

HIV Testing Practices and Attitudes on Prevention Efforts in Six Community Areas of Chicago

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ABSTRACT:

Data describing local level HIV testing practices and attitudes regarding HIV prevention are rarely available, yet would be useful for HIV policy and evaluation. A comprehensive health survey was conducted in six community areas of Chicago (n = 1,699) in 2002-2003. The HIV prevention module of this survey was used for this analysis. The proportion that ever tested for HIV ranged from 40 to 75% and 11 to 38% were tested in the past 12 months. Residents favored: needle exchange programs (59-77%), HIV information in high schools (95-100%) and elementary schools (85-94%), and condom distribution in high schools (74-93%). Attitudes were less favorable regarding pharmacies selling clean needles (37-58%) and condom distribution in elementary schools (22-66%). Adults in these areas are over three times more likely to have been tested recently than adults nationally. Residents strongly favor community based HIV prevention initiatives such as needle exchange programs, condom distribution in high schools, and HIV prevention taught in schools. These evidence-based observations may be valuable in planning HIV prevention programs and in shaping policy.

Keywords: HIV testing, HIV prevention, HIV education, Condom distribution, Needle exchange

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INTRODUCTION:

HIV prevention efforts play an important role in fighting the HIV epidemic. These activities are critically important because the Centers for Disease Control and Prevention (CDC) estimate that over half a million Americans have died of AIDS and one million are currently living with HIV [1]. In addition, there are racial disparities in the diagnosis of HIV/AIDS in the US and locally in Chicago. Black people have higher rates of HIV/AIDS than both Whites and Hispanics nationally and the epidemic has hit Black women with great force [2]. In Chicago, Blacks also suffer the burden of the HIV/AIDS epidemic over their White and Hispanic counterparts where 60% of AIDS cases in 2004 were diagnosed in Blacks (who comprised about 35% of the population), compared to 21% in Non-Hispanic Whites and 16% among Latinos [3].

Among those most in need of HIV prevention efforts are adolescents, injection drug users, racial/ethnic minorities and those who are unaware of their HIV infection [4]. For instance, in recent years the proportion of youth diagnosed with AIDS has continued to increase as has the number living with AIDS [4, 5]. Injection drug users are also greatly affected by the HIV epidemic as they, along with their partners and children, account for approximately one-third of the AIDS cases. Finally, of the approximate one million persons in the United States living with HIV, as many as one-quarter do not know that they are infected [6]. Routine HIV screening can increase the number of individuals who know their HIV status [6]. Individuals who learn about their HIV infection early can benefit greatly from effective antiretroviral treatment as such treatment has been shown to increase the length and quality of life for infected individuals [7, 8]. Treatment may also reduce infectiousness which would, in turn, decrease transmission [9-11]. Furthermore, individuals who are aware of their positive status are significantly more likely to reduce their risky behaviors than individuals unaware of their positive status [12].

HIV infection in adolescents is primarily transmitted through sexual contact [6, 13, 14]. Studies suggest that both school-based HIV/AIDS education and condom availability in schools delay the first

sexual encounter and promote safer sexual practices (such as increased condom use) among those already engaging in sexual relations [15-19]. Therefore, condom distribution and HIV prevention education can be effective methods for reducing risk in this population.

Finally, for injection drug users that continue to inject drugs, needle exchange programs (NEPs) are known to reduce HIV drug risk behavior, reduce transmission and be cost-effective [20-22]. Such programs are most effective when they are part of a comprehensive approach which includes access to drug treatment and school- and community-based interventions to prevent the initiation and continuation of drug use [4, 22, 23].

Despite their proven effectiveness, HIV prevention efforts targeted at these populations such as condom distribution in schools, school-based HIV/AIDS prevention education, and needle exchange programs are controversial [21, 24-26]. Thus, before implementing such programs at the local level, it would be beneficial to assess whether community members would support such prevention efforts. While testing rates are available at the national, state and sometimes city level [e.g., from the US and Illinois Behavioral Risk Factor Surveillance System (BRFSS)], virtually none exist at the community level. Understanding the rate of HIV testing in a given community can help dictate if further resources are needed to improve testing rates. Similarly, community support of HIV prevention programs may help them be more effective.

