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Addressing STIs among MSM: A Clinical and Public Health Update

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Learning objectives

- Summarize recent trends in STIs among MSM
- Discuss potential explanations for the changes in STI incidence seen in MSM
- Describe approaches to STI screening and control for MSM

I am a(n):

- A. Medical clinician
- B. Behavioral health clinician
- C. Administrator
- D. Public health official
- E. Case manager
- F. Something else

A case

- 42-year-old man, generally healthy
- Presents to the ED with 2 weeks of diarrhea; stool studies show *Entamoeba histolytica*; treated with metronidazole
- 5 days later, comes to the ED with fever, lymphadenopathy, diffuse rash, and abdominal pain
- Only other medical problem is high cholesterol
- Started PrEP 5 months ago; also using crystal methamphetamine; 5 male condomless anal sexual partners in the past month
- Physical examination shows diffuse lymphadenopathy; red papules on the chest, back, abdomen, arms, and legs; and right upper quadrant tenderness
- Laboratory studies show ALT, AST in the 200s, alkaline phosphatase in the 500s, total bilirubin 5.6; ESR 75.



What is the most likely cause of his illness?

- A. Acute HIV
- B. Drug reaction to metronidazole
- C. Secondary syphilis
- D. Disseminated gonorrhea
- E. Hepatitis C
- F. Lymphoma




Case, continued

- Treponemal antibody positive, RPR 1:64
- Diagnosis: Secondary syphilis with syphilitic hepatitis
- Symptoms and laboratory abnormalities resolved with intramuscular penicillin
- Patient: “I had no idea all this could happen from not using condoms.”





HIV incidence, 2008-2014

- Overall ↓
- Heterosexual, injection drug use (IDU), MSM/IDU ↓
- MSM ↔

HIV incidence among MSM, by race/ethnicity, 2008-2014

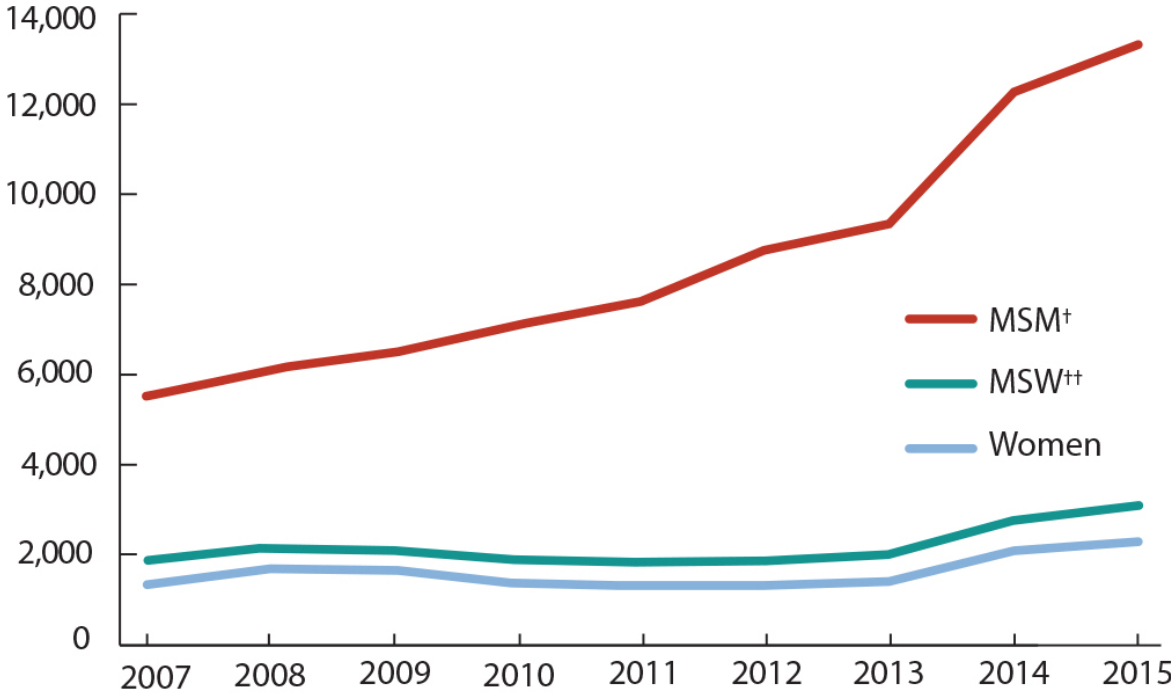
- White 
- Black/African American 
- Hispanic 

