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Control of Syphilis Outbreaks in Men Who Have Sex With Men: The Role of Screening in Nonmedical Settings

CAROL CIESIELSKI, MD^{*,†}, RICHARD H. KAHN, MS^{*}, MELANIE TAYLOR, MD, MPH^{*,‡},
KATHLEEN GALLAGHER, MPH[§], LARRY J. PRESCOTT, B.S.^{||}, SUSAN ARROWSMITH, MPA^{*}

^{*}Centers for Disease Control and Prevention, Atlanta, Georgia

[†]Chicago Department of Public Health, Chicago, Illinois

[‡]Los Angeles County Department of Health Services, Los Angeles, California

[§]New York City Department of Health and Mental Hygiene, New York, New York

^{||}Houston Department of Public Health, Houston, Texas

Abstract

Objective: To quantify the scope and yield of targeted syphilis screening in nonmedical settings in 7 US cities affected by recent syphilis outbreaks among men who have sex with men (MSM).

Methods: Data were collected from syphilis screening activities targeting MSM between 1999 and 2004, conducted in bathhouses or other commercial sex venues, MSM-oriented bars, mobile vans, and other nonmedical settings by the public health departments of Chicago, Houston, Miami/Fort Lauderdale, Los Angeles, NY, and San Francisco.

Results: Of 14,143 syphilis screening tests (STS) conducted during community outreach campaigns at a variety of MSM oriented venues, 132 (0.9%) new cases of syphilis were identified. One hundred five (0.8%) new cases of early syphilis were found, including 23 cases of symptomatic syphilis. Screening in jails produced the highest prevalence of early syphilis (1.3%, 51 cases/3853 STS), followed by sex venues, including bathhouses (1.2%, 29 cases/2511 STS).

Conclusions: These data suggest that even nontraditional, highly targeted screening programs conducted during outbreak situations do not detect many persons with syphilis, even though many of the screening venues were locations where men with syphilis met their sex partners. The low prevalence of infectious syphilis identified during these screening events suggests that the direct impact of these programs on decreasing syphilis transmission may be negligible. However, the secondary benefits, such as increasing awareness of syphilis and prompting earlier treatment due to symptom recognition, may be substantial.

IN 1941, 485,000 CASES of syphilis were reported in the United States, and syphilis control programs were established primarily to prevent the late complications of the disease.^{1,2} These programs employed 5 strategies: serologic screening, clinical treatment, partner notification, prophylactic treatment, and public education, including educational programs to

decrease sexual risk behavior.³ Since World War II, serologic screening has played a central role in decreasing syphilis morbidity and mortality. It remains a cornerstone of syphilis control today, which is now centered on interrupting transmission, rather than prevention of late complications.^{2,4}

Following the introduction of penicillin in the 1940s, huge public awareness campaigns set the stage for mass serologic testing programs to detect infected individuals. For decades, serologic tests for syphilis (STS) were routinely performed in many settings, including premarital, prenatal, hospital admissions, pre-employment, blood donation, immigration, and military enlistment and separation. These programs identified many persons with serologic reactivity for syphilis, resulting in the treatment of 2 million Americans between 1945 and 1955 and sharply falling rates of disease.^{1,5}

In the ensuing decades, millions of Americans continued to be screened for syphilis. By 1976, however, documentation of the low yield of mass screening caused it to lose favor as a disease-control measure. In that year, almost 43 million STS were performed in the United States; resulting in the identification of only 59,846 (0.1%) new (i.e., previously undiagnosed) syphilis cases.⁵ About 10% of the STS performed were for premarital screenings. Of over 4 million premarital STS, only 456 cases of infectious syphilis were identified.⁶ During this time, almost half (46.3%) of the cases of infectious syphilis were in men who have sex with men (MSM). As they would not benefit from premarital screenings, the issue of targeted screenings to MSM and other high-risk populations emerged and has been adapted as the preferred screening strategy by syphilis-control programs.⁵

Throughout the 1990s, syphilis was reported primarily among heterosexuals in the United States.⁷ However, outbreaks of syphilis in MSM have recently been reported in numerous urban areas and have affected the nation's current epidemiology of syphilis. It is estimated that over 40% of the primary and secondary (P&S) syphilis cases in the United States in 2002 were in MSM.⁸ These outbreaks have been characterized by high rates of human immunodeficiency virus (HIV) coinfection and high risk sexual behavior, often with anonymous partners. Control of syphilis in these settings has been difficult and, by necessity, multifactorial.

