



## A Multistate Trial of Pharmacy Syringe Purchase

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**ABSTRACT** *Pharmacies are a potential site for access to sterile syringes as a means for preventing human immunodeficiency virus (HIV), but the type and extent of their utility is uncertain. To examine pharmacy syringe purchase, we conducted a standardized, multistate study in urban and rural areas of four states in which attempts to purchase syringes were documented. Of 1,600 overall purchase attempts, 35% were refused. Colorado (25%) and Connecticut (28%) had significantly lower rates of refusal than Kentucky (41%) and Missouri (47%). Furthermore, urban settings had higher rates of refusal (40%) than rural settings (31%,  $P < .01$ ). Race and gender did not have a consistent impact on rates of refusal. Despite potential advantages of pharmacies as sites for access to sterile syringes, pharmacy purchase of syringes faces significant obstacles in terms of the practices in different jurisdictions.*

**KEYWORDS** *HIV/AIDS prevention, Injection drug use, Pharmacies, Syringe purchase.*

### INTRODUCTION

Pharmacy syringe purchase may reduce the spread of human immunodeficiency virus (HIV) and other blood-borne diseases by allowing access to sterile, never-used syringes.<sup>1,2</sup> In most states, no specific laws prohibit pharmacy sale of syringes without a prescription.<sup>3</sup> Pharmacies and pharmacists, however, may refuse to sell syringes to suspected drug users or place restrictions on syringe sale by requiring bulk purchases. An early 1990s study of the purchase of syringes from pharmacies showed that 42% of pharmacies in St. Louis, Missouri, either refused to sell syringes or sold them only in costly quantities, even though Missouri did not have a law requiring a prescription for needle/syringe purchase (i.e., a syringe prescription law).<sup>4</sup> The results also showed a possible racial differential in rates of syringe purchase.

Several national entities with interest in public health, including the House of Delegates of the American Medical Association, have recommended that policies or

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legislation be implemented to facilitate injection drug user (IDU) access to sterile, never-used needles and syringes.<sup>5,6</sup> In a report prepared for the Centers for Disease Control and Prevention, it was recommended that researchers evaluate “natural experiments” in which needle availability laws or pharmacies expand sales of syringes without prescription.<sup>7</sup> In fact, the policies and laws regarding syringe purchase and possession have been changing recently.<sup>3,8</sup> Perhaps most dramatically, since January 1, 2001, New York State has been conducting a test of a shift in policies from requiring a prescription for pharmacy syringe purchase to a policy of allowing sale of syringes by pharmacies without prescription.<sup>9–11</sup> This follows similar changes in 2000 in New Hampshire, in 1998 in Minnesota, and in 1992 in Connecticut.<sup>12–14</sup>

In a national survey,<sup>15</sup> Burris and colleagues categorized the laws and regulations as follows: *Drug paraphernalia laws* in 49 states, D.C., and the Virgin Islands, generally prohibited sale, distribution, possession, manufacture, and/or advertisement of drug paraphernalia known to be used to introduce illicit drugs into the body, although for nine states syringes are exempted; *syringe prescription laws* in 13 states and the Virgin Islands limit the sale, distribution, and possession of syringes without a valid prescription; and *regulations* implemented at pharmacies restricted access to sterile syringes in some states as well.

According to the Burris et al.<sup>15</sup> study, the states selected for the current study varied in laws and regulations influencing sterile syringe availability and ranged from the least regulated to the most regulated. All four, Missouri, Kentucky, Colorado, and Connecticut, had drug paraphernalia laws. Colorado and Missouri had no laws limiting syringe sales, although Missouri allowed individual pharmacies to set their own policies governing need for a prescription. Kentucky encouraged pharmacies to keep records identifying the purchaser of the syringes, required proper disposal, and had limitations on how syringes could be displayed in the pharmacy. Connecticut generally had the same restrictions as Kentucky; however, Connecticut’s legal restrictions at the time of the study applied only to syringe quantities greater than 10. Since 1992, Connecticut pharmacists and health professionals have been allowed to sell syringes in quantities of 10 or fewer without a prescription, and possession of up to 10 syringes without proof of medical necessity has also been allowed, making Connecticut the most liberal of the states in its laws regarding IDUs with small quantities of syringes.<sup>14</sup>

Purchase of syringes from pharmacies has the potential advantage of widespread availability based on the broad distribution of pharmacies throughout most areas of the United States, many of which are open for extended hours of operation. Despite this potential availability, previous work has documented significant barriers in pharmacy syringe availability both in a field experiment and in reports by IDUs.<sup>4,16–18</sup>

Based on this background, the research hypotheses addressed in this study were that Connecticut would have the highest rate of purchase followed, in order, by Colorado, Missouri, and Kentucky. Minority research assistants (RAs) would have lower rates of purchase of syringes than white RAs. Males would have lower rates of purchase than females, and urban rates of purchase would differ significantly from rural, although the direction of this difference was not certain.