HIV incidence among MSM, by age, 2008-2014

- 13-24 years 
- 25-34 years 
- 35-44 years 
- ≥ 45 years 

Singh S, 2017

Gay and Bisexual Men Face Highest – and Rising – Number of Syphilis Infections



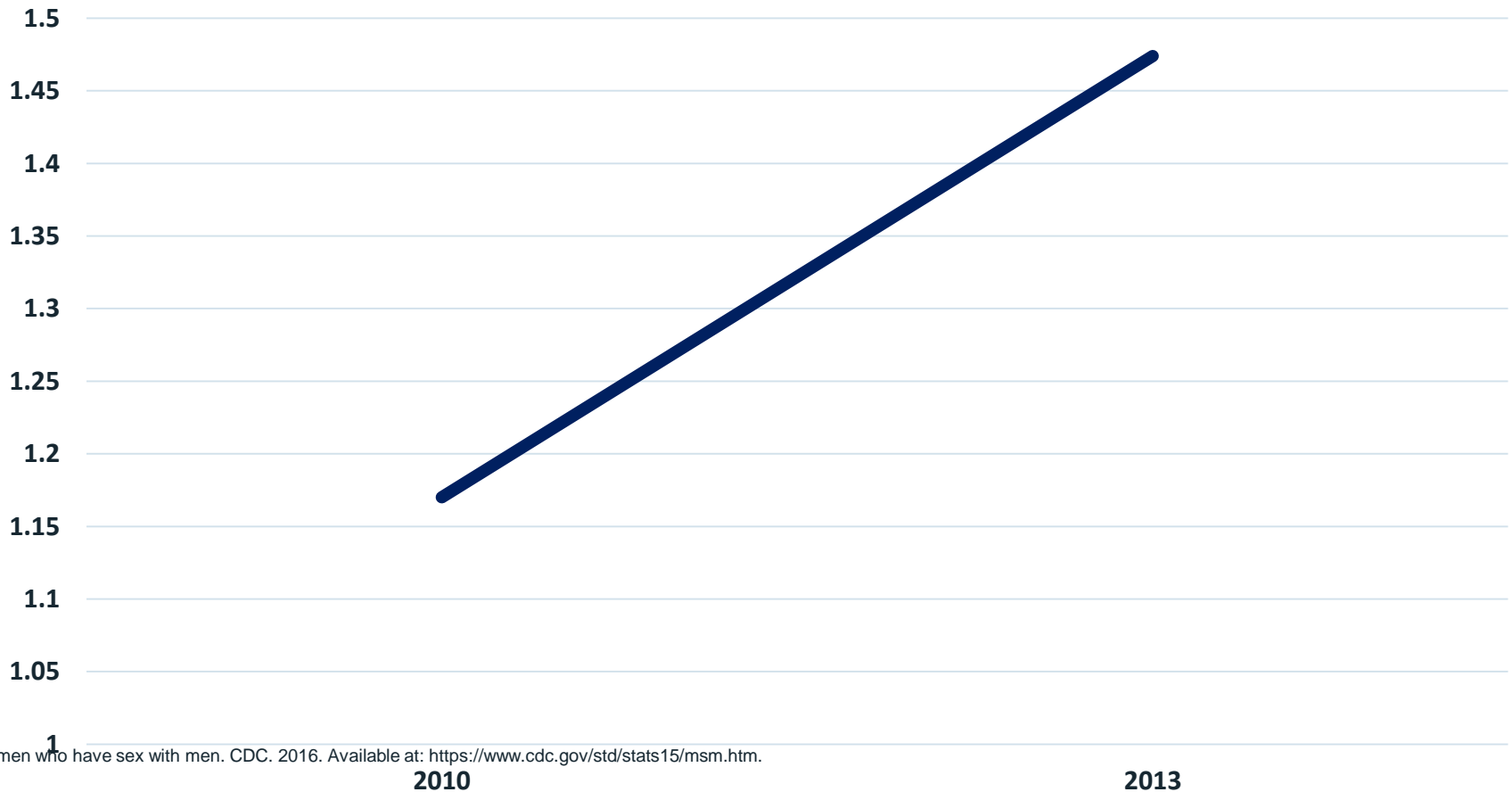
[†] Men who have Sex with Men ^{††} Men who have Sex with Women

Note: Based on available data from states reporting sex of sex partners

2015 STD surveillance report. CDC. 2016. Available at: <https://www.cdc.gov/nchhstp/newsroom/2016/2015-std-surveillance-report.html>

Gonorrhea incidence among MSM rose from 2010 to 2013.

