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Why We 360

An investigation of psychological distress, injury and suicide
within Fire and Emergency New Zealand

2017/2018 Firefighters' Scholarship



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Finally, I would like to thank the many firefighters who have shared their experiences with me in relation to psychological distress and injury. It is these experiences that have catalysed and shaped this report. I hope that in return this report can provide a voice to those experiences.

Please note that the information provided in this report is not intended as a substitute for professional medical advice. If you have any concerns about your wellbeing, please refer to a qualified health professional such as a doctor or psychologist. The following psychological support services are available 24 hours a day and 7 days a week, to assist Fire and Emergency personnel:

- *For Region 1, 2 or 3 - Vitae Services on 0508 664 981*
- *For Region 4 or 5 - EAP Services on 0800 327 669*
- *For NHQ - EAP Services on 0800 327 669*

Executive Summary

Psychological distress and injury have long taken their toll on humanity. It is only in the last century that societies have begun to understand more clearly the underlying causes and far-reaching effects of these types of injury. The examination of psychological injury began, for the most part, with enquiries into hysteria in the late 19th century, evolving through an understanding of shell shock and combat neurosis in the First and Second World Wars, and the diagnosis and treatment of Vietnam War veterans in the 1970s. More recently, this examination has extended to that of psychological distress and injury experienced by first responders. The increased attention on first responder psychological injury has begun to highlight an area that has long impacted first responders, but which has only more recently led researchers and health professionals to sound an alarm. This alarm is drawing attention to what may be the greatest risk facing the modern first responder – the risk of psychological injury, maladaptive behaviour, and suicide.

An awareness and response to the risk of psychological injury, maladaptive behaviour, and suicide within the New Zealand Fire Service (NZFS), now Fire and Emergency New Zealand, has been developing since the early '90s. Over this time there have been a number of important steps forward taken, thanks largely to the work of committed individuals within the organisation, to grow awareness and implement initiatives in relation to firefighter psychological wellbeing. This has included the development of a formal peer support programme, psychological education initiatives, and professional health support networks. Yet despite this important progress, a growing body of international research, and national anecdotal evidence suggests that psychological injury, maladaptive behaviour, and suicide remain a considerable risk within Fire and Emergency. For some time, I have been seeking to understand the psychological risks firefighters face so I might be of some assistance to Fire and Emergency in ensuring the organisational commitments related to the safety, health, and wellbeing of firefighters are met. In 2017 I sought to further this understanding and assistance by engaging in postgraduate study through the Violence and Trauma programme at the Auckland University of Technology. In November 2017 I was awarded the Firefighters Scholarship by Fire and Emergency to support this study and research and to provide a report examining psychological wellbeing within Fire and Emergency.

The aim of *Why We 360* is to assist Fire and Emergency to improve their response to identifying, eliminating and/or minimising the psychological risks faced by firefighters. The report has been named *Why We 360*, as an officer, upon arrival at an incident, is expected to walk 360 degrees around that incident as part of their initial 'size-up'. This size-up process, which includes identifying the scope of the incident as well as any potential hazards, has long been recognised as essential for the development of an effective strategy for achieving incident ground objectives such as rescue and extinguishment. This fire ground procedure has been drawn upon in *Why We 360* as an analogy for a process by which psychological risks can be highlighted and a strategy for addressing those risks identified. Consequently, *Why We 360* has been divided into three parts - *Part One* involves a 'size-up' of the potential prevalence of a range of psychological injuries and maladaptive behaviours within Fire and Emergency, and the potential effects of these experiences on firefighters, their families and

the Fire and Emergency organisation. *Part One* of the report also identifies a number of probable underlying causes of psychological distress and injury experienced by firefighters. *Part Two* focuses on identifying the current response of Fire and Emergency to the risk of psychological distress and injury, while also examining the efficacy of this response. Finally, *Part Three* identifies a range of recommendations, based upon the size-up carried out in *Part One* and *Part Two*, that would assist Fire and Emergency with identifying, eliminating, and/or minimising psychological distress and injury within the organisation. It is hoped that this size-up, and the subsequent report recommendations, would assist Fire and Emergency in ensuring safety, health, and wellbeing commitments made to Fire and Emergency personnel are upheld.

As there is a lack of Fire and Emergency specific research in relation to firefighters' psychological wellbeing, a number of methodologies have been triangulated to assist in ensuring the findings and recommendations in this report are evidence-informed. In *Part One* this methodological approach includes: the identification and examination of relevant quantitative and qualitative research; the identification and examination of relevant material from experts in the fields of psychology, trauma, post-traumatic stress, and organisational culture; the presentation of preliminary findings to a range of firefighters to assist in assessing the external validity of findings; an ethnographic approach involving the examination of the researchers personal experiences inclusive of operational fire and emergency experience of 15 years, peer support experience since early 2016, and feedback from Critical Incident and Personal Stress Support (CIPSS) workshops presented in Areas 3 and 4 beginning in 2016. *Part Two*, while including some of the methodological approaches of *Part One*, also draws upon further methods due to a lack of robust and available data with regard to Fire and Emergency's safety health and wellbeing (SHW) strategy and control measures. These additional methods include an analysis of personal communication provided by Fire and Emergency personnel, as well as an analysis of an interview of a firefighter and officer in relation to their attendance at a critical incident. Finally, a draft of *Why We 360* was submitted to a range of clinical psychologists, researchers, and Fire and Emergency personnel for review prior to the presentation of the final report.

Part One key findings

1. International research indicates that firefighters are experiencing an elevated prevalence of psychological injuries, maladaptive behaviours, and suicide.
2. Firefighters are an at-risk group for psychological injury, maladaptive behaviour, and suicide – due, in considerable part, to their high levels of critical incident exposure.
3. Firefighters may experience a psychological injury acutely, as the result of a single critical incident exposure, but also, and potentially more commonly, as a result of a culmination and combination of stressors, which includes critical incident stress but also work and home stressors.
4. The effects of firefighter psychological distress and injury are likely to be compromising firefighter SHW, familial relations, operational efficacy, and Fire and Emergency organisational culture.

5. The implementation strategy in relation to a 2014 Memorandum of Understanding (MOU) with emergency ambulance services is likely to have been a contributor to psychological distress and injury within Fire and Emergency.

Part Two key findings

1. Fire and Emergency have identified psychological distress and injury as one of ten critical risks that threaten firefighter SHW. Fire and Emergency have also identified a strategy and implemented control measures in relation to this critical risk.
2. There is evidence to suggest that the Fire and Emergency strategy and control measures identified in this report do not provide a sufficient response to the level of risk identified in *Part One* of this report.
3. There is evidence to suggest that there are substantial gaps between policy and practice in relation to the SHW strategy and a number of identified control measures related to psychological distress and injury. Contributors to these gaps include insufficient governance and resourcing as well as a lack of sufficient connection to the needs of frontline staff.
4. A review of the SHW strategy and control measures using a trauma-informed care (TIC) framework would likely improve the current response of Fire and Emergency to psychological distress and injury risks faced by firefighters.
5. Firefighters often demonstrate considerable resiliency in their work and also appear to understand the value of camaraderie in relation to the stressors they encounter. More must be done to identify, understand, and tap into these capacities.

Recommendations summary

The following is a summary of recommendations, based on the findings of this report, which Fire and Emergency might like to consider. A detailed description of recommendations can be found in the Recommendations section towards the end of the report (on page 77).

1. **Trauma informed care** – It is recommended that Fire and Emergency implements a TIC framework.
2. **Career and volunteer training** – It is recommended that a comprehensive psychological wellbeing education component is included as part of all career and volunteer recruits' courses, and as a part of career and volunteer promotional progression and training courses.
3. **Ongoing training** – It is recommended that Fire and Emergency provides regular, person-to-person, psychological education in relation to: psychological distress and injury awareness, prevention, and treatment; incident emotional aspect exposure; and dealing with families at critical incidents. Additionally, it is recommended that this training is embedded into the Operational Skills Maintenance (OSM) system.
4. **Wellness checks** – It is recommended that Fire and Emergency provides regular psychological wellness checks.

5. **Managerial resourcing and mandate** – It is recommended that Fire and Emergency reviews management spans of control and administration support resourcing in each Region. Additionally, it is recommended that Fire and Emergency provide a clear mandate for managers with regard to the prioritisation of worker wellbeing.
6. **Stigma** – It is recommended that Fire and Emergency investigates the utility of anti-stigma initiatives.
7. **Support services** – It is recommended that Fire and Emergency reviews the governance and resourcing of the preferred provider network.
8. **Peer support** – It is recommended that Fire and Emergency provides a national mandate with regard to the reinvigoration of regional peer support programmes.
9. **Governance and resourcing** – It is recommended that Fire and Emergency carries out an immediate review of the current number of Fire and Emergency personnel employed to assist with the prevention and treatment of psychological injuries.
10. **Collaboration** – It is recommended that Fire and Emergency resources an annual firefighter psychological distress and injury symposium.
11. **Retired Firefighters** – It is recommended that Fire and Emergency investigates and resources a programme, such as legacy support, for the purposes of supporting retired firefighters.
12. **Leadership** – It is recommended that all personnel in a position of leadership are made aware of the connection between worker wellbeing and perceived organisational support (POS).
13. **Data recording** – It is recommended that Fire and Emergency takes the following three actions to improve data gathering.
 - A. Investigate and implement changes to the incident reporting system that would allow officers to include information with regard to identifying SHW risks, in relation to medical calls and other potentially traumatic events.
 - B. Create a data catchment for career, volunteer, and retired firefighter suicide.
 - C. Review the current exit interview framework to establish if these interviews provide sufficient opportunity for feedback in relation to psychological distress and injury in relation to worker turnover.
14. **Surveys** – It is recommended that Fire and Emergency develops and carries out a survey for the purposes of identifying workplace stressors and organisational culture aspects related to psychological wellbeing.
15. **Regular review** – It is recommended that Fire and Emergency initiates a programme of regular review with regard to assessing the efficacy of the Fire and Emergency psychological wellbeing strategy and associated control measures.
16. **Perceived organisational support** – It is recommended that Fire and Emergency sponsors research examining POS within the Fire and Emergency context.

- 17. Epidemiological data** – It is recommended that Fire and Emergency sponsors research to establish the incidence and prevalence of psychological distress, injury, and maladaptive behaviour with regard to current and retired Fire and Emergency firefighters.
- 18. Frontline connection** – It is recommended that Fire and Emergency sponsors research to identify the observations, needs, and requests of firefighters in relation to the critical incident and workplace stressors they are exposed to.
- 19. Resilience and post-traumatic growth** – It is recommended that Fire and Emergency sponsors research examining resilience, adaptive coping, and post-traumatic growth (PTG) in relation to Fire and Emergency firefighters.
- 20. Community risk reduction** – It is recommended that Fire and Emergency sponsors research in relation to the radiating effects of firefighters' psychological injury. Further, that Fire and Emergency sponsors research in relation to identifying mechanisms for reducing psychological distress for communities involved in critical incidents that Fire and Emergency responds to.

Introduction

The researcher: Joshua Darby

I am a Senior Firefighter within Fire and Emergency based in Region 1, Area 4. I am currently stationed at Ellerslie Station on Blue Watch. I have been an operational firefighter for over 15 years, with approximately 13 years of service as a career firefighter, and two years of service as a volunteer firefighter. During this time, I have also served in the areas of recruitment and peer support, as well as assisting in delivering a programme of psychological first aid (PFA) in Region 1.

I am also a research student at the Auckland University of Technology where I am engaged in the postgraduate research pathway of Violence Prevention and Trauma Recovery under the Health Sciences faculty. My focus for this study and research is psychological wellbeing within Fire and Emergency.

My move to peer support, the study of psychology, and the investigation of trauma and psychological distress within Fire and Emergency has been catalysed by both personal and vicarious experiences of psychological distress and injury during my time in the service. I hope those experiences, and the subsequent study and research summarised in this report, can contribute something of value in assisting all those interested in ensuring Fire and Emergency objectives are met in relation to the SHW of firefighters in New Zealand.

Fire and Emergency history – *Evolution through tragedy*

“We do not learn from experience, we learn from reflecting on experience.” John Dewey

The following section will provide a brief history of Fire and Emergency, reflecting on historically significant moments of change and seeking to identify an underlying pattern of change within the organisation.

