ASSESSMENT OF THE MANAGEMENT OF SHARPS INJURIES IN GOVERNMENT HOSPITALS: THE MALAYSIAN SITUATION

M. Siti Haniza M.D PhD[1]

ABSTRACT

Introduction: *Management of occupational hazards has been a priority and sharps injuries is a known potential risk to healthcare workers. With the known risks of potential infections, to the workers as well as the patients, our workers need protection from further danger.* ***Objective:*** *This study looked at the measures taken on managing the affected healthcare workers.* ***Methods:*** *A cross-sectional survey using self-administered questionnaire was sent to 55 hospital directors. They were required to inform on their management practices on sharps injuries.* ***Results:*** *The findings showed variations in the management of sharps injuries during and after office hours, variation in the site of keeping the records, person responsible and variation in the frequency of data analysis and presentation to hospital directors.* ***Discussion:*** *According to OSHA Act 1994, it is the responsibility of the employer to ensure safety, health and welfare of the employee. In management of sharps injury data from injury reporting should be compiled and assessed. Reporting feedback need to be encouraged with timely follow-up of all sharps injury cases. Reporting of sharps injuries is essential to ensure that all healthcare workers receive appropriate post-exposure medical treatment.* ***Conclusion & Recommendation:*** *A uniform management of sharps injuries protocol need to be established to improve reporting. An avenue to present sharps injuries data regularly is needed so as appropriate management of workers be ensured. Therefore adherence to the available guidelines need to be ensured.*

Key words: *management, sharps injuries, healthcare workers*

INTRODUCTION

Legislation in many countries requires that employers have appropriate arrangements in place for the management and control of health and safety at work. In order to achieve these requirements employers need to have an effective occupational health and safety management system that it is clearly defined and well documented.

In view of that, the Ministry of Health (MOH), took the initiatives to monitor sharps injuries among the healthcare workers (HCW). The MOH developed various reporting systems and data were compiled under different programmes and subsequently presented to the National QA Steering Committee as National Indicator Approach (NIA) of *Incidence of Needle Stick Injury* (*NSI*) *amongst HCW.* Data on needle stick injuries for the three consecutive years from 2006 to 2008 were 701, 574 and 735 cases respectively. However, there were major differences in the reporting system within individual hospitals and also between states.

Sharps injuries represent a significant occupational hazard for HCW (Pun V, *et al*., 2009). Monitoring sharps injuries is important because it is a serious event and it can cause infections with economic and social implications. The potential infections include viral infections, such as Hepatitis B, Hepatitis C, HIV and other blood borne pathogens (Collins Ch and Kennedy DA, 1997). Factors determining the risk of infection include the type of pathogen, exposure agents such as blood, fluid containing blood, tissue and others, amount of blood involved in the exposure and the viral load in the patient at the time of exposure (Lam P, 2007).

According to the WHO Report 2003 (Ustun AP, *et al*., 2003), HCW are at an increased risk of infection with Hepatitis B, Hepatitis C and HIV blood borne pathogens because of occupational exposure to blood and other body fluids (Gerberding JL, 1995). National Institute of Occupational Safety and Health (NIOSH) in USA estimated 600,000 to 800,000 needle stick injuries occur annually in hospital settings (Gager JC, 2002).

Institute for Health Systems Research, Jalan Rumah Sakit, Bangsar, 50490, Kuala Lumpur, Malaysia
Correspondence: Dr Siti Haniza Mahmud
sitihaniza.m@ihsr.gov.my

This finding was supported by a 5-year surveillance data from the International Health Care Worker Safety Centre, University of Virginia, USA from 1996 to 2000 involving 84 hospitals with 23,243 reported injuries, which showed that 98.5% of percutaneous injuries sustained by healthcare workers were caused by sharp medical devices (Gerberding JL, 1995).

A study done in the UK (White RR and Ridgway EJ, 1994) showed that out of the 23 hospitals from which replies were received, 21 had a written policy on injuries from sharp instruments. Three hospitals did not keep records of such incidents.

A 2-year surveillance data from 2002–2004 on 818 Sharp Injuries among HCW in the Emergency Department of 71 acute care hospitals reported by Massachusetts Department of Public Health under Sharps Injury Surveillance System, noted that most injuries occurred among nurses (44%). Similarly, the Health Protection Agency in UK reported that over a 5-year period between 1996 to 2004, percutaneous injury was the most commonly reported type of exposure (78%) with nursing related professions representing 45% of the initial reports and medical professionals (doctors and dentists) accounting for 37%.

Sharps injuries occur when any object penetrates the skin including, but not limited, to needles, scalpels, broken glass, broken capillary tubes, and any sharp ends of medical instruments (Ministry of Health, Malaysia, 2008).

Safety management such as dedicated sharps injury bins are made available however, the main issue for this study, among others was that the MOH managers were uncertain whether the standard management procedure for sharps injury are being followed. This study was conducted to determine the existing management protocol in various MOH hospitals and to identify the reasons for incomplete follow-up of sharps injuries.

