
Workplace Safety and Health in Singapore Healthcare Institutions

2016



Abstract: Eight healthcare institutions, employing about one-third of the healthcare workforce in Singapore, collaborated with the Workplace Safety and Health (WSH) Institute to analyse their 2014 data on work-related injuries and illnesses. A total of **2,488** workplace incidents were reported. These included **1,749** workplace injuries (including **284** cases of workplace aggression), **125** cases of occupational disease, **63** near misses and **551** unsafe acts/conditions. For cases requiring more than 3 days of medical leave, the leading incident type was falls (Slips, trips and falls, Falls from height). For cases which required 3 or fewer days of medical leave, sharps was the leading incident type. Human factors and insufficient training and competency were identified to be the leading contributory causes for work-related injuries and ill health.

Keywords: workplace injuries and ill health, healthcare workers, workplace aggression, needle stick injuries, Singapore

Background:

In March 2008, Workplace Safety and Health (WSH) Act was extended to the Healthcare sector, requiring proactive identification and mitigation of WSH risks to protect the safety, health and well-being of workers.

The tripartite Workplace Safety and Health Council Healthcare committee (HC) was formed in 2008 to oversee WSH issues within the healthcare sector, with members comprising of CEOs and representatives from restructured, community and private healthcare institutions as well as representatives from professional associations, union, Ministry of Health and Ministry of Manpower (MOM).

Healthcare institutions represented in the WSH Council (Healthcare) Committee initiated a study in 2014 to collate and examine data on work-related injuries, illnesses, near misses and reports of unsafe conditions/acts which occurred within their institutions in 2013. As the healthcare institutions in the committee collectively employ about two-fifths of the healthcare workforce, the findings would provide sufficient insights into the hazards faced by healthcare workers in Singapore.

The objective of this second study was to identify the key 2014 WSH concerns in the healthcare sector. The results would be used by the committee for designing and prioritising programmes and initiatives to prevent work-related injuries/ill health amongst healthcare employees in Singapore.

Method:

Healthcare institutions which were represented in the WSH Council HC were invited to provide their 2014 WSH data for consolidation and analysis by WSH Institute and to complete a questionnaire which was jointly developed by WSH Institute, WSH Council office and the WSH Council (Healthcare) Committee.

The data collected included the following:

- Employment – staff strength by occupational group;
- Workplace safety and health incidents – number and nature of work injuries and occupational diseases, near misses, observations of unsafe conditions/acts and workplace aggression incidents; root causes, incident types, duration of sick leave for the incidents;
- WSH systems – tracking of first aid cases, incident reporting and accreditation systems.

Findings:

All 8 institutions which provided their 2014 data also had participated in the previous study. The results from 5 out of 8 institutions showed a decrease in the number of incidents, while two institutions had borderline increase and only one institution had significant increase.

1. Organisational Profile:

The eight healthcare institutions employed approximately **30,900** workers, or about one-third of the healthcare workforce in Singapore. Figure 1 shows the distribution by occupation group: **42%** were nurses, **20%** were support staff, **15%** were allied health professionals, **11%** were office staff¹ and medical/dental practitioners made up another **10%**.