Fire and Emergency, formerly known as the NZFS, had its earliest foundations laid in the mid-1800s, with the first NZ volunteer fire service established in 1854, followed by the first permanently staffed fire service in 1868 (*NZFS Through the Decades*, 2017). From those early beginnings of water buckets and ‘jumping sheets’, the service over the course of 160 years has evolved into an organisation that is now comprised of close to 14,000 personnel, and responds to in excess of 80,000 emergency callouts annually (Fire and Emergency New Zealand, 2018b). It is an organisation that strives to embody principles of skill, service, and integrity and, in doing so, is trusted by New Zealanders across the country. This is perhaps most clearly demonstrated in the latest Colmar Brunton Surveys that seek to identify NZ’s most reputable public sector organisation. The NZFS has on a number of occasions topped all four measures of reputation – leadership/success, fairness, social responsibility, and trust (Colmar Brunton, 2017).

This modern and well-respected organisation has not found itself in this position by chance, and it is indeed possible to observe the journey of change and growth to this point by looking back at the last 160 years of fire service history. In doing so, a catalyst for change emerges as well as a pattern for growth. This catalyst is tragic incidents: an unfortunate but seemingly necessary experience that brings problems into focus. Tragic incidents appear to create a foundation of awareness that leads to critical reflection, with this critical reflection leading to the development of insights. These insights, when actioned, help to ensure problems are identified and then eliminated or minimised, which prevents further similar tragic incidents from occurring. Historical examples of this pattern are apparent within fire services. For example, in 1901 there were three serious central Auckland fires, including a blaze at the Grand Hotel that took five lives and led to a restructuring of the Auckland fire service. A fire at the Seacliff Mental Hospital in 1942, which resulted in the death of 37 patients, consequently saw a recommendation of fire detection systems and sprinklers being installed in all psychiatric hospitals. In 1947 the Christchurch Ballantynes Fire took the lives of 41 people. This tragic incident catalysed a Royal Commission of Inquiry, which found that the fire service had not reasonably provided safety and escape measures for personnel and the public. This led to the introduction of the Fire Services Act 1949, and the first fire safety legislation. Finally, between the years of 1974 and 1975, on the back of incidents that demanded a more coordinated and effective response, the NZFS Commission was created, and the NZFS was formally established as a national organisation. This history demonstrates a recurring pattern of continuous improvement: Tragic Incident – Critical Reflection – Action – Change. It is a pattern that has assisted the organisation in preventing many further tragic incidents.

With the development of a national organisation in 1975 came the eventual development of an organisational mission statement: "To reduce the incidence and consequence of fire and to provide a professional response to other emergencies" (New Zealand Fire Service Commission, 2003, p. 2). This mission statement was clearly aimed at reducing the tragic effects that fire and other emergencies can have on the public's SHW. However, firefighter SHW has historically received much less attention.

The tragic events of the Auckland ICI Chemical Warehouse Fire in 1984 served to bring this lack of attention into focus. As a consequence of attending this fire, many firefighters suffered physiological and psychological injuries (Maher, 1999). A report commissioned by the Minister of Health (Elias, 1990) in response to these injuries noted "it was not possible to view safety management in the Fire Service with confidence. We question whether safety is given appropriate priority within the entire command structure of the Fire Service" (p. 114). It was concluded that "this matter should be addressed at the highest levels" (p. 114).

Once more a tragic incident and subsequent report highlighted the importance of critical reflection and action, as well as the consequences that result from individuals or organisations not engaging in such an approach. The lack of a reflective approach prior to, and during the incident, was shown to have been foundational in the eventual negative outcomes for firefighters. However, a critically reflective process post-incident helped to illuminate blind spots including shortcomings in NZFS SHW practices. This led to the development of insights that catalysed actions including changes to fire ground procedure, the introduction of new personal protective equipment (PPE), and the development of an occupational health service (Elias, 1990).

It can be seen that when critical reflection forms a basis for insights and action, changes result that, at their best, assist in preventing tragic incidents from occurring and, at their worst, minimise the negative outcomes of similar tragic incidents for the public and for firefighters.

There is a growing body of evidence indicating that a substantial time of critical reflection and action is required in relation to the risks psychological stressors pose to the SHW of Fire and Emergency firefighters. This evidence includes the anecdotal experience of firefighters, international quantitative and qualitative research, and international expert opinion. It is on the basis of this evidence that the following hypothesis will be examined in this report:

Psychological distress and injury are leading risks in relation to the SHW of Fire and Emergency firefighters and result, in considerable part, from exposure to a combination and culmination of critical incident, workplace, and home stressors.

Report objectives

On the basis of the aforementioned hypothesis, the following research questions will form the foundation of a three-part investigation exploring the psychological risks faced by Fire and Emergency firefighters, as well as Fire and Emergency's response to those risks.

Part One, ‘Reports of Fire’, will examine the following research question:

Can firefighters be affected by psychological distress and injury?

If it is concluded that firefighters can be affected by psychological distress and injury, the following questions will be further investigated:

- What is the prevalence and severity of psychological injuries within firefighting cohorts, and can this be translated to Fire and Emergency?
- What might be indicators of psychological distress and injury within firefighting cohorts?
- What effects might psychological distress and injury have on firefighters, their families, and Fire and Emergency as an organisation?
- What are some of the likely causes of psychological injury within Fire and Emergency?

Part Two, ‘A Size-Up’, will identify the response of Fire and Emergency with regard to the psychological risks identified in Part One and examine the efficacy of this response. The following research questions will form the basis of this examination:

- What is the current strategy of Fire and Emergency with regard to identifying, and eliminating or minimising psychological distress and injury?
- Given the findings of Part One of this report, is the current and proposed strategy and resourcing of Fire and Emergency sufficient?

Part Three, ‘Make Pumps’, will identify a range of recommendations, based on the findings of Part One and Part Two, that would assist Fire and Emergency to uphold SHW commitments made to firefighters. The following research question will form the basis for identifying evidence-informed recommendations that would assist with this objective.

What would enhance Fire and Emergency’s current response with regard to identifying and eliminating, or minimising psychological distress and injury?

Part One – Reports of Fire

Part One methodology

It has been established that there is inadequate research to draw upon in assessing the presence, prevalence, and severity of psychological injuries specific to firefighters within Fire and Emergency (Z. Mounsey, Senior Research Advisor for Fire and Emergency, personal communication, October 13, 2017).

This absence of national data is of considerable concern as it creates challenges in understanding the real extent of psychological distress and injury within Fire and Emergency. This absence may be a barrier for establishing an appropriate level of prioritisation and resourcing necessary to meet the needs of Fire and Emergency firefighters. Consequently, the report approach will involve the triangulation of a number of methods in an attempt to offer a sound analysis, built on a solid epistemological base, despite the lack of NZ focused research. This approach should lend to both an awareness and minimisation of any personal biases, thereby offering a hypothesis that is evidence-informed.

These methods are outlined below:

1. Part One will include the identification and examination of relevant quantitative and qualitative research that is connected with the research questions.
2. Part One will include the identification and examination of relevant material from experts in the fields of psychology, trauma, post-traumatic stress, and organisational culture.
3. Part One will include an ethnographic approach involving the examination of the researcher's NZFS and Fire and Emergency experiences inclusive of: operational experience of over 15 years; peer support work since early 2016; and feedback from CIPSS workshops presented in Areas 3 and 4 in 2016/17.
4. Part One will include presenting preliminary findings to a range of firefighters so feedback can be provided in relation to the external validity of the findings.

The Importance of a '360'

Given this report seeks to engage two distinct audiences – firefighters and academics – I have used a combination of language and firefighting analogies that might assist in reaching both. The following section sets out to explain and contextualise these analogies.

An officer, upon arrival at a reported structure fire, is expected to carry out a '360' walk-around of the structure as part of an initial 'size-up'. This reflective approach assists the

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand officer in establishing whether a fire exists, and if so, what threat that fire poses to life inside the structure as well as what effect radiated heat and smoke might have on exposures outside of the structure. An assessment of these variables will help to develop an effective strategy for rescue and extinguishment. It will also assist in identifying hazards that have the potential to affect firefighter or public safety (Fire and Emergency, 2013, s. 3.2.7).

A secondary objective for officers and fire investigators, post-extinguishment, is to attempt to establish both a point of origin and the potential ignition source of the fire. This process can lead to the establishment of causation, which in turn may assist in the development of fire safety strategies that prevent the occurrence of further such incidents (Fire and Emergency, 2008).

These contemplative practices have been developed as best practice from the attendance of fire and other emergency incidents over many years and demonstrate critical reflection in action. They exist as appropriate analogies for exemplifying an approach to:

- identifying to what degree psychological distress and injury may be present within Fire and Emergency
- identifying underlying causes of psychological distress and injury
- developing insights that can be actioned to reduce the incidence and consequence of psychological distress and injury in the future.

The concept of a ‘360’, and subsequent fire investigation, will be applied as an analogy in relation to psychological wellbeing in the following ways. Fire and Emergency will represent a *structure*. *Smoke* from the *structure* equates to signs of maladaptive behaviours developed as a result of psychological distress and injury. *Fire* will represent the varying forms of psychological distress and injury within the *structure*. *Exposures* will be inclusive of individuals and communities outside of the *structure* that may be affected by the *smoke* and *fire* within it (due to their proximity). *Ignition sources* will be identified variables that have been shown to cause *fire*.

These analogies form the basis of the chapter titles, as this report undertakes a ‘360’ of Fire and Emergency due to current reports and indicators of *fire*.

Definitions and concepts

This report includes a number of terms that can have contested or different meanings depending on the context. Accordingly, this section will provide key definitions within the context of emergency responders, such as firefighters. It will also include a brief discussion of key concepts that will be encountered in later sections of the report.

Psychological injury/potentially traumatic event

The word ‘trauma’ in ancient Greek translates to ‘wound’ in Modern English (“Trauma,” n.d.). In physical medicine, trauma can be understood as damage to the biological organism (human body) caused by physical harm from an external source. In psychology, it can be understood as damage to the psyche (mind, soul, spirit) as a result of a traumatic event, or culmination of traumatic events whereby:

- an individual is unable to integrate their emotional experience due to being overwhelmed by the traumatic event/s(Giller, 1999); and/or
- an individual experiences (subjectively) that their life, bodily integrity, or sanity is under threat (Pearlman & Saakvitne, 1995).

Given the subjective nature of a traumatic experience noted by Pearlman and Saakvitne (1995), the term ‘potentially traumatic event’ (PTE) will be used for describing these experiences.

McFarlane and Bryant (2007) note that a PTE may catalyse, through single or cumulative exposure, psychological distress that can lead to the development of psychological injuries. Furthermore, Skeffington, Rees, and Mazzucchelli (2017) noted the correlation between trauma exposure and post-traumatic stress disorder (PTSD) in Western Australian firefighters. The report stated that it is widely accepted that firefighters are at high risk for PTE exposure and the post-trauma pathology that can develop as a result of this exposure. In this report the term ‘psychological injury’ will be used rather than the term ‘mental health disorder’, in defining post-trauma pathology as the latter term, and others like it, can have a stigmatising effect. The term psychological injury will encompass a range of negative psychological outcomes resulting from potentially traumatic events that are correlative with firefighting cohorts. Examples are listed below:

- Psychopathology such as PTSD and acute stress disorder (ASD) (Shave, 2010)
- Negative psychological outcomes, such as depression and anxiety (Skeffington, Rees, Mazzucchelli, & Kane, 2016)
- Suicide ideation and suicide attempts (Beyond Blue Ltd, 2018).

Psychological injuries will also be discussed in relation to maladaptive behaviours and suicide. Maladaptive behaviours are behaviours that develop as a coping mechanism in relation to psychopathology and other negative psychological outcomes. Examples of maladaptive behaviour include substance abuse and avoidance coping. (Skeffington et al., 2017).

Distress/eustress

It should be noted that ‘stress’ is often used as a pejorative term when in fact stress can be helpful. It is useful then to have terminology that differentiates the positive and negative aspects of stress. For this report the previously established terms of ‘eustress’ and ‘distress’ will be used to identify different types of stress.

- Eustress is a term that keynotes positive effects as a result of exposure to a stressor.

