Natural Hazards Research Australia

Toward best practice for tracking potentially traumatic events exposure and organisational responses in emergency services

Final report

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We acknowledge the Traditional Custodians across all the lands on which we live and work, and we pay our respects to Elders both past, present and emerging. We recognise that these lands and waters have always been places of teaching, research and learning.

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We recognise and honour the strength and courage of those with lived and living experience of trauma and mental ill health and feel privileged to be working alongside and for those individuals, their carers and kin.

Image credit: Harold Bowen

Executive summary

Background and purpose

Emergency service workers are exposed to repeated potentially traumatic events (PTEs) throughout their careers due to the nature of their roles. These events can have negative and lasting impacts on individual mental health and wellbeing, as well as on the organisation more broadly. While tracking PTE exposure and organisational responses occurs in various ways across many high-risk organisations, there is a lack of evidence regarding the best approaches for such systems.

The Australasian Fire and Emergency Services Authorities Council (AFAC) Mental Health and Wellbeing Group identified the need to determine current best practice approaches for tracking. Natural Hazards Research Australia engaged Phoenix Australia - Centre for Posttraumatic Mental Health to undertake this project.

This project aimed to identify good practices for tracking:

- fire and emergency services workers' exposure to PTEs
- organisational responses to PTE exposure.

Given the lack of international evidence related to tracking systems, this report has drawn heavily on industry expertise, experience and current practice. It represents the industry's initial attempt to articulate potential good practice principles for PTE tracking systems.

While this project focuses on tracking systems for PTE exposure, there are a range of other operational and organisational stressors that can impact workers' psychosocial health. A tracking system is one part of a broader organisational mental health and wellbeing strategy in protecting and supporting the workforce.

Methodology

The project was conducted in three phases:

Phase 1: Best practice review: Comprised a literature review and expert consultations to identify and define tracking system elements, an environmental scan survey of current practices with Australian and international agencies and thematic analysis of survey data.

Phase 2: Developing good practice principles: Involved drafting an initial set of principles, two workshop consultations and Project Management Committee review to refine and finalise the principles.

Phase 3: Translation for practice: Involved development of a brief guidance document to assist fire and emergency service agencies in implementing good practice, development of a presentation pack to assist with dissemination, as well as conference presentations and other dissemination activities.

Key findings

Literature review: Very little published research on tracking cumulative PTE exposure in high-risk organisations, with no evidence-based best practices identified in either peer reviewed or grey literature. While nine different approaches to tracking PTEs/responses were found, primarily in grey literature, limited details were available on the implementation and effectiveness of these existing systems.

Environmental scan survey: Twenty-two emergency service agencies and high-risk organisations participated, providing a diverse and representative sample. Over half (64%) of these agencies had some form of PTE tracking system in place, while 73% tracked organisational responses to PTEs. Of the 14 implemented systems, 57% were rated as performing well to fulfil their purpose, while 21% were rated as underperforming. There was wide variability in approaches across agencies, including differences in definitions of recordable PTEs, data collection methods and technologies, analysis and reporting processes and the purposes and utilisation of tracking data.

Good practice principles: Through an iterative consensus building process, six key elements were identified, each with associated principles and sub-principles, categorising the range of considerations and characteristics for PTE and organisational response tracking systems into clearly delineated dimensions (see Figure A). The elements are:

1. Element 1: The **primary purpose of a tracking system** considers the motivations for having a tracking system, including the goals, purpose/s, and perceived benefits of the system for individuals, teams and organisations. The core purposes influence all stages in the design and development of any system/s and other elements.
2. Element 2: The **design and implementation of the system** considers the specific design, development and implementation aspects that are unique to an organisation's tracking system. This element interplays across all elements of a tracking system.

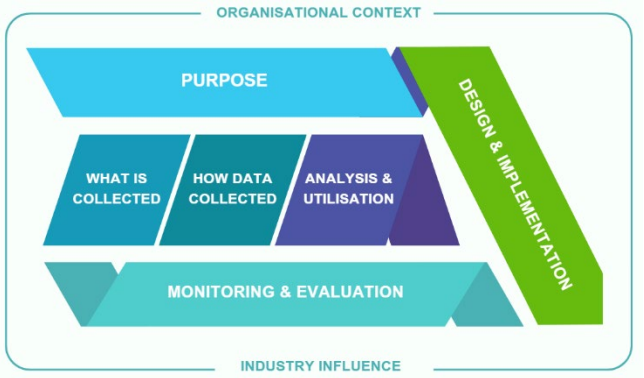


Figure A: Model of PTE and organisational response tracking system elements

3. Element 3: **What data is collected by the tracking system** considers what type of information is collected when a PTE exposure and/or organisational response occurs.
4. Element 4: **How is data collected and stored** considers the processes used to collect PTE exposure and organisation response data, as well as how data is stored by an organisation.
5. Element 5: **How is the data analysed, reported and utilised** considers how organisations analyse and report the PTE exposure, organisation response data and the purposes for which it is utilised.
6. Element 6: **Monitoring and evaluation of the system** considers the specific monitoring, evaluation and continuous improvement of tracking systems within the emergency service context. It ensures the system meets its purpose while minimising unintended negative consequences.

Implications and next steps

This project represents the industry's initial attempt to articulate good practice principles for PTE and organisational response tracking systems. Their implementation should be closely monitored for unintended impacts and the principles should be reviewed within two to three years. The principles are designed to be flexible and tailored to each agency's context. They are not intended to be prescriptive standards, but rather to guide decision-making and system improvement.

Potential next steps include determining conducting further dissemination activities, developing a self-evaluation tool for agencies, piloting and evaluating the use of the guidance, conducting research on the impacts of PTE tracking systems on workforce mental health and scheduling a review and update of the principles.

In conclusion, this project provides an important foundation for improving tracking practices in fire and emergency services, but ongoing evaluation, research and refinement will be critical as this area evolves. The principles developed in this project offer a starting point for agencies to assess current systems or implement new ones in alignment with emerging good practices.

Implementation of these principles may benefit from ongoing collaboration and engagement across the sector, with opportunities for cross-sector learning and adaptation of these principles.

As agencies consider these principles within their broader mental health and wellbeing approaches, there is potential for improvements in worker wellbeing and organisational outcomes. To build a stronger evidence base, it will be important for agencies to collect data on their experiences with PTE tracking systems and share these insights across the sector.

Introduction

Natural Hazards Research Australia (the Centre) engaged Phoenix Australia - Centre for Posttraumatic Mental Health (Phoenix Australia) to identify best practices for tracking fire and emergency services workers' exposure to potentially traumatic events (PTEs), and organisational responses to PTE exposure.

Emergency service workers are exposed to PTEs throughout their career due to the nature of their role. From a risk mitigation and management approach, agencies may benefit from identifying when a single and/or repeated exposure poses a risk to workers' mental health. The Australasian Fire and Emergency Services Authorities Council (AFAC) Mental Health and Wellbeing Group is committed to creating workplace environments within fire and emergency services agencies that are conducive to psychological health and safety, and where psychosocial risk management conversations are business-as-usual. The AFAC Mental Health and Wellbeing Group identified the need to determine best practice approaches for tracking PTE exposure and organisational responses to PTE exposure and potential purposes of doing so.

A **potentially traumatic event (PTE)** may include any threat, actual or perceived, to the life or physical safety of the individual, their colleagues, or those around them. The PTE term may be used interchangeably with 'critical incident' in emergency services. However, it's important to note not all critical incidents necessarily involve PTEs (e.g., cyber attack).

Tracking systems are introduced by an organisation as a coordinated approach or tools to track: (1) individuals' exposure to PTEs and/or (2) organisational responses to individuals exposed to PTEs.

This project sought to determine the best practice for (1) tracking fire and emergency services workers' exposure to PTEs, and (2) organisational responses to PTE exposure. This involved reviewing published literature on tracking approaches and gathering information on such approaches currently used in Australian and international high-risk organisations. However, given the lack of evidence in this area, the team consulted key representatives of the Australian emergency services sector and experts to reach an agreement on a set of developed principles to collaboratively determine current good practice approaches for tracking PTE exposure and organisational responses to PTE exposure. A brief guidance document outlining the good practice principles was also developed to support agencies in reviewing their alignment with agreed good practice. Additionally, the project findings were disseminated via conference presentations and the drafting of a manuscript for publication.

Overall, this project contributes to efforts within the fire and emergency services to better protect the mental health of their workers exposed to PTEs and by guiding decision making about implementing or improving tracking systems.

Background

The AFAC Mental Health and Wellbeing Group identified the need to determine best practice approaches for tracking PTE exposure and organisational responses to PTE exposure and the potential purposes of doing so.

This need has also been identified by others in this sector, as well as from other high-risk industries. In the context of the United States fire services, for example, O'Dare et al. (2023) recommend the development and implementation of mechanisms to systematically track and monitor critical incidents. Additionally, a review of the Northern Territory Road Ambulance Service, Fong (2017, p. 52) observed that "the experience from other first responder services identifies the need to monitor trauma exposure and the cumulative effect of frequent exposure to stressful situations". Additionally, the Victorian Public Sector Commission (2019, p. 12) *cumulative trauma framework* recommends the establishment of "a cumulative trauma working group within your workplace, tasked with the responsibility to monitor ongoing hazard profiles". Similarly, the Australian rail industry best practice *trauma management framework* (Phoenix Australia & TrackSAFE Foundation, 2012, p. 21) includes incident record-keeping, which would allow rail organisations to monitor firstly, the incidence and any patterns (e.g., time, location) of potentially traumatic incidents affecting the rail network and secondly, the cumulative exposure of individual

employees. Finally, Beyond Blue's (2018, p. 35) guiding principles for police and emergency services agencies include "tracking personnel's exposure to traumatic events and ensuring that management strategies and support options available consider the amount of exposure and cumulative exposure that personnel have had".

While there appears to be a majority view that there is a strong need for tracking systems, it is worth noting that an Expert Advisory Group Report prepared for St John Ambulance (WA) (Expert Advisory Group, 2018) questioned the value of implementing tracking systems to promote workers' mental health and wellbeing. They provided two main points. First, an unpublished literature review of the mental health of frontline paramedical personnel and allied professionals (e.g., police, fire and military cohorts) covering the period 2000–2017, concluded that "there appears to be no research directly supporting the evidence of trauma tracking for the promotion of mental health or wellbeing outcomes for volunteers, paramedics, emergency medical dispatchers, or any other emergency service personnel" (p.28). Second, the report argued that it cannot be assumed that a traumatic incident a person attends to, deals with, or hears about is problematic for them, as this assumption relies on the belief that perceptions of trauma can be objectively tracked. Rather, they argue, "the severity of trauma is a subjective experience and cannot be linked to the objective severity of call-outs as described in dispatch systems" (p.11).

Despite the lack of evidence substantiating tracking systems as a way to protect mental health and wellbeing in emergency services workers, Australian and international agencies perceive there to be value in doing so. As such, tracking exposure to PTEs and organisational responses to these exposures is a topic that warrants further research attention. The current project examined that topic using the approach described in the following section.

Project aim: Identify best practices for tracking fire and emergency service workers' exposure to potentially traumatic events (PTEs) and organisational responses to PTE exposure.

Project phases

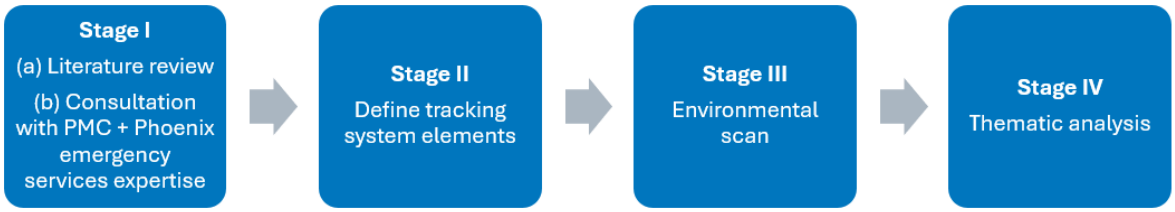
The current project consisted of the following three phases:

Phase 1: Best practice review. Comprised of a literature review and expert consultation (Stage I), definition of tracking system elements (Stage II), environmental scan survey (Stage III), and thematic analysis (Stage IV) (refer to Figure 1).

- In Stage I, recently published literature was reviewed to inform understanding of best practice approaches to tracking (1) exposure to PTEs and (2) organisational responses to PTE exposure. This understanding was supplemented through consultation with members of the Project Management Committee and Phoenix Australia's emergency services expertise.
- In Stage II, important tracking system elements (according to findings from Stage I) were identified and defined for use in the environmental scan. Elements represent dimensions of categorising similar tracking system principles and considerations (e.g., system purpose, what data is collected).
- In Stage III, the environmental scan involved surveying agencies within the Australian and New Zealand fire and emergency services sector to gather information about existing systems used to track exposure to PTEs and responses to PTE exposure. Related Australian agencies and departments, whose workers may experience high PTE exposure, and international agencies were also approached to complete the survey.
- In Stage IV, survey data from the environmental scan was thematically analysed to describe the types of systems used across the industry to track personnel exposure to PTEs and/or organisational responses to exposure, how they work in practice and their perceived strengths and limitations.

Findings from Phase 1 were included in the Phase 1 report and a presentation was delivered to the Project Management Committee.

Figure 1: *Depiction of phase 1: Best practice review*

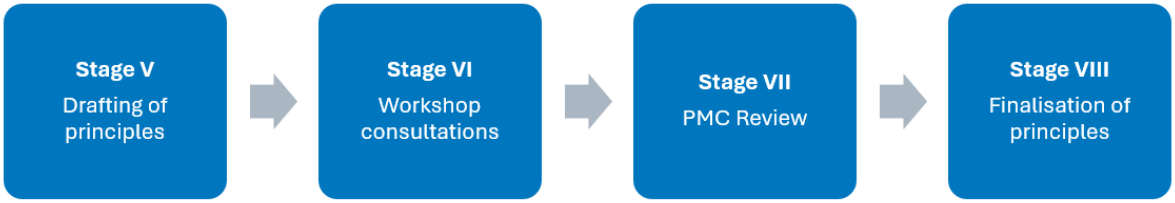


Phase 2: Developing good practice principles. Comprised of drafting principles (Stage V) and workshop consultations (Stage VI), Project Management Committee review (Stage VII) and finalisation of principles (Stage VIII) (refer to Figure 2).

- In Stage V, principles were drafted by the project team based on Phase 1 findings and shaped by team expertise.
- In Stage VI, two workshops were conducted with experts in the sector and the AFAC Mental Health and Wellbeing Group to move towards agreement on good practice principles for tracking systems. The workshops considered the key implications of Phase 1 findings on agency needs and gaps in existing systems, improvements to current systems and suitability for practices in fire and emergency services.
- In Stage VII, the Project Management Committee provided a third round of review and consensus building.
- In Stage VIII, the proposed good practice principles were finalised.

Information gathered from Phases 1 and 2 is synthesised in this final report and a presentation was delivered to the Project Management Committee.

Figure 2: *Depiction of phase 2: Development of good practice principles*



Phase 3: Translation for practice. To assist fire and emergency service agencies in implementing good practice, a brief guidance document was developed to translate the project findings into practice. The document will support agencies to align their current approach to tracking PTE exposure and responses with agreed upon good practice principles established through this project. The document will be disseminated to Australian and New Zealand fire and emergency service agencies and industries through the Centre, AFAC, the Project Management Committee and Phoenix Australia networks, and conference presentations and a peer reviewed publication.

This project has human research ethics approval from The University of Melbourne (Project ID 29234).

Report structure

The current report summarises the activities conducted between February and December 2024 and the related findings. It is structured as follows:

- **Phase 1: Best practice review.** This section provides a summary of the aims, methods and findings related to the literature review and expert consultation (Stage I), definition of tracking system elements (Stage II), environmental scan (Stage III) and thematic analysis (Stage IV).
- **Phase 2: Developing good practice principles.** This section provides a summary of the aims, methods and findings from the two workshop consultations (Stage V), Project Management Committee review (Stage VI), and presents the finalised good practice principles for tracking systems (Stage VII).
- **Phase 3: Translation for practice.** This section summarises the development of the guidance document for fire and emergency services. This section also provides an overview of key dissemination activities completed to date, including conferences and other presentations.
- **Discussion and implications:** This section summarises the key learnings from this project and proposes next steps to assist with further dissemination and practice change.

