

# Rapid Assessment Survey of injection practices in Northern Areas of Pakistan

Lubna Samad ( Indus Hospital. )  
Abdul Latif ( Department of Pathology, District Headquarter Hospital Gilgit. )

November, 2006

## Abstract

**Background and Objective:** Unsafe injections have been associated with the transmission of blood-borne pathogens, including hepatitis viruses and HIV, in Pakistan and other countries. Determinants of poor injection practices include a lack of awareness of the risks of unsafe injections, the unavailability of adequate and continuous supplies of injection equipment and the assumption made by prescribers of the demand for injections by the general population. The objective of the rapid assessment was to provide tangible data on existing injection practices on the basis of a survey of prescribers, providers and the general population.

**Methods:** A rapid assessment was conducted in Gilgit town and Hunza, Punial and Ishkoman valleys of the Northern Areas of Pakistan during the month of October 2001 using an Urdu translation of the standardized World Health Organization tool to assess injection practices. A convenience sample of 13 prescribers, 14 providers and 26 members of the general population were interviewed.

**Results:** Fifteen percent (43/280) of all prescriptions reviewed included at least one injection. Nineteen percent (5/26) of the general population interviewed reported receiving an injection or IV infusion in the last 3 months. The average number of injections per person per year is estimated to be 2.3. Of the 14 providers interviewed, 8 (57%) reported that they did not always have sufficient quantities of injection equipment required (patient purchase of injections was advised and reuse was not reported); 12 (86%) did not have appropriate sharp disposal boxes; and 11 (79%) did not have appropriate sharp or waste disposal facilities. None among the general population interviewed reported hepatitis C or B viruses as being associated with injection reuse. Three (23%) prescribers did not report hepatitis C virus as transmissible by reused injections

**Conclusions:** Frequent prescription and administration of injections, lack of safe injection equipment, unavailability of waste disposal facilities and a lack of awareness regarding the transmissibility of hepatitis viruses are common among prescribers, providers and the general population in the Northern Areas of Pakistan.

## Introduction

Unsafe injections have been associated with the transmission of blood-borne pathogens, including hepatitis viruses and HIV, in Pakistan<sup>1-3</sup> and other developing countries.<sup>4</sup> These practices are also associated with a lack of awareness regarding the risks associated with unsafe injections<sup>5</sup>, the unavailability of adequate and continuous supplies of injection equipment and the assumption made by prescribers of the demand for injections by the general population.<sup>6,7</sup>

A rapid assessment of injection practices in the Northern Areas of Pakistan was undertaken following discussions between the authors of this report. The assessment was carried out in government and nongovernment health facilities in Gilgit, Hunza and the adjoining valleys.

The objective of the rapid assessment was to provide tangible data on existing injection practices on the basis of a survey of prescribers, providers and the general population. Similar rapid assessments carried

out in other countries<sup>8-12</sup> have provided excellent baseline data to direct future interventions and policies for improving injection practices.

## **Methods**

A rapid assessment was conducted in Gilgit town and Hunza, Punial and Ishkoman valleys of the Northern Areas of Pakistan (2000 population: 285,000). Urdu translations of the standardized World Health Organization tool were administered by a physician during the month of October 2001. Confidentiality was ensured and verbal consent obtained for all the questionnaires administered. A convenience sample of practitioners from government hospitals and private clinics who were assessed to have 'popular' practices in their areas was interviewed using the guide to interview prescribers. Prescribers interviewed were requested to make carbon copies of 30 consecutive prescriptions. A total of 280 prescriptions were collected.

A total of 14 providers were interviewed using the guide to interview and observe injection providers. The providers interviewed in Gilgit town either worked in private dispensaries/clinics or in the Gilgit District Headquarter hospital. In Hunza, Punial and Ishkoman valleys the providers interviewed worked either at government primary health care facilities or at nongovernmental organization primary care health facilities.