Data drawn from a major and unique door-to-door community health survey in Chicago affords us the opportunity to explore many of these issues. The purpose of this paper is to: (1) describe the HIV testing rates, (2) assess the acceptability of HIV information and condom distribution in schools, and (3) analyze the acceptability of HIV prevention measures for injection drug users in six community areas of Chicago. Policy implications are also discussed.

METHODS:

Survey Design

The data analyzed in this article were obtained from the Sinai Health System's Improving

Community Health Survey [27]. Chicago is divided into 77 officially designated community areas, which often serve as loci for describing health, delivering health care services and implementing community-based interventions [28]. For various planning and policy reasons, six of these community areas were selected for this survey.

In an effort to obtain a representative sample for each of the selected community areas, a three-stage probability sample design was employed [29]. First, census blocks were chosen using probability proportionate to size (PPS) sampling based on the proportion of individuals age 18 and over who lived on each block according to the 2000 Census. Second, households were randomly selected from these blocks. Third, adults within the households were randomly selected to be interviewed, using the Trodhal-Carter-Bryant methodology [30]. The goal was to obtain approximately 300 completed surveys from each community area.

The survey was administered face-to-face in either English or Spanish to age eligible (between 18 and 75 years of age) community residents that were able to consent. The survey was collected from September 2002 through April 2003 and contained 469 questions on health related topics such as access to health care, diagnosed conditions, and health behaviors. The interview lasted approximately 1 hour and respondents received a health information packet (in Spanish or English) along with \$40 in appreciation of their time. The conservative response rate, as calculated by the American Association for Public Opinion Research is 43% but the participation rate was 87% [31]. More details on the survey methodology and the community area response and participation rates can be found elsewhere [32]. This study was approved by all relevant institutional review boards.

The questions included in this analysis were obtained from the HIV prevention module of the survey, which included questions concerning HIV testing, practices and attitudes regarding certain HIV prevention efforts (such as condom distribution in schools and NEPs). Table 1 outlines the specific questions employed for this analysis.

Community level demographic data were taken from the 2000 United States Census figures. These data reflect the race/ethnicity, gender, education level and income level of each community area.

We also used 2002-2003 average annual AIDS incidence rates available through the Chicago Department of Public Health (data requested from the Chicago Department of Public Health, Division of STD/HIV/AIDS Surveillance, Epidemiology & Research Section on 2/21/2007). We used these data because it is the year closest to the time of the survey and because community-level HIV prevalence data was not available prior to 2006.

Study Population

The demographic characteristics of each community area (Table 2) were derived from the 2000 US Census. As Table 2 illustrates, North Lawndale and Roseland are almost entirely African American; South Lawndale is almost entirely Mexican; Humboldt Park is about half African American, a quarter Puerto Rican and a quarter Mexican; West Town is about half White, a quarter Puerto Rican and a quarter Mexican; and Norwood Park is almost entirely White. The median household incomes, which range from \$18,000 (North Lawndale) to \$53,000 (Norwood Park), may be compared with \$42,000 for the US and \$39,000 for Chicago.

Data Analysis

The sampling weights employed in this analysis account for differential probabilities of selection and the post-stratification of the sample to resemble the 2000 Census distribution (by sex, age, and race/ethnicity) of the population for each community area. SAS V 9.1 was used to calculate the standard errors [33]. The analyses accounted for the complex sampling design.

Ninety-five percent confidence intervals (CI) were calculated for all response items. Rates were considered significantly different from one another if their CIs did not overlap. Only those aged 18-64 were included in the analysis because the national comparisons only include this age group.

RESULTS:

HIV testing:

The average annual AIDS incidence rate for 2002-2003 for the three communities with the highest rates were 39.5 per 100,000 population in Humboldt Park, 44.3 in North Lawndale and 35.1 in Roseland. These were higher than the overall rate for Chicago (32.4). The rate for Norwood Park was suppressed (not provided to us) because there were fewer than five cases, indicating that Norwood Park has the lowest rate of the six communities (Table 3).

