The Battle Against STDs: New Prevention Strategies and Old Foes

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NCSD Engage
2017 Annual Meeting
Washington, D.C.
November 15, 2017
Rates of Reported STDs Increased for Third Consecutive Year in 2016

The State of STDs in the United States in 2016: STDs tighten their grip on the nation’s health as rates increase for a third year.

- 1.59 million cases of Chlamydia (4.7% increase since 2015)
- 468,514 cases of Gonorrhea (18.5% increase since 2015)
- 88,042 cases of Syphilis (17.8% increase since 2015)

Learn more at: www.cdc.gov/std/
Syphilis Strikes Back: Rising Primary and Secondary Syphilis Rates since 2001

Rate (per 100,000 population)

Year

Primary and Secondary
Early Latent
Total Syphilis

Rate: 8.7
Rate: 2.1

CDC. 2016 STD Surveillance Report
Majority of Primary and Secondary Syphilis Cases Are among MSM

- MSM account for >58% of P&S syphilis cases
- Among MSM who have P&S syphilis, about half also have HIV
Congenital Syphilis Cases and Rates of Primary and Secondary Syphilis among Females Have Risen

88% congenital syphilis case increase from 2012 to 2016
111% female P&S rate increase in same period
U.S. Gonorrhea Rates Have Risen from Historic Low in 2009

~25% of gonorrhea cases are in MSM
Total U.S. Chlamydia Rate Doubled from 2000-2016

Women: 657 cases

Men: 331 cases

CDC. 2016 STD Surveillance Report
Highest Rates of Gonorrhea among Blacks, American Indian/Alaska Natives, and Native Hawaiians/Other Pacific Islanders

CDC. 2016 STD Surveillance Report
Reported Rates of Primary and Secondary Syphilis Vary by State

CDC. 2016 STD Surveillance Report
What do we do now?
7 Big Kahuna Questions

1. What is the new generation of sexual risk messaging in a time when STD and HIV prevention are diverging?

2. What are the science and program breakthroughs that will make the healthy choice the easy choice?

3. Do dating apps help or hurt STD prevention?

4. How can we implement truly routine STD testing and screening?

5. What can we do to strike back at syphilis?

6. How do we cope with rising gonorrhea antimicrobial resistance?

7. What is the best use of resources to reduce STD incidence?
What is the new generation of sexual risk messaging in a time when STD and HIV prevention are diverging?
What is the new generation of risk messaging?

- “Protection” is no longer restricted to condoms and sexual risk avoidance
- Serosorting, PrEP, and antiretroviral treatment-associated HIV viral suppression are increasingly being used to prevent HIV acquisition and transmission
- Condoms are less frequently being used
- Where does this leave STDs?
Condoms still being used, but not often

- In national sample, 57% of adolescents reported condom use during last sex
  - 21% of women and 29% of men of all ages reported condom use
  - More likely to use with casual than “relationship” partner

- Couples stop using condoms over time

CDC YRBSS 2015; Nusrallah J Sex Med 2017; 7 (suppl 5)
Condom distribution interventions are effective

- Condom use greatly reduces STD acquisition
- Condom distribution effective in variety of target populations
  - Meta-analysis of 21 studies showed doubling of condom use, 30% reduction in STDs, and delayed sexual debut
  - Cost-saving in study among at risk women

Weller Cochrane 2002; Charania AIDS and Behavior 2010
What are the science and program breakthroughs that will make the healthy choice the easy choice?
Can the healthy choice be easy choice?

Making default option safer, for example:

• Effective microbicide for vaginal and anal sex inexpensive and safe enough to be in all lubricants and condoms
• Rapid syphilis test that accurately diagnoses current treponemal infection
• All oral treatment for gonorrhea that would make expedited partner therapy simpler
• Vaccines for syphilis, HSV-2, gonorrhea, chlamydia
• Using apps and web for partner services
• Point-of-care *N. gonorrhoeae* resistance testing
• Making a condom that feels better than alternative
Do dating apps help or hurt STD prevention?
Dating Websites and Apps Challenge to STD Prevention

