

10 Injections: Issues and Methods for Anthropological Research

Susan Reynolds Whyte¹ and
Sjaak van der Geest²

¹*Institute of Anthropology, University of Copenhagen,
Copenhagen, Denmark*

²*Medical Anthropology Unit, Anthropological-Sociological
Center, University of Amsterdam, Amsterdam, the Netherlands*

THE POPULARITY of injections in developing countries has caused amazement and concern. Reports from Asia, Africa, and Latin America attest to the widespread administration of injections (Reeler 1990:1120). Figures show overuse of injection in all types of therapeutic setting, from biomedical facilities to the practices of informal providers. In a case study of rural health centers in Java it is reported that 80 to 90 percent of consultations end in an injection (Sciortino 1992:156-63). Senah (this volume) mentions the same frequency for an informal drug dispenser in Ghana. Arhin and Ofori-Adjei (this volume) found that 85 percent of malaria cases in Ghanaian health centers were treated by injection.

Many western medical people express concern, declaring that most injections are inappropriate because they are not justified medically and because they are administered in unhygienic ways. Injections expose people to health risks such as hepatitis B, poliomyelitis, and HIV (Bygbjerg 1978; Guyer et al. 1979, 1980; Mann et al. 1986; Melrose 1982:110-2; Soeters and Aus 1989; Wyatt 1984, 1986).¹

Health planners and health **economists** direct attention to another problem: the costs of widespread use of injections cannot be born by local health care budgets and drain other—often essential—resources from both the medical service and patients and their families (cf. Guyer et al. 1979; Melrose 1982). In view of this, health planners emphasize the **economic**

rationale for a drastic reduction of injections in health care (cf. Barker et al. 1980; Hogerzeil et al. 1989; Waddington and Enyimayew 1989).²

Medical anthropologists are interested in injections mainly because their worldwide popularity constitutes a spectacular example of the acceptance of western medical technology in non-western contexts. As a technique, injection appears to have been unknown outside the western world. The enormous popularity which injections now enjoy is indeed amazing, if we take into account their recent appearance in developing countries. But the near absence of anthropological attention to injections is no less surprising. With the exception of a recent volume edited by Bloem and Wolffers (1993), information on the cultural practice of injection is fragmentary and impressionistic. What we need in theoretical reflection on injection as a cultural phenomenon, systematic field research on the issue, and guidelines directing how anthropological insights on injections can be applied in a policy to improve the quality of health care.

Biomedicine, and pharmaceuticals in particular, provide prime examples of the double processes of globalization and localization that characterize today's world. Colonialism, imperialism, and intensifications of trade and communication have facilitated the dissemination of ideas and things across all kinds of boundaries. Indeed, we scarcely know how to analyze a culture anymore, since the permeability of cultural borders is so extensive. At the same time, the notion of culture helps us to conceptualize the other side of global dynamics: the distinctive way in which global phenomena are appropriated in different local settings. Injections are now available all over the world, but the ways in which they are provided and perceived are locally patterned. It is impossible to analyze this kind of phenomenon without attending to both processes. To look at globalization alone is to ignore the everyday life of those who provide and use injections. To focus narrowly on local contexts is to ignore the larger context in which people also live and to exclude the forces which interact creatively with local ideas and initiatives. Injections are salutary objects of study because they require us to move analytically on many levels and across boundaries.

Several approaches in anthropology suggest direction. Appadurai (1986) and his collaborators have mapped out a fields call the "the social life of things;" they draw attention to the way objects, from carpets to *qat* to relics, move through different contexts in which significance is variously constructed. They may be commoditized or they may be attributed other types of value. This is one analytical solution to the problem of permeable cultural boundaries: focus on the objects and follow the ways in which they

are made socially and culturally meaningful. This is useful for injections as things, but perhaps leaves us unable to grasp what is systematic in both the macro and micro contexts.

The notion of cultural reinterpretation— advanced by Herskovitz and resurrected to good effect by Bledsoe and Goubaud (1988)— posits a local system, a pattern of symbols, meanings, and practices which conditions the appropriation of new things. This kind of approach shows how imported pharmaceuticals are classified as hot or cold in Latin America (Logan 1973) or why South Indians are concerned to adjust their diet while taking medicines (Nichter 1985). A conceivable weakness of this approach is that whereas local culture is understood to affect the significance and practice of pharmaceutical therapy, the potential influence of pharmaceuticals on local culture is overlooked.

Hannerz (1987;1989) has proposed the concept of creolization to emphasize the ways in which new cultures emerge out of the meeting between metropolitan and peripheral ones. This is not just cultural imperialism, which implies passive receptivity. Members of the peripheral culture actively create new meanings, practices, and styles which contrast not to “high” culture but to the “bush” ways of the unexposed (Hannerz 1992:228-231). Injection doctors may be called “bush” doctors by expatriates, but for local people they are providing the modern medicine of a creolized popular culture in contrast to “traditional” medicine.

In this paper we suggest a research program that deals with injections as both commodities and signs, as both global and local phenomena, very much like the perspective advanced by Nichter and Vuckovic (this volume) for pharmaceuticals in general. We discuss three general questions: How are injections supplied? How are they used? What do they mean? For each question we raise analytical issues and outline appropriate research methods. We conclude with a summary of the policy implications of anthropological research on injection use.

SUPPLYING INJECTIONS

The Macro Context in Which Injections are Provided

In a general sense, injections in a local setting must be understood within a broader context (cf. Wallerstein 1979). A global market, a particular health care history, and certain national policies are the background for the availability of injections in any given community.

