

Social and Political Factors Predicting the Presence of Syringe Exchange Programs in 96 US Metropolitan Areas

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Community activism can be important in shaping public health policies. For example, political pressure and direct action from grassroots activists have been central to the formation of syringe exchange programs (SEPs) in the United States.

We explored why SEPs are present in some localities but not others, hypothesizing that programs are unevenly distributed across geographic areas as a result of political, socioeconomic, and organizational characteristics of localities, including needs, resources, and local opposition. We examined the effects of these factors on whether SEPs were present in different US metropolitan statistical areas in 2000.

Predictors of the presence of an SEP included percentage of the population with a college education, the existence of local AIDS Coalition to Unleash Power (ACT UP) chapters, and the percentage of men who have sex with men in the population. Need was not a predictor. (*Am J Public Health*. 2007;97:437–447. doi:10.2105/AJPH.2005.065961)

In the United States, injection drug users account for about one third of all AIDS cases¹ and nearly two thirds of new hepatitis C cases.² Syringe exchange programs (SEPs), in which injection drug users exchange used syringes for sterile ones, can address potentially rapid increases in rates of HIV infection in this population. If sufficient numbers of sterile syringes are supplied, users can inject with a new syringe each time, dramatically reducing, if not eliminating, sharing with others because of an inadequate supply. This should then reduce HIV transmission among injection drug users.³

SEPs are accepted as essential components of HIV and hepatitis C prevention in many parts of the world. The United States is a stark exception. Since 1988, the federal government has withheld funding for SEPs contingent on evidence that they reduce the transmission of blood-borne disease without encouraging injection drug use (IDU).⁴ Despite the lack of support at the federal level, numbers of exchanges and numbers of syringes exchanged have increased considerably over the past 15 years. As of November 2006, according to the North American Syringe Exchange Network, more than 190 SEPs were known to be operating in 36 states, the District of Columbia, and Puerto Rico and on American Indian lands.⁵

Although public health authorities may support SEPs, many states and localities have been reluctant to authorize them. This political situation, however, is not unique. Historically, politics has been a pivotal factor in intensifying both the spread^{6,7} and prevention^{8,9} of disease. Social movements have shaped public health policies in the United States, France, Great Britain, and Canada.^{10–13} The “great sanitary movement” during the mid-19th century in Britain, for example, was driven chiefly by local activists appalled by the living and working conditions of the urban poor.⁸ Social movements ranging from the feminist health movement to AIDS activism have restructured many health-related issues, including treatment services, health care reform, AIDS policy, and the destigmatization of groups such as injection drug users.^{14–17}

At present, the controversy over the formation of SEPs in the United States represents a compelling example of the politics of disease and illustrates how struggles over health care access bring underlying conflicts to the surface. Although SEPs remain controversial and continue to face obstacles from the federal government and state governments, they also continue to gain support as a method of reducing harm among injection drug users.

Some of the first SEPs in the United States were established by activists on their own initiative, and some of these programs later gained legitimacy and funding from local city government and public health programs. Currently, more than half of the country’s SEPs are nongovernmental programs established by independent local actors.¹⁸

Social and political processes are important determinants of social change and actions that affect health policy, epidemiology, and prevention services. We explored the effects of place characteristics, including need for services, local resources, community opposition, and grassroots political action, on the geographic availability of SEPs in the United States.¹ We defined “place” as the set of social, political, and geographic relations that create a spatial context in which differential responses to IDU-related HIV infection are structured. Drawing on the broader health, social, and political geography literature, we identified place characteristics that affect spatial variation in SEPs.

We hypothesized that the uneven geographic distribution of SEPs in the United States can be attributed to the particular political, socioeconomic, and organizational characteristics that affect local service needs, resources, and opposition. Using data from the 2000 Beth Israel National Survey of Syringe Exchange Programs,¹⁹ we examined the effects of program need, political factors, and socioeconomic and organizational characteristics on the presence of SEPs.

ACTIVISM, POLITICS, AND OPPOSITION TO SYRINGE EXCHANGE PROGRAMS

A struggle exists in the United States between law enforcement and medical providers as to whether drug users should be defined as criminals or medical patients. One effect of this struggle is that the United

States has been the historical leader in law enforcement and abstinence-based approaches to illicit drug use,²⁰ which has fueled stigmatization of services aimed toward injectors. From this perspective, potential or organized opposition to SEPs in the United States assumes several forms.

The first form of opposition is institutional opposition, including opposition from district attorneys, politicians, police officials, and beat officers,^{21,22} and legal opposition through the enactment of state and local legislation such as drug paraphernalia laws and laws banning over-the-counter sale of syringes.²³ The second form is community opposition, including opposition organized by clergy and neighborhood or business associations and opposition from within particular sectors of minority communities (e.g., African American clergy and politicians) to syringe exchange and methadone maintenance programs.^{24–26} The third form is negative media portrayals of injection drug users and services designed to help them (D. Purchase, Point Defiance AIDS Projects, oral communication, June 2002).²⁷

These forms of opposition are neither mutually exclusive nor static. A change in opposition from one source (e.g., local political leadership) can affect support from others. Thus, resistance to SEPs does not exist in isolation. In fact, the most harmful opposition usually involves a combination of different players.

