

# High Impact Prevention: Science, Practice, and the Future of HIV



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Centers for Disease Control and Prevention**

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Why are we here when these are  
100% effective?



Sero-Sorting 101  
[POZ] | [NEG]

# 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

## Prevention with Positives

HIV testing, linkage to care  
and prevention services

Antiretroviral therapy

Retention in care and  
adherence

Partner services

Risk reduction interventions  
and condoms

STD screening and treatment

Perinatal transmission

## Prevention with Negatives

Behavioral risk reduction  
interventions and condoms

Pre-exposure prophylaxis  
(PrEP)

Syringe services

Male circumcision

STD screening and treatment

Post-exposure prophylaxis

## Not focused on HIV status

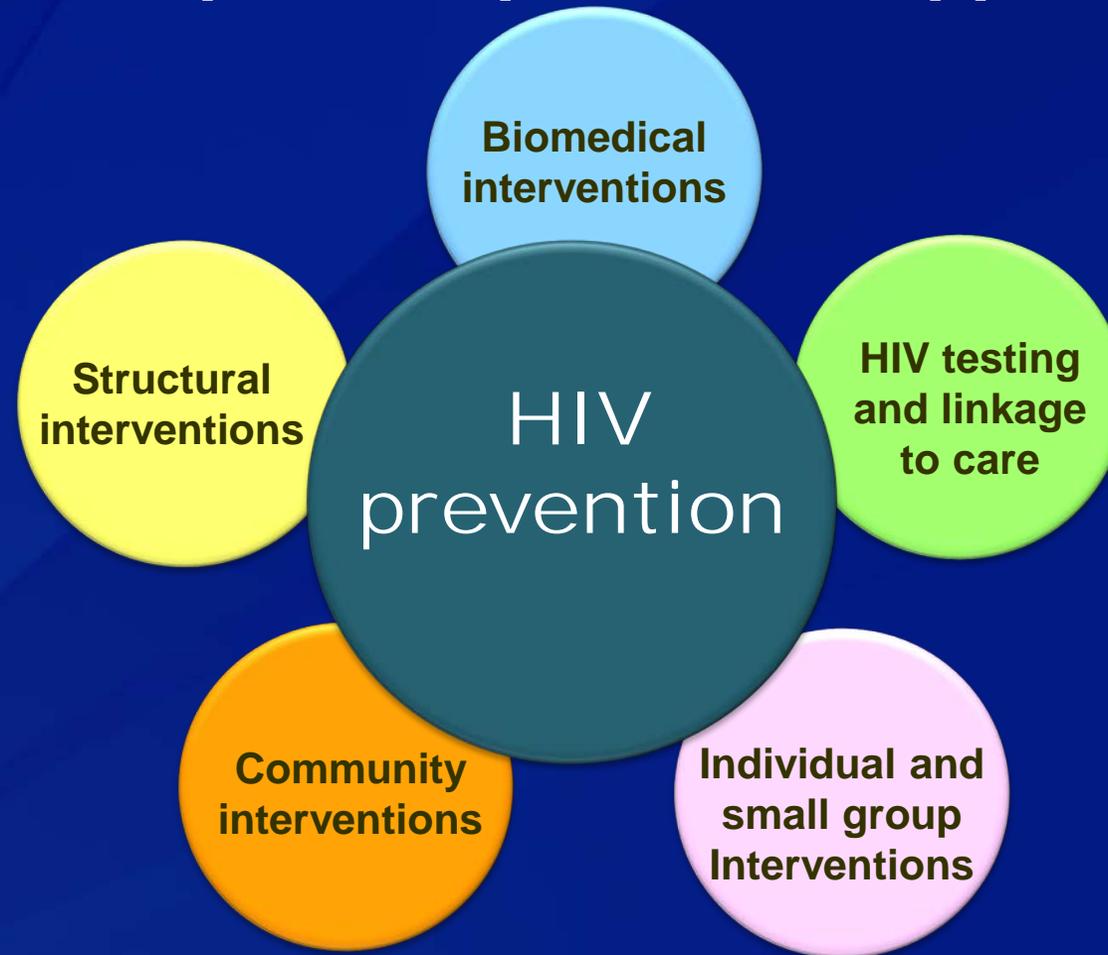
Sexual health education and social mobilization

Condom availability

Substance use, mental health, and social support

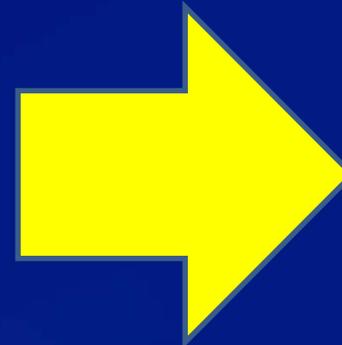
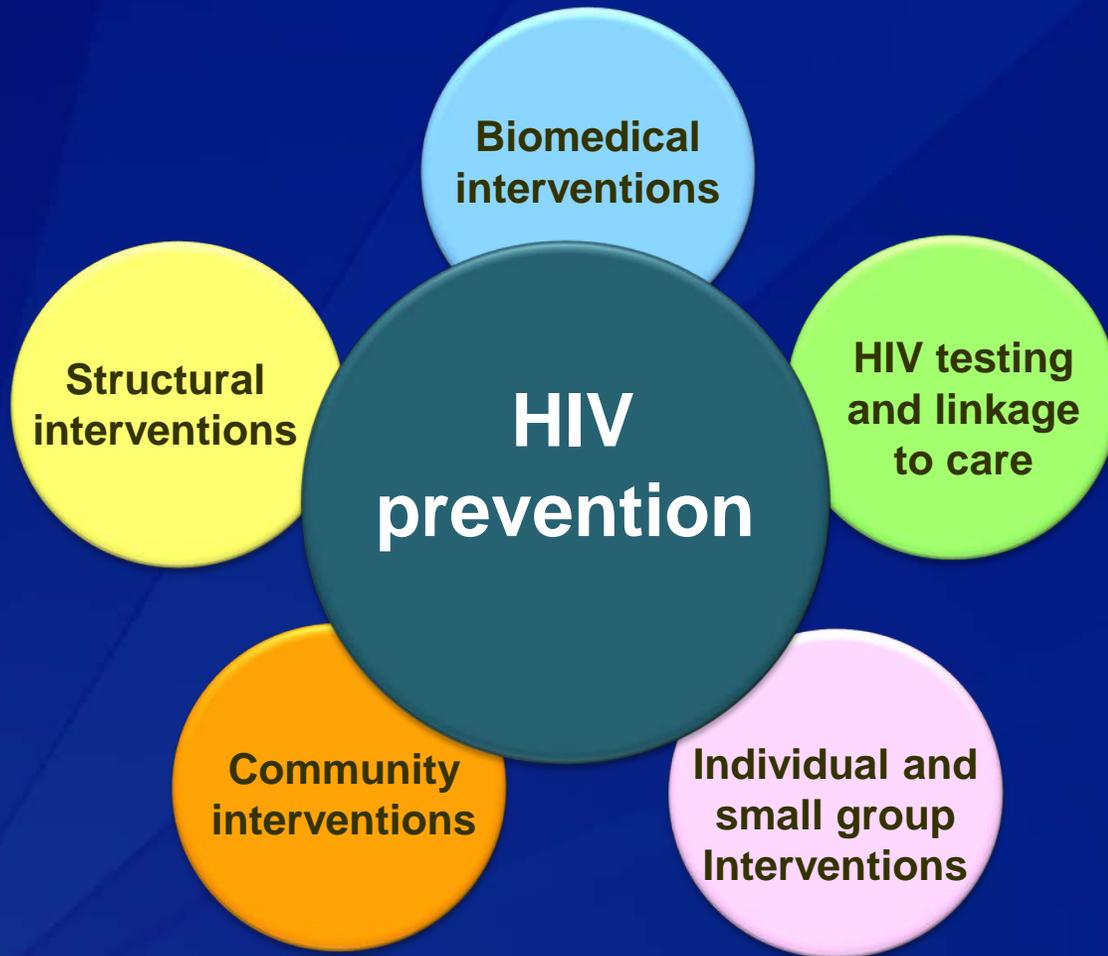
# Combination prevention

