

## Malpractices in Syringe disposal by Paramedical staff

Rizwana Riaz, Abida Sultana, Iffat Tehseen

### ABSTRACT

#### Objectives

To determine malpractices in syringe disposal by paramedics and to assess the awareness of this among patients.

#### Methods

This observational descriptive study was conducted in eight Teaching hospitals of Rawalpindi and Islamabad for a period of 3 months in 2006. The hospitals included were Holy Family Hospital (HFH), Rawalpindi General Hospital (RGH), District Head Quarters Hospital (DHQ), Cantonment General Hospital (CGH), Pakistan Institute of Medical Sciences (PIMS), NASCOM hospital, Shifa International Hospital and Valley hospital. A total of 320 patients coming to emergency units of above hospitals were included in the study by quota convenient sampling (40 patients per hospital). Twenty paramedics of study hospitals were interviewed for assessment of awareness among them about syringe disposal practices using structured questionnaire.

#### Results

Sterile syringes used for 92.5% cases in DHQ hospital while in 7.5% cases syringes were reused and all the syringes were discarded without cutting the needles. In RGH, seal of the syringes was opened in 95% cases while in 5% they were reusing the syringes and 50% were disposed off without cutting their needles. In HFH, syringes were used in the same manner as in RGH and 50% disposed off by cutting the needles. In PIMS, sterile syringes were used in 97.5% cases while 60% were thrown off by cutting the needles. In CGH, Shifa International Hospital and Valley Hospital, sterile syringes were used for 100% cases and 100% disposed off by cutting the needles. In NASCOM hospital, although 100% sterile syringes were used but none of them was disposed off without cutting the needles. Fifty percent paramedics were trained while 30% and 20% were under trained and untrained, respectively. 70% claimed to be supervised for syringe disposal and among these, 60% were supervised by staff nurse while 20% by medical superintendent of the hospital. 55% paramedics were fully aware while 20% were totally unaware of standardized syringe disposal practices. On the other hand, only 20% patients were well aware while 45% were not aware of syringe disposal practices.

#### Conclusion

Although most of the paramedics were well aware of the hazards associated with improper syringe disposal and their reuse, still improper disposal was practiced at many public hospitals. There was little awareness of proper syringe disposal among patients. (Rawal Med J 2009;34: ).

#### Keywords

Paramedics, syringes, staff nurse, hepatitis.

## **INTRODUCTION**

Biomedical or Healthcare waste is a term used for all waste arising in healthcare establishments. Syringes used in hospital are sharps, one of the types of risk waste.<sup>1</sup> Main groups exposed to health hazards of this risk waste are doctors, nurses, healthcare auxiliaries, hospital maintenance personnel and patients in healthcare establishments.<sup>2</sup> WHO estimates that globally 8-12 billion injections are given every year, with more than half of these being unsafe and in the developing world and 2-5 million Hepatitis C Virus (HCV) infections annually are attributable to these unsafe injections.<sup>3</sup> Re-use of syringes, unsafe injections and improper disposal of used syringes are potential source of HCV and HIV in Pakistan.<sup>4,5</sup> On an average, a Pakistani receives 14 injections per year and this does not include vaccinations and insulin injections.<sup>4</sup> In Pakistan, prevalence of HCV in healthcare workers is 20% while the risk of infection after a needle stick injury from Hepatitis B positive patient is 30%.<sup>6</sup>

New disposal containers are easier and safer to use and therefore should contribute to decrease the incidence of needle puncture accidents among healthcare workers.<sup>7</sup> It has been shown that 10-25% injuries occur while recapping a used needle<sup>8</sup> and sharps disposal reduced needle stick injury rates by 50%.<sup>9</sup> The aim of this study was to determine the current status of syringe disposal in emergency units of Rawalpindi and Islamabad hospitals and to assess the awareness about hazards of used syringes among paramedics and general public.

