The Evidence That Increased Syphilis Testing Controls Syphilis Is Compelling: What Is Needed to Act?

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(See the Major Article by Chow et al on pages 389–95.)

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Syphilis rates in the United States in 2015 were at the highest level in more than 2 decades (since 1994) [1]. Epidemic increases are also occurring among men who have sex with men in major cities around the world. At the same time syphilis is declining in the general population globally, and the World Health Organization has certified 5 countries (Cuba, Thailand, Armenia, Republic of Moldova, and Belarus) as having eliminated congenital syphilis [2].

Since the 1930s we have known how to control syphilis. Widespread testing and treatment programs led to dramatic declines in the population-level prevalence of syphilis from about 10% to less than 1%. Routine syphilis testing was required by state law for pregnant women, newly married couples, and those entering military service, certain businesses, and educational institutions. With the decline in syphilis, those testing requirements ceased.

POSSIBLE RESPONSES TO THE INCREASE IN SYPHILIS AMONG SELECT POPULATIONS

The recent study by Chow et al [3] from Australia provides compelling evidence of

the benefits of efforts to increase targeted screening for syphilis. The Australians launched a syphilis testing campaign in 2009, focusing on increasing the frequency of syphilis testing in sexually active men who have sex with men through expanded access to testing and making testing routine in clinical practices focused on sexual health and human immunodeficiency virus (HIV) care [4]. The investigators showed through serial cross-sectional population-based surveys that the proportion of men with a recent syphilis test increased from 48% to 91% among those who were HIV uninfected and from 42% to 77% among those who were HIV infected. Over the same period, the frequency of testing increased in both groups from 1.3 to 1.6 and 1.6 to 2.3 tests per year, respectively, thus confirming that large population-level increases in syphilis testing coverage and frequency could be achieved.

More importantly, however, Chow et al [3] showed that, in association with the increases in syphilis testing and the expected increase in the detection of latent (asymptomatic) cases, there was a significant decline in the proportion of early cases that were secondary syphilis. Secondary syphilis is an excellent marker of recently acquired infection and in the modern era most often associated with fearsome sequelae like as ocular and neurosyphilis. The authors suggest that the increased testing detected cases in the latent period between primary and secondary syphilis, resulting in treatment

that aborted the progression of infection and leading to a decline in secondary cases. Reducing secondary cases is important because of the long period of infectiousness that may be associated with the secondary stage of syphilis (1–2 months or longer) and the fact that many cases of secondary syphilis characterized by fever, rash, and lymphadenopathy go undiagnosed (or misdiagnosed).

The Australian study supports and extends previous research demonstrating that targeted, community-supported and adequately resourced campaigns are highly effective at increasing syphilis testing. The San Francisco-based Healthy Penis campaign was associated with a 76%–90% increase in recent syphilis testing among the group most heavily exposed to the campaign [5]. Programs at a similar time in Los Angeles [6] and Chicago [7] were also effective. Unfortunately, with the Great Recession in 2008, the elimination of the Centers for Disease Control and Prevention's syphilis elimination efforts and severe cutbacks in local public health disease control services [8–10], such campaigns were discontinued, with a resultant decline in routine testing and resurgence of syphilis incidence.

The current epidemiology of syphilis in the United States—with increasingly high rates among men who have sex with men (in particular those who are HIV infected and those receiving pre-exposure prophylaxis [PrEP]) and incipient increases in pregnant women—argues for renewed community mobilization, new

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campaigns, and implementation of monitoring and evaluation programs to ensure that at-risk patients in HIV care, those receiving PrEP, and women receiving antenatal care are routinely and regularly tested for syphilis. Unfortunately, the current US Centers for Disease Control guidelines on syphilis testing in those populations are somewhat vague, recommending 3–6-month testing in HIV care, 6-month testing in patients receiving PrEP, and early 1-time testing in antenatal care. Recently the United States Preventive Services Task Force stated A-level, high-certainty evidence that screening for syphilis in asymptomatic, nonpregnant persons at increased risk for infection provides substantial benefit [11]. Those with increased risk included men who have sex with men, persons who are HIV infected, and persons with a history of incarceration or sex work.

POSSIBLE WAYS TO IMPLEMENT AND ENSURE ROUTINE SCREENING

Findings of a 2016 study from Seattle suggested that a clinic-based syphilis self-referral and testing program had no appreciable impact on syphilis testing in HIV-infected patients in care [12]. Other more promising work from Melbourne, Australia, used computer prompts in the electronic medical records of sexually transmitted disease clinic attendees and added routine syphilis serologic testing to HIV laboratory monitoring orders in an HIV care clinic [13, 14]. Both interventions were associated with a substantial increase in testing and case detection.