The global political economy of injections deserves the same kind of attention already given to the encroachment of pharmaceuticals more generally (Melrose 1982; Muller 1982; Gereffi 1983; Ferguson 1981). Who profits from the overuse of injectables in developing countries? What kinds of marketing strategies do various firms have regarding particular countries? It would be particularly useful to examine sales of injectable vitamins, hormone preparations, and sedatives which are popular in countries as widespread as Yemen (Melrose 198:111), Thailand (Reeler 1993), Uganda (Birungi, this volume), and Brazil (Melrose 1982:34).

A second macro issue is the policy adopted by various countries regarding injections and injectables. Are there regulations about what may be imported and by whom? Are there restrictions on how injection equipment and medicine may be supplied? If a state health system exists, has it articulated a policy about giving injections? One of the problems in many developing countries is that different programs are not coordinated. The issue of whether to use disposable or reusable equipment is a case in point. In Uganda, for example, there is no common national policy on disposables. The Essential Drug Management Programme supplies only reusables; and since 1988, when UNICEF adopted the same policy, the National Expanded Programme of Immunization has done the same. Since disposables are not discarded in Uganda, the decision was made to use equipment that could be properly sterilized many times. Moreover, reusing syringes and needles means that a program is not contributing so heavily to the exponential increase in the amount of injection equipment in the country. The important step taken by these two programs is counterbalanced by the fact that Uganda's Central Medical Stores accepts donations of disposables from abroad. The AIDS epidemic has prompted many donors to provide disposables; some facilities are giving syringes and needles to the patients, so that they can take them home and bring their own next time they need treatment. During a recent meningitis epidemic in Uganda, donors gave 500,000 disposable needles. These are some of the factors in the national context that help to explain why hypodermics are so easily available in the country and why so many families have their own (Birungi, this volume).

Such information can be derived in part from policy documents and interviews with ministry of health officials, program managers, and health facility administrators. However, the disjunction between policy and practice is a problem which should probably be tackled by other methods, including "investigative research" (Douglas 1976), a detective-like approach which assumes that much relevant information is being withheld. Interviewing many different informants and listening for contradictions may be

necessary. Nevertheless, researchers may also be surprised at the openness with which some of these issues are discussed. Program officers who are making sincere efforts to solve problems, health workers who are realistic about their situations, and consumers who are pleased with the way the informal sector helps people by providing services they need, may be very willing to explain "how the system really works" to researchers who are interested in understanding before condemning.

While some of these aspects of the national and international contexts of supply may seem obvious areas of research, the historical background of injection use attracts less attention. Yet the history of health care in a region may provide an excellent perspective for understanding the present situation. When did injections come into use on a broad scale, and for what diseases were they given? Research issues in this area have been discussed by Wyatt (1984), who suggested that it was not preventive immunizations that made injections so popular but rather the spectacular results of injection treatment of yaws and kala azar (see also Michel 1985). Although we do not necessarily agree with the view that efficacy alone explains popularity, we find the historical perspective on injections both necessary and much neglected. Factors in the increasing availability and use of injections may well be clarified through studies of the history of mass campaigns against particular diseases, and of injection use in government and private facilities. Even when it is not possible to do a proper historical study using primary sources, a short historical background based on secondary sources would help to put the current situation in perspective and to provide some basis for making comparisons among injection patterns in different countries.

LOCAL PROVIDERS OF INJECTIONS

The macro-context of health care provides the background for the study of injection providers in a given local setting. The research questions here include: What types of providers exist? What is their training? What is the basis of their legitimacy as health care providers? How do they obtain supplies? How and by how much are they compensated?

Since Cunningham's early article on "injection doctors" in Thailand (1970), researchers have been aware that a variety of providers can be identified, in addition to the expected ones in the formal sector. Injectionists who have no formal training and who travel to people's homes, perhaps compensated other than by currency, fall between "traditional" and "modern" health care. Studies conducted throughout South Asia record the

extent to which "traditional healers" offer injections: in one survey, for example, 87 percent of indigenous healers were found to own a syringe and needles (Bhatia et al. 1975 quoted in Wyatt 1984). These circumstances have raised issues of categorization and terminology: Taylor (1976) was careful to speak of "indigenous practitioners of medicine" rather than "practitioners of indigenous medicine" in the Punjab; Wolffers (1987) distinguished "modern traditional practitioners" from "traditional indigenous practitioners" in Sri Lanka; and Burghart (1988) described a practitioner in Bihar who justified his many penicillin injections by explaining that penicillin was really an ancient Ayurvedic medicine.

One way around this classification according to cultural provenance is to use analytical categories based on the types of social relations in the total health care system. Whyte (1992) has illustrated how Kleinman's concepts of the professional, folk, and popular sectors can be used to examine transformations in the social relations of healing in Uganda. Applied to injectionists, this approach focuses attention on the interrelations and transitions among the sectors. Professional health workers who earn extra money by giving injections in their homes may operate more like folk healers in that context. They are an important source, not only of injectables and syringes, but also of information on how to give injections. Within the folk sector, a whole range of specialists may be identified, from trained paramedics who administer injections, to self-taught entrepreneurs ("needlemen"), to vendors of various kinds who provide materials for injection. Relations with both professional and folk injectionists may encourage home injections, which have become increasingly common as supplies are made freely available and controls are lax.

Any account of injection providers must place them within the macro context of the political ecology of health care. The articulation between formal and informal health care systems is a particularly important research issue in studying the providers of injections. As Van der Geest (1988:141-2) has shown, the very infrastructure may necessitate an informal system of health care. Where distances to health facilities are great, transport difficult, and waiting times long, many patients would not get pharmaceutical treatment at all if there were no informal (often illegal) distribution system. Pharmacies are few, buying power is weak, and the medicine vendor in fact provides a service by bringing products to the people and selling them in small quantities (e.g., by the tablet or capsule). The commercial interests of the pharmacies and pharmaceutical firms are also served because the vendor is retailing for them.

