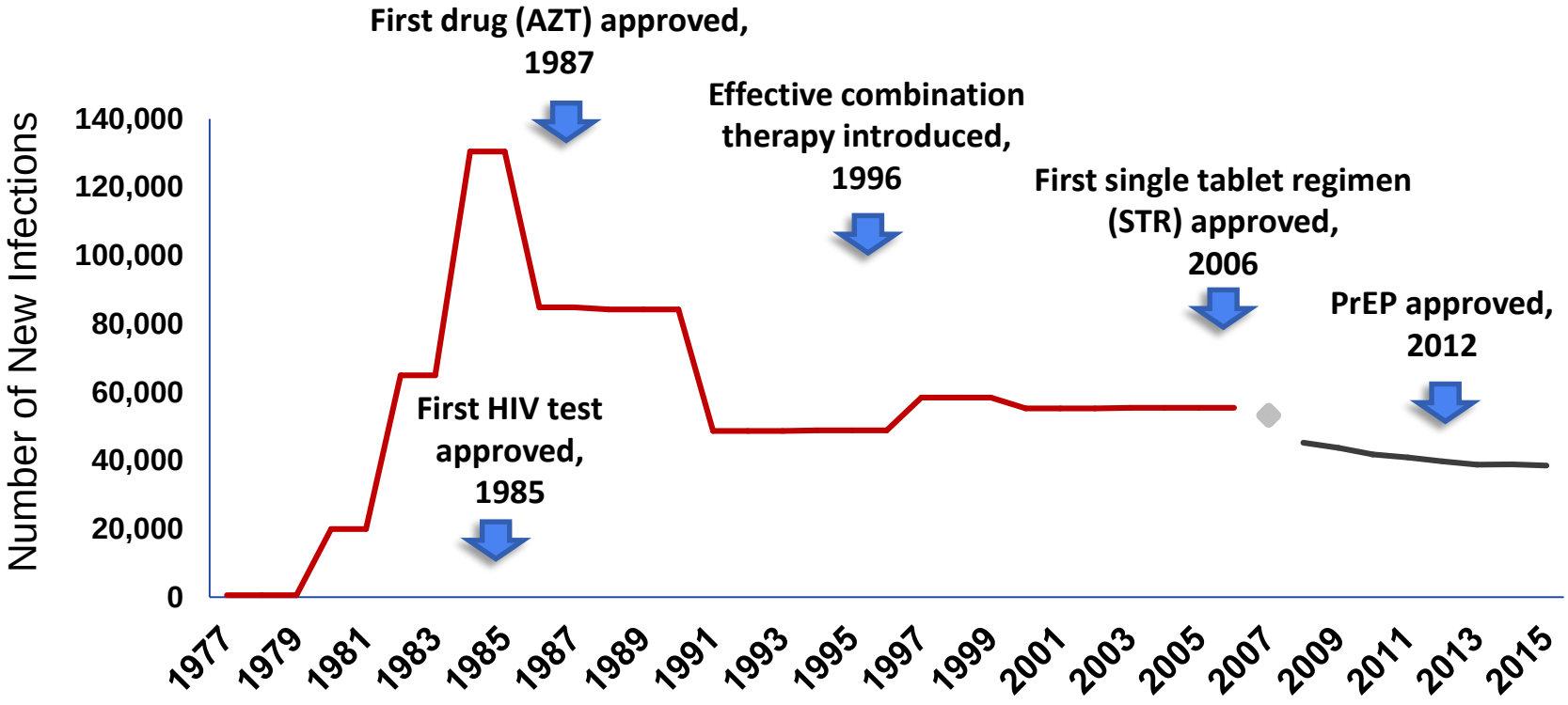
Epidemiology of HIV in the United States, 2019

John T. Brooks, MD – CDC, Division of HIV/AIDS Prevention

HIV Diagnostics Conference
Atlanta, GA – March 25, 2019

Dr. Brooks has no relevant financial affiliations to disclose

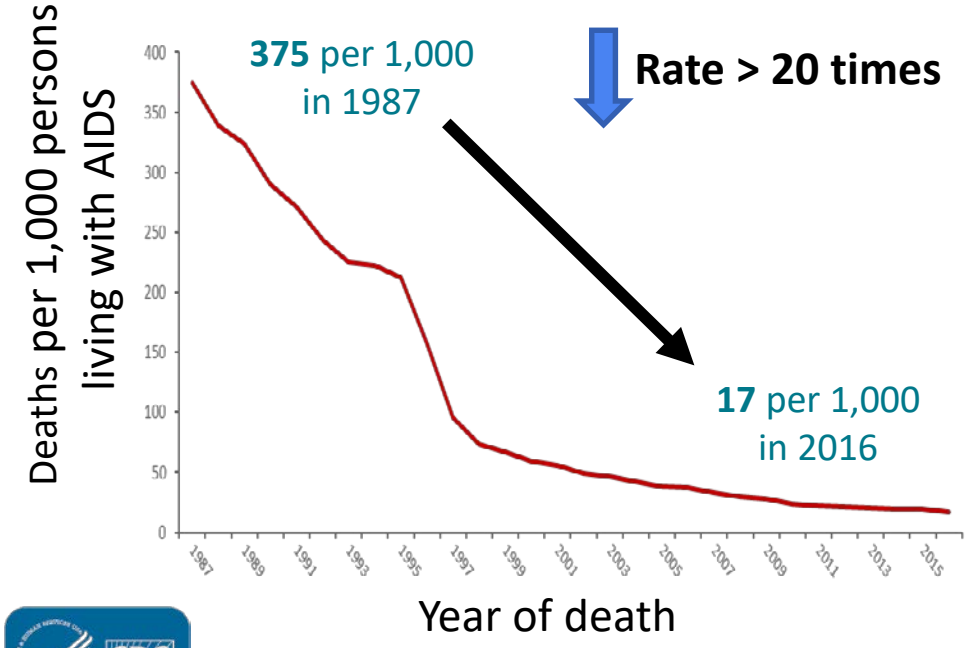
Progress Controlling HIV in the United States



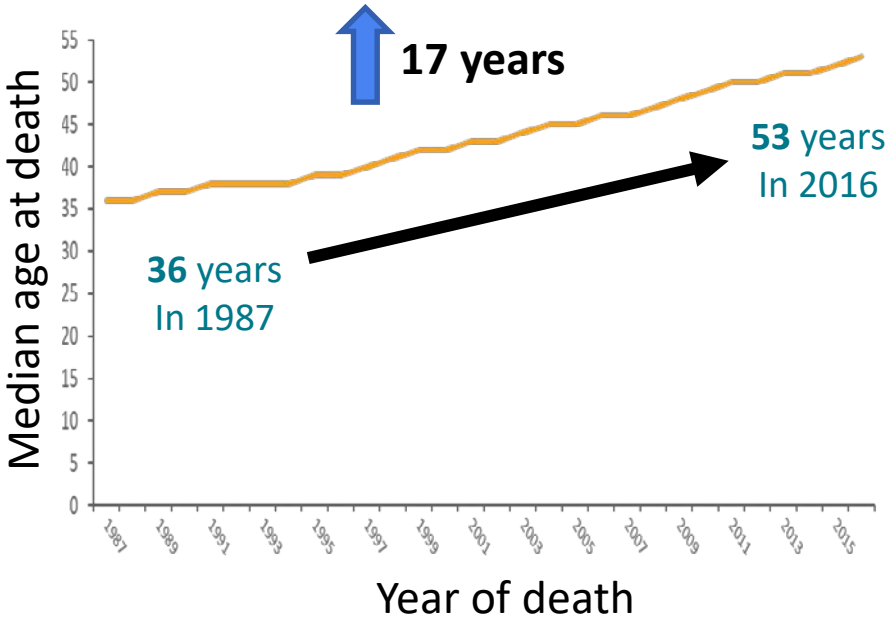
Source: Hall et al., JAMA, 2008, 300(5):520-529 and CDC surveillance data

Death Rate Among Persons with AIDS Declining and Median Age at Death due to HIV Infection Increasing

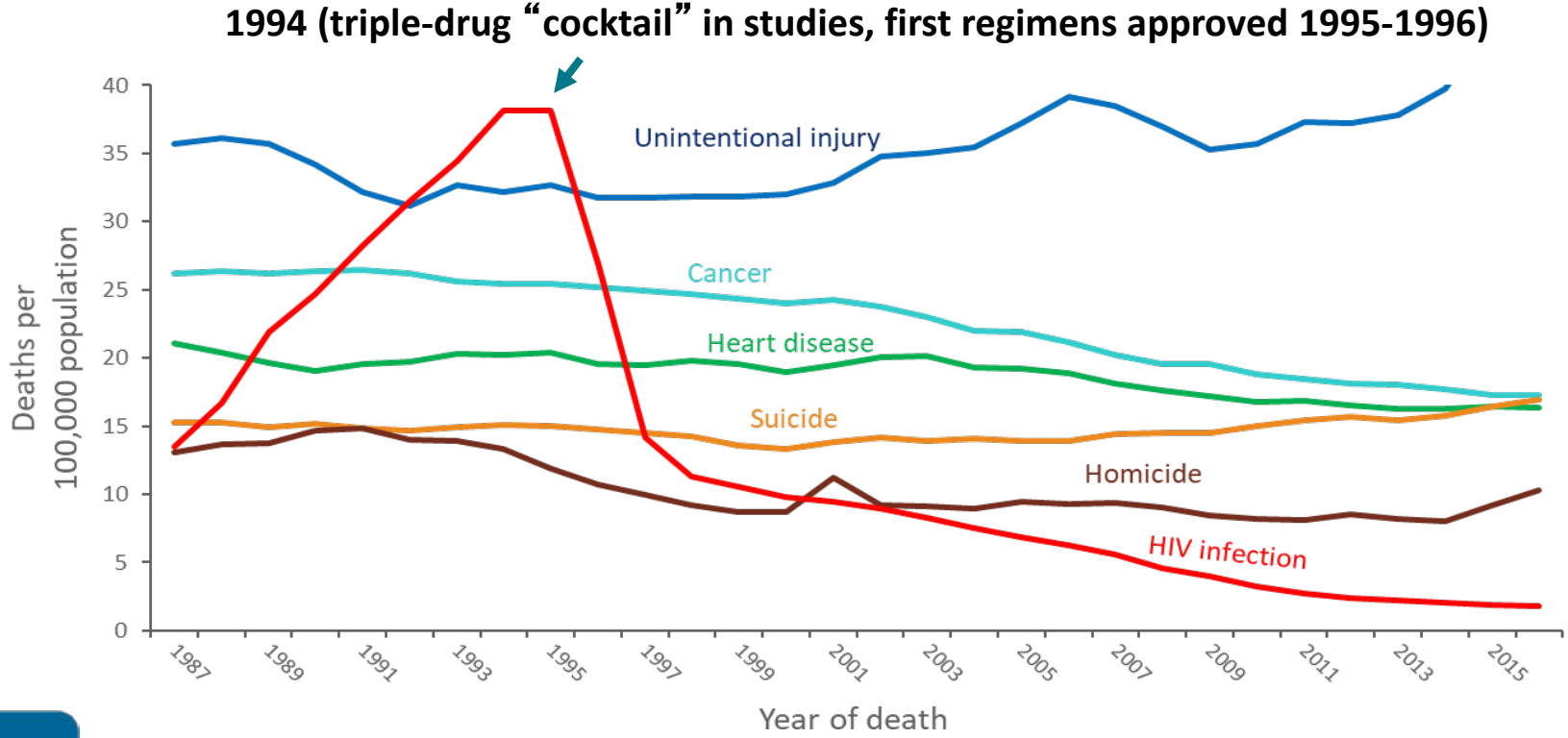
Death Rate, Ever AIDS (1987-2016)



Age at Death, HIV Infected (1987-2016)