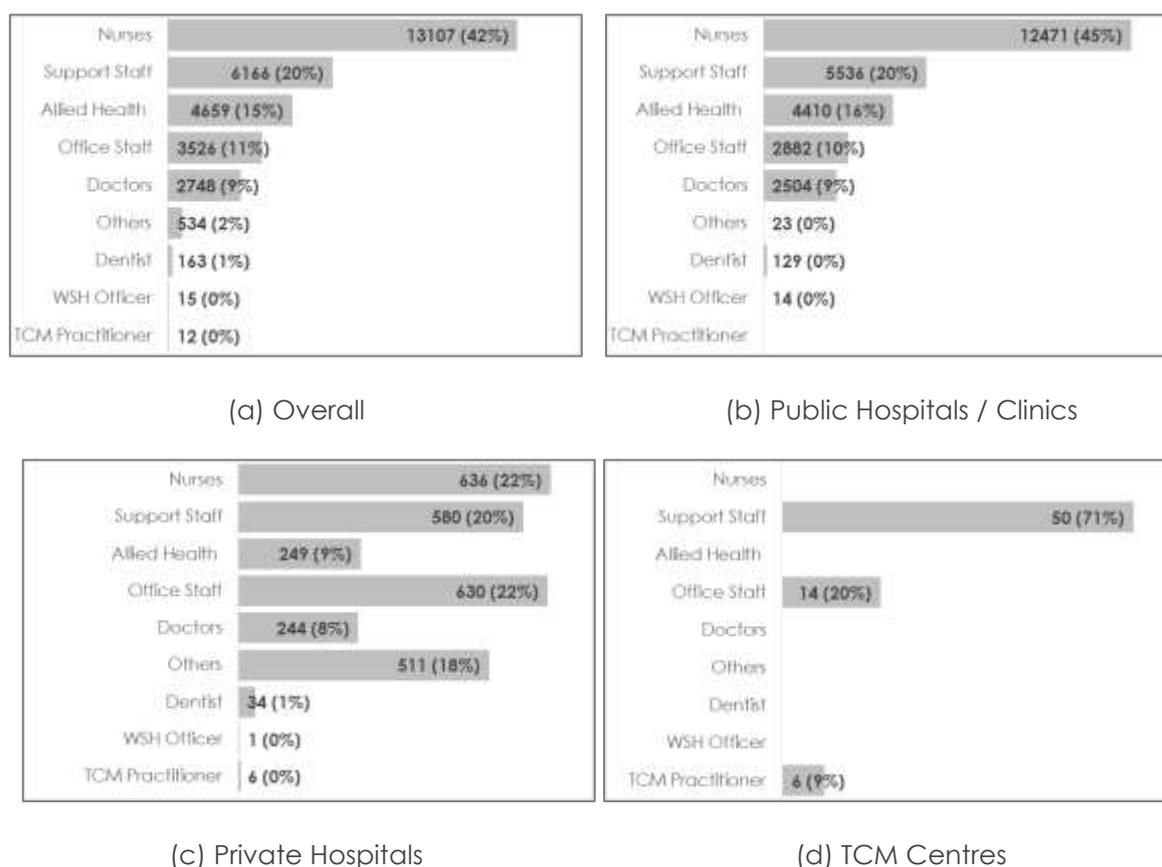


Figure 1 Employment by Occupational group and Organisational Setting

¹ Office Staff constitutes of middle and upper management.

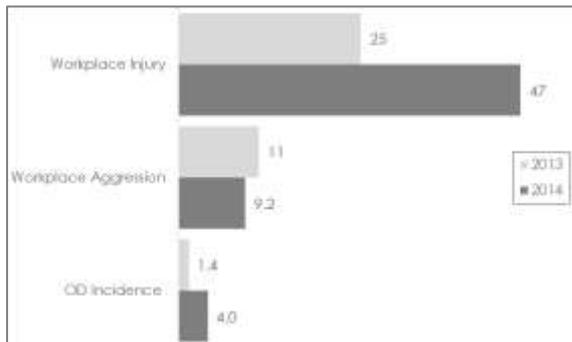
2. WSH Management System:

- **5** of the 8 institutions had attained JCI² accreditation.
- **3** were certified OHSAS 18001³ compliant, **6** were bizSAFE level 3⁴ certified and **1** was certified ISO 22000⁵.
- Collectively, the eight institutions employed **20** WSH / Biosafety officers, **2** occupational health nurses and **2** occupational medicine doctors. This represents a ratio of 1 WSH Professional to 1,289 employees.
- **6** institutions tracked first aid cases in 2014 and in 2013. Of these, **4** were public institutions; **1** was a private hospital and **1** was a TCM centre.
- **6** institutions tracked near misses. Average number of near misses per institution was **10.5** near misses in 2014 compared to **12.5** in 2013.