In many developing countries, health workers in the formal sector—which is largely a public, state system—are very poorly paid. In this situation there is a strong tendency toward privatization of both personnel and medicines. While retaining their official jobs, many health workers, both trained and untrained, practice privately on the side, diverting a certain amount of medicine as well. Medicine may be channeled off to be distributed directly or to be sold and re-sold until it finally reaches a patient.³ Given the weakness of the state in many developing countries, the impossibility of enforcing controls, the demoralization of underpaid health workers, and the eager demand for injectables, it is almost impossible to separate the formal from the informal system, except analytically.

A social analysis of provider roles must examine the type of legitimacy which various injectionists have. While trained medical and para-medical personnel are certified by state controlled agencies, folk practitioners are sanctioned by their communities. They are valued for their access to a resource and their ability to provide that resource to others in the local society. Their roles as experts are recognized in the compensation given for their services. What is unclear is the extent to which they are valued for the injections they provide or for the knowledge and skill they have accumulated in how and when to give them. Appreciation of knowledge and experience, and the extent to which that legitimizes their roles, probably varies among individuals, social groups, and communities. Home injections are part of the popular sector where care is provided on the basis not of expertise but of concern and obligation. Melrose's description (1982: 112) of a Yemeni woman who injects her cousin with procaine penicillin and streptomycin for a cut thumb which had already been carefully cleaned with gentian violet is not an example of just an unnecessary injection, but also of a typical attempt to insure "the very best" treatment for members of the family.

Analysis of the economic aspects of injections regarding both supply and charges should be closely related to the kinds of provider roles and the differing relations with patients which they entail. The issue of supply may seem most straightforward for regular health facilities such as hospitals and health centers. But even in countries where essential drugs programs regularly provide medicines to state and private institutions, there tend to be shortages of injectables because of poor management, misappropriation, or pressure from patients to give injections. Thus, patients may be referred to vendors to buy injectables even though they are supposed to be available free. Supply to the folk and popular sectors is often very complex, in part

because so much of it is illegal in formal terms. Studies should at least try to establish the immediate supply source for various providers. Often this will be a drug shop of some kind, such as the one studied by Kloos et al. (1988:98) in Addis Ababa, where a local *hakim* came to purchase fifty vials of injectable penicillin. Further links in the supply chain may be more difficult to establish, and entail an understanding of national and international contexts. Injectables may be smuggled in, as seems to be the case from Nigeria to Cameroon (Van der Geest 1988). They may be imported by businessmen, with or without licenses to do so. They may be stolen from health programs or treatment facilities and then sold to providers. These supply chains and prices are important for understanding the profitability of injection giving.

Economic relations between providers and patients may be important for understanding patterns of injection giving. A salaried health worker may be less inclined to meet patients' demands for injections than one who is paid for services by the customer. The profit motive may encourage providers to choose injections for two reasons, as Kleinman (1980:287) found among western-style doctors in Taiwan: the provider can charge more for injections, and it pleases the customers so they are more likely to come again and to refer others for treatment. Cost can also be a motive for home injections; where injectables are readily available, people find it cheaper to buy them and have a family member or friend inject them. This seems to be more and more common in Uganda where some informal providers complain that they are losing business because injections are becoming a home remedy (Whyte 1991).

Research on injection providers will require a preliminary survey or exploratory discussions to identify the different types of providers in a given setting. In-depth interviews of providers should cover questions about their training, how they got started, the nature and extent of their practice, problems of supply, and economic aspects. The researcher should spend time with the practitioner and sit in on consultations in order to observe the interaction with patients. For home injections, questions should focus on who usually gives them within the family or neighborhood and how that person learned. In formal health facilities, it is important to establish who actually gives the injections; it may be the untrained personnel who do so, while the trained para-medicals attend to examination and diagnosis. In such a case, it is important to find out how the untrained staff actually learn.

PRACTICING INJECTION

Patterns of Injection Use

Studies of injections should establish the extent to which injections are used: What is the incidence of injections? To whom are they given? By whom? For what complaints? What is injected? Very few studies have systematically answered these simple questions for developing countries.

Population based surveys might take the form of questions about the treatment of all members of the household during a given period. This registers all kinds of injections, including those given at home, and only this type of study can show the relative importance of various sources of injections. It will also provide basic information regarding whether there are significant differences in injection use along such axes as age, gender, level of formal education, income, residence (urban/rural), and distance from health facility. While family members can report what complaint was treated, it may not be possible to determine the provider's diagnosis. Nor will all respondents know what was injected. One such population based study in Uganda revealed that 75 percent of children received an injection for the last illness (Birungi, this volume).

A problem with measuring treatment of the "last" illness is that symptoms treated by injection may be remembered more clearly, reflecting that the concreteness of injection definitively marks an experience as illness. A better method for establishing frequency would measure the number of injections received in a specified period, e.g., the last two weeks, as is planned for the comparative injection study being carried out by WHO/DAP. Ideally, an interviewer would visit the home again after two weeks to ask what injections were given in the interval.

The other type of survey is focused on providers. It registers numbers of patients at a given "outlet" and records selected information such as patient's age, gender, complaint, diagnosis, and treatment received. There are more studies of this type; they are easier to conduct and may even be based on existing records. We mentioned two examples in the introduction to this paper; another is Greenhalgh's study (1987) in India which found that one third of patients treated by private general practitioners received injections. Sciortino's (1992) observations of nurse-patient interactions in several rural health centers in Java revealed that nurses preferred to give injections and legitimized this stressing that patients wanted injections, which was not always the case.