Success in controlling these outbreaks lies with interruption of syphilis transmission. There are only 2 interventions that limit the transmission of syphilis: treating infected persons so that they are no longer infectious and promoting behavior change to prevent infection from occurring in the first place.⁹ The treatment strategy has been built around the concept of case detection, identifying and treating persons with symptomatic syphilis, and case prevention, which aggressively treats sex partners before they either develop symptoms or spread the infection. The strategy for changing behavior is complicated and involves combating AIDS burnout, the effect of HAART on attitudes about HIV, out-of-date prevention messages, and the role of the Internet, crystal methamphetamine, and club drugs in high-risk, anonymous sex.¹⁰

Screening remains a critical component of syphilis control, especially in outbreak settings. Annual screening for syphilis during routine medical care for MSM is recommended, and

most sexually transmitted diseases (STD) clinics routinely screen their patients.¹¹ Targeted screening in nonmedical settings has increased in recent years in an attempt to provide services to high-risk populations that may have limited access to routine medical care.^{12–14} These nontraditional settings have included jails, gay bars, bathhouses, and parking mobile health units in high-risk areas. Screening in these venues frequently involves the expense of staff overtime pay, safety and confidentiality issues, and logistic difficulties performing phlebotomy in awkward environments and returning results. Determining where and how to target screening for the greatest impact on transmission and maximization of cost-effectiveness has been difficult.^{4,15,16} In communities with high rates of heterosexual syphilis transmission, prevalence data from jail-based and community screening programs have generally demonstrated a high burden of disease.^{17–20} However, relatively few data are available that clearly define the public health utility of targeted screening in other populations and settings, especially for outbreak control, where interruption of transmission depends on identifying persons with infectious syphilis who may transmit disease to their sex partners.¹⁵ Our objective was to quantify the scope and yield (i.e., prevalence) of syphilis in MSM screened in nonmedical settings in 7 cities affected by recent syphilis outbreaks in MSM.

Methods

We contacted staff at the Chicago, Houston, Miami/Fort Lauderdale, Los Angeles, New York, and San Francisco health departments for information from their MSM targeted syphilis screening activities. We requested data from screenings in bathhouses or other commercial sex venues, MSM-oriented bars, mobile vans, and other nonmedical settings, which were conducted in response to the syphilis outbreaks in MSM in their cities. Data were collected retrospectively, and the requested data elements could be retrieved in varying degrees of detail by the participating health departments. Therefore, information regarding the screening venues and time periods varied by city and are described below. Screening results, by area and venue, are shown in Tables 1 and 2.

Chicago

During 1998–2000, MSM comprised approximately 15% of Chicago's P&S cases, but since 2001, MSM have accounted for nearly 60% of the morbidity.²¹ Syphilis screening in one Chicago bathhouse began in 2000, when the Chicago Department of Public Health (CDPH) began collaborations with Howard Brown Health Center, a health center serving the MSM community. A second bathhouse was added to the screening schedule in 2002. A nurse and an HIV counselor provided confidential screening for syphilis, gonorrhea, and chlamydia, in addition to anonymous HIV testing 2 nights a month at each bathhouse, during the hours of 3 PM to 7 PM or 9 PM to 1 AM. Management at both bathhouses enthusiastically embraced the screening, prominently displaying posters and announcements about the availability of the services. The location of the screening within the bathhouse has proven to be important in client acceptance, with privacy being the major factor. One bathhouse set aside a private area in an upper floor of the bathhouse for the screening. This area connects with an outside entrance, allowing persons to come in for screening without attending the bathhouse. Anecdotally, many nonpatrons of the bathhouse have taken advantage of the free screening

by using this outside entrance. At the second bathhouse, the screening site was originally in the midst of the main section of the bathhouse, and few clients participated. To increase the participation rate, a separate room off the entrance of the bathhouse was renovated to accommodate screening activities. Participation increased as the privacy afforded by this new location improved. Clients call or visit the Howard Brown Health Center for their test results, whose staff conducted any necessary follow-up. Clients with positive results are contacted immediately by Howard Brown staff and referred for treatment.