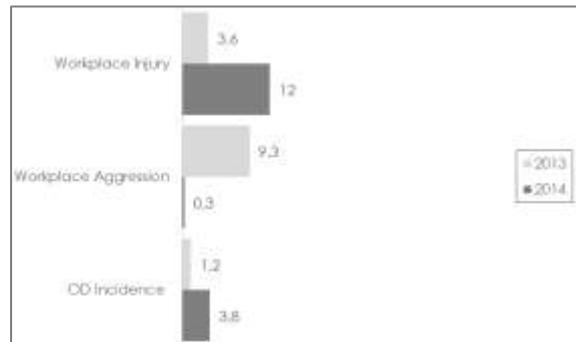
3. Workplace incidents:

A total of **2,488** workplace incidents were reported in 2014. These included:

- **1,465** workplace injuries (excluding workplace aggression), rate of **47** per 1,000 employed persons, compared to a rate of **25** per 1,000 employed persons in 2013;
- **284** cases of workplace aggression, rate of **9.2** per 1,000 employed persons compared to **11** per 1,000 employed persons in 2013;
- **125** cases of occupational diseases, rate of **4.0** per 1,000 employed persons in 2014 compared to an incidence rate of **1.4** per 1,000 employed persons in 2013;
- **63** near misses, rate of **2.0** per 1,000 employed persons;
- **551** unsafe acts / conditions.



(a) Overall



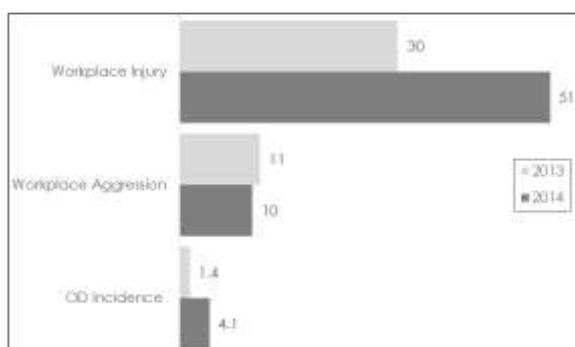
(b) Public Hospitals / Clinics

² JCI – Joint Commission International (JCI) works to improve patient safety and quality of health care in the international community by offering education, publications, advisory services, and international accreditation and certification.

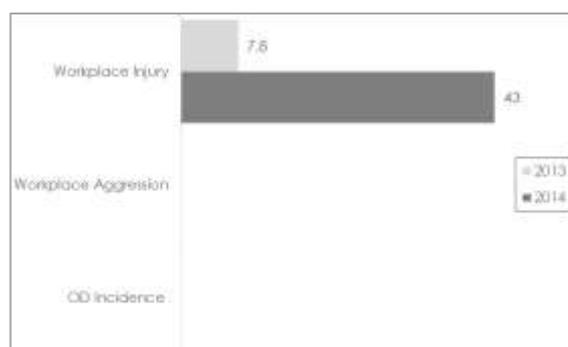
³ OHSAS 18001 - an internationally applied British Standard for occupational health and safety management systems.

⁴ bizSAFE Level 3 - bizSAFE is a five-step programme that assists companies to build up their WSH capabilities so that they can achieve quantum improvements in safety and health standards at the workplace.

⁵ ISO 9001 - ISO 22000 is a Food Safety Management System that can be applied to any organization in the food chain, farm to fork.



(c) Private Hospitals



(d) TCM Centres

Figure 2 Incident rates per 1,000 employed persons by organisational setting

4. Workplace injuries

Out of **1,749** workplace injuries (including workplace aggression),

- **1,673** injuries received 3 or fewer days of medical leave (MC). Sharps, including needle stick injuries, was the leading incident type with **712 (43%)** cases and falls with **511 (31%)** cases (Figure 3);
- **76** injuries received more than 3 days of MC. Table 1 shows the breakdown of the top 3 incident types from the study, which is comparable to that of the top 3 incident types for the **319** injury cases and more than 3 days MC reported to MOM from the Healthcare sector. The eight institutions collectively reported **121** injuries to MOM in 2014.

Study on 8 healthcare institutions					2014 National WSH Statistics ⁶ report	
Incident Type	Injury Rates per 1,000 employed persons				Injury rates per 1,000 employed persons	
	Overall	Public	Private	TCM		
Falls	0.9 (28)	1.0 (27)	0 (0)	14.3 (1)	Falls	1.1 (95)
Hit by a moving or falling object	0.5 (16)	0.6 (16)	0 (0)	0 (0)	Struck by moving / falling objects	0.7 (63)
Sharps	0.2 (6)	0.2 (6)	0 (0)	0 (0)	Cuts / Stabbed by objects	0.2 (16)
All injuries	2.5 (76)	2.6 (74)	0 (0)	28.6 (2)	All Injuries	3.6 (319)

Table 1 Comparison between top 3 incident types from study and 2014 National WSH Statistics for the healthcare sector **Note:** Figures in parenthesis are number of injuries.

