%</td>
</tr>
<tr>
<td>Need for written consent</td>
<td>30%</td>
</tr>
<tr>
<td>Need for pre-test counseling</td>
<td>23%</td>
</tr>
<tr>
<td>Not a high priority</td>
<td>19%</td>
</tr>
<tr>
<td>Hard to arrange follow-up for positive results</td>
<td>16%</td>
</tr>
<tr>
<td>Patient can’t afford test</td>
<td>2%</td>
</tr>
<tr>
<td>Not enough time</td>
<td>2%</td>
</tr>
<tr>
<td>Concern for false positive results</td>
<td>2%</td>
</tr>
</tbody>
</table>

Survey results courtesy of Susana Keeshin M.D.
HIV in Utah

- HIV incidence in Utah remains **unchanged** over last decade
- New HIV cases are concentrated:
  - demographically among young men
  - geographically along Wasatch front

Source: 2016 Utah Department of Health HIV Annual Surveillance Report
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• **How to Prevent HIV**
  • Post-Exposure Prophylaxis
  • Pre-Exposure Prophylaxis
• Resources
HIV Prevention Timeline

1994
Mother to Child Transmission (PMTCT)

1997
Post Exposure Prophylaxis (PEP)

2005
Non-Occupational Post Exposure Prophylaxis (nPEP)

2011
Treatment as Prevention (HPTN 052)

2012
FDA approves FTC/TDF (PrEP)

Slide courtesy of Susana Keeshin M.D.
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Occupational Exposures (PEP)

- Risk is roughly 3/1000 (0.3%) for healthcare–related percutaneous injury from HIV+ source patient
- Testing source patient for HIV is critical
- PEP should be initiated ASAP (ideally within 72 hours)
- Currently recommended PEP regimen is TDF / FTC (Truvada) + either DTG or RAL for four week duration
  - DTG is potentially teratogenic; avoid in pregnancy
- Baseline and follow up testing for HBV and HCV are recommended
- Follow up HIV screening at 6 weeks, 4 months (4th gen testing) or 6 months (3rd gen or earlier testing)

Non-Occupational Exposures (nPEP)

- Major risks for HIV = condomless anal or vaginal intercourse, percutaneous exposure to blood
- nPEP should only be initiated within 72 hours of exposure
- Recommended nPEP regimen is TDF / FTC (Truvada) + either DTG or RAL for four week duration
  - DTG is potentially teratogenic; avoid in pregnancy
- Baseline and follow up testing for HBV and HCV are recommended
- Follow up HIV screening at 6 weeks, 3 months and 6 months

Table 1. Estimated per-act risk for acquiring human immunodeficiency virus (HIV) from an infected source, by exposure act

<table>
<thead>
<tr>
<th>Exposure type</th>
<th>Rate for HIV acquisition per 10,000 exposures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parenteral</td>
<td></td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>9,250</td>
</tr>
<tr>
<td>Needle sharing during injection drug use</td>
<td>63</td>
</tr>
<tr>
<td>Percutaneous (needlestick)</td>
<td>23</td>
</tr>
<tr>
<td>Sexual</td>
<td></td>
</tr>
<tr>
<td>Receptive anal intercourse</td>
<td>138</td>
</tr>
<tr>
<td>Receptive penile-vaginal intercourse</td>
<td>8</td>
</tr>
<tr>
<td>Insertive anal intercourse</td>
<td>11</td>
</tr>
<tr>
<td>Insertive penile-vaginal intercourse</td>
<td>4</td>
</tr>
<tr>
<td>Receptive oral intercourse</td>
<td>Low</td>
</tr>
<tr>
<td>Insertive oral intercourse</td>
<td>Low</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Biting</td>
<td>Negligible</td>
</tr>
<tr>
<td>Spitting</td>
<td>Negligible</td>
</tr>
<tr>
<td>Throwing body fluids (including semen or saliva)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Sharing sex toys</td>
<td>Negligible</td>
</tr>
</tbody>
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Pre-Exposure Prophylaxis

• What is PrEP?
  • ART administration in high-risk HIV-negative individuals to prevent infection

• Who should be prescribed PrEP?
  • Pts with high-risk sexual exposure and/or active IDU

• Managing patients on PrEP
  • Currently only one FDA-approved regimen (FTC / TDF; aka Truvada)
  • Baseline and q3 month STI / HIV testing
  • Nephrotoxicity is possible (screen in pts at risk)
# The Evidence for PrEP

<table>
<thead>
<tr>
<th>Trial</th>
<th>Population</th>
<th>Randomized (N)</th>
<th>Intervention</th>
<th>Efficacy (M-ITT)</th>
<th>Efficacy by detected drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPrEx</td>
<td>Adult MSM at high risk</td>
<td>2,499</td>
<td>Daily oral TDF/FTC vs Placebo</td>
<td>44%</td>
<td>92%</td>
</tr>
<tr>
<td>Partners PrEP</td>
<td>Heterosexual serodiscordant couples</td>
<td>4,758</td>
<td>Daily oral TDF Or TDF/FTC vs Placebo</td>
<td>75%</td>
<td>90%</td>
</tr>
<tr>
<td>Bangkok TDF Study</td>
<td>PWID</td>
<td>2,413</td>
<td>Daily oral TDF vs. Placebo</td>
<td>49%</td>
<td>74%</td>
</tr>
</tbody>
</table>

