



LAY INJECTION PRACTICES AMONG MIGRANT FARMWORKERS IN THE AGE OF AIDS: EVOLUTION OF A BIOMEDICAL FOLK PRACTICE

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Abstract—The practice of injecting vitamins and antibiotics by lay people is common among Hispanic migrant farmworkers in the U.S.A. This practice has recent roots in the Latin American cultures from which these farmworkers originate, but it presents a public health concern in its new context because of the high prevalence of HIV infection among this disenfranchised population. Reasons for use of lay injections include cultural beliefs about the superiority of injections over oral forms of medications, perceived irrelevance of a professional diagnostician in prescribing empirical treatment, and a multitude of barriers to access to Western medicine. Although HIV educational materials directed at migrant farmworkers do not address the issue of sharing needles for these types of injections, some farmworkers indicated they had already modified their injection techniques in response to simple directives from physicians in their home country. In contrast to other folk treatment practices that have been resistant to change mediated solely through the provision of information, lay injection is such a new development that considerable experimentation and incorporation of new knowledge are still actively shaping its use. In this process, physicians are seen as legitimate sources of information about the use of Western pharmaceuticals; they should use this role to discourage unsafe injection practices. Efforts to extinguish the practice of lay injection entirely are less likely to meet with success so long as other means of accessing Western medicine are limited. © 1997 Elsevier Science Ltd

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INTRODUCTION

While working at a migrant health center in North Carolina, I became alerted to the practice of lay injection of medicinal preparations by Hispanic farmworkers. One informant told a story of several migrants in a single labor camp who had acquired a sexually transmitted disease through the same prostitute. A lay injectionist had come to the camp to deliver injections of penicillin to the affected men. The informant was uncertain whether the same needle was shared for all of the injections. We were never able to verify this story or to relocate the original informant, but his story led us to further investigate this practice as a potential public health hazard. Because of the high prevalence of HIV infection among this population, needle sharing in the context of injection of medicinal preparations could potentially contribute to the spread of the virus.

There is relatively little written about lay injection practices in either the medical or social science literature, although the information about this practice in various cultures is growing. In 1982, van der Geest published an annotated bibliography of references on "injection doctors" in several developing countries around the world. Some of the literature he describes is fairly anecdotal, and he concludes that overall there is a "paucity" of literature in this

area (van der Geest, 1982). Since then two important reviews have been published on the subject. Wyatt reports on the popularity of injections given by both allopathic health care providers and traditional healers in India and many other developing countries giving a sense of the widespread nature of the practice (Wyatt, 1984; Wyatt, 1992). Reeler reviews existing knowledge about injections touching briefly on the myriad types of lay injectors described in different cultures (Reeler, 1990). Detailed, ethnographic studies of lay injections and the social and cultural contexts in which they occur are few. Notable exceptions are Cunningham's description of Thai "injection doctors" (Cunningham, 1970), and two collections of multi-cultural studies (van der Geest and Whyte, 1988; Bloem and Wolfers, 1993). Regardless of the specific country studied certain universal elements are consistently present in places where lay injection occurs: a pluralistic medical system, easy availability of black market prescription drugs, a cadre of injectionists with limited biomedical training, and the reinterpretation of modern medicine along the lines of existing illness paradigms.

Many of the reports of lay injection practices describe the use of shared syringes. Other authors have raised the issue of whether HIV or Hepatitis B could be spread in this way (Quinn *et al.*, 1986;

Reeler, 1990). One Zairian study did show that injections were the most important risk factor for HIV seropositivity among children with seronegative mothers (Mann *et al.*, 1986a). Another study from the same country showed similar associations between HIV seropositivity and a prior history of medicinal injections among adult hospital workers (Mann *et al.*, 1986b). Although direct causal evidence is lacking in these studies, there is concern that these injections are contributing to the transmission of HIV.

Considering the specific case of North America, there are several epidemiological studies looking at the high prevalence of self treatment with antibiotics in Mexico and Latin America in general (Angeles-Chimal *et al.*, 1992; Wolff, 1993; Rodriguez *et al.*, 1994), but they do not address whether these medicines are injected or taken orally. Studies from El Salvador, Guatemala and Mexico do confirm that lay injections form a large proportion of the medical treatments utilized in various rural and urban contexts (Ferguson, 1988; Logan, 1988; Woods, 1977; Cosminsky and Scrimshaw, 1980). The practice of lay injection also may occur among Hispanic populations in the U.S. One survey of Hispanics in San Francisco showed that 5% occasionally used lay injections (Marin, 1989).

