Barriers to reporting Hazard/Near Misses within a System Context

Abstract

This paper will review the barriers associated with the reporting of hazards/near misses within a systems context. There are numerous influencing behaviours, systems and procedural issues associated that influences whether individuals would or would not report hazards/near misses. This paper will look at what these issues are as well as highlighting grouping of the key factors that can be used to improve the reporting of hazard/near misses with a view to improving the standards of workplace health and safety standards for all those affected.

Introduction

H. W. Heinrich's work in Industrial Accident Prevention was first published in 1931. It was one of the first occasions in Industrial Safety that looked at the relationship between hazard/near misses and incidents resulting in harm. One concept that has been widely embraced and developed by others is the accident triangle: the hypothesis that rather than focus on the few injuries at the top of the triangle to learn how to avoid major and, in particular, catastrophic loss, we should focus on the many accidents or near accidents at the bottom or base of the triangle. (Anderson, M. 2010). Heinrich's Triangle is shown in Figure 1.

A **near miss** is defined as an event that, while not causing harm, has the potential to cause injury or ill health. A **hazard** is defined as the potential to cause harm, including ill health and injury; damage to property, plant, products or the environment, production losses or increased liabilities (HSE, 2014). For the purpose of simplicity within this paper near misses and hazards are being referred to in the same context which is to ensure events where injury is not sustained and unsafe situations noticed do not lead to injury or damage.

Figure 1

System Context considerations

By considering the barriers with regard to hazard/near miss reporting within a system context perspective we are able to get a greater understanding of why, in some Organisations the rates of hazard/near miss reporting falls well below the figures quoted by Heinrich. Improving hazard/near miss reporting though is a complex issue and should be seen within a systems context perspective. There are many aspects that would influence an improvement in hazard/near miss reporting and

these factors are shown in Appendix 1. However, we also need to consider that through the passage of time from the 1930's when Heinrich originally produced this study many practices have changed, and whether or not the study is still relevant today. This includes, but is not limited to, changes in the advancement of technology which has seen systems and process design being made safer, changes for individuals in general working patterns and the environments in which they work, the western world's tolerance of health and safety risk in general as a society decreasing, campaigns regarding their reporting and also the tighter legislative requirements with regard to health and safety standards. These aspects have been considered and included in the considerations depicted in Appendix 1.

These issues could have both a positive and negative effect on hazard/near miss reporting. For example general improvements in the advancement of equipment and technology has made the workplace a safer place. This has a direct impact on the number of potential hazards/near misses which would see the number of events decrease. To counter this however, the levels of awareness and training associated with health and safety in the modern world has raised the understanding of risk to a much higher level which should lead to a greater number of incidents being reported. These factors indicate the relationship between each of the elements and how a systems context has an effect on other potential factors associated with hazard/near miss reporting.

Positive messaging from hazard/near miss reports were used by an American Principal Contracting organisation during the construction of a power plant in the State of Louisiana with over 3.1 million man-hours worked without a lost time injury and very creditable recordable accident rates. There was a concerted focus by the project team to overcome the cultural barriers of hazard/near miss reporting by building a trust between the workforce and management, positive and visible action by the management as well as increasing the identification and knowledge around risks with the workforce (Williamsen, M. 2012).

Many Organisations are now stating a "Zero Accident" policy as part of a drive to eradication of all workplace incidents. There can be a noticeable difference between public and private companies in the approach to this target, with the private companies have tended to be advocates of this approach with regard to safety aspirations and economic considerations being mutually reinforcing as compared to public sector organisations (Twaalfhoven, S. 2016). The positive impact of reporting hazard/near misses has also been recognised as providing benefits via the legislative framework, The European Council's `Seveso II Directive' 96/82/EC, recognised this aspect, in addition to the mandatory requirements of major accident reporting—an explicit recommendation to report near misses to the Commission's Major Accident Reporting System (MARS) on a voluntary basis with the chemical industry (Jones, S. 1999).

There are also numerous studies within the medical profession where the importance of reporting incidents has been shown to have a direct effect on patient care and medical practice. A survey within six South Australian hospitals found that despite both doctors and nurses being aware of the incident reporting procedure, they were more likely to report incidents which are habitually reported, often witnessed, and usually associated with immediate outcomes such as patient falls and medication errors requiring corrective treatment. Near misses and incidents which occur over time such as pressure ulcers and DVT due to inadequate prophylaxis were least likely to be reported. The most frequently stated barrier to reporting for doctors and nurses was lack of feedback (57.7% and 61.8% agreeing, respectively). Both doctors and nurses believe they should report most incidents, but nurses do so more frequently than doctors (Evans, S. 2006).