⁶ Workplace accidents (more than 3 days medical leave or resulting in at least 24 hours of hospitalisation or death) and occupational diseases.

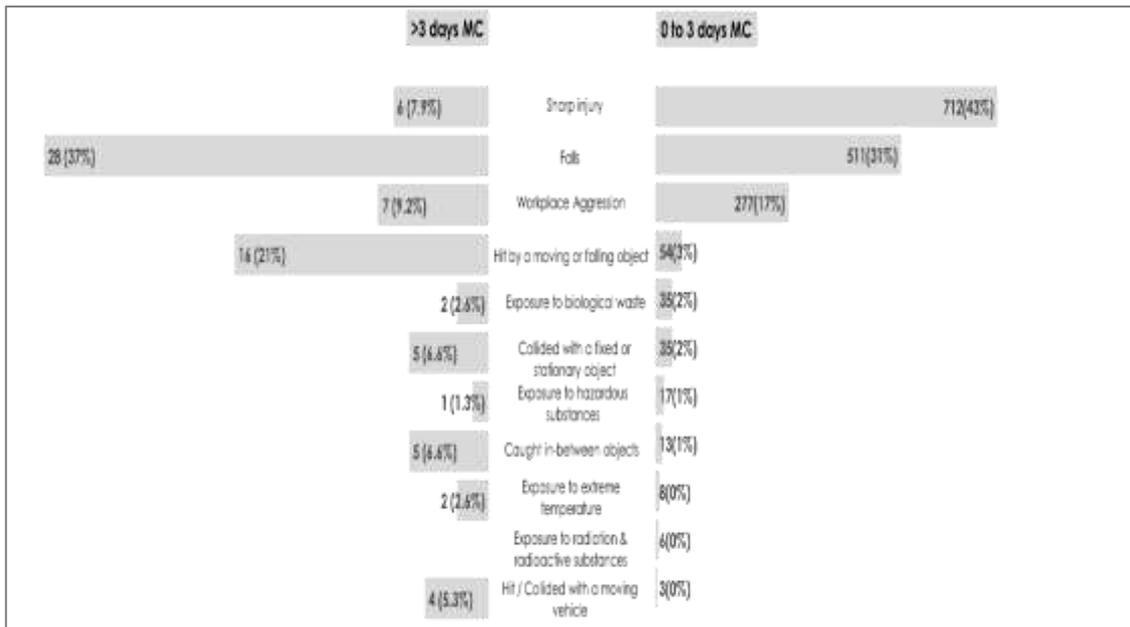
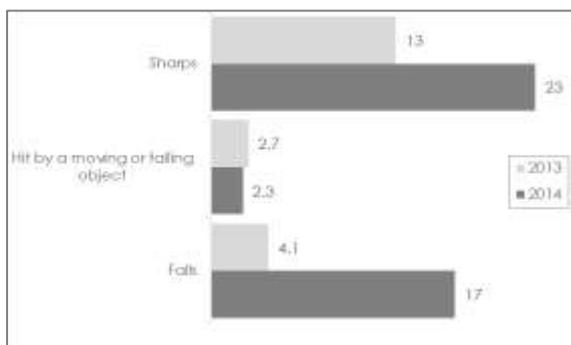


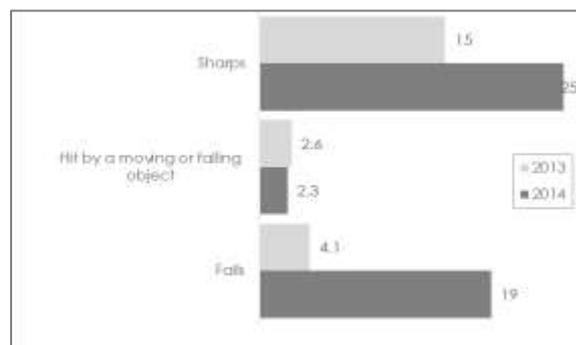
Figure 3 Injuries by Incident Type and Length of Medical Leave, 2014

