Why are we here when these are 100% effective?
Overview

- Science and practice of High Impact Prevention
- State of HIV epidemic including health equity
- High Impact Prevention 2.0
- Importance of monitoring and feedback
High Impact Prevention
<table>
<thead>
<tr>
<th><strong>Prevention with Positives</strong></th>
<th><strong>Prevention with Negatives</strong></th>
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</thead>
<tbody>
<tr>
<td>HIV testing, linkage to care and prevention services</td>
<td>Behavioral risk reduction interventions and condoms</td>
</tr>
<tr>
<td>Antiretroviral therapy</td>
<td>Pre-exposure prophylaxis (PrEP)</td>
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<td>Retention in care and adherence</td>
<td>Syringe services</td>
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<td>Partner services</td>
<td>Male circumcision</td>
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<tr>
<td>Risk reduction interventions and condoms</td>
<td>STD screening and treatment</td>
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<td>Post-exposure prophylaxis</td>
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<tr>
<td>Perinatal transmission</td>
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</tbody>
</table>

**Not focused on HIV status**

- Sexual health education and social mobilization
- Condom availability
- Substance use, mental health, and social support
Combination prevention
Multiple disciplines and approaches

- Biomedical interventions
- Structural interventions
- Community interventions
- HIV testing and linkage to care
- Individual and small group interventions
Combination prevention
Multiple disciplines and approaches

Combining interventions is not enough
All interventions are not effective
All effective interventions are not equal

HIV prevention

Biomedical interventions
HIV testing and linkage to care

Structural interventions

Community interventions
Individual and small group interventions

Individual and small group Interventions
Potential interventions

Assess efficacy and effectiveness

Establish cost and cost effectiveness per infections averted and life-years saved

Determine feasibility of full scale implementation

Implement and evaluate programs

Prioritize interventions

Develop epidemic models to project impact of interventions

HIGH-IMPACT PREVENTION
Aligning resources with the epidemic
CDC funding of state and local health departments

Matching Prevention Funds to the Epidemic

When CDC’s new approach is fully implemented, HIV prevention resources will closely match the geographic burden of HIV.

1Maps do not include U.S. territories receiving CDC HIV prevention funding.
2 New funding allocation methodology will be fully implemented by FY2016; this breakdown assumes level overall funding.
Implementation of High Impact Prevention

• Program shifts:
  – Most activities focused on priority interventions
  – Doubling of jurisdictions with integrated HIV prevention and care planning
  – Increased activities with PLWHV and MSM, especially black MSM
  – Funding for HE/RR reduced from 34% to 11%
  – Focus on use of ACA and billing capacity

• About 50% of jurisdictions receive no state HIV prevention resources
Reducing disparities is good public health

- **Care and Prevention in U.S. (CAPUS)**
  - Partnership with CDC, HHS offices, HRSA, SAMHSA
  - $45M total funding over 3 years to 8 states
  - Eligible states had highest HIV burden among African Americans and Latinos, high AIDS diagnosis rates
  - Overcome social determinants that prevent people from reaching suppressed viral load
  - 25% of resources for CBOs

- **YMSM and Transgender Persons of Color**
  - $11 million annually to 34 CBOs to improve care and prevention
  - >3,000 new HIV diagnoses anticipated
Has it worked?
Selected program outcomes

• States requiring reporting CD4 counts and viral loads increased from 19 in 2011 to 42 in 2015

• Proportion of persons with HIV who know status highest ever at 87%
  – CDC resources associated with over 1/3rd of HIV diagnoses
  – CDC testing funding correlated with increase in proportion of persons tested for HIV (2.4% increase per $0.34 higher per capita funding)

• Viral suppression among persons receiving care increased from 72% in 2009 to 80% in 2013
Some indicators of success

- 2010-14, annual new HIV diagnoses decreased 9%
  - 6% reduction in men; 21% in women
  - 32% decrease in infections attributed to injection drug use
  - 2% decrease in young black MSM, following 114% increase during prior 5 years

- Proportion of persons with HIV aware of status increased, so decreases not due to less testing

- 2010-2013, 9% less mortality--seen in all race/ethnic groups
  - 2008-12, mortality among African Americans diagnosed with HIV decreased 28%
  - Hispanic/Latinos have lowest mortality among PLWH
Trends in HIV disparities

HIV Diagnoses among Women 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 Diagnoses among MSM age 13-24 by Race/Ethnicity, 2005-2014

- Black/African American
- Hispanic/Latino
- White
HIV prevalence associated with population density, poverty, education, employment, and homelessness, region of residence

For disproportionately affected populations, especially MSM and transgender persons, higher prevalence, increased sexual risk require improved coverage of ART, PrEP, education, support services

*Includes MSM/IDU; CDC surveillance report
HIV prevalence, new diagnoses, and mortality, San Francisco, 2006-2014

Average time to viral suppression reduced from 218 days (2006-9) to 132 days (2010-13)
High Impact Prevention 2.0
Antiretroviral treatment works

• START trial
  – ART at CD4 count >500 fewer severe adverse events and mortality than delaying therapy
  – 68% of primary endpoints occurred in persons with CD4>500

