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ISSUE BRIEF

A Clear Case for Supporting Syringe Services Programs: New Study Shows Relationship Between Public Funding and Lower HIV Incidence

In this issue brief

A new study, conducted by Bramson et al. at Mount Sinai Beth Israel in New York City, shows a relationship between public funding of syringe services programs, reducing HIV incidence (the number of new infections in a given year), and maintaining already low HIV incidence among people who inject drugs.[1]

Injection drug use continues to drive the HIV epidemic in the United States

People who inject drugs (PWID) continue to be at substantial risk for HIV, with 12% of new infections among females and 5–8% of new infections among males in 2013 associated with injection drug use.[2] The use of contaminated (i.e., previously used) syringes represents one of the most effective means of transmitting HIV. To prevent HIV transmission among PWID, the use of sterile injection equipment is critical.

HIV prevention among people who inject drugs is straightforward—but requires political will

In an effort to prevent new HIV infections, some states have passed laws to permit over-the-counter (OTC) sales of syringes by pharmacies. Other states have implemented syringe services programs (SSPs), which provide sterile injection equipment and an array of other services to drug users, and which constitute one of the most highly effective, cost-efficient means of reducing HIV transmissions. Research has shown that if PWID have access to sterile syringes, they share syringes less frequently or not at all; among high-risk PWID, the availability of SSPs is independently associated with cessation of syringe sharing.[3]

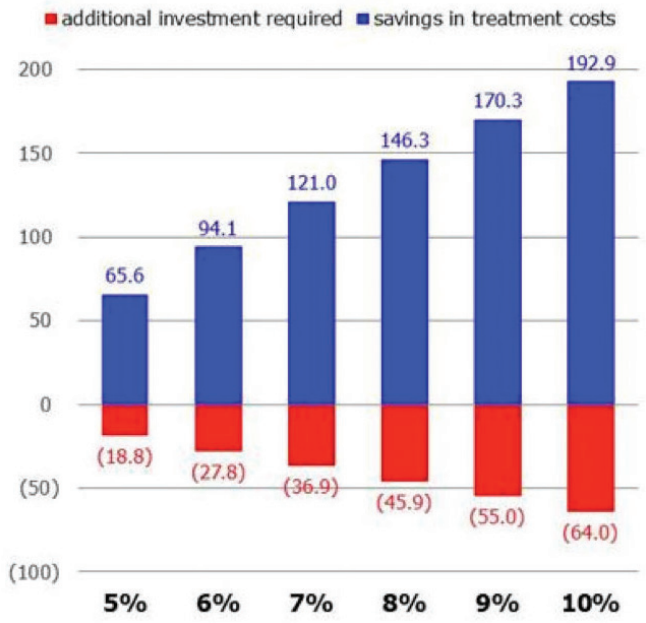
SSPs are highly effective and cost-efficient both at an individual and community level

In terms of individual risk, a meta-analysis combining three studies among PWID in New York City showed that those who did not participate in SSPs were 3.35 times more likely to become HIV infected than those who did.[4] At the community level, an abundance of scientific evidence collected over decades has demonstrated that SSPs are effective in reducing HIV transmissions.[5] In New York City, where HIV prevalence (the number of all existing cases, both new and chronic) among PWID became extremely high early in the epidemic, the large-scale expansion of SSPs coincided with a dramatic decrease in HIV prevalence—from 54% in 1990 to 13% in 2001.[6] In five cities where HIV was introduced into the PWID population later in the epidemic, the implementation of SSPs and other HIV prevention interventions appears to have severely limited HIV transmissions, maintaining HIV prevalence <5%.[7] SSPs are also highly cost-effective—the lifetime treatment of an HIV-positive person is estimated to be between $385,200 and $618,900.[8] While HIV prevention requires ongoing efforts, the average per syringe cost of SSPs in 2011 was $0.52.[9]

SSP coverage in the United States is far below what is needed

"Coverage" refers to the capacity of SSPs to provide one clean syringe per injection, as recommended by public health authorities. In the United States, SSP coverage is very low, estimated to be sufficient to meet only 3% of the need.[10] A recent analysis calculated that expanding SSP coverage to meet even 10% of injections would avert nearly 500 new HIV infections annually.[11] While such an expansion in service coverage would cost an estimated $64 million, the cost pales in comparison to the estimated $193 million lifetime cost of treating 500 new infections (Figure 1).