Referring to Figure 4,

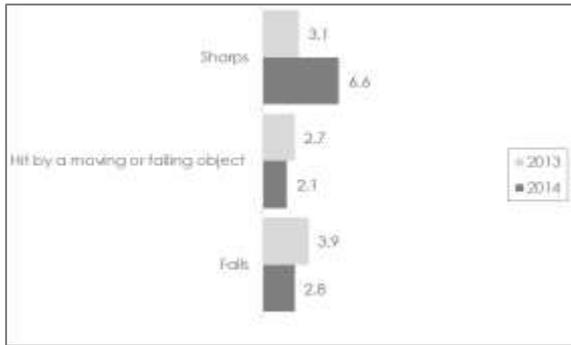
- Incident rate for injuries due to falls was **17** per 1,000 employed persons, compared to **4.1** per 1,000 employed persons in 2013.
- For injuries due to being hit by a moving or falling object, the incident rate in 2014 was **2.3** per 1,000 employed persons compared to **2.7** per 1,000 employed persons in 2013.
- For injuries due to sharps, the incident rate in 2014 was **23** per 1,000 employed persons compared to **14** per 1,000 employed persons in 2013.
- In 2014, public hospitals had a fall injury rate of **19** per 1,000 employed persons compared to 4.1 in 2013.
- Sharps injuries saw an increase in all settings. In public hospitals, **25** per 1,000 employed persons were injured due to sharps in 2014, higher than the rate of **23** per 1,000 employed persons for all 8 institutions.



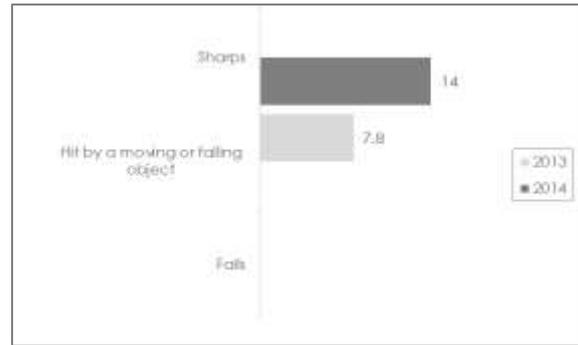
(a) Overall



(b) Public Hospitals / Clinics



(c) Private Hospitals



(d) TCM Centres

Figure 4 Injury Rates per 1,000 employed persons for top 3 Incident types by organisational setting

5. Occupational diseases:

- A total of **125** occupational disease cases were reported to the eight healthcare institutions, a rate of **4.0** per 1,000 employed persons. The eight institutions collectively reported **8** occupational diseases to MOM in 2014.
- The leading occupational disease was work-related musculoskeletal disorders with **115** cases, followed by work-related infectious disease with **8** cases of tuberculosis and **2** cases of occupational skin disease.
- OD rate for work-related musculoskeletal disorders due to handling, lifting or carrying object/patient was **3.7** per 1,000 employed persons in 2014 compared to **1.3** per 1,000 employed persons in 2013.
- Both public and private hospitals and clinics had an increase in OD rates per 1,000 employees in 2014 compared to 2013.

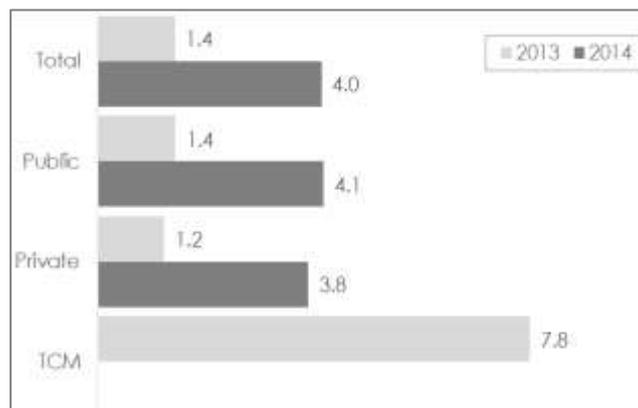


Figure 5 OD rates per 1,000 employed persons by organisation setting

6. Workplace aggression

- All 8 institutions tracked workplace aggression cases in 2014. A total of **284** cases were reported to their internal reporting system, an incident rate of **9.2** per 1,000 employed persons, compared with **10.6** per 1,000 employed persons in 2013.