Multiple disciplines and approaches



# Combination prevention

Multiple disciplines and approaches

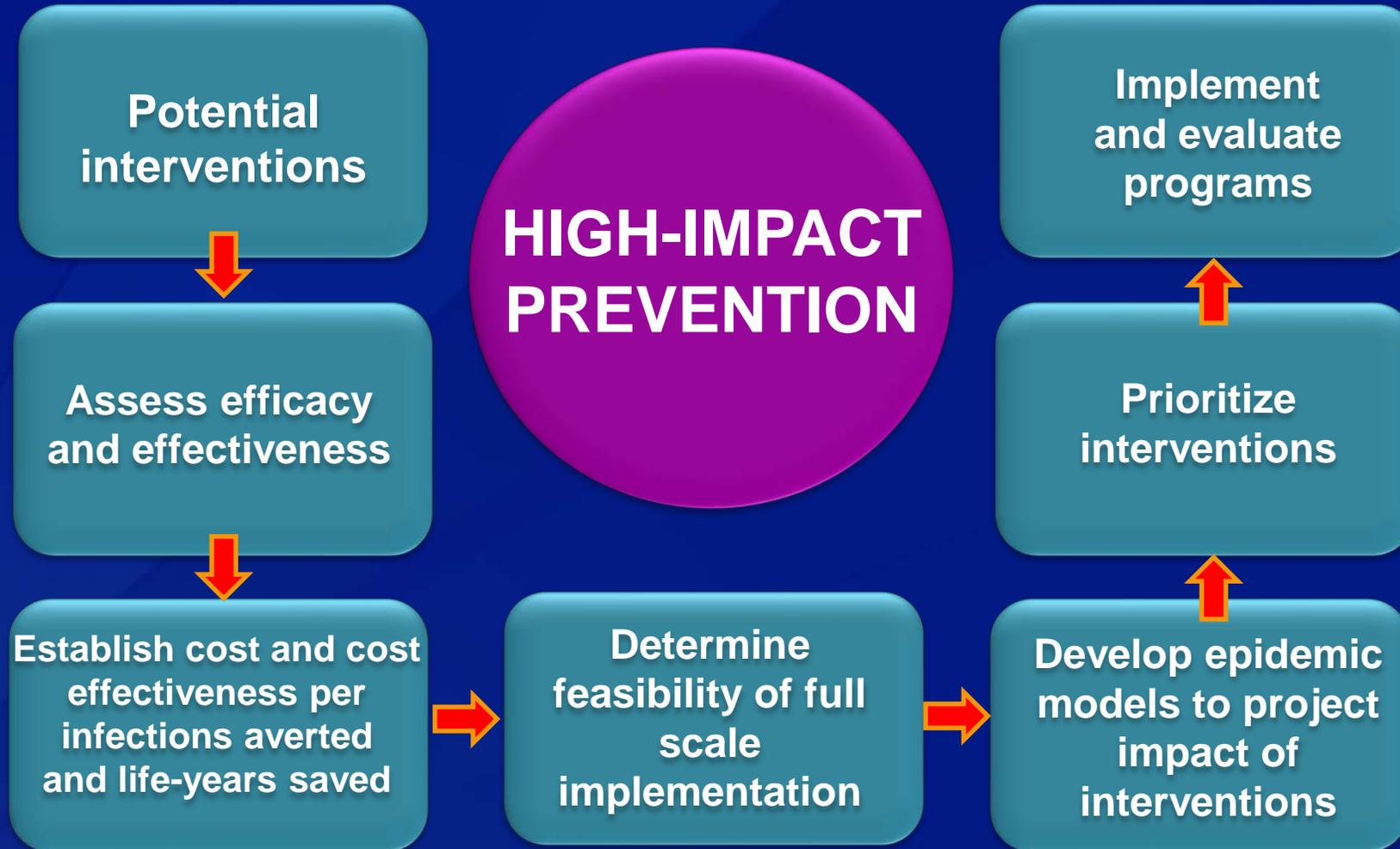


Combining interventions is not enough

All interventions are not effective

All effective interventions are not equal

# Strategy

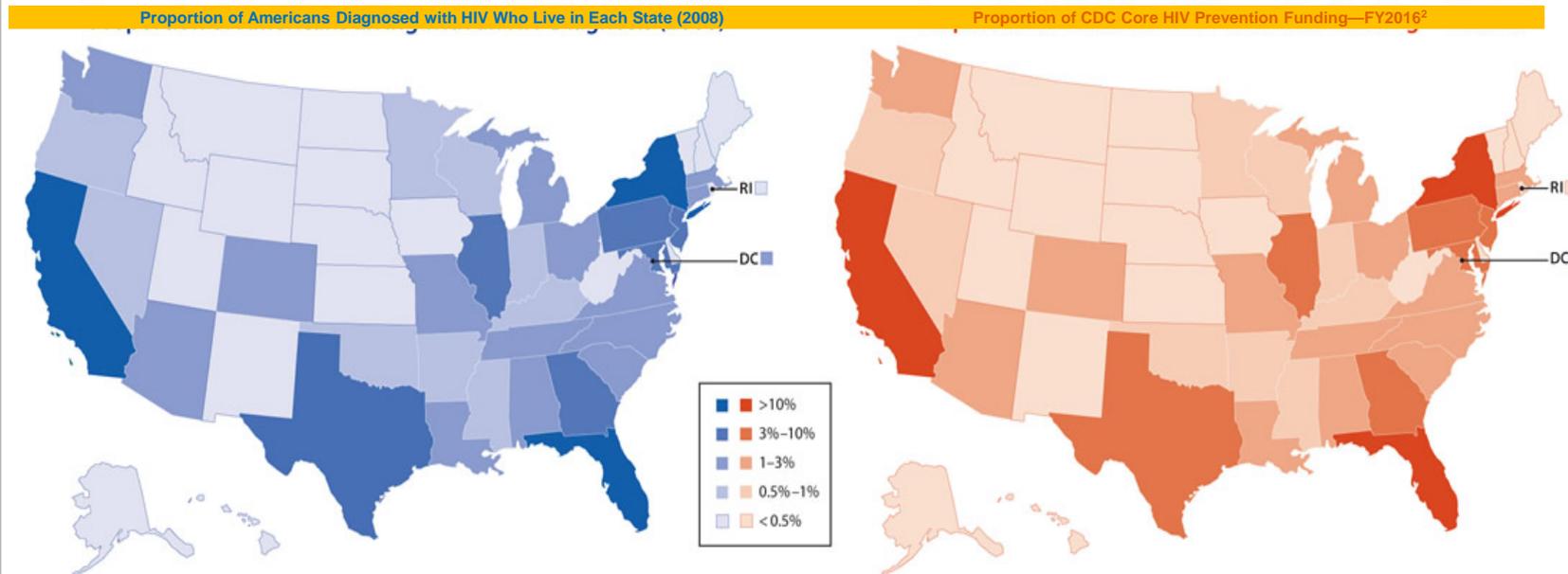


# Aligning resources with the epidemic

## *CDC funding of state and local health departments*

### Matching Prevention Funds to the Epidemic<sup>1</sup>

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



<sup>1</sup>Maps do not include U.S. territories receiving CDC HIV prevention funding.