- Randomized, prospective, placebo-controlled clinical trials
- Powered to show at least 30% efficacy (standard threshold in HIV vaccine and microbicide trials)
- Risk-reduction counseling, contraception counseling and referral for circumcision (for Partners PrEP), condoms, treatment of symptomatic STIs and HIV-1 testing provided at every visit

Slide courtesy of Susana Keeshin M.D.
### How About PrEP IRL?

<table>
<thead>
<tr>
<th>Trial</th>
<th>Population</th>
<th>Randomization (n)</th>
<th>Intervention</th>
<th>Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROUD(^1)</td>
<td>High risk MSM</td>
<td>544</td>
<td>Daily TDF/FTC Immediate vs. deferred PrEP</td>
<td>86%</td>
</tr>
<tr>
<td>Ipergay(^2)</td>
<td>High risk MSM</td>
<td>414</td>
<td>On demand TDF/FTC vs. placebo</td>
<td>86%</td>
</tr>
<tr>
<td>Partners Demonstration Project(^3)</td>
<td>Serodiscordant Heterosexual Couples</td>
<td>858 (thus far)</td>
<td>Daily TDF/FTC offered for 6 months while HIV+ partner on ARVT</td>
<td>96%</td>
</tr>
<tr>
<td>Kaiser(^4)</td>
<td>1,045 PrEP referrals</td>
<td>657</td>
<td>TDF/FTC</td>
<td>100% (over 32 months)</td>
</tr>
</tbody>
</table>

2. NEJM 2015;373:1127-2246
3. CROI 2015 abstract 24
4. CID 2015:61(10):1601-1603

Slide courtesy of Susana Keeshin M.D.
How to Prescribe PrEP...

Every Visit

• Discussion of sexual health and risk
• Review side effects of FTC/TDF
• Review adherence
  • How many doses have you missed this week? This month? Why?
• Review acute HIV symptoms
• Review discontinuation with patient
  • Changed life situation
• Offer condoms

Baseline Laboratory Testing

• HIV (4th generation testing)
• Renal function
  • Document creatinine
  • Consider UA in those with known or at risk proteinuria
  • Document LFTs especially in those at risk/known chronic hepatitis
• Hepatitis B and C screening
• Pregnancy test
• STI testing (RPR, GC/CT)

How to Prescribe PrEP...

Every PrEP visit (q3 months)

- HIV testing (4th gen Ab/Ag testing)
- Creatinine (for patients with risk factors for renal disease)
- Pregnancy testing
- Evaluate and support adherence
- STI screening (if requested or symptomatic)

Every other PrEP visit (q6 months)

- STI screening (even if asymptomatic)
- Creatinine in all patients
- UA for patients with risk factors for renal disease

You can prevent the spread of HIV infection right now. Who do you want to treat?
SLC: PrEP is free

• A united campaign to prevent new HIV infections in Utah
• We provide sexual health counseling, STD testing and treatment, HIV all free-of-charge for at-risk individuals without health insurance coverage
• Collaborating partners: University of Utah Health, Utah AIDS Foundation, The Utah Pride Center, Equality Utah, Comunidades Unidas, Encircle, ARUP, Salt Lake County Health Department, Utah Department of Health
• We plan to expand in several areas:
  • Additional HIV Prevention clinic times and locations
  • A mobile clinic (similar to the U of Utah Wellness Bus) providing HIV preventive services free of charge throughout the state
  • Tele-prevention – both provider-to-provider and provider-to-patient services
  • Inter-professional and community education and outreach
  • Investigator-sponsored research through Gilead to trial rapid-start PrEP
• Together, we can make HIV HISTORY in Utah!
Community Partners...
New free clinic in SLC provides preventive HIV care

By: Andrew Reeser

Posted: Mar 21, 2018 9:45 PM MDT
Updated: Mar 23, 2018 06:50 PM MDT
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## Resources

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<tr>
<td>CDC PrEP website</td>
<td>cdc.gov/hiv/risk/prep/index.html</td>
</tr>
<tr>
<td>Post Exposure Prophylaxis</td>
<td><a href="https://aidsinfo.nih.gov/guidelines">https://aidsinfo.nih.gov/guidelines</a></td>
</tr>
<tr>
<td>Free PrEP in Utah</td>
<td><a href="http://www.slcprepisfree.org">www.slcprepisfree.org</a></td>
</tr>
<tr>
<td>US HIV Statistics</td>
<td>aidsvu.org</td>
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Questions, comments, ideas: adam.spivak@hsc.utah.edu