Provider studies may show the types and rates of injections given to specific categories of patients. For example, Minde and Kalyesubula (1985) found that 65 percent of all children were given penicillin injections, and 50 percent were given chloroquine injections in an outpatient facility in suburban Kampala. Or they may ask whether injections of antibiotics are being given in adequate doses. A study of government health facilities in Uganda showed that injectable procaine penicillin was consumed in only 63 percent of the recommended dose, suggesting that many patients receive diluted injections and/or only a single injection (UEDMP 1989:25)

This type of provider study may be most useful when designed to illuminate differences in injection practices. It would be important to compare the injection rate at public facilities where treatment is free with private fee-for-service facilities run by trained health workers. One must exercise care in such comparisons to discern whether, for example, providers treat the same kind of cases and have the same medicines.

The most serious problem with provider studies is the bias towards more institution-based care-givers, including specialists. Injectionists who move about their neighborhoods or who have an institutional job and receive patients at home in their off-hours could be easily overlooked. Cunningham (1970) and Senah (this volume) have demonstrated that study of informal injectionists is indeed revealing.

Hygiene, Ceremony and Perception of Risk

Biomedical perceptions of hygiene and the risk associated with injections are evidently not shared by most people in developing countries. One kind of research on injection practices might determine the extent to which different types of practitioners fall short of standards. For example, there is ample evidence that private practitioners (e.g., Wyatt 1984) and those who work in formal health facilities (e.g., Melrose 1982:11) use the same needle which was used for many patients.

We suggest that research extend beyond this, to document the kinds of preparation protocols that different practitioners observe and to relate that to risk perceptions on injectionists and patients. It is especially important to note differences in risk perceptions and how they change. Following Douglas and Wildavsky (1983) we assume that perception of risk is socially and culturally negotiated, and we are interested to know what risks, if any, people associate with injection and this knowledge is constrained by the situations in which people act.

Preliminary research in rural eastern Uganda suggests that people are concerned with the risk of being cheated by the injectionist, through fraudulent or diluted preparations. Some people are conscious of the risk of abscess or of being infected by a disease through injection. The AIDS education program has contributed to this view of risk, though it seems that more educated people are more likely to perceive HIV infection as a risk. The reaction to this perception of risk is often to try to avoid an injection from a source over which one has a little control, such as public health facilities, leading to more injections in the folk and popular sectors. For example, one man who ran a private clinic reported that he kept water boiling in a saucepan on a charcoal burner, because his customers asked to see that he "cooked" his needles. Another woman related that her best friend, a nurse, had taught her how to inject her children so that she did not have to take them to their nearby hospital "where the needles are used people with many different diseases." People who can afford it bring their own needles and syringes to the hospital, and apparently some facilities were giving disposable needles to patients, as their personal needles which they would reuse and "cook" themselves. Thus, risks are weighed by actors, and while many health planners point to the dangers of home injections, people perceived a greater risk in biomedical facilities. The risks of allergic reaction, of injecting in the wrong way, of giving an inappropriate medicine, or of not injecting a proper dose did not seem to concern people much.

Anyone who has worked in a western hospital is aware of the ceremonial nature of hygienic procedure. There are rules of spatial separation and of the proper temporal order in which actions are carried out. There is social pressure to conform to these rules justified by a "knowledge" of how infection is transmitted—a knowledge that people agree to accept as true although most have no personal experience to confirm or disconfirm it. In other cultural settings knowledge is constructed differently. Given limitations on energy for sterilization, and shortages of equipment, personnel, and time, even biomedically trained health workers may revise the knowledge they received about hygienic procedures. Research in this area should concentrate not only on what people do not do, but also on what they do, what constraints and priorities they see as important in relation to the ceremonies of injecting, and what social pressures are exerted in this respect.

Observation of injection situations is necessary but not sufficient for this kind of understanding. One also has to talk to people in a way that allows them to freely explain what problems, risks, and pressures they perceive. We do not mean to suggest that no attempt should be made to change practices; on the contrary, the best way to do this is to make a careful

study of the variation in practices and perceptions that actually exist in a setting in order to know what is realistic to promote and how change might best be accomplished.

UNDERSTANDING INJECTIONS

Meanings and Merits of Injections

Injection is valued as a kind of therapy, and thus can be analyzed in the same way one judges other medicines. To speak only of efficacy does not satisfy the anthropologist, however, many medicines are not effective in biomedical terms; and others, which are expected not to be efficacious, are. People do not believe in medicines simply because they work; they work because people believe in them. Medical and pharmacological research has shown that placebos may be as effective as "real" medicines. Moerman (1983) noted that, depending on the type of complaint and the setting, the efficacy of placebos varies from 10 to 90 percent. Apparently the working of a medicine depends not only on its chemical contents but is also influenced by what people expect from the medicine. This leads us back to the initial question: What in medicines make them so attractive for medical use? What constitutes the charm of medicines?

We have argued that the most important quality that gives medicines their healing power is concreteness, being tangible substances (Van de Geest & Whyte 1989). Their concreteness is contagious; what is touched by them becomes concrete as well. Illness tends to an inchoate sensation. The body feels like a whole and that holistic experience poses a problem when we are "not feeling well." The wholeness of the feeling makes it indefinite and ungraspable. The art of healing, therefore, is the art of making concrete, providing a tangible starting point for action. Medicines are particularly effective in bringing about that experience of concreteness. By being applied to some part of the body, the medicine conjures up the idea that the problem is *something, somewhere*. It produces confidence that we are doing something against that something.