Gonorrhea incidence among MSM, per 100 people



1
STDs in men who have sex with men. CDC. 2016. Available at: <https://www.cdc.gov/std/stats15/msm.htm>.

2010

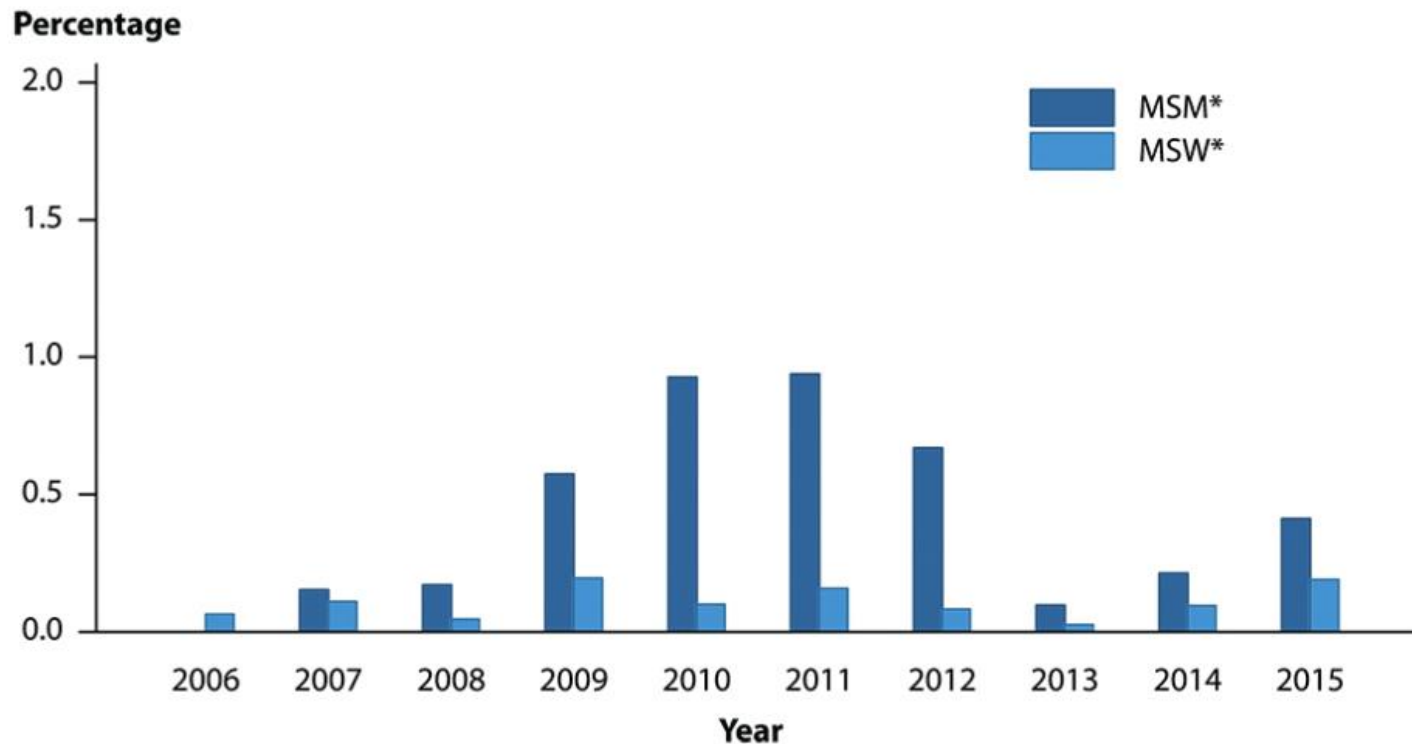
2013



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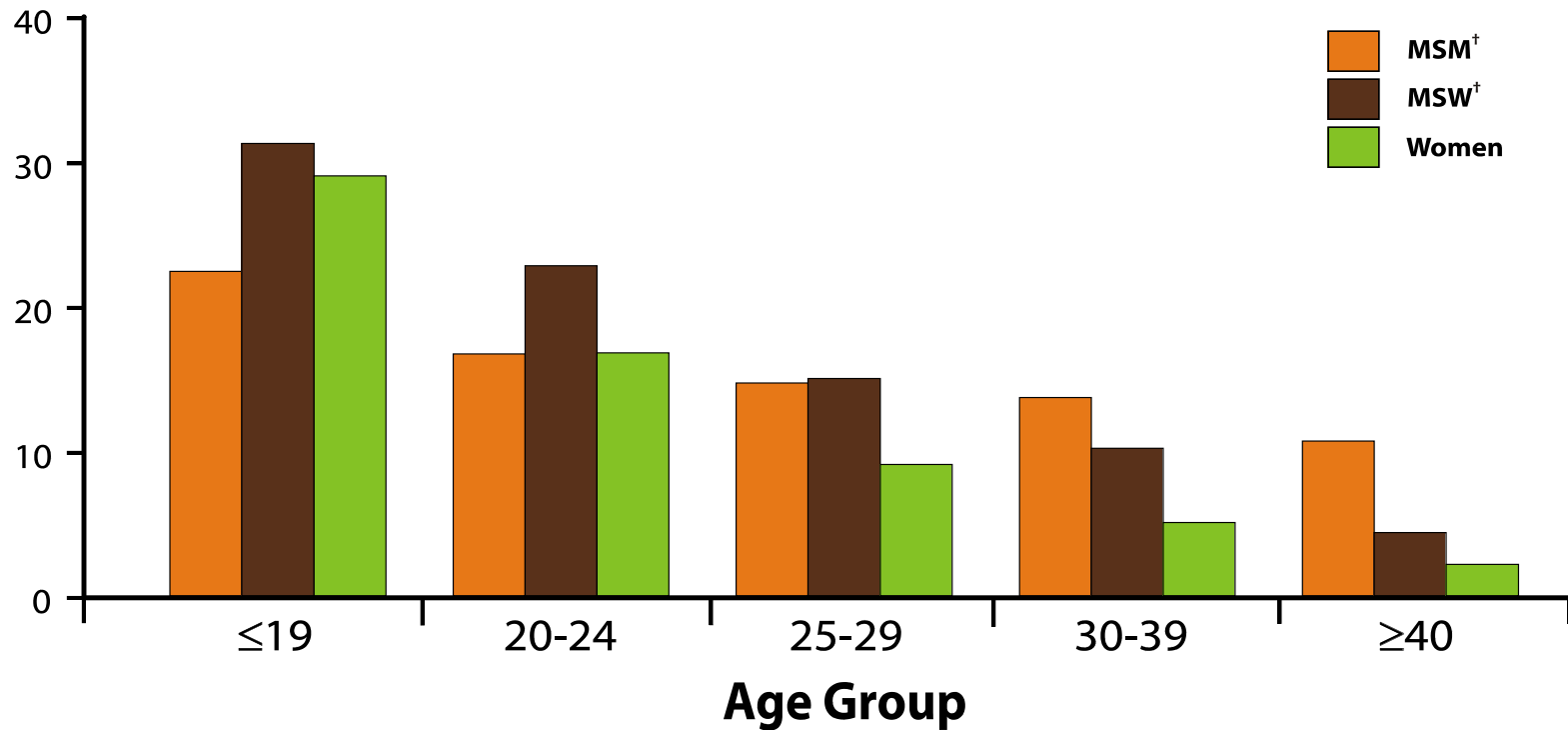
MSM are more likely than MSW to have antibiotic-resistant gonorrhea.



2015 sexually transmitted disease surveillance. CDC. 2016. Available at: <https://www.cdc.gov/std/stats15/figures/aa.htm>.

Chlamydia is common, but not necessarily more so among MSM.

Percentage



2015 sexually transmitted disease surveillance. CDC. 2016. Available at: <https://www.cdc.gov/std/stats15/figures/9.htm>.

A case

- 39-year-old man with HIV on ART (tenofovir-emtricitabine-elvitegravir-cobicistat); CD4 432, HIV RNA < 20
- 2 weeks of crampy abdominal pain, watery diarrhea without blood; no fever
- Sexually active with 2 male sexual partners
- Physical examination notable for mild, diffuse abdominal tenderness without rebound or guarding



What is the most likely cause of his illness?

- A. Side effect from ART
- B. Cytomegalovirus colitis
- C. Shigella infection
- D. HIV itself



STOOL CULTURE - Final

No Special Requests

SHIGELLA SONNEI (GROUP D)

RESULT CALLED TO CARE UNIT AND/OR MD

Identification confirmed by STATE LAB, MA Dept of Public Health, 305 South Street, Jamaica Plain, MA 02130

RAPID MIC METHOD

Antibiotic	Result	Interpretation
Ampicillin	>=32	Resistant
Ceftriaxone	<=1	Susceptible
Ciprofloxacin	>=4	Resistant
Levofloxacin	>=8	Resistant
Trimethoprim/Sulfamethoxazole	>=320	Resistant

GRADIENT METHOD

Antibiotic	Result	Interpretation
Azithromycin	>256	Resistant

NORMAL ENTERIC FLORA PRESENT



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Antibiotic-resistant *Shigella* is more common among MSM than others.