A community's support of or opposition to the establishment of an SEP may depend on its residents' perceptions of drug users and the local context in which they live and use drugs.^{28,29} Illicit drug use—particularly injection drug use—carries a heavy stigma. As a result, localized community resistance based on such attitudes is often mobilized to prevent the opening or expansion of health and social service facilities.^{30,31}

Many state and local government bodies have been unwilling or unable to respond effectively to the HIV epidemic among injection drug users. Government inaction and active opposition occur at different bureaucratic levels, affecting the distribution and availability of the resources necessary to establish SEPs. The situation in Tacoma, Wash, where the first publicly funded SEP in the United States was established, illustrates the complexity involved in setting up an SEP. In 1988, the

county health department had to sue the city to obtain promised funds to set up an SEP when the city withheld funds, arguing that the exchange violated drug paraphernalia laws. In winning that case, the department set a standard for other counties in the state, and the eventual result was a state-level decision to legalize SEPs.³²

The various forms of political opposition to SEPs suggest that organized local support for these programs has been crucial to their formation in the United States. SEPs often are the result of direct action by grassroots activists. Bluthenthal¹⁰ suggested that government inaction created a perceived need for SEPs enabling harm reduction activists in Oakland, Calif, and elsewhere to set up programs. The efforts of local volunteers and a local political environment that encouraged solidarity were among the conditions that led to the formation of an activist-oriented SEP in Oakland.

Further political opposition can come from a lack of leadership. In a recent study, Downing et al.³³ found that a lack of leadership in the political and public health sectors and a fear of implementing or even discussing needle exchange because of perceived political opposition were the biggest barriers to the establishment of SEPs in some localities.

In other situations, strong support by individuals in the community can lead to wide support for SEPs and produce government action, as the Tacoma case illustrates. Tacoma's SEP was established as a result of the actions of Dave Purchase and other local stakeholders. Recognizing that many injection drug users were dying of AIDS and recognizing the lack of government response, Purchase set up a street-based SEP. He described the pre-SEP situation in Tacoma as follows:

People were going to die. I had some time on my hands. I had some friends that did help out a lot and never got the credit they deserve. We started in the summer of '88, and every couple of years there's another brouhaha with the same old argument. The fact of the matter is that there have been enough local political people with backbone that have supported us and so has the health department, and so we've weathered attacks. And politics is still a number one problem. AIDS is all politics; it's not science and stuff like that (D. Purchase, oral communication, June 2002).

In other areas, local direct action has been less successful. In 1999, New Jersey reported

more than 19 000 cumulative IDU-related AIDS cases, and 2.3% of the residents of the Jersey City metropolitan statistical area (MSA) were injecting drugs. However, the governor and city officials opposed distributing sterile syringes to injection drug users, and local police arrested clients and volunteers in an attempt to suppress the state's only publicly visible SEP.

In the United States, development and maintenance of services for injection drug users, specifically SEPs, are linked to specific activist groups and social movements such as the AIDS Coalition to Unleash Power (ACT UP) and the harm reduction movement. In the late 1980s, concerned activists, usually former or current drug users or members of ACT UP, began setting up SEPs in some localities. In the past, ACT UP had successfully used "direct action" (i.e., political activism strategies such as demonstrations and workplace occupations) to contest the stigmatization of people with AIDS by highlighting the underlying stigmatization rooted in homophobia.

Many of the same activists adopted a similar philosophy and tactics in creating and demanding AIDS prevention services for injection drug users by distributing clean needles to users regardless of legality.³⁴ Members of the harm reduction movement—a unique assemblage of recovering drug users, AIDS activists, researchers in the areas of substance use and HIV, and community health educators and workers—continue to volunteer at SEPs, even when some are repeatedly arrested for distributing syringes.

PLACE CHARACTERISTICS

Although social and political factors are important determinants of public policies and other "community actions" that affect public health, as argued by Nathanson,³⁵ they have not been adequately studied. Some comparative and local studies of community actions have investigated sociopolitical factors that shape the distribution of programs that address certain public health issues and social problems. For example, human resource characteristics such as education and income predict whether and when chapters of anti-drunk-driving organizations have formed in US counties.³⁶

Chiotti and Joseph's³⁷ research showed that a community's negative attitudes toward an AIDS hospice were in part because of the dominant forms of social stratification (dictated by class and culture) entrenched in the community. Miller's³⁸ study of antinuclear activism in the Boston area showed that socioeconomic variables relating to class, labor, and place were significantly related to whether a community mobilized against nuclear development.

We adapted a framework developed by Judith J. Friedman^{39,40} to the adoption of SEPs. The framework emphasizes 4 types of local characteristics important to the distribution of institutionalized programs in cities or MSAs. The first is the need for the program in the MSA. The second is the extent of local resources useful in implementing the program. Two types of local resources are important: general and specialized. A specialized resource is useful for only a narrow range of programs, including SEPs, whereas a more general resource is useful for a wide range of activities. The third characteristic is the strength of organized or potential opposition to the program, and the fourth is the strength of organized or potential support for the program. Within this framework, we identified appropriate predictors of differences in SEP availability in metropolitan areas.