During September and November 2001, a few months after syphilis in MSM began to rapidly increase in Chicago, CDPH partnered with 9 community-based organizations (CBOs) to offer prevention education and syphilis screening, referred to as a “syphilis testathon,” at MSM-oriented community venues. Accompanied by a mobile health unit, outreach was conducted in bathhouses, bars, and in neighborhoods with high populations of MSM (e.g., Boystown). The volunteers distributed condoms and literature on the symptoms of syphilis. Men were encouraged to get tested for syphilis in the bathhouses and on the mobile unit. For 50 consecutive nights, outreach was conducted between 10 PM and 3 AM.

A second syphilis “testathon” was conducted in July 2002, again enlisting the collaboration of CBOs in addition to health department staff. Outreach staff targeted MSM-oriented bars, bathhouses, parks, and other venues to provide education and distribute condoms between 9:30 PM and 3:30 AM. A large mobile van outside the establishments conducted confidential syphilis screening, in addition to HIV testing, if requested. Participants were given a card with the bar code number of their syphilis laboratory specimen, along with instructions on how to obtain their results. Syphilis results were provided over the telephone if the bar code number was provided. Individuals with positive STS were immediately notified by health department staff. CDPH employees used flex-time and overtime pay to staff these events.

Of the 651 confidential STS obtained in the 2 bathhouses during 2002–2003, 9 (1.4%) previously undiagnosed cases of syphilis were identified. Of these 9 cases, 2 (0.3%) were P&S syphilis, 5 (0.8%) were early latent syphilis, and 2 were late/duration unknown latent syphilis. Of the 1030 individuals tested during the first “testathon,” 16 (1.5%) were new cases of early syphilis; 12 were P&S, and 4 were cases of early latent. During the second “testathon” campaign, 913 men were screened, and 10 (1.1%) previously undiagnosed syphilis cases were identified. Of these 10 cases, 3 (0.3%) had P&S syphilis, 6 (0.6%) had early latent disease, and 1 case was late latent. Thus, of the 2594 STS obtained during these campaigns in Chicago, 32 (1.2%) were found to be new cases of early syphilis, with 17 identified as P&S cases.

Cost Estimates

The staff time and salary costs were calculated for the 2002 syphilis “testathon” in Chicago bars and bathhouses. Eighteen screening events in bars used 634.5 person-hours to obtain 548 STS and 6 new cases of syphilis. Thus, 105.75 hours were used to identify each new case of early syphilis, and 634.5 hours were needed to detect 1 case of P&S syphilis. Including only salary for staff, the cost to find the 1 case of symptomatic syphilis was \$14,558.70. These costs do not include those of the mobile van (driver, gasoline,

maintenance), planning and setting up the events, phlebotomy and testing materials, courier services, or laboratory testing.

For the 9 bathhouse screenings, 334 person-hours were expended to obtain 224 STS which identified four cases of early syphilis (two P&S, and two early latent). To identify each new case of early and P&S syphilis, 83.5 and 167 person-hours were required, respectively. The total salary expenditure was \$7937.30, and the salary cost per new case of early and P&S syphilis identified was \$1984.33 and \$3968.65, respectively.

New York City

P&S syphilis in MSM in New York City increased from 33 cases in 1999 to over 400 in 2002.^{22,23} Feedback from community partners underscored the need to address the syphilis outbreak and sexual risk taking among MSM in the larger context of men's health. In response to this recommendation, the New York City Department of Health and Mental Hygiene implemented a program to promote sexual health and wellness among MSM. The program, Healthy Men's Night Out, is a community partnership that organizes a monthly men's health event at a variety of venues, either independently or in conjunction with already existing events. The venues are nonsexual, recreational community sites (e.g., dance club, bar, coffee house) selected to maximize MSM participation and comfort. The events last 3 to 5 hours and are usually held between 5 PM and 10 PM on weeknights. At these events, MSM have access to preventive health care services ranging from screening for HIV, syphilis, gonorrhea, chlamydia, hypertension, cholesterol and diabetes, and immunization services (hepatitis A/B, influenza, pneumococcal vaccines) to counseling for smoking cessation, mental health, and substance abuse, including crystal methamphetamine.