METHODS

A cross sectional survey was done in four states (Perak, Selangor, Sarawak and Johor) to determine the existing sharps injuries management protocol in various hospitals. A self-administered questionnaire was sent to 55 hospital directors. States selected were based on the high incidence of shortfall in quality (SIQ) in their National Indicator Approach (NIA) performance in the year 2006. The study was carried out from November 2007 to December 2007. The study mainly concentrate on the location of identified cases at the identified state and the management of cases.

In this study, sharps was defined as all sharp instruments/devices used in healthcare facilities, all types of needles and other sharp devices such as scalpels, trochars, broken glass etc.[i]-S*harps injuries* is an exposure that occurs when any object penetrates the skin including, but not limited, to needles, scalpels, broken glass, broken capillary tubes, and exposed end of any penetrating medical instrument. All staff working at the health facilities which consist of Ministry of Health staff, Ministry of Health trainees, medical students attached to the health facilities under study and health facilities support service workers were included as the Healthcare workers. Sharps Injury Surveillance is the programme for monitoring sharps injuries in healthcare facilities, Ministry of Health that was implemented in January 2008 (Ministry of Health, Malaysia, 2008).

All hospital directors were informed about the objectives of the study and their consents were obtained. Completed questionnaires were returned

Table 1. Unit Responsible for Managing Sharps injuries during and after Office Hours

Unit	During office hours		After office hours	
	Numbers	(%)	Numbers	(%)
Emergency Unit	9	21.4	23	54.8
Infection Control Unit	31	73.8	4	9.5
Respective Departments (those on-call)	0		15	35.7
Occupational Health Unit	3	7.1	0	
Medical clinic	4	9.5	0	
Others	10	23.8	10	23.8

*Some hospitals use more than one unit to manage sharps injuries

by fax or mail. The data were entered, cleaned and analysed using Statistical Package for Social Science (SPSS) computer software version 17.

RESULTS

Of the 55 hospitals, 41 responded (75% response rate) The Unit that most commonly managed sharps injuries during office hours was the Infection Control Unit (73.8%) followed by Emergency Unit (21.4%). However, the commonest designated management units after office hours were the Emergency Unit (54.8%) followed by the department on call (35.7%) as in Table 1.

Most hospitals (57.1%) kept their post-exposure prophylaxis (PEP) drugs in the Pharmacy followed by the Emergency Unit (21.4%) as in Table 2.

In some hospitals, records were kept in more than one location. However, records were mostly kept in the Infection Control Unit (88.1%). Other places include Pharmacy, Medical Records Department and Quality Unit as shown in Table 3.

Most sharps injuries data were received, compiled and analysed by the Infection control nurse. The occupational health unit doctor or staff, safety officer and QAP nurse were also responsible for data compilation and analysis. (Table 4).

The hospital management analysed the data (47.6%) monthly, (31.0%), three monthly, (26.2%) six monthly and yearly (4.8%) as in Table 5.

Table 2. Storage of drugs for post exposure prophylaxis (immediate usage)

Unit	Numbers	Percentage
Medical ward	3	9.1
CCU/ICU	1	2.4
Infection Control Unit	0	0
Pharmacy	24	57.1
Emergency Unit	9	21.4
Others	9	21.4

Table 3. Location of sharps injuries records

Unit	Numbers	Percentage
Infection Control Unit	37	88.1
Emergency Unit	1	2.4
Outpatient Unit	0	0
Occupational Health Unit	4	9.5
Medical Clinic	0	0
Others	7	16.7

The data was presented to the management regularly at intervals of three (21.5%). four (26.2%), or six monthly (23.8%) as in Table 6.

The patterns of follow-up rates at different hospitals varied as shown in Table 7. Poor follow up rate was seen in 32.1% of hospitals and state hospitals contributed the highest of these poor follow-ups

Table 4. Officer responsible for compilation and analysis of data

Person	Numbers	Percentage
Infection Control Nurse or sister	37	88.1
Officer of respective departments	0	0
Doctors	2	4.8
Others	9	21.4

Table 5. The frequency of data analysis

Period	Numbers	Percentage
Monthly	20	47.6
3 monthly	13	31.0
6 monthly	11	26.2
Yearly	2	4.8

Table 6. Regularity of presentation of analysed data to the hospital management

Regularity	Numbers	Percentage
Monthly	3	7.1
3 monthly	9	21.5
4 monthly	11	26.2
6 monthly	10	23.8
Yearly	4	9.5
Never	5	11.9

Table 7. Follow up rates according to type of hospital

Type of Hospital	Follow up rates		
	< 50%	≥ 50%	Total
Major Specialist	0 (0%)	1 (100%)	1 (100%)
District with Specialist	3 (30%)	7 (70%)	10 (100%)
District without Specialist	4 (30.8%)	9 (69.2%)	13 (100%)
Institute	0 (0%)	1 (100%)	1 (100%)
Total	9 (32.1%)	19 (67.9%)	28 (100%)

The most common method used to ensure follow-up compliance, was via telephone calls (85.7%) followed by a reminder letter (19.0%) as in Table 8.