Figure 1. Additional investment required & savings in HIV treatment costs (million 2011 USD) for each SSP syringe coverage level



Source: Nguyen, T.Q., Weir, B.W., Pinkerton, S.D., Des Jarlais, D.C., & Holtgrave, D. (July 23, 2012). Increasing investment in syringe exchange is cost-saving HIV prevention: modeling hypothetical syringe coverage levels in the United States (MOAE0204 - Oral Abstract). Presented at the XIX International AIDS Conference, Washington, D.C. Abstract available online at http://pag.aids2012.org/Abstracts.aspx?SID=198&AID=17268. (date last accessed: December 11, 2012)

In a 2011 national survey of 197 U.S. SSPs, the 144 survey respondents reported operating programs in 117 cities in 32 states.[12] SSP survey participants reported exchanging a total of 36.9 million syringes in 201—of those, approximately 22.4 million syringes (61%) were distributed by the 18 largest programs.

Public funding provides most support for syringe exchange but amounts to only a drop in the bucket compared to need

Among 85 SSPs that responded to surveys in 2008 and 2011, the total budget for all programs decreased 8.9%, from $16.6 million in 2008 to $15.1 million in 2011.* Among 137 SSPs that reported financial information in 2011, individual budgets ranged from $0 to $1.1 million, with a median of $45,000. Approximately one-third (36.5%) of SSPs operated with a budget of <$25,000, 31.4% with $25,000–$99,999, and 32.1% with >$100,000.† While SSPs reported multiple sources of financial support, including private contributions (from individuals and foundations), the proportion of SSP budgets derived from public sources increased from 62% during 1994/95 to 84% in 2011, when it totaled nearly $16.3 million.

While public funding constitutes the primary support for SSPs, and while such funding has grown over time, it still meets a small percentage of the need. Moreover, public funding derives exclusively from state and local government because the use of federal funds is prohibited by a Congressional ban. State and local jurisdictions are therefore prevented from spending their federal public health allocations on SSPs, money over which they otherwise have broad discretion.

The case for public funding of SSPs: New study demonstrates relationship between public funding and lower HIV incidence

In a new study, researchers at New York City's Mount Sinai Beth Israel show that laws allowing syringe services programs, permitting OTC syringe sales at pharmacies, and providing public funding for SSPs are associated with reducing HIV incidence and maintaining already low levels of HIV incidence among PWID.[13]

Four datasets were created and merged to examine the relationships among 1) state laws affecting access to syringes (i.e., explicitly or implicitly allowing or prohibiting SSPs and/or OTC sales of syringes); 2) state-level HIV incidence; 3) estimated state-level PWID prevalence; and 4) SSP characteristics, including the number and types of services provided to PWID, as well as the receipt of public funding.

Researchers first compiled a dataset of state laws in effect in, or passed since 1980, that potentially affect the availability of harm reduction services, particularly laws providing or restricting access to syringes. Such laws include those: 1) explicitly authorizing the operation of SSPs; 2) explicitly permitting or prohibiting OTC syringe sales (by requiring a doctor's prescription, for example); or 3) implicitly allowing SSPs and/or OTC syringe sales by creating exceptions to drug paraphernalia laws. This can be done by prohibiting the sale or delivery of syringes only to minors, providing exceptions to

* Adjusted for inflation from 2008 to 2011 using a factor of 1.04 (Bureau of Labor Statistics CPI Inflation Calculator).
† SSPs in NM and HI are operated by state health departments who report only one budget figure for all programs in their respective states. As such, the total budgets for New Mexico ($1 million) and Hawaii ($992,800) are excluded from per program budget ranges and median calculations.

the laws prohibiting the sale or delivery of drug paraphernalia for purposes of disease prevention, or by defining "paraphernalia" in such a way as to exclude syringes. Additionally, researchers considered overdose prevention laws, which provide similar exceptions to drug paraphernalia or drug possession charges for those who contact emergency services upon suffering or witnessing a potentially fatal overdose.