HYPOTHESES AND SELECTION OF PREDICTORS

Our first hypothesis was that need for action will increase the likelihood of an SEP being formed. Although some studies of health-related programs have shown that indicators of need are not strong predictors of program adoption,^{18,39} we theorized that MSAs with greater levels of epidemiological need (need for more or better services or health programs) will be more likely to provide harm reduction services, including SEPs. Thus, communities with larger populations of injection drug users and higher AIDS case rates among these populations will be more likely than other communities to have SEPs. In addition, states regulate syringe access through over-the-counter syringe laws (anti-over-the-counter laws); these laws work against injection drug users having access to

clean syringes. As a result, SEPs are especially needed in areas where anti-over-the-counter laws prevent the sale of syringes.

Second, we hypothesized that the availability of local resources useful in creating an SEP will increase the likelihood of the formation of an SEP. As mentioned, 2 types of resources are important, general and specialized. MSAs vary in terms of general resources. Resources useful for public health programs include university departments of public health and local medical schools, both of which may affect SEP formation. For example, localities with a medical school have been found to be more likely to undertake new community-based interventions for asthma⁴¹ and to develop infant and maternal care programs.³⁹

Research has shown that specialized resources predict community action with respect to new approaches to breast cancer treatment.⁴² Similarly, concentrations of medical and public health researchers have been found to predict expansion of local insurance coverage for children.⁴³ Specialized resources that might facilitate SEP implementation include ratios of medical and public health researchers or teaching professionals, and special community services for HIV/AIDS patients (e.g., hospitals offering specialized care for HIV/AIDS patients) or injection drug users (e.g., availability of drug treatment services). These specialized resources suggest a concentration of people likely to organize and support a movement for an SEP.

Our third hypothesis was that organized or potential opposition to SEPs will reduce the likelihood of SEP formation. The various forms of opposition to SEPs in the United States illustrate the politics involved in implementing controversial public health measures. We categorized opposition into 3 forms: institutional, community, and media. Studies of the adoption of programs such as urban renewal have shown that the supply of resources available to opponents and the types of neighborhood organization in place are predictors of whether resistance is successful.⁴⁴ Institutionalized opposition on the part of local business leaders, party officials, and government actors is a key determinant of successful resistance against urban renewal. In the area of public health, strongly organized opposition has often

resulted in delays in the establishment of public health intervention programs for drug users in US cities.^{26,45}

As mentioned, institutional opposition to SEPs and other harm reduction programs involves law enforcement activities initiated by district attorneys, politicians, police officials, and beat officers,^{46,47} as well as state and local legislation prohibiting possession of drug paraphernalia or over-the-counter sales of syringes.^{23,48} Community opposition can take several forms, including "not in my backyard" opposition from neighborhood or business associations⁴⁹ and broader opposition from local clergy and minority interest organizations.^{24–26} We used the following as measures of whether minority communities would be likely to oppose syringe exchange or methadone maintenance programs: residential segregation according to Hispanic or Black race/ethnicity (using the residential segregation dissimilarity index),⁵⁰ percentage of the population that is Black or Hispanic, and Black–White and Hispanic–White income differentials.

Finally, opposition can come from negative portrayals of injection drug users, and services aimed toward them, in the local media and newspapers.²⁷ These types of opposition typically involve a criminal viewpoint approach to problems of drug use in communities. We suspect, then, that the main arguments of those opposed to the formation of SEPs focus on the idea that these programs encourage drug use.

Our fourth and final hypothesis was that organized or potential support for programs will increase the probability of SEP formation. These types of support can originate from 2 sources: institutional sources, such as public health departments, research organizations and universities, and long-standing programs for injection drug users (e.g., methadone maintenance programs), and community mobilization sources. Community mobilization refers to efforts mounted through social movements to shape public health.

We organized variables for institutional support as the early presence in a community of federally funded outreach programs for injection drug users. We theorized that such support would increase the likelihood of the presence of an SEP and lessen community

opposition to SEPs or other services targeted toward injection drug users. A variety of local organizations such as ACT UP, other AIDS advocacy groups, drug user advocacy groups, and political groups can be involved in community mobilization. We included data on local ACT UP chapters, and we used men who had sex with men (MSM) as a proxy measure for community support from AIDS advocacy groups.

We hypothesized that 4 kinds of “place” characteristics would help us predict the distribution of SEPs among MSAs in the United States in 2000: (1) local need for an SEP (and related harm reduction programs), (2) specialized and general resources, (3) organized and potential opposition, and (4) organized and potential support. These place characteristics are interrelated. Presumably, need should increase concern about underlying health issues and hence increase the probability of support for an SEP as well as the probability that an organization or individual will begin the process of setting up an SEP. Need is not the only factor, however, and some communities with a relatively low level of need will develop an SEP.

In addition, the probability of an SEP being established is a function of the resources available to those involved in implementing the SEP. Resources useful for any kind of program, those useful for public health programs and those specifically useful to harm reduction programs, are all important. Support and opposition become critical once the idea of an SEP exists within the community. Opposition, even assumed opposition, can hinder steps toward forming an SEP. Strong organized opposition can kill a proposal or result in an SEP operating only for a short time. Support for those organizing and then running the SEP, in contrast, increases the probability of success.