There are a few published reports of lay injections occurring among migrant farmworkers in the U.S. One study examining the HIV risk factors among migrant farmworkers found that more than 20% reported self injecting antibiotics or vitamins, and 3.5% reported using a shared needle for this purpose. In contrast, the percentage of those reporting use of illicit injectable drugs was only 2.9% (Lafferty, 1991). A small study of HIV positive Mexican immigrants in California reported almost half had used shared and uncleaned needles for injection of antibiotics or vitamins (Loue and Oppenheim, 1994). These studies suggest that self injection is common and could play a role in the spread of HIV among migrant farmworkers as it may in other populations.

Wyatt hypothesizes that in tropical regions the popularity of injectable forms of medication may be traced to the seemingly miraculous response among individuals affected by yaws and kala-azar in the early twentieth century (Wyatt, 1984). These diseases are not endemic to North or Central America, so the popularity of injections in these areas must be the result of other influences. Prior to the mid 1950s, ethnographic studies looking at health practices among various Mexican and Mexican American groups make no mention of lay injections (Murdock, 1985). Syringes for the injection of medicinal compounds came into existence in the 1850s, sulfa based antibiotics in 1938 and penicillin during World War II, so the use of these preparations must be a relatively new phenomenon. During fieldwork in 1956-7, Taylor mentions a schoolteacher in

southern Mexico who administered various injections (Taylor, 1960). Nash mentions a priest who gave injections "against contagious diseases" during her fieldwork in Mexico from 1957-1967, but it is unclear if she is referring to immunizations or therapeutic preparations (Nash, 1967). The practice of lay injection must have been established at least in urban areas of Mexico by the late 1950s. Individuals interviewed by Oscar Lewis in Mexico City mention their use of lay injections during illness episodes at this time (Lewis, 1959; Lewis, 1961). By the late 1970s there are various reports of lay injection by poorly educated women dispensing injectable medicines in more rural areas of Mexico (Fitzsimmons, 1974; Messer, 1975). Finkler noted the presence of "injection specialists" was common during her fieldwork in central Mexico in the late 1970s (Finkler, 1985). The use of injectable medicines among Mexican immigrants to the U.S. may have been introduced sometime later. Two classic ethnographies on healing practices among Hispanics in the Southwestern United States (Saunders, 1954; Rubel, 1966), make no mention of this practice. These past studies may be helpful in estimating the timing of the appearance of lay injection practices, but they do not provide a description of the practice itself in North America.

The result of this lack of information about lay injections is that Spanish language HIV education materials in the U.S. do not address this practice. In addition, HIV counselors, health educators and health services providers working with migrant farmworkers do not specifically address the potential risks of needle sharing for self treatment with their clients.

We set out to describe the practice of self injection of antibiotics, vitamins and other medicinal compounds among migrant farmworkers in order to determine the magnitude of the public health concern for its potential to spread the HIV virus.

THE CONTEXT OF LAY INJECTION IN THE STUDY AREA

There are an estimated 5 million migrant and seasonal farmworkers in the U.S. (Lillesand *et al.* 1977). A majority of east coast farmworkers are Hispanic, but there are also large numbers of African-Americans as well as some Caribbean immigrants and White non-Hispanics. Of the Hispanic farmworkers in North Carolina, over 85% are of Mexican heritage with a growing number of migrants originating in Guatemala or other Central American countries. The population of migrant farmworkers in North Carolina is in a constant state of flux, as new farmworkers move into the area, and others move on to work with maturing crops to the north or south. Some farmworkers travel in family groups, and others live with migrant recruited from the same home town. For the most part, however, farmworkers are young, single me

who travel alone or married men who must leave their families behind. Labor camp residents are isolated geographically and socially from the local community.

Tri-County Community Health Center, a federally funded migrant health center in central North Carolina, is the primary source of health care for most migrants in the area. In addition to its clinical services, the center also has an active outreach program that provides health screenings and health education services on migrant camps.