HIV incidence among PWID was estimated for states for which legal data had been compiled, using data on new cases of HIV among PWID from publicly available websites,‡ and previously published estimates of PWID populations[14] by metropolitan statistical area (MSA).§ For the purpose of analysis, states were clustered into three groups: 1) states with historically high rates of infection among PWID that remained high; 2) states with historically high rates of infection among PWID that transitioned to low rates of infection;** and 3) states with historically low rates of infection among PWID that remained low. States were also classified by absolute numbers of newly diagnosed HIV cases among PWID, with states with very high absolute numbers reporting >100 newly diagnosed HIV cases among PWID in the most recent year for which data were available.

SSP service delivery and funding data were compiled using BIMC's National Survey of Syringe Exchange Programs, which has been conducted every 1–2 years since 1996. In 2011, the survey was distributed by mail among 197 SSP directors known to the North American Syringe Exchange Network (NASEN). Surveys included closed-ended questions regarding services provided (including the number of syringes

Table 1

States with laws allowing SSPs or OTC sales

	Law Allowing SSPs (N=17/32)		No Law Allowing SSPs (N=15/32)	
Law Allowing Over-the-Counter Syringe Sales (N=16/32)	California Connecticut Illinois◂ Massachusetts New Hampshire◂ New Jersey New Mexico Nevada	New York Oregon◂ Puerto Rico◂ Utah◂ Washington Wisconsin◂	Louisiana Pennsylvania	
No Law Allowing Over-the-Counter Syringe Sales (N=16/32)	Colorado District of Columbia Maryland		Arizona Florida Michigan Mississippi Missouri North Carolina Ohio	Oklahoma South Carolina South Dakota Tennessee Texas Virginia

◂ Drug paraphernalia laws implicitly allow SSPs and/or OTC syringe sales by excluding syringes from the definition of drug paraphernalia laws or omitting references to injection equipment.

Table 2

States with laws providing an exception for persons suffering from and/or reporting a drug overdose to: (N=11)

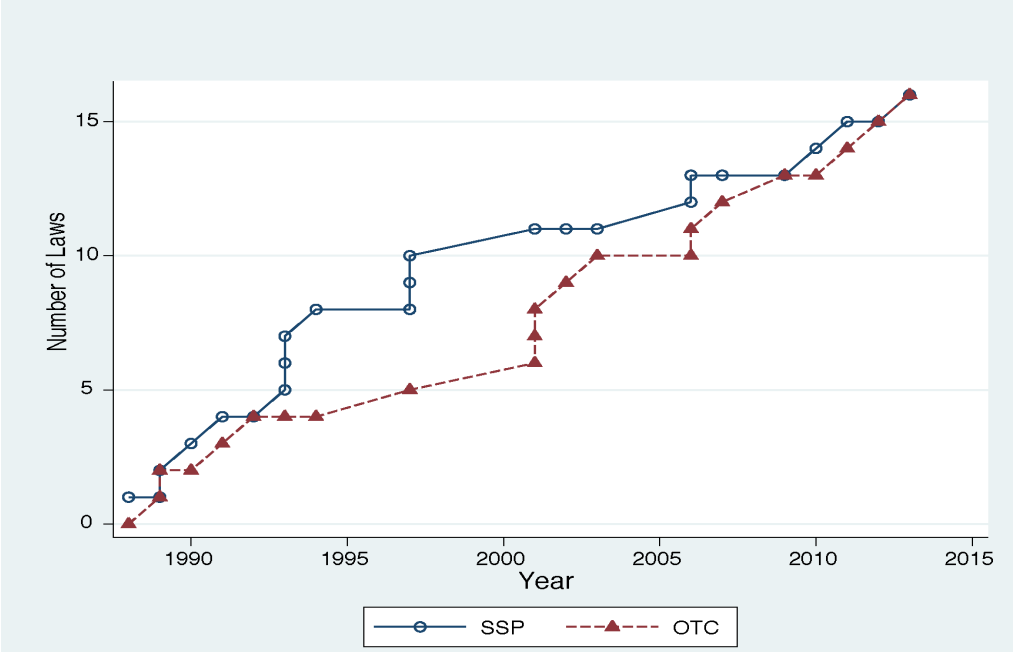
		A charge of drug paraphernalia possession: Yes (N=6/11)	A charge of drug paraphernalia possession: No (N=5/11)
A charge of drug possession	Yes (N=11/11)	California Colorado Connecticut District of Columbia New Jersey New York	Florida Illinois Massachusetts New Mexico Washington

‡ Because states varied widely in the extent to which they consistently reported such data, particularly earlier in the epidemic, states with insufficient new HIV case data for PWID were excluded: Mississippi, New Hampshire, Puerto Rico, and South Dakota.