- The term distress keynotes negative effects as a result of exposure to a stressor (Mark Le, Jonathan, & Gregory, 2003).

Additionally, it is important to note that the experience of distress does not necessarily indicate a psychological injury. Distress, for a majority of individuals, is endurable, short-lived and considerably more common than a psychological injury (Ministry of Health, 2016). Further to this, though beyond the scope of this report, while trauma can lead to a multitude of negative effects, it has also been shown to, at times, lead to positive changes in an individual, sometimes known as post-traumatic growth (PTG) (Kehl, Knuth, Hulse, & Schmidt, 2014).

Critical incidents

For the purposes of this report, ‘critical incidents’ will be a term that refers to incidents firefighters attend that may lead to the development of psychological distress, and in turn psychological injury. Critical incident distress may also contribute to workplace and home distress. These potentially traumatic critical incidents include (Jacobsson, Backteman-Erlanson, Brulin, & Hörnsten, 2015):

- motor vehicle incidents, structure fires, hazardous substance calls, and natural disasters
- medical calls, such as paediatric cardiac arrests, drowning, suicides, and overdoses
- knowing the victim, failed rescue efforts, human error, and mission failure.

Workplace stressors

For the purposes of this report, ‘workplace stressors’ refers to potential stressors experienced in the workplace, which are separate from the attendance of emergency callouts and critical incidents. It is worth noting that workplace stressors may be a contributing factor with regard to the experience of both critical incident and home distress. Examples of workplace stressors include:

- a worker perceiving that their organisation does not value their contributions and/or wellbeing (Miller, Unruh, Wharton, Liu, & Zhang, 2017).
- work overload, time pressures, the actual or threatened loss of job, bullying, personality conflicts (Lewis, 2014).

Home stressors

For the purposes of this report, ‘home stressors’ refers to stressors that occur beyond the scope of the critical incident and workplace environments. Though it should be noted that home distress might contribute to the experience of workplace and critical incident distress. Examples of home stressors are outlined below:

- marital conflict, relationship conflict, familial disruption, financial distress (Meyer et al., 2012).

- personal sickness and injury, death, sickness or injury of significant others (Sattler, Boyd, & Kirsch, 2014)

Multiple stressors, cumulative effect

It is important to note that members of the general population are likely to encounter exposure to both home and workplace stressors. However, it is unlikely that they will also experience exposure to critical incidents at rates similar to that of firefighters (Skeffington et al., 2016). Herein lies the unique risk firefighters face – given that they encounter not only the day-to-day workplace and home stressors of life, but also the repeated exposure to PTEs, specifically in the form of critical incident exposure.

Although exposure to a PTE can have an acute effect leading to psychological injury, it has also been shown that the cumulative, or chronic, effect of repeated exposure to trauma (RET) can lead to a build-up of psychological distress, which may become a foundation for psychological injury (Jahnke, Poston, Haddock, & Murphy, 2016). A recent study carried out on firefighters in the United States (US) noted that although there were incidents of specific critical incident trauma, most firefighters discussed the negative impacts of RET and the psychological impacts this had on them (Jahnke et al., 2016).

A recent report on the mental health and wellbeing of emergency responders in Australia noted that, compared to the general adult population rates, emergency responders had substantially higher rates of psychological distress, probable PTSD, and suicidal thoughts. Furthermore, emergency responders who had served more than 10 years had substantially higher rates of psychological distress, suicidal thoughts, and probable PTSD compared to those with less than two years of service (Beyond Blue Ltd, 2018). These findings appear to indicate a dose-response relationship with regard to a number of variables including time served. These findings also appear to be congruent with findings from a national qualitative research study carried out on Fire and Emergency firefighters with regard to the impacts of incidents. One of the themes of the research by Adams, Asiasiga, and McManus (2018), on Fire and Emergency firefighters, was that of the cumulative impact of distress. One of the participating firefighters described this cumulative effect in the following way:

I don't like letting the guys see stuff they don't need to see, the girl had been dead for quite some time and the cops and the ambo had pulled the pin on it quite quickly, they said, 'no she's been gone for a while' but, just you know, seeing a young female you know, and then you go home, and you start thinking about it, you're thinking about why did she do it? You know, could we have done anything or if we had got to it, what would we have done, you know? So, all these things I think this is from the earlier critical incidents jobs I've been involved in, you know, you've got a jar and you're putting all these little rocks into this and one day you could tip yourself over. (Adams et al., 2018, p. 34).

Thus, it is important, in examining the aetiology of psychological injury and suicide in relation to firefighters, that one not fixate solely on critical incidents or single event

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand exposure. Instead, one must extend a view to the possibility of chronic critical incident distress, which may also accumulate with home and workplace distress. This provides a unique breeding ground for psychological distress and injury for emergency responders such as firefighters. Indeed, Harvey et al. (2016) noted, in a recent study on firefighters from New South Wales Australia, that rates of psychological injury increased with cumulative trauma exposure despite prior research failing to find a correlation. The researchers concluded that:

While our finding of increasing rates of mental disorder among those with greater cumulative trauma exposure may not be surprising, previous studies had failed to find such an association (Meyer et al., 2012). The absence of such an association could have been interpreted to suggest that post-traumatic mental health problems only affected a group of vulnerable individuals, and that once someone had experienced a certain number of traumatic events without developing mental health symptoms, they could be assumed to be resilient. Our results suggest this is not true; the risk of PTSD, depression and heavy drinking continued to increase at the same linear rate with each additional trauma exposure. Fire fighters who had experienced more than 20 traumatic incidents involving fatalities had more than four times the rates of PTSD as less exposed fire fighters and substantially increased levels of depression and heavy drinking. Any intervention, such as screening, aimed at high-risk groups must therefore consider the level of cumulative trauma exposure. (Harvey et al., 2016, p. 656)

Thus, the avenues for psychological distress contributing to a psychological injury are encapsulated, at least in part, in the following possibilities:

- Exposure to a single acute critical incident
- Exposure to a single home or workplace event that is distressing
- RET in the form of critical incidents leading to chronic distress
- Repeated exposure to events at home and/or within a workplace context, which creates chronic distress
- Exposure to a combination of critical incidents, home, and workplace events that create chronic distress over the course of a lifetime.

'A 360' – Psychological injury and firefighters

'The first step towards change is awareness. The second is acceptance.'

Nathaniel Branden

The section 'Personal and Vicarious Experiences' consists of a short recollection of the researcher's personal experiences, as well as the shared experiences of other firefighters, during their time in the NZFS and Fire and Emergency. These anecdotes have been included to demonstrate and ground aspects of the previously defined stressors, as well as the cumulative capacity of trauma via lived experience. These experiences also provide a

foundation for the research questions that are examined in the literature review as part of the following sections:

- '*Fire – Psychological injuries*': Here, a number of psychological injuries that have been correlated with emergency services, including firefighters, will be explored.
- '*Smoke – Indicators of psychological injury*': This will examine behaviours that may indicate the presence of psychological distress and injury within a fire service.
- '*Exposures - Radiating effects of psychological injury*', will investigate the effects of psychological distress and injury on families, colleagues, communities, and workplaces.

Personal and vicarious experiences

Research question: *Can firefighters be affected by psychological distress and injury?*

I have included this section despite the risk that some readers may feel it detracts from the objectivity of the report. While objectivity is an essential component of this report, so, in my estimation, is connection. Consequently, I hope the following section can assure those reading it, though their challenges may differ in some ways, that I am not indifferent to the experience of psychological distress and injury. Therefore, the following is a brief articulation of some of my own experiences while working in the NZFS and Fire and Emergency.

I joined the NZFS at 16 years of age as a volunteer firefighter, later being accepted into the career service at age 18. For the most part, I have relished the journey and opportunities working as a firefighter in NZ has afforded me. I fondly remember the challenges and training provided at recruit and promotional courses, the feelings of pride in representing Fire and Emergency at home and abroad, and the sense of camaraderie and satisfaction that comes from attending and assisting at various emergency incidents.

From a young age, and through the course of my service, I have attended a variety of emergency callouts. Many have been minor and inconsequential, while others would fall into the category of a PTE. These events have included assisting at homicide scenes, motor vehicle incidents involving the death or severe injury of children and adults, medical events inclusive of suicide, drug overdose, and industrial entrapment, and the death or injury of adults at structure fires. I have also encountered home and workplace stressors in this time. These stressors have included the loss of friends and colleagues to both cancer and suicide, times of personal sickness and injury, relationship difficulties, and interpersonal conflicts at work and at home.

If I had been asked even six years ago if these events had affected me, if they had left a trace, I would have said no. This was largely due to a feeling of invulnerability. It would take a culmination of events in my mid 20's to challenge this belief of invulnerability, and what followed was a difficult time where I experienced anxiety, depression, and eventually suicidal ideation. I found myself isolated in the midst of these experiences, fearing what others may think of me, and what asking for help might mean. Fortunately, I was able to seek help, largely from outside of the NZFS, and with the support of friends and family, the

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand help of a psychologist, and a will to survive and thrive once more, I set out on a long, challenging, and ongoing journey of understanding what trauma is, how it affects us, what we can do to avoid it, and how we can most effectively recover from it.

The more I was able to recognise psychological distress and injury in my own life, the more I became aware of its presence in others. I was surprised to find that a number of firefighters I knew had experienced, or were experiencing times of psychological distress and injury. While the underlying causes varied, (sometimes critical incident, others times home or workplace related, and often a combination and culmination of all) a shared reality emerged; firefighters were not invulnerable, we too could face psychological injury. This reality was brought into stark focus with the loss of one of my recruit course members to suicide in 2013.

I joined the services peer support team in 2016, motivated to be part of a solution to the problem of psychological distress and injury within the fire service. It was during this role, and in my further training and study, that I began to understand the magnitude of the 'fire' that could exist within Fire and Emergency. Later that year I joined a team tasked with rolling out presentations on PFA to career and volunteer firefighters in Areas 3 and 4 (Central and North Auckland) an initiative instituted by members of the then NZFS Health and Safety team who recognised the impacts critical incidents and home and workplace stressors were having on personnel . During these presentations, a number of firefighters courageously shared stories of their own experiences of psychological distress and injury. These stories clarified an understanding that my personal experiences, and the experiences of other firefighters I had encountered along the way, were not isolated phenomena. Firefighters, consciously or unconsciously, were experiencing psychological distress and injury.

Given the volume of anecdotal experiences congruent with psychological distress and injury, it was evident that there was a presence of psychological distress and injury within Fire and Emergency. Indeed, Fire and Emergency Region 1 Manager and Assistant National Commander, now Deputy Chief Executive Service Delivery, Kerry Gregory, has stated that one of the primary challenges facing his then region, comprised of approximately 2700 personnel , is that of psychological distress and injury (K. Gregory, personal communication, November 09, 2017). However, it is difficult to quantify these anecdotal findings, as well as assess their prevalence and severity, given the dearth of research specific to Fire and Emergency firefighters. Therefore, this section of the report will explore international research, and the analysis of relevant experts, to provide some sense of the potential prevalence and severity of psychological distress and injury within Fire and Emergency.

'Fire' – psychological injuries

Research question: *What is the prevalence and severity of psychological injuries within firefighting cohorts, and can this be translated to Fire and Emergency?*

This section of the report will examine the prevalence of common psychological injuries on an international and national scale. It will then examine both the presence and prevalence of a sample of psychological injuries within a range of firefighting cohorts, and some of the effects of these injuries.

International and national prevalence of psychological injury

It is now well established that psychological stressors and subsequent injuries have a substantial impact on the general population. A document released by the World Health Organisation (WHO) in 2017 estimated the number of people suffering from depression worldwide at over 300 million, with nearly the same amount suffering from anxiety disorders. Depression was ranked by the WHO as the single largest contributor to global disability, with anxiety disorders ranked sixth. This document also highlighted depression as the largest contributor to suicide deaths in the world, a number that at the time was close to 800,000 per year (WHO, 2017).