<sup>2</sup> 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

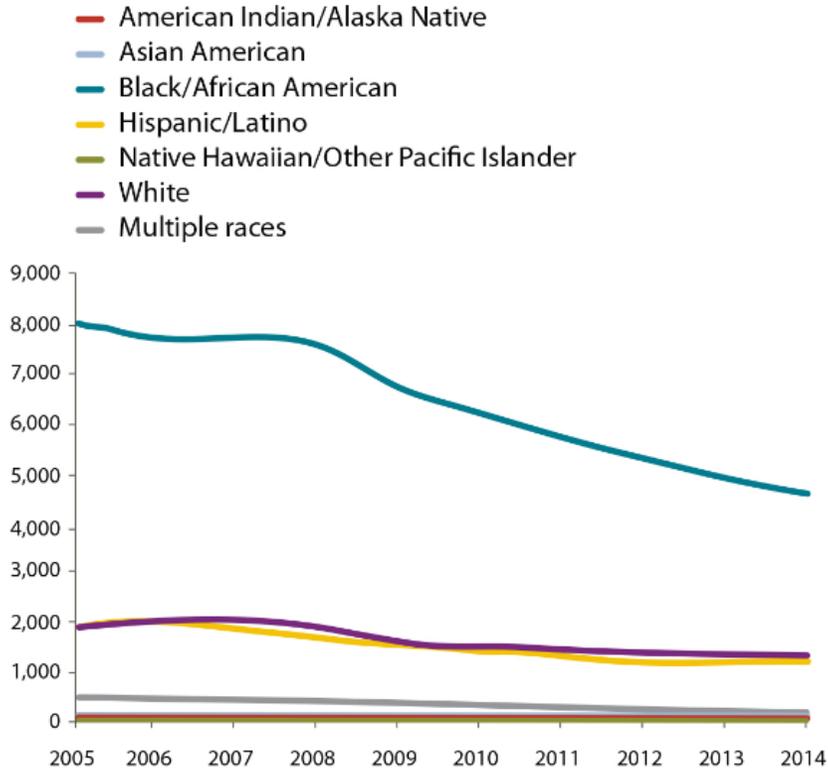
- States requiring reporting CD4 counts and viral loads increased from 19 in 2011 to 42 in 2015
- Proportion of persons with HIV who know status highest ever at 87%
  - CDC resources associated with over 1/3<sup>rd</sup> of HIV diagnoses
  - CDC testing funding correlated with increase in proportion 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

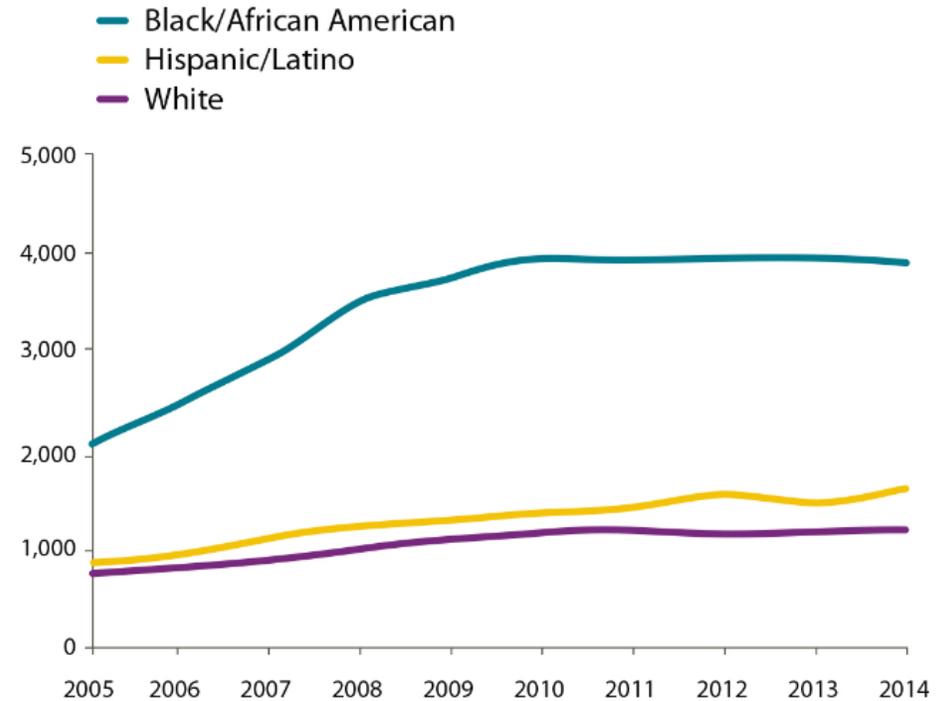
- **2010-14, annual new HIV diagnoses decreased 9%**
  - 6% reduction in men; 21% in women
  - 32% decrease in infections attributed to injection drug use
  - 2% decrease in young black MSM, following 114% increase during prior 5 years
- **Proportion of persons with HIV aware of status increased, so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



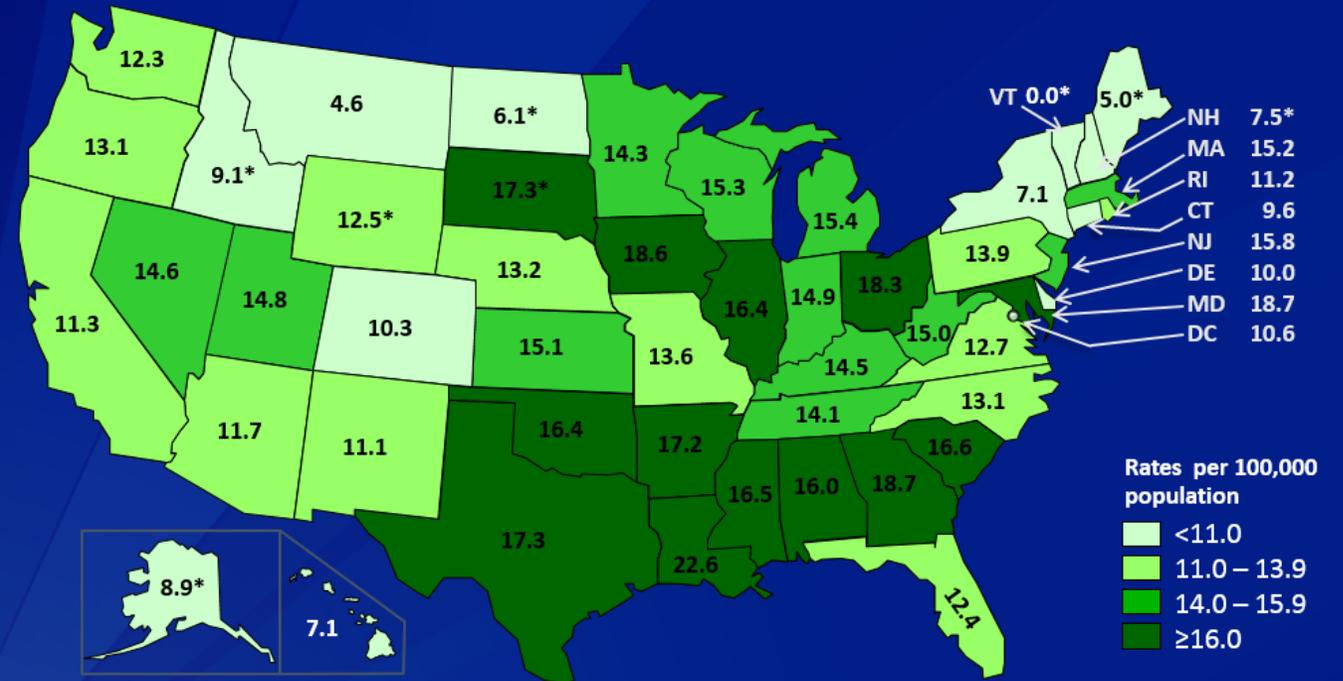
## HIV Diagnoses among MSM age 13-24 by Race/Ethnicity, 2005-2014