Phase 1: Best practice review

Stage I: Literature review and expert consultation

Aim and research questions

The aim of the literature review was twofold: (1) to understand best practice approaches to tracking cumulative exposure to PTEs and their application to responding to PTEs; and (2) to gather information for defining possible tracking system elements (in Stage II) to inform later stages of the project. To achieve this, the following three questions guided the review:

7. What has been published in the peer reviewed research (both Australian and international) regarding best practice approaches to tracking cumulative exposure to PTEs in emergency services and other high-risk organisations with staff exposed to PTEs?
8. What has been published in the grey literature (e.g., technical reports, white papers) regarding best practice approaches to tracking cumulative exposure to PTEs in emergency services and other high-risk organisations with staff exposed to PTEs?
9. What has been published in either the peer reviewed literature or grey literature on psychological risk management systems, infrastructure, assessment tools and/or recording platforms that have been implemented to track and respond to PTEs?

Methodology

The literature search involved searching national and international peer reviewed research and grey literature (e.g., technical reports, white papers, publicly available mental health strategies/policies) reporting on psychological risk management systems, infrastructure, assessment tools and/or recording platforms that are or have been implemented to track and respond to PTEs. Literature published between 2015 and 2024 (i.e., previous 10 years) was included.

To identify relevant literature, the following steps were undertaken:

- consultation with Dr Kit Huckvale from the Centre for Digital Transformation of Health, University of Melbourne to gather input on relevant technological terms and literature sources
- an initial scoping of the literature was conducted to inform the development of the search terms
- a structured, non-systematic search was performed across nine relevant databases, in addition to Google and Google Scholar (refer to Appendix 1 for the databases that were searched, and the search terms that were used)
- targeted searches of two highly relevant emergency services journals
- assistance from the Project Management Committee was sought to engage with the AFAC Mental Health and Wellbeing Group members around their knowledge and awareness of relevant literature to share with the research team. Once potentially relevant articles were identified, their reference lists were examined to identify other potentially relevant articles.

Results

The literature review revealed that very little has been published in Australia and internationally on the topic of tracking cumulative exposure to PTEs in high-risk organisations.

Evidence for best practice approaches to tracking

For questions 1 and 2, no peer reviewed or grey literature articles or reports were identified that addressed best practice approaches to tracking cumulative exposure to PTEs in emergency services and other high-risk organisations with staff exposed to PTEs. As such, there is currently no scientific evidence that provides insights into the impact that tracking exposures to PTEs in emergency services has on mental health outcomes, or on help-seeking behaviour. Despite the lack of best practice evidence and guidance, emergency services organisations perceive there to be value to such an activity (e.g., Beyond Blue Ltd., 2018; Fong, 2017; O'Dare et al., 2023).

Current tracking systems in literature

For question 3, two peer reviewed articles (Miller et al., 2022; O'Dare et al., 2023) and nine grey literature items (news articles, reports) (Australian National Audit Office, 2018, March 7; Essex Police, 2023a, 2023b; Koch, 2019, Aug 19; NSW Ambulance, 2017; NSW Police Force, 2020; St John Ambulance Australia (NT) Inc., 2019; The Senate - Education and Employment References Committee, 2019; Victoria Police, 2017) were identified that describe nine approaches (assessment tools, infrastructure, recording platforms, communication channels) that have been implemented to track PTE exposure and/or organisational responses to PTE exposure. These nine approaches are detailed in the paragraphs below, and Appendix 2 provides further description of these identified tracking approaches, as well as characteristics that emerged as common and/or key considerations for tracking approaches.

Within the peer reviewed literature, Miller et al. (2022) reported on the development of a self-assessment tool called the Police Traumatic Experiences Checklist, which was launched by Police Care UK in 2023[1] and aims to measure trauma exposure in United Kingdom (UK) policing. The broader topic of behavioural health access programs in emergency responder organisations was reported on in an article by O'Dare et al. (2023) who referenced the use by the City of Tallahassee Fire Department of ESO Suite software for tracking critical incidents. They described the software as follows: "The system collects data on number and type of critical incidents which can be queried regularly to screen for crews or individuals having exposure to a significant number of critical incidents" (p.330).

Within the grey literature, PTE tracking approaches were identified in four police agencies (Australian National Audit Office, 2018, March 7; Essex Police, 2023a, 2023b; NSW Police Force, 2020; Victoria Police, 2017) and three ambulance agencies (Koch, 2019, Aug 19; St John Ambulance Australia (NT) Inc., 2019; The Senate - Education and Employment References Committee, 2019).

- The Essex Police in the UK describe the use of a trauma tracking model, the *Trauma Tracker*, "to help monitor wellbeing of staff when exposed to specific events and in quantity which triggers an interview and support where necessary" (Essex Police, 2023a, p. 34). The Trauma Tracker aims to "identify staff affected and ensure that provisions are put in place to support them and the wider command where necessary." (Essex Police, 2023b, p. 27). Specifics of the Trauma Tracker, however, are not described in publicly available documents.
- The Australian Federal Police (AFP) commenced the *Trauma Tracking Pilot* in 2017 (Australian National Audit Office, 2018) to track employee exposure to PTEs. The pilot involved combining data from the policing case management system with time charging records to understand the number of hours AFP members were charging to particular types of cases and attendance at critical incidents. The information was utilised to improve targeting and timeliness of early intervention delivery to AFP members. Outcomes of the pilot, and whether the system was eventually implemented were not reported in publicly available documents.
- Victoria Police, in their *Mental Health Strategy and Wellbeing Action Plan 2017–2020* (Victoria Police, 2017) describe the use of the *safe-t-net support system* for tracking PTEs as "an early intervention wellbeing support system designed to identify, record, and monitor our employees' exposure to events that have the potential to impact their wellbeing" (p.16). Specifics of the system, however, are not publicly available.

[1] https://www.polfed.org/news/latest-news/2023/police-care-uk-launch-the-police-traumatic-events-checklist/

- NSW Police, in their *Mental Wellbeing Strategy 2020 - 2025* (NSW Police Force, 2020), describe their commitment to "Expanding our program for monitoring and responding to the impact of exposure to potentially traumatic events so that all employees understand the process, roles and responsibilities for managing these events" (p.20). However, details about the program were not reported.
- Two ambulance agencies, namely, NSW Ambulance (NSW Ambulance, 2017; The Senate - Education and Employment References Committee, 2019) and St John Ambulance (NT) (St John Ambulance Australia (NT) Inc., 2019) described using a tracking system called *The Significant Events Register*. It is uncertain whether the system is the same for both agencies.
    - For NSW Ambulance, the Register requires that managers record events that may have a potentially harmful impact on attending staff, with senior managers responsible for reviewing the register, ensuring follow-up and support where necessary has occurred. Details of the actual support delivered to affected staff are confidential.
    - For St John Ambulance (NT), less information about the Register is available, however, like NSW Ambulance, it aims to track significant events to which ambulance staff are exposed and ensure they receive appropriate support. For both agencies, details about the recording platform/method are not provided in publicly available documents.
- Finally, based on a dated ABC news article (Koch, 2019), Ambulance Tasmania appeared to utilise a variety of communication channels to notify management about traumatic jobs, including Police Radio Dispatch Service, Ambulance Tasmania State Operations Centre, Tasmania Fire Service Communications Centre, or via a 24-hour self-referral line.

In summary, while there is a compelling need to better understand PTE tracking in high-risk organisations (e.g., Beyond Blue Ltd., 2018; Fong, 2017; O'Dare et al., 2023), few studies have examined or reported on tracking systems, and no papers have addressed best practice principles in tracking trauma exposure in emergency services and other high-risk organisations with staff exposed to PTEs.

Stage II: Define tracking system elements

Aim

The aim of Stage II was to produce a set of clearly delineated elements that characterise tracking systems and could be assessed in the environmental scan.

Methodology

The findings of Stage I, particularly the characteristics that emerged as key and/or common to tracking approaches (refer to Appendix 2), were synthesised to identify and define key tracking system elements for use in the environmental scan (Stage III). An internal workshop was run with Phoenix Australia staff with expertise in trauma management solutions in the emergency services sector. The workshop focused on reviewing the proposed model and identifying any further tracking system characteristics and/or elements.

Results

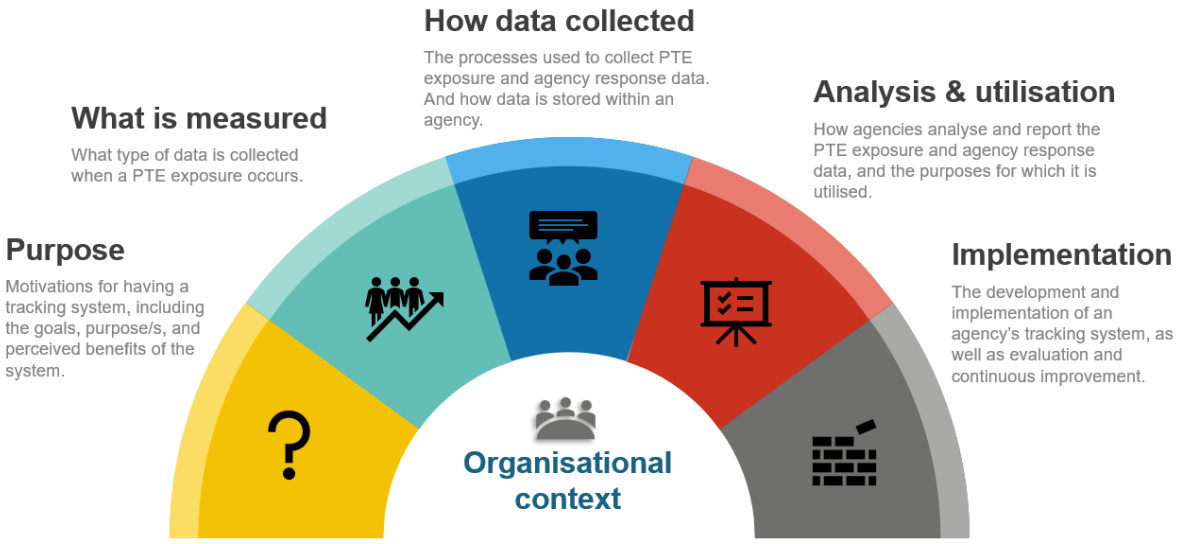
For both systems (PTE tracking system and organisational response tracking system), five multidimensional system elements were defined. These were:

1. The primary purpose of a tracking system
2. What data is collected by the tracking system

3. How is data collected and stored
4. How is the data analysed, reported and utilised
5. Implementation of the system

The proposed tracking system elements are depicted in Figure 3 and are used as the basis of Stage III.

Figure 3: *Proposed tracking system elements and their dimensions*



Stage III: Environmental scan (survey of current practice)

Aim

The environmental scan aimed to gather information about current systems used to track exposure to PTEs and organisational responses to PTE exposure. The threefold aim was to:

1. Understand the **types of systems** used across the industry to track personnel exposure to PTEs and/or organisational responses to exposure.
2. Understand **current practices**.
3. Identify perceived **strengths and limitations in tracking systems** across the sector.

Methodology

An online qualitative survey of current practice was developed using the tracking system elements defined in the literature review and expert consultation stage (Stage I and II). Survey items are provided in Appendix 3. This survey was then disseminated via email through AFAC, the Centre and Phoenix Australia networks to Australian and New Zealand fire and emergency service agencies, as well as a range of other national and international high-risk organisations. The survey was designed to be completed by one representative per agency or organisation.

Results

Agency characteristics

There were 22 respondents, each representing a different agency and their viewpoints on current or potential tracking systems (refer to Table 1).

Most of the 22 agencies represented were located in Australia (n=19; 86%), with the remaining located in the United Kingdom (n=2) and New Zealand (n=1). There was broad representation from most states and territories across Australia (except for South Australia), with higher responses from Victoria (n=6; 32%) and New South Wales (n=5; 26%). Most agencies (n=14; 64%) had 5,000 or more employees, and around one third (32%) of the agencies had a large volunteer workforce (≥75% of workers), and another third (32%) had no volunteers.

Table 1: Agency characteristics (N=22)

	N	%
Agency location		
Country (N=22)		
- Australia	19	86.4
- United Kingdom	2	9.1
- New Zealand	1	4.5
Australian state or territory (N=19)		
- Victoria	6	31.6
- New South Wales	5	26.3
- Tasmania	2	10.5
- Australian Capital Territory	1	5.3
- Northern Territory	1	5.3
- Western Australia	1	5.3
- Queensland	1	5.3
- National	1	5.3
- Prefer not to say	1	5.3
Personnel		
Number of personnel		
≤ 500	2	9.1
501 - 5,000	6	27.3
5,001 – 10,000	5	22.7
10,001 – 15,000	4	18.2
> 15,000	5	22.7
Proportion of volunteers		
0	7	31.8
≤ 25%	4	18.2
About 26% - 50%	1	4.5
About 51% - 75%	3	13.6
≥ 76%	7	31.8

In terms of service type, 82% (n=18) of the respondents were emergency services agencies, with most of these from Fire agencies; 14% (n=3) identified as being non-emergency services agencies, and one preferred not to answer. Details on emergency service agency types are depicted in Figure 4.

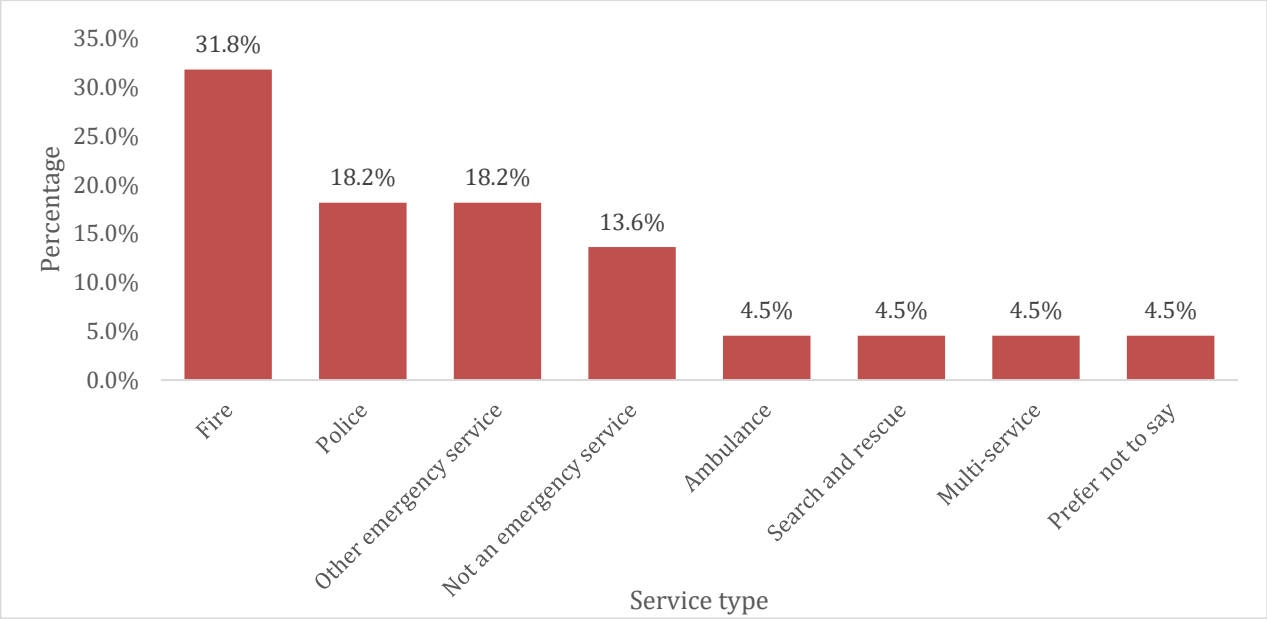


Figure 4: *Type of emergency services and high-risk organisations participated in the survey*

System characteristics

As shown in Table 2, more than half the agencies represented by the respondents reported having a PTE (64%) and organisational response (73%) tracking system, either well established or to some extent. About a quarter (27%) reported not currently having a PTE tracking system, but were planning to within the next 12 months.

Table 2: System characteristics (N=22)

Agency has an existing system for tracking:	PTE exposure		Organisational responses to PTEs	
	n	%	*n*	%
Yes, well established	3	13.6%	5	22.7%
Yes, to some extent	11	50%	11	50%
No, but previously used a system	1	4.5%	0	0%
No, but would like to/preparing to within 12 months	6	27.3%	2	9.1%
No, not planning to have a system within 12 months	1	4.5%	3	13.6%
Unsure	0	0%	1	4.5%

Stage IV: Thematic analysis

Aim

The thematic analysis aimed to answer the following research questions (based on the aims described in Stage III):

1. What types of systems are used across the industry to track personnel exposure to PTEs and/or organisational responses to exposure?
2. How do these systems work in practice? That is, what are the component parts (elements) and how do they interrelate?

