

Towards Safe Injection Practices in Pakistan

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Summary

Injection overuse and unsafe injection practices in Pakistan require urgent attention because they are driving the hepatitis B and C epidemics in the general population. This paper presents an overview of injection safety in Pakistan, and discuss measures taken by the government to address these public health problems. Several studies have demonstrated that reuse of injection equipment is common, and that unsafe injections are responsible for more than half of the hepatitis B and C infections in the country. An average of 13.6 therapeutic injections are received per person per year. based upon studies in Sindh province. There has been a greater recognition among government policy makers of the growing burden of hepatitis B and C over the past few years. The Prime Minister's Program for Prevention & Control of Hepatitis established in 2005 has institutionalized injection safety within the Ministry of Health, but the control of the hepatitis B and C epidemics in Pakistan demands a far more aggressive and innovative response focused on preventing unnecessary and unsafe injections.

Unsafe Injection Practices in Pakistan

Investigations of clusters of hepatitis C virus (HCV) infections in a town in Punjab province and a pen-urban community in Karachi revealed the reuse of glass and plastic syringes by unqualified and qualified practitioners as a major factor behind the occurrence of these outbreaks.^{1,2} Studies from other parts of Pakistan have similarly identified unsafe injections in health care settings as the major risk factor for hepatitis B virus (HBV) and HCV infections.³⁻⁶ Case-control studies have shown that more than 50% of HBV and HCV infections were attributable to unsafe injection practices.^{5,6}

A study in a pen-urban community of Karachi in 1995 reported a very high proportion (94%) of syringe reuse.¹ More recent reports indicate that half of all injections are provided with a syringe of uncertain sterility.^{7,8} A population based study in Sindh province in 2001 reported 13 injections per person per year, most of which (95.6%) were unnecessary.^{7,8} Most of these injections (94%) were provided for therapeutic purposes. and the excluded injections received for vaccinations or insulin replacement.⁸ Therapeutic injections in Sindh are mostly provided at general practitioner(GP) clinics (63%) and are most frequently administered by unqualified drug dispensers (75%) at these clinics.⁸

An important piece of information in developing prevention strategies is to understand what drives injection overuse in Pakistan. Studies have found that low awareness in population about the risks associated with injections, belief in efficacy of injections and the quickness of relief, and private practitioners' economic incentives and a misperception on their part that patients prefer injectable medications are major drivers in injection overuse.^{9,10} Economic incentives also drive injection reuse, thus highlighting the important role of reuse prevention injection devices.⁸ A simple awareness campaign has been found effective in reducing the reuse of injections but not their overuse.¹¹ An interactional group discussion strategy between practitioners and patients found to successfully reduce equipment reuse and overuse of injections in Indonesia was also successfully repeated in Karachi.^{12,13}

The practicality of scaling up such an intervention remains to be demonstrated.

A consequence of injection overuse and reuse is the production of a large amount of sharp waste and a higher risk of injuries to health care workers and the general population. Sharp waste handling and its disposal was found to be inappropriate in GP clinic settings in studies in Punjab and Sindh provinces.^{14,15} Appropriate sharp waste disposal presents many challenges. System for sharp waste management are mostly nonexistent in the GP clinic setting or even at higher level facilities. When and where sharp waste boxes are available (such as through the immunization program), these are not always used for the disposal of syringes (Figure).



Figure 1. Disposal of sharp waste in open boxes in the presence of sharp disposal boxes in Pakistan.

Inappropriate disposal opens additional avenues for sharp injuries to health workers and to the general population.

Most health care workers are reported to know very little about bloodborne pathogens and this poor knowledge is a predictor for the lack of use of universal precautions.¹⁶ Studies have reported high frequency of sharp injuries. Health care workers at public facilities reported an average of 4 needlestick injuries during the past year.¹⁷

Table. Selected injection practice indicators in Pakistan.