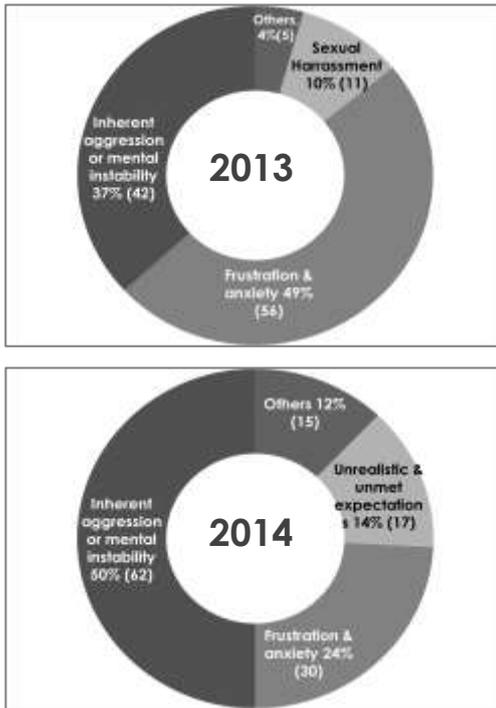
Figure 6 Workplace aggression rates per 1,000 employed persons by organisation setting
Note: Figures are rates per 1,000 employees and in parenthesis are absolute numbers

Overall, both the rates of verbal and physical abuse decreased from 2013 to 2014. For public hospitals and clinics, verbal abuse reduced from 5.4 per 1,000 employed persons in 2013 to 4.3 in 2014. For private hospitals, rates for physical and verbal abuse reduced significantly. For TCM centres, 10 cases for verbal abuse were reported in 2014 at a rate of 143 per 1,000 employed persons in 2014 up from 0 in 2013.

	Verbal Abuse	Physical Abuse
Patient	26% (75)	52% (148)
Visitor	20% (56)	1% (2)
Staff	1% (3)	0% (0)

Table 2 Who is the Aggressor? **Note:** Figures in parenthesis are number of incidents

Patient was the aggressor in **78%** of the cases, followed by visitors being the aggressor for **21%** of cases. **52%** of cases involved physical abuse by patients.



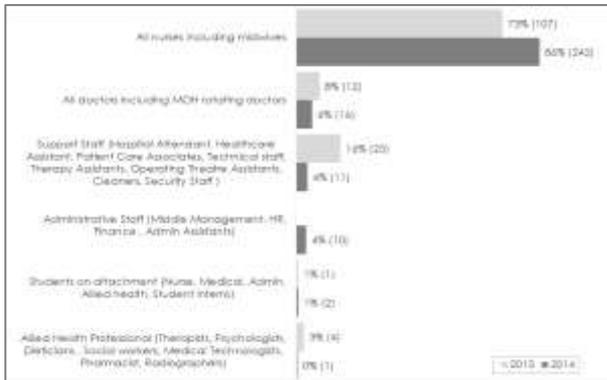
More than **85%** of workplace aggression cases were caused by psychological causes. The top group was "Inherent aggression⁷ or mental instability" making up half of the cases in 2014.

Frustration & anxiety was the next key reason, citing long waiting time, lack of information or boredom and anger.

In 2013, inherent aggression or mental instability cases accounted for **37%** of cases while frustration & anxiety was **49%**.