3. What are perceived strengths and limitations in tracking systems across the sector?

Methodology[2]

A template analysis (King, 2012) was conducted on survey data collected in the environmental scan from current Australian and international organisations around their tracking approaches (e.g., psychosocial risk management systems, infrastructure, assessment tools and/or recording platforms). Template analysis is a style of thematic analysis that balances a relatively high degree of structure in the process of analysing textual data with the flexibility to adapt it to the needs of a particular study (King, 2012). The initial structured coding framework utilised for the present analysis included the five tracking system elements and their respective dimensions described in Stage II (refer to Figure 3).

Coding was done with saliency, rather than simply frequency, in mind. Saliency analysis, an extension of thematic analysis, can expose what is non-recurrent in the data but potentially important to the aims of a study (Buetow, 2010). Applying this to the present analysis, even if only one person mentioned an idea, and that idea was useful for answering the research question, it was captured and reported on.

Results

While there was much variability in the approaches to tracking systems between the different organisations, three themes were developed:

- Theme 1: The purpose of a tracking system, summarises the key purposes for having a PTE and/or response tracking system as described by respondents, their perceptions about whether systems were achieving their purpose, and reasons for not using a tracking system.
- Theme 2: Current systems and practice, which addresses research questions 1 and 2, discusses the types of systems described by survey respondents, their parts and how they work in practice.
- Theme 3: Perceived strengths and limitations of tracking systems, which addresses research question 3, summarises strengths and limitations as perceived by respondents.

Theme 1: The purpose of a tracking system (Element 1)

The survey data pointed to the common theme that the overarching purpose of a tracking system was to understand the extent and impact of PTE exposure on workers to meet the organisation's moral, ethical and legal obligations. Moral obligations referred to doing the right thing by workers, that is, protecting them from psychological harm, while ethical obligations included compliance of psychologists involved in providing responses with their relevant ethics codes. From a legal and health regulatory standpoint, providing information for workers' compensation claims and compliance with Work Health and Safety legislation regarding psychosocial risk were typically mentioned. Some respondents also emphasised that having a tracking system kept traumatic exposure front of mind: "To ensure that mental health and wellbeing, and prevention, preparation, and response to trauma is a regular agenda item for all leadership meetings", or helped justify expenditure and resourcing requests: "If we don't track or evaluate our work, how do we justify our expenditure?". It is worth noting that the identified purposes have come from participants completing the survey, who largely hold senior roles in the mental health and wellbeing responsibilities, however, have been asked to complete the survey as representatives for their agency.

The data also pointed to a shared understanding of four level-specific purposes.

- At the individual level, the main purpose of having a tracking system was to protect and promote worker mental health. That is, insights generated from the tracking system could be used to inform the

[2] A comparative analysis was originally proposed as the method for analysising the survey findings. However, in consultation with the Project Management Committee, and based the expressed desire for organisaitonal survey responses to remain anonymous this approach could no longer be used.

development and delivery of appropriate and co-ordinated responses to workers exposed to PTEs. This idea is captured in the following quote: "The PTE data currently being tracked is being used to ensure that Members receive a mental health response. This data…is supporting the [name of team withheld] to triage, coordinate, and provide a standardised and predictable mental health service".

- At the manager/supervisor level, the key purpose was reportedly to empower them with a tool to perform their role, exemplified in the following quotes: "Keeping this info can also support training strategies"; "…to identify any trends to assist in development of our [Manager] psychoeducation programs"; "Understand the PTEs their members are exposed to, to ensure the most appropriate support and training is offered. Able to appropriately manage crews and shifts to minimise extended PTE exposure".
- At the regional/group level, the main purpose seemed to be to synthesise insights obtained about individual locations to increase awareness of 'hotspots' (high-risk locations and incidents) and oversee region-wide response to risk e.g., "To identify and resource hotspots"; "To have more systematic oversight of, and response to, the locations and individuals who attend the most PTEs"; "being able to track exposure at an individual, team and district level to be able to intervene earlier".
- At the agency level, key purposes included having oversight of agency-wide risk in order to develop risk mitigation strategies e.g., "to identify the risk held in the agency at a whole of agency level", advocate for funding and resources to enhance worker safety e.g., "Advocate for additional or targeted support resources", and promote a more positive organisational culture around mental health e.g., "cultural change to a supportive workplace".

Overarching purpose of a tracking system

To:

- "build awareness of the extent and impact of traumatic exposure on our staff"
- "help identify risks and hazards"
- "help support a safer workplace"
- "monitor exposure of our people as accurately as possible to ensure both reactive and proactive support can be provided"
- "reduce the severity of injury and promote early intervention and proactive recovery"
- "record their experiences for future reference, should the member develop a psychological injury and seek workers' compensation"
- "OHS regulations…tracking of psychosocial risks, including PTE"
- Guide expenditure and resource allocation

Importantly, slightly more than half (8; 57%) of the 14 implemented systems were rated by survey respondents as performing relatively well to fulfill their purpose (i.e., achieving their purposes to "a large extent" or "a moderate extent"), while three (21%) were rated as underperforming (serving purpose to "a small extent"). Reasons for underperformance included lack of worker buy-in or take-up, under reporting of exposure (due to stigma, lack of awareness of what a PTE is, workers' fear it may affect their job, concerns about privacy); systems not integrated; resourcing limitations; burdensome process; and lack of Manager/Supervisor skills relating to supporting worker mental health. For the remaining three (21%) systems, respondents were unsure about whether they were achieving their purpose. Perceived strengths and limitations of systems that may underpin these positive and negative evaluations are summarised in Theme 3.

Key reasons identified for not having a system included resourcing limitations (funding, people, technology), potential unintended consequences (e.g., privacy breach; additional administrative burden), and the obligation that comes with increased awareness of PTE exposure e.g., "With better data also comes additional responsibility to have the right resources and supports". Other reasons were not having identified a system that can meet organisational needs, concerns about "singling [workers] out visibly", the potential for "union confrontation", change management challenges e.g., "Our workforce is generally resistant to changes", and sending the wrong message to workers about

support-seeking e.g., “potentially making people feel that multiple exposures is the only trigger for support and single events should not provoke any distress”.

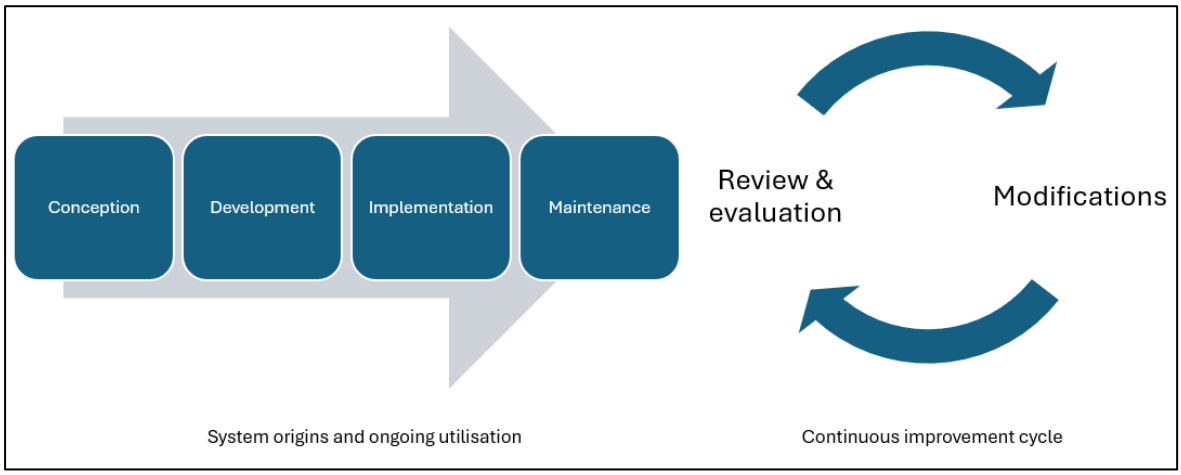
Theme 2: Current systems and practice (Elements 2-5)

This theme, which addresses research questions 1 and 2, discusses the types of systems described by survey respondents, their parts, and a high level overview of how they work in practice. It comprises two sub-themes, namely ‘System framework’ and ‘The data trail’.

Sub-theme A: System framework (Element 5)

The system framework refers to the collection of sequential phases from system conception to continuous improvement (refer to Figure 5).

Figure 5: *System framework*



One respondent mentioned conception, that is, how the idea for having a system came about through the identification of a need, which was to “[identify workers] that have been exposed to the most trauma and to incidents that would have been previously missed”. Most respondents from organisations that had implemented systems were able to describe the development of their respective systems. Some of those had engaged external providers to develop a customised system, e.g., “custom case management system - created and serviced by external IT provider”, representing larger, more integrated and holistic systems. Others developed their system in-house, building on or integrating their current systems, e.g., "the use of current systems and analysts to create the tracking system", representing smaller, modular ‘add-on’ systems. One organisation (Essex Police, 2023b) had an empirically supported rationale for the development of their system. That is, they conducted research exploring the views of their workers about PTE exposure and tracking, which informed system development, i.e., the rationale for the system was “based on academic research which itself has drawn on the views of staff”.

Multiple considerations accompanied system implementation (putting the system into effect) and maintenance (carrying on system utilisation) including resourcing e.g., funding - "There are always funding limitations", capability e.g., "Requires training to underpin supervisory knowledge", and ongoing technical support (internal or external) e.g., “Requires a 24/7 support network”. Furthermore, the success of the system may require "Cultural change, in particular Managers understanding that welfare of staff is a key role of theirs", and pre-implementation trialling and testing.

Some organisations engaged external providers to formally review/evaluate their systems, whereas others performed this in-house. Two key reasons for reviewing system performance were emphasised, namely to verify effectiveness (e.g., is the system achieving its purpose – discussed in Theme 1 – although specific criteria were not

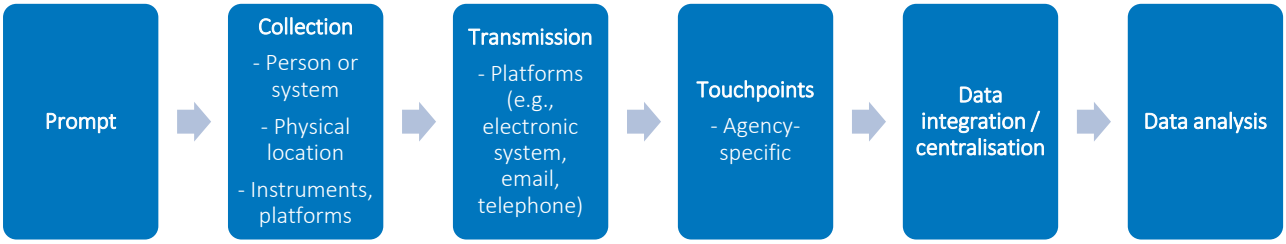
mentioned) and identify problems (e.g., breach of privacy). Some agencies described their systems as a work in progress, and subject to ongoing continuous improvement, e.g., "The system is under continuous review and improvement" and "This is a work in progress as creating member profiles and the ability to flag a profile or situations are very recent improvements". Others described either planned improvements based on review results, e.g., "will move to a more live-time model once the transition to [name of system withheld] is made", or ad hoc changes based on identified urgent issues e.g., "given security concerns for [data transmission via WhatsApp], this will be phased out". A key message was that systems require the flexibility to be able to 'pivot' as needed and in a timely manner.

Overall, it was apparent from the data that there were several (overlapping) phases within the system framework, each having unique considerations. Importantly, comments such as "inconsistency across sectors to date" suggest that agencies may be developing and implementing systems 'from scratch', i.e., without a model upon which to base their own, resulting in the variety of systems described next in sub-theme B.

Sub-theme B: The data trail (Elements 2-4)

The data trail refers to the stages, and their respective processes, through which data passes, from the prompt for data collection to the point of data analysis (refer to Figure 6).

Figure 6: *The data trail*



In terms of the data flow, a situation first prompts data collection (stage 1). Prompts for some agencies included any type of incident, e.g., "Any incident will trigger an entry, from any part of the business", while for others it was incidents meeting particular criteria, e.g., "Attendance/involvement in an operational incident meeting the criteria triggers the collection". Some organisations had clear criteria around what would trigger data collection, e.g., "The criteria for what is traumatic is taken from PoliceCareUK's PTEC model" and "Type 3 incidents (Critical; Complex; Significant)", whereas others did not, e.g., "A PTE identified by Manager or impacted person can trigger an entry, however this is inconsistent" and "no common language". In terms of prompting the response (versus PTE data collection) protocol, one respondent provided the following description: "The incident itself will trigger the incident response protocol, but other factors may trigger data collection too (e.g., psychologists will collect clinical data when triggered by an allocated referral)".

Next in the data trail, a person (e.g., the exposed worker, their supervisor, or wellbeing staff) or automated system (e.g., word-finding software) collects (stage 2) and transmits (stage 3) the data. Types of events tracked are summarised in Table 3.

Physical locations of data collection varied and included the incident site, office and other approved worksites. Instruments or platforms used to collect and transmit data to agency systems also varied in terms of sophistication, and included Microsoft products (e.g., Excel, Forms, PowerBI), data analytics and visualisation dashboards, existing systems (e.g., incident response system) and custom-made/purpose-built systems. Key considerations in the transmission and storage of data were safeguarding worker privacy and data security, use and access. As described in Theme 3, different systems have strengths and limitations in this regard.

After the data is collected, it typically moves through a series of touchpoints (stage 4) (e.g., managers, safety team, psychologists), which are agency-specific sequences. Prior to analysis, some agencies integrate data from multiple systems to enhance the 'story' told by the data, and some of those agencies described having a centralised data repository, with a dedicated data manager (person or unit) (stage 5).

Table 3: Types of events that organisations collected data about

Typically collected data about one or more	Other types of data collected
• Attending motor vehicle or other accident • Exposure to a disaster caused by a natural hazard • Seeing a dead body • Experiencing physical threat from others • Injury or death (including suicide) of co-worker • Child-related incident	• Taser use • Officer assistance call • Hate crimes against officers • Delayed extraction • Gruesome wounds • Providing CPR to an individual • Vicarious trauma • Media attention • When an employee has a reaction • Personal stressors • Equipment used at the incident

Finally, in terms of analysis (stage 6), analytic platforms included data visualisation software, e.g., Microsoft Power BI, and built-in reporting capabilities in custom-designed systems. No specific analytic techniques were specified, however responses suggested various levels of analytical sophistication, e.g., various types of statistical analysis and summative techniques and manipulation (sorting/categorising) of data based on factors such as incident type, individuals, units and regions. Analysis of response tracking was described in less detail, however insights from the data seemed to inform two sequential functions, namely to determine the initial response, then to coordinate subsequent responses. Data was analysed by different people/units within the organisation, including the wellbeing/safety unit team members, psychologists, clinical and HR team members, or the person with oversight of the tracking system.

Insights obtained from the data included descriptions of individual events, trends in risks and incident type, cumulative exposure and objective and subjective impact on individuals, e.g., "traumatic exposure, the impact of it and the support provided at a granular level, taking account of diverse characteristics, length of service and geographical considerations". Respondents indicated that such insights informed activities including planning training and worker capability uplift, rostering and shift planning, and recruitment planning. Findings demonstrated that agencies with tracking systems are preparing reports to share useful information with relevant internal stakeholders and teams (e.g., "Reports are shared with geographical districts… and affect teams", "shared with wellbeing team").

Collectively, the results presented in Theme 2 demonstrate that tracking systems presently implemented across the sector are highly variable, differing in terms of PTE definitions, technologies and processes.

Theme 3: Perceived strengths and limitations of tracking systems

The survey findings also revealed a range of strengths and facilitators of current systems, as well as a range of limitations of current systems and actual or predicted barriers to successful implementation of tracking systems. Positively, many strengths and facilitators to tracking system implementation were identified and will be drawn upon in Phase 2 as we work toward best practice principles for tracking systems.

Table 4 provides a summary of the strengths and limitations identified by respondents and Appendix 4 provides qualitative evidence and theming of these.