But the concreteness of medicines is beneficial not only because it produces that optimistic state of mind; it also provides an excellent means of communication. One of the most painful and frustrating aspects of being sick is the loneliness of that experience. If the feeling cannot be transmitted to others, it will, by that blockage, become more intense. In a sense, the medicine makes the pain visible to others. It conducts the message "I am sick" and makes the problem discussable. In the conversation between

doctor and patient medicines sometimes replace the difficult words that cannot be said. So, even when there is no discussion at all, medicines manage to create the illusion that both parties understand each other, as Sachs (1989) noticed when she observed the interaction between doctor and patient in Sri Lanka. Doctors make grateful use of that special power of medicines. They know their clients want medicines and are thus able to circumvent laborious negotiations by simply writing the prescription, even if, on medical grounds, another therapy would be preferable (cf. Comaroff 1976). Indeed, providing medicines carries a double message, not only "I cure you" but also "I care for you." The concreteness of medicines facilitates positive mutual feelings between patients and healers. It helps them to believe that they mean something for one another.⁴

This view of medicines may be applied directly to injections, and at a general level suggests how we can understand their popularity. Injections are medicinal substances *par excellence*. If medicines are tangible representations of healing, then injections are a particularly "marked" form of medicine. They sum up biomedical therapy to such an extent that many people equate getting an injection with getting real biomedical treatment (cf. Birungi, this volume).

The concreteness of this kind of medicine is marked in various ways, which help to explain its special status as a metaphor for healing. Framing is one way of delineating and emphasizing a substance. As powerful amulets may be sewn in leather, so also the packaging of pharmaceuticals marks them as potent matter. This point was made by a Mende informant who explained that the medicine in capsules "must be powerful because the manufacturers took the trouble to seal it tightly in plastic" (Bledsoe & Goubaud 1988:264). Injectable medicine is framed and re-framed: first in small, sealed vial and then in the syringe with its needle.

Injections are ceremonially marked more clearly than other types of pharmaceutical treatment. The preparation of the equipment, the insertion of the needle in to the vial (sometimes the extra step of diluting powder in the vial with water drawn up from another sealed bottle), pulling the medicine up into the syringe, marking the point of insertion into the skin, and observing the substance being driven into the body: all of these formalized acts underline the taking of medicine more strongly than the simple movement of swallowing a pill.⁵

Another way in which injections mark substances is by pain. Anthropologists have noted that the infliction of physical pain in some cultures is

“pedagogic” in that it stamps forcefully in the victim’s experience that which must be noted and remembered. In the same way, the pain of an injection makes the patient know intensely that treatment has been given; they “feel the “difference” as a Yemeni doctor explained (Melrose 1982:111)

While all medicines, by virtue of their concreteness, substantiate the notion of healing when applied to the body, injections do this particularly effectively. The needle drives the substance directly into the suffering body; the medicine goes deep and immediately into the flesh and blood of the unwell person. It bypasses the orifices and channels which connect the inside of the body to the outside and serve other purposes; in particular, it shortcuts the digestive system which is otherwise the most important route for passing tokens of healing into the body.

Compared to other types of pharmaceutical treatment, injections are “high tech.” For rural people in developing countries, they are clearly a product of another technical world. This is more true of the equipment than of the substances themselves of course. People can dilute cassava powder to look like penicillin, but they cannot themselves manufacture a syringe, needle and vial (just as they cannot make plastic capsules although they can “recycle” empties by filling them with homemade ingredients). Not only are injections complex in that they cannot be locally made; they also consist of several parts, all of which must be on hand and in order. The syringe, the needle, the injectable medicine and a person to inject it: this is not just part for whole, but parts for whole. The very complexity is homologous with the forms of biomedicine and makes the representation convincing and powerful.

Studying Local Knowledge about Injections

A first task must be to establish the semantic categories relevant to injections. Are there different words for vaccinations and injections and intravenous drips? How do people classify injections: according to the way they are given? according to the purpose for which they are given? according to the medicine injected? What types of injection equipment do they distinguish: types of syringes? needle sizes? disposables vs. reusables? Providers will certainly have a more complex set of distinctions than most lay people, but among providers too there will be variation.

One way of interviewing people about such matters is to talk to them in the presence of the objects themselves. Providers may be asked to show the researcher their equipment and injectable medicines and explain the types they have. Or the researcher may show a collection of needles, syrin-

ges, and vials, asking respondents about them. For what complaints would they be used?

The contrastive method is useful for getting people to talk about the characteristics of injections in relation to other types of medicine. When a pharmaceutical product comes in both injectable and oral versions, on what basis do providers choose? One can ask respondents to describe the best and the alternative treatments for certain symptoms, and then get them to explain why they arranged priorities as they did. It may be the case that ideas of body processes are relevant for understanding the differential working of medicines. For instance, an informant once explained to one of us that medicine taken by mouth passes through the body and out, just as food does. But injected medicine goes deep into the body and remains.

The kinds of societies in which injections are being localized today are complex in that they are part of national and global systems. In outlining research issues we have emphasized the importance of examining the macro context, identifying different kinds of provider roles, and studying contrasts in user patterns. The social differences between categories and individuals are important for studying the meaning of injections. As Barth has reminded us in a recent discussion of the conceptualization of culture in complex societies, actors are always positioned and meaning is not inherent in a symbol or cultural expression: "...we need always to link a bit of culture and an actor with her/his particular constellation of experience, knowledge and orientations" (Barth 1989:134). Culture is not something that all members of a society share fully and equally. It is "distributive": particular knowledge, meanings, and values are shared more fully by some than by others.

This view has implications not only for how we study injections in specific settings, but also for the relation between our research and the formation and implementation of policy. We assume that what people know about injections, their meaning, is distributive in Barth's sense. While some conceptions may be widely shared, others will be associated with certain positions and kinds of experience. This again implies a cultural dynamics in which people carry on dialogues with one another, seek opinions, and respect some more than others. A key research issue is to identify these processes; we cannot simply ask what injections mean, we must ask how meaning or knowledge is negotiated and changed (cf. Nichter and Vuckovic, this volume). In concrete terms, we must inquire about the pedagogics of institutionalized biomedicine. How do the perception, practice and value of

injections get conveyed to members of the community? Which actors are important as sources of information?