Individuals who received services requiring follow-up were given an appointment card and instructions as to where to return for test results. A nearby health department STD clinic held evening hours approximately 10 days following each event to facilitate return of test results. Attendees who did not return for results and required follow-up were notified by health department staff or collaborating service providers.

From November 2003 through June 2004, syphilis screening was held at 7 events, resulting in 161 men being screened for syphilis. Of these, there were 7 positive STS, from which 4 (2.4%) new cases of syphilis were identified: 2 early latent (1.2%), and 2 late latent (1.2%).

Houston

In Houston, the number of MSM with P&S syphilis increased from 9 in 2000, when 10% of P&S cases were in MSM, to 68 in 2002, when MSM comprised 47% of cases.²⁴ In response, the Health Department organized screening events at venues identified through syphilis case interviews. These venues included adult bookstores and MSM-oriented bars and clubs. Testing was occasionally conducted in the HIV/STD mobile unit outside bars where space inside was limited. From January 2003 through November 2003, 54 screenings between 5 PM and 8 PM or 9 PM and 1 AM were conducted. Between April and December of 2003, 2 CBOs also conducted syphilis screening at bathhouses, bars, and other venues. Men with reactive STS generally came in for treatment as soon as they were notified by health department

staff, and most responded within 7 days. Syphilis screening was also performed at the “gay segregation tank” in the Harris County Jail.

In all instances, flex-time was used to adjust the work hours so no overtime costs were incurred. Health department and CBO staff noted that clients were more likely to be tested before they entered the venue rather than after they left the establishment. It was also noted that if one member of a group agreed to be tested at the clubs or bars, the other group members were more likely to participate.

Of the 261 STS obtained during mobile van outreach screenings, 8 (3.1%) were new cases of syphilis. There were 2 early latent cases, 3 cases of unknown duration, and 3 late latent cases identified. At the Harris County Jail, 292 MSM inmates were screened between July and December 2003, resulting in 40 reactive STS and the identification of 3 (1.0%) new syphilis cases.

South Florida

In Miami-Dade County, cases of early syphilis among MSM increased 20-fold between 1999 and 2002.²⁵ Screening sites included bathhouses, circuit parties, “athletic clubs,” community health fairs, adult book stores, hotels, cruise ships, and nightclubs. Screenings were also conducted at the numerous MSM community events in South Florida such as the White Party, Winter Party, and Pride Fest.

Screenings were conducted at various times, including nights and weekends. Persons with reactive STS were contacted by health department staff for treatment and counseling services. Due to the high costs of overtime pay and low productivity, the local and state health departments have not found these screenings to be cost-effective. Anecdotally, screening in bathhouses and bookstores has been noted to be particularly unproductive, with most clients being reluctant to participate.

In Miami, 36 screening events resulted in 222 syphilis tests, with the identification of 1 (0.5%) new syphilis case, staged as early latent. There were 60 events in Fort Lauderdale that tested 476 men. Six (1.3%) new cases of syphilis were identified: 1 P&S, 4 staged as early latent, and 1 as late latent. Thus, 96 screening events resulted in 698 syphilis tests; of these, 1 (0.14%) was staged as P&S, 5 (0.7%) were early latent, and 1 was late latent. Data on the yield from specific venue types are not available. These data include screening activities from 2001 through 2003.

Los Angeles

Between 2000 and 2002, P&S syphilis among MSM in Los Angeles County increased from 67 to 299.²⁶ When Los Angeles first detected the syphilis outbreak among MSM in 2000, multiple community-based screenings were conducted at venues chosen based on information provided during syphilis case interviews, geography, and a priori knowledge of MSM venues.²⁷ In March 2000, syphilis testing was instituted at the segregated MSM unit of the Los Angeles County Mens’ Central Jail.²⁸

A second wave of outreach screening facilitated by CBOs and the Los Angeles County STD Program began in November 2002 at MSM venues such as bathhouses, sex clubs, bars, and other MSM-oriented venues.