Figure 7 Top 3 Causes for aggression

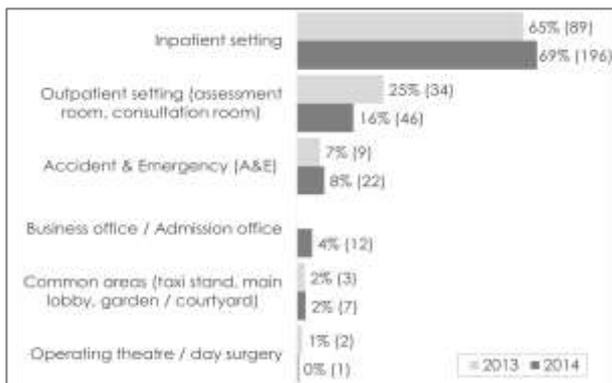
Note: Figures in parenthesis are number of cases



In 2014, **86%** of workplace aggression victims were nurses, up from **73%** in 2013. For support staff, there was a four-fold reduction of cases in 2014 compared to 2013. **4%** of victims were administrative staff in 2014, compared to none in 2013.

Figure 8 Aggression Victims' Profile **Note:** Figures in parenthesis are number of cases

⁷ Aggression in nature of something though not readily apparent



69% of workplace aggression incidents occurred at the inpatient setting in 2014. In 2014, **12** workplace aggression cases were reported at business office / admission office, versus none in 2013. A&E aggression cases increased from **9** in 2013 to **22** (8%) in 2014.

Figure 9 Location of Incident **Note:** Figures in parenthesis are number of cases

It is noteworthy that despite the high incidence of abuse of healthcare nurses, only **33** cases of physical assault or abuse were reported to MOM for the healthcare sector in 2014, compared to **36** in 2013. We need to better understand the reasons why cases of abuse are not reported.

7. Root causes

Institutions conducted investigations for **713** cases to identify the root causes for the incidents. The investigations revealed that human factors and insufficient training and competency were the two main root causes for work-related incidents and ill-health, contributing to **49%** of the cases. **28%** was due to human factors and **21%** were due to inadequate training or knowledge or skills to operate equipment. Examples of human factors were negligence, distraction, decision error, etc. In comparison, in 2013, unsafe work environment was the leading root cause for incidents, contributing to **49%** of cases.

Root causes	No	%
Human Factor e.g. ergonomics, distraction, decision errors	204	28%
Training & Competency e.g. knowledge / skills to operate equipment, Inadequate training	157	21%
Abuse & Harassment	119	16%
Equipment or machinery failure / lack of appropriate equipment	105	14%
Environmental factors e.g. poor lighting , flooring , drainage problem	77	11%
Lack of Communication	36	5%
Medical Conditions i.e. pre-existing medical conditions, etc.	12	2%
Poor housekeeping	9	1%
Administrative constraints e.g. policies / guidelines / safe work procedure	8	1%
Manpower challenges e.g. scheduling shift work problem, shortage of staff , excessive overtime	4	1%

Table 3 Root causes for work related incidents and ill- health

Recommendations:

1. Improve reporting system

- Institutions would benefit from setting up a robust reporting system. This would enable senior management to appropriately identify the priority programmes to put in place.
- Reporting system includes :
 - notification of occupational disease such as WRMSD;
 - near misses, unsafe acts and conditions;
 - Injuries that require 3 or fewer days of MC.

2. Increase staff level risk awareness

- Institutions could implement Behavioural Observation & Intervention (BOI) program to encourage staff to regularly observe for WSH good practices or infringements and submit to the in-house WSH committee for their further actions.
- Institutions may want to focus on building staff level awareness in order to reduce incidents due to human factors such as ergonomics, distraction and decision errors.
- This programme would help build risk awareness amongst staff and create an inter-dependent environment, resulting in a stronger WSH culture.

