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

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

† Men who have Sex with Men  †† Men who have Sex with Women

Gonorrhea incidence among MSM rose from 2010 to 2013.

STDs in men who have sex with men. CDC. 2016. Available at: https://www.cdc.gov/std/stats15/msm.htm.
MSM are more likely than MSW to have antibiotic-resistant gonorrhea.

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

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

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Result</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ampicillin</td>
<td>$\geq 32$</td>
<td>Resistant</td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>$\leq 1$</td>
<td>Susceptible</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>$\geq 4$</td>
<td>Resistant</td>
</tr>
<tr>
<td>Levofloxacin</td>
<td>$\geq 8$</td>
<td>Resistant</td>
</tr>
<tr>
<td>Trimethoprim/Sulfamethoxazole</td>
<td>$\geq 320$</td>
<td>Resistant</td>
</tr>
</tbody>
</table>

GRADIENT METHOD

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Result</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azithromycin</td>
<td>$&gt;256$</td>
<td>Resistant</td>
</tr>
</tbody>
</table>

NORMAL ENTERIC FLORA PRESENT
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**

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

*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.

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

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

Ryan C, 2009
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

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.

<table>
<thead>
<tr>
<th></th>
<th>HIV-positive MSM</th>
<th>HIV-negative MSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner disclosed PrEP use on a mobile app</td>
<td>62%</td>
<td>43%</td>
</tr>
<tr>
<td>Partner disclosed undetectable viral load on mobile app</td>
<td>90%</td>
<td>68%</td>
</tr>
</tbody>
</table>

- 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

2015 STD Treatment Guidelines
Cohen S, 2016
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.

CDC, 2016
Brief clinician counseling impacts sexual behavior.

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

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

<table>
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<tr>
<th>Parameter</th>
<th>2014</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of acute HCV infections</td>
<td>93</td>
<td>49</td>
</tr>
<tr>
<td>Incidence (#/PYFU)</td>
<td>11.2/1000 PYFU</td>
<td>5.5/1000 PYFU</td>
</tr>
</tbody>
</table>

- 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.

Boerekamps A, CROI, 2017
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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