Among the many health problems of this population, one of the most concerning is the growing prevalence of HIV infection among migrant farmworkers. Studies of East Coast migrant farmworkers have reported HIV infection rates of between 2.6% (Centers for Disease Control, 1988) and 13% (Jones *et al.*, 1991), around six times that of the general U.S. population. Evidence suggests that Hispanic farmworkers by engaging in unsafe practices during their migration into areas of high HIV prevalence may become vectors for its transmission to areas of low prevalence as they bring HIV infection home to their families in Mexico. Thus the problem of HIV infection among migrant farmworkers takes on international importance.

METHODS

Twenty-five interviews with 31 migrant farmworkers were conducted over the course of five months, June to November 1994. The interviews were semi-structured and took anywhere from 30 minutes to 3 hours to complete. The interviews were performed by a bilingual medical student, an outreach worker who was a former migrant, and the author. The interviews took place in the informants' homes in the language of their preference, primarily Spanish. Contacts with migrant farmworkers were made through a variety of clinic and community sources, including lay health advisor and English as a second language classes and individuals identified during labor camp health screenings. Informants were individuals who had knowledge of lay injection practices and were willing to speak with an interviewer. All but one of the informants had either personal or familial experience with lay injection use. Several of the informants gave injections themselves or were related to paid injectionists. All the informants were from Mexico, primarily from rural areas. They ranged in age from 18 to 53 years old. All but seven, or 77% were female. As a group, they were older and more likely to be female than the general population of migrant farmworkers in the area.

In addition to the qualitative data, a group of 532 farmworkers was surveyed by clinic outreach personnel in order to estimate the prevalence of lay injection practices among migrant farmworkers in the area. These surveys were administered as part

of an existing health screening program on migrant labor camps identified by outreach personnel. In order to construct a map of known migrant labor camps, outreach workers familiar with the area visited sites previously identified as labor camps, questioned workers in the fields about where they were staying, drove along back roads searching for occupied camps, and used a loose network of informants that included clinic personnel, crew leaders and Catholic church members. A total of 78 camps were screened at some time in the growing season, however an unknown number of individuals living in private houses and on camps not identified through the efforts of outreach workers were not included in the sample. Some camps were not occupied during attempts to make contact, and the residents of the camps were in constant flux. Attempts were made to rescreen large labor camps as their occupants changed over the course of the growing season. Approximately 10% of farmworkers declined to participate in the health screening at the time it was offered on their camps. All questionnaires were administered orally in the participants' language of choice.

RESULTS

The quantitative data revealed that 65/532 or 12% admitted to lay injection with antibiotics or vitamins. This prevalence estimate is somewhat lower than that reported by Lafferty, and our own informants indicated during interviews that these numbers grossly underestimate how common the practice really is. They suggested that the survey participants may have been embarrassed to admit to medical personnel that they engage in health behavior considered unconventional or illegal. In addition, the wording of the survey question may have caused confusion among the participants. People often referred to trained injectionists as "nurses" or even "doctors." The results from the survey data nevertheless indicate that lay injection is a common practice among Hispanic migrant farmworkers. The true prevalence of this practice may have been underestimated, however.

The key informants described experiences with a pluralistic health care system in their home towns in Mexico that helped to shape their subsequent treatment preferences. All but one of the informants had consulted with healers in the folk and professional sectors, although each person appeared to pick and choose among the many available health care options. In the Mexican professional sector there are both public clinics and private physicians. Private physicians are more expedient and their services are considered superior, but they are too expensive for many of the farmworkers. Several people had had experiences with *brujos*, or witches, *curanderos*, spiritualist healers, *sobadores*, or bone setters, homeopaths, midwives, and herbalists.

Many healers do not have specific titles. There are specialists who perform external pelvic massage for women with fallen ovaries or people who "know certain prayers" that treat a limited number of conditions. Injectionists fall into this category, as there was not a consistent way for the informants to refer to these healers.

