

# Impact of Increased Syringe Access: Preliminary Findings on Injection Drug User Syringe Source, Disposal, and Pharmacy Sales in Harlem, New York

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**Objective:** To evaluate the New York State Expanded Syringe Access Demonstration Program (ESAP) through injection drug user (IDU) surveys, discarded needles and syringes studies, and pharmacy sales and experiences surveys. **Design:** Pre-post comparison. **Setting:** In Harlem, New York City, risk surveys among street-recruited IDUs, needle/syringe street counts on 27 systematically sampled city blocks, and Harlem pharmacist reports of sales and experiences. **Main Outcome Measures:** Number and types of IDU syringe sources, block mean counts of discarded needles and syringes, level of pharmacy nonprescription syringe sales (NPSS), and pharmacists' experiences. **Results:** Comparing 209 pre-ESAP with 396 post-ESAP IDUs, pharmacies as a primary syringe source increased: 3.4% to 5.3% ( $P < .001$ ), and ever pharmacy use increased: 4.9% to 12.5% ( $P < .001$ ), respectively. Compared with pre-ESAP IDUs, post-ESAP IDUs tended to be younger and more often black. Harlem pharmacy participation in ESAP increased considerably from March 1, 2001, to March 1, 2002, 49% to 79%, respectively. Among three Harlem pharmacies, there was a modest increase in NPSS; pharmacists reported no problems, and no discarded needles and syringes were observed in pharmacy areas. In the three pharmacies, the proportion of syringe sales that were NPSS was 46% (110 to 240 NPSS/month), 3% (25 to 90 NPSS/month), and 0%. The mean ratios of needles/syringes to background trash have not increased in Harlem since ESAP began. **Conclusion:** To date, no evidence of harmful effects (discarded needles/syringes, pharmacy altercations) resulting from ESAP were observed. While NPSS have increased in Harlem, pharmacy use among IDUs remains low. In Harlem, efforts are underway to increase ESAP awareness and reduce socioenvironmental barriers to ESAP.

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Injection drug users (IDUs) are at high risk for acquiring human immunodeficiency virus (HIV), hepatitis B virus, hepatitis C virus,

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as well as other blood-borne pathogens.<sup>1-4</sup> The primary mode of transmission for HIV and other blood-borne pathogens among IDUs is parenteral, specifically through direct syringe sharing or "multiperson use" of syringes.<sup>4,5</sup> Ethnographic and epidemiologic studies have concluded that multiperson use of syringes is due to several factors; the two principal factors being lack of access to sterile syringes and needles (referred to collectively in this paper as "syringes"), and fear of arrest and detainment for infractions of paraphernalia possession laws and ordinances.<sup>6,7</sup>

In 1997 four federal agencies issued an *HIV Prevention Bulletin* recommending that to reduce the risk of infectious disease, IDUs unable to stop injecting drugs should "use a new, sterile syringe to prepare and inject drugs" and practice safe injection techniques.<sup>8</sup> Syringe exchange programs (SEPs; i.e., programs that allow drug users to exchange used syringes for sterile syringes) have been implemented worldwide and used as a safe syringe source for IDUs to combat the spread of HIV. Increased access to sterile

syringes has proved to be an effective response to injection-related HIV risks.<sup>9</sup> However, in New York City, as well as other cities across the United States, syringe reuse continues to occur particularly among subgroups of IDUs who do not have access to SEPs.<sup>10,11</sup> Limited days and hours of operation (a result of a federal ban on funding for SEPs) and long travel distances to an SEP site may be primary reasons for lack of access to SEPs by some IDUs.<sup>12,13</sup>

Numerous researchers have urged the use of pharmacies as safe syringe sources through sales or exchange programs that would supplement SEPs.<sup>6,14-17</sup> In an effort to increase access to sterile syringes, New York State enacted legislation, the Expanded Syringe Access Demonstration Program (ESAP), permitting pharmacy sale of syringes without a prescription. Since January 1, 2001, New Yorkers 18 years of age or older have been able to purchase up to 10 syringes at a time from pharmacies registered with the New York State Department of Health (NYSDOH) without a prescription and to possess those syringes legally. This law is similar to the Connecticut law, enacted in 1992, allowing nonprescription syringe purchases from pharmacies. In Connecticut, the law has been associated with reductions in syringe-sharing among IDUs as well as increases in nonprescription syringe sales (NPSS) over time.<sup>9,18</sup>

The New York State law mandates an independent program evaluation for submission to state policy makers to determine the impact of law on: (1) IDU practices (e.g., syringe sharing and syringe disposal); (2) pharmacy practice (e.g., level of participation); (3) substance abuse trends (e.g., changes in illicit drug abuse); (4) criminal activity (e.g., level of drug-related arrests); and (5) occupational consequences (e.g., needle sticks). As the independent evaluator of ESAP, the New York Academy of Medicine (NYAM), in collaboration with Beth Israel Medical Center and the National Development and Research Institutes, conducted a focused qualitative and quantitative epidemiologic assessment of these areas of interest.