## METHODS

### Protocol Summary

A standard protocol was used across all sites, in which each pharmacy was visited one time by each of four RAs (white male, white female, minority male, minority

female). To standardize the purchase experience and to minimize the chance that pharmacy staff would be suspicious of purchases, visits were conducted on the same day of the week and approximately the same time of day with at least 1 week between visits. Both the order of visit and the selection of which RA visited the pharmacy were randomly selected in two different random selection processes.

### **Pharmacy Selection**

Pharmacies for all sites were enumerated by the research team in St. Louis so that the same selection criteria were used in all settings. This process entailed using Internet and computer databases to list all pharmacies within the defined geographic regions (i.e., the selected urban and rural areas of the four states). Once a list was developed, 50 pharmacies were selected randomly for each rural and urban area in the four states, for a total of 200 rural and 200 urban pharmacies. The pharmacies were individually contacted to verify addresses and hours of operation. In a few cases, pharmacies were duplicates because of multiple address listings, and a few nonretail pharmacies were listed as well. These duplicate and nonretail pharmacies were deleted, and randomly selected substitutes were chosen from the full lists until a group of 50 for each area was finalized. For urban and rural Missouri and Kentucky, this resulted in virtually a full census; a random sample was achieved in the other locations that had larger numbers of pharmacies. It is important to note that both chain and nonchain pharmacies were included in their selected proportion. No weighting was used in choosing the pharmacies.

### **Regional Descriptions**

Rural and urban regions of each state were selected for study. The Colorado site identified urban Denver and a remote group of rural counties on the western slope of the Rocky Mountains for study. The Connecticut site targeted pharmacies in urban and rural areas of Hartford County. This is one of eight Connecticut counties and, like every Connecticut county, encompasses both urban and rural areas. Thus, although this region is not remote, all pharmacies coded as “rural” in Hartford County were located in areas defined by the census as rural. The Kentucky site targeted two areas for study: Lexington and the Kentucky River area of Appalachian eastern Kentucky. The Missouri site identified St. Louis City and the seven-county rural Bootheel region in southeast Missouri.

### **Purchase Attempts**

To increase validity, RAs hired for this project had a prior history of drug use. Both male and female and minority and white RAs attempted the syringe purchases at each site, and the order in which they approached pharmacies was randomly assigned. Furthermore, for protection during field work, all RAs were instructed to carry employment identification along with a letter from his or her site’s primary investigator (PI) confirming the nature of the syringe purchase experiment.

The RAs were instructed to make purchase attempts on the same day of the week at approximately the same time of day, and these purchase attempts were planned for four consecutive weeks. When an attempt could not be made because of logistical issues, the same time was used the following week. The RAs were instructed to dress casually, but no specific dress code was required.

The methodology was for the RA to approach the pharmacist and ask for “a 10-pack of 28-gauge, 100-unit insulin syringes.” This size was chosen because it is a common size used by diabetic patients and is frequently used by IDUs.<sup>19</sup> Each RA

was instructed to engage in only minimal discussion with pharmacy staff and to give neutral answers if any questions were asked. When purchase was allowed, the RA bought the 10 pack. When a larger quantity was required, this was noted, but no purchase was made. When the sale was refused outright, the RA asked politely for the reason for the refusal, but no challenge was offered.

### Data Collection

As soon as the RA left the pharmacy, he or she recorded information about the purchase attempt on a Syringe Access Questionnaire. This included the date, time, and pharmacy identification number; RA identification number; information about the pharmacy (chain vs. independent, number of customers in the store, number of employees); perceived ethnicity, age, and gender of the pharmacist and the pharmacy aide (if any); information about the purchase attempt (length of time, whether successful, tone of the interactions, reasons for refusal); and a brief narrative summary. Each site followed the same protocol for collecting data, and the St. Louis project director reviewed all submitted questionnaire data for completeness.