Table 2. Differences in antimicrobial resistance phenotype by transmission route among clusters of *Shigella* infection, United States, January 2011–December 2015*

Antimicrobial resistance phenotype	MSM-associated transmission, no. (% [†] , 95% CI [†]), n = 7	Transmission other than MSM-associated, no. (% [†] , 95% CI [†]), n = 25	p value [‡]
CIP	2 (29, 5–67)	1 (4, 0.2–18)	0.1
CRO	2 (29, 5–67)	0 (0, 0–11)	0.04
AZM	6 (86, 47–99)	1 (4, 0.2–18)	<0.001
AZM, CIP, or CRO	7 (100, 65–100)	2 (8, 1.3–24)	<0.001
AZM and either CIP or CRO	3 (43, 12–78)	0 (0, 0–11)	0.007

*AZM, azithromycin; CIP, ciprofloxacin; CRO, ceftriaxone; MSM, men who have sex with men.

[†]Mid-p exact 95% CI of the percentage resistant.

[‡]By 2-tailed Fisher exact test.

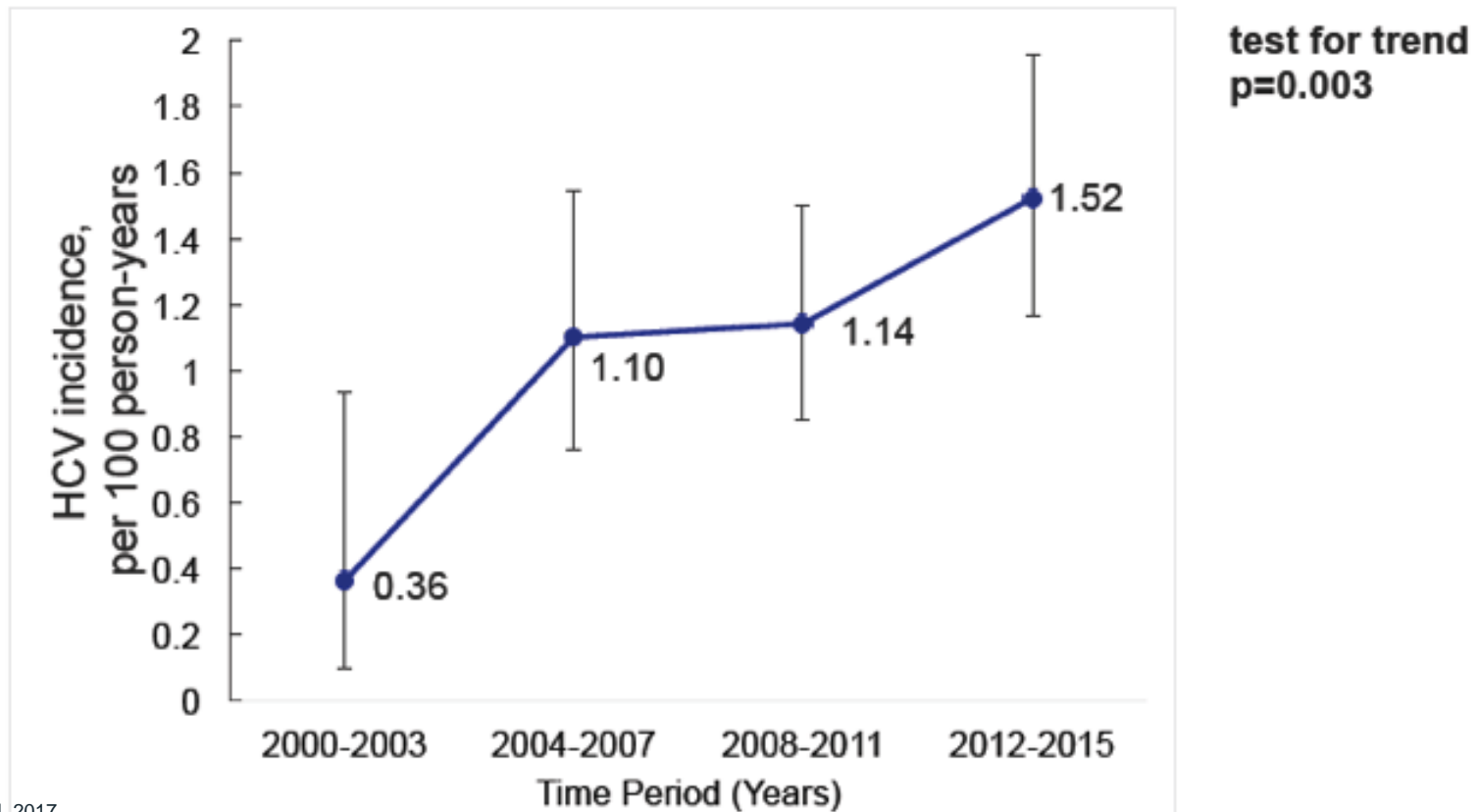
Bowen A, et al. Elevated risk for antimicrobial-drug-resistant *Shigella* infection among men who have sex with men, United States, 2011-2015. *Emerg Infect Dis.* 2016;22(9):1613.