	INDICATOR	SOURCE
PROGRAMME INDICATORS (INPUTS)		
HIV/AIDS prevention and care programme communicating the risk of HIV infection associated with injections	Yes	MoH/NACP
National drug policy discouraging injection overuse	No	MoH
Number of injectable medications on the national essential drug list	?	MoH
Essential drugs programme supplying syringes, needles, diluent and safety boxes in quantities matching supplies of injectable medications	No	MoH
Immunization and family planning services supplying auto-disable syringes and needles in quantities matching supplies of injectable vaccines and contraceptives	Yes	MoH
Health care waste management plan within the health system	In planning	MoH
DETERMINANTS OF INJECTION PRACTICES (PROCESS)		
Injection use		
Proportion of the population reporting a preference for injections in the case of fever	1081 /2124(50%)	Janjua ¹⁴
Proportion of the population recalling that the last injection received has been given at home	19 /848 (2%)	Janjua ⁸
Injection safety		
Proportion of the population spontaneously reporting the risk of HIV infection associated with unsafe injections	97/141 (68.8%)	Luby ²⁰
Proportion of prescribers spontaneously reporting the risk of HCV infection associated with unsafe injections	174/239 (72.8%)	Janjua ¹⁶
Proportion of health care facilities using auto-disable injection equipment	26 /55 (47%)	Mantel ¹⁷
Proportion of health care facilities with stocks of single-use injection equipment(in the facility or in a nearby public or community pharmacy)	52 /80 (65%)	Mantel ¹⁷
Proportion of injections administered by unqualified or family providers	83 /848 (7.5%)	Janjua ⁸
INJECTION PRACTICES (OUTCOMES)		
Injection use		
Proportion of prescriptions including at least one injection	1167 /2124 (60.4%)	Janjua ⁷
Average number of injections per prescription for prescriptions	1.2	Janjua ⁷
Average number of injections per person per year	13.6	Janjua ⁸
Injection safety		
Proportion of health care facilities where injections are given with a sterile syringe and needle	59.3% (677/1153)	Janjua ¹⁴
Proportion of health care facilities where used injection equipment can be observed in places where they expose health care workers to needle-stick injuries	73/79 (92%)	Mantel ¹⁷
Annual number of needle-stick injuries per injection provider	4	Mantel ¹⁷
Proportion of health care facilities where used injection equipment can be seen in the surrounding environment	65/79 (82%)	Mantel ¹⁷

Table summarizes injection practice indicators in Pakistan.

Current Initiatives for Achieving Injection Safety

Studies have found that interventions to achieve safe injection practices are successful and highly cost effective.¹⁸ Such interventions are likely to reduce the burden of disease and health related costs

associated with unsafe injections. Evidence of unsafe injections and advocacy safe practices has heightened the awareness of policy makers in Pakistan, which in turn has prompted the government to take action towards promoting Injection safety. The following highlight recent progress made by the Ministry of Health:

Legislation on quality of Syringes

A WHO funded assessment of syringe quality in Pakistan in 2004-2005 concluded that only two companies market syringes that meet ISO standards for packing and labeling. As long as there are other syringe manufacturers that meet some (but not all) of the ISO standards, the public's right to a quality syringe will remain elusive. Furthermore, illegal reprocessing for repackaging may still occur in Pakistan. The study recommended that this issue should be addressed through the formulation of a National Regulation for disposable of medical devices that would make it mandatory to enforce international quality standards. The Ministry of Health (MoH) responded by formulating draft legislation that was shared widely with health programme managers, the industry, and consumer right organizations. The bill is currently (late 2006) with the National Assembly following approval by the MoH and the Prime Minister's cabinet.

National Injection Safety Policy

The Expanded Programme on Immunization (EPI)

Ministry of Health (MoH), Government of Pakistan in collaboration with several stakeholders organized a seminar in August 2004 to discuss available evidence on injection safety, develop a National Injection Safety Policy and outline a plan of action. The event achieved its stated objectives and was successful in coming up with a National Injection Safety Policy.

Prime Minister's Programme for Prevention and Control of Hepatitis

The government launched this initiative in 2005 with the goal of "a 50% reduction in viral hepatitis prevalence by 2010". The program does not specifically target the wide availability and overuse of injectable drugs, nor does it propose to test specific safe injection interventions among GPs in the private sector where most of the reuse occurs. Furthermore, resources and efforts to promote injection safety will have to compete with many of the other objectives of this programme, including establishing laboratory diagnostic facilities and providing interferon treatment for a limited number of persons infected with HCV at 60 health care facilities across the country.