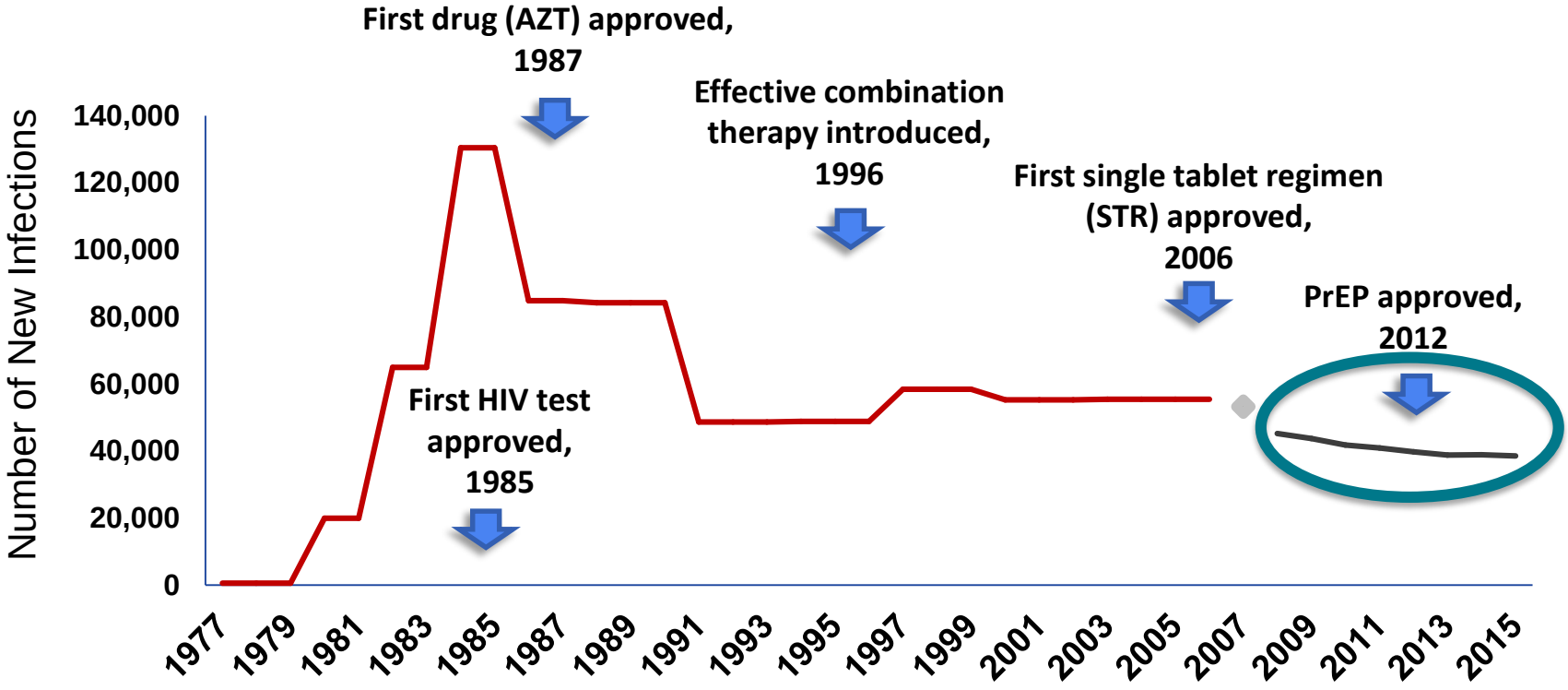


Death due to HIV Declining Among Persons 25-44 Years Old



Note: For comparison with data for 1999 and later years, data for 1987–1998 were modified to account for *ICD-10* rules instead of *ICD-9* rules. The data for this slide come from death certificate data compiled by the National Center for Health Statistics.

Progress Controlling HIV in the United States



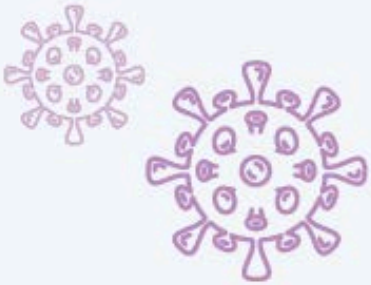
Source: Hall et al., JAMA, 2008, 300(5):520-529 and CDC surveillance data

HIV Overall Status – United States, 2016

HIV Incidence

38,700

The estimated number of **new HIV infections** in a year



HIV Prevalence

1.1 M

The estimated number of all people with **diagnosed or undiagnosed** HIV infections at a point in time

1 in 7 did not **know** they were infected

HIV Diagnoses*

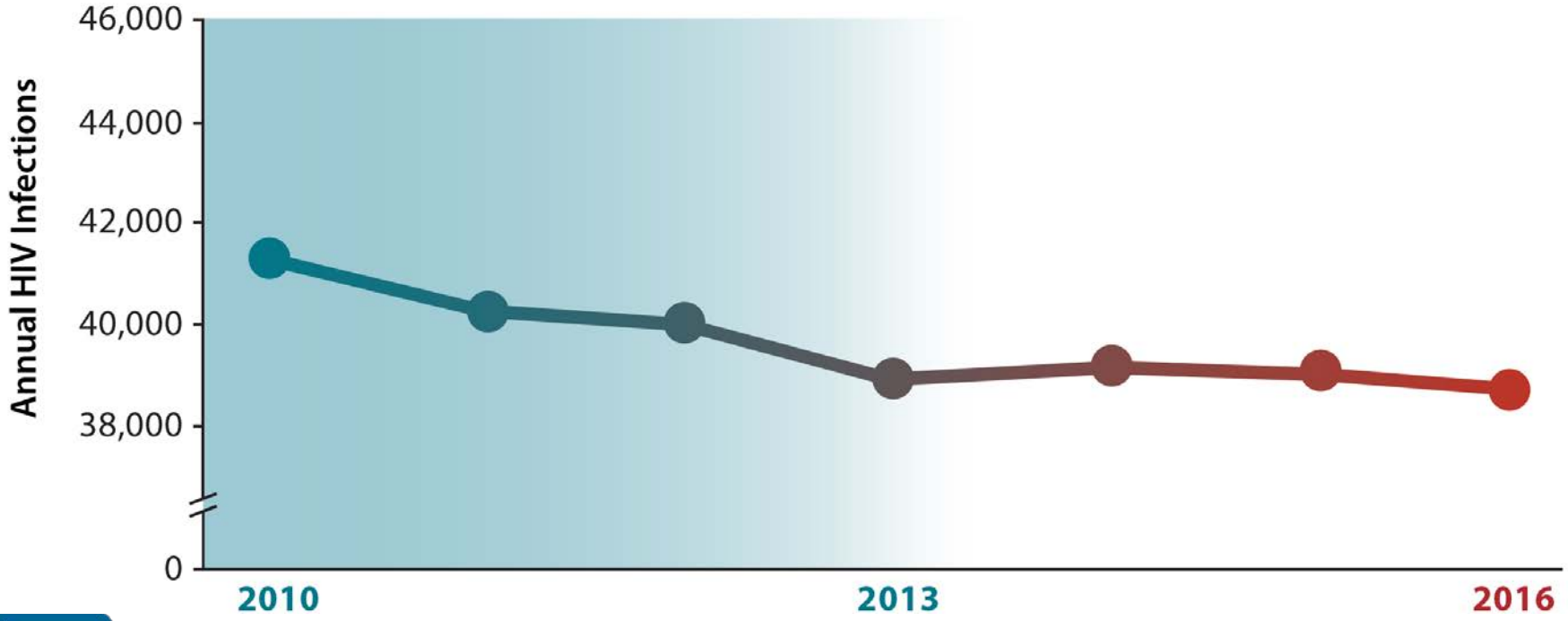
38,739

The actual number of **reported HIV diagnoses** in a year

Median **time to diagnosis 3** years

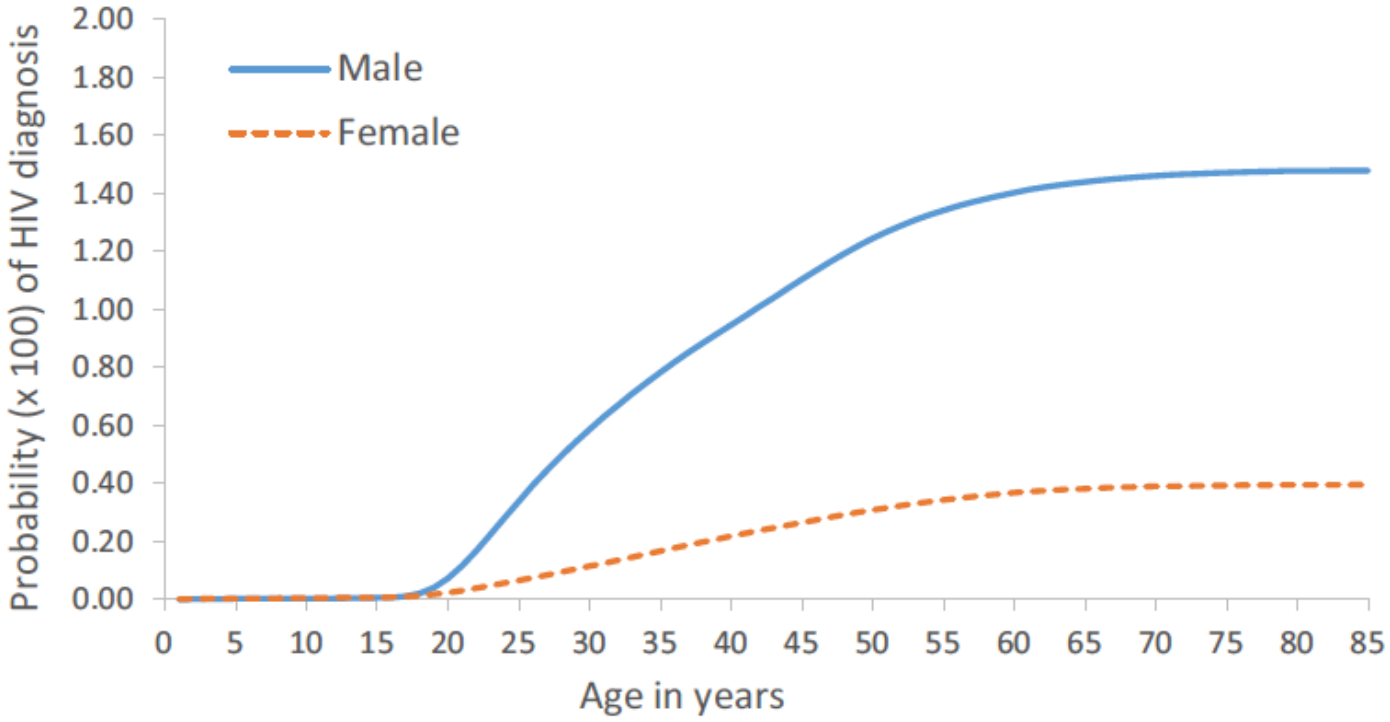
Diagnoses of HIV infection in the United States and Dependent Areas, 2017. HIV Surveillance Report 2018; vol. 29.
Estimated HIV Incidence and Prevalence in the United States, 2010-2016 . HIV Incidence and Prevalence 2010-2016 Report, vol. 24(1)

Annual Number of New Infections Has Stabilized
Progress Appears to Be Stalling



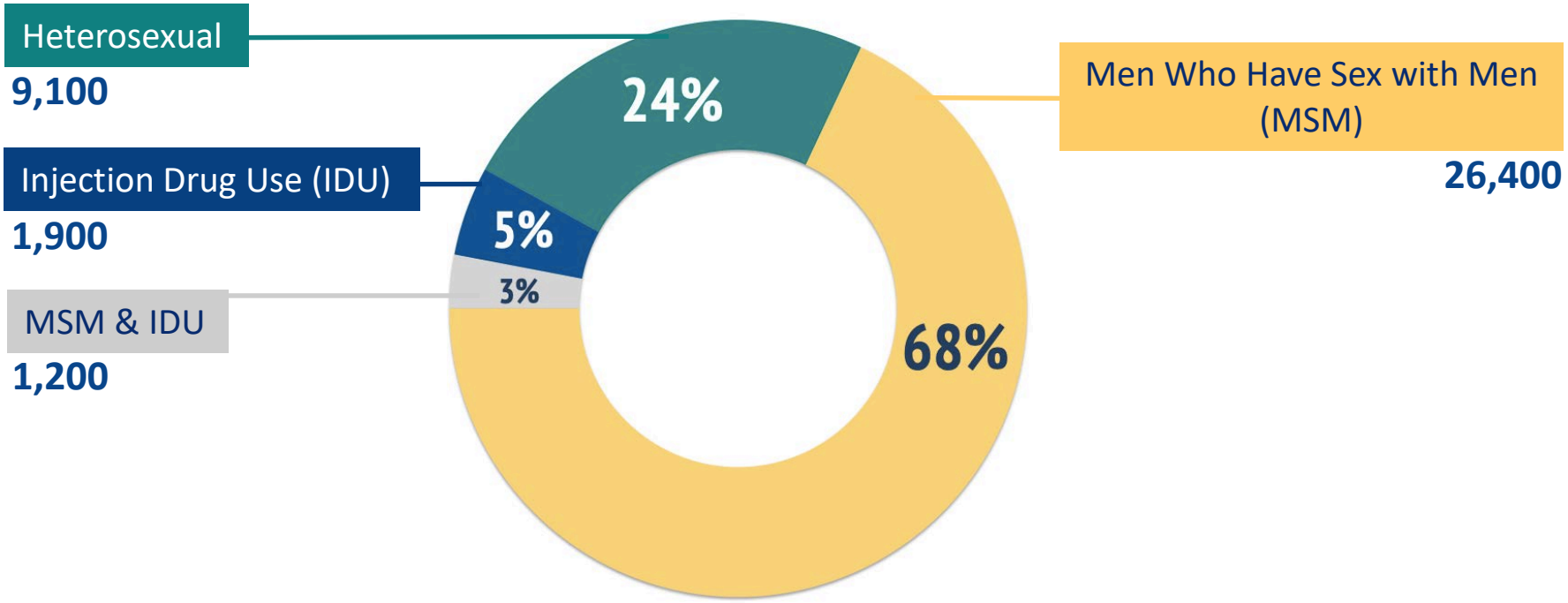
Estimated HIV Incidence and Prevalence in the United States, 2010-2016 . HIV Incidence and Prevalence 2010-2016 Report, vol. 24(1)

Lifetime Risk of HIV Diagnosis by Sex



Hess et al. Ann Epidemiol, 2017; 27(4): 238-243

Estimated HIV Incidence among Persons Aged ≥ 13 Years, by Transmission Category 2016—United States



Note. Estimates were derived from a CD4 depletion model using HIV surveillance data. Data have been statistically adjusted to account for missing transmission category. Heterosexual contact is with a person known to have, or to be at high risk for, HIV infection.

* Difference from the 2010 estimate was deemed statistically significant (P < .05). Values adjusted for missing risk-factor data; sum <38,7000 for 2016.