CONCLUSION: POLICY IMPLICATIONS

Paraphrasing Lévi-Strauss in an ironic way, Rhodes (1986) has remarked that anthropological research is "good to think" (i.e., not to "use") (cited in Richters 1991). Anthropologists are indeed often regarded as not being concerned about the solution of the problems they describe. Their main objective seems to be the intellectual pleasure derived from ethnographic work. Glasser (1988) has taken medical anthropologists to task for their ambivalent and noncommitted stand toward policy oriented research. He suspects some kind of taboo against getting involved in issues which are directly relevant for health policy. The tide is changing, however. Medical anthropologists are increasingly looking for ways to make their research useful, without however giving up their autonomy (see e.g. Foster 1982; Nichter 1989; Coreil and Mull 1990).⁷ Accordingly we want to close this paper with an outline of how anthropological research on injection practices may be fruitfully used for the improvement of health (see also WHO 1992).

The research issues presented above look rather complex, and one may wonder how they can be translated into questions that can be readily handled for the purpose of policy. We shall first list the most pressing questions concerning injections from a health planning point of view. Taking those as our departure we shall then point out which "minimal" questions need to be answered and how these can be deduced from the "thick description" which the anthropological approach produces. In other words, we hope to indicate which basic data within the elaborated body of ethnographic details is indispensable for taking decisions to improve injection practices. In doing so we draw upon a WHO report on injection research (WHO 1992).

Health policy makers are basically concerned about one thing: how to make the administration of injections safe and beneficial. This main objective breaks down in two: 1) how to reduce the number of unnecessary injections; 2) how to improve the quality of injections that are necessary. To achieve these goals policy makers at least need information about the following five issues: 1) how frequently are injections given, 2) for what complaints, 3) how are they administered, 4) who gives injections, and 5) how do people—providers and receivers—view injections.

1. Frequency of Injection Use

Research should at least provide some information on how often injections are given in particular settings, for example in a health care institution or in the home situation. The frequency needs to be expressed as a measure in comparison with other treatments over a set period of time. Preferably that measure should be related to the type of complaint for which the injection is used (see next issue).

2. Indications for Injection Use

The research should produce information— both qualitative and quantitative— about the health problems that make people resort to injections. Such information will enable policy makers to compare existing injection practices with the biomedical indicators for injection. It should be pointed out that providers as well as receivers may encourage injections for particular health complaints.

3. The Administration of Injections

Medical scientist are particularly concerned about the way injections are administered. Not only the indications for injection are likely to cause problems but also the hygienic conditions of injecting. That concern has further risen with the threat of HIV infection through unsterile injection needles. Unobtrusive observation of injection practices seems the most adequate research approach here, within as well as outside clinical settings. Here too qualitative descriptions need to be paired with quantitative measures for the observed practices.

4. Providers of Injections

Research should also identify the different types of injection providers. This issue is urgent because injections may also be performed outside the formal health institutions by self-styled popular healers, traditional practitioners, and nonmedical people practicing self medication. Health problems with the administration of injections may occur in both formal and informal settings.

5. People's Interpretations of Injections

Finally it is important to know what the people concerned think about injections. Where injections are popular we need to know on what this is based. How do people judge the efficacy of injections? How do they explain the efficacy? How do they compare it with the working of other

treatments? Where people are more cautious with regard to injections, one may ask on what their reservations are based. Particularly important is the question of how views about injections are blended with existing local concepts of health and medicine.

We think that all anthropological research, however rich, complex, and "thick", should also produce these "thin"— or, to use a more positive term, "focused"— data for the benefit of health policy. Without unduly simplifying the intricate complexity of the new injection culture, such data would help policy makers to take intelligent steps to improve the most urgent problems around injection practices. Knowing roughly how often injections are given, for what types of complaint and in what hygienic way, they can determine the nature and extent of injection problems in health care and what needs to be done about it. In addition "focused data" will point out which people need to be addressed and who attempts to ameliorate the situation can be tuned to the ideas of those most involved in injection practices.

Anthropologists could make research more practically oriented by taking part in teams doing participatory research whereby improved health care measures are designed, implemented, and evaluated. Such intervention research would guarantee a more effective application of the research data.

Equally important, finally, is that the data expose health planners to different perspectives on health and medicines which may make them adjust their biomedical presuppositions. Good community-based research is not simply a matter of findings ways to implement policies. It should propose strategies based on the interests and circumstances of local people. Interesting examples of this approach are found in two guidelines for medical self-help (Werner 1977; Engelkes and Dueñas n.d.). The authors take a realistic view of the health care situation in rural communities. Restricting the administration of injections to professionals, they conclude, would not be in the interest of these communities. Instead they provide lay-people with detailed instructions on how and when to inject. Sound anthropological research enables health planners to decide whether such a step would be reasonable in the wider context of health care.

ACKNOWLEDGEMENTS

We are grateful for the comments received from the participants at the International Conference on Social and Cultural Aspects of Pharmaceuticals where a first version of this article was presented. We also acknowledge the useful suggestions of two anonymous reviewers and Nina Etkin.

NOTES

1. The consequences of intravenous practices by drug dependents (see e.g. Inciardi 1990), another matter for medical concern, fall outside the scope of this article.

2. Curiously, the WHO (1977) did not include preference against injections as a criterion in its guidelines for the selection of "essential drugs."

3. Given the high value of injections, needles and syringes and injectable medicines may be the most subject to the forces described here. In Uganda, injectables disappear at a faster rate than other medicines supplied to health centers by the essential drugs program, but are available in drug shops near the health centers (Mburu 1985:90). Particularly the 22 gauge needles which can be used for adults and which fit on disposable syringes tend to disappear as do mixing needles and the sterile water for dilution of vaccine powders. When the disposable syringes and meningitis vaccines were delivered in Kamaula, one third of them simply disappeared.

