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Home medication injection among Latina women in Los Angeles: implications for health education and prevention

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Abstract *Reuse of needles and syringes after home injection of medications and vitamins may be a risk for transmission of HIV. An exploratory study was done to determine (1) how commonly injectable medications were used in the home; (2) whether needles and syringes were reused; and (3) common practices for cleaning needles and syringes. A survey was conducted of low income Latina women (n = 216) who were attending a Public Health Foundation nutrition programme for women, infants and children (WIC) in Los Angeles. To clarify and expand on the survey findings, focus group interviews were done with an additional 55 women attending WIC. Quantitative data were analysed using descriptive and comparative statistics. Qualitative data were subjected to content analysis. The use of injectable medications purchased in Mexico was fairly common (43.5%); reuse of disposable needles and syringes (48%) and sharing (36%) among injectors were also common. Methods of cleaning needles and syringes were inadequate to CDC recommended guidelines. Injectors and non-injectors differed significantly in ethnicity, religion, and marital status. The only significant predictor of medication injection was educational level. Analysis of qualitative data revealed the reasons that Latina subjects were injecting medication; how they were transporting medicines from Mexico; and how they were cleaning their equipment. The practical implications for health education and prevention programmes should include an awareness that home use and reuse of needles for injection of medications may be common in some social groups and that knowledge of the potential dangers in reuse and sharing of needles may not extend to home medication injection.*

Introduction

There have been occasional but consistent reports of the use of needles and syringes to inject vitamins and prescription medications in the home among Latinos in the United States (Compagnet, 1987; Fairbank, Bregman & Maullin, 1987; Marin & Gomez, 1994). Medications which require a prescription in the United States may be purchased over the counter in pharmacies in Mexico (Casner & Guerra, 1992; Tabet & Wiese, 1990). Latinos who live near the United States and Mexican border frequently purchase medication in Mexico because it is less expensive and it does not require a prescription (Casner & Guerra, 1992; Tabet & Wiese, 1990). When injection medications are purchased, sterile needles and syringes

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(disposable or reusable) also can be purchased without a prescription, as is true in many US states (Compton *et al.*, 1992).

Some investigators have reported that injectable medication is preferred by Latinos in some circumstances because it is perceived as more potent (Johnston, 1987). It has been reported also that Latinos have a high regard for vitamins and take them frequently in injectable form (Johnston, 1987). Home medication injection has the potential for increasing the risk of human immunodeficiency virus (HIV) transmission. There has been at least one case reported in the literature of HIV transmission in an Hispanic family from reuse of a needle and syringe to give vitamin injections, and several anecdotal reports from officials in Los Angeles County (Koenig & Gautier, 1986; Los Angeles County Department of Health Services HIV Epidemiology Program, 1994). However, in a survey of San Francisco Hispanics, Marin and Gomez (1994) found that most of their respondents did not identify injectable vitamins or medications in the home as a possible route of HIV transmission and expressed scepticism about the use of bleach as a disinfectant.

To extend our knowledge and understanding of home medication injection, an exploratory survey was conducted of 216 low income Latina women who were attending a Public Health Foundation nutrition programme for women, infants and children (WIC) in Los Angeles. The purpose of the study was to determine how commonly injectable medications were used in the home, whether needles and syringes were reused and shared, and common practices for cleaning needles and syringes. To clarify and expand on the survey findings, focus group interviews were conducted with an additional 55 women attending WIC.

Methods

From 1990 to 1993 a longitudinal study was conducted of an HIV testing and counselling programme for 563 Latino women at a WIC site in Los Angeles. Participants were recruited from the WIC programme waiting room. Written informed consent was obtained from participants in their choice of English or Spanish. Participation in the study was voluntary and participants were paid. The response rate was 89.4%. Limited sociodemographic information was collected on persons who declined to participate (age, marital status, ethnicity, income, number of children, and country of birth). Those who declined did not differ from study participants on these variables. The major reason for refusal was lack of time.

The HIV testing and counselling programme included AIDS education, HIV antibody testing and counselling, and a pre-test, post-test (2 weeks) and retest (1 year) of the women's HIV-related knowledge, attitudes, and sexual and drug use practices. About half-way into the project, it became apparent through anecdotal evidence that the women were using injectable prescription medications and vitamins in the home. Questions about these medicines were added to the survey instruments that were then in use and subjects ($n = 216$) who were still being recalled for post-test or retest responded to these additional questions. After preliminary analysis of the data, focus group interviews were conducted with 55 additional voluntary participants from the same site to help us verify, clarify and better understand the quantitative findings.