A recent mental health inquiry in NZ reported that psychological distress and injury are common. It was estimated that each year one in five New Zealanders would experience psychological distress or injury and 50-80% would experience psychological distress or addiction in their lifetime. In addition to the human cost, it was noted that the annual economic cost for psychological distress and maladaptive behaviours was approximately \$12 billion (He Ara Oranga, 2018). Furthermore, The NZ Mental Health Foundation noted in a 2014 report that psychological injuries are a common occurrence within NZ. Psychological injury was found to be the third-leading cause of health disability for New Zealanders behind only cancers and vascular and blood disorders, with an estimated 582,000 adults diagnosed with a common psychological injury (Mental Health Foundation, 2014). It may not come as a surprise then, given the correlation of psychological injury and suicide, that the annual provisional suicide statistics for the 2017/18-year in NZ showed that 668 people died by suicide. This is the fourth consecutive year that the number has increased, while also marking the largest number of deaths via suicide in a year since the statistics have been gathered (Office of the Chief Coroner, 2018).

Let us then consider emergency responder cohorts such as firefighters. Are they somehow immune to the global and national trends of psychological distress, injury, and suicide? The following section considers these questions by examining expert opinion and relevant research on psychological injuries such as PTSD, depression, anxiety, suicidal ideation, and suicide.

Post-traumatic stress disorder

PTSD is a debilitating psychological injury that is caused by exposure to one or more traumatic events. The diagnostic criteria from the *Diagnostic and Statistical Manual of Mental Disorders: DSM-5* (DSM-V) (American Psychiatric Association, 2013) notes that for

the diagnosis of PTSD to be established, exposure to traumatic events, including actual or threatened death, or serious injury, must be present. The following are examples of these types of exposure (American Psychiatric Association, 2013, p. 271):

- Directly experiencing the traumatic event
- Witnessing, in person, the event as it occurred to others
- Learning that the traumatic event occurred to a close family member or close friend
(In cases of actual or threatened death of a family member or friend, the event must have been violent or accidental.)
- Experiencing repeated or extreme exposure to aversive details of the traumatic event (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).

The DSM-V notes that rates of PTSD are higher among vocations with an increased risk of traumatic exposure such as firefighters and emergency medical personnel. Given the nature of calls that firefighters respond to, and the relationship between severity (dose of trauma) and the development of PTSD, it can be seen why firefighters are identified as an at-risk population.

Of further concern is the debilitating nature of this psychological injury. PTSD is defined by a number of symptoms, including (American Psychiatric Association, 2013, pp. 271-272):

- Recurrent distressing dreams that are related to the traumatic event(s)
- Dissociative reactions, such as flashbacks, where the individual feels or acts as if the traumatic event were reoccurring
- Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame)
- Markedly diminished interest or participation in significant activities
- Feelings of detachment or estrangement from others
- Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings)
- Irritable behaviour and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects
- Reckless or self-destructive behaviour
- Problems with concentration and sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep)

The DSM-V notes that individuals with PTSD can be quick-tempered, and may engage in aggressive verbal and/or physical behaviour with little or no provocation. They may also engage in reckless or self-destructive behaviour such as dangerous driving, and excessive alcohol or drug use. PTSD can also affect an individual's ability to concentrate, focus, and even sleep, while also affecting an individual's ability to regulate emotions and maintain stable relationships. PTSD is also associated with suicidal ideation and suicide attempts (American Psychiatric Association, 2013).

Because of the obvious correlations between the diagnostic foundations of PTSD, such as exposure to traumatic events, and the debilitating effects of the symptomology, there is clear cause for examining the rates of PTSD in any fire service. A number of studies have now examined rates of both PTSD and post-traumatic stress symptoms within firefighting populations. A recent national survey of firefighters in Australia found that career firefighters had over twice the prevalence of probable PTSD (9.1%) when compared to the Australian general population estimate (4.4%). However, at 4.7%, probable PTSD was only slightly more common in volunteer firefighters than that of the general population (Beyond Blue Ltd, 2018). A recent study by Skeffington et al. (2017), assessing trauma exposure and PTSD within members of the Department of Fire and Emergency Services in Western Australia, found that their members were exposed to trauma at considerably higher rates than the general population, and reported elevated rates of PTSD symptomology. Further Australian research identified a correlation between increased exposure to fatalities and an increase in the relative risk of PTSD for firefighters. Firefighters who had been exposed to 25 fatal incidents had four times the relative risk of PTSD when compared with those who had been exposed to between zero and five fatal incidents (Harvey et al., 2016). Although other reports of the exact lifetime prevalence of PTSD within firefighting cohorts have varied, it has been established that despite these variances firefighters experience PTSD at consistently elevated rates compared to that of the general population (Skeffington et al., 2017).

These studies support the view that there is a strong foundation of evidence that Fire and Emergency firefighters may experience PTSD at considerably elevated rates compared to that of the NZ population.

Depression and anxiety

It has been established that psychological distress can lead to the development of psychological injuries such as depression and anxiety, and that these injuries are common (World Health Organization, 2017). Given this association, researchers have specifically examined the correlation between depression/anxiety and firefighting cohorts (Tiesman et al., 2015). Dr Will Brooks, a former Canadian firefighter and psychologist notes the impact of depression on firefighters lives:

Like a townhouse fire, depression might appear small and manageable to the average person. However, upon closer inspection, one realizes that just as a townhouse fire spreads to the neighbouring units, depression slowly creeps into multiple areas of fire fighters' lives, including their jobs, marriages, relationships with their children, families and even hobbies they used to enjoy (Avsec, 2017, p. 1).

Despite the severity of psychological symptoms and the psychosocial impacts of depression and anxiety, as well as their link to the development of suicidal ideation and suicide, most research specific to firefighters has focused solely on PTSD. Harvey et al. (2016) noted that this exclusive focus on PTSD risks underestimating the full mental health impact of trauma exposure among emergency workers such as firefighters. Their report alluded to studies of

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand military personnel, who are also exposed to elevated levels of PTEs, and experience disorders such as depression and alcohol misuse considerably more than PTSD.

In their study of depression amongst current and retired firefighters in New South Wales Australia, Harvey et al. (2016) found a positive linear relationship between exposure to fatal incidents and the relative risk of depression. Firefighters with an exposure to 25 fatal incidents had over twice the relative risk of depression than those exposed to between zero to five fatal incidents. A survey carried out by Mind in the United Kingdom (UK) found that of the firefighters surveyed, 61% had experienced a psychological injury with this including injuries such as depression or anxiety (Mind, 2016b). Another study of 200 Saudi firefighters found that 44.4% of those surveyed reported anxiety, while 53.3% reported depression (Alghamdi, Hunt, & Thomas, 2016).

The recent Beyond Blue Ltd (2018) survey carried out in Australia sought to measure levels of psychological distress measured primarily by identifying symptoms of anxiety and depression. The survey found that career firefighters had twice the levels of very high psychological distress (8%) and over twice the levels of high distress (19%) than that of the Australian adult population estimates (4% and 8%). On the other hand, volunteer firefighters had a similar rate of very high distress (4%) but an elevated level of high distress (14%) compared to the Australian population estimate. Of further concern, a large study carried out on over 3000 firefighters from a large urban fire department in the US found that depression was one of the strongest predictors of both suicidal ideation and suicide attempts in the department (Martin, Tran, & Buser, 2017). This discovery corroborated previous research findings that demonstrated a link between psychological injuries, such as depression and anxiety, and an increased risk of suicide within firefighting cohorts (Stanley, Hom, Hagan, & Joiner, 2015).

Consequently, there is strong evidence for a constellation of traumatic distress symptoms, inclusive of depression and anxiety that while not meeting the criteria for a PTSD diagnosis, will pose a substantial threat to the SHW of firefighters. Thus, there is a possibility of similar psychological injuries being present and prevalent within Fire and Emergency.

Suicide, suicidal ideation, suicide attempts

A number of operational firefighters within Fire and Emergency have recently died by suicide. The exact number remains difficult to quantify, as there are no records kept of firefighter suicides within Fire and Emergency (J. Kingsbury, National Safety, Health and Wellbeing Manager for Fire and Emergency, personal communication, November 09, 2017). These deaths have highlighted the need to investigate the conditions for suicidal ideation and suicide among Fire and Emergency firefighters. Once again it is necessary to look to similar international organisations for indicators as to the potential risks faced by NZ firefighters.

Stanley et al. (2015) carried out a nationwide study examining the career prevalence of suicidal thoughts and behaviours amongst current and retired, career and volunteer, firefighters in the US. This research was carried out on the premise that firefighters have a unique exposure to trauma given the nature of their occupation, and that this may indicate elevated risk for suicidal thoughts and behaviours. Additionally, they noted that studying

suicide amongst firefighters is imperative given that past research has revealed firefighters experience elevated rates of psychological injury, including depression, excessive alcohol and tobacco use, sleep disturbances, and PTSD. Among the general population, these variables confer an increased risk of suicidal ideation and suicide. Their survey of over 1000 firefighters noted:

Most strikingly, 15.5% of fire fighters reported having made at least one suicide attempt during their time in the fire service, in contrast to the 1.9–8.7% of US adults estimated to have attempted suicide at some point in their lives. Further, 46.8% of fire fighters in this study reported career suicide ideation, compared with the 5.6–14.3% lifetime prevalence of suicide ideation found among the general population of US adults. (Stanley et al., 2015, p. 168)

Their study concluded that there was compelling empirical validation for what has been speculated anecdotally – suicide ideation and behaviour are an important issue for firefighters.

The Beyond Blue Ltd (2018) report, an Australian study that included identifying the proportion of career firefighters with suicidal thoughts or behaviours in the last 12 months, noted that career firefighters had three times the rate of suicidal thoughts (6.9%) and almost twice the rate of suicide attempts (0.7%) than that of the Australian adult general population rates (2.3% and 0.4%). Firefighters also had over four times the rate of suicide plans (2.6%) as that of the Australian general population rate (0.6%). While these rates are lower than that of the US study, this is potentially the result of the measurement time frame – 12-month prevalence versus career prevalence. Finally, the report noted that career firefighters had the highest rates of suicidal thoughts and attempts, and the second highest rate of plans, in comparison to the other three sectors surveyed (Police, Ambulance, State Emergency Services). The report findings also indicated a potential dose-response relationship, across all four emergency sectors, with longer length of service associated with considerably higher levels of suicidal thinking.

A study into workplace suicide in the US noted that firefighters had rates of suicide in excess of the national average, specifying workplace suicide for protective service occupations (including firefighters) at 3.5 times greater than the overall US worker rate. The study attributed these higher rates to a number of variables including shift work, and high stress work experiences (Tiesman et al., 2015). A further report issued by the National Fallen Fire Fighter Foundation noted that, compared to the general population rates, a fire department is three times more likely to experience a suicide than a line-of-duty death in any given year (National Fallen Firefighters Foundation, 2014).

In 2016 the mental health charity Mind (2016b) carried out a survey of over 1600 emergency service workers in the UK, including over 200 firefighters. Their findings for firefighters revealed that 30% had contemplated taking their own lives due to psychological distress and injury while working for the Fire and Rescue Service. In Australia, an article appearing in 'The Age' noted that the Victorian Fire Service was experiencing a crisis of psychological injuries

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand with the number of firefighters taking their own lives dramatically increasing in recent times (May, 2016).

This synopsis of research and expert opinion has established a correlation between firefighters and psychological injuries such as PTSD, depression and anxiety, as well as a correlation between these injuries and suicidal ideation, and suicide. This research forms an evidence-informed base for the recommendation that Fire and Emergency carry out research into the presence, prevalence, and impacts of psychological distress and injury experienced by its firefighters.

'Smoke' – indicators of psychological injury

Research question: *What might be indicators of psychological distress and injury within firefighting cohorts?*

The adage “where there’s smoke, there’s fire” can be attested to by many firefighters who have used the sight or smell of smoke to assist in guiding them to a fire. In much the same way, certain behaviours can serve as indicators of underlying psychological distress and injury. Having one’s senses attuned to the presence of these behaviours can help to ‘raise the alarm’ and get help when dealing with the underlying causes of these damaging behaviours. The following section will investigate a number of maladaptive behaviours and their relationship to firefighting cohorts.