4. In some cases, however, patients do not appreciate giving medicine as a sign of the doctor's concern. Quite rightly, they see the "act" as a device for cutting short the consultation and getting rid of the patient (cf. Comaroff 1976).

5. Wyatt (1984:912) cites a newspaper article by Victor Zorza to make the same point: "The elaborate procedure, the filling of the syringe, the introduction of the shiny needle in the body, even the sting, constitute a ritual they recognize."

6. The extent to which pain is associated with therapeutic power and efficacy may vary from culture to culture, and from person to person. Etkin (1988, 1992, this volume) points out that local people may see indications of

efficacy in what biomedicine defines as "side-effects" (e.g., vomiting, pain); in fact, these effects may be primary for those who are taking the substances.

7. Their "declaration of independence" affirms that "Anthropology should ... lead us to question, not to confirm, our presuppositions" (Crapanzano 1980:xiv). That applies to those giving and receiving injections, to health planners, and to anthropologists themselves.

REFERENCES

- Appadurai, A. (Ed.) 1986. *The Social Life of Things: Commodities in Cultural Perspective*. Cambridge: Cambridge University Press.
- Barker, C., C. Marzagao, and M. Segall. 1980. Economy in Drug Prescribing Mozambique. *Tropical Doctor* 10:42-45.
- Barth, F. 1989. The Analysis of Culture in Complex Societies. *Ethnos* 54(3-4):120-142.
- Bledsoe, C.H. and M.F. Goubaud. 1988. The Reinterpretation and Distribution of Western Pharmaceuticals: an Example from the Mende of Sierra Leone. In *The Context of Medicines in Developing Countries*. S. van der Geest and S.R. Whyte, Eds. pp. 253-276. Dordrecht: Kluwer.
- Bloem, M. and I. Wolfers. (Eds.) 1993. *The Impact of Injections on Daily Medical Practice*. Amsterdam: Free University Press.
- Burghart, R. 1988. Penicillin: an Ancient Ayurvedic Medicine. In *The Context of Medicines in Developing Countries*. S. van der Geest and S.R. Whyte, Eds. pp. 289-298. Dordrecht: Kluwer.
- Bygbjerg, I.C. 1978. Use of Drugs in Developing Countries. *Tropical Doctor* 8:174-176.
- Comaroff, J. 1976. A Bitter Pill to Swallow: Placebo Therapy in a General Practice. *Sociological Review* 24(1):79-96.
- Coreil, J. and J.D. Mull. (Eds.) 1990. *Anthropology and Primary Health Care*. Boulder, Colorado: Westview Press.

- Crapanzano, V. 1980. *Tuhami, Portrait of a Moroccan*. Chicago: University of Chicago Press.
- Cunningham, C.E. 1970. Thai "Injection Doctors." *Social Science and Medicine* 4(1):1-24.
- Douglas, J.D. 1976. *Investigative Social Research: Individual and Team Field Research*. Beverly Hills, California: Sage Publications.
- Douglas, M. and A. Wildavsky. 1983. *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*. Berkeley: University of California Press.
- Engelkes, E. and P. Dueñas. n.d. *Manuel de Cuidado Primario*. Quibdo, Colombia: Convenio Colombo-Holandes.
- Etkin, N. 1988. Cultural Constructions of Efficacy. In *The Context of Medicines in Developing Countries*. S. van der Geest and S.R. Whyte, Eds. pp. 299-326. Dordrecht: Kluwer.
- Etkin, N. 1992. "Side effects": Cultural Constructions and Reinterpretations of Western Pharmaceuticals, *Medical Anthropology Quarterly* 6(2): 99-114.
- Ferguson, A. 1981. Commercial Pharmaceutical Medicine and Medicalization : a Case Study from El Salvador. *Culture, Medicine and Psychiatry* 5:105-134.
- Foster, G.M. 1982. Applied Anthropology and International Health : Retrospect and Prospect. *Human Organization* 41(3)189-197.
- Gereffi, G. 1983. *The Pharmaceutical Industry and Dependency in the Third World*. Princeton: Princeton University Press.
- Glasser, M. 1988. Accountability of Anthropologists, Indigenous Healers and their Governments : a Plea for Reasonable Medicine. *Social Science and Medicine* 27(12):1461-1464.
- Greenhalgh, T. 1987. Drug Prescription and Self-Medication in India. *Social Science and Medicine* 25:307-318.
- Guyer, B. and D. Candy. 1979. Injectable Antimalarial Therapy in Tropical Africa: Iatrogenic Disease and Wasted Medical Resources. *Transactions of the Royal Society for Tropical Medicine and Hygiene* 73:230-232.