A total of 26 members of the general population were interviewed using the guide to interview the general population. These interviews were mostly conducted in the market place of the respective towns where a convenience sample of members of the public was approached to answer the questionnaire. An attempt was made to select people from both sexes and varying age-groups for these interviews. When young children were selected to be interviewed, the questions were administered to their mothers or the closest adult relative accompanying the child. If the adult relative was unaware of the details about the child's past injection history, the interview was discontinued.

## **Results**

### **Injection Use**

Fifteen percent (43/280) of all prescriptions sampled included at least one injection. There were four injections prescribed on average in each of these prescriptions (range 1 to 15). None of these were prescriptions for vaccines.

Ten (67%) of the fifteen members of the general population who recalled details of their last injection or infusion reported these being administered at a hospital or clinic (Table 1).

**Table 1. Distribution of injection providers and health care settings for the last injection or infusion received.**

<b>Injection provider</b>	
Medical officer	5 (33%)
Nurse	2 (13%)
Dispenser	4 (27%)
Lady Health Visitor	2 (13%)
Husband	1 (7%)
Don't remember	1 (7%)
<b>Health care setting</b>	
Clinic	4 (27%)
Hospital	6 (40%)
Dental office	0
Primary Health Care center	2 (13%)
Home	3 (20%)
Don't know	0

Medical officers and dispensers were reported to be the most common injection providers, followed by nurses and Lady Health Visitors.

Nineteen percent (5/26) of the general population interviewed reported receiving an injection or IV infusion in the last 3 months. There were 3 injections or infusions received on average by these persons (range 1 to 11). The average number of injections (based on this 3 month recall) for the 285,000 persons living in Gilgit and Ghizar districts is estimated to be 2.3 injections per person per year.

#### **Injection safety data**

Of the 14 providers interviewed, injection practices were observed at 13 sites. Providers used syringes from sealed plastic packets in all 13 observations. At 7 (54%) of these 13 sites, two-handed recapping was attempted following the administration of the injection. Syringes along with needles were discarded in open cardboard containers or left at the patient's bedside or surrounding environment at 12 (92%) of the 13 sites. One facility had appropriate arrangements for disposal and destruction of sharps and a needle cutter was used immediately after giving the injection at this site.

Five (36%) out of 14 injection providers had received one or more needle stick injuries in the past 12 months (range 1 to 12). Based on the injection providers' data, the annual incidence is 2 needle-stick

injuries per person per year among this group.

Of the 14 providers interviewed, 8 (57%) reported that they did not always have sufficient quantities of injection equipment required; 12 (86%) did not have appropriate sharp disposal boxes; and 11(79%) did not have appropriate sharp or waste disposal facilities. Two providers had received three doses of hepatitis B vaccinations while one had received two doses. The remaining 11 providers had not received any vaccination for hepatitis B.

Of the 15 members of the general population who recalled details of the last injection received, 10 (67%) mentioned that the needle and syringe came from a sealed packet. The remaining 5 (33%) did not know the source of the needle or syringe.

### **Determinants of injection practices**

All practitioners interviewed were of the opinion that their current injection prescribing practices are appropriate. The factor that dictated the use of injectable medications in most cases was the severity of the presenting symptoms, where quick relief is important for the patient. One practitioner said that better laboratory facilities would encourage doctors to prescribe medications in a more evidence-based manner than the current empirical treatment practices.

General practitioners most commonly prescribed injectable medications to outpatients for the treatment of pneumonia, acute severe pain - either musculoskeletal or abdominal pain that may be due to peptic ulcer disease, renal colic, in acute gastroenteritis to control emesis, for pyrexia, enteric fever, and occasionally for treatment of severe hypertension and sepsis.

The drugs most commonly prescribed in injectable form on an out patient basis were analgesics (diclofenac sodium, indomethacin, paracetamol, tramadol sulphate), antibiotics (penicillins, cephalosporins, ofloxacin, gentamycin), antispasmodics (hyoscine butyibromide), anti-emetics (metoclopramide), aminophylline and furosemide.