The Los Angeles County STD Program uses a mobile testing unit (MTU) to deliver STD and HIV counseling and testing services within the Los Angeles area. The MTU, in operation since June of 2000, also provides health education and risk reduction counseling. Venues for screening sessions are selected based on morbidity reports, public health investigation reports, known high-risk settings such as homeless venues, and public sex environments such as public parks and motels. The MTU seeks to reach nonorgay-identified MSM venues, as well as venues frequented by MSM and intravenous drug users.

In 2000, 24 screening events held on mobile vans resulted in screening 569 persons, identifying 6 (1.1%) cases of early syphilis. One (0.08%) case of early syphilis was identified among the 1129 men screened at community outreach sites, and no cases were identified among the 817 screened by CBOs.

Data are available from a defined period of the second wave of screening from November 2002 through February 2003. At community outreach sites, 322 MSM were screened for syphilis, identifying 9 (2.8%) positive results. Of these 9, 1 case of secondary syphilis was identified at a bar, 1 early latent case was identified from a bathhouse, 3 were previously treated cases, and 1 case of unknown duration was found through street outreach. Three men with positive STS could not be located for additional follow-up.

From March 2000 through December 2003, 3853 self-identified MSM inmates at the MSM unit of the men's central jail were screened for syphilis, resulting in the identification of 51 (1.3%) cases of early syphilis.

San Francisco

Between 1998 and 2002, the number of P&S syphilis cases among MSM in San Francisco increased from 4 to 260.²⁶ As part of the response to the expanding MSM syphilis epidemic that began in 1999, the San Francisco Department of Public Health performed syphilis testing through a variety of community-based screening activities. The venues for these screening activities targeted MSM and included bars, clubs, sex clubs, health fairs, gay/bisexual community organization events, a youth center, and a day labor program. Bars, clubs, and sex clubs were selected for screening venues if they were reported as a place to meet partners by 3 or more men with early syphilis infection. Venue owners participated because they were concerned about the health of their clients, and many were anxious to have more health information available. The health department provided training to many venues' staff about STDs, HIV, and drug use so that they would better understand important issues affecting their patrons. In addition, digital images and information about STDs and HIV were made available for venues to use in developing their own health education materials, including posters and information on websites. Venues provided advertising for the screening events, and certain venues such as sex clubs requested that the health department provide screenings on a consistent basis. Venues also requested that HIV

screening accompany STD screening, which was done as often as possible through collaborations with a CBO.

Confidential syphilis testing was conducted by health department staff. Along with condoms, lubricant, and health education materials, participants usually were given an incentive to participate. Incentives, if offered, were tailored to the venue and often provided by the venue owner; for example, a raffle ticket with the prize being a date with a community figure or a free pass to the club where the screening was occurring. Patients obtained their syphilis test results at the municipal STD clinic or by calling the clinic and providing a password created by the patient during the screening process. Health department staff followed up all persons with reactive serologies to ascertain if they had untreated syphilis and to provide treatment and partner management as appropriate.

From the beginning of 1999 through the end of the first quarter of 2004, the health department performed 1593 STS through community-based screening activities. There were 34 persons with reactive serologies (2.1%), and all but 1 had follow-up to determine if they had untreated syphilis. Four (0.3%) cases of untreated syphilis infection were identified: 2 secondary, 1 early latent, and 1 late latent. One early case was detected at a sex club (of 511 tests), another was identified through the day labor project (out of 62 tests), and 1 was detected at a youth center (of 94 tests). No new infections were detected through screening at bars, clubs, and health fairs.

Overall Yield per Venue

Overall, we found that 132 (0.9%) of 14,143 MSM screened in nonmedical venues were newly identified cases of syphilis, and 105 (0.8%) had early syphilis infection. As shown in Table 2, screening in jails produced the highest prevalence of early syphilis (1.3%; 51/3853); followed by sex venues, including bathhouses (1.2%; 29/2511); followed by bars (0.7%; 6/869) and community-based mobile screening (0.3%; 8/2549).

Proportion of Early Syphilis Morbidity Identified by Screening Activities

The proportion of all early syphilis cases in MSM reported to the health departments in these jurisdictions that was identified through screening in nontraditional settings was 2.6% (97/3595). In Los Angeles, 1347 early syphilis cases in MSM were reported from 2000 to 2003; of these, 60 (4.5%) were identified in nontraditional settings. From November 2003 through June 2004, there were 335 early syphilis cases in MSM reported in New York City; 2 (0.6%) were identified in nonmedical settings. Nonmedical screening in Chicago identified 5.0% (32/650) of early syphilis cases in MSM reported in 2001 and 2002. In San Francisco, there were 1263 early syphilis cases in MSM reported from January 1999 through March 2004; of these, 3 (0.2%) were identified in nontraditional screening venues.