METHODS

We used the framework described to construct logistic regression models exploring how need, support and opposition, and metropolitan socioeconomic characteristics were related to whether SEPs were present in 96 MSAs in the United States in 2000. The US Census Bureau⁵¹ defines an MSA as a set of

contiguous counties that contain a central city of 50 000 people or more and form a socioeconomic unit determined according to commuting patterns and social and economic integration within the constituent counties. We included data on the 96 largest MSAs as of 1993.

We used MSAs as the unit of analysis for 3 reasons. First, they allowed continuity with a previous set of estimates calculated by Holmberg⁵²—estimates of HIV prevalence rates, numbers of injection drug users, and numbers of MSM within 96 MSAs—that we used as a basis for the variables included in our analysis. Second, more published health data are available for the county units that make up MSAs than for individual municipalities. Third, as a result of their economic and social unity, MSAs are a reasonable means of studying drug-related HIV and other epidemics. Furthermore, they are meaningful units for assessing drug users and services given that many injection drug users who live in the suburbs buy drugs (and perhaps obtain drug-related services) in the central city.

It is important to address the concern about when our independent variables were measured and thus the lag between measurement times and 2000, the year for which we assessed whether SEPs were present in the different MSAs assessed (the dependent variable). Our main concern was that as many predictor variables as possible had been measured before the period when most SEPs formed (in the mid-1990s, approximately 1992 to 1998). The study was limited by the periods for which relevant data were available for MSAs; for example, estimates of per capita numbers of injection drug users were available only for 1993 and 1998, and MSM estimates were available only for 1993. Data on these and other predictor variables, including “need” variables such as the estimated number of injection drug users and the percentage of injection drug users among AIDS patients, were relatively stable over this time period and indeed remained relatively stable after SEPs had been implemented.

Dependent Variable

The dependent variable was the presence of an SEP in an MSA as of 2000. Data on the dependent variable were derived from

the Beth Israel National Survey of Syringe Exchange Programs, conducted in conjunction with the North American Syringe Exchange Network. As of 2000, 47 of the 96 MSAs assessed had at least 1 SEP.

Independent Variables

Data at the MSA level were available on a range of social, demographic, and structural variables. We included a number of socioeconomic and demographic variables that others have suggested are related to different program-presence variables,^{53,54} including percentage of the population that is Black or Hispanic, residential segregation dissimilarity index, unemployment level and breakdown of unemployment according to race/ethnicity, median family income ratio (e.g., ratio of Black median income to White median income), and percentage of the population below the poverty level. We also included data on other structural variables provided by the Lewis Mumford Center for Comparative Urban and Regional Research.⁵⁰ Table 1 presents statistics on the independent variables. Indicators of the need for an SEP included AIDS prevalence rate among injection drug users (derived from the AIDS Public Information Data Set⁵⁵), number of injection drug users in an MSA (derived from estimates provided by Holmberg⁵²), and laws prohibiting over-the-counter sales of syringes (details on these laws were derived from Burris et al.²³ and Friedman et al.⁴⁸). Anti-over-the-counter legislation was a dichotomous variable (1 = yes, 0 = no). Thirty-six of the 96 MSAs were located in states that had passed anti-over-the-counter syringe laws as of 1993.

We measured 2 variables pertaining to general resource availability: number of public health and medical researchers per 10 000 population and number of public health and medical teaching professionals per 10 000 population. Data for both variables were derived from the 1990 Bureau of Health Professions Area Resource File.⁵⁶ In addition, we assessed the availability of 2 specialized resources: number of drug treatment slots per 10 000 population, a measure of the services available to substance users (derived from the 1992 Treatment Episode Data Set⁵⁷), and number of hospitals with

TABLE 1—Distribution of Independent Variables Among 96 MSAs, by Category: 1989–1993

Category and Variable	Mean (SD)	Minimum	Maximum
Need			
No. of injection drug users per 1000 population (1993)	8.631 (4.335)	2.512	23.118
No. of AIDS cases among injection drug users per 1000 users (1993)	12.071 (9.381)	1.428	41.000
Presence of anti-OTC laws	0.375 (0.486)	0.000	1.000
Resource availability			
No. of drug treatment slots ^a (1992)	0.810 (0.862)	0.000	4.701
No. of hospitals with specialized HIV/AIDS services ^a (1992)	14.081 (3.371)	3.518	22.249
No. of medical and public health researchers ^a (1990)	0.778 (0.940)	0.032	5.198
No. of medical and public health teaching professionals ^a (1990)	1.046 (0.605)	0.110	4.117
Institutional opposition			
No. of hard drug arrests ^a (1993)	15.059 (14.175)	0.532	71.870
No. of police employees ^a (1993)	27.946 (9.544)	11.104	77.332
Organized or potential support			
No. of MSM per 1000 population (1993)	10.360 (3.781)	4.163	32.906
No. of AIDS cases among MSM per 1000 MSM (1993)	16.693 (8.402)	3.275	42.307
Presence of outreach efforts	0.417 (0.495)	0.000	1.000
Presence of ACT UP chapter	0.198 (0.400)	0.000	1.000
No. of methadone maintenance programs ^b (1989)	2.406 (2.406)	0.000	20.87
Socioeconomic and demographic factors (1990)			
MSA population (in 100 000s)	16.578 (15.782)	5.011	90.922
Black, %	11.786 (8.224)	0.897	40.589
Black residential segregation dissimilarity index ^c	64.684 (11.584)	37.516	89.945
Black-White median income ratio	0.676 (0.218)	0.309	1.318
Black-White unemployment ratio	2.819 (1.486)	0.018	7.463
Hispanic, %	9.525 (12.589)	0.448	69.576
Hispanic residential segregation dissimilarity index ^c	41.509 (12.081)	21.487	66.764
Hispanic-White median income ratio	0.822 (0.303)	0.321	1.356
Hispanic-White unemployment ratio	2.106 (0.977)	0.591	5.833
Unemployment rate, %	5.869 (1.459)	3.065	10.036
Population below poverty level, %	11.345 (3.597)	4.200	26.803
Population with college education, %	22.195 (5.184)	12.044	37.006