• 56% of 3,100 MSM surveyed were frequent users of websites and apps
  o Two thirds of frequent users had only casual partners in last year and had higher number of partners than those who did not use sites

• Survey of NYC MSM using dating app found one-third who had never had HIV test identified themselves as HIV negative
  o One-third of whom had unprotected anal intercourse in last 3 months

Dating Apps Can Link to Information and Testing

• California health department increased outreach to MSM 14-fold via app

• 64% of 450 gay and bisexual men in North Carolina taking online survey wanted STD prevention information via a dating app; 63 received testing referrals

• In Los Angeles, distributed free HIV self-tests via app ad, receiving 334 requests for tests

How Apps Can Help: Promoting Prevention

• Building Healthy Online Communities (BHOC) consortium of public health leaders and dating site owners

• BHOC Strategies:
  o Including safer sex preference as a profile option
  o Online STD testing directory searchable by zip code
  o Online partner notification with e-cards
  o Automatic STD testing reminders at users’ choice of intervals
  o Filtering partners by profile information
  o Access to sexual health experts
How can we implement truly routine STD testing and screening?
World of STD Risk
Clinical Medicine, Community, and Public Health

- Persons at risk
- Expedited partner therapy
- Exposed, tested and treated
- No symptoms, screened and treated
- Symptoms, tested and treated

Reduce Risk Behavior
Collaboration Between Providers and Public Health

• CDC *STD Treatment Guidelines* available as app

• Electronic medical record screening prompts for providers
  
  o Helped identify 16% of cases in recent multistate syphilis outbreak of 134 cases on American Indian reservation

• Private providers key
  
  o Private physicians report 29% of syphilis, chlamydia and gonorrhea cases

• STD Clinical Consultation Network
Screening Recommendations for Syphilis, Gonorrhea, and Chlamydia

• US Preventive Services Task Force (USPSTF) and CDC recommend chlamydia and gonorrhea screening for
  o Sexually active women <25 years old and all women at increased risk

• CDC recommends screening all sexually active MSM for chlamydia, gonorrhea, and syphilis at least annually
  o More often for some MSM

• USPSTF and CDC recommend screening all pregnant women and persons at increased risk for syphilis

• Make STD testing as routine as cholesterol testing and risk reduction as common as nutrition counseling, foot care for people with diabetes

http://www.uspreventiveservicestaskforce.org/recommendations.htm; CDC STD Treatment Guidelines
More Young Women Screened for Chlamydia from 2000 to 2015

Screening of sexually active 16- to 24-year-old women increased

Healthcare Effectiveness Data and Information Set (HEDIS), United States, 2015
Partner with Primary Care and HIV Care Providers

• Taking a sexual history and providing routine STD testing is good health care

• Persons with HIV should be screened for STDs annually

• Persons taking PrEP should be screened for STDs every 3-6 months
  
  o Modeling indicates STD screening as part of PrEP care could reduce STDs in community

Clin Infect Dis. 2016;64(5):629-634
What can we do to strike back at syphilis?
CDC Syphilis Call to Action: What Health Care Providers Can Do

- Complete a sexual health history for patients
- Test all pregnant women for syphilis
- Test sexually active MSM at least annually, or 3 to 6 months if multiple sex partners or substance use
- Treat women infected with syphilis immediately
- Confirm syphilis testing at delivery
- Report all cases of syphilis and congenital syphilis quickly
Preventing Congenital Syphilis

- Enhance surveillance to capture maternal syphilis, fetal syphilis, stillbirths, infant morbidity and CS cases averted
- Congenital syphilis case review using infant morbidity review board model
- Develop tools to assess local context of CS cases and implement high impact interventions
- Work with other CDC Centers and registries; other Federal agencies, and partner organizations
- Update 1988 Guidelines
- Develop congenital syphilis prevention cascade
Enhanced Congenital Syphilis Response

• Total of $4 Million awarded recently to nine state or city health department grantees
  - California, Chicago, Florida, Georgia, Los Angeles, Louisiana, Maryland, Ohio and Texas
• Strengthens local capacity to address congenital syphilis
• Project areas account for 70% of U.S. cases in 2016
How do we cope with rising gonorrhea antimicrobial resistance?
Antibiotic-resistance Threatens Gonorrhea Treatment