The rate of “ever tested for HIV” is high in all of these community areas ranging from 41% (South Lawndale) to 77% (North Lawndale), compared to 44% nationally [34]. North Lawndale’s rate was significantly higher than every other community ($P<0.05$). Notably, the community areas with higher AIDS rates also had higher HIV testing rates (Table 3). For example, North Lawndale, which had the highest AIDS incidence rate, also had the highest ever tested rate while Norwood Park, with the lowest AIDS rate had the second lowest testing rate. Those who had been tested within the past 12 months were distributed similarly to those who were ever tested, ranging from a low of 11% (Norwood Park) to a high of 38% (North Lawndale), compared to 12% nationally [34].

School Based HIV Prevention

As shown in Table 3, residents from every community area largely favored the distribution of HIV information in both elementary (85-94%) and high schools (95-100%). Residents were only slightly less supportive of condom distribution programs in high schools (74-93%). Interestingly, about half of the residents in each community area favored condom distribution programs in elementary schools (22-66%). There was a positive association between favorable attitudes and AIDS incidence rates. That is, communities with higher AIDS incidence rates were also more likely to favor condom distribution programs in schools.

HIV Prevention for Injection Drug Users

A majority of respondents favored NEPs in their community with responses ranging from 59% (North Lawndale) to 77% (West Town) (Table 3). However, when asked about allowing pharmacies to sell clean needles, a majority of residents in only two community areas, Norwood Park (58%) and West Town (56%) favored this initiative. There was a negative relationship between favoring local pharmacies selling clean needles and AIDS incidence rates. A similar relationship exists between NEPs and AIDS incidence rates. Residents in community areas with a lower AIDS rate were more likely to favor these initiatives, whereas residents in areas with higher AIDS rate were less likely to favor these initiatives.

Results by Race and Ethnicity

We also examined the above findings by collapsing the six community areas into four race/ethnicity groups of non-Hispanic Black, non-Hispanic White, Mexican and Puerto Rican people. We analyzed the data by constructing a table parallel to Table 3, except now using these four groups to define the columns. The data in the race/ethnicity table (not shown here) are fully consistent with the community level data. This is not surprising since, as we discussed above (Table 2), four of these six community areas consist almost entirely of only one of the race/ethnicity groups.

DISCUSSION:

This is one of the first surveys of testing and attitudes associated with HIV prevention practices conducted at a community level in diverse settings. The findings are instructive for both program implementation as well as policy development.

HIV testing

Differences among local communities concerning HIV testing and views of HIV prevention suggest interesting intervention possibilities. For example, between 41 and 77% of community residents were ever HIV tested compared to 44% nationally with about 11-38% having been tested in the past year compared to 12% nationally [34].

Part of the CDC Advancing Prevention initiative prioritizes HIV testing in both medical and non-medical settings [4, 6, 35]. Knowing the HIV testing rates by community area would not only help evaluate the CDC initiative but would also assist in allocating resources, especially when considered in the context of risk of infection [36]. For example, in South Lawndale, an all-Mexican community, the AIDS incidence rate is moderately high but the HIV testing rate is quite low.

School-Based HIV Prevention

HIV Information

The study results showed that an overwhelming majority of adults would favor HIV prevention messages being disseminated in high schools and, to a lesser extent, in elementary schools. Notably these results do not differ much by community area. Generally, those who oppose sex education in schools feel that either having this type of information encourages sexual relations or that parents (not schools) should be responsible for teaching their children about sex [26]. The results of this survey do not indicate that these are prevailing attitudes in these community areas. Our findings coincide with the results of a study conducted in New York City public schools that showed 92% of parents agree that teachers should talk to their students about HIV/AIDS, and only a small proportion of parents (17%) felt that sex education encourages teens to have sex [19].

A recent study regarding health education showed that 14% of US high schools and 50% of US elementary schools do not require HIV prevention messages as part of a school's curriculum [37]. The nationally representative sample of schools' health education courses covered general information about how HIV and STDs are transmitted, pregnancy prevention, and risk factors for HIV at most schools [37]. However, topics on condom use, HIV and STD incidence and prevalence, and reliable sources of information on HIV and STDs were taught in fewer schools [37]. Evidence shows that proper HIV education can reduce risk factors for HIV infection in those receiving school-based HIV education [38]. As of 2006, the Chicago Public School system (CPS) offers comprehensive sexual education with an emphasis on abstinence. The policy states that the program includes information on medically accepted barrier methods (e.g., condoms) for the

prevention of HIV and STDs [39].