Various initiatives was used to prevent sharps injuries in the hospitals with in- house training being the most preferred method (90.5%) followed by orientation on prevention (88.1%), posters (83.3%) and the use of safety devices (66.7%) as in Table 9.

Table 8. Measures to contact HCW who do not come for follow up

Measures	Numbers	Percentage
Telephone	36	85.7
Others	9	21.4
Reminder letter	8	19.0
None	3	7.1
E mail	0	0

Table 9. Training and educational efforts/initiatives done to prevent sharps injuries in the hospital

Efforts/initiatives	Numbers	Percentage
In house training	38	90.5
Orientation on prevention	37	88.1
Posters	35	83.3
Safety devices	28	66.7
Others	14	33.3

DISCUSSION

Element of a successful sharps injury prevention program includes promoting an overall culture of safety in the workplace, eliminating the unnecessary use of needles and other sharp devices, using devices with sharps injury prevention features, employing safe workplace practices and training healthcare personnel.[9] In the management of sharps injuries, it encompasses various steps that need to be carried out by the designated units or departments involving the affected healthcare personnel.

The study found that the unit responsible for managing Sharps injuries during and after office hours, varied from Infection Control Unit, Emergency Unit, On-Call Unit and Medical Unit in the four states.

The data showed that different hospitals stored drugs for immediate use of post exposure prophylaxis (PEP) for Sharps injuries in various places. The commonest storage place was the pharmacy followed by the Emergency unit, medical ward and others. This variation in storage may result in some confusion amongst the attending clinician. Similarly, the records of cases with Sharps injuries were also kept by multiple units and these include Infection Control Unit, Occupational Unit, Emergency Unit and others.

The management of sharps injuries varied from hospital to hospital. The analysis of data on sharps injuries were carried out irregularly ranging from monthly to annually. The officer responsible for compilation and analysis of data varied from infection control nurse, doctors, Assistant Environmental Health Officer and others. These data were also discussed irregularly ranging from monthly to yearly. Some hospital admitted that the sharps injuries data were never presented to the management. In fact, out of the 41 hospitals that responded, it was found that the larger hospital with higher workload did not conduct regular review of sharps injuries cases. These findings confirmed that sharps injury reporting were not consistent. A non-organised management of sharps injury can result in under reporting of cases and thus poor management of cases and unknown status of HCW who poses danger to patients.

A study in Singapore (Chia HP, *et al*., 1994)[i], found that none of the housemen reported their needle-stick injuries to the relevant hospital authorities because they were afraid of losing their jobs if found infected or they were not bothered as they generally perceived themselves as having nil to moderate risk of contracting an infectious disease. According to the Occupational Safety and Health Act 1994 (Laws of Malaysia, 2002), it is the responsibility of the employer to ensure safety, health and welfare of the employee. This act is applicable to all HCW in hospitals and other healthcare facilities. The importance of regular management review was stated by NIOSH 2008 whereby data from injury reporting should be compiled and assessed and procedures should be in place. Reporting were encouraged with timely follow-up of all needle stick and other sharps-related injuries. NIOSH 2008 stated that reporting of needle stick injuries is essential to ensure that all HCW receive appropriate post-exposure medical management and provide records for assessing needle stick hazards in the work environment.

Amongst the hospitals that reviewed sharps injuries cases regularly, the commonest measures taken to contact HCW who did not come for follow up was through telephone call followed by reminder letters. In order to prevent future sharps injuries, preventive measures were taken through in-house training, and orientation to new HCW reporting for duty.

Currently, the Ministry has developed Guidelines on Management of Healthcare Workers, Guidelines on Occupational Exposure and Sharps Injury Surveillance Protocol. Therefore, the study recommended that firstly, adherence to uniform management of sharps injuries protocol is required to improve reporting and compliance to follow up. Secondly, an avenue is needed to present data on sharps injuries regularly.

Thirdly, dedicated trained staffs, especially in hospitals with more than 500 beds need to enforce and monitor adherence to sharps injuries protocol and finally a specific department (such as Medical Department or Family Medicine Specialist) with dedicated identified personnel is important for medical management of the affected HCW. If these guidelines and protocol are followed well, the possibility of reduction in sharps injuries cases and sero-conversion can be better prevented.

CONCLUSION

There had been no standardised management protocol on sharps injuries in the government hospitals. In the light of these findings, the Occupational Health Unit, Ministry of Health had developed guidelines on the management of health care workers exposed to sharps injuries and those who were infected with blood borne diseases. Adherence to these new guidelines will be important to prevent and manage sharps injuries in the country. In addition, commitment from the managers at all levels is needed to ensure the success of the programme.

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