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# Syphilis Is (Still) Here: How Must Sexually Transmitted Disease Public Health Programs Adapt?

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As thoughtfully described throughout this issue, current public health strategies for syphilis prevention are no longer working for certain populations, including some men who have sex with men (MSM) and pregnant women, and new approaches are urgently needed. This matters because we have increasingly seen devastating complications of this ancient disease in the United States, such as permanent vision loss after ocular syphilis,[1,2] and increases in congenital syphilis cases.[3,4] Furthermore, the funding environment continues to be a challenge and resources to address syphilis at the state and local levels are sparse. The Division of Sexually Transmitted Disease (STD) Prevention at the US Centers for Disease Control and Prevention (CDC) has seen its budget cut by 9.6% over the past 14 years,[5,6] and state and local public health programs that have not been able to secure other funding have been reporting reduced scope of services.[7,8]

Historically, a large proportion of STD prevention resources have been targeted to syphilis prevention. Disease intervention specialists (DISs) from state and local health departments, as well as CDC federal assignees have long interviewed infectious syphilis cases to obtain demographic and risk factor data to inform local, state, and national epidemiology, but primarily to identify partners who could then be preventively treated, theoretically decreasing incidence of new infections to zero.[9] Given that syphilis has only a human host, has not been shown to develop resistance to recommended antibiotics, and has a relatively long incubation period, syphilis elimination is plausible, but only if enough partners can be found and treated. However, with the increased popularity of location-based applications for sex, fewer and fewer MSM partners are identified and treated.[10] Increasing overall numbers of cases have also included increases in women and congenital infections. At the same time, numbers of highly skilled DIS staff are only stable or even decreasing; in many jurisdictions, they are also being appropriately leveraged to maximize other important public health field work, including increasing access to HIV prevention and treatment.[11,12] Although we came close, we were never were able to achieve syphilis elimination, and this now begs the question: what next?

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What will be required are entirely new ways of approaching this old problem, at all levels of STD public health. The CDC has initiated change of its own by publishing its Call to Action on syphilis, which recommends population-specific approaches to address the epidemics of MSM and heterosexual and congenital syphilis.[13] Differentiating primary and secondary prevention goals is critical. For example, secondary prevention would focus on the reduction of complications of ocular and neurosyphilis in MSM, and primary prevention would focus on reducing syphilis in women and to prevent all cases of congenital syphilis.

In addition, instead of doing more of everything, we must be more selective, and data must guide us. This will mean increased capacity to use data to inform program priorities more effectively than ever before. Data systems should be designed explicitly for program benefit and have the full support of local information technology staff and epidemiologists to help ensure that relevant programmatic questions can be easily and quickly answered. Activities may need to be prioritized. For example, interview data fields should be reviewed with a critical eye—fields that cannot be defended as necessary for our new goals for preventing syphilis complications should be jettisoned. Geocoding and other mapping features can help visualize where to deploy limited staff resources, and pulling and reviewing data in close to "real time" can help pin-point changes or increases before too much time has passed. Taking a more data-driven, continuous quality improvement approach may help improve the health of the populations most at risk for syphilis.

In this new era of increasing morbidity and waning resources, not all infectious syphilis cases can continue to be interviewed by DIS. Instead, programs may choose to focus on subsets of women, men who report female partners, and MSM who are diagnosed as having ocular syphilis or other complications related to syphilis infection. Alternative approaches to primary prevention among MSM partners should be explored as well as the possible collection of data through a secure online portal, which would have the added benefit of being available at the individual's convenience, day or night. Culturally appropriate health messages such as the importance of regular screening and facts about syphilis could also be embedded in such a system.

In most jurisdictions, the majority of syphilis screening, diagnosis, and treatment is occurring in providers' offices and health systems outside a public STD clinic.[3] However, not all primary care providers may be seeing syphilis in their patient populations. Surveillance databases for STD and HIV could be used to identify which providers are reporting the most cases of syphilis, gonorrhea, and chlamydia and diagnosing and treating HIV—this would allow for focused support of these clinicians by the health department or the National Network of STD Clinical Training Centers to further screen and treat, and to become more expert syphilologists. In addition, not all STD clinics are equal. In many jurisdictions, STD clinical services are offered by small public health units with minimal staffing and resources, and there may be limited days and hours for walk-in assessment of symptomatic patients. A more lucid understanding of the menu of services offered at categorical STD clinics across geography, urbanicity, and size of the patient population may be valuable. Furthermore, by protecting their time, DIS could also be enlisted to help serve an immensely valuable role as expert liaisons to clinical provider communities—prioritizing those clinicians that they learn through case interviews may be in need of additional training

and complementing or augmenting other health department efforts such as public health detailing.[14] Epidemiologists are also key staff—they can use STD surveillance data to assess how health systems are doing and can help provide personalized data to assist with health systems improvement efforts. For example, syphilis screening among HIV-infected persons in care is suboptimal[15]; epidemiologists, data managers, and STD program leadership can help work with HIV clinical providers to ensure access to syphilis, gonorrhea, and chlamydia screening and treatment in HIV-infected patients, and help identify barriers to doing so.

Perhaps most of all, STD prevention programs will need deliberate support, coaching, and urging to make these types of changes in a thoughtful way. Very often in public health, we are all very busy doing the work day-to-day; it is certainly very true that we do not have enough resources to attack the current syphilis epidemic with our existing tools and approaches. However, we need to be accountable to think differently and to spend days, or even weeks thinking through our processes, identifying our overall goals and measures of success and then systematically building a program to prioritize these fewer things that will impact syphilis, and—very importantly—to de-prioritize other activities that will not. These deliberations should include not only program leadership and epidemiologists, but also frontline staff including DIS and others to get the widest range of experience and input and to develop high-quality approaches with abundant buy-in from the teams who will have to implement them. The added benefit should be to reduce the amount of activities that add little to no value in syphilis prevention, freeing limited and valuable staff time for prioritized work. State and local health departments may benefit from more peer-to-peer technical assistance as a way to share successes and challenges, and to develop local capacity. The benefit of building this local capacity would be enormous, and not only for syphilis but also for other pressing STD public health issues such as antimicrobial-resistant gonorrhea.

Finally, this whole push to do better, allocate staff time more effectively, and more wisely use the tools we have does not preclude the urgent need for better tools. An effective syphilis vaccine would be a game changer. A strategy for preexposure or post-exposure prophylaxis for syphilis using doxycycline has yielded some intriguing initial data in small studies[16,17]—further exploration of its potential is warranted. Either on their own or with academic research partners, the STD clinics and other sexual health clinics that see significant numbers of syphilis cases can seek to help implement research protocols that could provide important biologic specimens from patients with syphilis, and eventually serve as sites for clinical trials of improved diagnostic, prevention, and treatment options. This will be new for many and not necessarily easy, but it is important that we help our health department and local government leaders understand our urgent need to develop better tools to diagnose, treat, and ultimately prevent syphilis; in the best case, these efforts could bring needed resources into clinics while advancing our field. We have to simultaneously think optimistically about what we want to achieve in the future for syphilis prevention in the United States and work pragmatically with what we have now.

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