**Review Protocol**

This review protocol follows the protocol template by PROSPERO https://www.crd.york.ac.uk/prospero/

**Citation**

Elissa Dabkowski, Joanne Porter, Warren Smith, Alex Fernando and Liz Seaward and Michelle James. An analysis of systemic incident investigation methodologies applied in serious injury or fatality events: A rapid systematic review.

**Review question**

This review question was devised using the PICO framework. The overarching aim of this review is to explore the various systemic methods in the literature that are used to measure serious injury or fatality events in industries. The research question guiding this review is: *What systemic methodologies are used in the analysis of serious injuries or fatalities in the workplace?*

This review seeks to summarise the current literature and identify and gaps that would benefit from further inquiry.

**Searches**

This review follows the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) statement. The following electronic databases will be used in the review:

EBSCO: Academic Search Complete, CINAHL Complete, Medline, APA PsycArticles, APA PsycInfo, Business Source Ultimate, Business Source Complete, EconLit, ERIC, Inspec, Cochrane, Scopus, Emerald (Emerald Insight) and Web of Science.

This review will use a varied Boolean and truncation search approach using key words “Incident” or “System\*” or “fatality” or “injur\*”, “Investigation”, “methodology” or “theory” and their variations. All full text, English language and publications released between the years 2000-2022 will be screened. Revision of selected article bibliographies and consultation with industry experts will also be conducted. The search strategy will be detailed in a PRISMA flow chart (Page et al., 2021). Results to be imported to Endnote, in which duplicates will be removed. The authors will use Covidence for screening, full-text review, quality appraisal and data extraction.

**Types of study to be included**

Peer-reviewed quantitative, qualitative or mixed methods studies will be considered.

**Condition or domain being studied**

This review will explore systemic methodologies for conducting incident investigation of serious injury or fatality events in workplaces.

**Participants/population**

Inclusion: systemic methods, industrial accidents involving serious injuries or fatalities

Exclusion: papers that investigate non-systemic methods such as sequential or epidemiological methods, near-misses

**Intervention(s), exposure(s)**

Any analytical methods of incident reporting pertaining to systems methods

**Comparator(s)/control**

Not applicable – we will not be using a comparator in our review

**Context**

Methodology for conducting incident investigations describes the way in which incidents can be documented and analysed to understand contributing factors and events. Methodologies differ depending on the industry in which the incident occurred and the factors to be considered. This review seeks to explore the range of incident investigation methodologies that exist for serious injury or fatality events in industry workplaces. We are interested in the use of systemic methodologies only, as systemic techniques provide a deeper understanding of how multiple factors within a system can contribute to an accident (Underwood and Waterson, 2019). Underwood and Waterson (2019) also argue that despite the plethora of research about systemic techniques, this approach is still yet to gain widespread acceptance within the incident analytic community.

Reference:

Underwood, P., & Waterson, P. (2019). Accident analysis models and methods: Guidance for safety professionals”. Figshare. Retrieved from https://hdl.handle.net/2134/13865

**Main outcome(s)**

A review of systemic investigation methodologies.

**Measures of effect**

As above

**Additional outcome(s)**

The researchers are also interested in models where incident investigation methodologies have been combined to create an aggregate methodology consisting of systemic and another approach.

**Data extraction (selection and coding)**

Following the literature search, the titles will be exported to Endnote and duplicates will be removed. Studies will be screened by two independent researchers, in which they will review the titles and abstracts of the studies. In the event of a discrepancy, a third researcher will be asked to moderate until general consensus is reached. After screening, the studies will be read in full and compared to the inclusion criteria to determine their eligibility for the review. The search strategy will be detailed in a PRISMA flow chart (Page et al., 2021).

For each included study, the researchers will extract the following data characteristics using an Excel spreadsheet: study authors, year and country, target industry, investigation methodology description, model usage, key outcomes, and limitations reported. To reduce human error and bias, the extracted data will be reviewed by 2 or 3 independent researchers to check for accuracy (Tawfik et al., 2019).

**Risk of bias (quality) assessment**

This review will explore a range of studies, including non-empirical publications and grey literature. Quality assessment tools such as the CASP checklists will be selected depending on the study design.

**Strategy for data synthesis**

A narrative analysis will be undertaken to describe and map the literature.

**Analysis of subgroups or subsets**

None

Contact details for further information

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**Organisational affiliation of the review**

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**Type and method of review**

Systematic map, Systematic review

**Anticipated or actual start date**

14th March 2022

**Anticipated completion date**

15th June 2022

**Funding sources/sponsors**

The authors have received a grant from Incident Analytics to complete this review. The CERG will complete the search independent to the team from Incident Analytics and will extract the data independently.

**Grant number(s)**

$10,000

**Conflicts of interest**

There is a potential conflict of interest with this review with the inclusion of team members from Incident Analytics. The CERG are aware of this potential conflict and have taken steps to ensure that the rigor of the review is not compromised in any way.

**Language**

English

**Country**

Australia

**Stage of review**

Review Ongoing

**Subject index terms**

Incident, accident, investigation, methodology, framework

**Stage of review at time of this submission**

Full-text screening