The informants' first experiences with lay injections were in Mexico. There was universal agreement among them that in Mexico injectable drugs are easily obtained without a prescription at pharmacies, from drug vendors or even in supermarkets. Medicines may rarely be injected by the patient himself but are more frequently administered by another person. In Mexico, there are several people who can fill the role of lay injector. Sometimes the pharmacy employee who sells a medicine will also inject it for a small fee. Nurse aides and other medical paraprofessionals may "moonlight" by giving injections. Often women will take a first aid course specifically to learn injection skills so that they can earn a few extra dollars giving injections to people in their neighborhood. The injector may be a member of the family, a friend, or a neighbor. These people frequently do not charge for their services and may even ask for a reciprocal favor if they need an injection in the future: "I inject all my family, relatives, and friends. And they inject me." Often the informants convey a strong sense of community, with lay injectors helping neighbors in need. One woman describes the situation this way:

C: ... in Mexico everybody knows everybody and we are poor. Some persons just have enough for the doctor and the medicine, do you think they would have money to pay me?

Interviewer: So you did it [injected them] as a favor?

C: Yeah because as I said all of us are friends, and when the doctor taught us it was free. He taught us how to inject and it was free. Can you imagine me charging for services that were told to me for free? Sometimes people tell me here's some money so you buy yourself a soda. And I used to say no, take the money with you and you buy yourself a soda.

This passage highlights the informality of the health care system with regard to lay injection practices.

Some injectors have no formal training; they simply learn by watching someone else inject. In Mexico, even people identified as "pharmacists" may in reality have no biomedical training. One informant said, "They don't need any special training. If you have the money, you just buy the medicine and set up a shop, or start to sell it." Some injectors have received some instruction, and the manner in which they are trained illustrates physicians' ambivalent attitude towards lay injectionists. The Mexican medical literature contains articles critical of self treatment, the overuse of antibiotics, and drugs used without a biomedical indication or in non-standardized regimens. At the same time,

some health professionals offer injection training to lay people in areas where there is limited access to professional medical services in efforts to increase access to biomedical treatments. Many informants describe first aid classes organized by Mexican physicians or other health officials that include training in injection techniques. At times, certificates are offered at the end of these courses, further legitimizing their qualifications. Even this limited training confers a good deal of status to lay injectionists as health experts in their communities. This status also translates into higher earnings as injectionists with some formal training are able to command higher fees for their services.

A woman in the ranch, she did charge [for giving injections], because she said she was a nurse. So a lot of people went to her to get injected... Well, she studied for a short time in Monterrey, and the little she knew was enough, because we did not know anything.

Some informants described desperate instances when they were unable to connect with lay injectionists in their communities in Mexico. During these times, they were forced to give family members injections without any instruction at all, or they resorted to giving themselves injections:

Sometimes need makes you. People... won't help you. They don't want to do you a favor. Or sometimes you go at twelve at night and they will not do it because it is too late. So you felt obligated to learn to inject, just to save some money. There was one occasion where I had to inject myself, because I was really sick. And I injected myself... in my buttocks. I got close to the dresser and I did it. My daughter was there with me and she was real little and she told me, "No Mama, don't do it!" And I just said, "Just let me do it, because I am very sick."

Although this woman subsequently injected other members of her family, the dilemma of having to inject herself, of being unable to call upon the help of her neighbors in a time of need, was distressing.

Migrants in the U.S. continue to find a variety of folk healers available to them. *Curanderos* are fairly common, and a bonesetter reportedly enjoys a busy practice just a few hundred yards from the migrant health center. Lay injection practices also continue during migration to the U.S. Medicinal supplies may be obtained from relatives through the mail, flea markets, or Mexican specialty stores. It is acknowledged that these sources are illicit, and transactions are carried out in a somewhat clandestine manner:

Y: There is a grocery store in [a North Carolina town]. They sell Mexican food and stuff. They have it there for you to buy. They don't have it out there on the counter, you have to ask for it.

Interviewer: They sell medicines for people to inject?

Y: Yes, but you have to ask them for it.

Obtaining medicines is somewhat easier in border states such as Texas. Many people bring injection supplies from Mexico with them as they migrate, and replenish their cache during return trips home.

One informant expressed regret that she had not carried injectable medicines with her during her migration to the U.S.:

Well, when we came we didn't bring anything, no medications. A lot of people bring it, but they already know how to because they have been here before. But it was the first time for us. We were afraid that they would not let us bring it through [customs] so we didn't bring any.