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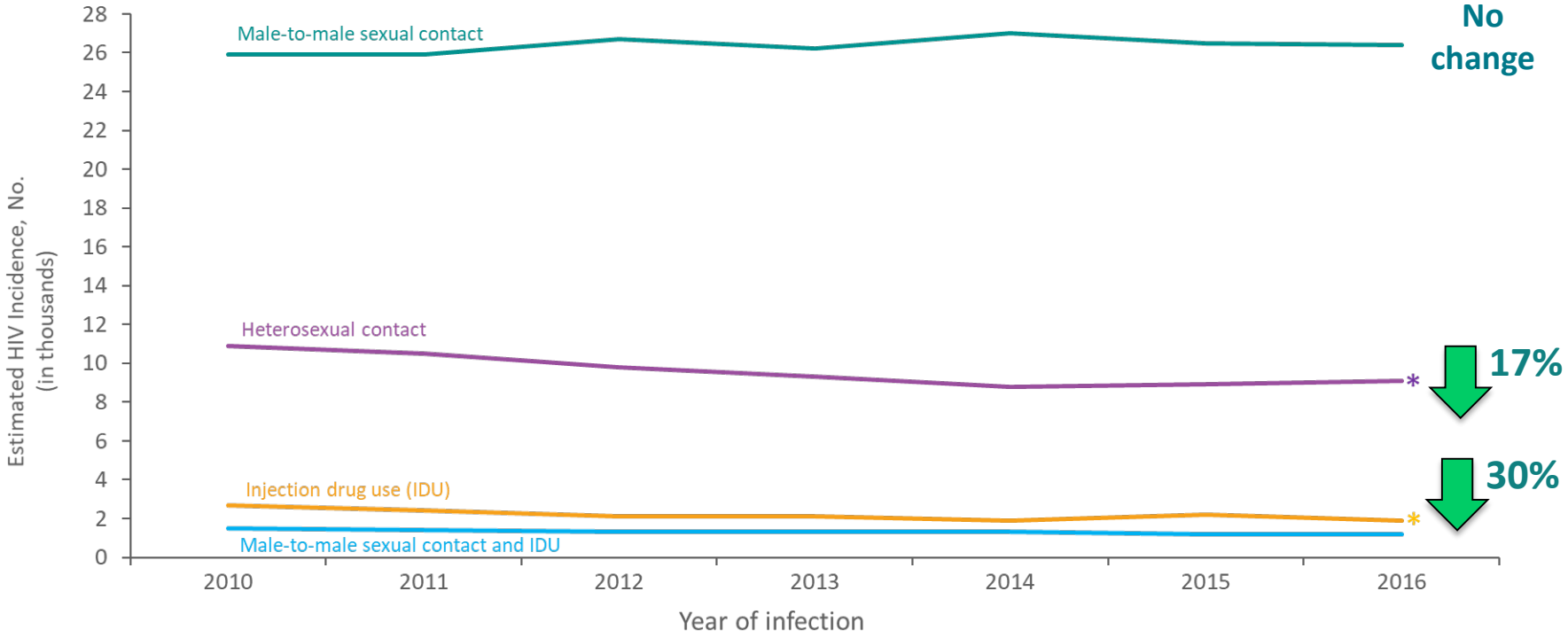

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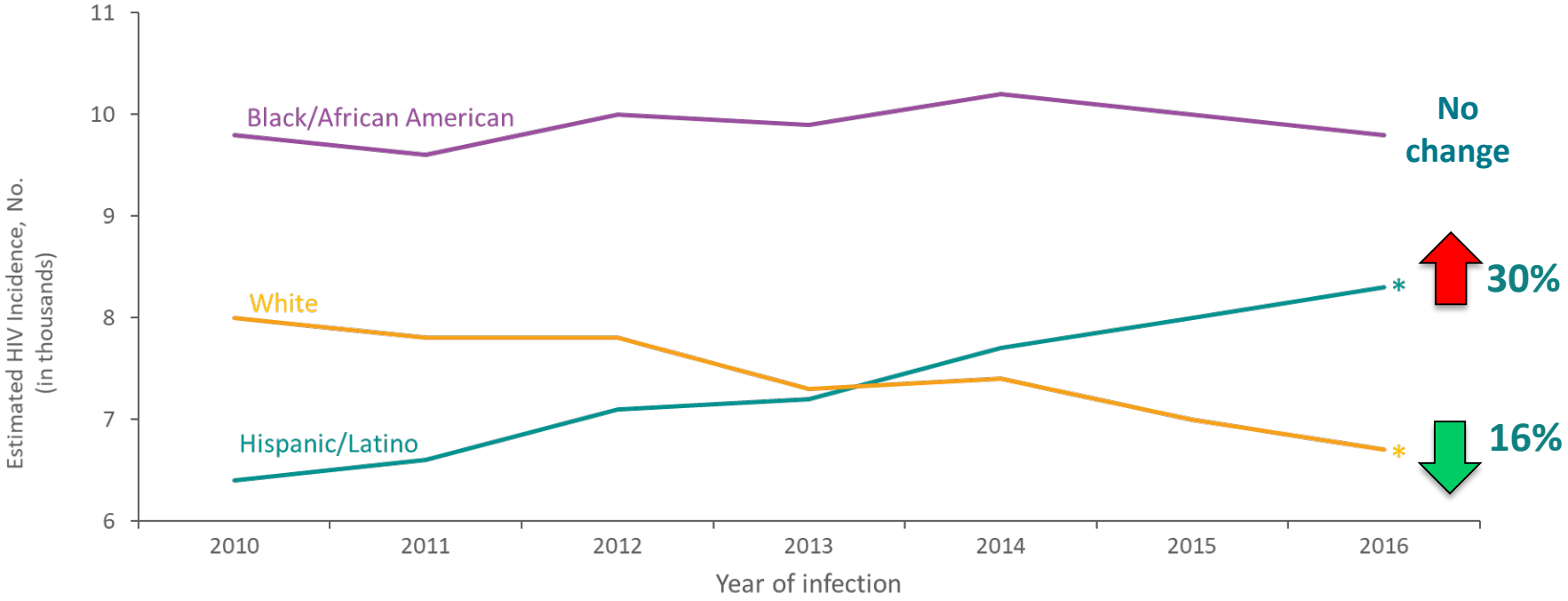
Estimated HIV Incidence Among Men Who Have Sex with Men Aged ≥ 13 Years by Race/Ethnicity, 2010–2016—United States



Note. Estimates were derived from a CD4 depletion model using HIV surveillance data. Data have been statistically adjusted to account for missing transmission category. Data on men who have sex with men do not include men with HIV infection attributed to male-to-male sexual contact and injection drug use. Hispanics/Latinos can be of any race.

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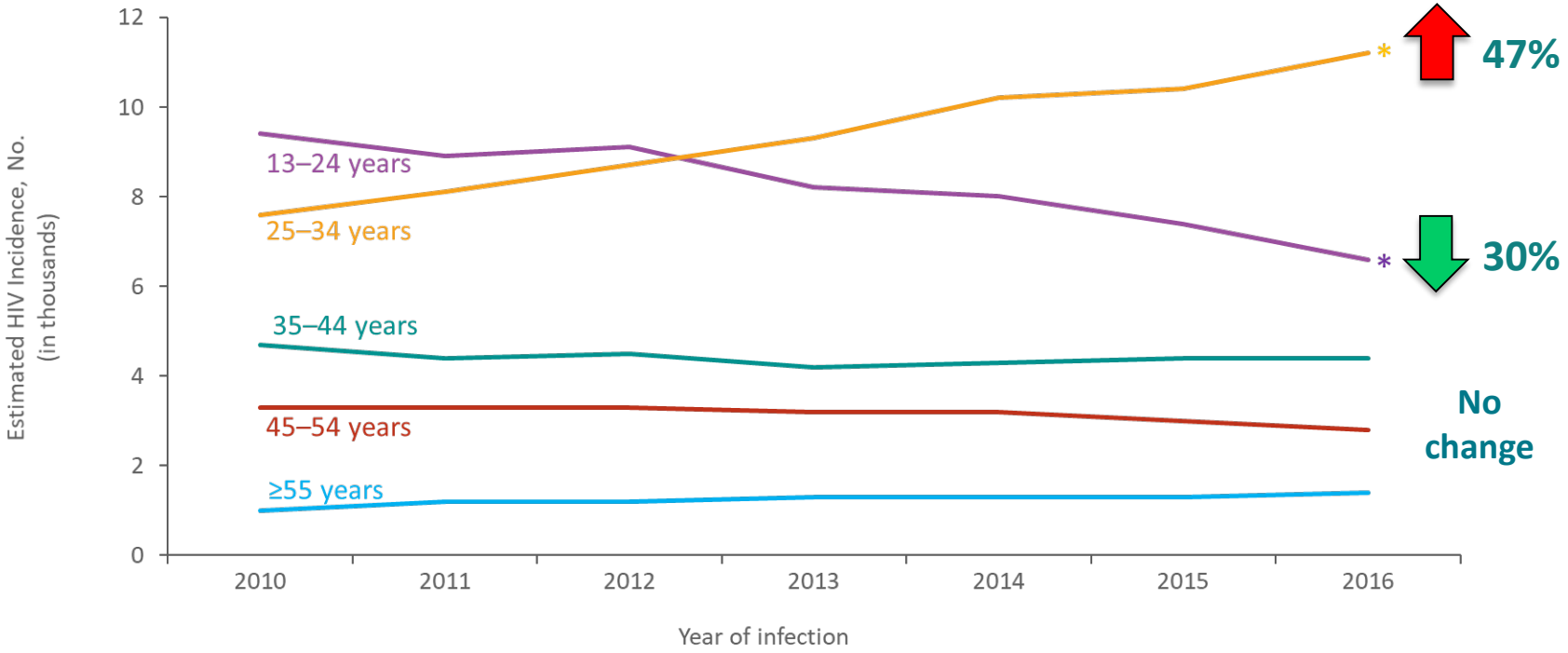
Estimated HIV Incidence Among Men Who Have Sex with Men Aged ≥ 13 Years by Age, 2010–2016—United States



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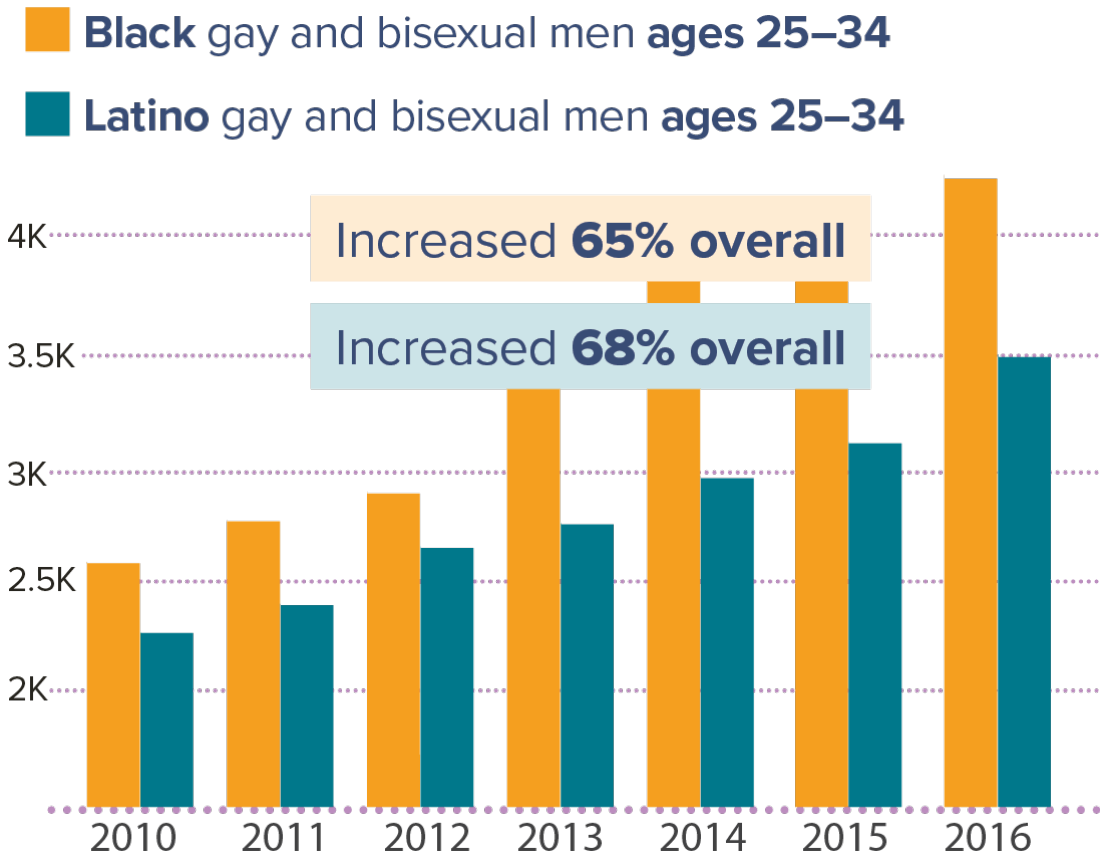
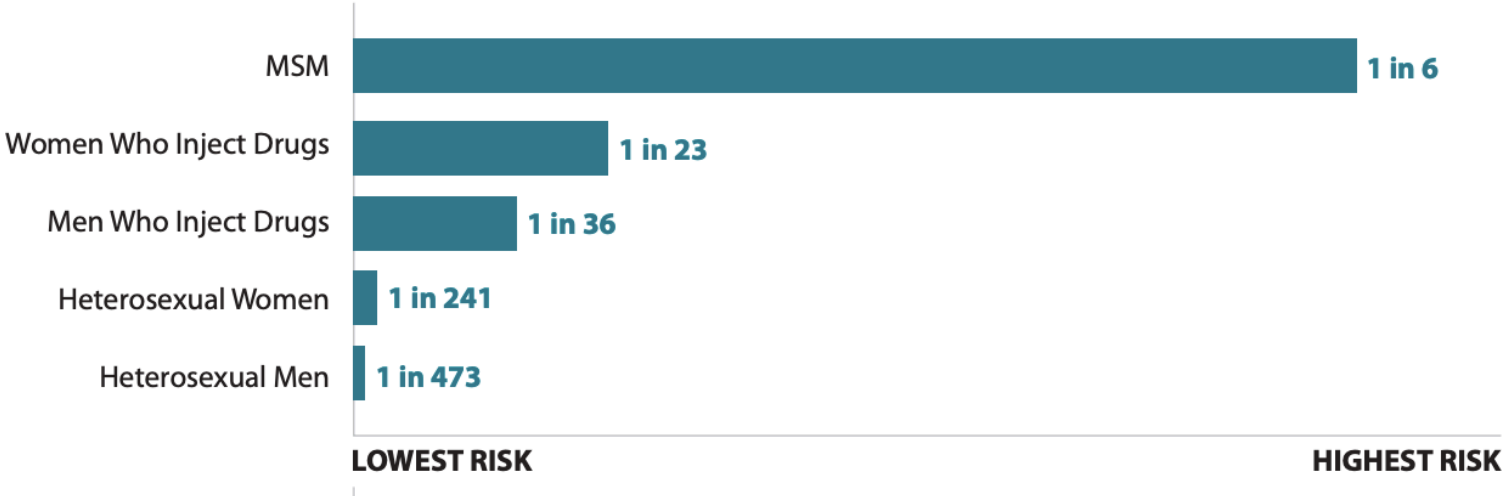
New Infections Rising Fastest Among Young Black and Latino MSM