Maladaptive coping/behaviour

Individuals experiencing substantial psychological distress or a psychological injury are likely to seek to cope with their distress, consciously or subconsciously, through a number of coping mechanisms. These mechanisms of coping can often be split into two categories: adaptive coping/behaviour, maladaptive coping/behaviour. Adaptive coping includes methods that, despite sometimes producing short-term discomfort, ultimately assist an individual in avoiding distress and/or alleviating distress that may have otherwise led to a psychological injury in the long term. Skeffington et al. (2017) noted the following adaptive coping mechanisms in their research:

- Active coping planning
- Positive reframing
- Acceptance
- Humour
- Religion
- Emotional support

Maladaptive behaviours, like adaptive behaviours, often arise out of a legitimate need to soothe overwhelming symptoms of psychological distress and injury. Unlike adaptive coping mechanisms, maladaptive coping is preoccupied with avoiding the event, and the intense emotions that may be welded to it. While this avoidance and soothing may assist in arresting

short-term distress, it can produce damaging outcomes for the individual and those around them, both in the short and long term. Examples of types of maladaptive behaviour or coping are listed below (Skeffington et al., 2017):

- Alcohol and drug misuse
- Denial
- Venting
- Behavioural disengagement
- Self-blame

Indeed, studies have shown that the use of maladaptive coping methods can lead to higher distress or post-traumatic stress (PTS) symptoms (Skeffington et al., 2017). As an example, self-blame and using substances as a coping strategy predicted higher composite symptom scores and higher alcohol abuse symptoms in a study carried out by Meyer et al. (2012) on career firefighters.

While there is no research into maladaptive behaviours specific to Fire and Emergency firefighters, Julie Maher, previously an occupational nurse for the NZFS, noted the prevalence of maladaptive coping methods in her dealing with firefighters in the late 80's:

It was during this time that I began to recognise what I believe were the effects of work-related stress. I recognised a high incidence of alcohol and suspected drug abuse, a higher incidence of smoking than in the general population (when smoking was beginning to reduce in the general population) and a particularly high incidence of marriage breakdown.
(Maher, 1999, pp. 21,22)

Maher's observation of maladaptive coping methods being used by firefighters, and the sense that these methods of coping were related to underlying psychological distress and injury, is supported by more recent research. As an example, there is a growing body of research demonstrating that alcohol abuse is prevalent among firefighters. This research suggests that firefighters may resort to drinking in order to cope with job-related distress, with one study of firefighters finding that alcohol use was one of the most frequently reported coping strategies for managing work-related distress (Paulus, Vujanovic, Schuhmann, Smith, & Tran, 2017).

The connection between psychological distress and maladaptive coping behaviours may go some way to explaining the high rates of alcohol abuse in firefighting cohorts. Studies have reported that fire and emergency service work is associated with notably elevated alcohol use, with Paulus et al. (2017) noting the following findings as a result of their survey of over 2500 US firefighters:

- Nearly one third of male firefighters screen positive for alcohol dependence.
- Depression is associated with alcohol dependence among firefighters.
- PTS is associated with alcohol dependence and consumption.

- Depression and PTS interact in relation to alcohol outcomes.
- Firefighters may benefit from treatments targeting depression, PTS, and alcohol use.

Skeffington et al. (2017) also highlighted the link between alcohol misuse and psychological injuries such as PTSD. However, as previously stated, alcohol misuse is but one example of maladaptive coping, and further research into maladaptive coping should seek to identify all types of coping that may perpetuate negative psychological and social outcomes for firefighters.

The above findings serve to demonstrate the importance of keeping one's senses attuned to 'smoke' (maladaptive behaviour) in its varying forms as an indicator of 'fire' (psychological distress and injury). Given the international research on the correlation between firefighters, the presence and prevalence of maladaptive coping mechanisms, and the connection of these mechanisms with varying psychological injuries, Fire and Emergency would be advised to consider its own research into the presence and prevalence of maladaptive behaviours present within the organisation.

'Exposures' – Radiating effect of psychological injury

Research question: *What effects might psychological distress and injury have on firefighters, their families, and Fire and Emergency as a workplace?*

RECEO is a command and control acronym used by officers for prioritising resources when faced with an incident. Following the first priority of R - 'risk to life', is the priority of E – 'exposure protection' (Fire and Emergency New Zealand [Fire and Emergency], 2013). Depending on the size and development of an incident such as a structure fire, other structures in close proximity may be threatened through radiated heat and smoke. A fire in one structure will spread to other structures in close proximity if not enough is done to extinguish the fire or protect the exposures. This analogy serves to demonstrate not only the impact of psychological distress and injury on firefighters but also the radiating impact this distress and injury can have on family, friends, communities, and workplaces. The following section will explore a number of these radiating effects.

Firefighters

While this report has highlighted the impact psychological injuries can have on a firefighter's psychological health, it is also important to note the impact psychological injuries may have on a firefighter's physical health. This is especially necessary given the physical nature of a firefighter's core work, which will often involve prolonged periods of strenuous physical activity. Consequently, researchers have begun to explore the impact of psychological injuries on firefighters' physiological health including how psychological injuries might compromise a firefighter's ability to carry out core work. For example, research by Milligan-Saville et al. (2017) noted that firefighters with PTSD reported considerably increased somatic symptoms including greater levels of gastrointestinal, cardiorespiratory and neurological symptoms compared to those who did not have PTSD. These findings highlight the degree of impairment a psychological injury can have with regard to the day-to-day

function of a firefighter, not only as a result of impaired psychological health but also as a result of impaired physiological health. Both of these factors have the potential to negatively affect a firefighter experiencing a psychological injury.

Family, colleagues, community

It has been demonstrated that the social support provided by family, friends, and communities is vital in reducing the impact of potentially traumatic events and resultant psychological distress and injury on emergency responders such as firefighters (Sattler et al., 2014). For example, social support has been negatively correlated with scores on both trauma symptom and depression scales (Roberts, 2005). The reduction of symptomology, as a result of social support, has also been correlated with a reduction in stress leave taken from work following a traumatic event (Regehr, 2005). It is evident then that social support plays a vital role in assisting with the reduction of psychological distress, and the recovery from psychological injury. However, research has indicated that family members are not immune to the radiating impact of first responder psychological distress and injury (Cheryl, Gina, Elaine, Sharon, & Joscelyn, 2005). For example, a qualitative study on the impact of trauma on paramedics, and the radiating effect on their families, noted the following experiences of spouses (Regehr, 2005):

“He’s not just withdrawing from me, he’s withdrawing from our children as well, it’s affecting us”. (p. 105)

“He’s not as patient... I think he’s become more aggressive driving... and I just notice his [lack of] patience. He just blows up sometimes”. (p. 105)

“It’s almost like a bomb going off. It hit him and just like an aftershock, hit all of us”. (p. 106)

Researchers have shown that job-related stressors could be transferred to family members when affected firefighters return home. This transference has been shown to negatively impact marriages, as well as parental interactions with children. As an example, a study of police officers found that emotional exhaustion and negative affective states experienced by officers were associated with their spouse’s reports of family conflict (Regehr & Bober, 2005). The DSM-V also notes that individuals who experience a psychological injury, such as PTSD, may suffer from impaired interpersonal functioning, and poor family and social relationships (American Psychiatric Association, 2013).

Further research has suggested that emotional numbing (a mechanism sometimes used by emergency responders in coping with distress) is associated with negative feelings of family members. This numbing, which is often characterised by detachment, disinterest, and emotional unavailability, may diminish parents’ ability and inclination to seek out, engage, and enjoy interactions with their children, leading to compromised relationships (Regehr, 2005). Still further evidence suggests that traumatic exposure encountered in the course of fire and emergency work may result in trauma symptoms for spouses (Cheryl et al., 2005), a concept attested to by psychiatrist and world leading PTS expert, Bessel van der Kolk, who notes the possible flow-on effects of psychological injuries for the family members of those injured:

Trauma affects not only the individual, but also those close to them. The wives of men who suffer PTSD often becoming depressed, which in turn can affect her children who are more likely to grow up insecure and anxious.
(Van Der Kolk, 2014, p. 1)

Additionally, a study of firefighters who battled the 1983 Ash Wednesday Bush fires in Australia reported the following figures (McFarlane & Bookless, 2001):

- 80% of firefighters reported being more irritable with their family eight months after the event.
- 50% of firefighters spent less time with their family, were more withdrawn, and fought more with family members.
- 65% of firefighters reported avoiding discussion of their problems.

A follow up study reported the following findings (McFarlane & Bookless, 2001):

- 37% of firefighters believed the experience affected the way they got along with others
- 31% of those firefighters who were married indicated that their sexual relations had been affected by the experience.
- It was found that the above variables were correlated with those who later developed PTSD.

Finally, there is a growing body of evidence that indicates that there may be negative outcomes for the children and even the grandchildren of firefighters who suffer a psychological injury and engage in certain types of maladaptive coping to deal with that injury. For example, the Adverse Childhood Experiences (ACE) study, a landmark study involving over 13,000 participants, involved examining how adverse childhood experiences, such as living in a household where members of that household had a psychological injury or were engaged in maladaptive behaviour, might contribute to a range of negative outcomes for the children of that household later in life (Felitti et al., 1998). For each identifiable adverse experience that a child was exposed to, an ACE score of one would be given. This study and numerous follow-up studies identified a graded dose-response relationship with regard to the number of ACEs experienced by a child, and the incidence of negative health and wellbeing outcomes over the course of that child's life. The research revealed that without appropriate intervention, ACEs could lead to long-term disease, disability, chronic social problems, and early death. For example, a child with an ACE score of four or more had a four to 12 fold increased risk for depression, drug abuse, alcoholism, and suicide attempts later in life. With specific regard to suicide attempts, individuals with an ACE score of one were almost twice as likely to have made a suicide attempt as those with an ACE score of zero. Individuals with an ACE score of four or more were over 12 times as likely to have attempted suicide than that of an individual with an ACE score of zero (Felitti et al., 1998). This research has considerable implications in relation to firefighters and their children, given the research previously identified in this report that has indicated elevated rates of psychological injury and maladaptive coping, inclusive of substance abuse, in firefighting cohorts. Consequently, the children of firefighters, who experience psychological

injuries and engage in maladaptive behaviours, are more likely to have a higher ACE score and thus have increased vulnerability for a range of negative physiological, psychological, and social outcomes.

Psychological trauma may also induce epigenetic modification to an individual's DNA that may have short and long-term effects on an individual's brain function, the body's stress response system, and even immune function. Epigenetic modifications can be likened to a light switch. A light switch can turn a light on and off but it does not alter the electrical wiring system of that light. In other words, epigenetic modifications do not alter the DNA structure but they can alter whether DNA is switched on or off. There has also been some evidence that suggests that these epigenetic modifications can be inherited across subsequent generations (Yehuda et al., 2016). This may be relevant to firefighters as some of these epigenetic modifications, which are accumulated across a lifetime, appear to be the result of psychological injury, and there is the possibility that these modifications may be passed down inter-generationally. For example, in a study of Holocaust survivors, children of Holocaust survivors, who had PTSD, appeared to inherit specific epigenetic modifications from their parents and this was correlated with an increased risk of developing PTSD themselves (Yehuda et al., 2016). It should be noted that epigenetic research remains in its infancy and epigenetic modifications are not fixed, meaning just as a switch may be turned off it may also be turned on again. Yet, there is still cause to consider findings that may signal an intergenerational epigenetic risk for the children of firefighters with PTSD.

Consequently, it is evident that it is important to recognise not only the impact of psychological injury on firefighters, but also the potential radiating impact of such injuries on the families, friends, and communities of firefighters.

Workplace

There are a number of reasons why an organisation, such as Fire and Emergency, should seek to ensure the identification, implementation, and resourcing of initiatives that would assist in eliminating or minimising psychological distress and injury. The primary reason or motivation for such action is ethical. For the most part, individuals and society value human life and as such should seek to minimise human suffering wherever possible, as it is the right thing to do. However, other motivations for responding to firefighter psychological distress and injury are apparent as research has indicated that psychological distress and injury are factors contributing to higher absenteeism, increased worker turnover, higher accident and injury rates, higher health care costs, increased legal exposure, and lower productivity (Mental Health Foundation, n.d.). Therefore, while an ethical motivation should be foundational to action in relation to improving worker wellbeing, workplace and legal factors, that have the potential to negatively impact workplaces, may also contribute to an organisation taking steps to eliminate or minimise psychological distress and injury.