Future Directions

The Prime Minister's Programme is an important step towards institutionalizing hepatitis B and C prevention within the public sector. To increase the likelihood of success in meeting its stated goal, we recommend the implementation of the following specific activities by the Prime Minister's Programme:

Behaviour change to promote safe injection practices

A focused behaviour change and communication (BCC) strategy for health care providers and their clients in the public and private sectors is essential for success. A BCC strategy for injection safety has already been designed by the World Health Organization Safe Injection Global Network (SIGN) and should guide this effort. Much work needs to be done in finding ways for scaling up interactional group discussions (IGD) interventions to the district, provincial and national levels. In this case, bodies such as the Pakistan Medical Association (PMA) can play a pivotal role. GPs who participate in IGDs implemented through such associations are likely to communicate the message to fellow practitioners. This may have multiple benefits; remove misconceptions among GPs about patients' preference for injectable drugs and allay fears of losing patients if they are not prescribed injections. Reaching a consensus to use a new syringe for every injection and to decrease the use of unnecessary injection among GPs in a locality (e.g. town, district) under the umbrella of an organization such as the PMA would help practitioners accept and adopt safe injection practices. A similar strategy has previously worked for achieving reductions in anti-motility drugs prescription for childhood diarrhea. The behaviour change strategy should be inclusive and should actively involve unqualified practitioners. Health care provision by unqualified practitioners is considered illegal although these cater to a large

number people in remote and rural areas where the population does not have access to qualified practitioners.¹⁹ Furthermore, their unsafe injection practices do not differ much from the practices of qualified practitioners.¹⁴ At least in the context of unsafe and unnecessary injections, we need not differentiate between these two groups and should engage both in injection safety activities.

Supply of Injection Equipment

The prevention of injection equipment reuse is impossible in the absence of an adequate supply. More than 80% of injections in Pakistan are provided by the private sector and most injection equipment is paid for by patients even in public sector settings.⁸ Injection devices with reuse prevention features like auto-disable (AD) syringes can achieve significant reductions in reuse in health care facilities where reuse is driven primarily by economic incentives, such as GP clinics. The unit price for syringes is a critical factor in maintaining adequate supplies within government settings as well as in the private sector. Legislation in this regard should continue to be supported by government, manufacturers and advocacy groups. Partnerships between industry and governments can play a major role in providing these devices at an affordable price and assist with the phase-out of conventional devices from the market, beginning with those that do not meet existing ISO standards of manufacture. The likely role of government is to set the policy of reuse prevention devices use at all health care facilities and to provide incentives to manufacturers in the form of tax subsidies to lower initial cost. The manufacturers must actively work to make these syringes available at the price of conventional device.

Sharp Waste Disposal

Sharp waste disposal is a major component of the Prime Ministers Programme, which includes provision of incinerators at the district level. There are many important challenges for this approach to work. The feasibility of providing incinerators at a central place can be learned from the experience of the Karachi City Government. Baseline surveys must guide the formulation of appropriate strategies for each district. The location of the incinerators is also crucial in terms of distance from health facilities and prevention of population exposure to the toxic chemicals produced during incineration. Use of inexpensive technology like geographic information system (GIS) with locations for clinics population density and road infrastructure can prove very valuable in planning the location and future operations of incinerators. Districts Health Officers may not know the exact number of clinics nor the amount of waste generated from them and a registration system of clinics would be helpful for waste disposal planning. While investing in incinerators at this stage helps address the problem of sharp waste disposal, we should also be concerned about the environmental problems associated with them and should explore environmentally sustainable choices. Pilot studies for the safety and feasibility of removing needles and recyclable components could be explored to reduce the burden on incinerators.

Discussion

Unsafe injections remain a major risk to public health in Pakistan, even though studies conducted more than a decade ago implicated them as the driving force behind the hepatitis B and C epidemics in the country. The government has previously adopted limited interventions driven by donor demands, such as the GAVI mandated use of AD syringes for new vaccines and sharp disposal in the Expanded Programme on Immunizations. A national initiative launched by the government in 2005 seeks to reduce the prevalence of viral hepatitis, but the program risks being minimally effective in the absence of specific prevention strategies focused on unsafe injections. Diluting resources and efforts by integrating curative care services in a prevention program is counterproductive, primarily because most new HBV and HCV infections continue to be attributable to unsafe injection practices. Continued research is needed to methodologically develop and test sound interventions based on theories of behavior change to achieve reduction in injection use and reuse of injection equipment, particularly among GPs and their clients. Readily available and affordable reuse prevention devices are most likely to impact injection reuse, health worker safety, and injection waste management. Important issues such

as the sustainability and coverage of operations need to be resolved in discussion with the future consumers of the proposed sharp waste disposal system.

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