Lifetime Risk of HIV Diagnosis by Transmission Category



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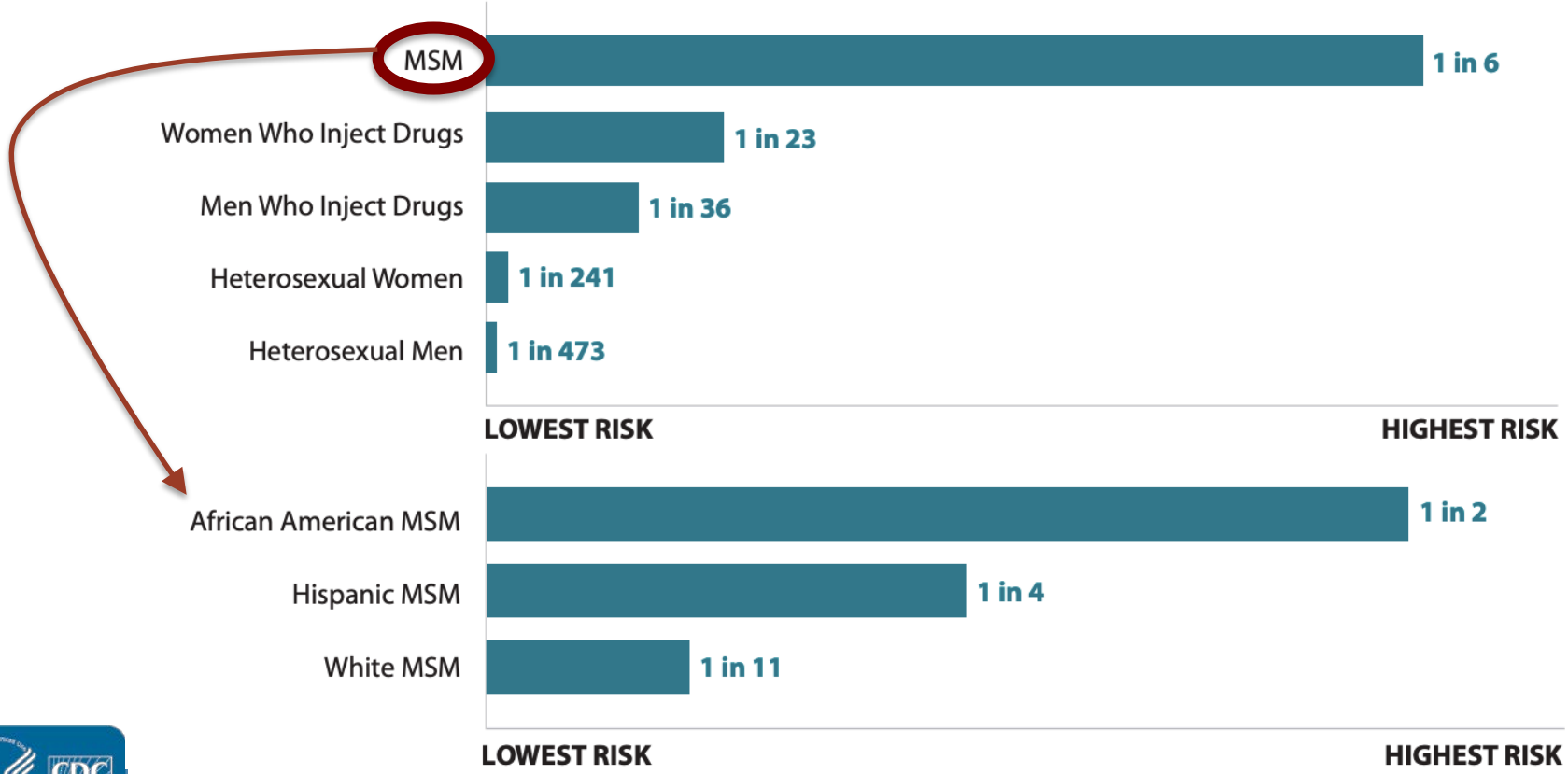

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Southern U.S. Disproportionately Affected By HIV

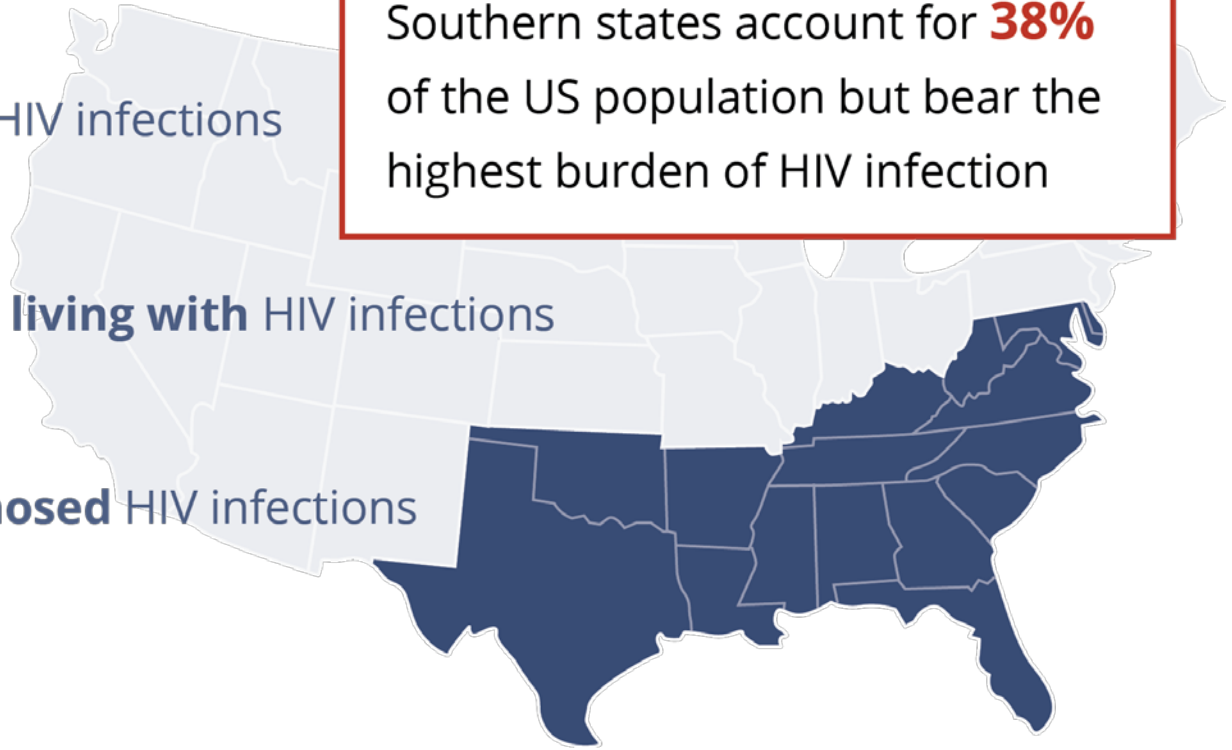
The South

51% of **annual** HIV infections

45% of **persons living with** HIV infections

50% of **undiagnosed** HIV infections

Southern states account for **38%** of the US population but bear the highest burden of HIV infection



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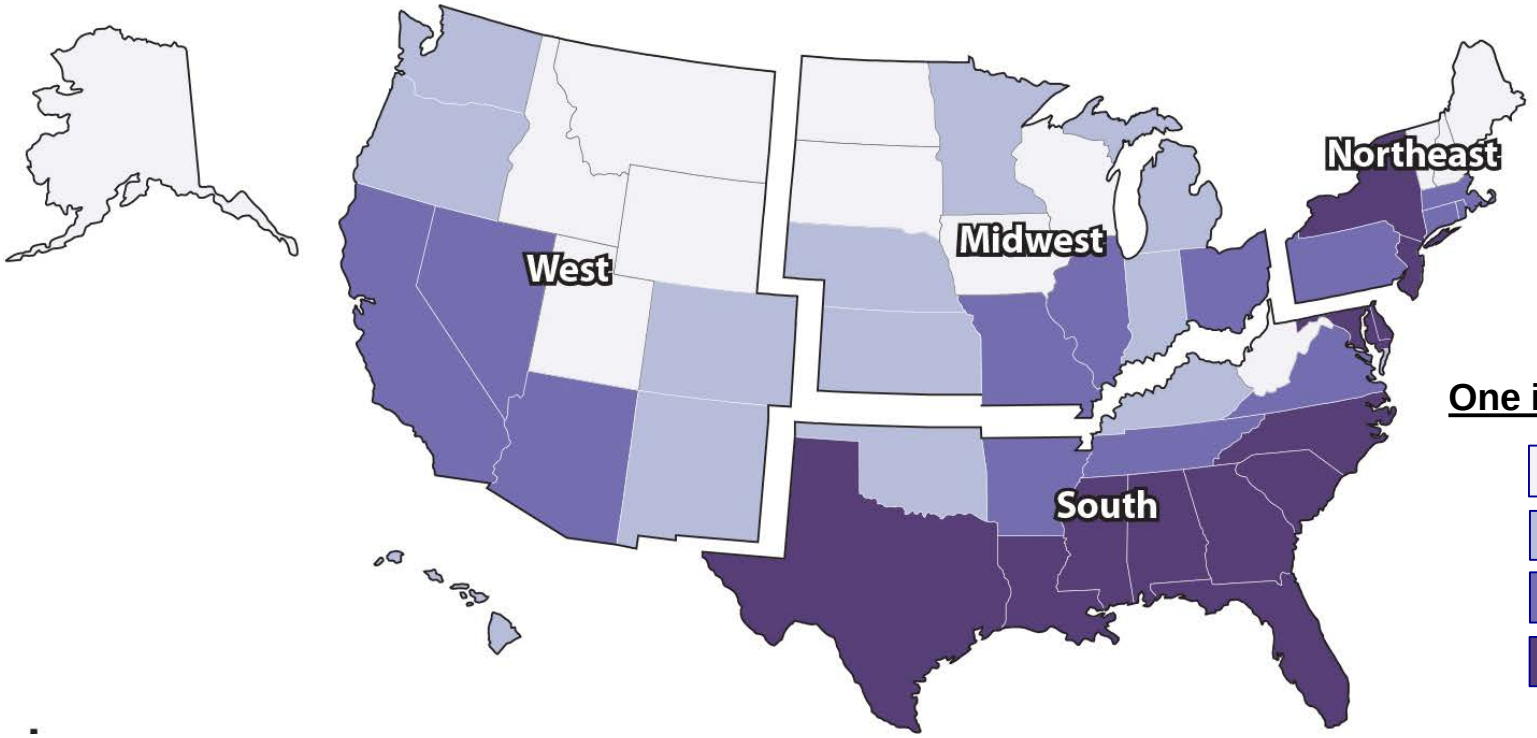
Lifetime Risk of HIV Diagnosis by State