With regard to the workplace ramifications of psychological distress and injury, as far back as 1990 it has been noted that firefighters in NZ may be placing themselves and others at risk when awareness and management of psychological distress and injury is not sufficient:

It seems to us that it is necessary for firefighters, the Union and Commission to acknowledge that firefighting, as an occupation, may take an enormous physical and emotional toll. If health problems are not identified, monitored and treated, individual health may be put at risk, occupational risks may not be properly appreciated (because health trends will not be apparent), and firefighters in dangerous situations may be put at risk by a colleague who is not functioning adequately. (Elias, 1990, p. 121)

It has been shown that firefighters experiencing psychological distress are more prone to decision-making errors. When reflecting on the symptomology correlated with psychological distress and injury, there is little wonder as to this outcome. Just as physiological fatigue and overload can cause a break down in physical and cognitive functioning, psychological distress can lead to an overload that at times may cause hazardous work decisions and behaviours (Kaplan, Bergman, Christopher, Bowen, & Hunsinger, 2017).

The economic costs of psychological distress and injury on organisations are also becoming evident. Dr Russ Newman, the American Psychological Association executive director for professional practice, noted that the cost of distress is huge to employers, with an estimated US 300 billion dollars a year spent by employers on stress-related issues such as absenteeism, turnover, lowered productivity, and direct medical, legal and insurance costs; stating "The link between employee health and well-being and organizational performance is clear" (American Psychological Association, 2007, para. 6) In NZ, 2014 estimates showed that approximately 6.7 million working days were lost due to absence with an economic cost of 1.4 billion dollars (Mental Health Foundation, n.d.). While the He Ara Oranga (2018) report indicated the overall economic cost of psychological distress and maladaptive behaviours in NZ was approximately \$12 billion. Substantial economic costs are also likely for fire and emergency services with research indicating that burnout amongst firefighters, resulting from psychological distress, has been linked to increased absenteeism, and turnover (Kaplan et al., 2017). This finding is supported by the DSM-V that notes that PTSD is associated with increased absenteeism from work and lower occupational success in community and veteran samples (American Psychiatric Association, 2013). Research carried out by Mind in the UK on emergency service personnel found that 57% had contemplated leaving their job or voluntary role because of psychological distress and injury, while 51% stated they had taken time off work as a result of psychological distress and injury (Mind, 2016c). This correlates with research that has shown that 30-40% of sickness absence is linked to work-related distress, and is also the reason work-related distress accounts for the second largest occupational health problem in the UK, costing the UK £3.6bn every year (Fire Brigades Union, 2016). Components of the direct and indirect costs of firefighter injury, including that of psychological injury, were reported by Frazier, Hankin, Schaenman, and Stambaugh (2005), and included:

- Lost wages of injured firefighters that exceeded disability payments
- Overtime wages, above the cost of the injured firefighter's wages, to fill in for the firefighter
- Medical costs

- Costs of psychological counselling for psychological distress and injury suffered by the firefighter, the firefighter's family, and (occasionally) the firefighter's co-workers
- Time spent by the firefighter, supervisors, and others investigating the incident and writing the injury report
- Cost of training for firefighter safety.

This range of economic costs to an organisation may account for research that has indicated an average return of \$4.20 for every \$1 spent on psychological wellbeing programmes (Mental Health Foundation, 2016).

With regard to legal ramifications, psychological distress, as a result of critical incident and/or workplace distress, that leads to a firefighter experiencing a psychological injury or dying by suicide may now also have a substantial effect on organisations such as Fire and Emergency. According to the Health and Safety at Work Act 2015 a Person Conducting a Business or Undertaking (PCBU), such as Fire and Emergency, has a responsibility and duty of care to its workers to protect them from harm to their physical and psychological safety, health, and welfare. The PCBU can face penalties if it is shown that this duty of care has not been taken. Two Subparts of the Act highlight the level of responsibility Fire and Emergency hold with regard to the psychological wellbeing of its workers. The following sections of the Health and Safety at Work Act 2015, pp. 32,33, highlight some of the applicable clauses. According to these clauses, Fire and Emergency are responsible for, among other things:

Section 36, Subpart 2 'Duties of PCBUs, Primary Duty of Care'

1(a) the provision and maintenance of a work environment that is without risks to health and safety; and

2(f) the provision of any information, training, instruction, or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out as part of the conduct of the business or undertaking; and

3(g) that the health of workers and the conditions at the workplace are monitored for the purpose of preventing injury or illness of workers arising from the conduct of the business or undertaking.

Further responsibilities are outlined in Section 44, Subpart 3 'Duties of Officers, Workers and other persons'. 'Officers' would translate within a Fire and Emergency context to the Chief Executive (CEO), Executive Leadership Team and the Operational Leadership Team.

According to the Health and Safety at Work Act 2015, p. 41, 'Officers' have a due diligence role to take reasonable steps with regard to the following:

- a) to acquire, and keep up to date, knowledge of work health and safety matters; and*
- b) to gain an understanding of the nature of the operations of the business or undertaking of the PCBU and generally of the hazards and risks associated with those operations; and*

- c) *to ensure that the PCBU has available for use, and uses, appropriate resources and processes to eliminate or minimise risks to health and safety from work carried out as part of the conduct of the business or undertaking; and*
- d) *to ensure that the PCBU has appropriate processes for receiving and considering information regarding incidents, hazards, and risks and for responding in a timely way to that information; and*
- e) *to ensure that the PCBU has, and implements, processes for complying with any duty or obligation of the PCBU under this Act; and*
- f) *to verify the provision and use of the resources and processes referred to in paragraphs (c) to (e).*

One can see then that an organisation, especially one such as Fire and Emergency, may be impacted legally as a result of workers who experience psychological injury or who commit suicide if it is shown that the organisation had not taken appropriate steps to identify and eliminate or minimise the risks associated with such outcomes. However, responsibility for the SHW of individuals should never be framed dualistically and while Fire and Emergency has a definite responsibility with regard to the SHW of firefighters it is not, and should not be, their sole responsibility. Section 45 of the Health and Safety at Work Act, 2015 reflects this notion of shared responsibility noting the individual responsibilities workers have with regard to their own, and their colleagues', SHW.

This section of the report has provided a brief synopsis of the radiating nature of psychological distress and injury experienced by firefighters; by its very nature these experiences are likely to have a substantial impact on friends, family, communities and workplaces of firefighters.

'Ignition sources' – causes of psychological distress

Research question: *What are some of the likely causes of psychological injury within Fire and Emergency?*

The Fire and Emergency Fire and Investigation technical manual states that the most effective way to achieve fire prevention is through learning as much about how and why fires start in the first place (Fire and Emergency, 2008). This statement equally applies to the necessary process of understanding what variables contribute to, and underlie, psychological injury so that it may be prevented.

This report has established a correlation between potentially traumatic events and psychological distress and injury. Additionally, it has demonstrated the complexities of acute and chronic exposure to critical incidents, and how home and workplace distress can contribute to the development of a psychological injury. As these potential ignition sources of psychological distress and injury have already been identified, this section will focus on a number of aspects unique to the Fire and Emergency landscape that may be fuelling an escalation of psychological distress and injury. This will include a brief investigation of

medical calls, workplace stressors, and organisational culture specific to Fire and Emergency firefighters.

It should be noted that this is not an exhaustive analysis of contributors to psychological injury, as it was beyond the scope of this report to examine, for example, personal factors such as pre-employment trauma and personality. Furthermore, the following section focusing on medical calls should not detract from the reality of the other types of critical incidents firefighters attend such as fires, motor vehicle accidents (MVA), and natural disasters, which can also create distress that may contribute to a psychological injury. This caution is perhaps best summarised by a Fire and Emergency firefighter interviewed as part of a research report conducted by Adams et al. (2018):

So, some of the stuff that has affected me from a traumatic point of view has been fire related but you're not interested in that but there has been a number of fires over the years that I've attended where we've had unsuccessful rescues that plays upon you emotionally, psychologically, it plays upon you quite a lot, but I'll push that aside for the moment and just kind of focus on the non-fire. (Adams et al., 2018, p. 34)

Medical calls

The period spanning 1 July 2017 to 30 June 2018 saw firefighters in NZ attend 82,567 incidents. Of these incidents, approximately 10,000 comprised structure and vegetation type fires and over 2000 were due to natural disasters and extreme weather events. Approximately 10,000 resulted from motor vehicle accidents and other rescues, and close to 1000 were the result of hazardous substance incidents. Perhaps most notably, firefighters attended approximately 14,000 medical incidents over this time, which is considerably more than the amount of vegetation and structure fires incidents attended (Fire and Emergency New Zealand, 2018b).

Numerous fire services internationally respond to medical calls in a first or co-response capacity, however, this was not common practice in all parts of NZ prior to 2013. Until this time, the NZFS had an understanding where it would support another agency, such as St John, if a request was recommended. This was generally known as "Mutual Aid" and was essentially a commitment to help out when required. However, 2013 saw the development of a formal MOU between the NZFS, St John and Wellington Free Ambulance, with medical call response being socialised over that year (G. Travers, National Comcens & Medical Response Manager for Fire and Emergency, personal communication, November 09, 2017).

In 2014, there was a substantial increase in the number of medical calls the NZFS responded to (see *Figure 1*), a reflection of the implementation of the MOU between St John, Wellington Free Ambulance and the NZFS in December 2013 (Fire and Emergency Business Analyst Unit data on medical calls by region in NZ, 2011-2019, personal communication, February 04, 2019). An examination of the increase in response to medical calls post 2013 is pertinent given the relationship between dose exposure to trauma, and the development of psychological injuries such as those mentioned in the prior section.

As a result of the MOU agreed upon by the NZFS, St John, and Wellington Free Ambulance, firefighters were to co-respond to ‘purple’ coded calls with emergency ambulance services (EAS). A code purple corresponds to calls that are immediately life threatening, such as cardiac arrests and hangings (St John, 2017). For many firefighters this represented a substantial addition to their role. This addition has seen exposure to PTEs for some firefighters increase considerably, with *Figure 1* demonstrating the increase in response to medical calls and potentially traumatic events nationally.

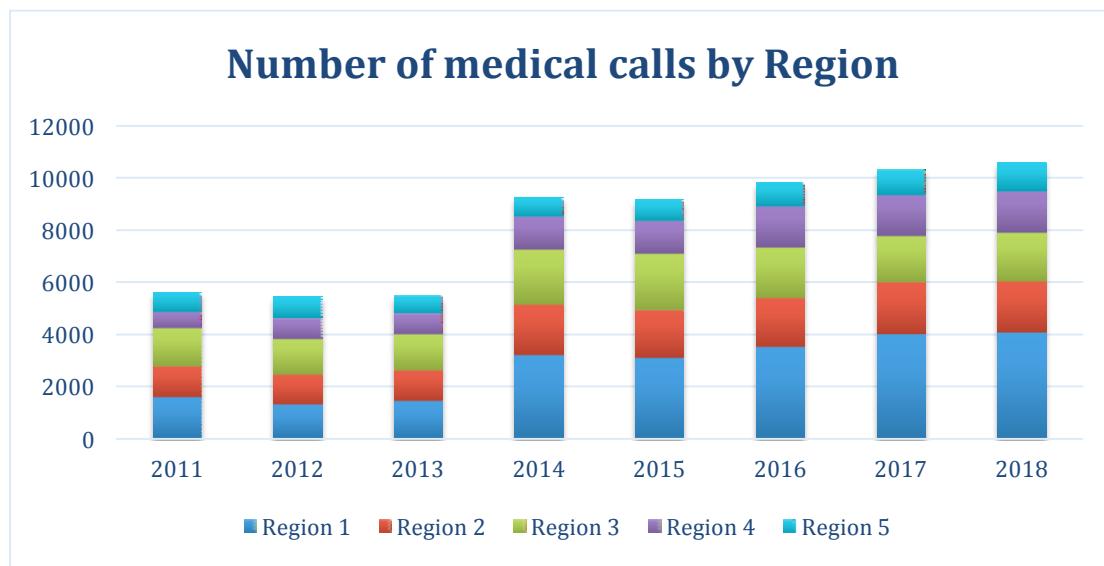


Figure 1. Medical calls attended by Fire and Emergency firefighters according to year and Region. Adapted from Fire and Emergency Business Analyst Unit, personal communication, February 04, 2019.