Note. OTC = over-the-counter; MSM = men who have sex with men; ACT UP = AIDS Coalition to Unleash Power; MSA = metropolitan statistical area; the actual number of MSAs in the analysis ranged from 93–96, according to availability of data. Years in parentheses are the years of the data.^{52–54}

^aPer 10 000 population.

^bPer 1 million population.

^cMeasures residential segregation according to minority race/ethnicity, that is, whether one particular group is distributed across census tracts in the metropolitan area in the same way as another group. A high value indicates that the 2 groups tend to live in different tracts. Values range from 0 to 100. A value of 60 or above, considered very high, indicates that 60% (or more) of the members of one group would need to move to a different tract in order for the 2 groups to be equally distributed. Values of 40 or 50 are usually considered moderate, and values of 30 or below are considered to be relatively low.

arrests”; derived from Uniform Crime Reporting Program county-level arrest data⁵⁸) and number of police employees per 10 000 population (derived from Uniform Crime Reporting Program data on police force employees).⁵⁹

We categorized 2 types of organized or institutional support. The first was the presence of an outreach program for injection drug users and, in certain instances, their partners (compiled from data reported by Brown and Beschner⁶⁰ and the National Institute on Drug Abuse⁶¹). The second was the number of methadone maintenance programs in a given MSA as of 1989 (as reported in the 1989 National Drug and Alcoholism Treatment Unit Survey⁶²).

Finally, we classified potential or actual community mobilization as efforts by grassroots organizations and local activists to develop and sustain programs for stigmatized groups. General gay political influence and concern regarding HIV/AIDS prevention and the direct involvement of gay and lesbian activists in ACT UP may have influenced the establishment of SEPs and perhaps deterred the efforts of political authorities to prevent their formation. The following variables were used in assessing community mobilization in support of SEPs: (1) the presence of an ACT UP chapter, many of which initiated SEPs or expanded local drug treatment and other HIV prevention service capacities (as cited in records maintained by members of New York ACT UP and in various literature reviews^{63–65}; 19 MSAs had local ACT UP chapters as of 2000); (2) estimates of MSM populations as a measure of potential AIDS-interested constituencies⁵²; and (3) percentage of MSM with AIDS in a given MSA (included as a measure of impetus to gain gay support for SEPs; derived from the AIDS Public Information Data Set⁵⁵).

Data Analysis

As a result of the large number of potential independent variables and the relatively small number of MSAs, we developed a 4-step process to reduce the number of independent variables. First, we conducted bivariate analyses to determine the independent variables that exhibited a statistically significant association with SEP presence ($P < .20$ was used as the screening criterion to avoid deleting potentially significant predictors). Second, we

specialized HIV/AIDS care units per 10 000 population (derived from the Bureau of Health Professions Area Resource File⁵⁶).

Institutional opposition can be manifested through police harassment of injection drug users via drug arrests, arrests of SEP participants for carrying syringes, and harassment

and arrests of SEP staff.^{21,22} We viewed these variables as symbolizing a “criminal justice” approach to social problems, an approach consistent with hostility toward SEPs. We assessed a pair of institutional opposition variables: number of arrests for possession of cocaine or heroin per 10 000 population (“hard drug

TABLE 2—Domain-Specific Bivariate Relations Between Independent Variables and Presence of a Syringe Exchange Program (SEP): 96 Metropolitan Statistical Areas (MSAs), 2000

Category and Variable ^a	Mean in MSA	Odds Ratio (95% Confidence Interval)	P ^b
Need			
No. of injection drug users per 1000 population (1993)		1.07 (0.970, 1.175)	.180
With SEP	9.24		
Without SEP	8.04		
No. of AIDS cases among injection drug users per 1000 users (1993)		1.07 (1.017, 1.124)	.093
With SEP	14.73		
Without SEP	9.51		
Presence of anti-OTC syringe laws		2.20 (0.946, 5.117)	.067
With SEP	0.46		
Without SEP	0.28		
Resource availability			
No. of drug treatment slots per 10 000 population (1992)		1.09 (0.440, 2.709)	.850
With SEP	0.78		
Without SEP	0.76		
No. of hospitals per 10 000 population with specialized HIV/AIDS services (1992)		1.05 (0.930, 1.185)	.433
With SEP	14.36		
Without SEP	13.81		
No. of medical and public health researchers per 10 000 population (1990)		2.13 (1.116, 4.082)	.022
With SEP	1.03		
Without SEP	0.53		
No. of medical and public health teaching professionals per 10 000 population (1990)		1.36 (0.683, 2.717)	.380
With SEP	1.10		
Without SEP	0.99		
Institutional opposition			
No. of hard drug arrests per 10 000 population (1993)		1.04 (1.001, 1.070)	.040
With SEP	18.24		
Without SEP	12.01		
No. of police employees per 10 000 population (1993)		1.03 (0.983, 1.076)	.226
With SEP	29.18		
Without SEP	26.76		
Organized or potential support			
No. of MSM per 1000 population (1993)		1.31 (1.100, 1.550)	.002
With SEP	11.62		
Without SEP	9.15		
No. of AIDS cases among MSM per 1000 MSM (1993)		1.04 (0.986, 1.088)	.162
With SEP	17.92		
Without SEP	15.51		
Presence of outreach efforts		4.54 (1.897, 10.886)	.007
With SEP	0.59		
Without SEP	0.24		