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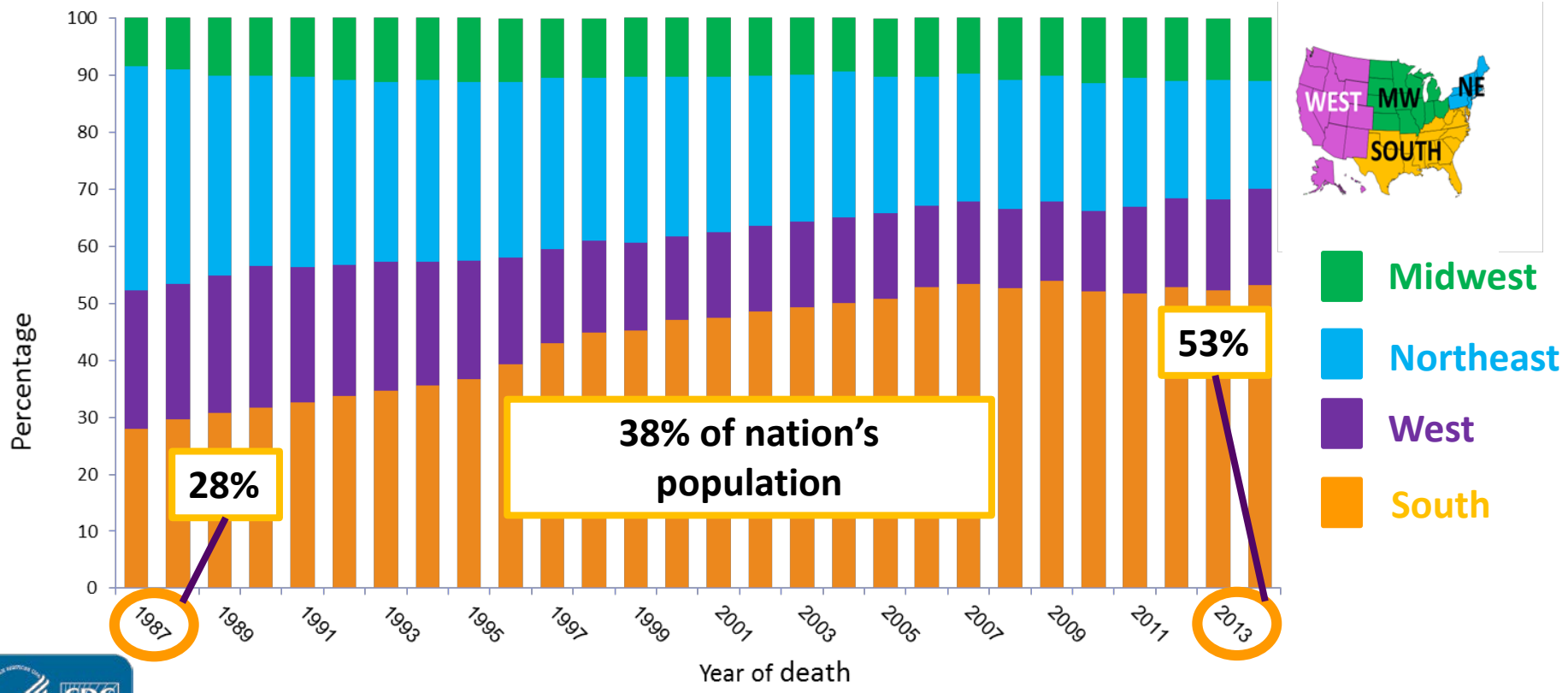
Trends in the Percentage Distribution of Deaths due to HIV Infection by Geographic Region, United States, 1987-2014



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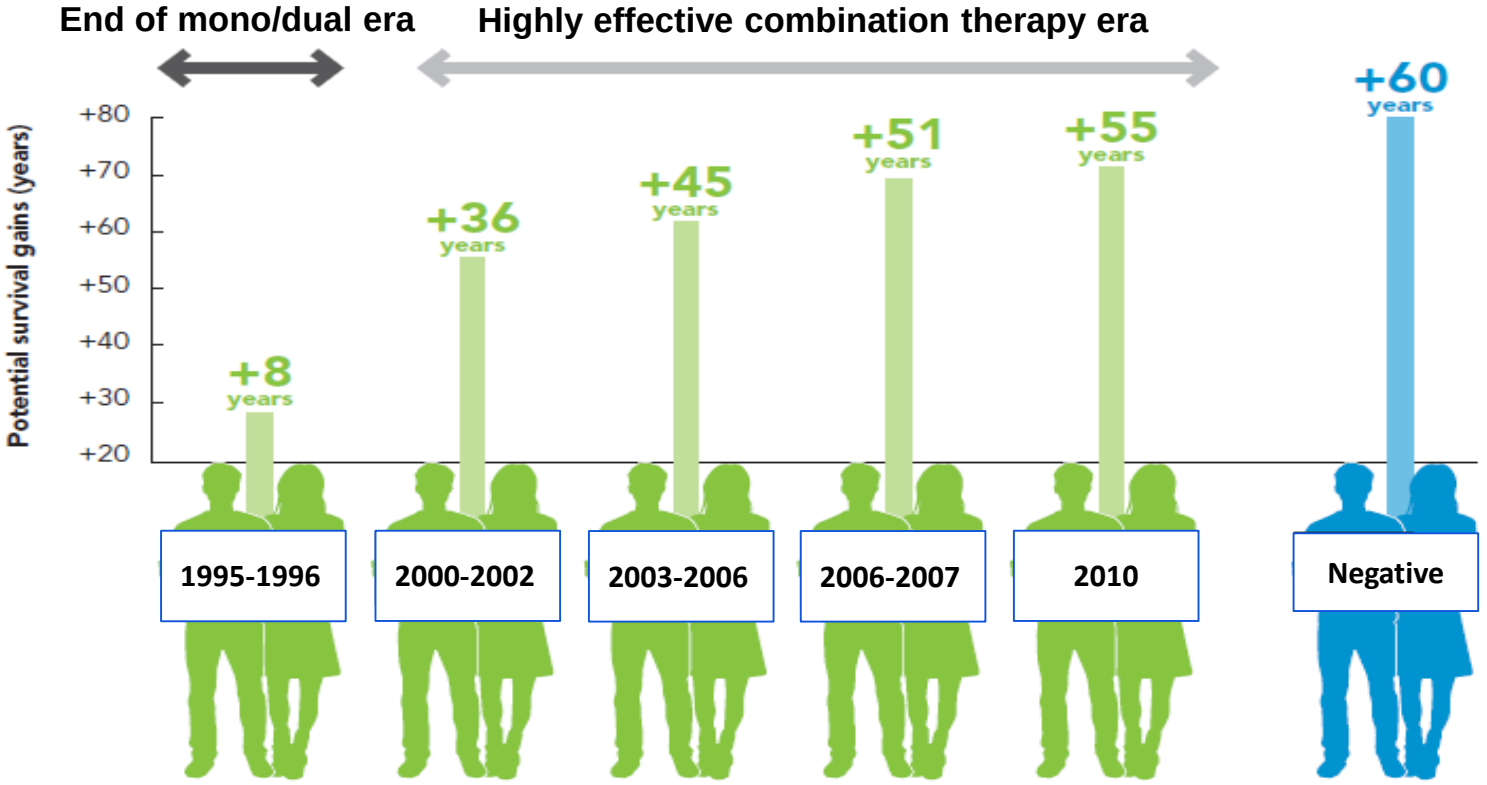
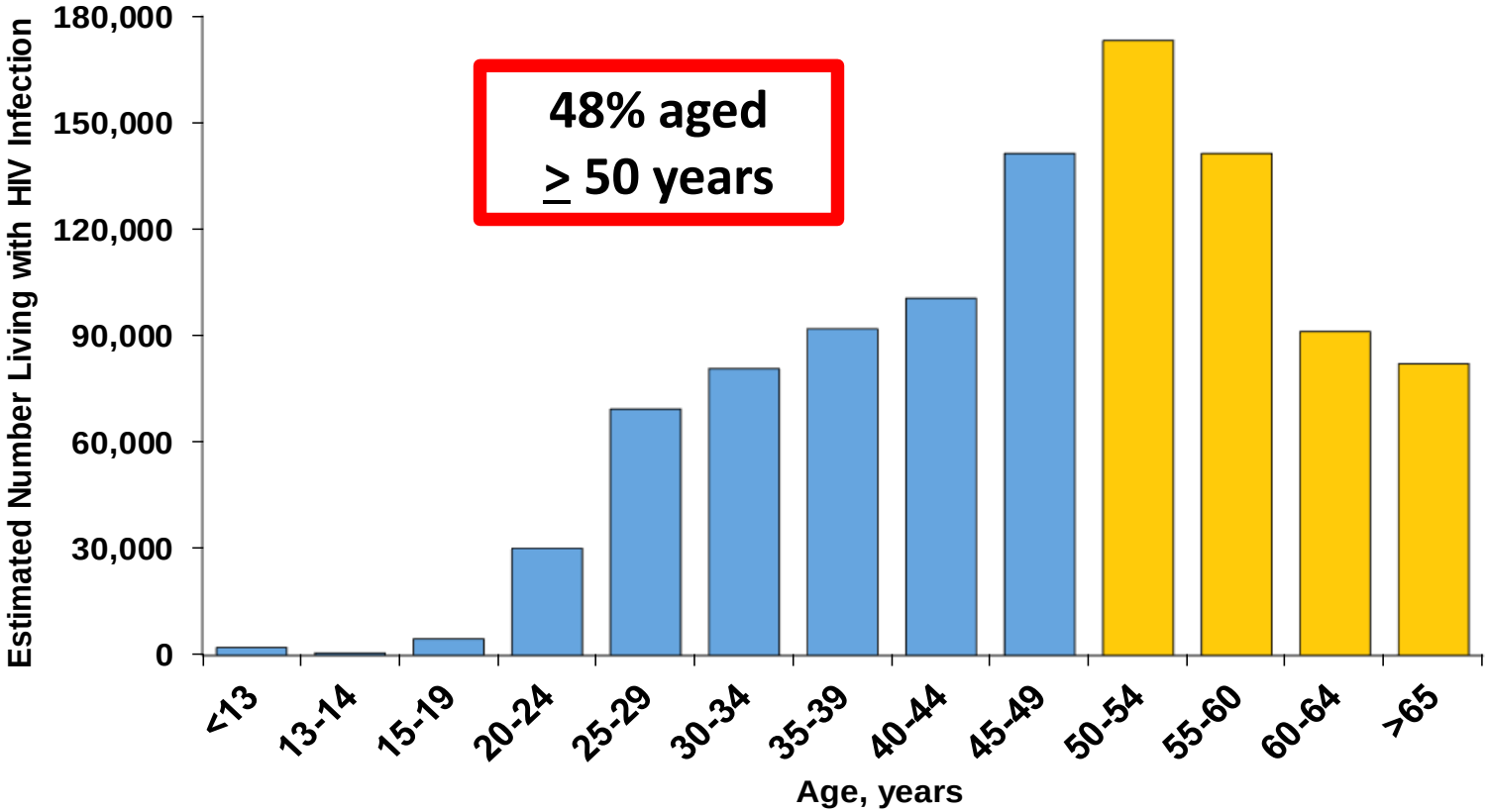
Effective Treatment Extends Lifespan



Adapted from Lohse et al, 2007; Hogg et al, 2008; May et al, 2011; & Hogg et al, 2013.

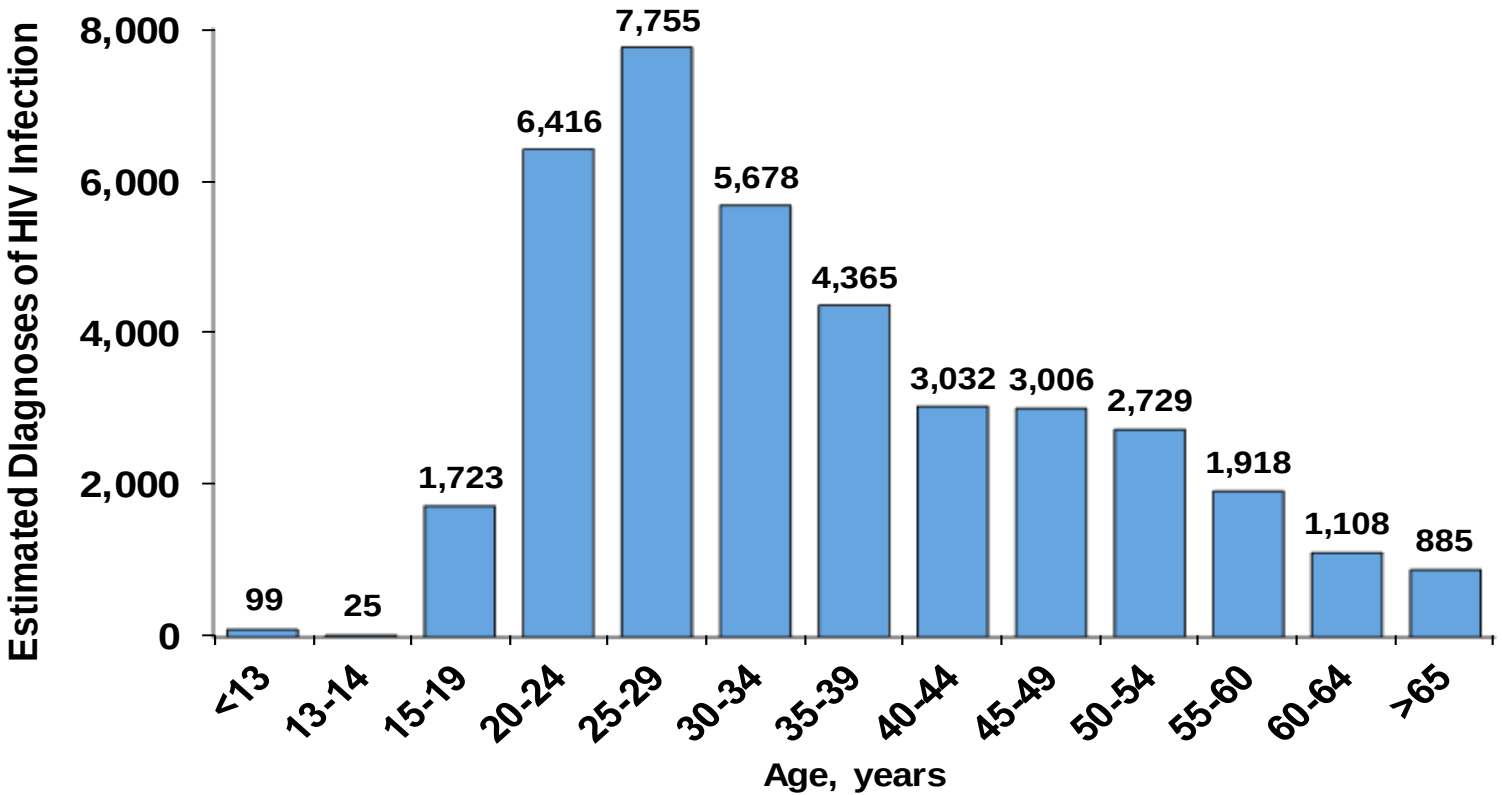
UNAIDS

Living with HIV Diagnoses by Age, Year-End 2016
U.S. and Dependent Areas



Source: CDC. Diagnoses of HIV infection in the United States and Dependent Areas, 2017. HIV Surveillance Report 2018;29.