A few lay injectionists carry medicines with them to the U.S. from Mexico as a means of supplementing their income along their migration route. A woman who owns a pharmacy in Mexico brings a large supply of penicillin and injectable vitamins with her when she travels to the U.S. She serves as a drug vendor and paid injectionist for clients who learn of her services through word of mouth.

Finding an injectionist is sometimes problematic for migrants to the U.S. Several informants related stories of the frustration of possessing a vial of medicine, but being unable to persuade someone to inject it. Every class of lay health advisors organized by the migrant health center has included women who were eager to learn injection techniques so they could earn money locally for their services. Some people do not continue lay injection while migrating in the U.S. because of the unavailability of medicines or injectionists. Those who do continue the practice acknowledge that it is somewhat more difficult than in Mexico. Some people, knowing they may not be able to obtain vitamin injections in the U.S. make sure that they get them before they leave Mexico: "For example, when I go to Mexico, when I get there I get an injection. When I am going to come here I get an injection as well. That is two times a year."

The needles and syringes used for injection come from a variety of sources. Sometimes the injector or the patient's family has a reusable syringe fashioned of glass or metal, although these seem to be disappearing, and disposable syringes are currently more popular and available. Disposable syringes may be purchased from a drug vendor along with vials of medicine, or they may be supplied by the injector. Reusable needles are cleaned by washing with soapy water or alcohol or by boiling. No respondent mentioned using a bleach solution for disinfecting syringes as is recommended in HIV prevention literature targeting intravenous drug users. There was little consistency among the informants as to an adequate sterilization procedure, and some people expressed doubts about the thoroughness of the cleaning processes used. One informant addressed the issue of HIV spread directly:

Y: It's really scary. Now that I know about AIDS and all that I think it's really scary.

Interviewer: Why?

Y: Because they are using the same needles. The people who give the injections use the same one for different people.

If they are difficult to obtain, even disposable needles may be cleaned and reused. The injections are usually given intramuscularly, and the skin may or may not be prepared beforehand with alcohol.

A fairly limited range of medicines is used for lay injection. Antibiotics were mentioned most often, but vitamins, which are often mentioned by brand name, are also popular. Hormone injections for birth control are the next most frequently cited medicine followed by pain killers, corticosteroids and other miscellaneous substances such as Valium, calcium and an herbal preparation called *Eucalypto*.

The indications for antibiotic injections are primarily minor infections: fevers, colds and sore throats. Penicillin is also injected for such varied uses as accelerating the healing of minor wounds, toothaches, headaches, "bad pain," mosquito bites, and condyloma. One man even proclaimed that, "Penicillin is good for everything... [It] cures anything." Only one of the informants was able to articulate the mechanism of action of the antibiotics they used or mentioned the germ theory as an etiologic explanation of infectious diseases. Injections of antibiotics are used because people "have faith" in them. One pharmacy employee who had received some instruction from medical books and from a nurse coworker was able to articulate the biomedical rationale for the use of antibiotics, but in practice she too advocated their use for viral infections such as colds.

Vitamins are used for more diffuse reasons. They may be used prophylactically "to keep healthy" or to fortify a woman's body in anticipation of pregnancy. Some respondents mentioned specific complaints that they felt could be cured with vitamins such as headaches and poor eyesight. Vitamins are also used for vague systemic complaints such as fatigue, inability to gain weight or "feeling bad."

There are several ways in which individuals determine what type of injectable medicine is indicated. Lay injection most often involves self selection of medication, but in Mexico it may also be performed on the advice of a physician. A Mexican physician may prescribe an injectable medication and then leave the patient responsible for finding a nurse or a lay person to administer the injections. The physicians' reliance upon lay injectionists to carry out their therapeutic directives creates a class of folk healers, legitimized by the medical community, who subsequently prescribe and inject medicines independently or upon the request of a consumer.

When determining an appropriate choice of injectable medication for self directed treatment, advice is often sought from friends and relatives, a drug vendor or a paid injectionist. The decision to use an injectable preparation is often not an individual one; family and community are important to the process. A proxy may even seek treatment in place of the patient. For example, a parent may

visit a pharmacy on behalf of a sick child, and obtain antibiotics for injection at home.