STIs: More than the “big 3”

- Parasites
 - Giardia lamblia
 - Entamoeba histolytica
 - Ectoparasites
- GI bacteria
 - Shigella
 - Campylobacter
- Viruses
 - Human papillomavirus
 - Herpes simplex virus
 - Hepatitis A
 - Hepatitis B
 - Hepatitis C

2015 sexually transmitted disease treatment guidelines. Available at: <https://www.cdc.gov/std/tg2015>.

HIV-infected MSM face an increasing burden of hepatitis C.



Chaillon A, CROI, 2017
Slide courtesy of Dr. Arthur Kim

Why does this matter?

- Morbidity
- Secondary syphilis, ocular syphilis, neurosyphilis
- Disseminated gonorrhea

- Spread to other populations
- PID and infertility in women
- Congenital syphilis

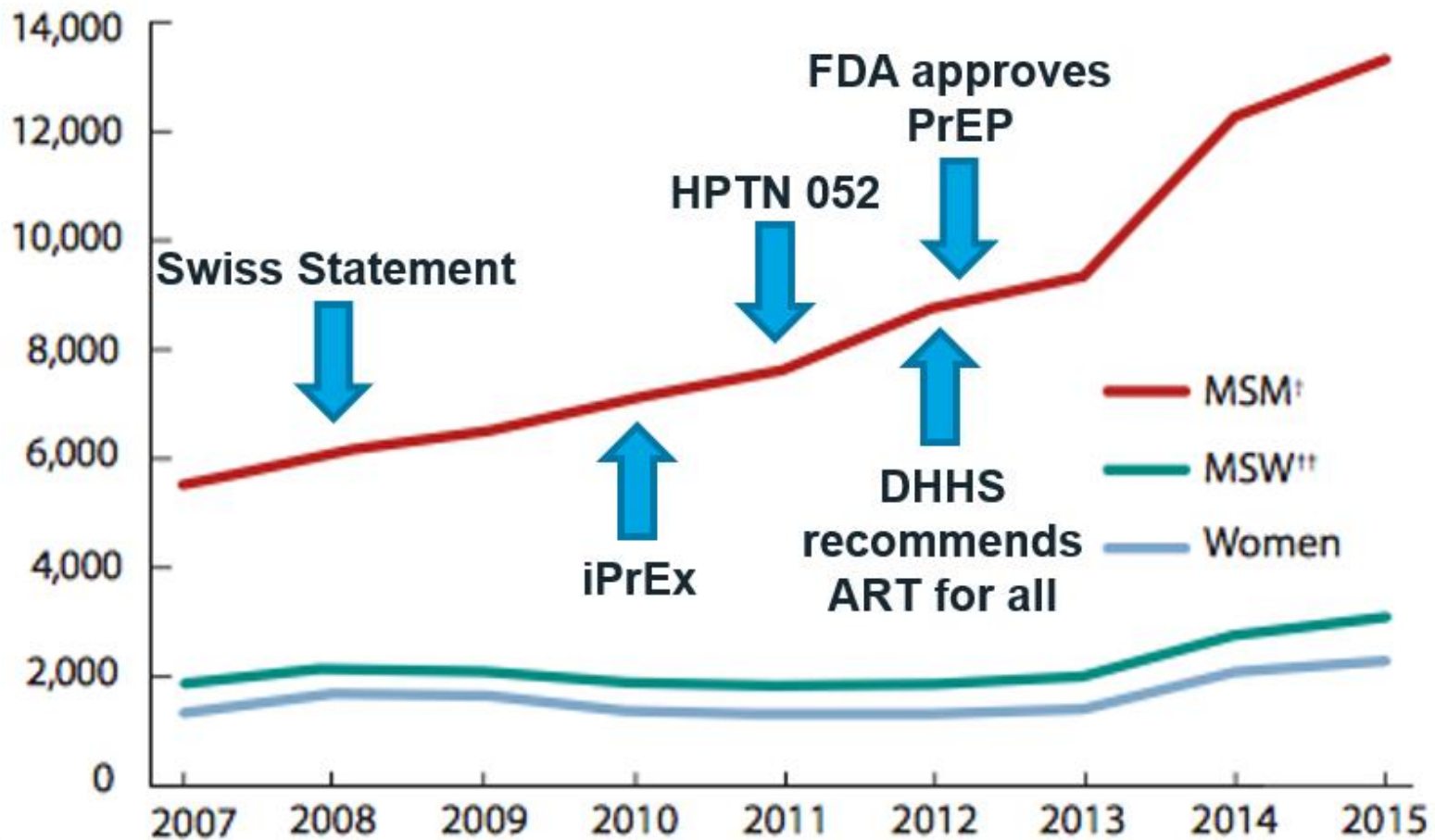
Why is the incidence of some STIs increasing among MSM?