§ State-level PWID populations were calculated by aggregating all MSA populations in a given state. In instances where MSAs comprised geographic areas in more than one state, populations were allocated to the state with the majority of MSA residents. Because PWID population estimates are lacking for rural areas, HIV incidence in states with large numbers of rural PWID (e.g., Illinois) could be overestimated, and were therefore excluded.

** The threshold for "low" rates of HIV incidence was set at ≤2/1,000 PWID, to ensure that jurisdictions so characterized were well below the national average of 3/1,000 PWID.

Figure 2
Years in which laws allowing syringe services programs (SSPs) or over the counter (OTC) Sales of syringes were passed



distributed), budgets, and funding sources. BIMC followed up by telephone to address unclear or missing responses. Because many SSPs do not collect client-level data (e.g., the number of persons utilizing services), the survey requested only program-level responses. To compare funding over time, budgets from previous years were adjusted to 2011 dollars. For the purpose of assessing relationships with state laws, survey data were aggregated by state.

Legal data were assessed in 32 states where there were >10 newly diagnosed HIV infections among PWID in the most recent year for which HIV data were available.[††]

Laws allowing syringe access, via SSPs, over-the-counter pharmacy sales, and/or exceptions to drug paraphernalia charges

The first instances of laws permitting SSPs and OTC syringe sales were seen in the late 1980s. The passage of both types of law accelerated throughout the nineties, with SSP laws passing more frequently. In the early 2000s OTC laws saw a substantial increase, and by 2003, the number of SSP and OTC laws caught up with each other and continued to increase in parallel (Figure 2). In 14 states with both interventions, SSP laws were passed first in eight (57%), while an OTC syringe sales law was passed first in one, California; in five states, both laws were passed at the same time.

Among the 32 states, 14 have laws expressly authorizing or implicitly allowing SSPs *and* OTC syringe sales, while 13 have laws allowing *neither* SSPs *nor* OTC syringe sales (Table 1). In five states, the laws effectively allow one or the other intervention: two have laws allowing only OTC sales, while three have laws allowing only SSPs. While laws explicitly authorizing SSPs or OTC syringe sales are typically drafted under public health codes and provide an exception for participants or operators to criminal charges of drug paraphernalia possession,[‡‡] laws implicitly allowing SSPs or OTC syringe sales typically result from amendments to criminal laws for the purpose of HIV prevention. For example, in six states (IL, NH, PR, OR, WI, and UT), amendments to drug paraphernalia laws that specifically exclude syringes from the definition of drug paraphernalia, or that purposely omit references to injection equipment, served to implicitly allow for SSPs and/or OTC syringe sales.

Laws providing exceptions to drug charges for those suffering or witnessing an overdose

In recent years, proponents of drug policy reform have advocated laws to provide exceptions to drug and/or drug paraphernalia possession charges for individuals who contact emergency services upon suffering or witnessing a potentially fatal drug overdose. Among the 32 states analyzed, six have passed laws that provide exceptions to charges of both drug possession (with certain limitations) and drug paraphernalia

[††] In 2011, when the survey was conducted, eleven states with SSPs (Alaska, Delaware, Georgia, Hawaii, Indiana, Maine, Minnesota, Montana, Nebraska, Rhode Island, and Vermont) and nine states without SSPs (Alabama, Arkansas, Iowa, Idaho, Kansas, Kentucky, North Dakota, West Virginia, and Wyoming) had ≤10 HIV infections among PWID for the most recent year data were available and were excluded.
[‡‡] Except Colorado, all states with explicit laws allowing for SSPs provide a drug paraphernalia possession exception for SSP operators and participants.

Table 3

Public funding in states with/without laws allowing SSPs

	Law Allowing SSPs (N=13/26)	No Law Allowing SSPs (N=13/26)
Public Funding for SSPs (N=15/26)	California, Colorado, Connecticut, District of Columbia, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Washington, Wisconsin	Arizona, Michigan, Pennsylvania
No Public Funding for SSPs (N=11/26)	Utah	Florida, Louisiana, Missouri, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Texas, Virginia

possession, while another five provide an exception only to a charge of drug possession (with certain limitations) (Table 2).

