WOMEN, GIRLS & HIV: RACE MATTERS

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HIV Prevention Clinical Research

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Outline

• Overview of HIV Epidemic
  – Global epidemic and women and girls
  – Scale-up of ART, 90-90-90
  – US epidemic and racial disparities

• Prevention Research Updates
  • Microbicides and adherence
  • Intravaginal rings
  • Injectable PrEP
  • Vaccines: neutralizing antibodies
Global HIV epidemic
Global Estimates of People Living with HIV/AIDS 1990-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>In Millions</th>
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<tbody>
<tr>
<td>1990</td>
<td>9.0</td>
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<tr>
<td>1995</td>
<td>19.3</td>
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<tr>
<td>2000</td>
<td>28.6</td>
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<td>2005</td>
<td>32.0</td>
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<tr>
<td>2010</td>
<td>34.4</td>
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<td>2014</td>
<td>36.9</td>
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Estimated number of adults and children newly infected with HIV | 2014

Global total = 2 million in 2014
Almost 6000 new infections per day
½ in women and ⅓ in youth, age 15-24 y
Women as Share of People Living with HIV by Region, 2014

- Global: 51%
- Sub-Saharan Africa: 59%
- Caribbean: 50%
- Eastern Europe and Central Asia: 40%
- Asia and the Pacific: 35%
- Latin America: 34%
- Middle East and North Africa: 33%
- Western and Central Europe and North America: 22%
HIV estimates: Transgender women

• Global
  – 19% prevalence, almost 50 x higher than general population
    • Based on a summary of 39 studies (2000-2011) in 19 countries

Adapted from Poteat 2016
Global Scale-up of HIV Treatment

Number receiving ART

- 15 million
- 10 million
- 5 million

Adapted from: Global AIDS Response Progress Reporting (WHO/UNICEF/UNAIDS)
Snapshot of the Global Epidemic

36.9 million

People Living with HIV/AIDS

New Infections

Deaths

Percent on ARVs*

Percent w/ HIV Who Don't Know They're Infected

2.0 mil

1.2 mil

40%

46%

*Of people living with HIV.

SOURCES: UNAIDS, How AIDS Changed Everything; 2015.
Race to the End
HIV Treatment-- Global Targets By 2020

90% of all people living with HIV will know their HIV status.

90% of all people diagnosed with HIV will receive sustained antiretroviral therapy.

90% of all people receiving antiretroviral therapy will have durable suppression.

UNAIDS 2014
US HIV epidemic
Reported AIDS Cases By Metropolitan Area

Number of Women & Girls Estimated to be Living with an HIV Diagnosis, Top 10 States, year-end 2010

New York: 39,927
Florida: 28,726
Texas: 14,271
California: 13,510
New Jersey: 12,229
Maryland: 10,888
Pennsylvania: 9,085
Georgia: 8,707
North Carolina: 7,292
Illinois: 6,971

NOTES: Data are estimates for adults/adolescents ages 13 and older in all 50 states, the District of Columbia, and Puerto Rico. SOURCE: CDC, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention Atlas.
Diagnoses of HIV Infection and Population among Adult and Adolescent Females, by Race/Ethnicity 2014, USA

Diagnoses of HIV Infection
N = 8,328

- 16% American Indian/Alaska Native
- 18% Asian
- 62% Black/African American
- 2% Hispanic/Latinoa
- 1% Native Hawaiian/other Pacific Islander
- <1% White
- <1% Multiple races

Female Population, United States
N = 136,147,401

- 6% American Indian/Alaska Native
- 13% Asian
- 15% Black/African American
- 64% Hispanic/Latinoa
- 1% Native Hawaiian/other Pacific Islander
- <1% White
- <1% Multiple races
HIV Diagnosis by Race/Ethnicity, 2005-2014

- American Indian/Alaska Native
- Asian American
- Black/African American
- Hispanic/Latino
- Native Hawaiian/Other Pacific Islander
- White
- Multiple races
HIV Diagnosis among Women by Race/Ethnicity, 2005-2014
HIV estimates: Transgender women

• Global
  – 19% prevalence, almost 50 x higher than general population
    • Based on a summary of 39 studies (2000-2011) in 19 countries

• US
  – 22% prevalence, highest in transwomen of color

Adapted from Poteat 2016
Persons Living with Diagnosed or Undiagnosed HIV Infection
United States and Puerto Rico

National HIV Surveillance System; Estimated number of persons aged ≥13 years living with diagnosed or undiagnosed HIV infection (prevalence) in the United States at the end of the specified year. The estimated number of persons with diagnosed HIV infection was calculated as part of the overall prevalence estimate.