# Major disparities persist

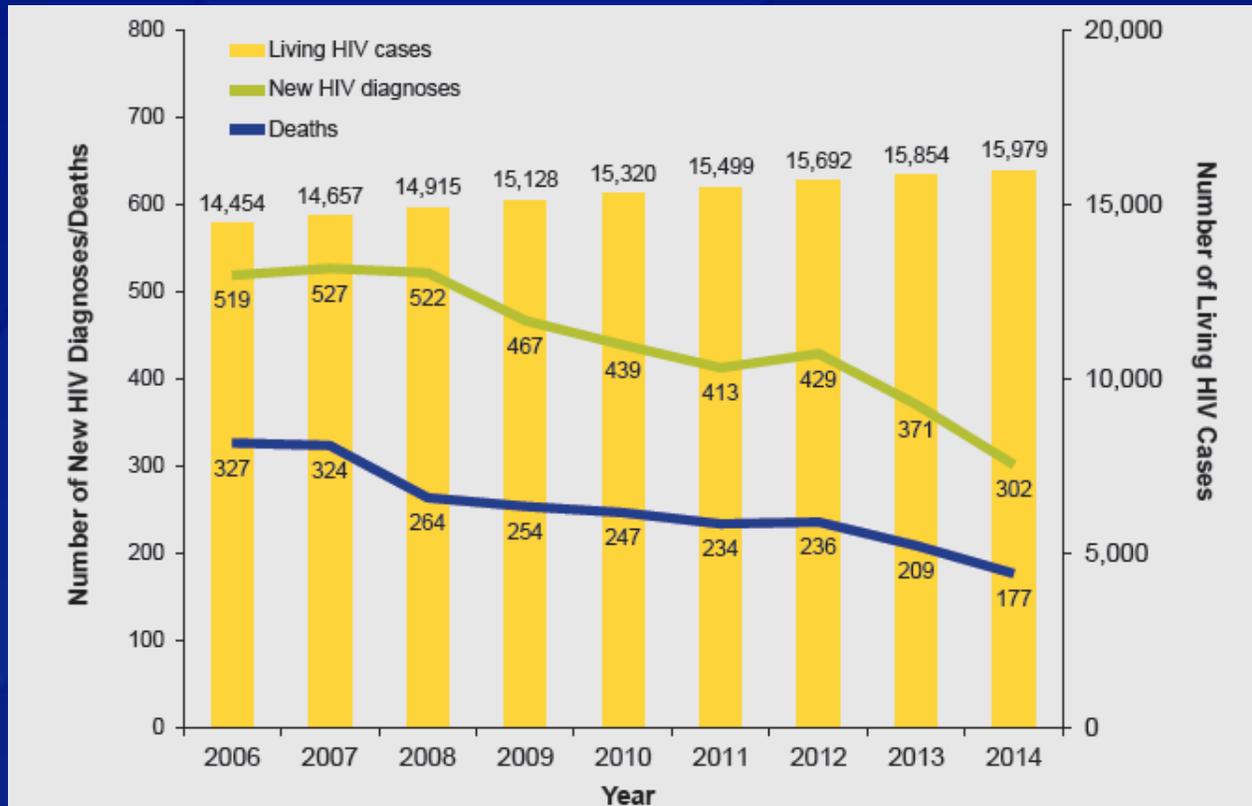
- HIV prevalence associated with population density, poverty, education, employment, and homelessness, region of residence
- For disproportionately affected populations, especially MSM and transgender persons, higher prevalence, increased sexual risk require improved coverage of ART, PrEP, education, support services

Percent Undiagnosed among Persons Living with HIV Infection, by Jurisdiction, 2012—United States



\*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



**HIV**  
TESTING IS FOR  
EVERYONE



testing makes us  
**STRONGER**

A photograph of two men standing back-to-back. The man on the left has long dreadlocks and is wearing a gold chain. The man on the right is wearing a grey tank top and a black beanie. They are both wearing jeans and looking towards the camera with serious expressions.

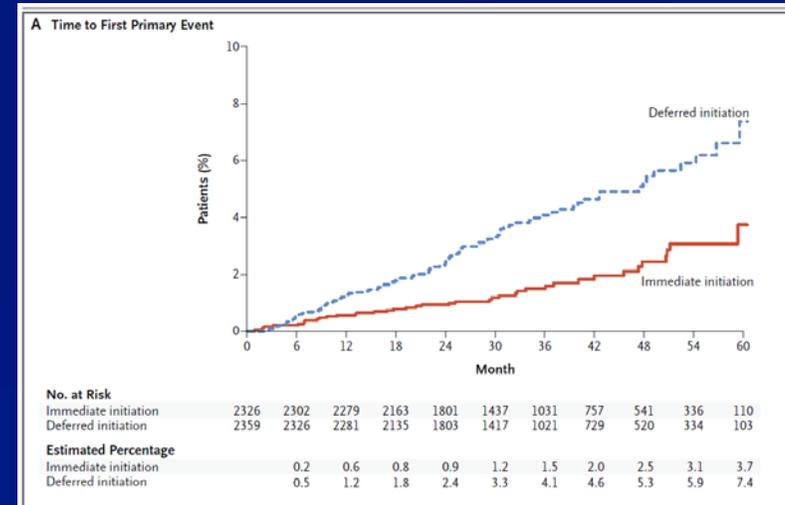
Our HIV status is powerful information.  
It helps us take better care of each other.  
We get tested.

and free, fast and confidential testing near you:  
[www.HIVTest.org](http://www.HIVTest.org)

The logos for the Centers for Disease Control and Prevention (CDC) and the campaign "ACT against AIDS" are located at the bottom right of the advertisement.