Public funding for SSPs

Among the 26 states where SSPs reported public funding data and where HIV incidence estimates among PWID were available, SSPs in 15 states reported receiving public funding from state, county, or municipal government. Interestingly, whether states had laws allowing SSPs was not the sole predictor of public funding. Among the 15 states where SSPs received public funding, only 12 had passed laws allowing SSPs (Table 3). In the remaining three states—Arizona, Michigan, and Pennsylvania—public funding was derived from local governments. In some instances, SSPs have operated without state authorization, but with tacit or explicit approval from local authorities, who have sometimes asserted their authority via public health laws.[15]

Previous studies have demonstrated a strong relationship between receipt of public funding, the number of syringes distributed, the range and quantity of on-site services provided, and whether the SSP provides voluntary HIV counseling and testing.[16] In the new study, there was also a positive correlation between public funding and the number of syringes distributed by SSPs (R^2=0.42). The provision of public funding was also positively associated with SSPs offering a greater number of other services to PWID (R^2=0.52). For example, public funding was positively correlated with SSPs offering: HIV counseling and testing (R^2=0.45), hepatitis C testing (R^2=0.28), condoms (R^2=0.47), hepatitis prevention services (R^2=0.46), overdose prevention services with naloxone (R^2=0.28), overdose prevention without naloxone (R^2=0.38), STD prevention and HIV prevention services other than condom distribution (R^2=0.46).

Studies have also shown a strong inverse relationship between the number of syringes distributed by SSPs and HIV incidence among PWID. For example, between 1990 and 2002 in New York City, a period during which annual SSP distribution increased from 250,000 to 3 million syringes, HIV incidence among PWID declined from 3.55% to 0.77%.[17] In the new study, all 15 states with SSPs that received public funding were in the high-to-low or low-to-low HIV incidence categories (Table 4). In contrast, among the

Table 4

HIV incidence and public funding, 1985–2012

States with high infection rates that remained high, 1985–2012	States with high infection rates that declined to low, 1985–2012	States with low infection rates that remained low, 1985–2012
High new HIV infections yearly (>2%)		
Florida	**Connecticut**	**Arizona**
Louisiana	**District of Columbia**	**California**
South Carolina	**Maryland**	**Colorado**
Texas	Massachusetts	Missouri
	Michigan	**New Mexico**
	North Carolina	Ohio
	New Jersey	**Oregon**
	New York	Utah
	Oklahoma	**Washington**
	Pennsylvania	
	Tennessee	
	Virginia	
	Wisconsin	
		Low new HIV infections yearly (≤2%)

Note: **Bolded** states are those that receive public funding for SSPs.

four states in the high-to-high HIV incidence category, none had SSPs that received public funding.

In an analysis of the current absolute number of newly diagnosed HIV cases among PWID, four states reported >100 new cases in the most recent year for which data were available: Texas, with 307 cases reported in 2011; Florida, with 195 cases reported in 2012; New York, with 159 cases reported in 2010; and Louisiana, with 140 cases reported in 2011. Even with a declining estimated incidence, a large number of newly diagnosed HIV cases among PWID suggests a continued need for HIV prevention interventions among PWID.

New York is almost certainly the state with the highest number of PWID and the earliest and largest HIV epidemic among PWID, though HIV incidence has declined approximately 80% since public funding of SSPs began. The other states with high absolute numbers—Texas, Florida, and Louisiana—comprise three of four states in the high-to-high incidence category, none of which reported public funding for SSPs.

Public funding for SSPs saves lives

The case for public support of SSPs has never been stronger. While it has long been understood that SSPs reduce the risk of HIV infection, help link chemically dependent individuals to vital drug treatment services, save money, encourage the safe disposal of syringes, and minimize the risk of needlestick injuries to law enforcement officials, it is now clear that public funding of SSPs is linked more broadly to reducing HIV incidence and maintaining low levels of HIV infections among PWID, benefitting entire communities in turn. The case is clear: Public funding of SSPs saves lives.

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References

1 Bramson H, Des Jarlais DC, Arasteh K et al. State laws, syringe exchange, and HIV among persons who inject drugs in the United States: History and effectiveness. *J Public Health Pol*, 2015;36:212-230.