Survey respondents were interviewed in person using structured questionnaires by bilingual community health workers who shared their gender, ethnicity and language. Questionnaires were available in Spanish and English: over 80% completed the interview in Spanish. In addition to items measuring sociodemographic characteristics, assimilation to Anglo culture was measured by a 12-item 5-point Likert-type acculturation scale (Marin *et*

al., 1987). This scale measures level of acculturation through preference for language, media and social relationships. Internal consistency of the scale was assessed using Cronbach's alpha ($\alpha = 0.93$). Questionnaires also included 22 items on the use of injectable medications, which medications were most commonly used, whether medication and syringes were reused and shared, and how needles and syringes were cleaned. We were able to establish test-retest reliabilities on these items for 36 subjects. Reliabilities for the 22 items ranged from 0.72 to 0.91.

Focus group subjects were interviewed in groups of seven or eight by the investigators and bilingual community health workers in a combination of English and Spanish (Kreuger, 1988; Morgan & Spanish, 1983). Interviews were focused on confirming, explaining, and qualifying the quantitative findings of the study with an open response format. Subjects were invited to clarify, provide additional data, explain, and react to the quantitative findings. These findings were presented in categories suggested by the quantitative data, for example, vitamin use, antibiotic use, how to clean needles and syringes, and so forth. After quantitative findings were presented to the group, discussions of the findings by the subjects took place with the investigators asking questions to further clarify the discussion. Two persons took notes during the interviews which were audiotaped with the consent of the participants.

Sample

Ethnicity of the survey respondents ($n = 216$) was Mexican (40.5%), Central American (53.4%), and other Latino (6.1%). Country of birth for Mexican subjects was Mexico and for Central American subjects was El Salvador, Guatemala, Honduras, Nicaragua, and Panama. Other Latinos were US born of Mexican ethnicity, and from Peru, Columbia, Argentina, Chile, Puerto Rico, and Cuba. Mean age was 27.64 years ($SD = 4.5$) and mean number of years of education was 8.43 ($SD = 4.5$). Mean number of children 18 years and younger living in the household was 2.3 ($SD = 1.4$). Marital status was 40.5% married, 45.9% never married, and 13.6% divorced, separated or widowed. Their religion was Catholic (72%), Protestant (16.7%), none (6%), and other (5.3%). Acculturation of subjects to Anglo culture was low, with a mean acculturation score of 1.7 ($SD = 0.60$) out of a possible range of 1 to 5. Focus group subjects did not differ from survey subjects in age, education, number of children, marital status, or religion. However, focus group subjects were more acculturated ($\bar{x} = 1.9$, $SD = 0.41$) ($t(246) = -2.81$, $p = 0.006$) and more were of Mexican ethnicity (68%) ($\chi^2(1) = 8.82$, $p = 0.003$).

Data analysis

Quantitative data were analysed using descriptive statistics. Comparisons between respondents in households where home medications were injected (injectors) and those in households where they were not (non-injectors) were examined using independent t-tests and chi square analysis. Logistic regression analysis was used to test the relationship of the socio-demographic variables and acculturation level to injection of medications. Change in knowledge of bleach use over time was analysed by a repeated measures ANOVA. Qualitative data were subjected to content analysis as described by Corbin and Strauss (1991). Data were grouped according to a systematic reduction into sets or categories suggested by the quantitative data. Qualitative data were used to enrich, clarify and expand on quantitative findings. These data were considered to provide support and possible explanations for the quantitative data.

Table 1. Medication injection activities (n = 216)

| Activity | f (%) |
|------------------------|-----------|
| Injection | 94 (43.5) |
| Antibiotics/penicillin | 71* |
| Birth control | 24 |
| Vitamins | 18 |
| Insulin | 1 |
| Reuse | 45 (20.8) |
| Sharing | 34 (15.7) |
| Cleaning | |
| Water and alcohol | 40 (18.5) |
| Boiling and alcohol | 4 (1.8) |
| Flame | 1 (0.46) |

*Some persons used more than one type of medication.

Results

Of the 216 survey respondents, 94 (43.5%) said that they or someone in their household had injected medication or vitamins in the last 6 months (injectors); and 56.5% said that they or someone in their household had not injected medication (non-injectors). However, in only 14% of households were medications injected on a regular or patterned (daily, weekly, monthly) basis. Respondents in households of injectors and non-injectors did not differ in age, education, number of children and level of acculturation. There were significant differences in ethnicity, religion and marital status. Respondents in households of injectors were more often Mexican (62%) ($\chi^2(1) = 9.19$, $p = 0.002$); Catholic (80%) ($\chi^2(1) = 4.27$, $p = 0.039$), and married (54%) ($\chi^2(1) = 6.23$, $p = 0.012$).