In the Republic of Ireland, a three year pilot study for The National Haemovigilance Office has collected and analysed reports on errors associated with transfusion since 2000. 759 near miss events were

reported across 10 hospital sites with sample collection the most common risk identified during the study with 62% of incidents reported. The study supported the commonly held theories around hazard/near misses occurring far more frequently than adverse effects causing harm (Lundy, D. 2007).

By referring to The Theory of Planned Behaviour (Lee, Y. 2016) information was gathered regarding the intentions of nursing staff to report incidents. Samples were collected from nursing staff at 40 regional or larger hospitals with the perceived cost and perceived benefit of incident reporting found to directly affect the attitude toward incident-reporting behaviour, and self-efficacy influences perceived behavioural control.

Occupational health nursing plays a critical part in improving the safety of foreign labour workers however barriers such as language barriers, low literacy levels and cultural differences were not considered to be adequately covered within the development and delivery of safety training programmes which was considered an oversight, potentially can lead to more injuries and fatalities among this group. By utilising alternative teaching strategies to help promote hazard/near miss reporting as well as hands-on training has had an impact on the reduction of occupational significant number of non-native English speakers are injured or killed in preventable, occupation-related accidents (De Jesus-Rivas, M. 2016).

Again within the healthcare environment studies have been undertaken with regard to non- reporting of hazard/near misses highlighting the attitude to a whistle blower and the likelihood of incidents being reported if they feel threatened about highlighting issues. The importance of highlighting issues for the benefit of patient safety is not disputed, however the fate of a whistleblower within a Healthcare organisation is not usually rewarded, in fact there are many incidents where whistleblowers will either resign from their role, be blacklisted or ostracized by their work colleagues. This can also have a wider impact on them which could include personal suffering such as marriage breakdown, longer lasting financial, health and personal problems (Jones, A 2016).

Barriers were also found relevant to worker's compensation claims amongst unionized Las Vegas hotel room cleaners, stating that the three main reasons they did not report incidents and or injury was that it was too much trouble (43%) they were afraid to raise the issue (26%) and not knowing how to report (18%). Of all the claims submitted for compensation claims, 35% of the claims were denied (Scherzer, T. 2005). Within the construction industry, small sub-contract organisations are sometimes reluctant to report hazard/near misses to the Principal Contractor. A study within the Australian construction industry found that the main barriers to effective implementation of improved standards were cost, language and educational barriers as well as a fear of change (Loosemore, M. 2007).

Despite the level of research as to why there are poor levels of hazard/near miss reporting, there is also an opportunity to gain business value from capturing hazard/near miss information which provides learning opportunities for Organisations. The moral and business drivers for the active and robust near miss reporting approach benefits improved employee engagement to aid effective, efficient and a longer term solution to issues (Ritchie, N. 2016).

Improving hazard/near miss reporting though is a complex issue and should be seen within a systems context perspective. There are many aspects that would influence an improvement in hazard/near miss reporting and these factors are shown in Appendix 1. To give a better understanding of the level and high degree of interaction across so many facets and how they are related, free hand drawn arrows demonstrate the connections between the various factors and Table 1 has grouped them into three areas for ease of reference. These three distinct emerging groups have been headed as follows but within the systems context they are also dependent on the other two groupings;

- Leadership/Management
- Process and Procedures &
- Culture/Individual behaviours

It is acknowledged that some of these individual factors could be placed under a different grouping depending on an individual's perception of particular element through their own experience and or knowledge. The chosen topic also has a degree of complexity at both the detailed (many individual components) and at a dynamic level (a high level of interaction between the components). By the very nature of a systems context approach many of the elements that make up a system have an impact on other elements.

Table 1

System Context Elements		
Barriers to Hazard/Near Miss reporting		
Leadership/Management	**Process/Procedures**	**Culture/Individual's Behaviours**
No targets set	No Procedures	Inaccuracy of reporting
Targets set unrealistic	Procedures not followed	Time pressures on reporting
Leadership not leading by example	Trends not identified	Lack of training
Lack of management action on reports	Procedures inadequate	Inexperience of hazards
Pressure on job performance	Issues fixed without reports being raised	Little/no perception of risk
No feedback	Contractors unaware of requirements	Risk tolerant
No recognition	Contractors unwilling to raise issues	Little/no awareness of requirements
Poor feedback on change	Contractors not included	Cultural differences across the workforce
Recognition inadequate	Contractors risk tolerant	Concerns over job security for raising reports
No incentive schemes	Difficult to report	Reporting not convienient
No regular reinforcement	Complicated reporting system	Feeling that nothing will change
	Poor descriptors within system	Staff unwilling to speak up
	Availability of material	Peer pressure

In order to demonstrate as an example how individual factors are connected in a multitude of aspects within a systems context by using the "complicated system" box that is found in Appendix 1 and highlighted in Table 1 under the grouping of "Process/Procedure" we can easily identify those other factors which are impacted as connections and are barriers to the reporting of hazard/near misses. A complicated system impacts the following - Inaccuracy of reporting, the availability of near miss material, time pressures on reporting, poor descriptions of hazard/near misses and the inability to identify trends. Other factors which are connected to a complicated reporting system include – people not being able to follow the system, lack of management action on reports, reports being difficult to report as well as contracting organisations not being included.