Table 4: Summary of strengths and limitations of current practice

Strengths	Limitations
System development, implementation and maintenance	
• The system has empirical foundations. • The system was internally conceived and developed, thus organisational ownership is high and costs are lower than externally developed systems. • The system was custom-made by an external developer to meet organisational needs.	• Resourcing limitations. • Investment in training is necessary. • Need a dedicated role or unit to oversee the data and large storage capacity. • Technology and IT support. • Challenges related to implementing new, or changing existing, systems.
Security and privacy	
• Security measures are in place to protect workers' privacy, maintain confidentiality and protect data from hacking. • Positive perceptions of workers around privacy. • Authorised access, which serves the dual purposes of protecting worker privacy and minimising vicarious trauma. • Workers who don't wish to be part of the tracking system can choose to opt out of the system to some extent.	• Staff concerns about privacy. • Unauthorised or unnecessary access.
Data collection, storage and utilisation	
• Data captured about the incident is rich, broad and useful, and may span a worker's career with the organisation. • Data can be contextualised to specific locations. • System characteristics contribute to the capture of quality data (e.g., accuracy, timeliness, completeness, consistency). • There is a central database. • PTE data is integrated with other relevant information (e.g., personnel file information, responses) to create a 'story' around the incident, impacted individual and outcome. • System capabilities enable organisation or categorisation, filtering and manipulation of data in various ways, to obtain insights that managers and leaders can action.	• The system relies on manual data entry, which is subject to the following challenges: [1] Some workers are not motivated to enter data. [2] Data entered by individuals is typically a manual process and subject to human error. [3] There is likely to be missing data (not all individuals will collect all necessary data) [4] Incorrectly entered data can have consequences for worker support and/or reporting. • Measurement aims are unclear. • Lack of shared understanding about trigger for data collection (i.e., what is a PTE?). • Inconsistency in data collection process. • There are gaps in the data collected. • The system cannot track a worker over their career.

• The system has reporting capability that is easily used and can display the information in ways that are useful for reporting and presentations to various audiences.	• Data is decentralised (i.e., the data is not centralised in one location and is dispersed across systems). • PTE data is not integrated with other relevant information. • The response tracking system (where it exists) is disconnected from the PTE tracking system. • Challenges with the system in terms of producing actionable insight.
Other factors	
• Some organisations had very basic systems, but saw it as a strength to be making some effort to protect worker wellbeing. • The system performs consistently well, making it more likely it will achieve its purpose. • Insights from the data inform the development of an appropriate and co-ordinated response. • Informs proactive and targeted responses. • The system promotes support-seeking and reduces stigma. • Monitors trends to identify high-risk roles, events and locations ('hot-spots'). This insight facilitates both proactive and targeted outreach to PTE-impacted individuals and implementation of risk mitigation strategies including worker training and policies. Supports compliance with workplace psychosocial risk legislation. • User-friendly system which does not require a high level of technical capability. • Ease of reporting. • Workers can access the system easily. • The system eases, or does not add to, administrative burden for workers, managers, and leaders.	• Unions can challenge or shape worker perceptions of the tracking system. • Lack of standardisation across the sector.

Phase 2: Developing good practice principles

Phase 2 involved drafting principles for PTE exposure and organisational response tracking systems and building consensus towards good practice principles. This phase also informed Phase 3 in the development of a guide to support agencies in checking how their existing tracking systems align with good practice or to assist in implementing new tracking systems.

Phase 2 involved the following stages:

1. Drafting of good practice principles to draw together information from the previous phase in readiness for three rounds of feedback.
2. Workshop consultations to review the drafted principles, providing the first and second round of building consensus and ensuring the outline principles are suitable for the emergency service sector.
3. Project Management Committee review the proposed set of principles, providing the third round of building consensus and ensuring the outline principles are suitable for the emergency service sector.
4. Finalisation the set of key principles, which incorporate all rounds of feedback and consensus building, whilst also remaining aligned to the survey and literature review findings.

Stage V: Drafting good practice principles

A set of key principles were drafted by the project team based on Phase 1 survey findings and literature review and were shaped by team expertise. Draft principles were organised according to their dimensional elements (e.g., purpose, what is measured), and into principles and sub-principles. Then, to build towards consensus on a set of key good practice principles, three rounds of feedback (Stages VI and VII) were undertaken to obtain input and refine the principles iteratively after each round to best suit the needs of the fire and emergency services sector.

Stage VI: Workshop consultations

Aim

Workshops were conducted with the aim of refining a set of drafted principles that relate to each tracking system element and moving towards consensus on good practice through refining and shaping these principles. The workshops also aimed to determine what good guidance would look like for emergency services and how best to present the principles and guidance document.

Methodology

Participants

Representatives of fire and emergency service agencies from Australia and New Zealand who have knowledge of their agency's tracking systems, as well as experts in the field, were invited to participate in one of two separate workshops:

1. The first workshop included nine representatives from the Victorian Centre of Excellence in Emergency Service Worker Mental Health, as well as academics and experienced practitioners in the sector with expertise in emergency services and trauma management.
2. The second workshop included 12 members from the AFAC Mental Health and Wellbeing Group, who hold various relevant roles at their respective emergency service agency.

Table 5 provides an overview of the participant characteristics for workshops 1 and 2, with a detailed breakdown of the demographic percentages provided in Appendix 5.

Table 5: Overview of participant characteristics for workshops 1 and 2*

Workshop 1: Sector experts (N = 9)	Workshop 2: Industry representatives (N = 12)
• Professional backgrounds, including psychologists, psychiatrist, general practitioner, retired police member, academic. • Expertise as researchers and subject matter experts (in emergency services mental health, disaster mental health, digital mental health), clinical experience in emergency services, and lived experience as a police member and mental health concerns. • Years of expertise, ranging from 5 to 15 years (average 9.7 years).	• Agency types, including fire, rescue, state emergency service (SES), lifesaving and employee assistance program (EAP; for fire, police, paramedic) • National agencies and agencies located across New South Wales, Victoria, Queensland and Tasmania states. • Role positions across management (e.g., for psychological and wellbeing services, critical incident services, research), senior psychologists, wellbeing advisor, occupational psychologists. • Years in role, ranging from 1 to 5 years (average 3.1 years) • Years in sector, ranging from 1 to 16 years (average 6.7 years)

Note: *Refer to Appendix 5 for breakdown in percentages.

Workshop procedure

Participants attended one of two workshops lasting 2-3 hours and hosted online using Microsoft Teams. Phoenix Australia facilitated both workshops, by first presenting the survey findings, offering an initial set of drafted principles and opening to participants to discuss, modify, or add to these based on their knowledge and experience working in the sector. Specifically, the workshop involved:

- Presenting the Phase 1 best practice review outcomes, including the literature review, survey about existing tracking systems and thematic analysis findings.
- A discussion about the target audience of the principles and guidance document and what makes good guidance in the fire and emergency service context, their implications, as well as the structure of presenting principles for industry use.
- Building consensus on a set of draft good practice tracking system principles, which involved discussion about key considerations, gaps and needs required to improve current systems and practices in emergency services, as well as providing direct feedback and edits on each listed principles or share new/alternative principles.
- Reviewing the Phase 1 drafted tracking systems model and five multidimensional elements (Figure 3).

Online Padlet boards were used during each workshop, which presented the draft and revised principles, allowing participants to provide anonymous comments directly to each principle or discussion point. Participants also had the opportunity to review and provide further feedback into Padlet after the session.

Findings

Target audience

Workshop participants identified that the principles and guidance document should be developed for the wellbeing teams within fire and emergency service agencies. They also agreed that these outputs should be user-friendly for regional leadership teams to demonstrate good practice, as well as executive leadership teams and consultative bodies to support business cases and endorsement. Participants agreed that the principles are less relevant for individuals without leadership roles and for everyday usage.

Defining qualities of what makes good practice guidance

An initial list of what makes good guidance was developed based on the research literature and relevant examples[3], and presented to workshop 1 participants for discussion. Feedback was then incorporated into a revised list of considerations and presented to workshop 2 participants. The final revised set of the qualities that make good practice guidance (and in turn make useful project output), included:

- Clearly define the scope, purpose and agreed target audience for the guidance document, articulating the specific problem or need being addressed. This also includes providing clarity on the intended use (and misuse) of the guidance document and principles, to minimise the unintended consequence of being used in legal or industry assessments and benchmarking.
- Base the guidance document on the best available evidence and expertise, transparently acknowledging any uncertainties or limitations in evidence.
- Establish the appropriate level of guidance specificity, balancing flexibility for adaptation across different agencies and settings with concise, comprehensive and unambiguous language to minimise interpretation variations.
- Ensure guidance document is easy to understand and navigate, by defining key terms as needed and organising in a logical structure.
- Develop practical and actionable principles, that provide direct examples of what they look like in practice and how they might be implemented. These maybe linked with more high level and strategic considerations.
- Ensure the guidance document and principles are testable, pilotable and achievable.
- Highlight that the guidance document is an initial version, with recommended scheduled review and update cycles articulated.

In discussing what subsequent tools or materials would assist agencies in implementing the guidance document and principles, workshop participants identified a checklist in addition to the general guidance document as most useful, as well as a gap analysis tool or self-assessment audit tool.

Determining good principle structure

A draft principle structure was presented to workshop participants for consideration and feedback, with agreement reached to approach the principles with a four-tiered structure:

1. Elements – which organise the principles per aspect of a tracking system (e.g., purpose, what is measured).
2. Principles – which provide broader overarching principles.

[3] E.g., https://www.has-sante.fr/upload/docs/application/pdf/2018-02/good_practice_guidelines_cpg_method.pdf; https://www.health.qld.gov.au/__data/assets/pdf_file/0029/143696/nhmrc_clinprgde.pdf; https://www.ncbi.nlm.nih.gov/books/NBK235752/; https://www.naturalhazards.com.au/resources/resources/principles-and-protocols-cultural-land-management-governance-and-research

3. Subprinciples – which provide more specific direction.
4. Examples – demonstrating what agencies are currently doing in practice and/or ideas to implement the principles.

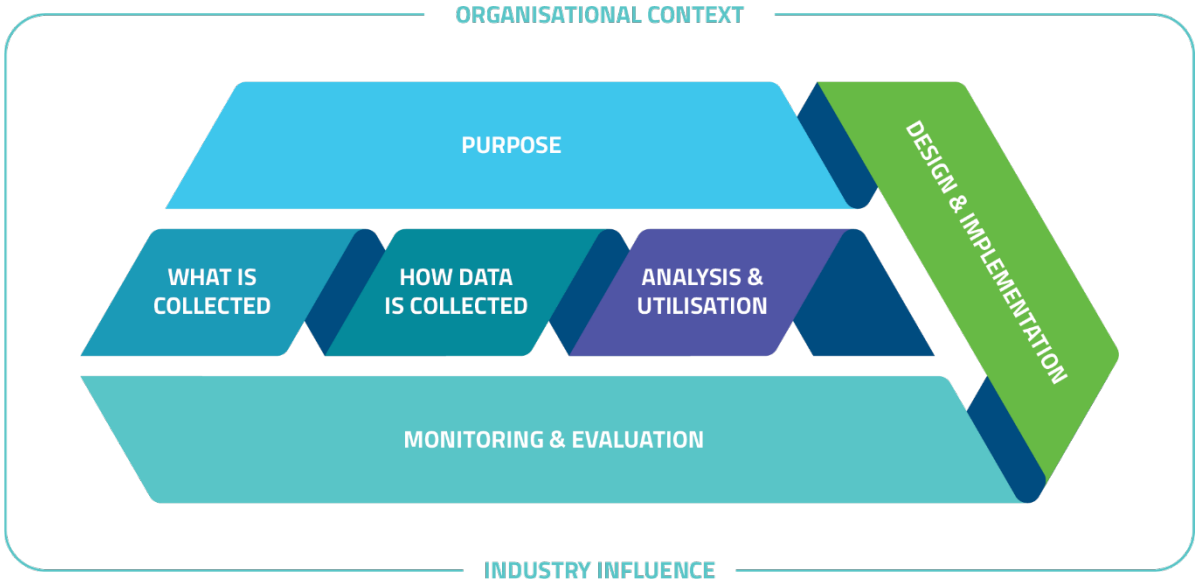
Note, this structure then evolved as the principles were refined. Specifically, each principle and subprinciple includes a (a) short overview statement 'label' in bold, (b) brief description, and (c) rationale for the importance in applying the principle. Efforts were also made to ensure each principle contained a clearly delineated idea (e.g., vision", shared understanding), and each sub-principle captured a single idea relevant to their respective principle[4].

Revised tracking system elements

Incorporating feedback from workshop discussions, the Phase 1 five multidimensional system elements were refined and updated. Of note, 'Evaluation' is now represented separately as 'Monitoring and Evaluation". This was agreed in order to highlight the critical nature of evaluation to ensure the system is meeting its purpose, while minimising unintended negative consequences. This is especially important given this project is the first attempt to articulate potential good practice principles for tracking.

Figure 7 displays the updated model and its dimensional elements. For the model design and representation, the 'Purpose' element was agreed to be positioned across the top of the model given it informs each element, with 'Implementation' situated along the side, and 'Evaluation' along the base.

Figure 7: *Refined model of PTE and organisational response tracking system elements*



The revised elements are as follows:

1. *Element 1: The purposes of a tracking system* – considers the motivations for having a tracking system, including the goals, purpose/s and perceived benefits of the system.
2. *Element 2:The design and implementation of the system* – considers the specific design, development and implementation unique to an organisation's tracking system.
3. *Element 3: What data is collected by the tracking system* – considers what type of data is collected when a PTE exposure and/or organisational response occurs.

[4] E.g., https://www.linkedin.com/pulse/write-good-principles-matthew-treagus/

4. *Element 4: How is data collected and stored* – considers the processes used to collect PTE exposure and organisation response data, as well as how data is stored within an organisation.
5. *Element 5: How is the data analysed, reported and utilised* – considers how organisations analyse and report PTE exposure and organisational response data and how it is used.
6. *Element 6: Monitoring and evaluation of the system* – considers the specific monitoring, evaluation and continuous improvement of organisational tracking systems.

The model also considers that any system exists within unique and changing organisational and industry contexts. The following are not elements, but are represented in the model:

- The *organisational context* refers to the unique characteristics of each agency, mental health climate, mental health and wellbeing initiatives and supports in place.
- The *industry influence* refers to affiliation and a co-dependent relationship with stakeholders in the emergency services sector, such as government, unions, WorkCover providers, as well as the legal and ethical impacts.

Stage VII: Project Management Committee review

Aim

The Project Management Committee provided the third round of review of the principles with the aim of ensuring the outlined principles are suitable for the emergency service sector.

Methodology

The research team updated the proposed principles following the two rounds of workshop consensus building (Stage VI). The principles were included in the draft report and shared with members of the Project Management Committee for review and consideration. Members included representatives from fire and emergency service agencies who hold responsibilities in the sector for managing the mental health and wellbeing of their workforce and trauma management initiatives. This group were considered suitable for final review given their extensive industry knowledge and their role as likely guidance implementors and advocates. The findings were also presented and discussed at a Project Management Committee meeting.

To build consensus on the set of proposed good practice tracking system principles, reviewers in this round were asked to:

- provide direct feedback and edits on each listed principle and subprinciple
- identify any gaps in principle areas or share new/alternative principles
- the accessibility, suitability and practicality of implementing the principles in the fire and emergency service sector
- consider the layout and presentation of the principles
- review the updated tracking systems model of the five multidimensional elements (Figure 7).

Project Management Committee members were also asked about what they would consider as next steps to support the fire and emergency service agencies to use the principles and guide.

Findings

Five Project Management Committee members provided direct feedback based on their review of the principles. The elements, set of principles and subprinciples were supported by the reviewers as stated, with minor improvements. Reviewers provided feedback on improving the principle titles and descriptions, order of presenting the elements order, general updates to industry language, as well as on layout and visual design of the principles, to ensure usability by agencies.

Reviewers agreed that the principles are suitable for the emergency services sector and provide a practical model and guidelines for implementation and/or enhancing trauma exposure tracking systems. Feedback received indicated that the principles are comprehensive, include enough in practice examples and final detail to ensure they are actionable by agencies. Reviewers acknowledged that the elements and principles incorporate sector-specific knowledge and insights from the consultation research process.

Stage VIII: Finalisation of principles

The final set of elements, principles and subprinciples were then refined based on the Phase 2 three rounds of feedback and consensus building, Phase 1 findings, general good practice principle material, use of the refined principles structure and researcher expertise. During this stage, the team also reviewed the principles to ensure that they were aligned with a trauma-informed approach, that is, the principles, where relevant, showed an understanding of the impacts of trauma on how an individual engages with others and systems, provided opportunities for choice and control, and supported a sense of safety and trust, as well as minimised the risk of re-traumatisation and distress.