Condom Distribution in Schools

We also found that most residents in these six community areas favored condom distribution programs in high school (74-93%) and a surprisingly high proportion even favored this in elementary schools (22-66%). When residents were asked why they opposed condom distribution in schools (data not shown) their responses were similar regardless of whether they were answering a question about elementary or high school. They stated that having condoms available would encourage sex and that children were too young to worry about sex and condoms. Those opposed to condom distribution in high schools also stated that parents should be providing counseling to their children rather than the high schools.

Generally, condom availability in schools appears to increase the use of condoms among sexually active children and delays the first sexual encounter [15, 17, 24, 25, 40]. Despite such evidence, few schools systems in the United States make condoms available to students. In fact, a survey of school-based condom availability programs in the US found that only 2% of US high schools had such a program [18]. There is a general consensus that condom availability and proper use are simple yet effective HIV prevention measures [18, 19, 40-42].

The high favorability rates regarding condom distribution are especially noteworthy considering that no school in the Chicago Public School system, among the 481 elementary schools and the 115 high schools, distributes condoms. In fact, the word “condom” is not mentioned in the CPS Policy Manual. And although a new policy which offers comprehensive sexual education in the 2006-2007 school year states CPS will discuss “medically recommended contraceptives” it does not state that CPS will distribute them [39].

The controversy surrounding condoms in schools may not be based on the evidence surrounding this issue. Therefore, given the evidence that condom distribution is effective and that some local communities favor such programs, it is clear that schools should be given resources to

develop such initiatives. In order to still further improve parental support for these programs, parents should be informed about the evidence surrounding condoms in HIV/STD prevention, in delaying the initiation of sexual encounters and disease prevention. Schools need to have the will and resources to implement not only condom distribution programs in schools, but also to teach students how to use condoms effectively.

HIV Prevention for Injection Drug Users

Needle Exchange Programs (NEPs)

Our survey indicated that a substantial majority of residents favored having NEPs in their community (59-77%). Although the evidence indicates that NEPs are effective programs in reducing HIV transmission and are considered to be cost effective, there has been a reduction in funding of these types of programs [22, 43-45]. In fact, CDC reported that in 2002 there was an 18% reduction in public funding for NEPs, which is the first decrease in public funding for NEPs in over 8 years [45]. CDC has incorporated NEPs, among other prevention methods, into their HIV prevention strategy to incorporate harm reduction strategies where needed [4]. Despite an upward trend in syringe exchange utilization over time, the evidence of need and effectiveness in reducing HIV transmission, and the survey respondents' favorable view of this initiative, the funds are dwindling to support this effort [45-47].

Pharmacies Selling Clean Needles

A good proportion (37-58%) of residents in these six community areas endorsed pharmacies selling clean needles. The survey results also indicated that, if given a choice, residents in these community areas would prefer NEPs over the current policy. Currently the state of Illinois allows pharmacies to sell clean needles and to hand out materials regarding safe injection, HIV prevention and safe disposals but does not allow pharmacists to accept contaminated needles (IL public act 093-0392) [48]. However, laws that allow the selling of needles are only solving half of the problem. Evidence suggests that selling sterile syringes without a prescription is an effective measure to

decrease HIV transmission and is considered to be more cost effective than traditional NEPs [43, 44]. Nevertheless, without collecting the needles or distributing sharps containers for safe disposal, contaminated needles may still be available and used to infect others with HIV. Unfortunately, when examining NEPs policy, local surveys are not typically conducted to ask community members if they are willing to have NEPs in their community, or if they would like pharmacists to sell clean needles without exchanging used needles or without including disposal containers.

Interestingly, although over half of the residents surveyed favored NEPs and nearly half favored pharmacies selling clean needles, there is a negative relationship between support for these HIV prevention efforts and the AIDS incidence rates. For example, North Lawndale has the highest AIDS incidence rate but the lowest favorability rate for both clean needle initiatives. On the other hand, Norwood Park has the lowest AIDS incidence rate of the communities surveyed and one of the highest favorability rates for these initiatives. This indicates that community education about the purpose and the evidence surrounding NEPs, drug use and HIV prevention is needed in order to implement these programs in areas like North Lawndale where the support may be low, but the need is high.