### Data Analysis

Data were analyzed using Version 7 of Stata.<sup>20</sup> In addition to descriptive analyses in which rates and proportions were calculated, logistic regression was used to test for significant associations of various independent variables with syringe purchase (as the dependent variable). Taking advantage of a built-in feature of Stata, regression analyses tested for the effects of state, urban versus rural region, and chain versus independent pharmacy while accounting for the clustering of purchase attempts within pharmacies. Because race and gender effects were completely embedded within pharmacies, no clustering was needed for tests of differences in syringe purchase rates by race or gender. Statistically significant differences were based on  $P < .05$ .

## RESULTS

As shown in Table 1, the pharmacists were predominantly perceived to be white (90%) and male (65%). The mean apparent age of the pharmacist was 44.4 years (SD 10.2 years), and approximately 2.7 persons were working in the pharmacies at the time of the purchase attempt. Overall, 35% of the purchase attempts were unsuccessful. Purchased syringes had a mean cost of \$3.21 for a 10 pack. The interactions between RAs and the pharmacy staff were perceived as hostile in only 4% of the attempts, with the remainder classified as neutral (48%) or friendly (48%).

Rates of syringe purchase varied significantly across the states (Table 2), with Colorado and Connecticut (75% and 72%, respectively) having significantly ( $P < .01$ ) higher rates of purchase than Kentucky and Missouri (59% and 53%, respectively). Overall, no significant differences were observed between male and female RAs, minority and white RAs, or chain and independent pharmacies. Urban versus rural location did significantly predict syringe purchase success, with rural areas having higher rates of purchase overall ( $P < .01$ ).

Examining the rates within the individual states (Table 3), no significant differences were seen between male and female RAs, minority and white RAs, or chain and independent pharmacies. However, all four states showed significant differences between urban and rural areas ( $P < .01$ ), but the direction of the difference varied.

**TABLE 1. Pharmacy, pharmacist, and syringe purchase characteristics in the syringe purchase study of Colorado, Connecticut, Kentucky, and Missouri pharmacies (N = 1,600)**

Perceived ethnic status of pharmacists	
White	90%
Black	5%
Hispanic	1%
Asian	3%
Other	<1%
Gender of pharmacist	
Male	65%
Female	35%
Perceived age of pharmacist, years	44.4 (SD 10.2)
Number of customers in pharmacy	
0–5	90%
5–10	9%
>10	1%
Number of employees behind the pharmacy counter	2.7 (SD 1.4)
Overall rate of syringe purchase	65%
Cost of syringes (10 pack)	\$3.21 (SD \$1.22)
Overall tone of interaction	
Hostile	4%
Neutral	48%
Friendly	48%

Although Kentucky's rural area had a lower rate of syringe purchase compared to that of urban Kentucky, in the other three states, the rural areas exhibited significantly higher rates of syringe purchase.

## DISCUSSION

The primary hypotheses examined in this study were that the states would differ significantly from one another in rates of refusal and would form an array in which Connecticut had the highest rate of purchase, followed by Colorado, Missouri, and Kentucky. It was further hypothesized that minority RAs would have lower rates of successful syringe purchase than white RAs, that males would have lower rates than females, and that urban rates would differ significantly from rural rates (although the direction of this difference was not certain).

The four states differed in the rates of syringe access within two groupings: Kentucky and Missouri had significantly lower rates than Colorado and Connecticut. Thus, our hypotheses regarding an ordering of purchase rates were partially supported. Kentucky had the most restrictive regulatory environment, in which positive identification was often required for syringe purchase, but the rates in Kentucky were not significantly different from those in Missouri. On the other extreme, Connecticut, which had the most permissive regulatory environment, had rates of purchase slightly lower than Colorado.

**TABLE 2. Rates of successful syringe purchase in urban and rural areas of four states, according to state, urban versus rural location, race and gender of syringe purchasers, and pharmacy type (N = 1,600 syringe purchase attempts)**

Site	
Colorado (n = 400)	75%*
Connecticut (n = 400)	72%*
Kentucky (n = 400)	59%*
Missouri (n = 400)	53%*
Urbanicity	
Urban (n = 800)	60%†
Rural (n = 800)	69%†
Gender	
Male (n = 800)	64%
Female (n = 800)	65%
Race	
White (n = 800)	65%
Minority (n = 800)	64%
Pharmacy type	
Chain (n = 941)	62%
Independent (n = 658)	67%

\*Colorado versus Connecticut, not significant; Kentucky versus Missouri, not significant; Colorado versus Kentucky,  $P < .01$ ; Colorado versus Missouri,  $P < .01$ ; Connecticut versus Kentucky,  $P < .05$ ; Connecticut versus Missouri,  $P < .01$ .