Discussion

Serologic screening for syphilis is a time-honored part of syphilis control efforts, especially during syphilis outbreaks where screening is invariably considered an important intervention option and an integral part of the outbreak response.^{15,29} Where and how to target these screening efforts to maximize public health benefit can be difficult to determine.

Persons with primary, secondary, and early latent syphilis are generally considered as having infectious syphilis, although only persons with active lesions transmit the disease.³⁰ Detecting and treating such cases is an effective public health intervention, preventing transmission to others.² Identification of these cases also results in notification of their sex partners for referral for testing and prophylactic treatment, further interrupting the chain of transmission.

Our data suggest that even highly targeted screening programs in nontraditional settings during outbreak situations may not detect many people with symptoms, as only 23 cases of P&S syphilis were identified among the 14,143 STS obtained during the events described here. This may be particularly surprising as many of the locations chosen for screening were identified as venues where men with syphilis met their sex partners.

Individuals infected with syphilis who are detected through screening efforts, even highly targeted screening efforts, are important primarily from an individual and economic standpoint, as treatment will prevent the late complications of syphilis and thus avoid the associated high medical costs. However, because they are usually not infectious to others, they may be relatively unimportant from a public health intervention standpoint because outbreak control prioritizes reduction in the duration of infectiousness.¹⁵

Our findings are similar to those of previous MSM screening studies. In Los Angeles and Denver in 1975–1976, screening efforts at gay bathhouses found that 3% and 1% of those tested, respectively, had untreated syphilis.³¹ No symptomatic cases were identified. A more intensive effort in Denver bathhouses in 1977 screened 606 men and found early syphilis in 5 (0.8%). This study also found that the cost per case identified via screening at the bathhouse was twice that from cases found in the STD clinic.³² For the current MSM outbreak in Chicago, the cost of identifying a case of symptomatic syphilis via the “testathon” campaign was roughly \$15,000. The cost of identifying 1 early and 1 P&S case via bathhouse screening was approximately \$2000 and \$4000, respectively. These cost estimates should be viewed in the context of the high syphilis/HIV coinfection rate, which is approximately 50%. If 1 HIV infection, estimated to cost in excess of \$195,000,³³ is prevented through the detection and treatment of 20 P&S cases (\$80,000) identified through bathhouse screenings, then the program could be considered cost-saving regardless of the low prevalence.

In the early 1970s, a weekly screening program in a Los Angeles bathhouse, organized by the Health Department, routinely screened 40 to 60 men per night (S. Middlekauf, oral communication, May 2004). The screening programs evaluated in this report do not appear to be reaching as many MSM, possibly due to issues of mistrust, noninterest, confidentiality concerns heightened by the HIV epidemic, or lack of cultural competence by health department staff. More effective recruitment strategies are required to increase screening participation in nontraditional settings. Despite the overall low screening volume found in the settings included here, it is noteworthy that efforts to refer the infected persons who were identified for treatment appear to have been successful.

There are limitations to the approach used in our analysis. The proportion of MSM screened of the total number offered testing is unknown. If lower-risk MSM were screened at a greater rate than higher-risk MSM, then our estimates may underestimate the true positivity in these settings. The data presented here were collected as part of routine health department syphilis control activities and were not part of a predetermined research project. Therefore, the specificity of the screening information varies among the sites and eliminates the possibility of cost calculations for many sites. Syphilis outbreaks in the 1990s, affecting primarily blacks in impoverished areas of the South, prompted the implementation of targeted screening programs in jails, community-based settings, and hospital emergency departments.^{12,17–19} These programs reported similar prevalences of untreated syphilis (1.0% to 1.5%) to those found in these MSM populations.^{17–19} However, the volume of screening in many of those programs, especially in jail populations, is far higher than the MSM screening programs in our report and is generally considered to be more cost-effective.¹⁸