According to prescribers, approximately one-third (31 %) of their patients prefer injectable medications to oral drugs for the treatment of fever. On questioning the general population, 19% reported that they prefer injectable to oral medication for the treatment of fever.

None among the general population interviewed reported hepatitis B or C viruses as being associated with injection reuse (Table 2).

**Table 2. Proportion of prescribers, providers and general population reporting the possibility of injection associated HBV, HCV and HIV infection; Districts Gilgit & Ghizar, Northern Areas, Pakistan October, 2001.**

	Prescribers	Providers	General Population
HIV	13 (100%)	6 (43%)	3 (12%)
HCV	10 (77%)	1 (7%)	0
HBV	12 (92%)	5 (36%)	0
Abscess	NA	NA	0
Other diseases	0	11 (76%)	12 (46%)
Don't know	0	1 (7%)	13 (50%)

Three (33%) prescribers did not perceive hepatitis C virus as transmissible by reused injections.

## Discussion

Frequent prescription and administration of injections, lack of safe injection equipment, unavailability of waste disposal facilities and a lack of awareness regarding the transmissibility of hepatitis viruses are common among prescribers, providers and the general population in the Northern Areas of Pakistan. However, the rate of administration of injections is significantly lower than that reported in other parts of Pakistan.<sup>1,2,3,13</sup> An alarmingly high rate of 13.6 therapeutic injections per person per year has been documented in a study conducted in urban and rural areas of Sindh.<sup>13</sup> Fifteen percent of all outpatient prescriptions collected included at least one injection. Injections were prescribed either as one-off injectable analgesics, antispasmodics or anti-emetics or a complete 5-day course of injectable antibiotics administered on an outpatient basis. The proportion of general population that reported receiving an injection or IV infusion in the last 3 months was also high (19%). The average number of injections per capita per year was calculated to be 2 per person per year and since immunizations are done almost exclusively by government vaccinators, this estimate applies to therapeutic, non-insulin injections only. This estimate is higher than would reasonably be expected among similar populations in countries with well-developed health care systems and reflects the tendency of prescribers in the Northern Areas to overuse injectable drugs for disease conditions that can be managed just as well with oral alternatives. At the same time, this estimate of 2.3 injections per person per year is lower than the rates reported in Punjab and Sindh<sup>1,2,3,13</sup>, an indication that injection practices vary across Pakistan, and that behavioral change strategies need to be contextualized locally. More than half of all providers reported insufficient quantities of injection equipment, sharp disposal

boxes and inadequate waste disposal facilities. Proper facilities for sharps disposal are almost non-existent and in the one case where these did exist, it was evident that the training of the dispenser at a university hospital in Karachi and his continued commitment to safe injection practices were major positive determinants.

Lack of awareness regarding the transmissibility of blood-borne pathogens was common among providers and the general population. None among the general population reported all three of the most common pathogens (HBV, HCV and HIV) as transmissible agents and only 7% of the providers reported all three. The average number of needle-stick injuries among providers was estimated to be 2 per year but only 2 out of 14 providers had a full series of hepatitis B vaccination. This probably reflects both a lack of awareness and a general lack of resources to support vaccination for those who are at high risk of acquiring hepatitis B infection. Increasing awareness about the risks associated with injections has been shown to have a positive impact on health seeking behavior in other parts of Pakistan.<sup>14</sup> This awareness, in turn, can drive the change in practices among prescribers and providers. The shortage in injection equipment supplies (as reported by over half the providers) and the high proportion (33%) of general population who do not recall where the needle and syringe for their last injection came from allow for the possibility that injection reuse has been underreported. All prescribers and providers reported that if injection supplies were short, they asked patients to purchase syringes and needles from the market. In no instance was reuse of syringes or needles acknowledged. Inexpensive locally packaged injections are widely available even in the vicinity of the remotest health centers. The authors have noted some of these packed syringes to contain hair or dirt particles and show faded markings on the outside of the syringe. Additionally, as none of the local packaging companies use blister packs, there is a reasonably high probability that some or most of these syringes have been previously used, washed, and repackaged.