During this final stage, the model shown in Figure 7 remained unchanged as it was agreed to be the best way to depict how the different elements come together. The numbering of the elements and principles are primarily for ease of reference and navigation, rather than to indicate a rigid sequential process. However, the order in which the elements are detailed in the tables was changed slightly based on feedback around readability. Specifically, Element 5 ‘Design and Implementation’ was moved into the position of Element 2 to provide greater logical flow through the elements and principles. The finalised order of elements are as follows:

1. *Element 1: The primary purpose of a tracking system*
2. *Element 2: Design and implementation of the system*
3. *Element 3 What data is collected by the tracking system*
4. *Element 4: How is data collected and stored*
5. *Element 5: How is the data analysed, reported and utilised*
6. *Element 6: Monitoring and evaluation of the system*

Figure 8 provides a schematic of the overall principles framework, grouped by elements. The listed principles are abbreviated for high-level oversight. Refer to Appendix 6 for detailed description of each principle, subprinciple and in practice examples, as organised by elements.

These resulting principles represent the industry’s initial attempt to articulate potential best practice principles. It is therefore recommended that use of these principles is closely monitored for any unintended impacts (e.g., harm to staff mental health and wellbeing, negatively impacting the management of trauma impacts and recovery, or diversion of resources from other essential tasks) and reviewed by the industry within two-to-three years or earlier if evidence regarding tracking systems changes.

Figure 8: *Good practice principles framework for tracking systems, with abbreviated labels m*

These principles are intended to support fire and emergency service agencies to review their alignment of their tracking systems with agreed good practice, as well as guide decision making about implementing new or improving existing systems. The principles are designed to be used flexibly and tailored to each agency's context, as it recognises that every agency has unique characteristics, and there are many possible types of tracking systems that may be suitable. These principles are not intended to be prescriptive, nor do they seek to establish standards for agencies to adhere to. Furthermore, these principles are additional to, and do not replace, existing organisational policy, guidance or protocols.

Table 6 displays the finalised principles and associated subprinciples, grouped by their respective elements. Appendix 6 provides further details of the description and rationale to each principle and subprinciple, as well as examples of how principles are applied in practice.

Table 6: Good practice principles and subprinciples for PTE exposure and organisational response tracking systems

Principle	Subprinciple
Element 1: The primary purpose of the tracking system	
1.1 Document a clear vision for a tracking system	1.1.1 Define the need for a tracking system 1.1.2 Gain broad stakeholder input about the system's purpose 1.1.3 Define the system's purpose, goals, and desired outcomes: overarching level and at the levels of individual, manager/leader, regional and organisational levels 1.1.4 Identify potential unintended outcomes of system implementation 1.1.5 Define system scope
1.2 Recognise the system as one part of the organisation's mental health and wellbeing strategy	1.2.1 Describe how the system integrates with existing mental health and wellbeing initiatives 1.2.2 Outline how the system facilitates compliance with legislative directives and workplace health and safety requirements
1.3 Ensure shared organisational understanding of the system's purpose	1.3.1 Make a plain language purpose description available and accessible to the entire workforce 1.3.2 Develop and maintain policies and procedures that support achievement of the system's purpose 1.3.3 Implement an organisation-wide communication strategy
Element 2: Design and implementation of the system	
2.1 Assess the necessity and feasibility of implementing a tracking system	2.1.1 Conduct a needs-gap assessment 2.1.2 Assess the advantages and disadvantages of a stand-alone system or one integrated with other existing systems
2.2 Assess organisational readiness for a tracking system	2.2.1 Evaluate and increase organisational readiness, prioritising level of leadership investment/commitment to a system 2.2.2 Map organisational response options, ensuring they are evidence-informed and that the organisation has the capability to deliver them
2.3 Involve representatives from all levels and areas of the organisation in system design	2.3.1 Determine necessary system capabilities for data collection, analysis and reporting to achieve identified system purpose 2.3.2 Involve diverse stakeholders in system design, including those whose data is being collected
2.4 Collaborate with other agencies about design and development	2.4.1 Share system implementation learnings across the sector
2.5 Select user-friendly software/platforms with the required capability	2.5.1 Assess functionality and capability of platforms under consideration 2.5.2 Prioritise usability and ease of access and reporting
2.6 Develop and document an implementation plan	2.6.1 Establish an implementation team 2.6.2 Identify and implement needed resources and capabilities to support change 2.6.3 Adopt a staged implementation approach
2.7 Develop and implement a system maintenance plan	2.7.1 Develop a comprehensive system maintenance plan 2.7.2 Appropriately resource the system for sustainability
Element 3: What data is collected by the tracking system	
3.1 Define recordable PTEs	3.1.1 Specify criteria for recordable PTEs (with examples)
3.2 Collect the minimum data required	3.2.1 Establish a data framework to capture minimum data requirement for the system to achieve its purpose 3.2.2 Consider capturing key contextual data to achieve the system's purpose 3.2.3 Adhere to privacy and consent requirements
3.3 Draw on existing data collection efforts	3.3.1 Draw on existing data collection systems and use existing data where available
3.4 Capture recordable PTE incident key information	3.4.1 Specify relevant details to be captured about the recordable PTE incident 3.4.2 Specify relevant details to be captured about the worker exposed to the PTE

3.5 Determine whose data will (and will not) be collected	3.5.1 Specify which workers will be included in the PTE tracking protocol 3.5.2 Consider enabling a worker opt-out option for some/all system elements
3.6 Capture organisational responses to PTE exposures	3.6.1 Specify what qualifies as a recordable organisational response 3.6.2 Allow workers to evaluate the organisational response 3.6.3 Determine how response tracking fits with the PTE tracking
Element 4: How is data collected and stored	
4.1 Document the procedure and processes for data collection	4.1.1 Standardise the organisational prompt/s for data collection 4.1.2 Assign responsibility and support capability for data collection and transmission to the database 4.1.3 Specify when data is to be collected in relation to the PTE incident 4.1.4 Specify how data is to be collected and transmitted to the database 4.1.5 Define the processes that follow initial data collection, with an emphasis on data quality and reliability and appropriate use of data
4.2 Centralise storage and/or link data	4.2.1 Maintain a centralised database where appropriate 4.2.2 Enable multiple data linkage pathways
4.3 Safeguard and contain data	4.3.1 Establish data governance policies 4.3.2 Restrict and monitor data access within the organisation 4.3.3 Clarify data ownership at the individual level 4.3.4 Implement third-party access controls
Element 5: How is the data analysed, reported and utilised	
5.1 Draw on existing and/or automated reporting mechanisms	5.1.1 Use existing reports and automate reporting where possible
5.2 Assign analysis and reporting responsibility	5.2.1 Assign responsibility and support capability for data analysis and reporting
5.3 Data analysis to produce actionable insights	5.3.1 Adopt a reasoned and flexible approach to data analysis 5.3.2 Leverage analytic capabilities to provide leaders and wellbeing teams with insights to inform decision-making 5.3.3 Draw on insights from organisational response data to develop response plans and offer wellbeing initiatives
5.4 Report contextualised data in reports where possible	5.4.1 Integrate data with contextual details when reporting 5.4.2 Include linked data in reports
5.5 Report data in formats that are useful and suitable for intended audiences	5.5.1 Prioritise reporting aggregated and de-identified findings 5.5.2 Implement internal data sharing protocols that are user-friendly
5.6 Enhance and draw on organisational capacity to action insights gained from PTE data	5.6.1 Harness organisational resources to act on insights gained from data in a reactive and proactive manner 5.6.2 Inform the workforce about actions taken and their outcomes
Element 6: Monitoring and evaluation of the system	
6.1 Monitor and evaluate system performance against purpose	6.1.1 Develop and implement a monitoring and evaluation plan aligned with documented system purposes 6.1.2 Collaborate with agencies across the sector on evaluation and building evidence regarding tracking systems
6.2 Monitor risks and unintended consequences	6.2.1 Monitor risks and unintended consequences of tracking
6.3 Demonstrate continuous improvement	6.3.1 Allocate resources for continuous improvements 6.3.2 Communicate system improvements linked to workforce feedback

Phase 3: Translation for practice

With the completion of Phases 1 and 2, the final phase involves translating and disseminating the project findings in order to assist fire and emergency service agencies in implementing good practice. The following activities have been completed and plans for drafting an academic peer reviewed paper are underway.

Brief guidance document

The project team has developed a brief guidance document to translate the project findings into practice for agencies. The document will support agencies to consider their current alignment to tracking PTE exposure and responses against agreed good practice principles established through this project.

The document will be disseminated to relevant agencies and industries through the Centre, AFAC, the Project Management Committee and Phoenix Australia networks, as well as through peer reviewed publications and conference presentations as opportunities arise.

Conferences and other presentations

Peer reviewed conference presentations

International Society for Traumatic Stress Studies (ISTSS) 40th Annual Meeting

> *Identifying good practice systems for tracking potentially traumatic event exposure and agency responses in fire and emergency services: Preliminary findings and implications.* Pedder, D. J, Watson, L., Savic, A., Varker, T., Huckvale, K., Sadler, N, & Howard, A. (25-28 September 2024), Boston, Massachusetts, USA.
> Refer to Appendix 7 for the accepted abstract.

Australasian Conference on Traumatic Stress (ACOTS) 2024

> *Tracking exposure to potentially traumatic events in emergency services workers: Toward best practice.* Watson, L., Leckie, S., Pedder, D. J, Savic, A., Varker, T., Sadler, N, & Howard, A. (7-9 November 2024), Melbourne, Australia.
> Refer to Appendix 7 for the accepted abstract.

Other presentations

Emergency Services Foundation, Learning Network meeting

> *Best practice for tracking potentially traumatic event exposure and organisational responses.* Howard, A. (7 May 2024). Melbourne, Australia.

Natural Hazards Research Forum 2024

> *Tracking potentially traumatic event exposure and organisational responses: Developing best practice guidance*. Howard, A., Pedder, D. J, Watson, L., Savic, A., Varker, T., Huckvale, K., & Sadler, N. (14-16 May 2024), Adelaide, Australia.

AFAC Mental Health and Wellbeing Group meeting

> *Tracking potentially traumatic event exposure and organisational responses.* Howard, A. (21 August 2024). Melbourne, Australia.

Discussion and implications

According to both the literature review (e.g., Beyond Blue Ltd., 2018; Fong, 2017; O'Dare et al., 2023) and findings from the environmental scan (survey) conducted for this project, there is a compelling need to better understand PTE tracking in high-risk organisations. The review revealed, however, that few studies have examined or reported on tracking systems, and no papers have addressed best practice principles in tracking trauma exposure in emergency services and other high-risk organisations with staff exposed to PTEs. In other words, there were no approaches to tracking PTE exposure or responses identified as best practice.

Results from the environmental scan demonstrate that, although there are commonalities across organisations in terms of the purposes for having a tracking system, current practice has inconsistent approaches and variability across the range of proposed tracking system elements. Tracking systems presently implemented across the Sector are highly variable, for example, in terms of PTE definitions, what prompts the data collection or response protocol, technologies used, processes that occur from the point of data collection to analysis, and insights generated by the system. Although variability is to be expected (and necessary) given that systems need to meet the unique needs of agencies, there appears to be no exemplar tracking system(s) within the Sector. This inconsistency creates a challenge and impedes cross-comparison of PTE exposure and responses within the sector, continuous improvement and shared learnings across the sector, and sector-wide insight about both tracking system types. Furthermore, there is little guidance for system development and implementation.

Given the lack of evidence regarding best practice for tracking systems and variability in current practice across the sector, Phase 2 has drawn heavily on the expertise and experience of the sector and other stakeholders to build consensus on principles that could be used to guide good, rather than best, practice. The resulting principles (and guidance document) should be considered the current and initial best attempt to guide good practice for fire and emergency service agencies to use when developing new or considering existing tracking systems. It is recommended that use of the principles is closely monitored by organisations for any unintended impact and reviewed by the industry within two-to-three years or earlier if evidence regarding tracking systems changes. Finally, the project team encourage the principles and guidance document to be tested in practice, reviewed, and refined over time by agencies.

Whilst any need for a tracking system focuses on the potential impacts exposures to cumulative traumatic events have on the mental health and wellbeing of workers, there are indeed, a range of other operational and organisational stressors that can also impact worker's psychosocial health. A tracking system is one part of a broader organisational mental health and wellbeing strategy in protecting and supporting their workforce.

Potential next steps

There are a range of potential next steps that the Centre and AFAC members may wish to consider that extend on the findings of this project, and that contribute to efforts within the fire and emergency services to better protect the mental health of their workers exposed to PTEs. These potential next steps are based on discussions had throughout the project within the project team and with those consulted through presentations, meetings, and workshops.

- **Determine ownership of guide and principles:** Explore idea of AFAC or similar taking on ownership or the guidance document and principles. This might involve endorsement through formal steps, communication strategy or roadshow (e.g., launch), and managing the scheduling of the review of the principles.
- **Dissemination activities:** Conduct a range of activities that help disseminate the principles and guidance throughout the sector. This may include, but is not limited to, webinars, communications pieces, infographics etc.
- **Self-evaluation tool:** Develop a brief self-evaluation tool that organisations can use to benchmark/consider their current approach to tracking PTE exposure and organisational responses against the good practice principles. This could also be considered a gap analysis tool or a self-assessment audit tool. This resource may be accompanied by some brief training on using the tool.
- **Specific implementation tools:** Consider tools that provide specific guidance or examples from the industry that agencies can use when implementing or aligning with their existing tracking system. For example, a checklist of minimal data or information to be collected for an incident, or a list that considers which workers to collect data on.
- **Piloting and evaluation of guidance:** A small number of agencies may wish to pilot the use of the guidance to shape their approach to tracking (noting that tracking systems need to be tailored to each organisational context). The pilot would not only test the usability of the guidance itself, but also the impact of the application of the good practice principles. A monitoring and evaluation framework linked to the organisation's identified purpose(s) of the tracking system would be developed to guide evaluation. For example, does the implementation of a tracking system aligned with the principles provide the desired benefits for the exposed individual, leaders, regions and/or agency.
- **Research impacts of PTE tracking systems:** The literature review conducted as part of this project revealed a lack of evidence and research on the impacts of PTE tracking systems on mental health and other outcomes. This research would sit somewhat independently of the evaluation of these specific principles and guidance, but rather focus more generally on the impact of tracking.
- **Scheduled review and update of principles:** Given this is an emerging field, we recommend that a review and update of principles be scheduled for two-to-three years (or earlier if evidence regarding tracking systems changes). This would involve conducting (1) another review of peer reviewed and grey literature to understand any advances in the field; (2) a survey on current practice in tracking (as per Phase 1 in this project) and on use of and feedback regarding the good practice principles and guidance; and (3) drawing on learnings gained through the piloting and evaluation of the guidance and research recommended above.
- **Conduct an international Delphi review:** Use Delphi review methodology to establish international consensus on the developed set of principles to assist in establishing international acceptance towards best practice.
- **Equipping agencies with best practice organisational responses to data from PTE tracking:** As evidence and evaluation learnings build regarding tracking systems, consider developing more specific evidence-informed direction on how an agency can use the data obtained from the tracking system and ensuring agencies are offering the right support and organisational response as informed by tracking data.
- **Review organisational trauma management approach:** While beyond the scope of the current project, implementation of this project's findings may reveal misalignments between organisations' current trauma management approach and current best practice as defined by the literature. The sector may wish to develop tools for self-assessment or conduct external reviews of an organisation's broader trauma management approach against best practice and take steps to bring them into closer alignment.

Team members

Project Management Committee

- Natural Hazards Research Australia – Dr Blythe McLennan, Ethel Samalca, and Lara Wedding
- Phoenix Australia – Alexandra Howard, Dr David Pedder, Dr Loretta Watson, and Anita Savic
- AFAC – Melissa Peppin and Karishma Kumar
- Country Fire Authority – Suzanne Leckie
- Forest Fire Management Victoria – Chris Hardman
- NSW Rural Fire Service – TJ Bauer, Jen Black, and Michelle Sopuch
- Victoria State Emergency Service – Rachel Treeby

Research Team

Phoenix Australia – Centre for Posttraumatic Mental Health

Phoenix Australia are experts in trauma and adversity related mental health and wellbeing. For more than 25 years, Phoenix Australia has been Australia's National Centre of Excellence in Posttraumatic Mental Health and an internationally recognised leader in its field. It is committed to driving forward the mental health agenda both at home and abroad. Phoenix's overarching mission is to understand trauma and renew lives of those impacted by trauma. It is a legally independent not-for-profit organisation affiliated with the University of Melbourne.

Alex Howard. Alex is a nationally recognised expert in advancing, translating, and implementing evidence-based mental health and psychosocial support approaches for high-risk organisations, government and NGOs to prepare and respond to traumatic events, including disasters and large-scale emergencies. Recently she led a Black Summer bushfire capability project for emergency services across Australia.