## **SUBJECTS AND METHODS**

A descriptive observational hospital-based study was carried out in Teaching hospitals of Rawalpindi Medical College which were Holy Family Hospital (HFH), Rawalpindi General Hospital (RGH) and District Head Quarters Hospital (DHQ), semi-government hospitals which included Cantonment General Hospital (CGH), Pakistan Institute of Medical

Sciences (PIMS) and NASCOM hospital and private hospitals Shifa International Hospital and Valley hospital for a period of 3 months in 2006. Taking 40 patients from each of these hospitals, a total of 320 patients were included in the study by convenient quota sampling. In our study, malpractice of syringe disposal meant discarding the syringes without cutting their needles. Data was collected by using structured questionnaire. Questionnaire asked information regarding type of syringes used, methods of syringe disposal, qualification of paramedics, supervision of syringe disposal, level of awareness among patients and paramedics about syringe disposal and health hazards associated with improper disposal and re-use of syringes.

## **RESULTS**

Among 40 respondents in DHQ hospital, sterile disposable syringes were used for 37 cases while syringes were re-used for 3 patients and all the syringes were thrown without cutting their needles. In RGH, sterile syringes used for 38 patients while syringes were re-used among 2 patients. Only 12 syringes were disposed off by cutting their

needles while remaining were discarded as such. In HFH, syringes were used in the same manner as in RGH while syringes used in 20 patients were disposed off by cutting their needles. In CGH, Shifa and Valley hospitals sterile syringes were used for all patients and all the syringes were disposed off by cutting both the syringes and their needles (Fig 1). In NASCOM hospital, although sterile syringes were used for all the patients but none of them discarded by cutting the needles. In PIMS, sterile syringes used in 39 cases while 24 syringes were disposed off by cutting their needles.

**Fig 1. Syringe disposal in study hospitals.**

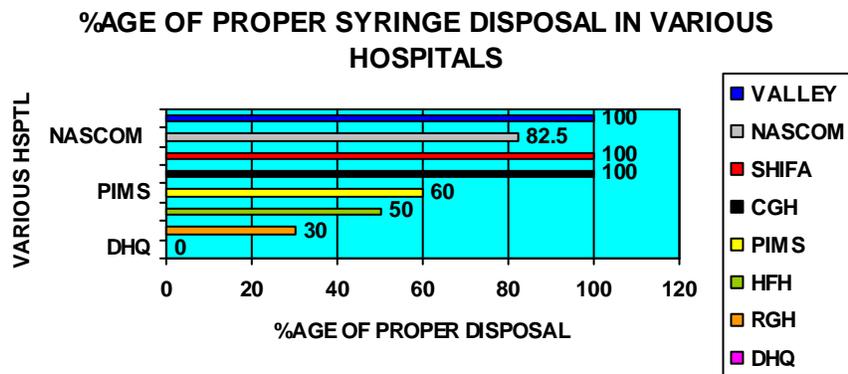
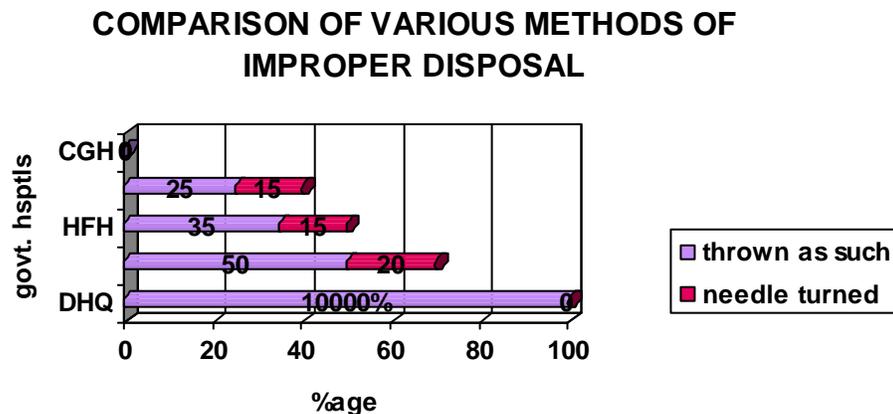


Figure 2 shows comparison of various methods of improper syringe disposal in study Hospitals.