It is essential to note that the data described in this survey were obtained from a general health survey where HIV testing and opinions of HIV prevention efforts were just one section embedded in a survey containing 460 questions and covering multiple topics. Notably this was not a survey about HIV or any other related topic. In addition, there were no advertisements, interventions or educational programs prior to this survey. Thus, the responses to these questions were in no way provoked by any special stimuli and yet they were, in general, enormously supportive of HIV prevention efforts sometimes viewed as controversial or inconsistent with “community values.” This last point deserves elaboration.

The value of evidence like this should not be underestimated. HIV prevention programs operate in the context of the ill-defined notion of “community values” or “community standards.” Lacking clarity on what these standards are or should be, people often argue that the community wants what the arguer wants. For example, one of us (SW) was for 10 years Director of Epidemiology for the Chicago

Department of Public Health and a member of the Executive Committee. Whenever condom distribution, sex education or clean needle programs were proposed, opponents would ALWAYS maintain that the community did not want such programs. We always said that was important, perhaps even central, but asked for evidence of the community's position. There never was any non-anecdotal evidence. Thus, data such as what is presented in this paper are among the first ever developed for communities in Chicago, and perhaps for many other communities in many other cities. If used properly and in the correct spirit, such data will allow us to understand which programs may be effective in which communities and also what these communities might really want and accept. Nothing could be more important in the fight to stem the HIV epidemic.

It is relevant to emphasize here that the survey data were collected in 2002-2003 and that AIDS incidence rates were assembled to correspond with those dates. It is, of course, possible that some things have changed since then. However, several analyses of ours suggest that substantial change has not occurred. For example, census data demonstrate that in five of the six communities the proportions of people who have lived in the same residence (up to 69%) is much greater than for the city as a whole (54.4%) [49].

The only exception here is West Town, which is currently being gentrified. Similarly, AIDS incidence has stayed more-or-less constant over time in these five communities [49]. This suggests that our findings, based on data that are now about 5 years old, would still prevail today.

Limitations

There are a few methodological issues to consider. Because these were vulnerable communities that were included in this survey, it was common that addresses that were selected for the survey turned out to be empty lots or burned out or vacant buildings. As a result, the officially calculated response rate was 43%. This may introduce non-response bias and thus overestimate the actual proportion of adult respondents tested for HIV [31, 50]. However, once residents were approached, the cooperation rate was extremely high (87%).

It is also important to note that there are 77 community areas in Chicago, and we surveyed six of these. Although these six communities were selected to reflect the socioeconomic, racial and ethnic diversity of Chicago the survey was not designed to be representative of the entire city, nor can conclusions be made about the entire city. In addition, it cannot be assumed that the results reflect homogeneous groups of the entire city, such as groups in the same age, sex or race/ethnicity.

Conclusion

The implications of these survey findings are numerous. First, we were able to obtain a glimpse at how well the HIV testing initiative is working in six community areas in Chicago, three of which have high AIDS incidence rates (Table 3). A recent study suggested that states with higher CDC funding had improved chances of being HIV tested [51]. This implies that similar trends should be seen at the local level, thus supporting our higher than national average HIV testing rates in areas of high AIDS incidence. Second, school-based prevention efforts are supported by adult residents and parents in these communities and yet these measures are not implemented in schools. Third, NEPs are dwindling in numbers and in financial support, despite the evidence that residents of the communities support them. Finally, the data arrayed here illuminate the need for local level surveys conducted with the full engagement of the communities with which we work.

Survey respondents overwhelmingly support a variety of HIV prevention measures. This came in response to questions on a general health survey, not a survey about HIV prevention. Nor was the survey preceded by any kind of education campaign. Therefore, there is no reason to believe these communities provided anything less than their genuine, unfiltered opinion. In this survey we had large proportions, often well over 90%, of community residents, endorsing HIV prevention efforts. The endorsements and opinions of the community residents should no longer be withheld for non-scientific or political reasons. It is time for us to be bold in combating the HIV epidemic.