- A. Increasing stigma of same-sex relationships
- B. Treatment as prevention (TasP) leading to decreased condom use
- C. PrEP leading to decreased condom use
- D. Geosocial networking applications leading to increased sexual risk behavior
- E. Incidence is not rising; the trend is an artifact of better screening

Stigma and discrimination increase STI risk.

- Family rejection → Sexual risk-taking and STI acquisition among adolescents
- Discrimination in health care settings → Missed opportunities for diagnosis, treatment, prevention
- Biological factors also play a role (i.e., the vulnerability of the rectal mucosa to infection).

TasP and PrEP have made it possible to engage in condomless sex without acquiring HIV.



Data about risk compensation with PrEP are mixed.

PROUD

- 545 MSM at high risk of HIV
- Randomized to open-label PrEP at study initiation or in 12 months
- Immediate PrEP participants were more likely to report > 10 CAS partners (21% versus 12%)
- Similar proportions of participants in each group were diagnosed with an STI (57% versus 50%)

Kaiser

- 657 patients initiating PrEP, 99% MSM
- Condom use unchanged in 56%, decreased in 41%, and increased in 3%
- 50% diagnosed with an STI over 12 months

McCormack S, et al. Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): Effectiveness results from the pilot phase of a pragmatic open-label randomised trial. *Lancet*. 2016;387(10013):53.

Volk JE, et al. No new HIV infections with increasing use of HIV preexposure prophylaxis in a clinical practice setting. *Clin Infect Dis*. 2015;61(10):1601.



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Geosocial networking apps are associated with sexual risk.



- Users are more likely to be diagnosed with gonorrhea and chlamydia than non-users.
- Users have greater numbers of sexual partners than non-users.
- Accentuation versus self-selection hypotheses
- Provide a new platform for messaging around STIs

Beymer MR, 2014
Lehmiller JJ, 2014

App users may base condom use decisions on biomedical prevention.

	HIV-positive MSM	HIV-negative MSM
Partner disclosed PrEP use on a mobile app	62%	43%
Partner disclosed undetectable viral load on mobile app	90%	68%

- Qualitative research on reasons for condomless anal sex:
- Most common theme: HIV risk lower with biomedical intervention
- “Based on the recent studies regard[ing] undetectable transmission stats I feel it is an acceptable risk.”

Newcomb ME, 2016

Approaches STI control

- Screening and treatment
- Partner notification
- Counseling and messaging

Frequent STI screening is recommended for sexually-active MSM with multiple partners.

- Yearly HIV, syphilis, gonorrhea, and chlamydia screening for sexually-active MSM
- Every 6 month screening for MSM taking PrEP
- In one PrEP demonstration project:
 - 83% of gonorrhea and 76% of chlamydia infections would have been missed if extragenital testing had not been performed
 - Compared to quarterly screening, biannual screening would miss/delay diagnosis of 34% of gonorrhea, 41% of chlamydia, and 20% of syphilis infections

Dean Street Express approach to screening

- [<https://www.youtube.com/watch?v=q0X9QpWyRkA>]

Partner Notification Services benefit clinicians and patients.