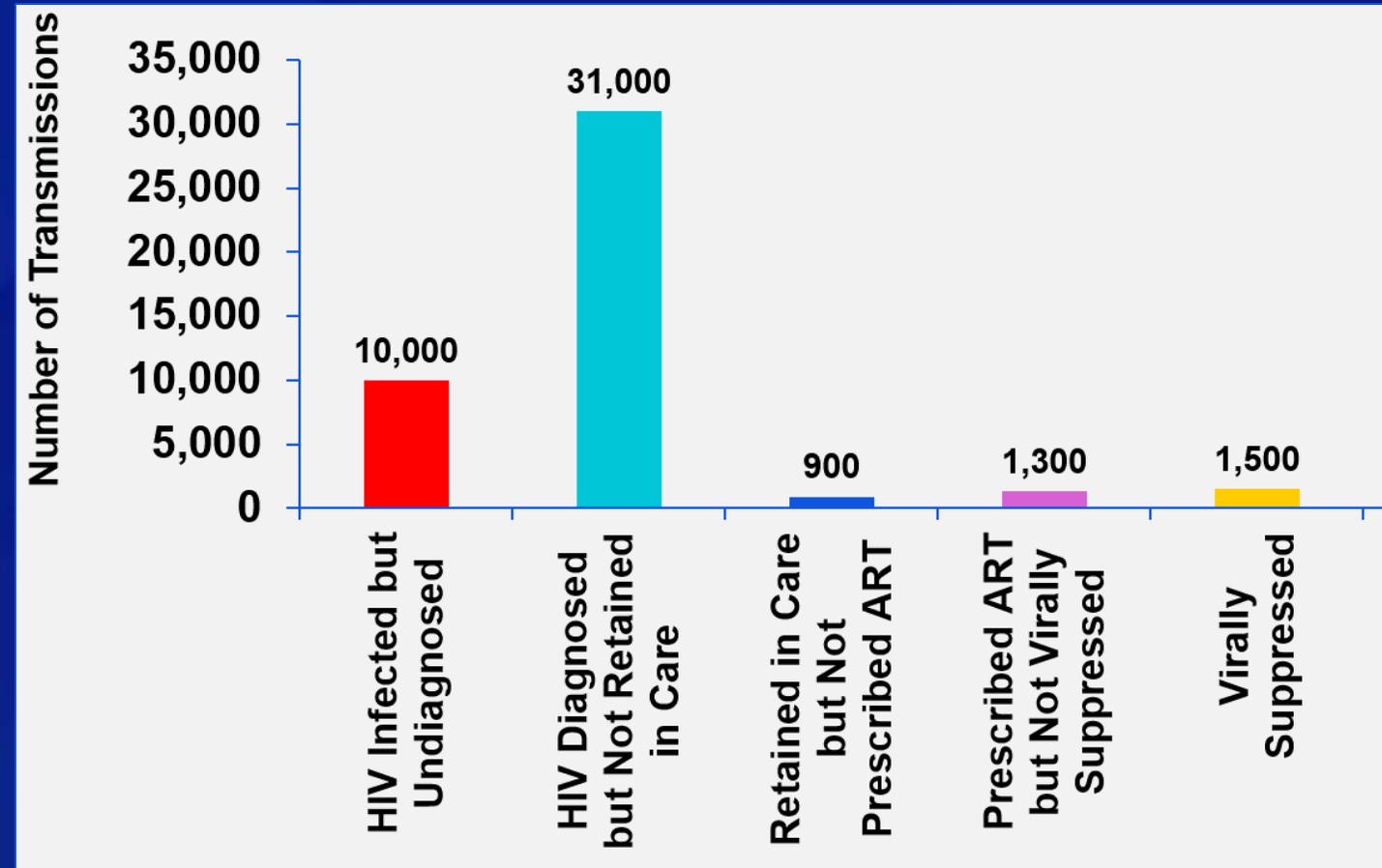
# Antiretroviral treatment works

- **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%

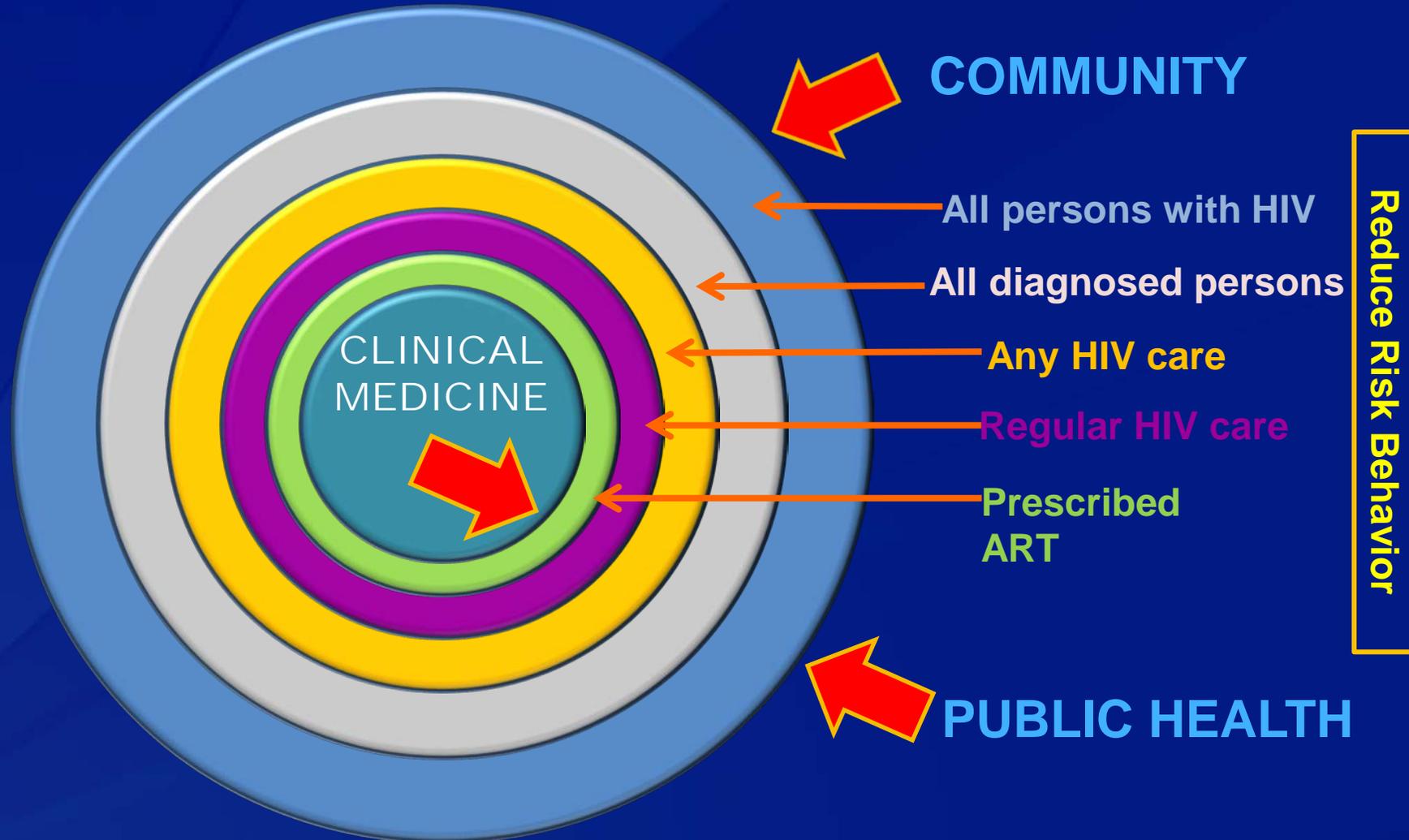


# HIV transmission at each step of care continuum, United States

- 9 of 10 new infections transmitted by HIV-infected people who are undiagnosed or diagnosed but not in medical care