- Guyer, B., A.A.E. Bisong, J. Could, M. Brigaud, and M. Aymard. 1980. Injections and Paralytic Poliomyelitis in Tropical Africa. *Bulletin WHO* 58:285-291.
- Hannerz, U. 1987. The World in Creolisation. *Africa* 57:546-559.
- Hannerz, U. 1989. Culture Between Center and Periphery: Toward a Macroanthropology. *Ethnos* 54(3-4):200-216.
- Hannerz, U. 1992. *Cultural Complexity: Studies in the Social Organization of Meaning*. New York: Columbia University Press.
- Hogerzeil, H.V., G.J.A. Walker, A.O. Sallami, and G. Fernando. 1989. Impact of an Essential Drugs Programme on Availability and Rational Use of Drugs. *The Lancet* i:141-2.
- Inciardi, J.A. (Ed.) 1990. *AIDS and Intravenous Drug Use*. London: Sage.
- Kleinman, A. 1980. *Patients and Healers in the Context of Culture*. Berkeley: University of California Press.
- Kloos, H., B. Getahun, A. Teferi, K. Gebre Tsadik, and S. Belay. 1988. Buying Drugs in Addis Ababa: A Quantitative Analysis. In *The Context of Medicines in Developing Countries*. S. van der Geest and S.R. Whyte, Eds. pp.81-106. Dordrecht: Kluwer.
- Logan, M. 1973. Humoral Medicine in Guatemala and Peasant Acceptance of Modern Medicine. *Human Organization*. 32(4):385-395.
- Mann, J.M., H. Francis, F. Davachi, P. Baudoux, T.C. Quinn, N. Nzilambi, N. Bosenge, R.L. Colebunders, P. Piot, N. Kabote, P. Kaza Asila, M. Malonga, and J.W. Curran. 1986. Risk Factors for Human Immunodeficiency Virus Seropositivity among Children 1-2 Months Old in Kinshasa, Zaire. *The Lancet* ii(8508):654-656.
- Mburu, F. 1985. Evaluation of Government of Rural Health Centres and UNICEF Essential Drug Inputs. In *Crisis in Uganda: the Breakdown of Health Services*. C.P. Dodge and P.D. Wiebe, Eds. pp. 87-96. Oxford: Pergamon Press.
- Melrose, D. 1982. *Bitter Pills: Medicines and the Third World Poor*. Oxford: OXFAM.

- Michel, J.M. 1985. Why do People Like Medicines? A Perspective from Africa. *The Lancet* i:210-211.
- Minde, K. and I. Kalyesubula. 1985. The Delivery of Primary Health Care in Uganda Today: Some Problems and Opportunities. In *Crisis in Uganda: the Breakdown of Health Services*. C.P. Dodge and P.D. Wiebe, Eds. pp. 239-246. Oxford: Pergamon Press.
- Moerman, D.E. 1983. General Medical Effectiveness and Human Biology: Placebo Effects in the Treatment of Ulcer Disease. *Medical Anthropology Quarterly* 14(4):3,13-16.
- Muller, M. 1982. *The Health Of Nations: a North-South Investigation*. London: Faber and Faber.
- Nichter, M. 1985. The Layperson's Perception of Medicine as Perspective into the Utilization of Multiple Therapy Systems in the Indian Context. *Social Science and Medicine* 14B:225-233.
- Nichter, M. 1989. *Anthropology and International Health: South Asian Case Studies*. Dordrecht: Kluwer.
- Reeler, A.V. 1990. Injections: A Fatal Attraction? *Social Science and Medicine* 31(10):1119-1125.
- Reeler, A.V. 1993. From Herbs to Injections: A Health-Care System in Transition. In *The Impact of Injections on Daily Medical Practice*. M. Bloem and I. Wolffers, Eds. pp. 57-75. Amsterdam: Free University Press.
- Richters, J.M. 1991. *De Medische Antropolog als Verteller en Vertaler*. PhD. Dissertation Free University of Amsterdam. Delft: Eburon.
- Sachs, L. 1989. Misunderstanding as Therapy: Doctors, Patients and Medicines in a Rural Clinic in Sri Lanka. *Culture, Medicine and Psychiatry* 8(1): 49-70.
- Sciortino, R. 1992. *Care-takers of Cure: A Study of Health Centre Nurses in Rural Central Java*. PhD. Dissertation: Free University of Amsterdam.
- Soeters, R. and C. Aus. 1989. Hazards of Injectable Therapy. *Tropical Doctor* 19:124-126.

- Taylor, C. 1976. The Place of Indigenous Medical Practitioners in the Modernization of Health Services. In *Asian Medical Systems: A Comparative Study*. C. Leslie, Ed. pp. 285-299. Berkeley: University of California Press.
- UEDMP (Uganda Essential Drugs Management Programme). 1989. *Findings 1986-89*. Entebbe: Danish Red Cross.
- van der Geest, S. 1988. The Articulation of Formal and Informal Medicine in Distribution in South Cameroon. In *The Context of Medicines in Developing Countries*. S. van der Geest and S.R. Whyte, Eds. pp. 131-148. Dordrecht: Kluwer.
- van der Geest, S. and S.R. Whyte. 1989. The Charm of Medicines: Metaphors and Metonyms. *Medical Anthropology Quarterly* 3(4):345-367.
- Waddington, C.J. and K.A. Enyimayew. 1989. A Price to Pay: the Impact of user Charges in Ashanti-Akim District Ghana. *International Journal of Health Planning and Management* 4:17-47.
- Wallerstein, I.M. 1979. *The Capitalist World-Economy: Essays by I. Wallerstein*. Cambridge: Cambridge University Press.
- Werner, D. 1977. *Where There Is No Doctor: A Village Health Care Handbook*. Palo Alto: The Hesperian Foundation.
- WHO. 1977. *The Selection of Essential Drugs*. Technical Report Series. Geneva: WHO.
- WHO. 1992. *Injection Practices Research*. Report of Two Informal Workshops on Injection Practices Research. Geneva: WHO/DAP/ 92.9.
- Whyte, S.R. 1991. Medicine and Self-Help: the Privatization of Health Care in Eastern Uganda. In *Changing Uganda: Dilemmas of Structural Adjustment and Revolutionary Change*. H.B. Hansen and M. Twaddle, Eds. pp. 130-148. London: James Currey.
- Whyte, S.R. 1992. Pharmaceuticals as Folk Medicine: Transformations in the Social Relations of health Care in Uganda. *Culture, Medicine and Psychiatry* 16(2):163-186.

Wolffers, I. 1987. *Changing Traditions in Health Care in Sri Lanka*. PhD. Dissertation University of Leiden.

Wyatt, H.V. 1984. The Popularity of Injections in the Third World: Origins and Consequences for Poliomyelitis. *Social Science and Medicine* 19(9):911-915.

Wyatt, H.V. 1986. Editorial: Injections and AIDS. *Tropical Doctor* 16:97.