The low prevalence of infectious syphilis, especially symptomatic syphilis, identified by the screening events described here suggests that the direct impact of these programs on decreasing syphilis transmission in outbreak situations may be negligible. However, secondary benefits, such as increasing knowledge and awareness of syphilis as a result of the educational outreach conducted during the events, are difficult to measure, and may be substantial. Increased awareness can result in men being more cautious about anonymous sex partners and practicing safer sex. In addition, early recognition of the symptoms and signs of syphilis may result in more prompt treatment of symptomatic infection, thus decreasing the duration of transmission. Because many of the screening venues were locations where men with syphilis met sex partners and had sex, heightened knowledge and awareness among the clientele may be particularly effective.

Despite the low numbers of infectious syphilis identified here, in areas with relatively small or focal MSM outbreaks, targeted screening may be effective in interrupting community transmission by facilitating treatment of a few extremely high-risk individuals (“core transmitters”) who may not receive healthcare services in traditional venues or are unaware that they have syphilis.

As many of the MSM involved in the syphilis outbreaks have large numbers of anonymous partners, multiple prevention and control strategies, including partner notification, clinical services, prophylactic treatment, education, and screening, must be employed to decrease syphilis morbidity.³⁴ Bathhouses, sex venues, MSM-segregated jail units, and bars identified most of the early syphilis cases in the screening program, and these venues should be considered for syphilis screening programs if local data dictate and resources allow, particularly because of the likely secondary benefits. Further research is needed to quantify the epidemiologic importance of bathhouses and other sex venues in the emergence and persistence of syphilis in MSM populations and the direct and indirect value of targeted screening in these venues in controlling and preventing syphilis.

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TABLE 1.

Prevalence of Syphilis in MSM by Area and Screening Venue

Areas and Venues	Tested	New Cases (%) [*]	Early Cases (%) [†]
Chicago (2001–2003)			
Bathhouses	1905	32 (1.7)	27 (1.4)
Bars	548	6 (1.1)	5 (0.9)
Outreach	141	2 (1.4)	0 (0.0)
Total	2594	40 (1.5)	32 (1.2)
South Florida (2001–2003) [‡]			
Total	698	7 (1.0)	6 (0.9)
Houston (2003)			
Mobile van	261	8 (3.1)	2 (0.8)
Jail	292	3 (1.0)	NA
Outreach	135	2 (1.5)	NA
Total	688	13 (1.9)	NA
New York City (2003–2004)			
Bars	139	2 (1.4)	1 (0.7)
Outreach	22	2 (9.1)	1 (4.5)
Total	161	4 (2.5)	2 (1.2)
Los Angeles (2000–2003)			
Sex venues	95	1 (1.1)	1 (1.1)
Jail	3853	51 (1.3)	51 (1.3)
Outreach	1356	3 (0.2)	2 (0.1)
Mobile van	2288	9 (0.3)	6 (0.4)
CBO	817	0 (0.0)	0 (0.0)
Total	8409	64 (0.8)	60 (0.7)
San Francisco (1999–2004)			
Bars	182	0 (0.0)	0 (0.0)
Sex venues	511	1 (0.2)	1 (0.2)
Outreach	900	3 (0.3)	2 (0.2)
Total	1593	4 (0.3)	3 (0.2)

^{*} New diagnosis of syphilis (all stages). MSM = men who have sex with men; NA = not available.

[†] Early syphilis cases (primary, secondary, and early-latent stages).

[‡] Includes Miami and Ft. Lauderdale.

TABLE 2.

Prevalence of Syphilis in MSM by Screening Venue in Six US Areas

Venues	Tested	New Cases (%) [*]	Early Cases (%) [†]
Bathhouses and sex venues	2511	34 (1.4)	29 (1.2)
Jails	4145	54 (1.3)	51 (1.3)
Bars	869	8 (0.9)	6 (0.7)
Mobile van	2549	17 (0.7)	8 (0.3)
Outreach	4069	19 (0.6)	11 (0.3)
Total	14,143	132 (0.9)	105 (0.8)

^{*} New diagnosis of syphilis (all stages).

[†] Early syphilis cases (primary, secondary, and early-latent stages). Jail and outreach early syphilis data were unavailable from Houston and were therefore omitted.