The relationship of age, education, ethnicity, religion, marital status, number of children and level of acculturation to household injection was examined by logistic regression analysis. The test of the regression model was significant ($F(7,213) = 9.342$; $R^2 = 0.16$, Adj. $R^2 = 0.14$, $p = 0.0001$). Standardized beta weights indicated the relative importance of each variable in the analysis. Of the variables examined, only level of education was significantly related to household injection of medication ($\beta = -0.326$, $p = 0.0001$), although ethnicity (Mexican) came close ($\beta = 0.131$, $p = 0.0682$). Respondents with higher levels of education were less likely to be from households that injected medication.

The medications most commonly injected in the home were penicillin or antibiotics (see Table 1). Of the 94 survey subjects who reported medication injection in their home in the last 6 months, 71 (76%) reported the use of antibiotics. Antibiotics were taken episodically for illness. According to focus group subjects, antibiotics are purchased in Tijuana to treat “the flu” because they are “cheaper”, and because no prescription is needed: “Doctors in California won’t give you penicillin shots when you have the flu”. However, focus group members related that penicillin can be purchased also at “swap meets in—[Latino areas of Los Angeles], but you have to order it the week before”.

The second most commonly injected medication was “birth control shots” (26%). Injections for birth control were taken on a regular (monthly) basis. The most often mentioned birth control injection was Perlutal (same as Depo-Provera, although in the US this medication is given every 3 months). Vitamins were injected or taken intravenously in 19% of households on both an episodic and a regular basis. Oral vitamins were taken regularly (daily) by most (76%) of the 216 survey respondents. However, injectable vitamins

were taken episodically when people were ill or regularly (weekly, monthly) for a chronic illness such as “cancer” or if someone was sickly or thin (“*enclenque*” or “*débil*”). The most frequent reasons for purchasing injectable birth control medication and vitamins in Tijuana was the cost (38%), no need for a prescription (16%), not available in the US (3%), and better quality (2%). One person purchased insulin in Mexico with a prescription because it was cheaper and she thought the quality was better.

When injectable medications were purchased in pharmacies in Mexico, disposable or reusable needles and syringes could be purchased with them. Most (96%) purchased disposable needles and syringes. Four respondents who were taking medications regularly had reusable (glass) syringes and needles. Focus group subjects reported that disposables were preferred “because they’re so cheap”. They said also that pharmacies instructed them on proper disposal of needles and syringes and recommended purchase of a quantity of needles and syringes equal to the number of doses of medication in the vial. However, the correct quantity of needles and syringes was seldom purchased because “it’s illegal to bring them across the border”. They reported also buying one “*jeringa*” but several needles because they were easier to conceal. Disposable needles and syringes were reported as available also in Los Angeles “at swap meets”. Again the number purchased was small because of both cost and illegality.

Several options were available for medication injection. Some women knew how to inject or knew someone else with the skill. Others went to “*la que inyecta*”, a woman available in most neighbourhoods who knew how to inject. If respondents went to the injection woman, they either brought their own syringe or she furnished one. It was also possible to get the injection at the pharmacy in Mexico by either the pharmacist or “the nurse” in the pharmacy who used a new disposable needle and syringe for each injection. However, this latter practice was infrequent if multiple doses were to be taken because it was not convenient or easily accessible to return to Mexico for follow-up doses.

One of the focus group subjects was an injection woman. She said she purchased boxes of disposable needles and syringes from Mexico “through the US mail”. She reported that she did not reuse them (“*que respeta la ley*”) and described a safe disposal procedure. However, she believed that other injection women did reuse disposables because they were “cheap” and hard to get “because of the law”. She believed that these women cleaned the needles and syringes with alcohol or boiled them.

Respondents in households which used injectable medications ($n = 94$) were asked whether their household reused needles and syringes (See Table 1). About half of the respondents (48%, $n = 45$) said that someone in their household reused needles and syringes. There was both survey and focus group evidence that some of the injection equipment that was reused was shared among household members. From our data, equipment was shared in four categories, two of which are overlapping: (1) households injecting antibiotics; (2) households injecting antibiotics and vitamins; (3) households injecting only vitamins; (4) households injecting vitamins and birth control medication. The greatest occurrence of sharing was among persons injecting antibiotics. Needles and syringes used to inject antibiotics were shared among household members when more than one person was sick at the same time or shared at different times as people became ill ($n = 26$ households). These same needles and syringes were reused and shared also for vitamin injections in some households ($n = 3$ households). In a separate category, in some households where vitamins were injected, the whole family took vitamins and shared the equipment ($n = 4$ households); and in others only a sickly person took vitamins and then equipment was not shared ($n = 2$ households). Finally, when birth control injections were taken, most often reused needles were not shared ($n = 9$ households). In one household, two members shared injection equipment for birth

control medicine and in three households equipment was shared to give birth control and vitamin injections. Of the 45 survey households that reused injection equipment, our best estimate is that in 34 (75.5%) households equipment was shared. Focus group respondents discussed sharing the injection equipment as being similar to household members using the same thermometer: "It should be cleaned with water and/or alcohol between people" and "you use it until it breaks".