# Clinical Medicine, Community, and Public Health



## 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



# 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

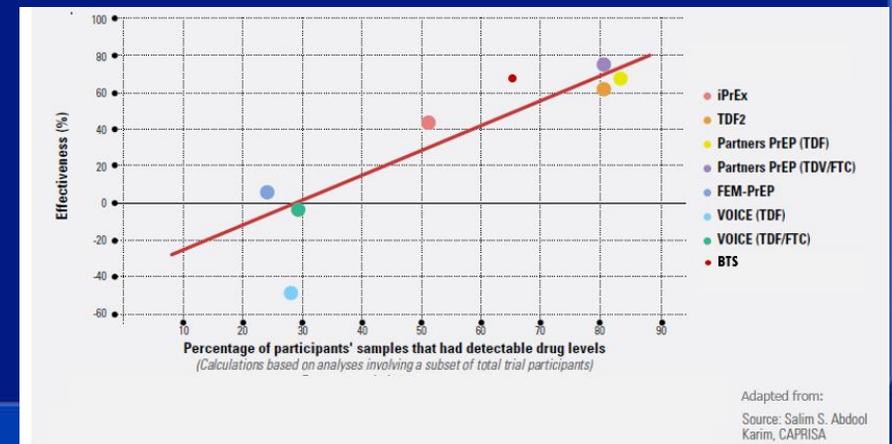
## PrEP Use, Kaiser Permanent, San Francisco

- 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



**HIV**  
TREATMENT  
WORKS



# Act Against AIDS new National Testing Campaign



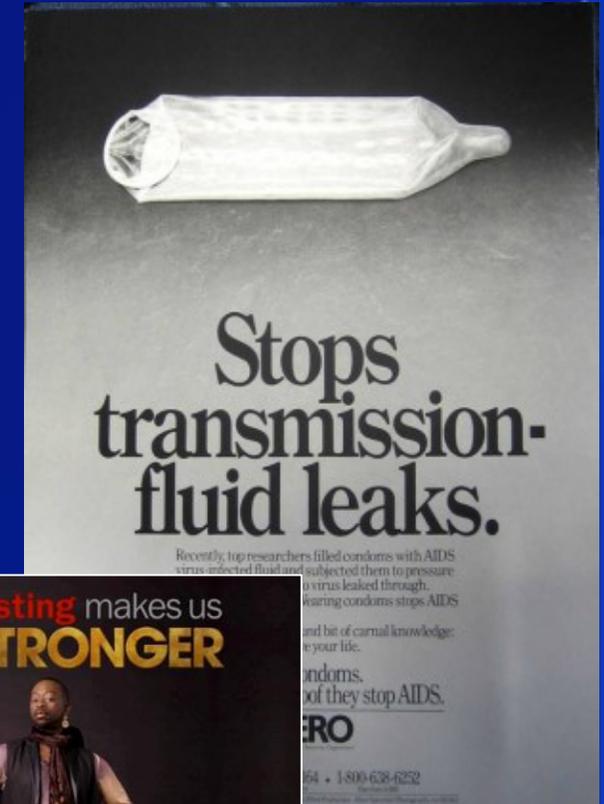
**WE'RE  
DOING  
IT**  
Testing for **HIV**

#DoingIt

The bottom right corner of the collage features three logos: the Department of Health and Human Services logo, the CDC logo (Centers for Disease Control and Prevention), and the ACT AGAINST AIDS logo.

# 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

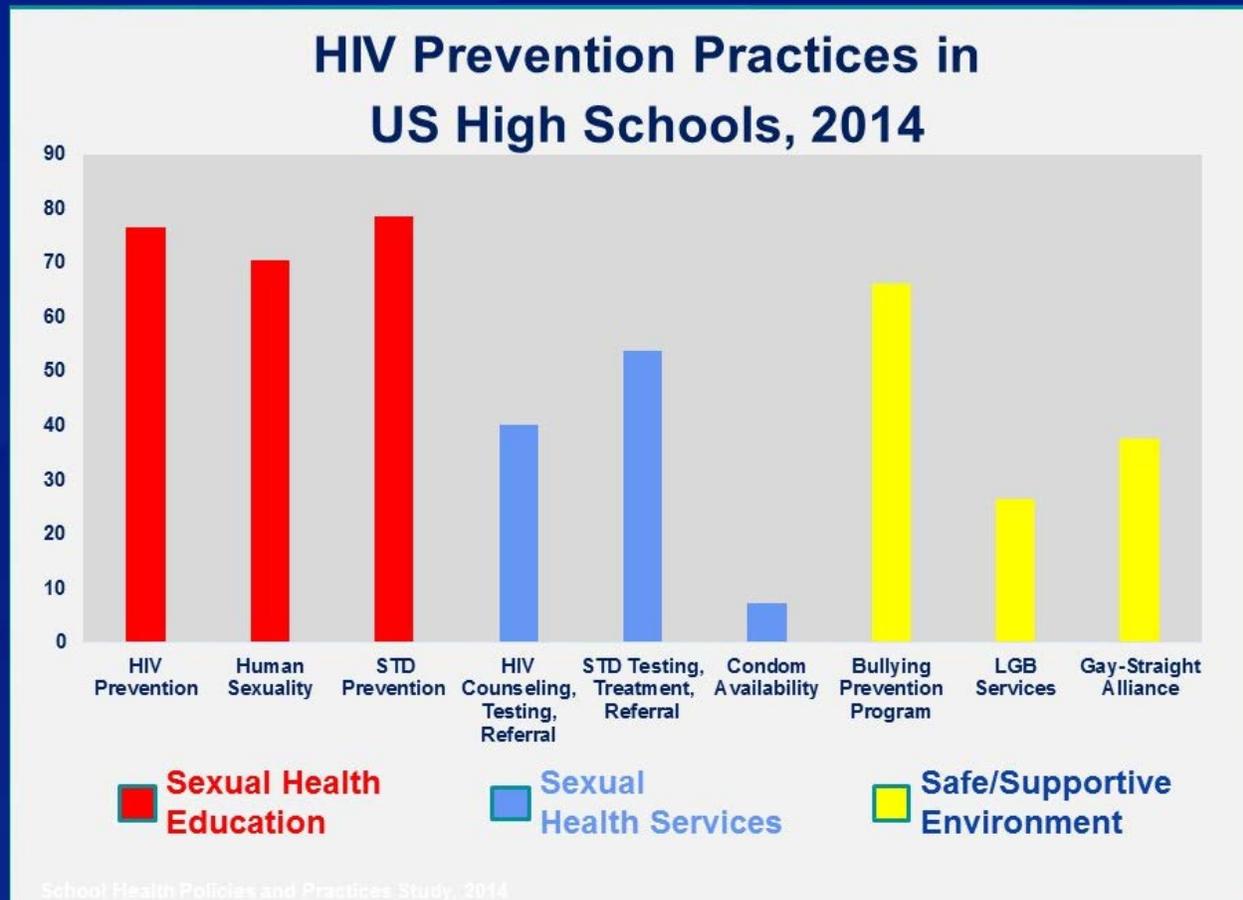
The image displays three screenshots of the HIV Risk Reduction Tool interface. The top-left screenshot shows the main landing page with a navigation menu on the left, a search bar, and a central area titled "What do you want to do?" with a "Customize your content..." overlay. The top-right screenshot shows the "Oral Sex" section, detailing the low risk of HIV from oral sex and providing information on prevention methods like PrEP and ART. The bottom-right screenshot shows the "Know the HIV Risk" section, which includes a risk assessment tool for two individuals (Person 1 and Person 2) based on their status, activity, and condom use, resulting in a risk level from "Little to no risk" to "High risk".