## Objectives

In this paper, we provide early findings on three ESAP evaluation components underway in the Harlem neighborhood of New York City: (1) IDU syringe source before and after ESAP legislation; (2) discarded syringe (i.e., needle and syringe) counts before and after ESAP legislation; and (3) pharmacy sales and pharmacists' experiences since ESAP began. These analyses provide information on the early effects of ESAP on drug users, pharmacists, and the community of Harlem.

## Methods

From September 1997 to December 1998, IDUs were enrolled in an observational cohort study (CIDUS-2) and followed for 1 year at 6-month intervals in the Harlem neighborhood of New York City. Study participants were asked about their injection practices as well as other high-risk practices. In July 2000, enrollment of a new IDU cohort (Hepatitis C cohort study) began in Harlem, which assessed high-risk behaviors similar to those of the earlier cohort. A third observational cross-sectional study (Urban Resource Center [URC] Cross-Sectional Survey) was implemented in October 2000, which also captured similar risk practices. Each of these studies used similar recruitment and data collection methodologies with one exception. Two studies (CIDUS-2 and Hepatitis C) targeted IDUs  $\leq 35$  years of age and one study (URC) had no age requirement. Participants in all three studies were asked which syringe source they *used most often* in the past 6 months, and whether they *ever* purchased a syringe from a pharmacy in the last 6 months. These studies provide data on IDU syringe sources before (pre-ESAP) and after (post-ESAP) the legislation.

Street counts of discarded syringes were conducted quarterly in Harlem from October 2000 to December 2001, yielding a total of 8 time points. The methodology has been described in detail elsewhere.<sup>19</sup> In brief, every fourth city block was systematically sampled yielding a total of 27 blocks. Four survey teams of two "counters" and a "recorder" were sent into the field using a standard protocol. All surveying began in the northeast corner of the block, and teams walked clockwise until the perimeter of the block was completed. The teams returned to side streets and alleys within the block and surveyed these areas systematically and consistently. The counters surveyed the outer edge of the sidewalk, the middle of the sidewalk, and 3 feet into a yard or empty lot. As the surveyor observed each item, the recorder tallied and recorded counts of syringes, needles, and background trash (drug vials, soft drink bottles, and cans). These counts were conducted on the same day of the week and by the same survey team to maximize consistency.

In June 2001, 10 ESAP-registered pharmacies were randomly selected from the ZIP Codes in New York City with the highest prevalence of acquired immunodeficiency syndrome (AIDS), drug-related hospitalizations, and juvenile crime to participate in our Pharmacy Sales and Experiences Study. Each pharmacist (owner or manager) was required to record monthly prescription and NPSS data. Participating pharmacists were also asked to participate in a 10-minute monthly survey that assessed practices and experiences surrounding the sale of nonprescription syringes, conversations that occurred during sales transactions, cost of syringes as singles and in packs of 10, and how each of these reported practices and experiences changed over time. Additionally, a 1-block radius around each participating pharmacy was assessed for discarded needles, syringes, and background trash. In this paper, we report on a subset of these 10 pharmacies, including 3 pharmacies located in Harlem.

## Statistical Analysis

Data from the three IDU studies (CIDUS-2, Hepatitis C, URC) were combined to examine differences between the two time periods, pre-ESAP versus post-ESAP. We examined demographic characteristics (i.e., age, sex, race/ethnicity) and syringe source (i.e., syringe source used *most often* in the last 6 months, and *ever* use of a pharmacy as a syringe source in the past 6 months). After data cleaning and editing, *t* tests and  $\chi^2$  tests were used to determine bivariate statistical differences for continuous and categorical variables, respectively.