Continued

grouped variables found to be significant into 5 categories for domain analysis.^{66,67} Next, within each domain, we used logistic regression techniques to identify variables that were significant independent predictors at $P < .05$. Finally, we applied logistic techniques to the pooled set of independent variables significant at $P < .05$ to determine the final model predictors.

RESULTS

Within each overall category of indicators, there were significant ($P < .20$) associations between independent variables and the presence of an SEP (Table 2). In the category of need, significant variables were percentage of injection drug users in the general population, number of AIDS cases per 1000 injection drug users, and presence of anti-over-the-counter syringe laws. In the resource availability category, number of public health and medical researchers and number of drug treatment slots per 10 000 population were significant. In the institutional opposition category, number of hard drug arrests per 10 000 population was significant.

In the organized or potential support category, significant variables were percentage of MSM in the general population, number of AIDS cases per 1000 MSM, presence of an ACT UP chapter, early program outreach to injection drug users, and number of methadone maintenance programs. Finally, the following socioeconomic indicators were significant: MSA population, Black–White and Hispanic–White median income ratios, Hispanic residential segregation index, and percentage of the population with a college education.

Variables that were significant in the domain analyses (Table 3) at $P < .05$ (and their respective domains) were (1) number of AIDS cases per 1000 injection drug users (need); (2) number of public health and medical researchers per 10 000 population (resource availability); (3) percentage of MSM in the population, presence of an ACT UP chapter, and number of methadone maintenance programs in 1989 (organized or potential support); and (4) number of hard drug arrests per 10 000 population (institutional opposition). In addition, 2 socioeconomic indicators,

TABLE 2—Continued

Presence of ACT UP chapter		29.80 (3.775, 235.106)	.001
With SEP	0.38		
Without SEP	0.02		
No. of methadone maintenance programs ^b per 1 million population (1989)		1.66 (1.189, 2.343)	.003
With SEP	3.10		
Without SEP	1.73		
Socioeconomic and demographic factors (1990)			
MSA population in 100 000s		1.09 (1.031, 1.155)	.003
With SEP	22.21		
Without SEP	11.17		
Black, %		0.99 (0.945, 1.04)	.788
With SEP	11.55		
Without SEP	12.05		
Black residential segregation dissimilarity index		1.02 (0.981, 1.052)	.382
With SEP	65.75		
Without SEP	63.67		
Black-White median income ratio		0.14 (0.019, 1.029)	.053
With SEP	0.63		
Without SEP	0.71		
Black-White unemployment ratio		0.97 (0.736, 1.277)	.825
With SEP	2.78		
Without SEP	2.85		
Hispanic, %		1.02 (0.982, 1.049)	.392
With SEP	10.67		
Without SEP	8.45		
Hispanic residential segregation dissimilarity index		1.05 (1.016, 1.094)	.005
With SEP	45.20		
Without SEP	38.04		
Hispanic-White median income ratio		0.19 (0.033, 0.578)	.067
With SEP	0.73		
Without SEP	0.90		
Hispanic-White unemployment ratio		0.97 (0.639, 1.477)	.893
With SEP	2.09		
Without SEP	2.11		
Unemployment rate, %		1.12 (0.845, 1.478)	.437
With SEP	5.98		
Without SEP	5.75		
Population below poverty level, %		0.96 (0.854, 1.074)	.459
With SEP	11.06		
Without SEP	11.60		
Population with college education, %		1.22 (1.100, 1.361)	.001
With SEP	24.44		
Without SEP	20.08		

Note. OTC = over-the-counter; MSM = men who have sex with men. Years in parentheses are the years of the data.⁵²⁻⁵⁴

^aWith SEP, n = 47; Without SEP, n = 49.

^bBased on likelihood ratio test.

percentage of the population with a college education and MSA population, were significant.

In the final, fully adjusted model (Table 4), significant independent predictors of the presence of an SEP as of 2000 were ACT UP presence (adjusted odds ratio [OR]=11.367; 95% confidence interval [CI]=1.111, 116.250) and percentage of the population with a college education (adjusted OR=1.173; 95% CI=1.003, 1.372). Percentage of MSM in the general population (adjusted OR=1.213; 95% CI=0.987, 1.490) was of borderline significance.

Of the 96 MSAs, 19 had ACT UP chapters; of these chapters, all but 1 (Houston) had at least 1 SEP. Because of the small number of MSAs with ACT UP chapters but no SEP, it was difficult to conduct multivariate analyses using this variable. Approximately 40% of the MSAs in our study had SEPs despite not having an ACT UP chapter.

