

TitleThe Investigation and Analysis of Critical Incidents
and Adverse Events in HealthcareAgencyNCCHTA, National Coordinating Centre for Health Technology Assessment
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Aim

To review methods of investigating and analyzing accidents and near misses in health care, supplemented by a parallel overview of methods of investigation and analysis in other settings.

Conclusions and results

All techniques could potentially be applied in any specialty or discipline related to health care. While a few studies looked solely at death as an outcome, most used a variety of outcomes including near misses. Most incidents were investigated by interviews and primary document review. All techniques included papers that identified clinical issues and attempted to assess underlying errors, causes, and contributing factors. The extent and sophistication of these attempts varied widely. Review of accident investigation methods in high-risk industries reveals techniques that are potentially useful in health care. Two techniques used in health care are of particular interest and potential: Root Cause Analysis (RCA) and Organizational Accident Causation Model (OACM). Methodological developments in other approaches, eg, group-based approaches in Significant Event Auditing (SEA), might also be transferable.

Recommendations

Our reviews demonstrate considerable potential for further development of techniques, the utilization of a wider range of techniques, and a need to validate and evaluate existing methods. This would make incident investigation more versatile and use resources more effectively.

Methods

Twelve techniques from other high-risk industries were reviewed using criteria developed for the purpose. Initial searches of healthcare databases identified 1950 potentially relevant papers. After screening the abstracts, 562 papers were obtained for further review. Further screening identified 152 papers for formal appraisal, and a further 104 contained useful background information. A formal appraisal instrument was designed, piloted, and modified until reliability was acceptable. From the 152 papers, 6 techniques were found to represent clearly definable approaches to incident investigation and analysis. We excluded techniques used in fewer than 5 peer-reviewed, published studies. All relevant papers, to a maximum of 10, were reviewed for each of the 6 techniques: Australian Incident Monitoring System (AIMS), the Critical Incident Technique, SEA, RCA, OACM, and Comparison with Standards approach.

Further research/reviews required

Further exploration of techniques used in high-risk industries, with interviews and observation of actual investigations, should prove valuable. Existing healthcare techniques would benefit from formal evaluation of their outcomes and effectiveness. Studies should examine depth of investigation and analysis, adequacy and feasibility of recommendations, and cost effectiveness. Examining the implementation of recommendations is a key issue. The principal recommendations are:

- *Define techniques and provide manuals and guidelines.* Need to develop manuals and describe methods of investigation and analysis, detailing purpose, context, and process.
- *Resources and need for training.* Healthcare professionals need training and experience in investigations. Local teams need time to report on implementing change.
- *Implement change.* Researchers and investigation teams need to give more attention to recommendations for and implementation of change. Need to link findings to prevention.
- *Integrate techniques.* Investigators of clinical incidents need 'tool-box' of approaches, ie, specific techniques for different purposes and at different stages of an investigation.