† $P < .01$ .

**TABLE 3. Within-state rates of successful syringe purchase in urban and rural areas of four states according to urban versus rural location and race and gender of syringe purchasers**

Colorado		Connecticut		Kentucky		Missouri	
Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
58%*	90%*	66%*	77%*	74%*	45%*	41%*	66%*
Male	Female	Male	Female	Male	Female	Male	Female
77%	73%	75%	68%	55%	64%	51%	56%
White	Minority	White	Minority	White	Minority	White	Minority
77%	73%	77%	66%	60%	59%	49%	57%

\*Urban versus rural,  $P < .01$ .

### Gender and Ethnic Variation

There was no consistent pattern of ethnic or gender bias in rates of syringe purchase when either the combined data or the individual states' data were examined. Looking further, there was an intriguing difference between rates of purchase by African American and white RAs in rural Missouri for males only and for the African American female RA in Connecticut. In rural Missouri, the African American male RA had significantly higher rates of syringe purchase than the white male RA. Based on results of focus groups with pharmacists from this region, this difference may be because of an assumption that injectors are more likely to be white males in

this region.<sup>21</sup> At the present, rural Missouri has a major problem with amphetamine injection, and pharmacists reported that this is most commonly seen among white males.<sup>21,22</sup> Thus, differences in syringe refusal in this region may reflect this assumption. In Connecticut, the African American female RA had significantly lower rates of successful syringe purchase than other RAs, but the reasons for this difference are not clear.<sup>23</sup> Other than these minimal differences in rates of syringe purchase according to ethnicity and gender, no differences were found. This result was not consistent with our original hypotheses. Thus, to understand higher rates of HIV infection among minority populations, researchers must look beyond pharmacy syringe purchase.

### **Rural Versus Urban**

Significant variation in pharmacy syringe purchase was found for urban versus rural pharmacies, with higher rates of purchase in rural areas of Colorado, Connecticut, and Missouri, but not Kentucky. Just as intriguing were the higher rates of purchase in the other rural areas. This has been examined further in Connecticut, a state where the distinction between urban and rural is less apparent, but even using a different classification of urban versus suburban pharmacies, urban pharmacies had lower rates of syringe purchase than suburban.<sup>23</sup>

### **Other Variables**

Chain pharmacies were expected to exhibit consistency in syringe access based on the theory that policies would be consistent within any particular chain. However, no consistent pattern of syringe purchase for chain versus independent pharmacies was found. Furthermore, variation was just as great within pharmacy chains as between independent pharmacies. Thus, individual store variation is a stronger predictor of syringe access than company policies.<sup>10,24</sup> These conclusions were supported by results from pharmacist focus groups.<sup>21</sup>

### **Limitations**

The present study had certain limitations. First and foremost, the process by which RAs purchased syringes did not necessarily match the ways that IDUs would behave. For instance, instructions for the RAs not to argue or dissemble when questioned by pharmacy staff may be quite atypical. Further, the study focused on a broad range of pharmacies, but it is likely that only a minority of them would be used by drug users for syringe purchase. Thus, the random nature of the pharmacy sample was not necessarily representative of the actual pharmacies used by IDUs. Despite these potential concerns, the consistent methods applied at each site helped to ensure the comparability of study methods across sites so that systematic comparisons of syringe availability could be made.

### **CONCLUSIONS**

Pharmacy syringe purchase without prescription is a promising complement to needle exchange.<sup>25</sup> Despite this promise, pharmacies and pharmacists often erect barriers to such purchase of syringes.<sup>21,26-28</sup> Other alternatives include physician syringe prescription for IDUs.<sup>29</sup> A third method for access to sterile syringes is through vending machines, but this does not have support in the United States.<sup>30</sup>

The next steps will be to consider ways in which pharmacies and pharmacists might be encouraged to become HIV prevention centers. Unlike needle exchange or

physician prescription, pharmacy purchase has the potential for widespread availability. Furthermore, most states allow purchase of syringes in pharmacies; thus, there are minimal regulatory barriers to syringe purchase. Building on specific studies of pharmacist attitudes and behaviors, social factors may be particularly important determinants of decisions whether to sell syringes.<sup>31</sup> Future work will include developing educational strategies to enhance the willingness of pharmacies and pharmacists to sell syringes and to engage them more fully in HIV prevention activities.<sup>21,25,32</sup>

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