## Conclusions

Frequent prescription and administration of injections, inadequate supplies of safe injection equipment, unavailability of waste disposal facilities and a lack of awareness regarding the transmissibility of hepatitis viruses are common among prescribers, providers and the general population in the Northern Areas of Pakistan. While the number of injections per person per year in this population is higher than in developed countries, it is encouraging to note that it is much lower than rates reported in other parts of Pakistan. It is hoped that early intervention focused on encouraging safe injection practices would allow for prevention of many hepatitis B and C infections in this population.

## References

1. Khan AJ, Luby SP, Fikree F, Karim A, Obaid S, Dellawala S, Mirza S, Malik T, Fisher-Hoch S, McCormick JB. Unsafe injections and the transmission of hepatitis B and C in a periurban community in Pakistan. *Bull World Health Organ.* 2000;78(8):956-63.
2. Luby SP, Qamruddin K, Shah AA, Omair A, Pahsa O, Khan AJ, McCormick JB, Hoodbhoy F, Fisher-Hoch S. The relationship between therapeutic injections and high prevalence of hepatitis C infection in Hafizabad, Pakistan. *Epidemiol Infect.* 1997 Dec;119(3):349-56.
3. Pasha O, Luby SP, Khan AJ, Shah SA, McCormick JB, Fisher-Hoch SR. Household members of hepatitis C virus-infected people in Hafizabad, Pakistan: infection by injections from health care providers. *Epidemiol Infect.* 1999 Dec;123(3):515-8.
4. Hutin YJ, Hauri AM, Armstrong GL. Use of injections in healthcare settings worldwide, 2000: literature review and regional estimates. *BMJ* 2003 Nov 8; 327(7423): 1075.
5. Janjua NZ, Hutin YJ, Akhtar S, Ahmad K. Population beliefs about the efficacy of injections in

- Pakistan's Sindh province. *Public Health*. 2006 Sep;120(9):824-33. Epub 2006 Jul 28.
6. Janjua NZ Injection practices and sharp waste disposal by general practitioners of Murree, Pakistan. *J Pak Med Assoc*. 2003 Mar;53(3): 107-11.
  7. Raglow GJ, Luby SP, Nabi N. Therapeutic injections in Pakistan: from the patients' perspective. *Trop Med mt Health*. 2001 Jan;6(1):69-75.
  8. Rajasekaran M, Sivagnanam O, Thirumalaikolundusubramanian P, Namasivayam K, Ravindranath C. Injeciton Practices in southern part of India. *Public Health*. 2003 May;117(3):208-13.
  9. Vong S, Perz JF, Sok S, Som S, Goldstein S, Hutin Y, TuHoch J. Rapid assessment of injection practices in Cambodia, 2002. *BMC Public Health*. 2005 Jun 2;5(1):56.
  10. Murhekar MV, Rao RC, Ghosal SR, Sehgal SC. Assessment of injection- related practices in a tribal community of Andaman and Nicobar Islands, India. *Public Health*. 2005 Jul;119(7):655-8,
  11. Logez S, Soyolgerel G, Fields R, Luby S, Hutin Y. Rapid assessment of injection practices in Mongolia. *Am J Infect Control*. 2004 Feb;32(1):31-7.
  12. Fitzner J, Aguilera iF, Yameogo A, Duclos P, Hutin YJ. Injection practices in Burkina Faso in 2000. *mt i Qual Health Care*. 2004 Aug;16(4): 303-8.
  13. Janjua NZ, Akhtar S, Hutin YJ. Injection use in two districts of Pakistan: implications for disease prevention. *mt J Qual Health Care* 2005; 17: 401-8.
  14. Luby S, Hoodbhoy F, Jan A, Shah A, Hutin Y. Long-term improvement in unsafe injection practices following community intervention. *int Infect Dis*. 2005 Jan;9(1):52-9.