• ART reduces transmission of HIV by >96%

NEJM, August 27, 2015
9 of 10 new infections transmitted by HIV-infected people who are undiagnosed or diagnosed but not in medical care
Data to Care Strategy

• Using CD4 count and viral load surveillance data to identify people who are not engaged in care or not receiving optimal care
  – Never linked to care, dropped out of care
  – Persistently low CD4 count or detectable viral load

• Data are used for public health follow up
  – Continuum of Care uses aggregate data for monitoring
  – Data to Care helps people with HIV get the care, prevention, mental health, behavioral health, and social services they need

Sweeney P et al Milbank Quarterly 2013
PrEP in practice

Randomized trials
- When taken as directed, PrEP prevents >90% of sexually transmitted HIV

PrEP Demonstration Project
- 2 HIV infections with moderate adherence among MSM and transgender women

PrEP Use, Kaiser Permanent, San Francisco
- No HIV infections despite high rates of STIs, risk behavior

HIV PrEP demonstration project for YMSM
- 56% of participants had protective drug level at first visit, but adherence declined
- 4 HIV infections; all had undetectable drug levels

PrEP empowers
Prevention as healthcare – Healthcare as prevention

- How do we make HIV prevention services, including PrEP, a normative part of healthcare?
  - HIV testing as routine as cholesterol testing
  - Risk reduction as common as nutrition counseling, foot care for people with diabetes
- Ensure reimbursement systems support routine HIV prevention services within clinics and by CBOs
New activities

• Community-based organization funding
  - $216 million over 5 years; 137 organizations
  - Highly affected jurisdictions and populations
  - Support testing and continuum of care, empowering people to protect themselves, including PrEP

• State and local health department funding focused on MSM and transgender persons of color
  - 1) Improve continuum of care, PrEP, risk reduction
  - 2) Data to Care
Act Against AIDS new National Testing Campaign
What is the new generation of risk messaging?

• “Protection” is no longer restricted to condoms
• No studies have assessed effectiveness of risk reduction for HIV-negative persons incorporating ART by partner, PrEP, nPEP, male circumcision, and serosorting
• Few studies have assessed new approaches for persons with HIV and their partners
HIV Risk Reduction Tool

- User-friendly tool for different audiences of risk estimates and HIV prevention messages incorporating ART, PrEP and new prevention tools
  - Content structured to enable tailoring by user
Condom use

• In national sample, >70% of adolescents reported condom use during last sex
  - However, 22% of women and 25% of men of all ages reported condom use
  - Use more than twice as likely with casual than “relationship” partner

• Couples stop using condoms over time
  - Men and women >5 times less likely to use condom if had sex >10 times previously

• Among MSM, 68% of HIV transmission from main partner
  - Higher number of sex acts, more frequent receptive role, and lower condom use
Sexual health education

- Good sex education is a counter measure to false information

Substance abuse as risk for HIV, hepatitis, and STDs among teens

- Teens have low risk of injecting drugs—fewer than 2% inject drugs
- However, in selected states and cities that collect data, sexual minority youth rates of injection drug use up to 7 times greater than those of heterosexuals
- Many studies show alcohol and drug use associated with HIV and STD risk behavior

High Impact Program Coordination and Service Integration (HIP PCSI)

Examples

- Age-based screening for HIV and HCV using computerized clinical decision tools
- Annual STD screening of people with HIV
- STD diagnosis as potential indicator for PrEP, and provision of PrEP at STD clinics
- Integrated partner services
- HIV, HCV, and HBV screening and treatment at drug treatment centers
Molecular epidemiology
Helping with the basics

- ART resistance testing routinely performed for new diagnoses
- Reporting by 27 jurisdictions
- Allows for rapid response to outbreaks and clusters including providing needed social, prevention, treatment services to sexual and drug using networks
- Precedent with TB where 95% of all TB isolates tested and outbreaks rapidly identified
HIV and HCV in persons who inject drugs

- Indiana community of 4,300
- 184 persons with HIV
- Injecting oxymorphone
- Majority of HIV infections recently acquired; all but 2 phylogenetically linked
- Rapid response with contact tracing and testing, one-stop-shop for social services, syringe service program, HIV and HCV testing and treatment, medication-assisted therapy, educational campaign
State HIV progress report

- National goals can be achieved
  - 2015 targets have already been met by one or more states
    - In 5 states 90% or more of people living with HIV know their status, meeting the updated NHAS goal for 2020

Uneven progress

- More than half of states improved on 6 of 11 indicators
- Large disparities continue to exist
Think bigger, act faster
Achieving the prevention goals of National HIV/AIDS Strategy would avert tens of thousands of new infections and save billions of dollars

Number of HIV Infected Americans

- Stable Incidence
- Achieve goals in 10 years
- Achieve goals in 5 years

- 103,409 infections prevented, $45 billion saved in health care costs
- 291,309 infections prevented, $127 billion saved in health care costs

Unpublished CDC Data, 2015
Conclusions

• We have turned the corner on HIV, but we are far from achieving success
• Prioritizing the tools and programs that will have the greatest impact is essential
• New science, creative education, sound policy, and innovative programs can make easier, more effective choices
• Future includes integration of treatment, PrEP, molecular epidemiology, and use of data to improve programs
• Think bigger, act faster
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