New HIV Diagnoses by Age, 2017, U.S. and Dependent Area



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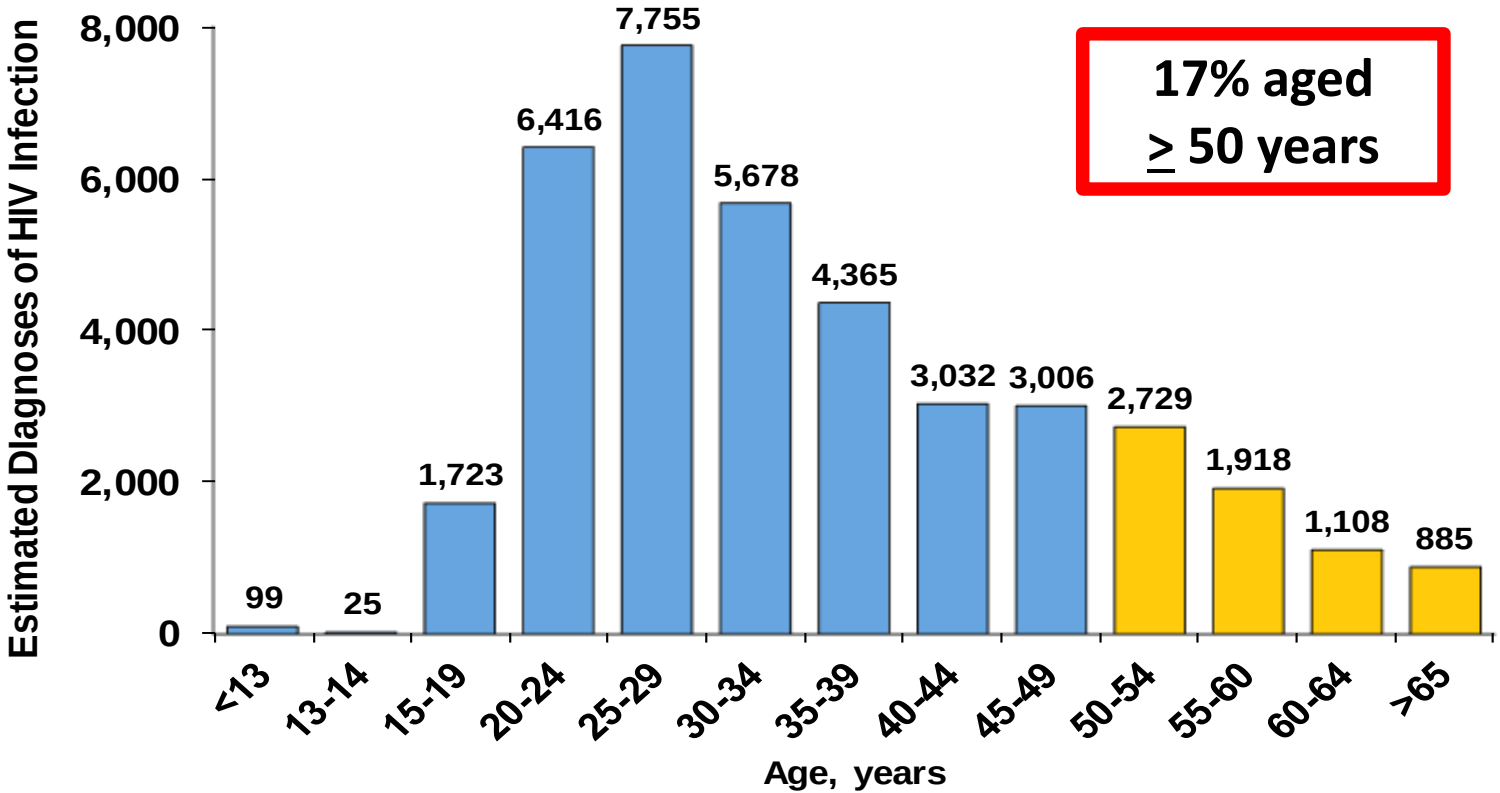

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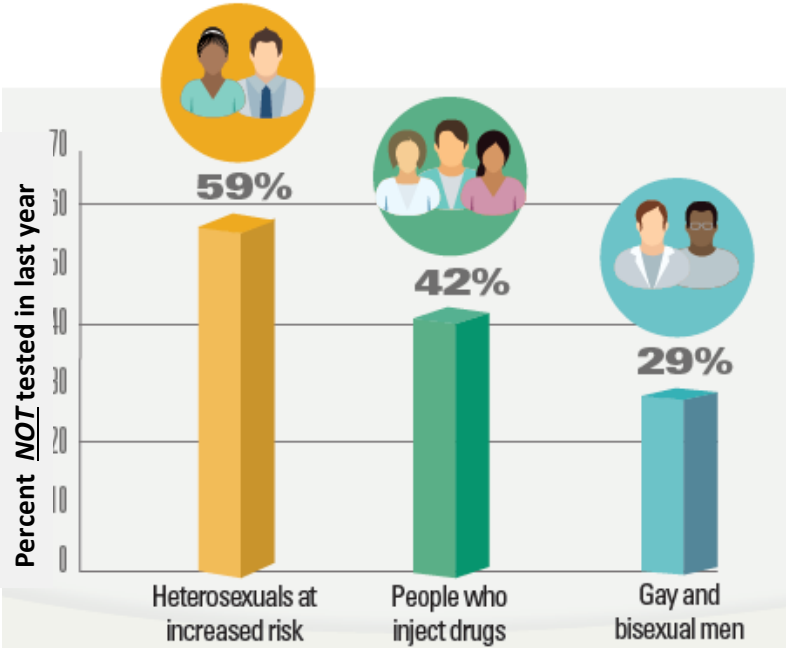
Many People at Risk for HIV Not Tested Annually



7 in 10 people at high risk who weren't tested for HIV in the past year saw a healthcare provider during that time.

More than **75%** of them weren't offered a test.

In 2015, **nearly 40,000** people in the US received an HIV diagnosis

1 in **2** had been living with HIV 3 years or more

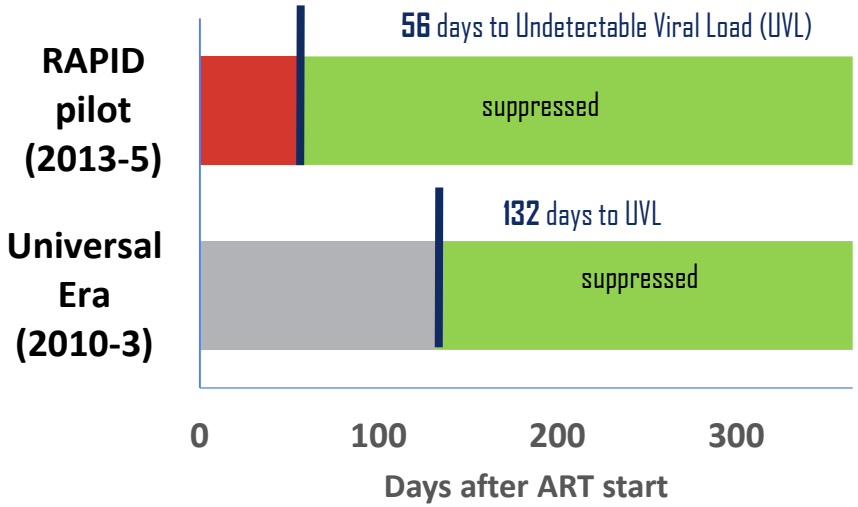
1 in **4** had been living with HIV 7 years or more

1 in **5** already had the most advanced stage of HIV (AIDS)

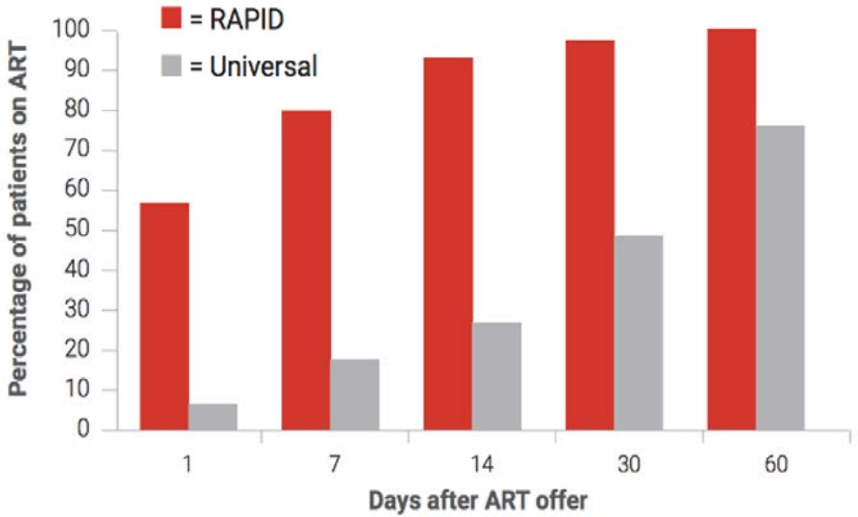
Dailey et al., MMWR Morb Mortal Weekly Rep, 2017; 66(47): 1300-1306

Test-and-Treat Strategy Suppresses Viral Load Quickly and is Highly Acceptable

Same-day treatment suppressed almost **two and half times as fast** as conventional…



…and was **highly acceptable** to patients measured by number on ART since diagnosis



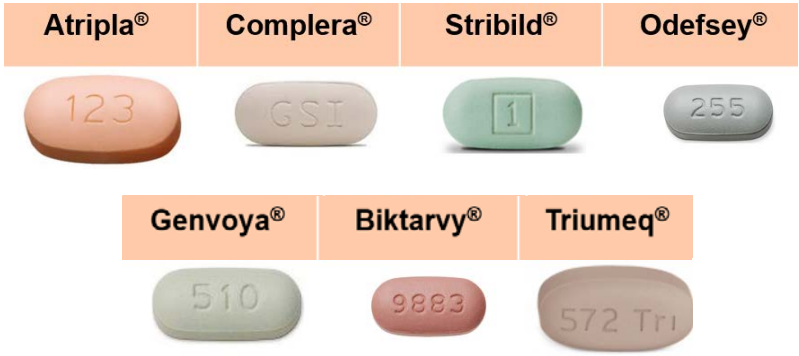
Pilcher et al., J Acquir Immune Defic Syndr, 2017; data from San Francisco General Hospital