Below is a sample of a number of Areas within each Region that have been impacted by the MOU (Fire and Emergency Business Analyst Unit data on medical calls by region in NZ, 2011-2019, personal communication, February 04, 2019):

Region	Area	Name	Medical calls				
			Year	Number	Year	Number	Increase
1	4	Auckland City	2013	41	2018	706	1621%
1	5	Counties-Manukau	2013	389	2018	1193	206%
2	6	Waikato	2013	162	2018	495	205%
2	8	Bay of Plenty Coast	2013	386	2018	689	78%
3	11	Hawke's Bay	2013	208	2018	393	88%
3	13	Whanganui	2013	84	2018	184	119%
4	21	Christchurch Metro	2013	488	2018	673	37%
5	24	East Otago	2013	276	2018	553	100%

A qualitative research study carried out on Fire and Emergency firefighters, in relation to the impact of the 2014 MOU, noted firefighter's experiences of this increased medical callout workload, with one firefighter noting:

If we look at the jobs we're doing, working jobs that we are doing, it's [medical calls] making up, I'm just guessing, but it's probably a third, a quarter to a third, of the working jobs that we go to are medical calls, we're probably averaging a couple a week on my shift so out of four shifts we might get two heart attack calls if you like, two medical calls, sometimes it can be four or five or six, could be one or two a day on a busy set but it averages around one every second day and so makes up a significant part of the work now. (Adams et al., 2018, p. 23).

This increase in medical response workload was also reflected in a report, released by St John, noting that the NZFS had attended more than 70% of adult out-of-hospital cardiac arrests (OHCAs) during the reporting period (July 01, 2015 to June 30, 2016) where an EAS made a resuscitation attempt. The report also states that the NZFS was first on scene at 15% of these events (Dicker & Davey, 2016).

This increase in response of firefighters, in a co-response capacity, has seen positive outcomes for the communities Fire and Emergency serves with the same report released by St John noting:

The New Zealand Fire Service has been fundamental in the early defibrillation of 95 adult patients in cardiac arrest prior to the arrival of St John EAS. Of these patients, 38% survived the event (had a pulse sustained to hospital handover) and 28% survived to hospital discharge. (Dicker & Davey, 2016, p. 25)

A more recent report by Turner and Rasmussen (2018) noted that patient outcomes in NZ were improving, as indicated by an increase in return of spontaneous circulation from 8% to 12%. This improvement, which is leading to more lives being saved, is believed to be the result of the Fire and Emergency medical response capability. These benefits extend beyond that of the community to that of individual firefighters within Fire and Emergency who by their very nature want to assist the public wherever possible. Qualitative research carried out on a sample of Fire and Emergency firefighters noted the benefit this role can have for some firefighters:

I mean if you respond for example to medical emergencies and you're able to revive or resuscitate someone's family member, there's a huge sense of satisfaction and a sense of achievement in helping someone and improving the situation they were attending (Adams et al., 2018, p. 23).

However, while an increase in response to medical calls has seen measurable benefits for the community, and contributed to an elevated sense of meaning for some firefighters, it has also presented a considerable increase in psychological risk for Fire and Emergency firefighters. For example, research by Stanley et al. (2015) found that firefighters who were members of fire departments that also responded to emergency medical callouts were

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand almost six times more likely to report having made a suicide attempt. This may confer an elevated risk for firefighters who also respond to medical callouts. Additionally, the nature of purple calls, being immediately life threatening, means that they qualify as a PTE.

Furthermore, the volume of calls for some stations has increased substantially, see *Figure 1*, leading to cumulative exposure possibilities discussed earlier in this report. Therefore, increased psychological risk is likely to be due, at least in part, to the relationship between PTE exposure, RET, and the experience of psychological distress and injury (Harvey et al., 2016; Jacobsson et al., 2015; Richardson & James, 2017; Sattler et al., 2014). Consequently, while an increase in attendance at medical calls has undoubtedly produced benefits for the public and even firefighters, there is evidence to suggest that it will have also increased risks to firefighters. The following section will explore a number of these potential risks.

Fatality exposure

Given the nature of purple calls, there has been a dramatic increase in exposure to fatalities for a considerable number of firefighters. For Example, *Figure 2* demonstrates the impact of the MOU in Region 1 by showing the increase in exposure to fatalities post the 2014 MOU.

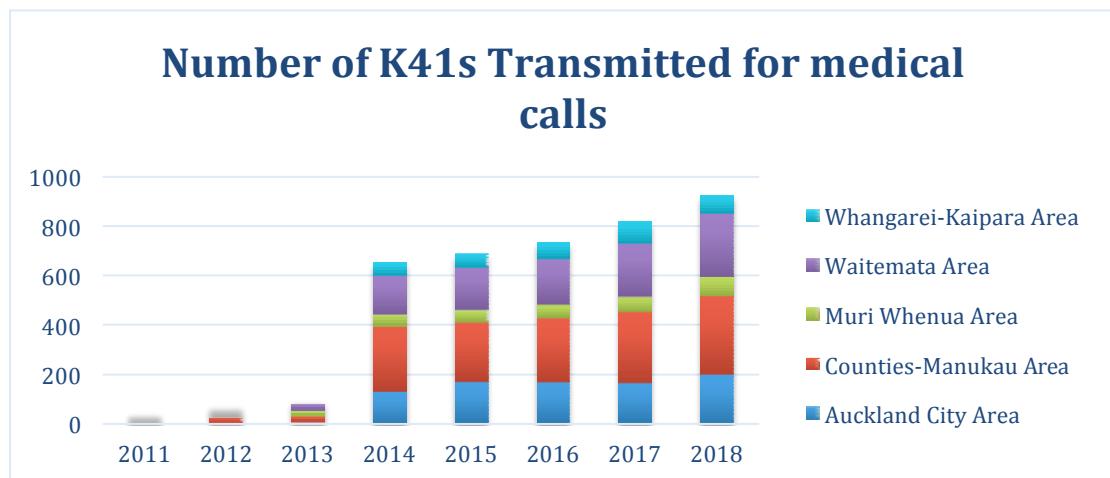


Figure 2. K41 codes transmitted, for medical calls, attended by firefighters according to year and area within Region 1. Adapted from Fire and Emergency Business Analyst Unit, personal communication, January 04, 2019

K41 is a code transmitted by the attending fire officer to signify a fatality has occurred during their attendance at the call.

Areas 3,4, and 5 are examples of Areas that have seen a considerable increase in exposure to medical call fatalities (Fire and Emergency Business Analyst Unit data on medical calls by region in NZ, 2011-2019, personal communication, February 04, 2019)::

Region	Area	Name	Medical calls involving a fatality				
			Year	Number	Year	Number	Increase
1	3	Waitemata	2013	26	2018	255	880%
1	4	Auckland City	2013	5	2018	199	3880%
1	5	Counties-Manukau	2013	24	2018	317	1220%

This increased exposure to fatalities is of significance, given that research has shown a correlation between exposure to death and an increase in the relative risk of psychological injuries and maladaptive behaviours (Harvey et al., 2016). Research carried out by Harvey et al. (2016) found that increased exposure to fatal incidents increased relative risk for PTSD, depression, and heavy drinking. As demonstrated in *Figure 3*, a firefighter who had been exposed to 25 fatal incidents had over four times the relative risk of PTSD, and over twice the relative risk of depression and heavy drinking, than that of a firefighter who had been exposed to between 0 – 5 fatal incidents. This appears to indicate a dose-response relationship with regard to exposure to fatal incidents. It is important to note that, while these findings are confronting, given the high levels of exposure previously demonstrated, they do not indicate that a firefighter with high levels of exposure will definitely experience a psychological injury or engage in maladaptive behaviour, only that their risk will increase in relation to the experience of these outcomes.

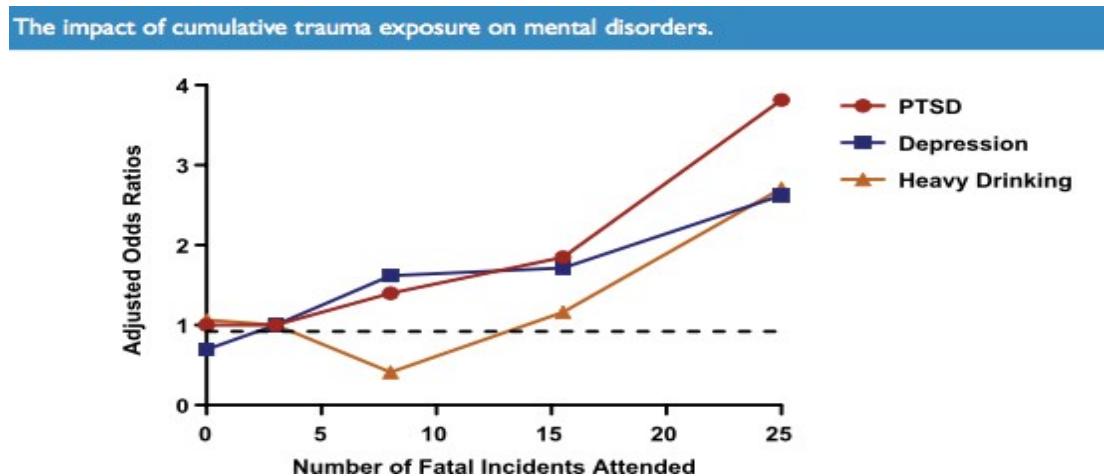


Figure 3. The impact of cumulative trauma exposure on psychological injuries and maladaptive behaviour in a group of Australian firefighters (Harvey et al., 2016).

The increased exposure to purple calls has also led to an increase in exposure to certain types of fatal, or potentially fatal, incidents such as suicide, homicide, drowning, paediatric cardiac arrest, choking, and drug overdose. The specificity of the type of fatal incident is important to note as certain types of fatal, or potentially fatal, incidents may confer an elevated risk for psychological distress and injury. For example, research has indicated that firefighters, who had responded to a suicide attempt or death, were more likely to experience suicidal ideation and were more likely to report having made a suicide attempt (Stanley et al., 2015). Additionally, research has indicated that firefighters who are unable to resuscitate a child risk the loss of psychological resources (Sattler et al., 2014).

Mission failure

While ambulance officers respond to purple calls, they also respond to calls that fall into less severe categories where the recovery of a patient is more likely. This might include response to calls involving fractures, soft tissue injuries, hypothermia, and other such injuries, which lend to high rates of recovery. However, firefighters who co-respond see considerably fewer cases of recovery given the nature of purple calls. To this end, firefighters will often mention the number of consecutive purple calls that they have attended and that have resulted in a

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand fatality. Examples of these experiences can be found in the report by Adams et al. (2018) on Fire and Emergency firefighters:

So the majority of Fire and Emergency New Zealand brigades just back up St John or Wellington Free if you like, to the purple jobs, which are cardiac arrest and respiratory arrests so it is always the bad stuff, they don't get the good stuff like St John do as well, like the fixing up a cut, the good stories, like nine times out of ten when we turn up at one of them, the person is deceased already. (Adams et al., 2018, p. 30)

... I mean I just told you that of my maybe 50 CPRs in the last few years, I haven't brought one person back yet, so I'm working on this person, this person's loved one, and chances are they're not going to make it, and these people are full of hope and they're relying on us to get a result, so that's probably one of the heavier aspects for me ... (Adams et al., 2018, p. 30)

These experiences may indicate a sense of 'mission failure', which has been correlated with psychological distress that can lead to a psychological injury (Jacobsson et al., 2015). Further research has speculated that firefighters may risk the loss of psychological resources, such as a sense of self-efficacy, if they are unable to successfully rescue a casualty, especially if the rescue attempt involves a child (Sattler et al., 2014). This sense of a loss of self-efficacy appears to be revealed in this statement by a Fire and Emergency firefighter:

... we're geared up to go to an incident, like a house fire for example, to render assistance, so we walk away from that kind of incident with a feeling of like we did something, we put the fire out you know, we've tried our best to save this person's house and belongings, and whomever was involved so it's like a positive, whereas you walk away from a CPR job, and most of the time you're not getting a positive result, so it affects your psyche, you kind of walk away with like a bit of a negative, not a negative feeling but just a bit of a down feeling because you haven't been successful, and we're so used to that walking away and thinking yeah we did a great job, whereas we walk away from the CPR, it's not necessarily anything to do with what we did at the job, it's just the result that was always going to happen, and that's hard to deal with because it's not in our, it's not in our psyche, and we didn't have a chance really to, to psychologically prepare ourselves for that, as an organization. (Adams et al., 2018, p. 30)

Emotional aspect exposure

While firefighters sometimes carry out CPR after the rescue of a casualty from a structure fire, or provide medical attention during the extrication of a casualty from a MVA, this will not often involve the immediacy of a family or relative presence, and the associated additional emotional intensity, pressure, and, at times, aggression that can occur. This increased emotional aspect exposure has the potential to negatively impact firefighters in at least two ways. Firstly, family members or relatives of a casualty may become aggressive towards firefighters, putting firefighters at risk of physical injury, as they attempt to perform

medical duties. This potential outcome has already been identified by the report by Adams et al. (2018, p. 46) on Fire and Emergency firefighters:

They [firefighters] get sometimes angry, hostile or very distressed relative[s], and apparently that is some of the difficulty that they have, and you know how to handle that, and you know they're there for a longer period of time.