We conducted 2 additional analyses to assess whether SEP presence was simply a product of ACT UP presence. First, we ran the same model described earlier with ACT UP presence as the dependent variable. Significant predictors of the presence of an ACT UP chapter were number of AIDS cases among MSM (adjusted OR=1.105; 95% CI=1.015, 1.202) and MSA population (adjusted OR=1.090; 95% CI=1.018, 1.167) (Hosmer-Lemeshow goodness-of-fit test $P=.6768$). Predictors of ACT UP presence were quite different from predictors of SEP presence.

To further explore the interaction between SEP presence and ACT UP presence, we analyzed SEP presence among 77 MSAs without ACT UP chapters. The bivariate results were similar to our original analysis. In the fully adjusted model, significant independent predictors of the presence of an SEP as of 2000 for those areas without ACT UP chapters were percentage of the population with a college education (adjusted OR=1.229; 95% CI=1.040, 1.452; $P=.0156$) and percentage of MSM in the population (adjusted OR=1.250; 95% CI=0.997, 1.567; $P=.0520$).

Research has shown that, in many cities, SEPs have been initiated by ACT UP members.^{17,63-65} Here this very direct form of

TABLE 3—Significant Predictors in Domain-Specific Multiple Logistic Regression Analysis

Category and Variable	Adjusted Odds Ratio (95% Confidence Interval)	P
Need		
No. of injection drug users with AIDS per 1000 users	1.07 (1.017, 1.124)	.009
Resource availability		
No. of medical and public health researchers per 10 000 population	2.13 (1.116, 4.082)	.022
Institutional opposition		
No. of hard drug arrests per 10 000 population	1.04 (1.001, 1.070)	.04
Organized/potential support		
Presence of ACT UP chapter	20.331 (2.476, 166.966)	.005
No. of MSM per 1000 population	1.206 (1.005, 1.447)	.044
No. of methadone maintenance programs per 1 million population	1.522 (1.038, 2.231)	.031
Socioeconomic/structural factors		
Percentage of population with college education	1.19 (1.064, 1.320)	.002
MSA population	1.067 (1.009, 1.128)	.023

Note. ACT UP = AIDS Coalition to Unleash Power; MSM = men who have sex with men; MSA = metropolitan statistical area.

TABLE 4—Significant Predictors in Multivariate Logistic Regression Analyses

	Adjusted Odds Ratio (95% Confidence Interval)	P
Presence of ACT UP chapter	11.367 (1.111, 116.250)	.041
Percentage of population with college education	1.173 (1.003, 1.372)	.046
No. of MSM per 1000 population	1.213 (0.987, 1.490)	.067

Note. ACT UP = AIDS Coalition to Unleash Power; MSM = men who have sex with men.

causation resulted in a large predictive value between the presence of ACT UP chapters and the formation of SEPs. The results of our analysis indicate that the presence of an ACT UP chapter is almost a sufficient condition for the presence of an SEP but that it is not a necessary condition. However, continued research regarding this topic is needed to understand the factors associated with the correlation of ACT UP presence to SEP presence.

MSAs were more likely to have SEPs in 2000 if they had ACT UP chapters, higher percentages of MSM in their population, and higher percentages of college-educated residents. In the absence of ACT UP chapters, percentages of college-educated residents and percentages of MSM in the population remained the important predictors.

DISCUSSION

Limitations

Despite our efforts to gather variables that best captured our theoretical framework, we were limited by the information available in the secondary data sets and public use files we used. Furthermore, some of these data sets involved missing values when information was aggregated to the MSA unit of analysis. For example, 1993 arrest data for Kansas, the District of Columbia, and Florida were not available in the public use files. However, we were able to compile Florida drug arrest data from county-level data (state of Florida crime reports). However, we were unable to account for missing values for the Wichita, Kan, and District of Columbia MSAs. Moreover, given our difficulty in obtaining data relating to

opposition, we were not able to measure potential community opposition, including opposition from local media and newspapers.

In addition, in the case of our dependent variable, SEP presence, we included only those programs that responded to the Beth Israel National Survey of Syringe Exchange Programs. Twenty-seven of the 154 programs did not respond to the survey in 2000, despite repeated follow-ups. Fortunately, only 1 of these 27 programs was located in a study MSA. We reanalyzed the data to account for the missing SEP using the same methods described earlier, and the results did not differ.

Finally, our analysis was limited to MSA boundaries, leading to the omission of 8 SEPs located within 10 mi (16 km) of the MSAs assessed. Future research might include a spatial buffering component so that such SEPs can be incorporated into the analyses. Future studies should also include analyses of SEPs as a time-dependent variable, which would help provide an understanding of the geographic diffusion of programs in the United States over time and across space.

Conclusions

Our results are consistent with current theory positing that SEPs are often established as a result of political pressure or direct action by grassroots activists and organizations such as ACT UP. We identified 3 independent predictors of the presence of an SEP. Overall, MSAs with high percentages of MSM in their population were more likely to have SEPs, as were those with ACT UP chapters. As mentioned, 19 of the 96 MSAs assessed had an ACT UP chapter, and all but 1 of these 19 had at least 1 SEP. This indicates a strong association between the presence of local ACT UP chapters and the presence of an SEP and implies that activism influences provision of services.

