

Reporting Culture Prediction on Safety Performance by an Error Taxonomy System

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Incident Reporting System

An incident reporting system, which has been widely used as a primary means of risk management not only in safety critical human-machine domains such as aviation, maritime operations and nuclear power industry but also in health care. Cases which have typically been reported as patient safety incidents include unintended events during their process and the events potentially may, or actually did, result in injury, harm or loss to patients [1]. Events that caused adverse outcomes such as temporary or permanent disability, death and prolonged hospital stay by medical management rather than the patient's underlying condition are termed adverse events [2]. A primary purpose of incident reporting is, through systematic analysis of incident cases, to learn effectively from negative experiences within a health care organization, in order to improve its safety and quality. Thus, a primary function of the reporting system is to obtain stories from which one can learn, i.e. narratives contained in incident reports. As several researchers validated and supported, it may be acceptable as the "common cause" hypothesis that causal pathways of near misses are similar to those of accidents (causing severe injuries and damages) proposed by Heinrich [3]. Accepting this hypothesis, we can obtain a rich amount of information from a great number of near misses or effect-free incidents (in addition to a small number of adverse events) not only to make organizational learning but also to identify latent causal factors for health care accidents. To facilitate such analyses for exploring root causes and risk factors of medical accidents, human error taxonomy can be of great help and critical use for the incident analysis.

An Error Taxonomy System

The concept of a taxonomy system combines terminology and the science of classification for retrospective error analysis, e.g. in the case of patient safety, the identification and classification of things that went wrong in health care, the reasons why they occurred, and the preventive strategies that might be able to minimize their future occurrence [4]. The taxonomy system can also be prospectively applied to error prediction. Thus, human error taxonomy in health care has potentially three aims: first, to understand the nature and characteristics of errors, events and their associated factors from various professional perspectives; second, to identify the risk factors (latent causal factors) that exist in a specific organization; and finally, to assess the current level of risk or safety, in particular related measures to safety culture/climate Itoh et al. [5] for a given organization. Regarding safety culture, there have been suggested three inter-related component cultures by Reason and Hobbs [6]: reporting culture – organizational climate in which health care employees are willing to report their errors; just culture – atmosphere of trust in which they are encouraged, fairly treated and even rewarded for error reporting; and learning culture – willingness and competence needed to draw right conclusions from the past experiences collected by the incident reporting system, and the will to implement major reforms when need is indicated. Therefore, not only learning culture but also reporting culture may be estimated by information contained in incident reports.

For the benefits mentioned above, a variety of taxonomy systems have been developed as common frameworks for incident analysis in health care. Most of health care taxonomies have included the following dimensions: (a) event type (what happened); (b) setting and place occurred; (c) errors and causes; (d) contributing factors (situation and hazards); (e) impact (outcome, consequences, or level of harm); and (f) lessons learned (measures taken or proposed, or prevention and mitigation). In addition, dimension related to maturity of reporting to evaluate the reporting culture was also recommended to include.

Reporting Culture Prediction on Safety Performance

In general, reporting culture is assumed to predict safety – that is, the more that staff demonstrate willingness to report and report in detail, the greater is their sensitivity to errors, the greater the learning potential, and therefore, the greater is the safety in the setting. Thus, application results of reporting culture by an error taxonomy system have the predictive function on safety performance in a specific organization. However, there were few studies which have validated its proactive use which should be paid attention on in the future.

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