Survey respondents were also asked how reused needles and syringes were cleaned. The large majority (89%) used water (and sometimes soap) to clean their needles and syringes and alcohol to disinfect them. Respondents ($n = 4$) with reusable (glass) syringes and needles, boiled them and used alcohol. One person held the needle in a flame.

As part of the longitudinal study of the HIV testing and counselling programme, respondents were taught to clean needles and syringes with bleach. Although there was a significant pre-test/post-test/retest improvement in their *knowledge* of the use of bleach to prevent HIV transmission ($F(2,189) = 51.92$, $p = 0.0001$), this knowledge did not affect responses (gathered at the time of post-test or retest) on their practices concerning how they were cleaning needles to inject medication. Focus groups subjects were sceptical about the use of bleach as a disinfectant. They preferred alcohol or heat (boiling). They had heard of the use of bleach but thought it was only for illegal drugs ("*droga*"; "*narcotico*").

Discussion

This study is one of very few that has investigated the use of injectable medications in the home. Injecting medications in the home was fairly common in this group of female Latino subjects. Furthermore, they were reusing and sharing disposable needles and syringes. Their procedures for cleaning and disinfecting were most often inadequate, especially given the new CDC guidelines for disinfection (Centers for Disease Control, 1994; Millstein, 1993). These findings have implications for HIV health education and prevention programmes. In addition, they provide suggestions for future research efforts and for possible consideration in formulating public health policy.

- Health educators in HIV prevention should be aware that among some social groups the use and reuse of needles may be common to inject home medications. There may also be a local lay group of paramedical persons who assist in injection of home medications or provide these services. Some investigators have suggested that these lay paramedical persons may represent a credible and willing group of potential community educators. They might be trained in HIV prevention methods and might make an effective and respected cadre of local health educators.
- Health educators should take into consideration also that participants in their programmes may not automatically transfer knowledge of transmission through illegal injection drug use to the use of injectable medications and vitamins in the home. Marin and Gomez (1994) have noted that Hispanic respondents in their survey did not associate the injection of medications in the home with possible HIV transmission. The findings here would support a similar assumption. Although considerable attention was given to making the HIV education and testing programme culturally competent, the approach to education and prevention was the currently accepted public health focus emphasizing behaviours related to transmission, i.e. sexual practices, drug use, and perinatal transmission (Flaskerud & Nyamathi, 1990; Flaskerud & Calvillo, 1991; Nyamathi & Flaskerud, 1992; Nyamathi *et al.*, 1993). The subjects' knowledge of transmission may have been fragmented into these behavioural categories, leaving

them unable to transfer knowledge of risk accurately from one situation (illegal or narcotic injection drug use) to another (medication injection). Health educators should consider that teaching instead from the perspective of a coherent causal mechanism of viral transmission (through blood and body fluids) may allow the transfer of knowledge from one circumstance to another and may, as a consequence, reduce the risk of HIV transmission from needle use (Au, 1994).

- This study was exploratory in nature but should alert future researchers to an important area of investigation. Future studies should examine specifically whether injection equipment used in the home is shared, with whom, how frequently and for what purpose. These data would more accurately reflect risk of HIV transmission.
- Public health policy concerning legal needle buying without a prescription might be better informed if the risk of HIV transmission from home medication injection were taken into account (Compton *et al.*, 1992). Needles and syringes were being reused in this study because their purchase without a prescription was illegal. Legalizing the purchase of needles and syringes may reduce the risk of transmission of HIV, not only for persons using illegal injection drugs but also for those injecting medications and vitamins in the home (Compton *et al.*, 1992).
- Finally, the importance of educational level and the use of injection medication may have implications for educational policy in cities with large immigrant groups and/or low educational attainment. Increasing access and availability of general education may, in itself, decrease risk behaviours.

This study has several limiting factors, including the gender, ethnicity, level of acculturation and other sociodemographic characteristics of the respondents. The sample was voluntary and from a single setting in Los Angeles. Although the sample was similar to other Latina WIC populations in Los Angeles, respondents included more immigrants, more persons of Central and South American ethnicity, and those with a lower median household income than the Latino population in Los Angeles County (US Department of Commerce, September, 1993). Furthermore, women may be more likely to be involved with home medication injection than men. An additional limitation is the nature of self-reported data. However, in this case self reports would be more likely to minimize than maximize the occurrence of the behaviour under study. Health educators and policy makers should be aware of the possibility of HIV transmission through the reuse and sharing of needles and syringes to inject medication in the home and alter their educational programmes and policies accordingly. At the same time, educational messages and policies should reflect cultural competence.

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