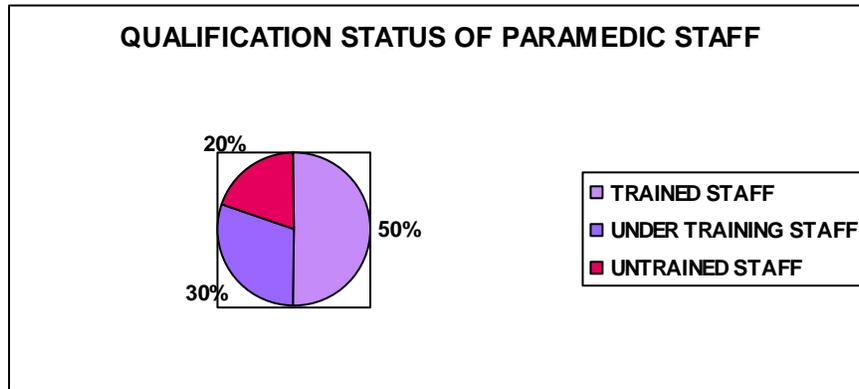
**Fig 2. Various methods of syringe disposal.**



Out of 320 sterile syringe used, 7 were re-used. Out of these 320, 219 syringes were properly disposed off and 101 were discarded by improper practice.

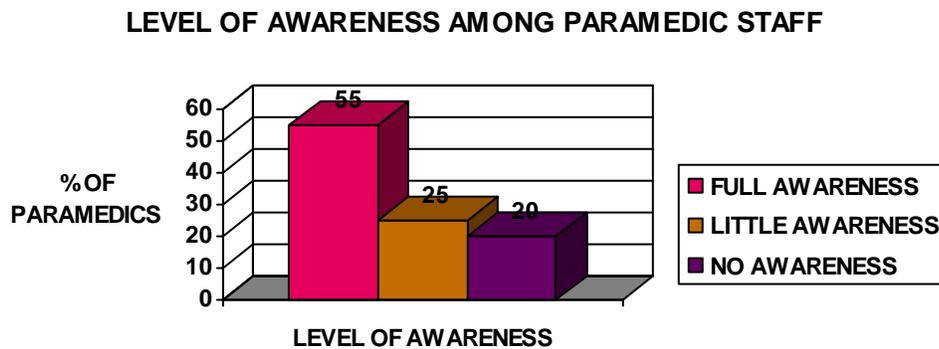
Of the 20 paramedics from study hospitals, 10 received proper training for syringe disposal, 6 were in the process of training and 4 were untrained (Fig.3).

**Fig 3. Training of paramedical staff.**



Among 20 paramedics, 14 were being supervised and among these, 3, 3 and 8 were supervised by medical superintendent, supervisor and staff nurse respectively. Figure 4 depicts the level of awareness among paramedical staff about syringe disposal practice and health hazards of this risk waste.

**Fig 4. Awareness of paramedical staff.**



Of total 320 patients, 64 were fully aware, 112 were having little awareness while 144 were totally unaware of methods of syringe disposal and health hazards of improper disposal and re-use of syringes (Fig 5).

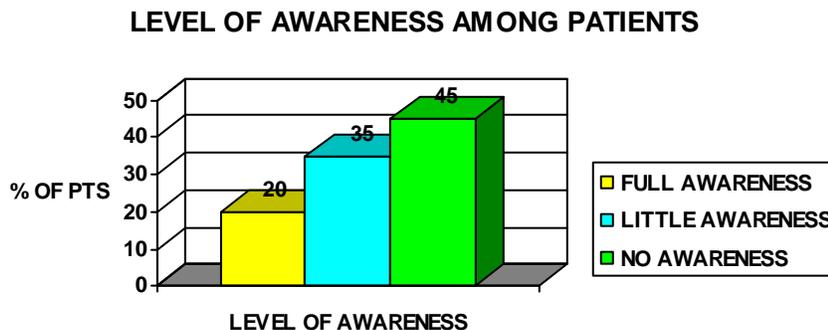
**DISCUSSION**

Injections are very frequent procedures in Pakistan<sup>10</sup> with risks of HBV < HCV and HIV.<sup>11,12</sup> In our study, significant number of syringes were reused and large number were disposed off without cutting the needle, especially in public

hospitals. In our study, 100% sterile syringes were used in CGH, Shifa and Valley hospitals and 100% were disposed off by cutting the needles, a practice which should be followed by other institutions. An analysis of healthcare waste management in India proposed institutional arrangements, appropriate technologies, operational plans, financial management and the drawing up of appropriate staff training programs.<sup>13</sup>

Only 50% paramedics included in the study were trained in proper syringe disposal. In a study revealed that an estimated 369140 syringes used annually or 8 syringes per patient per in-hospital day and all syringes were disposed off as regulated medical waste in observation of law.<sup>14</sup> Regarding awareness of proper syringe disposal and health hazards of needle stick injuries, 55% and 20% paramedics were fully aware and totally unaware respectively while 25% were having little awareness.