We found that both active solidarity (ACT UP presence) and potential solidarity (higher percentages of MSM in the population, suggesting more concern with HIV/AIDS issues and education) are positive factors in forming and, possibly, sustaining SEPs in the United States. Furthermore, when we did not account for ACT UP presence in the model, percentage of MSM in an MSA was significant. Thus, SEPs are more likely to be located in areas with high percentages of MSM, even

after control for ACT UP presence. This finding provides further evidence that efforts by grassroots and AIDS activists have made a significant contribution to helping to curb the HIV epidemic among injection drug users.

The relationship between the percentage of college-educated individuals in an MSA and the presence of an SEP in that MSA was also significant; MSAs with higher percentages of college-educated residents were more likely to have SEPs. Although education may be a proxy for volunteerism, research suggests that individuals with a college diploma are more likely than those who have not attended college to be politically involved,⁶⁸ to engage in civic activities,^{69,70} and to be receptive to new scientific technologies.^{71,72} It is likely that this individual-level demographic factor translates into increased support for SEPs at the MSA level.

Contrary to our hypotheses, neither resource availability nor institutional opposition predicted the presence of an SEP. Need, as measured by the prevalence of AIDS cases among injection drug users or the percentage of users in the MSA population, also did not predict SEP presence, indicating a lack of association between need and services aimed toward populations of injection drug users. Attempts to set up SEPs in New Jersey and Massachusetts serve as illustrations of the political processes leading to this lack of relationship.

In New Jersey, injection drug use is the most frequently reported risk behavior among HIV-positive individuals.⁷³ Three of the state's MSAs (Jersey City, Newark, and Bergen-Passaic) have among the highest rates of IDU-related AIDS in the country (more than 32% among injectors as of 2001), and research has shown that the percentages of injection drug users in Jersey City and Newark are very high (2.3% and 1.6%, respectively, in 1993).⁵² The number of IDU-related AIDS cases in the state peaked in 1993, accounting for 49% of the AIDS cases that year. Despite that alarming situation, in April 1996 then Governor Christine Whitman rejected the recommendations of her advisory council on AIDS to distribute clean needles to injection drug users and allow the sale of syringes in pharmacies. By 2000, the only publicly visible SEP in the state had been suppressed.

The current situation in New Jersey is unpredictable and shaped by politics. Under an executive order signed by former Governor Jim McGreevey in November 2004, up to 3 of the state's cities were slated to be approved to establish SEPs. The Camden and Atlantic City SEPs were expected to be operating by May of 2005, but on June 20, 2005, the Mercer County Superior Court issued an injunction staying the governor's executive order. As a result, Atlantic City and Camden were not able to proceed (R. Scotti, Drug Policy Alliance New Jersey, oral communication, December 2005). Two years after this study was undertaken, New Jersey Governor Job Corzine signed the Bloodborne Disease Harm Reduction Act, which allows up to 6 cities in the state to establish SEPs.

In Massachusetts in 1993, then Governor William Weld passed a law allowing 10 pilot SEPs in the state, with a clause leaving final approval for implementing programs to each locality. Since 1993, several Massachusetts SEPs have been established, including programs in Boston, Cambridge, Provincetown, and Northampton. The most positive political climate for implementing an SEP was in Northampton, where the exchange was initiated by the mayor and the health commissioner; however, Northampton did not have the greatest need as measured by AIDS prevalence rates.

By contrast, Springfield had a dire need for a program; an estimated 54% of all AIDS cases in Springfield were attributed to injection drug use.⁷⁴ Although the city's mayor, health commissioner, public health council, and board of health all had supported establishment of an SEP since 1998, Springfield's city council vetoed the much-needed program because of ongoing political pressure by a local citizen group. The lack of correlation between program presence and need and the continued reluctance of policymakers to implement controversial initiatives such as methadone maintenance programs and SEPs can thwart efforts to reduce HIV transmission among injection drug users and their sexual partners.

The lack of an association between program presence and need implies that current US political systems are not responding adequately to an important public health problem. This is not unique: previous studies have shown that the presence of programs

aimed at drunk driving,³⁶ maternal and infant health,³⁹ and smoking³⁵ is not related to the need for such programs. When community needs are at odds with national policy, activism and mobilization at the local level are essential in implementing public health programs such as SEPs. ■

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Contributors

B. Tempalski was responsible for theory concept; data acquisition, analysis, and interpretation; and the writing of the article. P.L. Flom contributed to the analysis and interpretation of the data. S.R. Friedman contributed to the conception and design of the analysis. D.C. Des Jarlais contributed to the conception and interpretation of the data. J.J. Friedman contributed to theory concept. C. McKnight contributed to data acquisition. R. Friedman contributed to the writing of the article.

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Muddy Waters

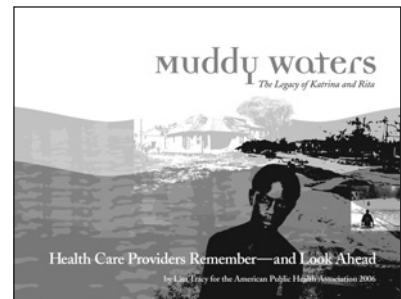
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