Medical Monitoring Project: Estimated number of persons aged ≥18 years who received HIV medical care during January to April of the specified year, were prescribed ART, or whose most recent VL in the previous year was undetectable or <200 copies/mL—United States and Puerto Rico.
Differences in HIV Care and Treatment by Race/Ethnicity in the US

- Diagnosed
- Linked to care
- Retained in care
- Prescribed ART
- Achieved viral suppression

Persons With HIV, %

- Black
- Hispanic or Latino
- White

Racial/Ethnic Group
HIV Prevention Research
Evidence-based Methods of HIV Prevention

Prevention for Negatives
• Condoms
• Male Circumcision
• PEP
• PrEP
  • Truvada once daily

Prevention for Positives
• HIV Testing
• Treatment as Prevention
Investigational Methods of HIV Prevention: Microbicides

- A substance that can reduce transmission of sexually transmitted infections (STIs), including HIV, when topically applied in the vagina or the rectum

- Gel, cream, or ring

- All microbicides are investigational at this time
CAPRISA 004
Tenofovir vaginal gel

889 women, 18-40 y in South Africa

randomized
tenofovir gel or placebo gel

Two years later:

☑️39% Protection

July 2010:
Moderate protection and no safety concerns

Coital use:
Once within 12 hours before sex and again 12 hours after sex, and no more than 2 doses in 24 hrs
First study to compare *daily* oral and vaginal PrEP

5,029 HIV-negative African women, 18-45 years of age

- September 2011: tenofovir pill arm stopped for futility
- November 2011: tenofovir and placebo gel stopped for futility
MTN-020–ASPIRE
Dapivirine Ring Study

2629 women, 18-45 y in Malawi, SA, Uganda, Zimbabwe

randomized

Dapivirine Ring or Placebo Ring

3 years later:

Feb 2016
No safety concerns

☐ 27% protection; 37% with higher adherence; 61% among women > 25 y

Dosage:
Once per month with replacement
IPM: The Ring Study
Dapivirine Ring Study

1959 women, 18-45 y in South Africa and Uganda

randomized

Dapivirine Ring or Placebo Ring

3 years later:

☑️ 31% protection; 37% among women > 21 y

Feb 2016:
No safety concerns

Dosage:
Once per month with replacement
Injectable PrEP: HTPN 076
rilpivirine (TMC278 LA) Safety Study

120 women 18-45 y in SA, Zimbabwe, Bronx, Newark

randomized

TMC278 LA  or  Placebo

1.5 years later:

Dosage:
2 injections every 8 weeks

Ongoing
Neutralizing Antibodies: VRC01

- VRC01 attaches to HIV at CD4 binding sites and prevents the virus from binding to T-cells.
HVTN 704/HTPN 085
“Antibody Mediated Prevention “ efficacy study

2700 MSM or TGPSM in US, Brazil, Peru

randomized

VRC01 (bnAb) or Placebo

Dosage:
Intravenous infusion every 8 weeks

1.5 years later:

Ongoing

- A parallel study, HVTN 703/HPTN 081, will be initiated later this year in sub-Saharan Africa and will enroll 1500 sexually active HIV-neg women
Global epidemic, ART scale-up and 90-90-90
-an opportunity to ‘race to the end’
US epidemic and race
-will ART scale-up lessen the disparities?

Prevention research
-evidence-based methods and adherence
-investigational methods: less adherence needed
-will these methods offer enough protection?
-importance of making them accessible to those who need them the most
Thank you!

More info on HIV prevention interventions and research:

www.mtnstopshiv.org
www.avac.org
www.hptn.org

Thanks to Ivy Mushamiri