## 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

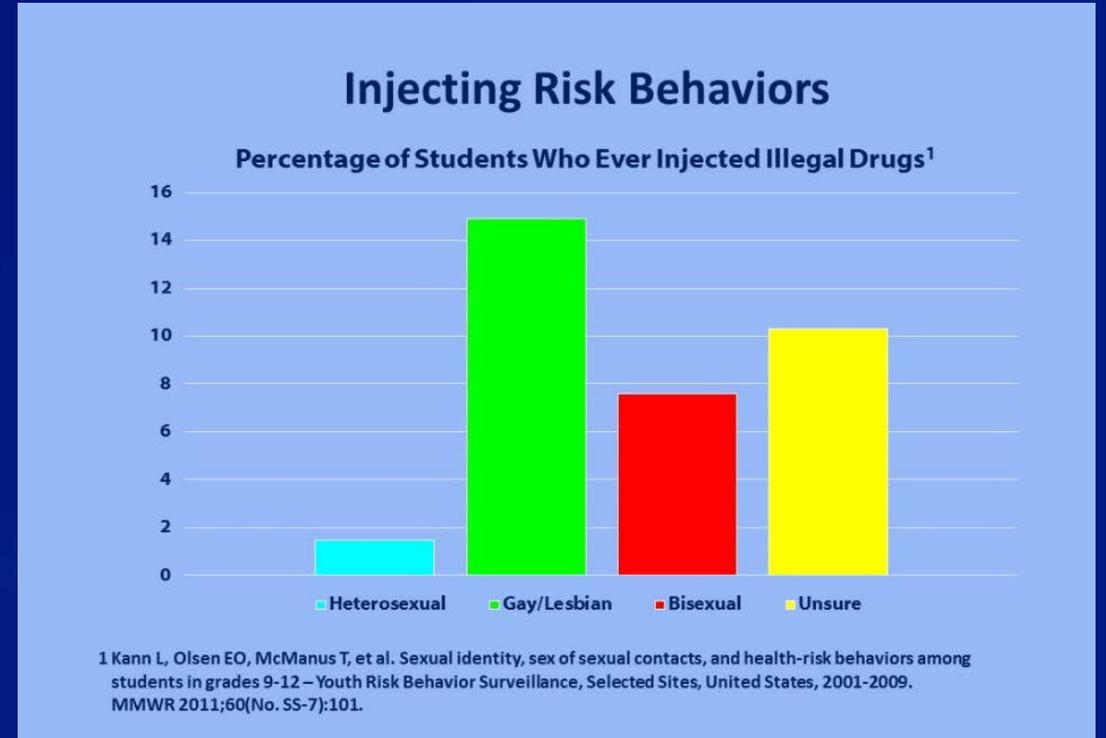
# Sexual health education

- Good sex education is a counter measure to false information



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

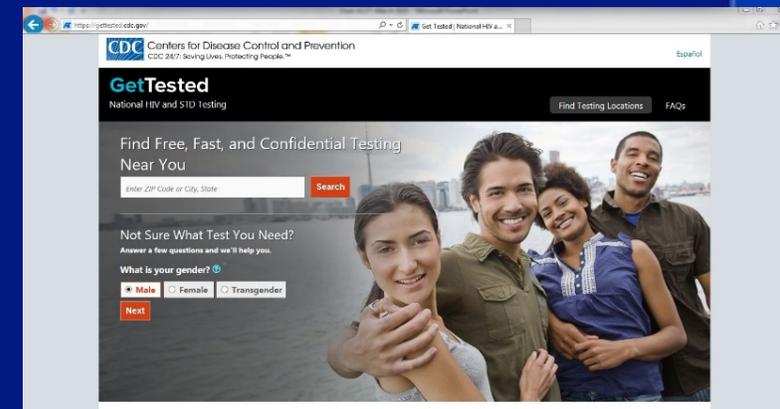
- Teens have low risk of injecting drugs—fewer than 2% inject drugs
- However, in selected states and cities that collect data, sexual minority youth rates of injection drug use up to 7 times greater than those of heterosexuals
- Many studies show alcohol and drug use associated with HIV and STD risk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



# High Impact Program Coordination and Service Integration (HIP PCSI)

## Examples

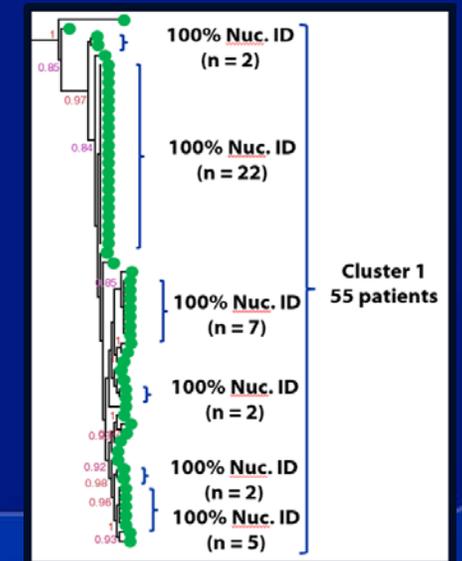
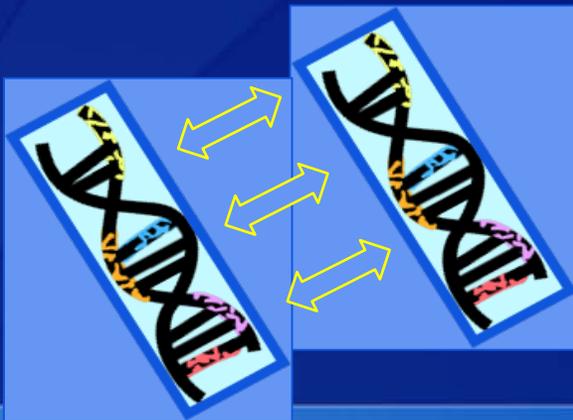
- Age-based screening for HIV and HCV using computerized clinical decision tools
- Annual STD screening of people with HIV
- STD diagnosis as potential indicator for PrEP, and provision of PrEP at STD clinics
- Integrated partner services
- HIV, HCV, and HBV screening and treatment at drug treatment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