Dr David Pedder. David is a clinical psychologist, holds a PhD in psychology and has extensive experience working in the trauma field for high-risk organisations, government, community, and other agencies. David has completed numerous projects that increase understanding and strengthen policy, processes and initiatives that support the trauma-related mental health of staff, volunteers, consumers and end-users. This includes organisational reviews, strategic planning and consultancy, research and evaluation, knowledge translation, training packages, clinical interventions, program improvement, project management and developing, implementing, and delivering mental health services.

Dr Loretta Watson. Loretta is a Research Fellow at Phoenix Australia where she specialises in consulting with organisations whose workers are likely to be exposed to trauma during the course of their work, assisting with policy and process review, mental health strategy development, and implementation of trauma-informed practice and service delivery.

Anita Savic. Anita is a clinical and counselling psychologist with many years of experience working with high-risk organisations, delivering psychology services aimed at improving employees' mental health and wellbeing. Anita has a strong understanding of workplace mental health, with a focus on prevention and early intervention. Previously, Anita worked for Victoria Police and Ambulance Victoria.

A/Prof Tracey Varker. Tracey is the Director of Research and a nationally recognised trauma expert in fire and emergency services organisations. Tracey leads the Responder Assist research program. She is an expert in evidence synthesis systematic reviews and review methodology. She recently led the White Paper on Operational Trauma for the AFP.

E/Prof Nicole Sadler. Nicole is a clinical psychologist, Head of Policy and Practice and Director of Victoria's Centre of Excellence in Emergency Worker Mental Health. Nicole has an in-depth understanding of fire and emergency service issues and specialises in systems and policies to improve mental health, including strategic reviews, policy, training, and research for Commonwealth and State government.

Centre for Digital Transformation of Health

Dr Kit (Christopher) Huckvale. Kit is a trained medical doctor, computer scientist and directs the Digital Health Validitron at the Centre for Digital Transformation of Health. He holds expertise in the design and quality and safety evaluation of consumer and professional-facing digital health technologies, including apps and platforms for mental health.

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Appendix 1: Literature review search parameters

Databases
• PsycInfo • Embase • Medline • PILOTS • ACM Digital Library • Cinahl • Emerald Insight (note: this database contains the International Journal of Emergency Services) • Informit (note: this database contains The Australian Journal of Emergency Management) • Cochrane Library • Google Advanced Search • Google Scholar Advanced Search
Search terms
• "trauma* event" or "trauma* incident" or "critical incident" or "notifiable incident" or "trauma* exposure" or "exposure to trauma" or "exposure to stress" or "cumulative trauma" or "psychological risk" or "psychological hazard" or "psychosocial hazard" *AND* • surveill* or track or tracking or tracker or monitor* or register
Search limits
• From January 2015 to March 2024 • English-language • Human

Appendix 2: Approaches identified in peer reviewed and grey literature

Table 7: Approaches to tracking exposure to potentially traumatic events (PTEs) and organisational responses to PTE exposure identified in the peer reviewed and grey literature

Organisation (country)	Name and description of tool	Characteristics
Peer reviewed literature		
Police Care (UK)	**The Police Traumatic Experiences Checklist (Miller et al., 2022)** An assessment tool (a checklist, available in written and electronic formats) that identifies over 75% of UK police trauma exposure and is based on the recent experiences of over 1,500 officers and staff on the front line. A practical tool of value for self-assessment, and can facilitate attempts by Occupational Health and management to improve monitoring and treatment access. It has potential applications in a variety of operational settings including supervisions, peer support activities, wellbeing assessments, and training. The checklist can be used in matrix format, enabling individuals to record the situational contexts that influenced the impact of the event at the time (such as few resources or being first on scene). Refer to https://www.policecare.org.uk/research/police-traumatic-events-checklist/ for user guides and case studies.	Traumatic events are relevant to policing (*How is PTE defined?*) The individual or others can record their own experiences (*Who collects the data?*) Available in written and electronic form (*How is data collection done?; What software/technology is used to collect and/or store the data?*) Multiple applications of the tool (*How is an individual's/group PTE data being used?)*
The City of Tallahassee Fire Department (USA)	**ESO Suite software for tracking critical incidents (O'Dare et al., 2023)** "the City of Tallahassee Fire Department began systematically tracking Critical Incidents utilizing ESO Suite software* in early 2021. The system collects data on number and type of critical incidents which can be queried regularly to screen for crews or individuals having exposure to a significant number of critical incidents. Peer support or other upstream preventative measures can be deployed as needed in these circumstances" (p.329-330) *https://www.eso.com/resources/critical-incident-fields/ "*ESO Fire's Critical Incident fields give you the insight to help identify, intervene, and prevent PTSD symptoms and behaviours.*"	Software tracking system (*What software/technology is used to collect and/or store data?)* Data is utilised to prompt a response (*How is an individual's/group PTE data being used?)*
Grey literature		
Police agencies		
Essex Police (UK)	**Trauma tracking model (Essex Police, 2023a, 2023b)** "CMC* use a trauma tracking model to help monitor wellbeing of staff when exposed to specific events and in quantity which triggers an interview and support where necessary" (Essex Police, 2023a, p. 34) "It is recognised within the command that repeated call types and particular incidents can cause trauma to the staff. This can be incredibly impactive to the staff member and their peers and may impact on performance and subsequent service delivery. The Trauma Tracker seeks to identify staff affected and ensure that provisions are	Tracking data is used to prompt a response (How is an individual's/group PTE data being used?) Utilised within a particular Command (Who/what department(s) have ownership of the system?)

Organisation (country)	Name and description of tool	Characteristics
	put in place to support them and the wider command where necessary." (Essex Police, 2023b, p. 27) *CMC = Contact Management Command, a new operating model for our continued focus on investigations, safeguarding and public protection, and our transition to the new Domestic Abuse Risk Assessment (DARA) format to ensure that we continue to tackle the biggest cause of harm in the county (Essex Police, 2023a, p. 3)	
The Australia Federal Police (AFP) (Australia)	**The Trauma Tracking Pilot (Australian National Audit Office, 2018, March 7)** "In June 2017, the AFP commenced an informal pilot project to track employee exposure to critical or potentially traumatic incidents. The project involved AFP's Organisational Performance and Organisational Health areas. The project was prompted by academic research indicating that cumulative exposure to traumatic events increases the risk of psychological injury, with rates of Post-Traumatic Stress Disorder and depression increasing with each additional traumatic exposure. AFP employees conducted an exercise to combine data from its policing case management system with time charging records to see how many hours AFP members are charging to particular types of cases, and attendance at critical incidents. The purpose was to use this information to improve the targeting and timeliness of intervention support to members who may be at risk from cumulative exposure to traumatic events and/or material. Note: this program was reportedly[5] inspired by a similar program used by the Canadian Mounted Police, however no publicly available information about the Canadian program could be found	Data integration (What PTE data is collected and recorded?; How is the data/system integrated with other data/systems?) Integrated data used to prompt a response (How is group PTE data being used?)
Victoria Police (Australia)	**The safe-t-net support system for tracking PTEs (Victoria Police, 2017)** "An early intervention wellbeing support system designed to identify, record, and monitor our employees' exposure to events that have the potential to impact their wellbeing" (p.16)	Limited available information about the system
NSW Police (Australia)	**Traumatic event monitoring (NSW Police Force, 2020)** As part of the Mental Wellbeing Strategy, the NSW Police Force is committing to "Expand[ing] our program for monitoring and responding to the impact of exposure to potentially traumatic events so that all employees understand the process, roles and responsibilities for managing these events" (p.20)	Clarity around processes, roles, and responsibilities (Who collects the data?; How/when is data collection done?; Who & what department(s) have ownership of the system)
Ambulance agencies		
NSW Ambulance (Australia)	**The Significant Events Register (The Senate - Education and Employment References Committee, 2019)** "NSW Ambulance implemented the significant events register in July 2016, which requires all managers to record any event that may have a potentially harmful impact on the attending staff…Senior managers are responsible for reviewing the register and ensuring follow-up has occurred" (p.44)	Specifies roles and responsibilities (Who collects the data?; How/when is data collection done?; Who/what department(s) have ownership of the system?)

[5] https://the-riotact.com/afps-mental-health-pilot-program-only-dealing-with-half-the-picture-says-union/283435

Organisation (country)	Name and description of tool	Characteristics
	To "document significant events in a dedicated register, which ensures staff are supported and receive future follow-up support" (NSW Ambulance, 2017, p. 21). "The register provides each Directorate and work area (25 areas in total), with a database in which to record the details of staff exposed to significant events, as well as record the follow up provided over time. All events classified under the policy as either "Orange" or "Red" must be documented and recorded in the register. Information for the Register will be provided by the manager, who assists the affected staff after the timely provision of support and welfare actions, and the register will be maintained by a senior manager delegated for each area and access will be limited to the delegated manager. The details of the actual support delivered to individual staff continue to remain confidential" (NSW Ambulance, 2017, p. 22)	Privacy and confidentiality (What are the legal and ethical considerations for your organisation?)
St John Ambulance (NT) (Australia)	**The Significant Events Register (St John Ambulance Australia (NT) Inc., 2019)** "The register tracks significant events that our ambulance services staff and volunteers have been involved in to ensure that they are receiving appropriate support" (p.42)	Data is utilised to prompt a response (How is an individual's/group PTE data being used?)
Ambulance Tasmania (Australia)	**Variety of communications notifying of traumatic jobs (Koch, 2019, Aug 19)** "Notifications of a traumatic job are made through the Police Radio Dispatch Service, Ambulance Tasmania State Operations Centre, Tasmania Fire Service Communications Centre or via a 24-hour self-referral line"	Disconnected channels of communication (How is the data/system integrated with other data/systems?; Who/what department(s) have ownership of the system?)

Appendix 3: Survey items included in environmental scan

Agency characteristics

The questions in this section ask about the characteristics of your agency. Responses to these questions will be grouped in a way that does not identify individual agencies, and will be used to demonstrate sector representation captured in this survey.

#	Question	Response options
1	**What category best describes your agency?**	• Fire • Search and rescue • Police • Ambulance • Life saving • Other emergency service • Not an emergency service • Prefer not to say
2	**Approximately what proportion of your agency is made up of volunteers?**	• 0%, there are no volunteer roles • Less than 25% • About 26% to 50% • About 51% to 75% • About 76% to 100% • Prefer not to say
3	**What is the approximate size of your agency?** Personnel include employees and volunteers.	• Less than 500 personnel • 501 to 5,000 personnel • 5,001 to 10,000 personnel • 10,001 to 15,000 personnel • 15,001 or more personnel • Prefer not to say
4	**In which country is your agency located?**	• Australia • International • Prefer not to say
(4.1)	[If responded 'Australia'] **In which state/territory is your agency located?**	• ACT • NSW • NT • QLD • SA • TAS • VIC • WA • National • Prefer not to say
(4.2)	[If responded international] **In which country is your agency located?**	• New Zealand • Canada • United States • United Kingdom • Other, please specify…… • Prefer not to say

Agency tracking systems

Tracking system(s) refers to (1) PTE exposure tracking systems and/or (2) agency PTE response tracking system(s) used by emergency services and other high-risk agencies. This survey is divided into two sections, each asking about the different types of tracking system(s):

(1) **Systems that track individuals' exposure to PTEs** (i.e., 'Potentially Traumatic Events'), and

(2) **Systems that track agency responses to these PTE exposures**.

For the purpose of this survey:

- A tracking system can include anything from handwritten records or an Excel spreadsheet to more formalised organisation-wide software platforms for tracking PTEs and/or agency responses.
- **PTEs** (often referred to as 'critical incidents' in emergency services) may include any threat, actual or perceived, to the life or physical safety of the individual, their colleagues, or those around them. Exposure to a PTE may be direct (e.g., experienced or witnessed) or indirect (e.g., learnt about or exposure to details of traumatic events through work). PTEs may be experienced on a single occasion or repeatedly. How PTEs are defined in your agency and how this relates to a tracking system may differ among agencies.
- Examples of **agency responses** include post-incident support, peer support, discussion with managers, internal or external wellbeing support services, and broader organisational responses.

Whilst some agencies may have a single system that tracks both PTE exposures and agency responses, other agencies will have system(s) for tracking PTEs that are separate to the system(s) for tracking agency responses. If your agency has a single system, there is no need to repeat the same details in the second section of this survey (however, please indicate this, and still click through to the final part of the survey).

Systems that track PTE exposures

This first section will focus on **PTE tracking systems used within your agency**. A reminder that these systems involve tracking individuals' exposure to PTEs (e.g., critical incidents, situations that can be experienced as potentially traumatic).

The initial questions ask for broad information about your agency's system(s) for tracking individuals' exposure to PTEs, with subsequent questions exploring this system in greater depth.

#	Question	Response options
5	**Does your agency have a system for tracking personnel exposure to PTEs?** Select as many options as currently apply.	• Yes, and well established • Yes, to some extent • No, but we are preparing to/would like to within the next 12 months • No, but we previously used a system • No, we don't have a system and are not planning to within the next 12 months • Unsure
(5.1)	[If responded with either 'yes' option] **Please briefly outline the current PTE tracking system in place.** You will be asked about specific features later.	[Free text box]
(5.2)	[If responded 'no, but we are preparing to'] **Please briefly outline the PTE tracking system you are preparing or would like to implement.** You will be asked about specific features later.	[Free text box]
(5.3) (a)	[If responded 'no, but we previously used a system'] **Please briefly outline the PTE tracking system you used to have.** You will be asked about specific features later.	[Free text box]
(b)	**Briefly describe why you no longer have this system.**	[Free text box]

(5.4)	[If responded 'no, we don't have a system and are not planning to' or 'unsure'] **What are the reasons for not having a PTE tracking system in your agency?**	[Free text box]
6 (a)	**Are there other reporting procedures (separate from tracking systems) in place to record critical incidents or PTE exposure in personnel's records?**	• Yes, and well established • Yes, to some extent • No, but we are preparing to/would like to within the next 12 months • No, but we previously did • No, we don't currently and are not planning to within the next 12 months • Unsure
(b)	Please provide brief details of current, proposed, or previously used procedures……	[Free text box]

Key elements of PTE tracking systems

We will now focus on five proposed key elements of a tracking system. We are interested in how these elements operate within your agency, and your perspectives on related strengths and limitations within your agency. With a specific focus on systems that track PTE exposure, we will ask questions about the following elements:

1. The primary purpose
2. What is measured and what data is collected
3. The data collection process and data storage platform
4. Data analysis, reporting, and utilisation
5. Implementation of the system(s)

Please note: If your agency does not currently have a tracking system for PTE exposures, please answer with your perceptions about an ideal system in relation to each of the five elements.
The section after this one, will ask for information on systems that track agency responses to PTEs. That section will be briefer than the current section.

Element 1: The primary purpose of a PTE tracking system

For element 1, we would like to know about your agency's motivations for having a PTE tracking system, including the goals, purpose/s, and perceived benefits of the system. We also want to know about concerns and/or barriers (if any) that the agency has around having such a system. There are many potential reasons for an agency using a tracking system. These may be related to potential benefits of a tracking system for the individual exposed, through to the potential benefits for the agency as a whole.

#	Question	Response options
7	**For your agency, what is the primary purpose of having a PTE tracking system?** Please also describe key motivations for, and goals of, having a system.	[Free text box]
8	**To what extent do you think your agency's PTE tracking system achieves its primary purpose (as stated above)?**	• Unsure • To no extent • To a small extent • To a moderate extent • To a large extent
9	**What are the main barriers to your agency's system achieving its primary purpose?**	[Free text box]
10	**For each of the following four groups/levels, please describe what you perceive to be the main purpose and benefits of a PTE tracking system:** • For the individuals exposed to PTEs	[Free text box]

	• For leaders supporting individuals exposed (or at risk of exposure) to PTEs	[Free text box]
	• For a region and/or *group* of teams	[Free text box]
	• At an agency level	[Free text box]
11	**What are your agency's main concerns or hesitations (if any) about using a PTE tracking system?** Also, consider unintended consequences of the system for individuals through to the agency as a whole.	[Free text box]

Element 2: Data collected by the PTE tracking system

For element 2, we would like to know **what type of data is collected** by your agency's PTE tracking system when a **PTE exposure occurs**. We would also like to know **strengths and limitations** of your agency's system.
If your agency does not have a PTE tracking system, please answer with your perceptions of what an ideal system would look like in the context of your agency.