**Fig 5. Awareness of syringe disposal among patients.**



Results of a study carried out among healthcare workers in a secondary care hospital of Saudi Arabia revealed that syringe needles were responsible for 63% of all injuries and all injuries occurred during recapping of used needles.<sup>15</sup> Disposal-related causes as well

as injuries by concealed sharps (5%) occurred while handling linens or trash containing improperly disposed needles. These results emphasized the importance of increased awareness, training and education of healthcare workers for reporting and prevention of needle stick injuries.<sup>15</sup>

## CONCLUSIONS

Our study showed that significant number of syringes, especially in public hospitals, were not being disposed off properly. Awareness among healthcare workers and general public should be enhanced to avoid health hazards associated with re-use of syringes and their improper disposal.

From Department of Community Medicine, Rawalpindi Medical College, Rawalpindi.  
Correspondence: Dr Rizwana Riaz.  
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# Malpractices in Syringe disposal by Paramedical staff

Rizwana Riaz, Abida Sultana, Iffat Tehseen

Department of Community Medicine, Rawalpindi Medical College, Rawalpindi.

## ABSTRACT

**Background:** To identify shortcoming and suggest recommendations for improvement of existing health care delivery system by observing malpractices in syringe disposal by paramedics and to assess the awareness among patients.

**Methods:** An observational descriptive study was conducted in Teaching hospitals of Rawalpindi Medical College which were Holy Family Hospital (HFH), Rawalpindi General Hospital (RGH) and District Head Quarters Hospital (DHQ), semi-government hospitals included Cantonment General Hospital (CGH), Pakistan Institute of Medical Sciences (PIMS) and NASCOM hospital and private hospitals Shifa International Hospital and Valley hospital. The study was carried out for a period of 3 months in 2006. All disposable syringes used in emergency departments and all concerned paramedics were considered. A total of 320 patients coming to emergency units of above mentioned hospitals included in the study by quota convenient sampling (40 patients per hospital). Moreover, 20 paramedics of study hospitals were also interviewed for assessment of awareness among them about syringe disposal practices. However, disposable syringes used in the wards and injections given by the doctors themselves were not considered for this study. Data was collected by structured questionnaire.

**Results:** Of the total 320 observations with 40 respondents in each hospital, sterile syringes used for 92.5% cases in District Head Quarters hospital (DHQ) while in 7.5% cases syringes used in the same patient and all the syringes discarded without cutting the needles. In Rawalpindi General Hospital (RGH), seal of the syringes opened in 95% cases while 5% observations showed reusing of syringes in another patient. 50% syringes disposed off without cutting their needles while only 30% by cutting the needles. In Holy Family Hospital (HFH), syringes used in the same manner as in Rawalpindi General Hospital (RGH) and 50% disposed off by cutting the needles. In Pakistan Institute of Medical Sciences (PIMS), sterile syringes used for injection in 97.5% cases while 60% thrown off by cutting the needles. In Cantonment General Hospital (CGH), Shifa International Hospital and Valley Hospital sterile syringes used for 100% cases and 100% disposed off by cutting the needles. In NASCOM hospital, although 100% sterile syringes used for injection but none of them disposed off without cutting the needles. 50% paramedics in study hospitals were trained while 30% and 20% were under trained and untrained respectively. 70% paramedics claimed of being supervised of syringe disposal and among those 60% supervised by staff nurse while 20% by medical superintendent of the hospital. 55% paramedics were fully aware while 20% were totally unaware of standardized syringe disposal practices. On the other hand, only 20% patients were well aware while 45% were not aware of syringe disposal practices.