Lay injection therapy is empirical, or symptom driven, the diagnosis or etiology of the disorder is somewhat irrelevant. Any individual who has experienced symptoms is qualified to recommend therapy. One man explained how he determined what therapy was indicated:

If you used something once and your symptoms returned, you wouldn't go back to the doctor, but just get the medicine for yourself. Or maybe if something was recommended by a friend or something, if they had the same symptoms. If a certain medicine worked for them, then you would ask them what had they used, and just go to the pharmacy and get it.

Thus, an individual is not reliant upon a physician for diagnosis if they can accurately match their current symptoms with therapy that had been effective in the past. Some people believe that the primary function of the medical encounter is to receive appropriate medicinal therapy. If the medicine can be obtained without a physician visit, then there is no reason to go through that inconvenience.

The decision to self medicate with injectable drugs rather than other forms of therapy is based on the belief that injections are superior to pills. Most informants cited faster onset of action as the primary advantage of injectable medicines over pills. Beyond that, there is also a feeling that the injectable drugs themselves are somehow different and better than the oral preparations. They are described as "stronger," "more effective," "more direct," "longer lasting," "the best medicines," and "the best thing for them." Injections are more likely to be viewed as definitive therapy, so that if treatment is begun with pills and is ineffective, people will often switch to injectable medicines.

The patterns of referral described by the informants indicate that self injection is most often used as a first resort before consultation with a physician. Barriers to health care access were similar in both countries, and included increased cost, transportation problems, long waits, trouble missing work and lack of childcare. In Mexico unavailability of local services, and in the U.S. inadequate translation services were also mentioned as reasons for not seeking the care of a health professional directly. Limited access to physicians forces individuals to rely on lay injectionists for any connection to Western medicine. If a self prescribed injection fails to effect a cure, most people who are able then seek treatment from a physician. "We only go to the doctor when we have tried medicines and we do not see a result," one respondent explained. Occasionally, lay injections are used as a stopgap measure until a patient is able to marshal the resources for a doctor visit.

Accustomed to receiving injections both from Mexican physicians and from lay injectionists, sev-

eral migrants complained about the reluctance of U.S. physicians to use injections. Given their beliefs about the superiority of injectable medications over oral preparations, the different prescribing patterns of doctors in this country are perplexing. One individual complained, "I don't know why the doctors don't use [injections] here even if they don't sell it in the pharmacy." Some patients seeking care in U.S. facilities are adamant in their appeals for injectable forms of medicine. "[The doctors here] never wanted to [inject me]," one informant said. "I have asked the nurses, 'Won't you give me an injection?'" [They respond], "Look, we can't, we can't. Out of frustration with U.S. physicians, one respondent resorted to lay injection in order to get the treatment he feels is the most effective:

I went to the clinic here, but they never cured me... Well, they gave me medicine for the allergy and for a cold, but I never was cured until I injected myself.

Thus, the practice styles of U.S. physicians may paradoxically encourage the use of lay injectionists in some instances.

While some people express frustration at the reluctance of U.S. doctors to use injectable medications, for many people repeated exposure to the health care system of this country makes them look upon lay injection less favorably. Some people reported that their beliefs about lay injection have changed, and they no longer trust lay injectionists.

Most informants had a rudimentary knowledge, if any, about HIV infection and its spread. Some people associate the disease with IV drug abusers but do not consider injections of antibiotics or vitamins dangerous. A few people recognize the hazards of self injections specifically in relation to their ability to spread the HIV virus or other blood borne diseases. They have altered their injection practices in that they only use disposable needles, or they have abandoned self injection entirely:

Interviewer: So you used disposable needles all the time?

F: Yes, and now with AIDS, we don't do it any other way. Who's not afraid of AIDS? I don't know what it is or, for example, I don't know what symptoms to look for, but I know it is dangerous and people who have it die. So you imagine me playing with someone's life.

This passage illustrates that even a very basic understanding of HIV and its transmission was sufficient to alter lay injection behavior. Other informants indicated that they had changed their injection practices based not on specific information about HIV but simply on the strength of physicians' directives prohibiting the reuse of syringes even without an understanding of their rationale.