#	Question	Response options
12	**Describe your agency's PTE tracking system in relation to each of the following:**	
(A)	• **Please briefly describe what the system aims to measure/collect following individuals' exposure to a PTE.**	[Free text box]
(B)	• **What types of PTEs are tracked?** Select all that apply.	• Attending motor vehicle or other accident • Exposure to a disaster caused by a natural hazard • Seeing a dead body • Witnessing physical or sexual assault • Experiencing physical threat from others • Experiencing physical or sexual assault • Viewing/reading materials about PTEs • Injury or death of staff member/volunteer • Child-related incident • Other. Please specify…….
(C)	• **What data about each PTE exposure is collected?** Select all that apply.	• Personnel names/ ID number • Length of exposure • Nature of exposure (e.g. direct, indirect) • Assessment of severity • Role of personnel at the event • Other. Please specify……
(D)	• **About whom is PTE exposure data collected about?** Select all that apply.	• Operational staff • Non-operational staff • Volunteers • Other. Please specify…..
(E)	• **Is there any group for whom PTE data are not collected?** Please list, and describe reasons why.	[Free text box]
13	**In relation to the type of PTE exposure data collected, what are the strengths and/or important aspects of your agency's PTE tracking system?**	[Free text box]
14	**In relation to the type of PTE exposure data collected, what are the limitations of and/or implementation challenges associated with your agency's PTE tracking system?**	[Free text box]

Element 3: How is PTE exposure data collected and stored?

For element 3, we would like to know about **the processes used to collect PTE exposure** and **how data is stored** within your agency. Please answer in relation to PTE exposure data.
If your agency does not have a PTE tracking system, please answer with your perceptions of what an ideal system would look like in the context of your agency.

#	Question	Response options
15	**Describe your agency's PTE tracking system in relation to each of the following:**	
(A)	• **Who is responsible for (1) collecting the data and/or (2) overseeing data collection**? (i.e., which roles, teams)	[Free text box]
(B)	• **How is data collection undertaken?** Please consider: • **what triggers the collection;** • **how is data recorded,** e.g., in an Excel spreadsheet, mobile or web application, using pen and paper, official record sheet, computer software (including the name of application/software is preferred, but optional), etc.; • **from where is the data recorded** (e.g., at the event site, in the office, etc.), • **other important details about the recording of data.**	[Free text box]
(C)	• **Do you use any standardised measures and/or questionnaires for data collection?** Consider measures developed by your agency and measures used in the field of PTEs more broadly.	• No • Yes, please specify or name….
(D)	• **When is the data collected?** (e.g., how soon after the event)	[Free text box]

For questions 16 and 17, please consider:

- Accessibility and user friendliness of the platform for recording data
- Privacy, security, and storage
- Whether the tracking system is integrated with other systems or processes (i.e., do other systems trigger the collection of PTE data or does PTE exposure data collection link to other data sources or response systems)

16	**In relation to the data collection process and data storage, what are the <u>strengths and/or important aspects</u> of your agency's PTE tracking system?**	[Free text box]
17	**In relation to the data collection process and data storage, what are the <u>limitations of and/or implementation challenges</u> associated with your agency's PTE tracking system?**	[Free text box]

Element 4: How is the PTE exposure data analysed, reported, and utilised

For element 4, we would like to know how your agency **analyses and reports the PTE exposure data**, and the **purposes for which it is utilised**.
If your agency <u>does not</u> have a PTE tracking system, please answer with your perceptions of what an ideal system would look like in the context of your agency.

#	Question	Response options
18	**Describe your agency's PTE tracking system in relation to each of the following:**	
(A)	• **How is the data being analysed?** (e.g., at individual and/or group level analysis; examining trends over time; linked with other available data e.g. wellbeing surveys, Workcover, sick leave data)	[Free text box]

(B)	• **Who is the analysed data reported to?** (i.e., what roles/departments). **How regularly is data analysed and/or reported to relevant parts of the agency?**	[Free text box]
(C)	• **How is the PTE exposure data being used at an individual level?** (e.g., to flag threshold of exposures, to trigger agency response etc.)	[Free text box]
(D)	• **If relevant, how is the PTE exposure data being used at a group level?** (e.g., what actions are triggered by data at a team level, unit level, region level, agency level, etc.)	[Free text box]
(E)	• **How is the PTE exposure data tracking system integrated with other data or systems, if at all?** Please specify systems and/or data it is integrated with.	[Free text box]
19	**In relation to data analysis, reporting, and utilisation, what are the strengths and/or important aspects of your agency's PTE tracking system?**	[Free text box]
20	**In relation to data analysis, reporting, and utilisation, what are the limitations of and/or implementation challenges associated with your agency's PTE tracking system?**	[Free text box]

Element 5: Implementing a tracking system for PTE exposures

For element 5, we would like to know about the original **development, evolution, and implementation** of your agency's tracking system for PTE exposures.
If your agency does not have a PTE tracking system, please answer with your perceptions of what an ideal implementation process would look like in the context of your agency.

#	Question	Response options
21	**Describe your agency's PTE tracking system in relation to each of the following:**	
(A)	• **Who or which teams have ownership and responsibility of the PTE tracking system?**	• Wellbeing team • HR • OH&S • Operations team • Other: Please specify … • Not applicable
(B)	• **How was the system developed?** (e.g., who was involved, was it based on existing systems, how was it developed and tested, etc.). Please consider timelines, challenges, problems, mistakes, learnings, etc.	[Free text box]
(C)	• **How successfully has the PTE tracking system been implemented within your agency?** Please describe what "success" means in the context of your agency, and ways that successful implementation has/has not been attained to date.	[Free text box]
(D)	• **What was required to implement the PTE tracking system within your agency?** (e.g., financial, staff, other resourcing, training, system capability, etc)	[Free text box]
(E)	• **Please describe the approaches (if any) your agency adopts for (1) monitoring and evaluating the tracking system, and (2) continuous improvement of the system.**	[Free text box]

22	**In relation to implementation, what are the strengths and/or important aspects of your agency's PTE tracking system?**	[Free text box]
23	**In relation to implementation, what are the limitations of your agency's PTE tracking system and barriers/challenges to implementing a PTE tracking system in your agency?**	[Free text box]

Thank you. This completes the section on systems that track PTE exposures. We will now move to the next section on systems that track agency/organisational responses to those PTE exposures.

Systems that track agency responses to PTE exposures

This second section will focus on **agency response tracking systems** used within your agency. A reminder that these systems track agency/organisational responses to individuals exposed to PTEs. Types of agency responses may include: post-incident support, peer support, discussion with managers, internal or external wellbeing support services, and broader organisational responses.

The initial questions ask for broad information about your agency's systems for tracking **agency responses** to PTEs, with subsequent questions exploring this system in greater depth. This section is shorter than the previous section on systems that track PTE exposures.

#	Question	Response options
24	**Does your agency currently track agency responses for individuals exposed to a PTE?** Select as many options as currently apply. Agency responses might include the delivery and uptake of post-incident support, such as psychological first aid, peer support, manager check-ins, wellbeing monitoring, EAP.	• Yes, and well established • Yes, to some extent • No, but we are preparing to/would like to within the next 12 months • No, but we previously did • No, we don't currently and are not planning to within the next 12 month • Unsure
(24.1)	[If responded with either 'yes' option] **Please briefly outline the current agency response tracking system in place.** You will be asked about specific features later.	[Free text box]
(24.2)	[If responded 'no, but we are preparing to'] **Please briefly outline the agency response tracking system you are preparing or would like to implement.** You will be asked about specific features later.	[Free text box]
(24.3) (a)	[If responded 'no, but we previously used a system'] **Please briefly outline the agency response tracking system you used to have.** You will be asked about specific features later.	[Free text box]
(b)	**Briefly describe why you no longer have this system.**	[Free text box]
(24.4)	[If responded 'no, we don't have a system and are not planning to' or 'unsure'] **What are the reasons for not having an agency response tracking system in your agency?**	[Free text box]

Key elements of agency response tracking systems

We will now focus on the five proposed key elements of a tracking system and how they relate specifically to agency response tracking systems. As a reminder, the five elements include:

1. The primary purpose
2. What is measured and what data is collected
3. The data collection process and data storage platform
4. Data analysis, reporting, and utilisation
5. Implementation of the system(s)

Please note: If your agency does not currently have a tracking system for agency responses, please answer with your perceptions about an ideal system in relation to each of the five elements.
If your responses to the first section (about PTE tracking systems) are applied here (or your agency has a single system that covers both types of tracking), there is no need to repeat this information. Please indicate "answer provided".

Element 1: The primary purpose of an 'agency response' tracking system

For element 1, we would like to know about your agency's **motivations for having a tracking system for agency responses**, including the **goals, purpose/s, and perceived benefits** of the system. We also want to know about **concerns and/or barriers** (if any) that the agency has around having such a system.

#	Question	Response options
25	**For your agency, what is the primary purpose/benefit of having an agency response tracking system?** Please also describe if the purpose/benefits differ for individuals, leaders, teams/regions, or at the organisation level.	[Free text box]
26	**To what extent do you think your agency's response tracking system achieves its primary purpose (as stated above)?**	• Unsure • To no extent • To a small extent • To a moderate extent • To a large extent
27	**What are the main concerns or barriers to your agency's system achieving its primary purpose?** Are there any unintended consequences?	[Free text box]

Element 2: Data collected by the 'agency response' tracking system

For element 2, we would like to know **what type of data is collected** by your agency's tracking system when **the agency responds to PTE exposure**.
As a reminder, examples of agency responses include: post-incident support, peer support, discussion with managers, internal and external wellbeing support services, and broader organisational responses.

#	Question	Response options
28	**Please briefly describe what the system aims to measure/collect in relation to 'agency responses' to individuals' PTE exposure.**	[Free text box]
29	**What data about the agency response to PTE exposure are collected?** Select all that apply.	• Type of support offered, • Offer accepted/declined • Follow-up actions • Personnel satisfaction with response • Mental health outcomes • Other. Please specify…..
30	**About whom is the agency response data collected about?** Select all that apply.	• Operational staff, • Non-operational staff, • Volunteers, • Other. Please specify…..

Element 3: How is 'agency response' data collected and stored

For element 3, we would like to know about **the processes used to collect data on agency responses to PTE exposures,** and **how data is stored** within your agency. Please answer in relation to agency response data.

#	Question	Response options
31	**Who is responsible for (1) collecting the agency response data and/or (2) overseeing data collection?** (i.e., which roles, teams)	[Free text box]

32	**How is data collection undertaken?** Please consider what triggers the collection, how it is recorded, storage, whether integrated with other systems, or shared by wellbeing services.	[Free text box]
33	**When is the data collected?** (e.g., how soon after the event, frequency of collection).	[Free text box]

Element 4: How is the 'agency response' data analysed, reported, and utilised

For element 4, we would like to know how your agency **analyses and reports the 'agency response' data**, and the **purposes for which it is utilised**.

#	Question	Response options
34	**How is the data being analysed?** (e.g., at individual and/or group level analysis; examining trends over time; linked with other available data e.g. wellbeing surveys, Workcover, sick leave data)	[Free text box]
35	**Who is the analysed data reported to?** How regularly is data analysed and/or reported to relevant parts of the agency?	[Free text box]
36	**How is the agency response data being used at an individual, group, and/or organisation level?** Please also indicate if it is not.	[Free text box]
37	**How is the 'agency response' data tracking system integrated with other data or systems, if at all?** Please specify systems and/or data it is integrated with.	[Free text box]

Element 5: Implementing a tracking system for 'agency responses' to individuals exposed to PTEs

For element 5, we would like to know about the original **development, evolution, and implementation** of your agency's tracking system for 'agency/organisational responses' to individuals exposed to PTEs.
If your agency does not have an 'agency response' tracking system, please respond with your perceptions of what an ideal implementation process would look like in the context of your agency.

#	Question	Response options
38	**Who or which teams have ownership and responsibility of the 'agency response' tracking system?**	• Wellbeing team • HR • OH&S • Operations team • Other: Please specify … • Not applicable
39	**How was this system developed?** (e.g. who was involved, was it based on existing systems, how was it developed and tested, etc.)	[Free text box]
40	**What was required to implement this 'agency response' tracking system within your agency?** (e.g., financial, staff, other resourcing, training, system capability, etc)	[Free text box]
41	**How successfully has this agency response tracking system been implemented within your agency?** Please describe what "success" means in the context of your agency, and ways that successful implementation has/has not been attained to date.	[Free text box]

42	**Please describe the approaches (if any) your agency adopts for (1) monitoring and evaluating the agency response tracking system, and (2) continuous improvement of the system.**	[Free text box]

Strengths and limitation of 'agency response' tracking system

We are interested in your perspectives on their strengths and limitations of your agency's system for tracking 'agency responses' to individuals exposed to PTEs. Consider the following questions in relation to all elements of a tracking system, such as:

- the primary purpose of the system(s)
- the type of agency response data collected
- the data collection process and storage
- data analysis, reporting, and utilisation
- implementing an 'agency response' tracking system.

#	Question	Response options
43	**What are the strengths and/or important aspects of your agency's system for tracking 'agency responses' to individuals exposed to PTEs?**	[Free text box]
44	**What are the limitations of and/or implementation challenges associated with your agency's system for tracking 'agency responses' to individuals exposed to PTEs?**	[Free text box]

Thank you, that now completes the two sections on systems for tracking (1) PTE exposures, and (2) agency responses to these exposures. We will now move into the final part of the survey, about broader agency context.

Agency context

We would like to know more about the broader agency context within which your tracking system(s) operate. This includes systems for tracking PTE exposures as well as tracking agency responses to these exposures.
A reminder that data will be grouped, and we will look at themes, rather than identifying information. We recognise that some of the information asked in this section is confidential, so please only share as much detail as you wish. Questions are not compulsory.

#	Question	Response options
45	**Describe your agency's tracking system(s) in relation to each of the following:**	
(A)	• **What is the organisational mental health climate?** (e.g., leadership and staff attitudes toward mental health and help-seeking, buy-in from personnel and leaders (and unions) for tracking systems, etc.)	[Free text box]
(B)	• **What unique characteristics of your agency were/need to be considered in the design and implementation of a tracking system?** (e.g., considerations specific to volunteers vs employees, nature and frequency of PTE exposures, resourcing, ability to implement new systems and conduct change management, technology use/comfort, etc.)	[Free text box]
(C)	• **What are the legal and ethical considerations regarding having/not having a tracking system for your agency?** (e.g., characteristics of your workforce, WorkCover, insurance, etc.)	[Free text box]
46	**In relation to the characteristics of your agency context, what are the strengths and/or important aspects of your agency's tracking system(s)?**	[Free text box]

47	**In relation to the characteristics of your agency context, what are the limitations of and/or implementation challenges associated with your agency's tracking system(s)?**	[Free text box]
48	**Within your agency, what mental health and wellbeing initiatives are currently in place for those who have been exposed to a PTE?** (select all that apply)	• Employee Assistance Program (EAP) • Peer Support Program • Critical incident support • Chaplains or spiritual support • Internal counselling services • External referral pathways for mental health support • Wellbeing promotional messages from leadership or the organisation • Intranet mental health and wellbeing resources • Individual staff wellbeing checks (via survey or with practitioner) • Anonymous all staff wellbeing surveys • Other, please specify…… • None of the above

Close out

#	Question	Response options
49	For element 5, you were asked to describe how your agency evaluates the tracking system(s). Here, we would like to know: **Has your tracking system(s) been reviewed and/or evaluated (internally or by an external provider)? If so, what were the key findings?**	[Free text box]
50	Optional – **Please upload any relevant documentation that would provide an overview or information about the PTE exposure and/or agency response tracking system(s) used in your agency.** (e.g., media release or executive summary of an evaluation report).	Choose file to upload.
51	Optional – **If you would like to share further information or ideas on tracking systems and initiatives that your organisation is doing, please leave your name and email address.** Phoenix Australia will directly contact you to discuss. Alternatively, please contact the Phoenix Australia team directly at <NAME & DETAILS> Your individual completed responses to questions will not be shared outside of the Phoenix Australia research team and will not be identifiable in any report.	Name: _____ Organisation: _____ Contact email: _____
52	**Please include anything else that you would like to add that has not been covered in relation to trauma-related tracking systems in your agency.**	[Free text box]

Appendix 4: Strengths and limitations of tracking systems

Table 8 includes the qualitative evidence and theming of the perceived strengths and Table 9 includes the limitations or challenges of tracking systems identified by respondents in the survey. Both tables expand on the summary in Table 4.