Conclusion

In order for Organisations to continue to provide safe and healthy places of work for their employees and other affected by their operations, encouraging hazard/near miss reporting should be continued. As has been shown in the research mentioned within the main body of the study, feedback to individuals is a critical element to improving hazard/near miss reporting. This feedback can be as a reinforcement mechanism, highlighting the positive messages and rewarding those individual and teams who are reporting hazards/near misses but could also be considered to be used as balancing feedback for not reporting. However as Table 1 clearly shows there are numerous aspects within the system context that would potentially have an adverse effect if the level of balancing feedback became disproportionate to that of the reinforcement feedback. This is potentially an area where further study could be beneficial with regard to encouraging hazard/near miss reporting.

The Butterfly effect of leadership and management involvement is also a key area which it is believed would have a positive effect on improving hazard/near miss reporting. If the senior management team are taking an active role in both encouraging the reporting of hazard/near miss reporting and participating in making observations themselves as well as ensuring suitable reward and recognition schemes are available to members of staff, the reporting is likely to improve. The focus on Heinrich's triangle has been on improving the reporting of hazards and near misses, however for Organisation's and society in general to make real strides in protecting individual's from risk there is much more research and consideration required to tackle the final element at the base of his triangle – 2 million unsafe acts.

References

1. Anderson, M. and Denkl, M., 2010, January. The Heinrich Accident Triangle-Too Simplistic A Model For HSE Management in The 21st Century?. In *SPE International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production*. Society of Petroleum Engineers.

2. HSE, 2014. *Health and Safety Executive.* [Online] Available at: http://www.hse.gov.uk/pubns/hsg245.pdf [accessed 21st July 2016]

3. Williamsen, M., 2012, January. Near-Miss Reporting: The Missing Link of Safety Culture Revolution. In *ASSE Professional Development Conference and Exposition*. American Society of Safety Engineers.

4. Twaalfhoven, S.F. and Kortleven, W.J., 2016. The corporate quest for zero accidents: A case study into the response to safety transgressions in the industrial sector. *Safety science*, *86*, pp.57-68.

5. De Jesus-Rivas, M., Conlon, H.A. and Burns, C., 2016. The impact of language and culture diversity in occupational safety. *Workplace health & safety*, *64*(1), pp.24-27.

6. Jones, S., Kirchsteiger, C. and Bjerke, W., 1999. The importance of near miss reporting to further improve safety performance. *Journal of Loss Prevention in the process industries*, *12*(1), pp.59-67.

7. Evans, S.M., Berry, J.G., Smith, B.J., Esterman, A., Selim, P., O'Shaughnessy, J. and DeWit, M., 2006. Attitudes and barriers to incident reporting: a collaborative hospital study. *Quality and Safety in Health Care*, *15*(1), pp.39-43.

8. Lundy, D., Laspina, S., Kaplan, H., Rabin Fastman, B. and Lawlor, E., 2007. Seven hundred and fifty-nine (759) chances to learn: a 3-year pilot project to analyse transfusion-related near-miss events in the Republic of Ireland. *Vox sanguinis*, *92*(3), pp.233-241.

9. Lee, Y.H., Yang, C.C. and Chen, T.T., 2016. Barriers to incident-reporting behavior among nursing staff: A study based on the theory of planned behavior. *Journal of Management & Organization*, *22*(01), pp.1-18.

10. Jones, A., 2016. The Role of Employee Whistleblowing and Raising Concerns in an Organizational Learning Culture–Elusive and Laudable?: Comment on" Cultures of Silence and Cultures of Voice: The Role of Whistleblowing in Healthcare Organisations". *International journal of health policy and management*, *5*(1), p.67.

11. Scherzer, T., Rugulies, R. and Krause, N., 2005. Work-related pain and injury and barriers to workers' compensation among Las Vegas hotel room cleaners. *American Journal of Public Health*, *95*(3), pp.483-488.

12. Loosemore, M. and Andonakis, N., 2007. Barriers to implementing OHS reforms–The experiences of small subcontractors in the Australian Construction Industry. *International Journal of Project Management*, *25*(6), pp.579-588.

13. Ritchie, N.W., 2016, April. Recovering Business Value From Near Misses. In *SPE International Conference and Exhibition on Health, Safety, Security, Environment, and Social Responsibility*. Society of Petroleum Engineers.

Appendices

Appendix 1

Systems Context Barriers to Hazard/Near Miss reporting