Although novel interventions and research activities show promise, to achieve the necessary population-level impact to bring syphilis back under control, new and revitalized public health leadership is required at state and local levels. The syphilis control programs of the 1930s through the 1950s in the United States and the various federally led syphilis elimination efforts, the most recent in 1999, all had consistent public health leadership with effective

community mobilization and accountability at the federal, state, and local level. The inclusion of medical care systems, professional societies, and civil society organizations was also critical.

HOW TO CREATE THE POLITICAL WILL

Understanding what factors determine when a public health problem causes a public health response is poorly studied. In 2007, Shiffman and Smith [15] posed this question considering global health: “Why do some global health initiatives receive priority from international and national political leaders whereas others receive little attention?” Their analysis suggested 4 factors: (1) the strength of the actors involved in the initiative, (2) the power of the ideas used to portray the issue, (3) the nature of the political contexts in which those ideas operate, and (4) the features of the problem, such as severity, effective interventions, and credible indicators.

Currently, in the context of the syphilis epidemic in the United States, we are doing reasonably well at measuring the burden of disease but lack strong actors and clear communication regarding the impact of the disease, and we live within a political climate largely indifferent to the health of the most affected populations—men who have sex with men and, in the case of congenital syphilis, disadvantaged families. As infectious disease specialists and public health advocates, we must work to change that climate. We can mobilize within the Infectious Diseases Society of America and HIV Medical Association to form a syphilis control working group. We can lobby for more public health resources (and prevent reductions) and educate our patients and colleagues. A renewed syphilis response has to start somewhere. It has to start with us.

Notes

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References

- Centers for Disease Control and Prevention. Sexually transmitted diseases surveillance, 2015. Atlanta, GA: US Department of Health and Human Services, 2016.
- World Health Organization. WHO validates countries' elimination of mother-to-child transmission of HIV and syphilis, 8 June 2016]. Geneva, Switzerland: World Health Organization, 2016. Available at: <http://www.who.int/mediacentre/news/statements/2016/mother-child-hiv-syphilis/en/>. Accessed May 4, 2017.
- Chow EPF, Callander D, Fairley CK, et al. Increased syphilis testing of men who have sex with men: greater detection of asymptomatic early syphilis and relative reduction in secondary syphilis. *Clin Infect Dis*. 2017; 65:389–95.
- Wilson D, Prestage G, Donovan B, et al. Phase A of the National gay men's syphilis action plan: modelling evidence and research on acceptability of interventions for controlling syphilis in Australia. Sydney: National Centre in HIV Epidemiology and Clinical Research, University of New South Wales, 2009.
- Ahrens K, Kent CK, Montoya JA, et al. Healthy Penis: San Francisco's social marketing campaign to increase syphilis testing among gay and bisexual men. *PLoS Med* 2006; 3:e474.
- Plant A, Montoya JA, Rotblatt H, et al. Stop the sores: the making and evaluation of a successful social marketing campaign. *Health Promot Pract* 2010; 11:23–33.
- Vega MY, Roland EL. Social marketing techniques for public health communication: a review of syphilis awareness campaigns in 8 US cities. *Sex Transm Dis* 2005; 32(suppl. 10):S30–6.
- Golden MR, Kerndt PR. Improving clinical operations: can we and should we save our STD clinics? *Sex Transm Dis* 2010; 37:264–5.
- National Coalition of STD Directors. Fact sheet: STD program capacity and preparedness in the United States: results of a national survey, 2009. Published 8 July 2011. Available at: www.ncsddc.org/printpdf/1910. Accessed 4 May 2017.
- Clement ME, Hicks CB. Syphilis on the rise: what went wrong? *JAMA* 2016; 315:2281–3.
- US Preventive Services Task Force (USPSTF). Screening for syphilis infection in nonpregnant adults and adolescents. *AMA* 2016; 315(21):2321–7.
- Barbee LA, Tat S, Dhanireddy S, Marrazzo JM. Implementation and operational research: effectiveness and patient acceptability of a sexually transmitted infection self-testing program in an HIV care setting. *J Acquir Immune Defic Syndr* 2016; 72:e26–31.
- Bissessor M, Fairley CK, Leslie D, et al. Use of a computer alert increases detection of early, asymptomatic syphilis among higher-risk men who have sex with men. *Clin Infect Dis* 2011; 53:57–8.
- Bissessor M, Fairley CK, Leslie D, et al. Frequent screening for syphilis as part of HIV monitoring increases the detection of early asymptomatic syphilis among HIV-positive homosexual men. *J Acquir Immune Defic Syndr* 2010; 55:211–216.
- Shiffman J, Smith S. Generation of political priority for global health initiatives: a framework and case study of maternal mortality. *Lancet* 2007; 370:1370–9.