- Patients
 - Removes the burden of disclosure from the patient
 - Provides coaching if patients choose to tell partners about their exposure
 - An opportunity for STI education
- Clinicians
 - Reduces clinician workload
 - Removes the burden of partner notification
- When screening, counsel patients about the reportable nature of STIs and the role of Partner Notification Services.

Brief clinician counseling impacts sexual behavior.

- Reduction in condomless sex
- Reduction in the number of sexual partners
- Reduction in STI acquisition

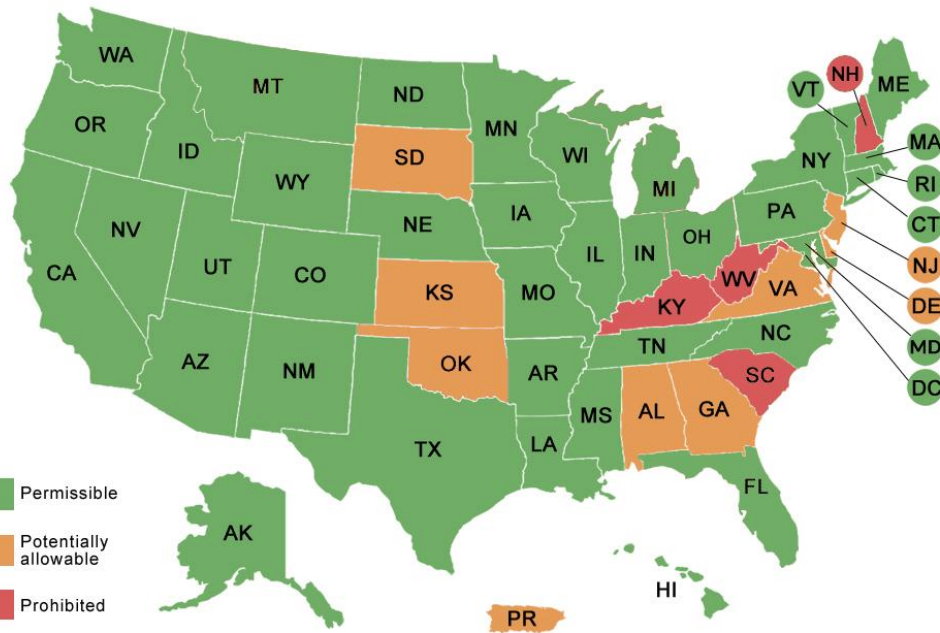
Fisher JD, 2006
Gardner LI, 2008
Rose CD, 2010
Patel P, 2012

NYC Playsure campaign

- [<http://www1.nyc.gov/site/doh/health/health-topics/playsure.page>]

Expedited partner therapy is legal in many states but not recommended for MSM.

- In Massachusetts:
For chlamydia infection only
3 options:
 - Written RX for a named sex partner
 - Written RX with “EPT” in place of the name and address
 - Dispense the medication directly



Data suggest EPT would lead to missed opportunities for HIV diagnosis in MSM.

CDC, 2017
Clinical Advisory, Massachusetts Department of Public Health, 2011
Stekler J, 2005

PEP for STIs can work, but the risks are not fully understood.

- 232 MSM in a trial of open-label, on-demand PrEP with TDF-FTC
- Randomized to doxycycline within 72 hours of sex or no PEP
- Doxycycline reduced chlamydia and syphilis infections but not gonorrhea
- GI side effects were more common in the PEP arm
- Warrants more study prior to general use; major concern is resistance

Molina JM, et al. On demand post exposure prophylaxis for MSM enrolled in a PrEP trial. CROI 2017. Abstract 91LB.

The trend in acute HCV infection in Dutch HIV+ MSM suggests “cure as prevention” works.

Parameter	2014	2016
Number of acute HCV infections	93	49
Incidence (#/PYFU)	11.2/1000 PYFU	5.5/1000 PYFU

- Oral direct acting antivirals (DAAs) for HCV were de-restricted in 9/2015 in the Netherlands.
- Within 6 months, 65% of Dutch HIV+ MSM were cured or on DAAs.
- Incidence of acute HCV decreased 52% from 2014 to 2016.
- Incidence of syphilis and lymphogranuloma venereum increased.

Take-home points

- Syphilis and gonorrhea infections are increasing among MSM; HIV is remaining stable.
- Reasons for the rise in STIs among MSM are probably multiple and complex.
- Clinicians can improve STI control by regularly screening sexually-active MSM, testing extragenital sites, and providing brief, ongoing counseling about safer sex practices.

Thank you

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