The discarded syringe street counts measured at each time point included syringes, *N*, vials, *V*, and bottles/can, *B*, per block. The ratio of needles and syringes to the sum of vials, bottles, and cans,  $N/(V+B)$ , was used to account for the background trash or condition of each block. Additionally, we chose something small (e.g., drug vial) and something larger (e.g., beverage bottles and cans) to help account for a visual "practice" effect over time. Ratios and counts are commonly skewed to the right. Thus, to reduce the effect of the skewness on our study findings, the ratio  $N/(V+B)$  for each block count was transformed to  $\log N/(V+B)$ . To ease the interpretation of the count data, the transformed data were averaged, exponentiated, and presented as needles and syringes per 100 trash items, as follows:

$$e^{(\text{mean of } \log [N/(V+B)] \times 100)}$$

This resulted in a geometric mean that reflects the natural scale of the original (transformed) data.<sup>19</sup>

The pharmacy sales and experiences data collected from the three Harlem pharmacies were used to calculate the number of NPSS by month. Additionally, the proportion of NPSS out of the total number of syringes sold (e.g., prescription and nonprescription) was calculated for the three pharmacies combined. Qualitative assessments of the practices and experiences of each Harlem pharmacist were summarized.

## Results

As of January 2002, 605 IDUs had been enrolled in the three IDU studies yielding 209 IDUs enrolled before January 1, 2001 (pre-ESAP period) and 396 after (post-ESAP period). IDUs enrolled before ESAP implementation were significantly younger than those enrolled after as shown by the median ages of 26 and 36, respectively (Table 1). There were no significant differences by gender, however there were significantly more black IDUs (23.5% versus 9.6%) and fewer white IDUs (4.6% versus 13.4%) during the post-ESAP period compared with the pre-ESAP period. A higher proportion of IDUs reported a pharmacy (5.3% versus 3.4%) and an SEP (67.3% versus 48.1%) as the syringe source most often used during the post-ESAP period compared with the pre-ESAP period. A lower proportion of IDUs reported a family

member or friend (14.5% versus 17.8%) and other source (12.9% versus 30.8%) during the post-ESAP period compared with the pre-ESAP period. Post-ESAP, a significantly higher proportion of IDUs reported ever purchasing from a pharmacy in the last 6 months (12.5% versus 4.9%) compared with pre-ESAP. Demographically, significantly higher proportions of syringe purchases were observed during the post-ESAP period compared with the pre-ESAP period among white IDUs (25% versus 3.7%;  $P < .04$ ), and Latino IDUs (13.1% versus 5.2%;  $P < .01$ ), respectively. However, the overall proportion of pharmacy syringe purchases were lower, and these syringe purchases did not significantly increase among black IDUs (4.6% versus 0%;  $P < .36$ ) when comparing the post- versus pre-ESAP periods, respectively (data not shown in tables).

Discarded syringe counts over the 27 Harlem selected city blocks are summarized in Table 2. The syringe counts per block were low, with many blocks having 0 counts. The actual counts observed in Harlem ranged from 2 to 5 syringes with the exception of 1 month in which 32 syringes were counted. However, when background trash (e.g., bottles/cans and vials) was taken into account, the block mean of syringes per 100 trash items did not differ across the five count dates. The block mean ratios of syringe to background trash have not increased since ESAP was implemented. In fact, there appears to be a decrease in block mean ratios when comparing pre-ESAP period ratios (1.17 and 1.03) with post-ESAP period ratios (0.81, 0.53, and 0.73).

Since ESAP began, the proportion of Harlem pharmacies registered out of the total number of pharmacies has increased considerably from March 2001 to March 2002, 49% to 79%, respectively (81 total pharmacies in Harlem).<sup>20</sup> Of the 3 Harlem pharmacies that participated in the Pharmacy Sales and Experiences Study, 2 are actively selling nonprescription syringes and 1 has sold none since ESAP began. The pharmacy selling the most nonprescription syringes sells between 110 and 240 syringes per month, while the other pharmacy is selling between 25 and 90 nonprescription syringes. NPSS make up about 46% of the total syringe sales at the highest selling pharmacy and about 3% of the total syringe sales at the moderate selling pharmacy. These two pharmacies are located within five blocks of one another but are reporting very different syringe sales experiences (one had not sold nonprescription syringes to date, while the other is the most active among the three Harlem pharmacies). The active pharmacy is located close to an active open-air drug market. The pharmacy reporting no syringe sales is located in a more active SEP area of Harlem compared with the other two pharmacies. In terms of clientele, this pharmacy is tailored to "filling prescriptions only" with a customer base of pediatric Medicaid patients. This particular pharmacy is more of an apothecary shop and does not have a typical "drugstore" appearance. It sells only a few nonprescription products, which limits number of customers seeking those products. At all three pharmacies, single syringes are available for \$0.50, and 10-packs range in price from \$2.99 to \$4.99.