Table 8: Summary of strengths of current practice

Strengths	Description	Evidence (quotes)
System development, implementation, and maintenance		
Foundations of the system	The system has empirical foundations.	• *"Based on academic research which itself has drawn on the views of staff… the largest policing survey in the UK-Policing: The job and the life survey [and the] subsequent PTEC (Police Traumatic Events Checklist) framework"*
Internal or external system development	The system was internally conceived and developed, thus organisational ownership is high, and costs are lower than externally developed systems.	• *"As it is an internally built system, we can continue to develop and refine the system more easily without incurring significant cost"*
	The system was custom-made by an external developer to meet organisational needs.	• *"Custom case management system - created and serviced by external IT provider"*
System performance		
Something is better than nothing	Some organisations had very basic systems, but saw it as a strength to be making some effort to protect worker wellbeing.	• *"there is some data rather than none"* • *"we are trying"*
Reliability	The system performs consistently well, making it more likely it will achieve its purpose.	• *"Reliable"*
Security and privacy		
Data security and privacy	Security measures are in place to protect workers' privacy, maintain confidentiality, and protect data from hacking.	• *"Security has been reviewed by our IT data security department"* • *"All data … is protected according to Privacy Legislation provisions"*
	Positive perceptions of workers around privacy.	• *"the tracking system has a good reputation to securely keep the data of personnel"* • *"We are collecting operational data, not health data, which is likely to be more widely accepted"*
	Authorised access, which serves the dual purposes of protecting worker privacy and minimising vicarious trauma.	• *"tiered levels of access for team members to maintain confidentiality"* • *"security and access settings have been set-up to ensure that records can only be viewed, edited, destroyed, shared etc., by a select few individuals"* • *"ensuring that access to personal history is kept limited to those who need it"* • *"Allows details of the event to be shared only to those needing to work on the job (to limit vicarious trauma)"*

	Workers who don't wish to be part of the tracking system can choose to opt out.	• *"provides an 'opt-out' option"*
Usability and accessibility		
Usability	User-friendly system which does not require a high level of technical capability.	• *"It is a user-friendly system, easy to access"* • *"easily obtained and tracked as to who was exposed"* • *"considerate of the technological literacy of the users"*
	Ease of reporting.	• *"Ease of use. Having commonly used reports "one click away" instead of manually building a report each time from a data dump"*
Accessibility	Workers can access the system easily.	• *"All employees have access to [name of system withheld] via a desktop icon"* • *"is mobile accessible to logging incidents"*
Administrative burden	The system eases, or does not add to, administrative burden for workers, managers, and leaders.	• *"It is automatic so it doesn't require any physical input"* • *"the fact that we haven't created an additional data entry requirement is important"* • *"includes automated email responses to all parties to communicate processes"* • *"Our system is built to incorporate API's[6]"*
Data collection, storage, and utilisation		
Data usefulness	Data captured about the incident is rich, broad, and useful, and may span a worker's career with the organisation.	• *"It captures the incident well"* • *"It records and reports on a wide range of data relating to PTEs and individuals"* • *"The ability to track exposure across stations, geographically, incident type and individuals exposed"* • *"Providing "one source of truth" for the work done around the job"* • *"If used consistently and effectively, it collects data of a member's exposure over the term of their employment"*
	Data can be contextualised to specific locations.	• *"We also incorporate community size to take into account that smaller locations can amplify the impact of a PTE as members will often know the people involved"*
Data quality	System characteristics contribute to the capture of quality data (e.g., accuracy, timeliness, completeness, consistency).	• *"Accurate"* • *"It's automatic so no incidents that fall within the criteria are missed" (completeness)* • *"Data on incidence of exposure to PTEs is recorded by key personnel in the incident response team allowing consistency of data reporting" (consistency)*
Data centralisation	There is a central database.	• *"All data collected is held in a centralised data warehouse, which makes it easier to draw it down into reports"* • *"Central base for data collection"*
Data integration	PTE data is integrated with other relevant information (e.g., personnel file information, responses) to create a 'story' around the incident, impacted individual, and outcome.	• *"The collected data is integrated into the operational systems"* • *"Linking the PTE to the individual employee's exposure history"* • *"takes data from 2 different systems"*

[6] API = application programming interface — a software intermediary that allows two applications to talk to each other https://www.mulesoft.com/resources/api/what-is-an-api

		• *"Wellbeing metrics systems, [name of incident reporting system withheld] systems and Human Relations system gather data related to PTEs"* • *"Multiple systems concurrently active"* • *"It allows for a pull of data from one system, seeing convergences and related events"*
Data organisation and manipulation to gain actionable insights	System capabilities enable organisation or categorisation, filtering, and manipulation of data in various ways, to obtain insights that managers and leaders can action.	• *"easy to create sub-categories to tease out types of PTEs"* • *"many categories that the incident call be allocated to"* • *"Can be manipulated to see different forms of data based on geography, locations, departments, diversities etc"* • *"We have filters that enable us to analyse the data in helpful ways. For example, we can sift out road crash rescue and medical response locations to look at what other types of PTEs are occurring"*
Data reporting and presentation	The system has reporting capability that is easily used, and can display the information in ways that are useful for reporting and presentations to various audiences.	• *"reporting is reasonably consistent and facilitated by fields within the incident template"* • *"It also uses a Power BI[7] dashboard to present the data which everyone seems to respond to very positively. We can hide the individual data and just show the location data which helps with privacy."* • *"easy to …adapt reporting template to suit needs of business"*
Actionable insights generated by the system		
Effective tracking of PTE exposure informs responses and proactive targeting of PTE-impacted workers	Insights from the data inform the development of an appropriate and co-ordinated response.	• *"The PTE data currently being tracked is being used to ensure that Members receive a mental health response"*
	Informs proactive and targeted responses.	• *"allows us to proactively target those that are exposed to trauma"* • *"Engagement with members without them needing to reach out for it"*
	The system promotes support-seeking and reduces stigma.	• *"people reporting through and seeking support"* • *"Helps to destigmatise accessing support following PTEs"*
Trend monitoring	Monitors trends to identify high-risk roles, events, and locations ('hot-spots'). This insight facilitates both proactive and targeted outreach to PTE-impacted individuals and implementation of risk mitigation strategies including worker training and policies. Supports compliance with workplace psychosocial risk legislation.	• *"It has allowed us to identify any trends or themes with certain individuals, teams or areas"* • *"It can be used for assessment of incidents and increases"* • *"The ability to access data at multiple levels, individual, shift, station, region exposure and monitor this and compare over time"* • *"Our system highlights locations and individuals with the highest level of exposure to PTEs enabling us to more effectively target our services"*

Note: Where indicated (*), quotes relate to response tracking. All other quotes relate to PTE tracking.

[7] Microsoft data vi

Table 9: Summary of limitations or challenges of current practice

Limitations	Description	Evidence (quotes)
System development, implementation, and maintenance		
Resourcing	Resourcing limitations.	• *"Limited staffing and resourcing to do this work"* • *"There are always funding limitations"*
	Investment in training is necessary.	• *"Training of users is required"* • *"Education of Group Leaders to utilise reporting system, and how to interpret the data."* • *"Further mental health literacy is needed for leaders at all levels including competency based training to upskill leaders in monitoring members wellbeing, proactively having conversations and implementing strategies to prepare members and provide support."**
	Need a dedicated role or unit to oversee the data, and large storage capacity.	• *"There is a lot of data - that requires constant management and review*
	Technology and IT support	• *"Requires a 24/7 support network"* • *"Some IT issues from time to time"*
Change management	*Challenges related to implementing new, or changing existing, systems*	• *"change resistance in organisation"* • *"Cultural change, in particular Managers understanding that welfare of staff is a key role of theirs"* • *"Takes time to secure buy-in of staff"*
Security and privacy		
Data security and privacy	Staff concerns about privacy	• *"Staff often have concerns about privacy and safety of data"*
	Unauthorised or unnecessary access	• *"Some of the systems used to collect or share data are not as secure as others (e.g., WhatsApp) and there is a greater potential for the information to be shared with members of the [team name withheld] who are not required to be privy to the information as they are not tasked with responding"* • *"Potential for scope creep. People will find out we have this information, and will request it for well-meaning but challenging reasons such as attendance management"**
Data collection, storage, and utilisation		
Data collection	The system relies on manual data entry, which is subject to the following challenges: [1] Some workers are not motivated to enter data. [2] Data entered by individuals is typically a manual process, and subject to human error. [3] There is likely to be missing data (not all individuals will collect all necessary data)	[1] • *"Not all individuals report"* • *"It is really a mechanism that relies on individuals to self-report"* [2] • *"Finding out about the PTE in the first place relies on the PTE being reported to the Wellbeing team through various methods. This is a human process and can fail"* • *"A human element remains critical, but brings weaknesses to data quality without training"* [3]

	[4] Incorrectly entered data can have consequences for worker support and/or reporting	• *"It cannot respond to matters that are not reported"* • *"Doesn't capture data if not manually entered"** [4] • *"Submitter may incorrectly triage the incident which slows response"* • *"Reports are only as good as the data that goes in"* • *"Manual process and potential for duplicate entries can affect data"*
	Measurement aims are unclear.	• *"'[unclear] what are we measuring"*
	Lack of shared understanding about trigger for data collection (i.e., what is a PTE?).	• *"Individual assessment of what qualifies as a PTE despite a guiding frame"* • *"For the most part, PTEs are largely considered to be those events encountered whilst completing or supporting operational duties. Therefore there is a risk that some of the other PTEs listed (e.g., witnessing physical or sexual assault) may not receive as coordinated a response or be taken as seriously by some Members (inclusive of leaders)."*
	Inconsistency in data collection process.	• *"There are several [data collection] processes, which doesn't allow for a consistent response"* • *"the detail provided for each notification varies depending on the individual completing the form as the form has free text field to describe the PTE"*
Data usefulness	There are gaps in the data collected.	• *"The proposed current system is not always able to readily identify the part the individual played in the PTE, the severity of exposure, or if an individual/location/region has received support once a threshold has been met"* • *"Our data does not currently distinguish members who were most directly exposed to the PTE as opposed to others who may have had limited exposure (i.e. helping to remove someone from a car as opposed to traffic control)"* • *"There may be traumatic incidents not picked up on the system…It doesn't cover every potential traumatic incident as Trauma is unpredictable and affects individuals differently - but covers 75%"* • *"Inability to capture cumulative PTE data"* • *"It can be hard to identify locations with highly impactful singular events as the cumulative model is strongly influenced by locations that more frequently attend PTEs"* • *"Doesn't…list anything other than name and work department"*
	The system cannot track a worker over their career.	• *"Cannot track staff across career"*
Data centralisation	Data is decentralised.	• *"It doesn't map to a central location and staff can move across Sectors for relief so data on an individual is disconnected"*
Data integration	PTE data is not integrated with other relevant information.	• *"Some systems don't talk to each other and taking the raw data and analysing it can be time consuming and cumbersome"* • *"The severity of the incident, length of exposure or other factors such as intensity, operational factors or individual crew factors are not tracked in the one place"* • *"No software currently connects with other platforms meaning details need to be uploaded individually"*

		• *"system is independent and not integrated with other key employee human relations systems…Wellbeing metrics systems, [name of incident reporting withheld] systems and Human Relations system are not integrated, and cross data analysis needs to be performed manually"* • *"Do not have a unified system to analyse data"*
	The response tracking system (where it exists) is disconnected from the PTE tracking system.	• *"Current system tracks incidents and not individuals"** • *"Doesn't follow up on the individual after the event"** • *"The current system does not link to the response reporting system"**
Data organisation and manipulation to gain actionable insights	Challenges with the system in terms of producing actionable insight.	• *"The system has minimal input data and does not feed into a bigger picture"* • *"hard to identify trends as data is not yet collated into an easily analyse"* • *"It cannot be reviewed or analysed"* • *"does not inform health and safety"** • *"The data is there but is not detailed enough or the system is one that does not encourage use"** • *"Limited utility for the organisation more broadly"**
External influences		
Union involvement	Unions can challenge or shape worker perceptions of the tracking system	• *"Union involvement and challenging any process undertaken"* • *"A number of negative experiences have influenced the view of the systems including this being a tool that unions have isolated to leverage against workplace issues (e.g., not filling in [name of form withheld] due to other matters)"*
Sector-wide issues		
Standardisation	Lack of standardisation across the sector.	• *"standard measures across industry not clear"*

Note: Where indicated (*), quotes relate to response tracking. All other quotes relate to PTE tracking.

Appendix 5: Workshop participant demographics

Table 10: Workshop 1 demographics (N = 9)

Characteristic	Participants	
	*n**	%
Profession		
• Psychologist	5	56%
• Psychiatrist	1	11%
• GP	1	11%
• Retired police member	1	11%
• Academic	2	22%
Expertise		
• Emergency services mental health researcher	6	67%
• Disaster mental health researcher	2	22%
• Digital mental health researcher	2	22%
• Emergency services clinician	2	22%
• Police lived experience	1	11%
Years of expertise (mean = 9.7 years)		
• Less than 5 years	0	-
• 5 to 10 years	5	56%
• 10 or more years	4	44%

Note: *Workshop participants could hold one or more attribute (e.g., be both a psychologist and academic)

Table 11: Workshop 2 demographics (N = 12)

Characteristic	Participants	
	n	%
Agency type		
• Fire	7	58%
• Fire and rescue	1	8%
• SES	1	8%
• Life saving	2	17%
• Fire, police, paramedic	1	8%
State location		
• New South Wales	4	33%
• Victoria	4	33%
• Queensland	1	8%
• Tasmania	1	8%
• National (Australia)	2	17%
Role position type		
• Manager in psychological and wellbeing services	6	50%
• Manager in critical incident services	1	8%
• Manager in research	1	8%
• Senior psychologist	2	17%
• Wellbeing advisor	1	8%
• Occupational psychologist	1	8%
Years in role (mean = 3.1 years)		
• Less than 2 years	3	25%

• 2 to 4 years	6	50%
• 5 to 6 years	3	25%
Years in sector (mean = 6.7 years)		
• Less than 5 years	5	42%
• 5 to 10 years	5	42%
• 10 or more years	2	17%

Appendix 6: Detailed principles, subprinciples and current practice examples

Download Good practice principles for tracking potentially traumatic event exposure and organisational responses in emergency services here.

Appendix 7: Conference abstracts

Identifying good practice systems for tracking potentially traumatic event exposure and agency responses in fire and emergency services: Preliminary findings and implications. Pedder, D. J, Watson, L., Savic, A., Varker, T., Huckvale, K., Sadler, N, & Howard, A. (25-28 September 2024), Boston, Massachusetts, USA.

Abstract. Emergency services personnel are likely to be repeatedly exposed to potentially traumatic events (PTEs) through their work. Overall, literature suggests a dose-response relationship, where higher exposure is associated with higher prevalence and severity of posttraumatic stress. Tracking exposure enables organisations to manage psychosocial risk and provide high-risk workers with proactive support. This study strengthens understanding of best practice approaches to tracking PTEs and implications for policies within high-risk industries. A literature review was conducted to determine criteria used in a comparative analysis of current psychosocial risk management systems, infrastructure, assessment tools and recording platforms already in use in Australia and internationally, to determine strengths and weaknesses, and how they inform best practice responses. More than 20 Australian and international high-risk organisations were surveyed. Findings from the comparative analysis indicating best practice in tracking PTEs and how they are used to respond to the mental health impacts of cumulative trauma will be presented. Gaps and barriers to implementation will be discussed. The study is being used to codesign national guidance for Australia's emergency services to tracking PTEs and informing responses. Implications for high-risk industries in other countries will be discussed.

Tracking exposure to potentially traumatic events in emergency services workers: Toward best practice. Watson, L., Leckie, S., Pedder, D. J, Savic, A., Varker, T., Sadler, N, & Howard, A. (7-9 November 2024), Melbourne, Australia.

Abstract. Emergency services personnel are likely to be repeatedly exposed to potentially traumatic events (PTEs) through their work. Higher PTE exposure is associated with higher prevalence and severity of posttraumatic stress, so tracking exposure could assist organisations to better manage psychosocial risk and provide support. However, there is currently no established best-practice guidance for what such tracking systems should consider. This study aimed to investigate current practice for tracking exposure to PTEs and organisational responses, and to establish best practice approach considerations. A comparative analysis of Australian and international tracking systems was undertaken. First, a literature review was conducted to inform the criteria used in the analysis, and then representatives of more than 20 Australian and international high-risk organisations were surveyed about their tracking systems in relation to the criteria. These results were then thematically analysed and compared to determine current practice strengths and weaknesses. Findings from the comparative analysis will be presented, and potential enablers and barriers to implementation of best practice tracking systems will be discussed. This study strengthens understanding and consensus regarding good practice tracking systems, and will be used to co-design guidance for Australia and New Zealand's emergency services in tracking PTEs exposures and organisational responses.