HIV Medical Therapy is Now Simple and Effective

1990s

- Complex
- Limited potency
- High toxicity

TODAY



- Simplified (one pill per day)
- Very potent
- Few side effects

Effective Treatment Prevents Sexual HIV Transmission

THREE LARGE SCALE CLINICAL TRIALS

- **HPTN 052**
- **PARTNER 1 & 2**
- **OPPOSITES ATTRACT**

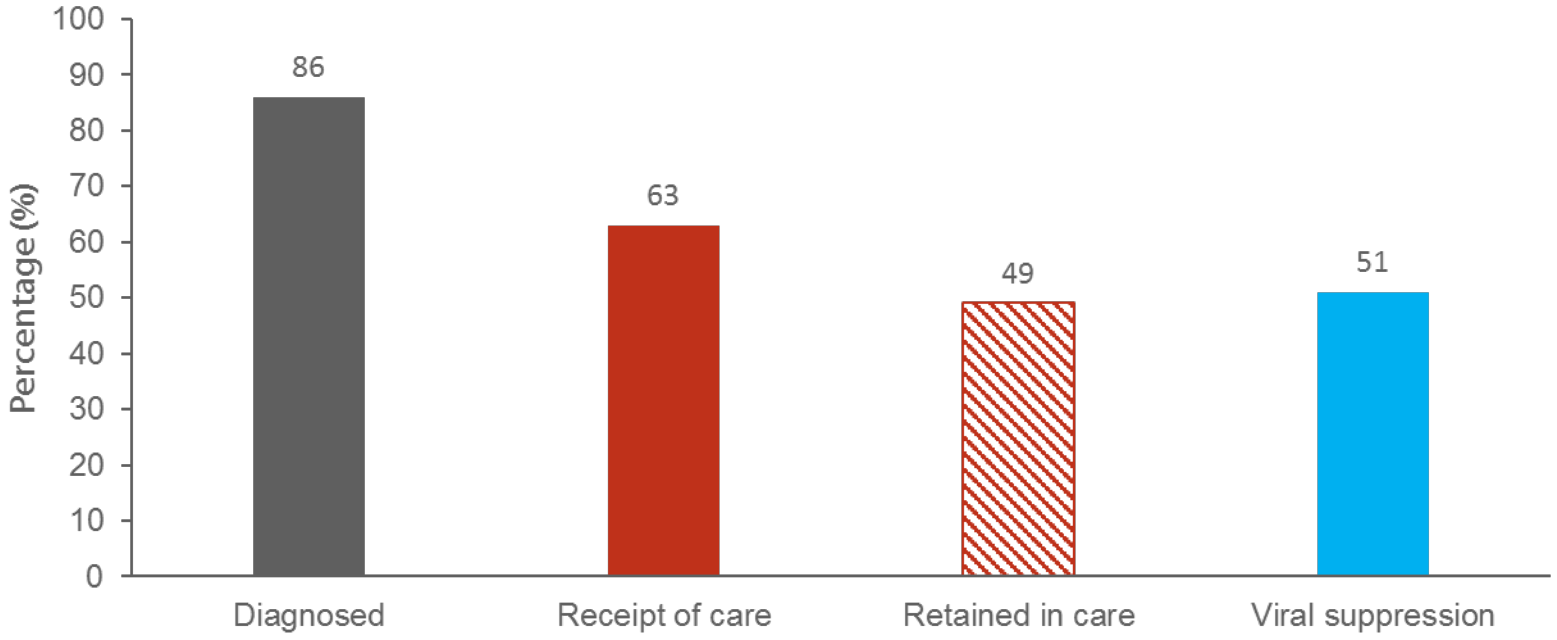
3,777 mixed HIV-status couples
- 2,311 heterosexual
- 1,466 MSM

Approximately 125,000
condomless episodes vaginal/anal sex with
NO TRANSMISSION of HIV

Persons who achieve and maintain a suppressed viral load have effectively no risk of transmitting HIV infection

Cohen et al., N Engl J Med 2016, 375(9):830-839, Rodger et al., JAMA 2016, 316(2):171-181, Bavinton et al., abstract TUAC0506LN, IAS 2017, Rodger et al., abstract WEAXO104LB, AIDS 2018.

Persons Living with Diagnosed or Undiagnosed HIV Infection
HIV Care Continuum Outcomes, 2015—United States



Note. Receipt of medical care was defined as ≥1 test (CD4 or VL) in 2015. Retained in continuous medical care was defined as ≥2 tests (CD4 or VL) ≥3 months apart in 2015. Viral suppression was defined as <200 copies/mL on the most recent VL test in 2015.

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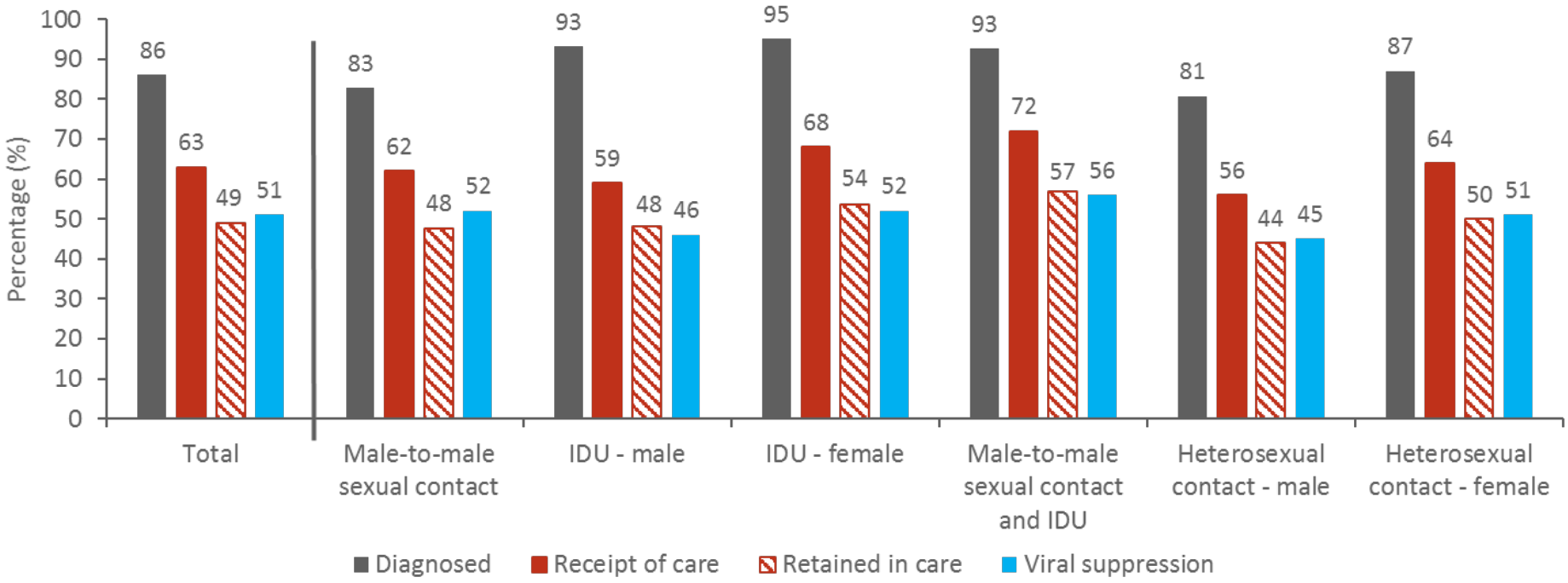

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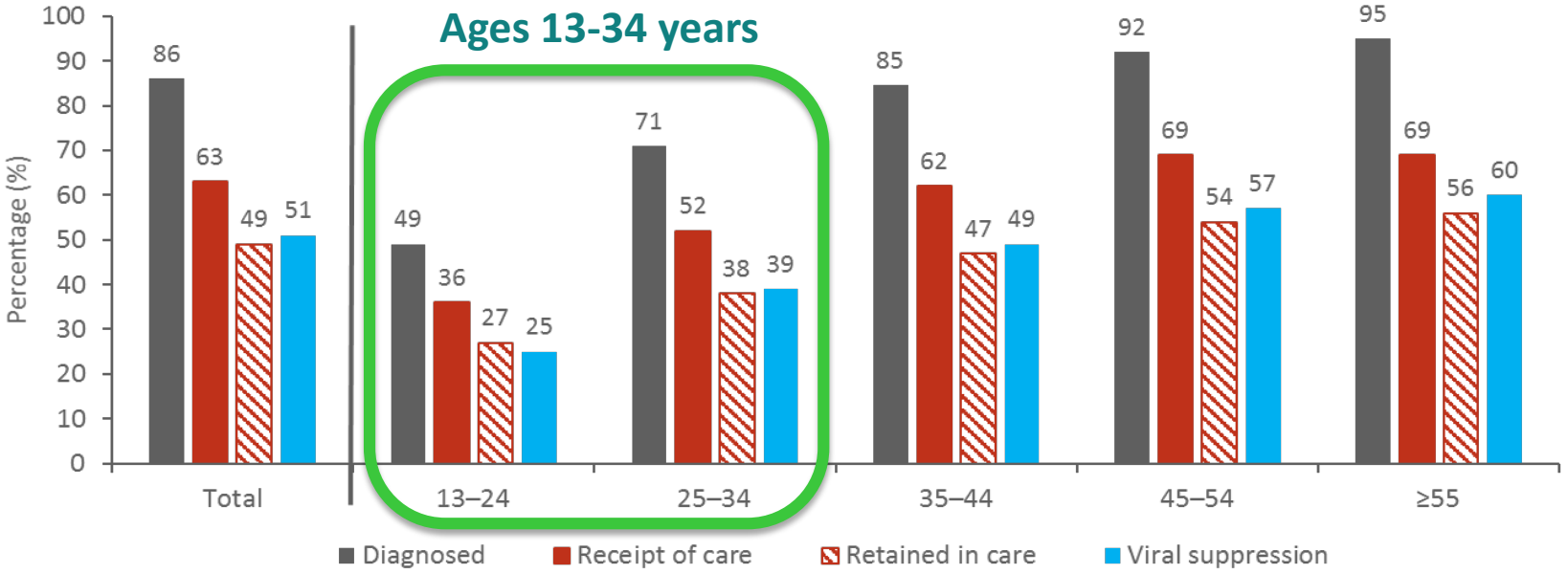

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Most Infections from Persons Undiagnosed or Not in Care

HIV TRANSMISSIONS IN 2016		
% OF PEOPLE WITH HIV	STATUS OF CARE	ACCOUNTED FOR X% OF NEW TRANSMISSIONS*
15%	didn't know they had HIV	38%
23%	knew they had HIV but weren't in care	43%
11%	in care but not virally suppressed	20%
51%	taking HIV medicine and virally suppressed	0%

38% of infected persons account for 81% of new infections

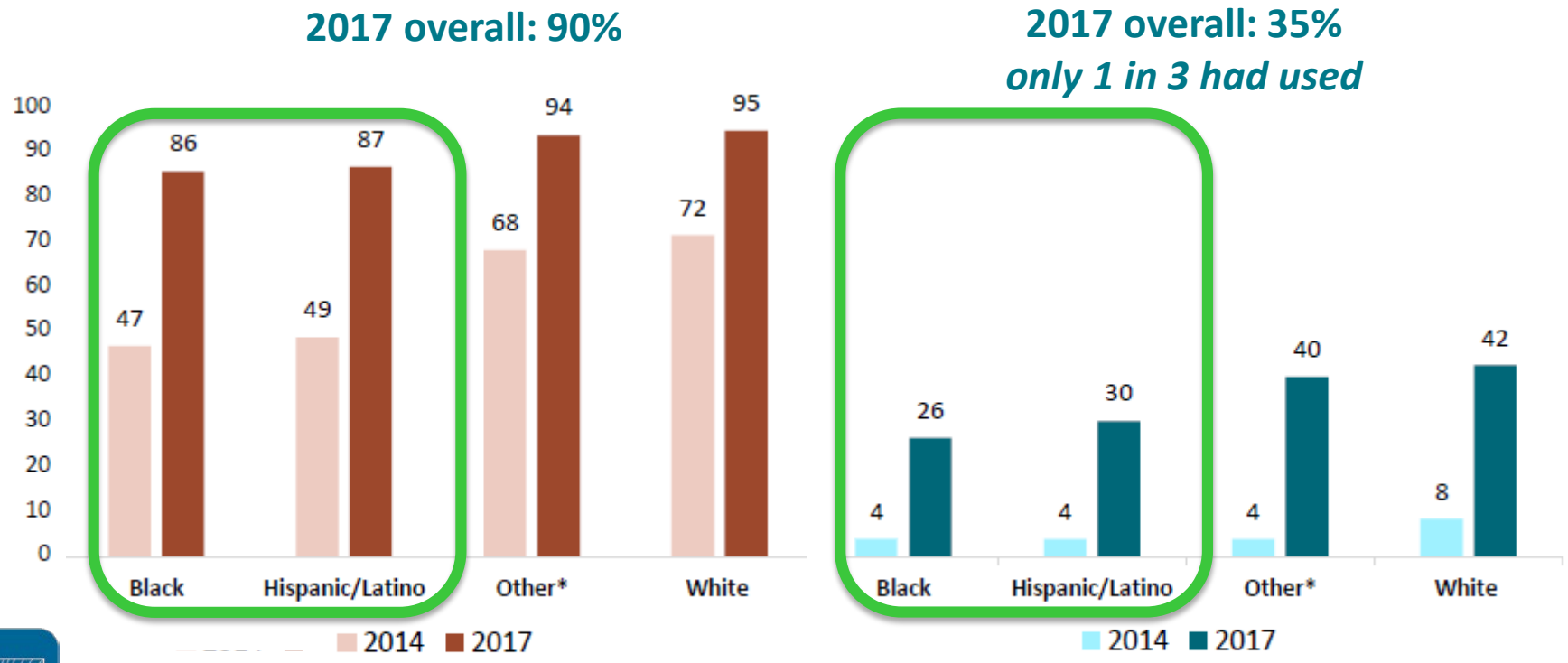
Source: Li et al., MMWR Morb Mortal Weekly Rep, 2019; 68:1-6.