• Only one recommended treatment regimen
• Percentage of isolates with decreased susceptibility to azithromycin increased >300% from 2013 to 2014
• Cases of azithromycin resistant gonorrhea with decreased susceptibility to ceftriaxone identified in Hawaii 2016
• 90% of gonorrhea cases in enhanced surveillance sites treated with preferred therapy in 2016
Future Directions for Combating Antibiotic-Resistant Bacteria and Advanced Molecular Detection

- Strengthen surveillance (GISP & SSuN)
- Establish regional laboratory reference network
- Build Rapid Detection and Response Capacity
  - Use antibiotic susceptibility testing tools, epidemiological network, and innovative population approaches
- Determine genetic correlates of resistance
- Estimate economic impact of resistance
- Discover new treatments and better diagnostic tests
What is the best use of resources to reduce STD incidence in the U.S.?
STIs Cost United States Billions Annually

<table>
<thead>
<tr>
<th>Infection</th>
<th>Est. Total Direct Medical Cost Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>$12.6 billion</td>
</tr>
<tr>
<td>HPV</td>
<td>$1.7 billion</td>
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<tr>
<td>HSV-2</td>
<td>$541 million</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>$517 million</td>
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<tr>
<td>Gonorrhea</td>
<td>$162 million</td>
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<tr>
<td>Hepatitis B</td>
<td>$51 million</td>
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<tr>
<td>Syphilis</td>
<td>$39 million</td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>$24 million</td>
</tr>
<tr>
<td>Total</td>
<td>15.6 billion</td>
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</tbody>
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**Estimated number of new sexually transmitted infections - United States, 2008**

- Ages 25+: 8%
- Ages 15-24: 20%
- 45%: HIV
- 70%: Syphilis
- 13%: HSV-2
- 63%: Gonorrhea
- 49%: Trichomoniasis
- 49%: Chlamydia
- 49%: HPV

Total: 19,738,800

Source: U.S. Centers for Disease Control and Prevention

Aligning Resources to STD burden

• State and local jurisdiction cooperative agreements issued in 2014

• Need-based formula to better align funds

• Priority Areas
  o Populations with highest morbidity: adolescents/young adults and MSM
  o Congenital syphilis
  o Threat of resistant gonorrhea

• Focus on most cost-effective activities that can be brought to scale
Using Data to Do Better

• Implement Data Driven Reviews: ongoing, collaborative data review by multidisciplinary group from Divisions and Center
  o Can be done locally

• Use Program Outcomes Measures (POMs) data to rapidly detect areas for improvement and expansion

• Examine national and state data to highlight areas for cross-jurisdictional experience sharing
STD Express Clinics

- Make STD testing easier for patients
- Offer fast, low cost, confidential STD screening without an appointment, with expanded hours
- Areas of high STD morbidity and mortality
- Opt-out chlamydia screening for young women
Develop Disease Intervention Specialist Certification Program

- Create Disease Intervention Specialists of the future through certification program
- Improve service delivery to communities
- Standardize and validate DIS knowledge, skills, and abilities
School Health Services Save Money and Promote Healthy Behaviors

- In 2013, Duval County Public Schools, Florida, increased school-based health centers
  - Teens who ever had sex decreased from 46% in 2013 to 37% in 2015
- In Detroit, chlamydia prevalence decreased over 5 years from 10% to 6% among students
- School nurses can save communities money in medical costs and lost productivity

Wang L, JAMA Pediatr. 2014; CDC data
Using New Tools to Fight STDs

• Use molecular epidemiology and social network techniques to develop high impact interventions for syphilis

• Create specimen repository to support technological developments in diagnostics, therapeutics and vaccines

• Develop molecular tests to detect antimicrobial resistant GC more rapidly

• Use electronic medical records to support clinician testing reminders and monitor implementation of recommendations
Conclusions

• STD incidence is increasing
• Changing epidemics require new prevention approaches, and doing the old ones even better
• Think big, act fast, support creativity
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