DISCUSSION

Medical personnel who treat migrant farmworkers in this country should be aware that lay injection is common in Mexico, and the practice may

continue during migration in this country. It has not been necessary for them to fully adopt the biomedical disease paradigm in order for them to see the value of injectable pharmaceuticals. Lay injections are not used for traditional folk illnesses such as *mal de ojo*, *susto*, or *empacho*, but are used for illnesses that they feel can be legitimately treated in the biomedical arena. Adoption of the cultural artifacts of biomedicine has taken place on the basis of faith without an intellectual understanding of the pharmacology of the medicine.

Migrant farmworkers in the U.S. are a group of people caught between the developing and the developed world. Their health care decision making reflects their Latin American background but is modified by the stresses of migration, poverty and the reality of living in a new culture. Given the high prevalence of HIV infection among this population, the continued use of lay injections involving shared needles in this country constitutes a public health concern. Other hazards associated with self injection noted by others and apparent from this fieldwork also include: local abscesses, delay in definitive treatment, allergic reactions, and overdosing (especially among children). It is important to emphasize that these risks are often undertaken for little physiologic benefit.

The true risk of HIV transmission through lay injections is somewhat difficult to assess but is probably not great in most of these situations. Transmission of the virus depends on many factors such as the method of injection, time between injections, frequency of needle reuse, and syringe cleansing technique. The intramuscular injections most commonly performed carry less risk than intravenous injections. Even when syringes are reused by lay injectionists, the time between injections in this population is probably long enough that the HIV virus is unable to survive. Although the syringe cleaning techniques used by lay injectionists are not optimal, they are probably at least partially effective in killing the virus. Considering all these factors, the risk of HIV transmission in this setting is probably low. However, the risk of transmission of other pathogens, for example the much more resilient Hepatitis B virus, is greater. Thus warnings about needle reuse without proper sterilization are advised even in the face of a low risk of HIV transmission. Given the potential for the spread of blood borne diseases via needle sharing for self injection of medicines, health educators should incorporate information about these risks into their instructional materials. In general, this study illustrates the need for a culturally sensitive approach to HIV education. In the case of migrant farmworkers, merely translating material developed for U.S. populations inadequately deals with their life experiences.

Informants in this study indicated that they were open to information about AIDS and had been

willing to modify their self injection practices in order to decrease their risk of contracting the virus. The adaptability of indigenous therapy to simple and only partially comprehended educational interventions in this case is striking. In other instances, considerable effort has been exerted by public health officials to actively change self treatment practices. For example, ineffective folk remedies for diarrhea persist despite efforts to engage native healers in the promotion of oral rehydration therapy, and the incorporation of indigenous disease paradigms and myths to make its use more appealing. Unless change is dictated by economic necessity or occurs as part of a more global cultural change, self treatment practices appear to be fairly resistant to external influences. The difference in this situation may be that lay injections as a folk remedy are a fairly recent development, and its proponents are still using experimentation to determine its therapeutic utility. Because the practice is not yet deeply rooted in the culture, dogmatic adherence to a particular injection technique is not found. The other novel aspect of lay injection is that it involves the use of Western pharmaceuticals as folk remedies. In their experimentation, people model and learn from their experiences with allopathic physicians. Thus, the physician is not viewed as an outsider, but someone who has knowledge, although not exclusivity of knowledge, about the use of these medicines. Although it is recognized that other people by virtue of their past experiences may be qualified to give injections, the physician is also seen as an expert in dispensing this type of medicine.

Public health officials who might wish to extinguish the practice of lay injection entirely will find that educational interventions are probably inadequate. Unless the basic motivations for using lay injections are addressed, it will remain an attractive treatment option. Systems of health care that continue to assert the superiority of biomedicine over indigenous therapy while at the same time effectively limiting access to biomedical health care place the consumer in a double bind. For migrant farmworkers in North Carolina, significant barriers to care still exist despite the presence of federally funded migrant health centers. Efforts to address certain problems by providing Spanish language interpreters, sliding scale fees, and transportation services have had some success. Other, less tangible barriers remain, for example, inconvenient hours, long waiting times, and dissatisfaction with physicians' practice styles in this country. Lay injection will continue to thrive in this context as the most facile connection to Western medicine until these structural issues are satisfactorily addressed. Until that time the use of Western pharmaceuticals as folk medicines must be understood and respected in the context of a legitimate, but competing medical model.

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