Pre-Exposure Prophylaxis (PrEP)

- Single tablet combination of tenofovir/emtricitabine
- Currently the only FDA-approved drug for PrEP in the U.S.
- ≥ 90% effective for preventing sexual transmission
- Estimated 1.1 million Americans eligible

PrEP Awareness and Use Growing Among MSM

CDC National HIV Behavioral Surveillance

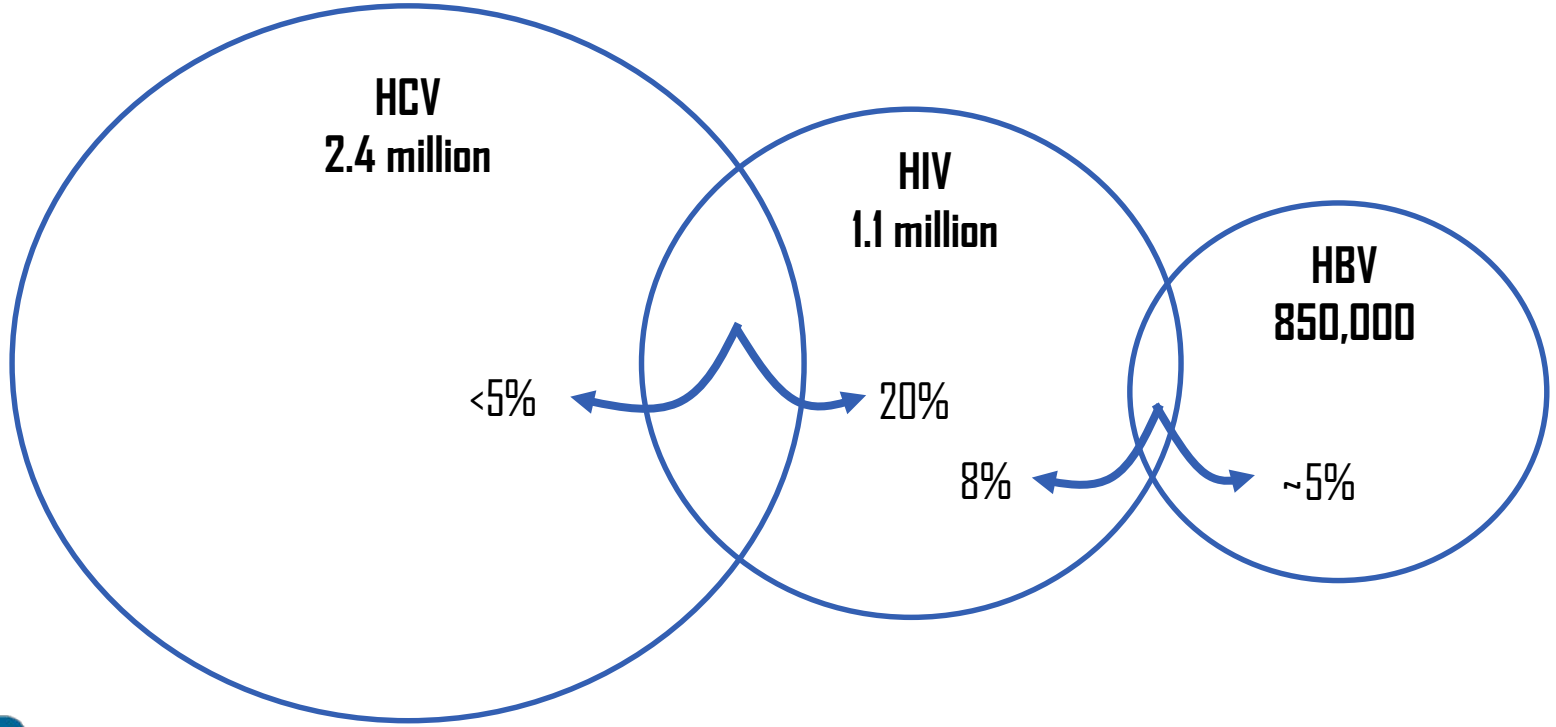


Finlayson et al., abstract #972, CROI 2019, Seattle WA

With ART HIV Infection in 2019 is a Highly Preventable and Manageable Chronic Disease

- ART requires life-long care to suppress viral replication
  - Facilitated by multiple single-tablet once-daily regimens
- “Near normal” life expectancy if effectively treated
- Getting suppressed requires **getting diagnosed** and into ongoing care
  - HIV care continuum is key focus
- PrEP is a potent and highly efficacious prevention tool
  - Underutilized among MSM

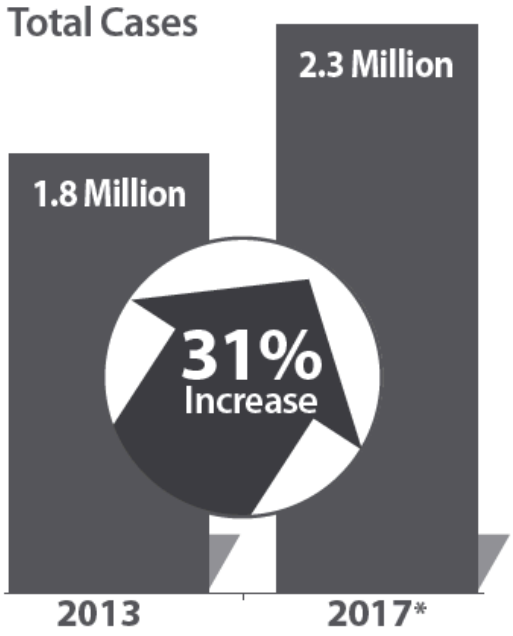
Coinfections HIV and HCV/HBV: General Population 252 million adults age ≥ 18 years

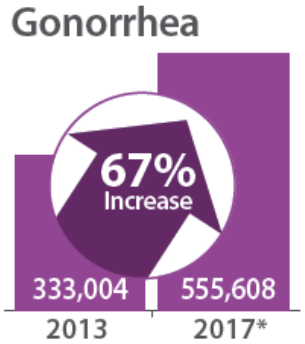


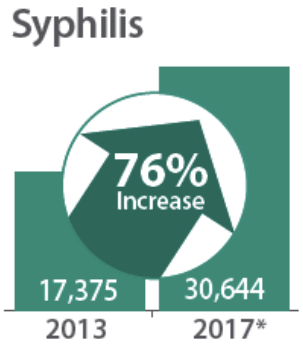
Moorman AC et al., Clin Infect Dis, 2018; 56a(1):40-50. Moorman AC Infect Dis Clin North Am 2018; 32(2):253-268
BoshKA et al., Epidemiol Infect, 2018; 87(11):2415-2422.

THE U.S. IS EXPERIENCING STEEP, SUSTAINED INCREASES IN SEXUALLY TRANSMITTED DISEASES

Combined diagnoses of chlamydia, gonorrhea, and syphilis **increased sharply over the past five years**







Chlamydia

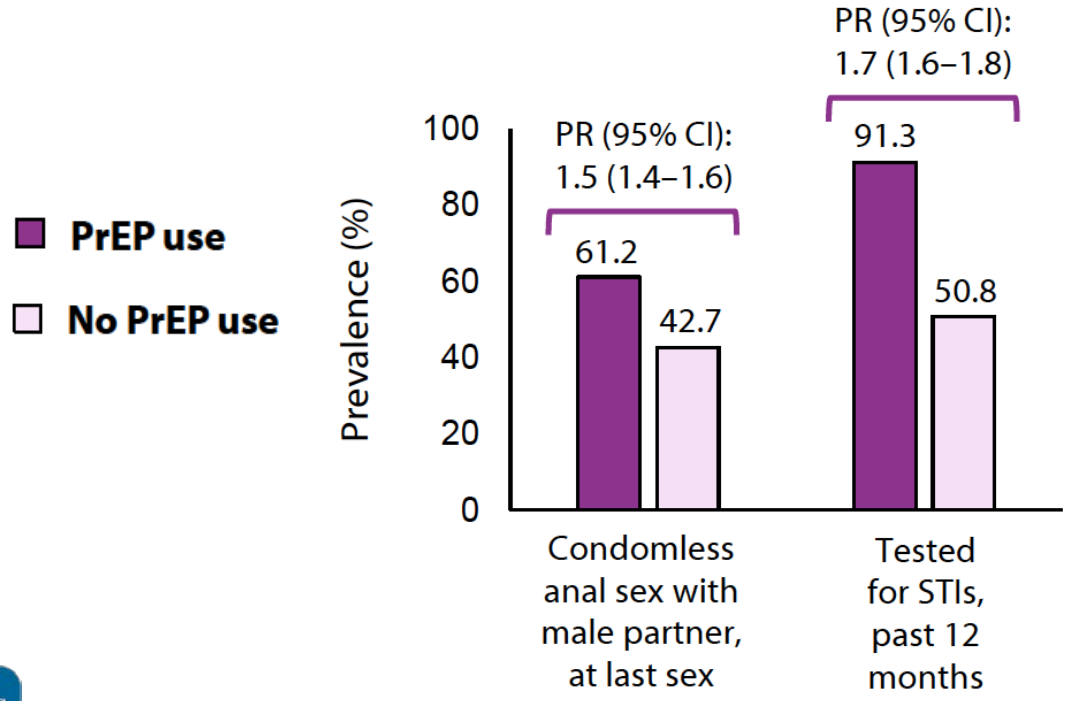
1.7 MILLION

In 2017* chlamydia was the **most common condition** reported to CDC

*Preliminary data

Condomless Sex and STI Testing Among Among MSM by PrEP Use in Past 12 Months

CDC National HIV Behavioral Surveillance



Among PrEP users in 2017:

- **More condomless sex**
- **More STI testing**

Chapin-Bardales et al., abstract #968, CROI 2019, Seattle WA

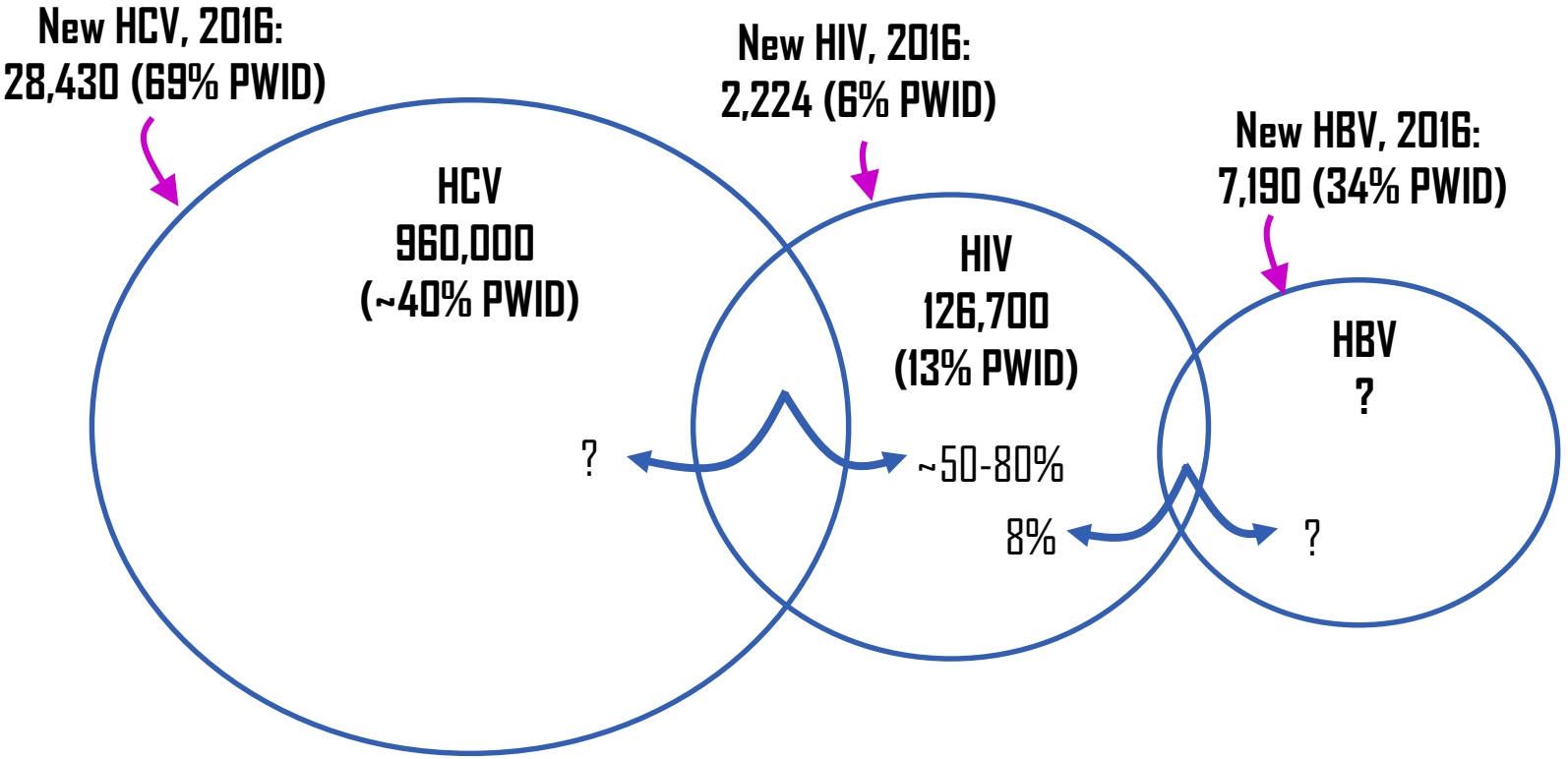
Summary

- New HIV diagnoses continue to decline but disproportionately and increasingly affect certain populations MSM, especially young Latino/Hispanic and Black African-American
  - The southern United States region
- With antiretrovirals, there is the possibility of true HIV control
  - *No new infections* is within our grasp
  - Requires that all infected persons must know their status and at-risk persons be provided effective options to protect themselves
- Without HIV diagnosis, access to life-saving care is denied and risk of on-going transmission persists.
- Persons at risk for and with HIV will require testing for comorbid infections

John T. Brooks: zud4@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

Extent of Comorbid Conditions: PWID
6.6 million ever used, 775,000 used in past year



* PWID – persons who inject drugs