No pharmacists have experienced "unusual events, transactions,

**Table 1. Characteristics of Injection Drug Users Enrolled in Three Community Studies Pre- and Post-ESAP<sup>a</sup>**

Characteristic	Pre-ESAP (n = 209)	Post-ESAP (n = 396)	P value <sup>b</sup>
Age (in years), median (range)	26 (18–34)	36 (18–62)	< .001
Gender			
Men, No. (%)	148 (70.8)	267 (68.3)	< .340
Women, No. (%)	61 (29.2)	118 (30.2)	
Other, No. (%)	0 (0.0)	6 (1.5)	
Race/Ethnicity			
White, No. (%)	28 (13.4)	18 (4.6)	< .001
Hispanic/Latino, No. (%)	156 (74.6)	271 (69.1)	
Black, No. (%)	20 (9.6)	92 (23.5)	
Other, No. (%)	5 (2.4)	11 (2.8)	
Primary syringe source in last 6 months			
Pharmacy, No. (%)	7 (3.4)	21 (5.3)	< .001
Needle exchange program, No. (%)	100 (48.1)	265 (67.3)	
Family/friend, No. (%)	37 (17.8)	57 (14.5)	
Other, No. (%)	64 (30.8)	51 (12.9)	
Ever bought syringes from a pharmacy in last 6 months <sup>c</sup> :			
Yes, No. (%)	10 (4.9)	47 (12.5)	< .003
No, No. (%)	194 (95.1)	330 (87.5)	

IDU = injection drug user; ESAP = Expanded Syringe Access Demonstration Project.

<sup>a</sup>CIDUS-2, Hep C, and URC; pre-ESAP period was from September 1997 through December 1998, post-ESAP from January 2001 through January 2002.

<sup>b</sup>T tests were used for continuous variables and  $\chi^2$  square tests for categorical variables.

<sup>c</sup>This was originally a dichotomous variable and has not been collapsed.

or incidents" involving syringe sales since ESAP began through February 2002. Pharmacists reported that customers seeking syringes are "polite" and "considerate" at best, and "impatient" or "unwilling to talk" at worst. For the most part, these pharmacists reported that there was little or no discussion with the customer during syringe transactions. When there was discussion, it was primarily focused on safe syringe disposal, what the syringes were used for, and in some cases, substance abuse treatment. The pharmacist who was selling most actively had indicated concerns regarding the volume of "daily single syringe sales customers" and their potential impact on his other business. There have been no observations of needles or syringes through the systematic counts conducted in the surrounding area of each selected Harlem pharmacy. All pharmacists enrolled stated that they were supportive of ESAP.

## Discussion

Entering the second year of ESAP, early information suggests that the program has been embraced by pharmacies in Harlem, as demonstrated by the proportion of pharmacies registered in the program. However, while self-reported nonprescription syringe

purchases have significantly increased among IDUs in Harlem, the proportion of IDUs reporting pharmacy use is relatively low, compared with Brooklyn and Queens.<sup>21</sup> Yet, the results presented here show no evidence of untoward events as a result of ESAP implementation. This could be a result of low use of pharmacies as syringe sources; however, our data provide a detailed account of actively selling pharmacies and their experiences. Specifically, the Harlem pharmacies selling nonprescription syringes reported no disruption, and no discarded syringes were observed in or around their locations. The low ratios (and lack of increase) in discarded syringes observed for the 27 systematically sampled Harlem city blocks further support the lack of adverse effects, namely, the potential for contaminated syringes to be found on streets.

Several factors may account for the modest uptake of the program in its first year in Harlem. First, Harlem, particularly East Harlem, has the most concentrated number of SEPs in New York. These programs have been established for several years, have a legal status that permits carrying syringes, and provides free syringes (whereas pharmacy sales are legal but involve purchases). This long-standing availability of SEPs in Harlem provides a basis for a slower adoption of a new program in this community. In other cities that offer different venues for syringe access, studies show that each service meets the needs of different IDU subgroups

with obtaining syringes through ESAP (i.e., blacks). Investigation of social and environmental barriers to ESAP is underway in the Manhattan, Brooklyn, and Bronx boroughs. Additionally, a Harlem community-based intervention is in progress to increase awareness and use of ESAP among IDUs, pharmacists, and community residents, which will be soon evaluated.

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