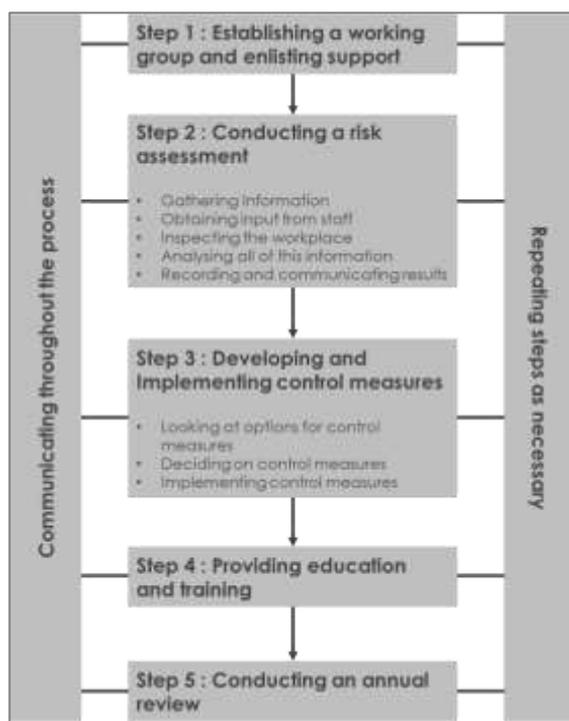


Figure 10 Steps Involving Risk Management

3. Involve staff in managing WSH

In addition, healthcare institutions could involve their employees in the systematic review of their WSH management system, ensuring that risk assessment is conducted for all hazardous work activities, that control measures are adequately communicated to employees and employees are adequately trained to recognise and manage hazards (Figure 10).

Employee participation in the review activity would increase understanding, buy-in and compliance of safe work procedures. When identifying control measures, consider control measures which are as high as possible in the Hierarchy of Controls e.g. elimination / substitution, engineering measures instead of recommending use of personal protective equipment.

(a) To reduce MSD due to over exertion / strenuous movement from manual lifting and transferring of patients, a No-lift policy could be considered.

(b) To prevent the risk of acquiring blood-borne infections from injuries caused by contaminated sharps / needles, the following are recommended:

Institutions should	Employees should
<ul style="list-style-type: none"> • Establish an infection control training programme that meets all the requirements of the OSHA blood borne pathogens standard⁸ • Eliminate the use of needle devices whenever safe and effective alternatives are available • Provide needle devices with safety features • Provide sharps containers for workers to bring into clients' homes • Provide post-exposure medical evaluations 	<ul style="list-style-type: none"> • Avoid using needles whenever safe and effective alternatives are available • Avoid recapping or bending needles that might be contaminated. • Plan for the safe handling and disposal of needles before use • Store sharps containers out of the reach of children, pets, and others not needing access • Secure used sharps containers during transport to prevent spilling • Follow standard precautions, infection prevention, and general hygiene practices consistently • Participate in your institution's blood borne pathogens training programme • Help your employer select and evaluate devices with safety features • Use devices with safety features provided by your employer • Report any needle stick and other sharps immediately to your employer.

(C) To help manage workplace aggression, institutions could implement a programme to manage workplace aggression. This would include training supervisors and managers to recognize high-risk situations, so they can ensure that employees are not placed in assignments that compromise their safety.

Strength and limitations of study:

As the study was limited to only public and private healthcare organisations in the committee, it would not represent the entire healthcare sector in Singapore. The other limitation is that this is based on self-reporting which is subject to reporting bias. However, it serves as a useful tool to identify gaps and to monitor effectiveness of WSH management systems of big healthcare institutions.

For cases of workplace aggression, there may be a duplication in the counting of cases as this was also included as one of the causes for workplace injuries. Hence, for future analysis, greater clarity is needed to de-conflict these cases.

⁸ <http://www.osha.gov/SLTC/bloodbornepathogens/index.html>

For institutions that had participated in both rounds of the study, the increase in the workplace injury rates from 2013 to 2014 could be due to the increase in awareness or compliance with notification requirements.

In 2014, back injuries cases due to handling, lifting or carrying of objects / patients were re-classified and analysed as work-related musculoskeletal disorder (WRMSD) in the National WSH stats report. To align with the changes, these cases were re-classified as WRMSD.

Conclusion:

The study has successfully identified new concerns as it covered all incident reports received by the eight institutions, not limited to the statutory incident reporting requirement of more than 3 days MC or hospitalisation for work injuries. This analysis has therefore identified sharps injuries and work-related musculoskeletal disorders from handling, lifting or carrying object or patient as priority concerns to address. To reduce under-notification of occupational diseases and workplace aggression cases, institutions may need to heighten management's awareness on their statutory duty to notify work-related injuries and occupational diseases to MOM.

Acknowledgement:

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1. Changi General Hospital
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3. National Healthcare Group Polyclinics
4. National University Health System
5. Raffles Medical
6. Ren Ci Hospital
7. Singapore General Hospital
8. Singapore TCM

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