# Molecular epidemiology

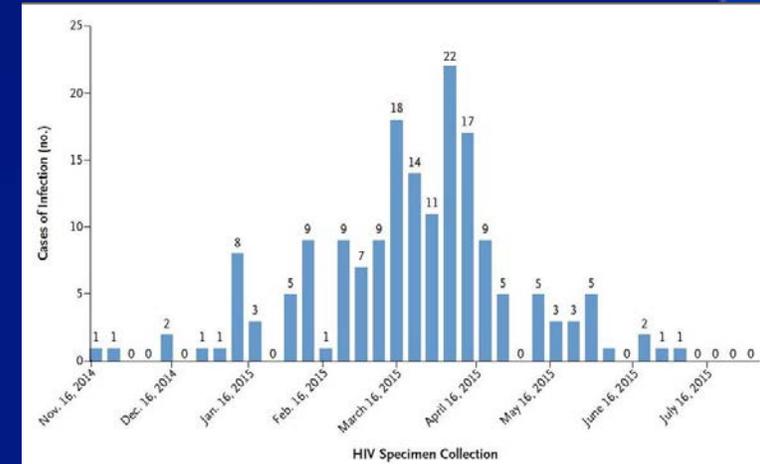
## Helping with the basics

- 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

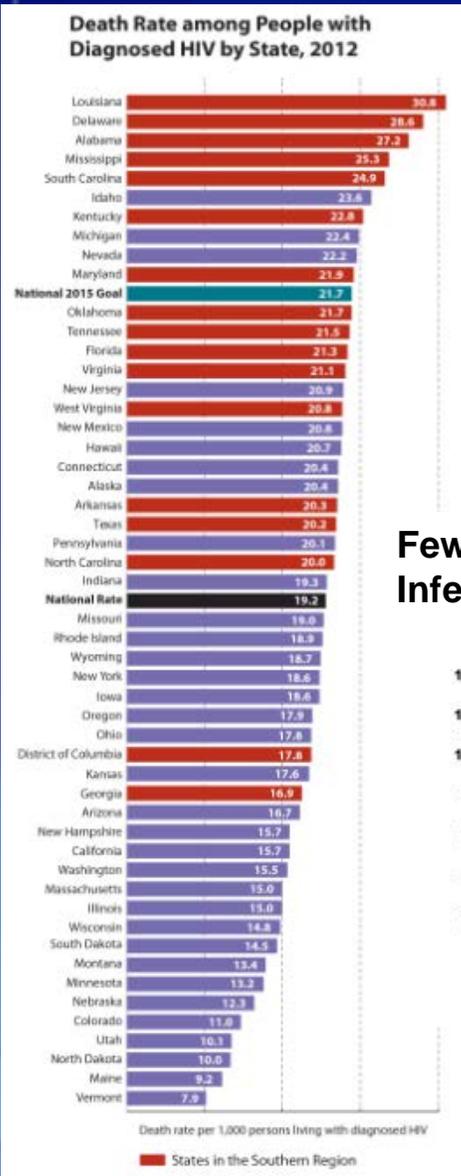
- Indiana community of 4,300
- 184 persons with HIV
- Injecting oxymorphone
- Majority of HIV infections recently acquired; all but 2 phylogenetically linked
- Rapid response with contact tracing and testing, one-stop-shop for social services, syringe service program, HIV and HCV testing and treatment,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



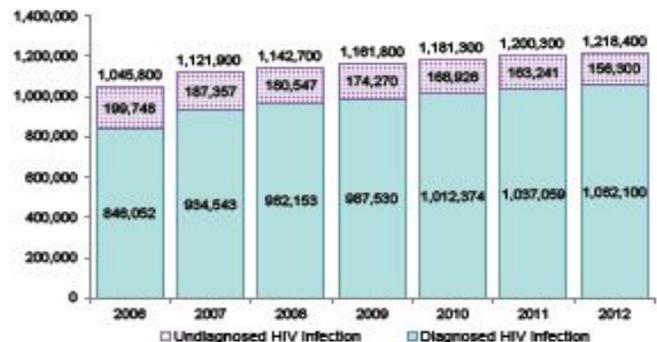
# National and State Progress Reports

## 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

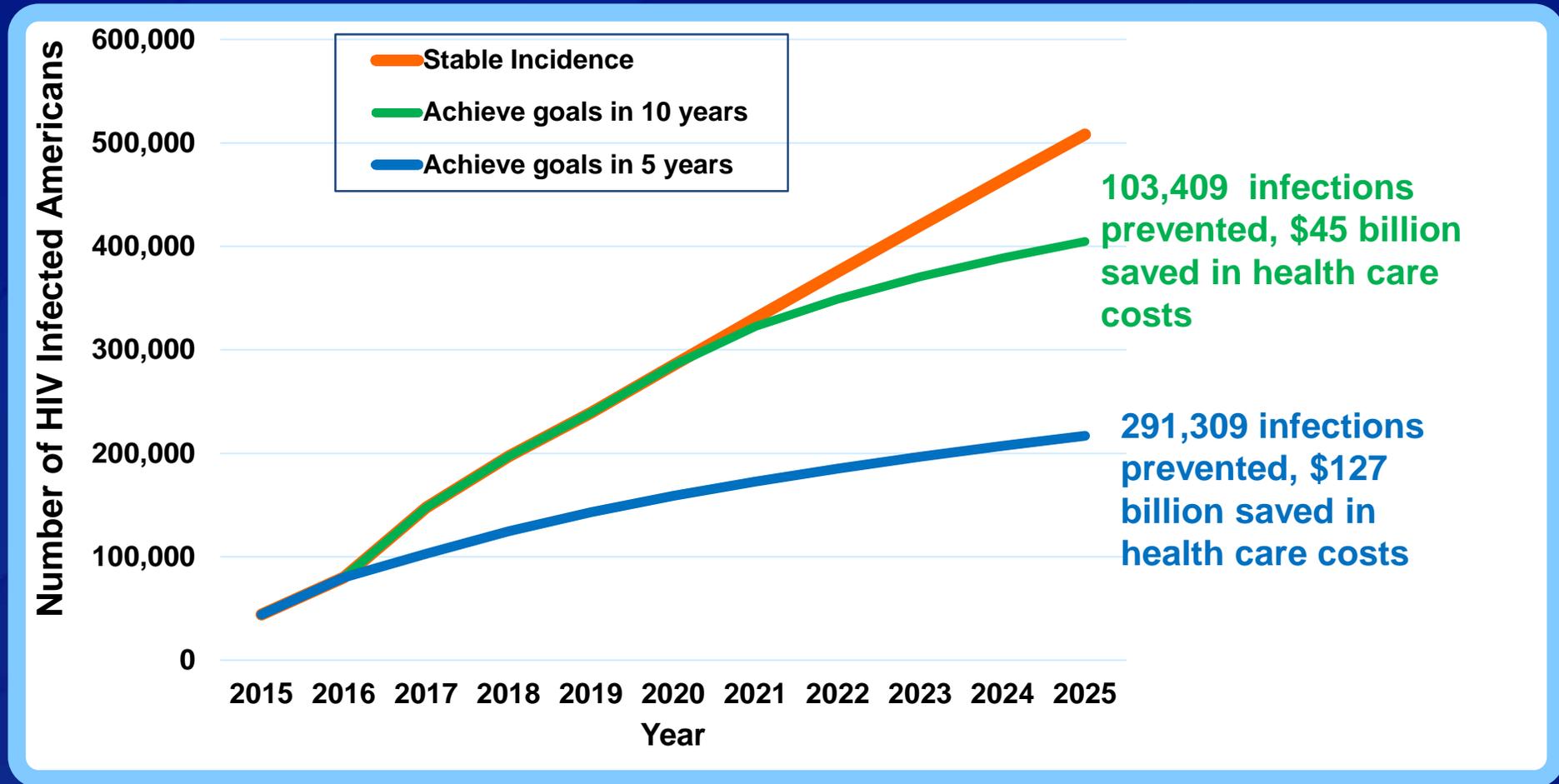


## Fewer People Have Undiagnosed HIV Infection



# 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



# 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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The findings and conclusions in this presentation do not necessarily represent official position of CDC