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Table 1 Specific HIV/AIDS questions employed for this analysis

HIV testing

- Have you ever been tested for HIV, the virus that causes AIDS?
- When was the last time you were HIV tested?
- Which of the following statements best describes why you have never been HIV tested? Not tested in the last 5 years?

School-based HIV prevention

- Do you favor or oppose distributing information about HIV/AIDS in elementary schools? In High schools?
- Do you favor or oppose providing condoms at local elementary schools? Local high schools?

Prevention among injection drug users

- Do you favor or oppose putting a needle exchange program in your community which would offer clean needles to drug users in exchange for used or dirty needles?
- Do you favor or oppose allowing pharmacies to sell clean needles in your community without needing a prescription?

Table 2: Selected Characteristics of 6 Community Areas and Chicago.

	Norwood Park (n=37,669)	Humboldt Park (n=65,836)	West Town (n=87,435)	North Lawndale (n=41,768)	Roseland (n=42,723)	South Lawndale (n=91,071)	Chicago (n=2,896,016)
Race/Ethnicity,%							
Non-Hispanic Black	1	47	9	94	98	13	36
Non-Hispanic White	88	3	31	1	1	4	31
Hispanic*	6	48	26	5	1	83	26
Mexican	3	24	18	3	0	76	18
Puerto Rican	0	18	4	0	0	1	4
High school graduate,%	83	50	70	60	77	37	72
Median age, years	43	25	30	26	35	26	32
Median household income, \$	53,402	28,728	38,915	18,342	38,237	32,320	38,625
Unemployment rate, %	3	18	7	26	17	12	10
Below poverty level, %	4	31	21	45	18	27	20

Table 3: HIV testing rates, school-based HIV prevention programs, and HIV prevention for injection drug users.

	Norwood Park	Humboldt Park	West Town	North Lawndale	Roseland	South Lawndale
Ever HIV tested	50.0 (41.6, 58.4)	60.0 (48.9, 71.1)	64.8 (58.2, 71.4)	77.1 (72.4, 81.8)	68.3 (65.1, 71.4)	41.0 (30.4, 51.7)
HIV tested in last 12M	10.5 (7.0, 14.0)	29.2 (18.9, 39.5)	22.1 (17.9, 26.3)	37.5 (30.9, 44.1)	37.0 (30.0, 44.1)	10.9 (5.1, 16.8)
Favor distributing HIV information						
In elementary schools	85.0 (78.2, 91.9)	90.2 (85.8, 94.6)	94.4 (91.3, 97.4)	91.4 (87.0, 96.0)	92.0 (88.4, 95.5)	91.1 (85.9, 96.2)
In high schools	98.3 (95.9, 100)	95.2 (93.1, 97.4)	100 (100, 100)	96.7 (93.3, 100)	97.3 (94.4, 100)	96.3 (92.6, 100)
Favor condom distribution						
In elementary schools	21.8 (15.0, 28.5)	55.6 (48.5, 62.8)	53.2 (46.5, 59.9)	53.3 (43.4, 63.1)	46.9 (39.3, 54.5)	66.3 (57.8, 74.8)
In high schools	73.7 (69.1, 78.4)	90.2 (85.9, 94.4)	92.5 (88.8, 96.2)	89.9 (85.7, 94.2)	88.2 (82.4, 93.9)	87.8 (82.5, 93.1)
Favor needle exchange programs in community	70.1 (65.0, 75.3)	61.0 (53.7, 68.3)	76.7 (70.4, 83.0)	59.2 (53.2, 65.2)	63.0 (56.8, 69.3)	62.3 (53.0, 71.7)
Favor pharmacies selling clean needles	58.2 (49.7, 66.6)	40.9 (35.9, 45.9)	56.2 (46.9, 65.4)	36.9 (29.7, 44.0)	41.2 (32.5, 50.0)	39.0 (34.3, 43.7)
AIDS incidence rate (per 100,000)*	**	39.4	26.9	44.3	35.1	25.3

* Source: Chicago Department of Public Health. AIDS Chicago: HIV/AIDS Surveillance Report. Overall AIDS incidence rate for Chicago is 32.4/100,000.

**Unable to be calculated due to # of AIDS cases was <5