2 Centers for Disease Control and Prevention. HIV Surveillance Report, 2013; vol. 25. http://www.cdc.gov/hiv/library/reports/surveillance/. Published February 2015 (accessed April 29, 2015).

3 Bluthental RN, Kral AH, Gee L, Erringer EA, Edlin BR. The effect of syringe exchange use on high-risk injection drug users: a cohort study. *AIDS* 2000;14:605-611.

4 Des Jarlais DC, Marmor M, Paone D et al. HIV incidence among injecting drug users in New York City syringe exchange programs. *Lancet* 1996;348:987-91.

5 Gibson DR, Flynn NM, Perales D. Effectiveness of syringe exchange programs in reducing HIV risk behavior and HIV seroconversion among injecting drug users. *AIDS* 2001;15:1329-1341.

6 Des Jarlais DC, Perlis T, Arasteh K, Torian LV et al. Reductions in hepatitis C virus and HIV infections among injecting drug users in New York City, 1990-2001. *AIDS* 2005; 19 (suppl 3);S20-S25.

7 Des Jarlais DC, Hagan H, Friedman SR et al. Maintaining low HIV seroprevalence in populations of injecting drug users. *JAMA* 1995;274:12726-1231.

8 Schackman BR, Gebo KA, Walensky RP et al. The lifetime cost of current Human Immunodeficiency Virus care in the United States. *Med Care* November 2006; 44(11); 990-997.

9 Des Jarlais DC, Guardino V, Nugent A, Arasteh K, Purchase D. 2011 National survey of syringe exchange programs: summary of results (unpublished slides). http://nasen.org/news/2012/nov/29/2011-beth-israel-survey-results-summary/ (accessed September 12, 2013).

10 Nguyen, TQ, Weir, BW, Pinkerton, SD, Des Jarlais, DC, Holtgrave, D. (July 23, 2012). Increasing investment in syringe exchange is cost-saving HIV prevention: modeling hypothetical syringe coverage levels in the United States (MOAE0204). Presented at the XIX International AIDS Conference, Washington, D.C. Session available online at http://pag.aids2012.org/session.aspx?s=198 (accessed September 12, 2013). [NOTE: The model assumes a rate of 2,500 infections per year as a consequence of sharing injecting equipment in the United States.]

11 Ibid.

12 Des Jarlais DC, Guardino V, Nugent A, Arasteh K, Purchase D. 2011 National survey of syringe exchange programs: summary of results (unpublished slides). http://nasen.org/news/2012/nov/29/2011-beth-israel-survey-results-summary/ (accessed September 12, 2013). [NOTE: The number of SSPs in the U.S. is highly fluid and subject to the availability of resources, political backlash, and other factors. Some SSPs also operate somewhat surreptitiously, and there may be additional SSPs that are not known to NASEN. For an updated representation of currently known SEP sites, see: Foundation for AIDS Research (amfAR). Syringe Exchange Program Coverage in the United States 2014. http://www.amfar.org/uploadedFiles/_amfarorg/On_the_Hill/2014-SSP-Map-7-17-14.pdf.]

13 Bramson H, Des Jarlais DC, Arasteh K et al. State laws, syringe exchange, and HIV among persons who inject drugs in the United States: History and effectiveness. J Public Health Pol, 2015;36:212-230.

14 Friedman SR, Tempalski B, Cooper H, Perlis T, Keem M, Friedman R, Flom PL. Estimating numbers of injecting drug users in metropolitan areas for structural analyses of community vulnerability and for assessing relative degrees of service provision for injecting drug users. *J Urban Health* 2004;81(3):377-401.

15 Burris S, Finucane D, Gallagher H, Grace J. The legal strategies used in operating syringe exchange programs in the United States. *Am J Public Health* 1996; 86:1161-1166.

16 Des Jarlais DC, McKnight C, Milliken J. Public funding of US syringe exchange programs. *J Urban Health* 2004;81/1:118-121.

17 Des Jarlais DC, Perlis T, Arasteh K et al. HIV incidence among injection drug users in New York City, 1990-2002: Use of serologic test algorithm to assess expansion of HIV prevention services. *Am J Public Health* 2005;95:1439-1444.

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Public Policy Office
1150 17th Street, NW
Suite 406
Washington, DC 20036
USA
+1.202.331.8600