Further to this increased physical threat, is the reality that CPR carried out in the family home will often expose firefighters to members of the family who are emotionally distraught, which may add an element of emotional intensity to the event for firefighters, especially given this emotional aspect is not as prevalent in other parts of their job. For example, at motor vehicle incidents and structure fires, other emergency responders such as ambulance or police often deal with family members and the public, leaving firefighters to carry out extinguishment or extrication duties without the addition of these stressors.

The experience of discomfort and distress, in relation to dealing with emotional aspect exposure at medical calls, has been reported in statements provided in the Adams et al. (2018) national report on Fire and Emergency firefighters, for example:

... they're either in the lounge, in the hallway [or] very often in the bedroom, so these most sort of intimate places of a home, that's where we do the work, and doing the type of medical calls that we do, it's very tactile so, it's not like squirting water at an inanimate building, or working with paramedics extricating somebody from a motor vehicle accident, it's tactile and more than that, we have to, you know we have to undress people, to do the job so we never do CPR on clad people, so it's very intimate in that sense as well, so you've got to take peoples' top clothes off and, it's just what it is, that's the only way you can do it properly, so you can understand it's a huge contrast as I said with tackling a fire, there's just no comparison. (Adams et al., 2018, p. 32)

A considerable number of career firefighters, in the Region 1 PFA roll-out, mentioned that

they had to deal with emotionally charged scenarios that they felt uncomfortable with and unprepared for. In one case, an officer explained how he and his crew were left with the family of a man, who had been taken away by ambulance in a serious condition, breaking down in the middle of the road outside the family's home. The officer noted how distressing this had been for him and his crew and how it had affected him in the days that followed.

These experiences appear to be congruent with research by Jacobsson et al. (2015) that found that firefighters felt inadequately trained in communicating with family members who are at the scene of medical calls, such as at a suicide. This additional emotional aspect exposure is also of particular relevance to volunteer firefighters who respond to calls within their own communities. In these small, often tight-knit communities, there is a high likelihood that volunteer firefighters will attend calls involving people they know personally, including family and friends. Another firefighter in the Adams et al. (2018) report noted how connections to the scene could contribute to distress:

I think what creates the sort of connection, so I'm part Māori so anytime there's a Māori family involved, I struggle a bit, I feel a little bit more emotional about the situation ... I would assume ninety percent of the guys are happy doing the chest compressions and the CPR, in a quiet room where nobody is around, but that's not the case, it's the screaming family and the family that are there, that is the hardest part. (Adams et al., 2018, p. 32)

Indeed, a study of firefighters in the US revealed that a prime contributor of traumatic experience was the placement of firefighters in situations that called them to do their jobs in stoic ways, while simultaneously compelling them to relate on an emotional level with components of the incident. Consequently, the researchers noted that these incidents fundamentally challenged firefighters' notions of what it takes to solve problems, while also feeling and expressing emotion (Richardson & James, 2017).

Preparedness

Sattler et al. (2014) found in their research examining occupational stressors, that firefighters ranked substandard equipment and job skills as creating more distress than critical incident exposure. This indicates the necessity of training, and appropriate equipment, in reducing distress experienced by firefighters in carrying out an expansion to their role. Armstrong, Shakespeare-Finch, and Shochet (2014) noted in their study that, "it is a widely held tenet of stress literature that an increase in stressors, without concurrent increases in resources, overwhelms an individual's ability to cope with, and effectively respond to, stressors" (p. 43). This is of relevance given the handling of the 2014 MOU that saw many firefighters attempting to navigate a substantial increase in medical calls and resulting fatalities, without prior notification or further training. A number of firefighters reflected on this situation as part of the qualitative research carried out post the 2014 MOU:

We weren't really [prepared for medical callouts] it sort of got sprung on us, and that would be the general consensus from the word go, there has been some resistance to it in some stations in some areas in New Zealand, but yeah we felt that it was quite sprung on us, we didn't really get any, didn't know much about it at all prior to it happening, it was just sort of, I mean we were attending these calls and that was news to us sort of thing, so it wasn't communicated very well at all. (Adams et al., 2018, p. 24)

I think the fact we just weren't warned about this was going to happen so and I think that's been made very clear to the organisations that it wasn't well done ... (Adams et al., 2018, p. 24)

... this sounds unbelievable but it's actually totally true, there was no communication to the workforce that fire crews would be attending medical calls, and even some of the managers didn't know. (Adams et al., 2018, p. 24)

This lack of notification and preparedness may have contributed to firefighters and officers feeling overwhelmed, at times, faced with situations they had not dealt with commonly before, and may have not felt sufficiently prepared and trained for. The Ministry of Health

(2016) has stressed the importance of promoting self-efficacy as an effective intervention in relation to emergency distress. Preparation that provides a sense of self-efficacy in these situations needs to extend beyond that of basic medical training in relation to the mechanics of CPR or the operation of a defibrillator, which a number of firefighters feel sufficiently trained in, to the need to feel confident in dealing with more complex medical calls and with emotional aspect exposure on scene. Again, the latter sentiment has been reflected in a statement by a Fire and Emergency firefighter:

I don't think we need any more medical support training, what we do need is how to deal with those things around the situation we're presented with, dealing with families, friends, violence, you know, I don't know what the answer is but we need someone to help us to be able to deal with those things better, we don't even have any tools for those. (Adams et al., 2018, p. 47).

A lack of appropriate preparation may also account, at least in part, for reports of some volunteer firefighters refusing to attend medical calls (Adams et al., 2018). Given that self-efficacy has been associated with lower levels of psychological distress and resulting psychological injuries in firefighters, it is reasonable to expect that firefighters might have desired notification and further training prior to the implementation of the MOU (Cheryl, John, Theresa, & Bill, 2003).

Another issue that has been raised in the research literature is that of collaboration between emergency responders. All firefighters, in a study carried out by Jacobsson et al. (2015), expressed a desire for improved cooperation with ambulance personnel to reduce delays and failures, as well as expressing a need for more training in emergency care. It could be argued that this desire is based on a need to achieve a sense of self-efficacy and agency, with the benefit to firefighters of a reduction of psychological distress that could result from such agency.

In the same way that it is not possible to eliminate all physiological risks involved with entering a burning building to effect a rescue, it is also not possible to eliminate exposure to PTEs, such as medical calls, and the psychological distress and injury that can follow. In both cases, elimination of the risk would require not responding, and to do so would come at the cost of a considerable benefit to the communities that Fire and Emergency serves. Further to this, it might also come at the cost of psychosocial benefits firefighters garner from carrying out such duties – this in itself is a risk. However, while elimination of psychological risks would not have been possible in relation to a substantial increase in medical call response, identification and minimisation of the psychological risks involved in an increase in PTE exposure was certainly possible. Indeed, Fire and Emergency already has a system for dealing with incidents where hazards cannot be eliminated, which ensures the likelihood and consequences of risks associated with carrying out fire and emergency work are minimised. This is known as a dynamic risk assessment (DRA), and is a tool used for mitigating risks associated with various incidents Fire and Emergency respond to (Fire and Emergency New Zealand, 2013). In much the same way, while exposure to PTEs cannot always be eliminated, it is possible to minimise the likelihood and consequences of

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand exposures that lead to psychological distress and psychological injury (Beyond Blue Ltd, 2018).

More specifically, certain externalities related to the MOU implementation, likely to have a negative effect on firefighter wellbeing, should have been identified and minimised. These externalities include, but are not limited to: a lack of sufficient notification with regard to the MOU implementation; a lack of further additional first aid training; a lack of sufficient psychological training; a lack of additional psychological supports; a lack of sufficient firefighter participation in the development and implementation of the MOU itself. These externalities may have contributed to an increase in the incidence and prevalence of psychological distress and injury for firefighters (Gluckman, 2011). A different implementation approach could likely have assisted with the minimisation of psychological distress and associated injury risks to do with an increase in PTE exposure. Examples of initiatives could have included: clear communication as to the proposed implementation structure and timing; improved first aid training; improved psychological training; training for dealing with families; a greater emphasis on inter-agency communication and cooperation; and a higher level of supervision and support. These types of Initiatives could have increased perceived organisational and peer support, and provided a greater sense of self-efficacy and agency for firefighters.

A time of critical reflection is necessary to assist in ensuring that future initiatives are carried out in such a way that Fire and Emergency provides essential services to NZ communities, while at the same time effectively identifying and then eliminating and minimising the potential negative effect of that work on the SHW of firefighters.

Workplace stressors

Independent research carried out by Mind, a mental health charity in the UK, noted a number of key findings including that poor mental health was common within the emergency services, and that workload and management pressure is a major contributing factor to the state of emergency service mental health (Mind, 2016a). Lewis (2014) notes, in his study of the impact of distress on the workplace, that workplace distress can result from a number of variables including:

- Interpersonal conflicts with colleagues and or supervisors
- Role conflicts
- Time pressures and work overload
- Issues related to career development and lack of job security, as well as under/over promotion
- Lack of involvement in decision-making, or organisational climate and structure.

A study examining workplace distress in relation to firefighters found that workplace stressors, such as substandard equipment and job skills, as well as management conflict and wages, were more substantial stressors than exposure to critical incidents (Sattler et al., 2014). These finding correlate with previous research that found additional life stressors,

home or workplace, were among the strongest predictors of PTSD symptoms amongst trauma-exposed adults, and that workplace distress was correlated with numerous indicators of psychological distress and injury among firefighters. This study concluded that levels of occupational distress may be a particularly important predictor of mental health outcomes amongst firefighters (Meyer et al., 2012). Similarly, Armstrong et al. (2014) noted that a combination of workplace distress and critical incident distress was a predictor in the regression model, which supported research findings that workplace stressors contribute to symptoms of PTSD. One of the key findings of the recently published Beyond Blue Ltd (2018) report was that poor workplace culture and practices are equally as debilitating for emergency service personnel as exposure to PTEs. On the other hand, this report found that emergency service workplaces that have regular discussions about distressing events, effectively manage emotional demands on workers, and are perceived as being supportive, have an inoculating effect that correlates with lower rates of PTSD and psychological distress.

A primary factor related to the mediation of traumatic distress is support from superiors within the workplace. Cheryl et al. (2003) noted that, “when people feel supported and valued, they experience lower levels of distress. In addition, cognitive appraisal of self-efficacy has been reported to be an important factor in ameliorating distress” (p. 189). Additionally, Stanley et al. (2015) found that social support from co-workers may lessen suicide risk and general psychological distress amongst firefighters. It seems reasonable to assume that situations, such as the handling of the MOU in 2014, where communication and lack of involvement of workers seem to be apparent, that an avenue of further workplace distress was created for firefighters. This hypothesis is supported by research, such as that of Meyer et al. (2012), who noted that among firefighters, perceived accessibility of personal and organisational support was negatively associated with PTSD and depressive symptoms, whereas alienation was positively associated with PTSD and depressive symptoms.

These findings are of particular relevance to Fire and Emergency given a recent report by Shaw (2019) examining Fire and Emergency workplace policies, procedures and practices in relation to bullying and harassment. The report found that bullying and harassment are both substantial features of the Fire and Emergency workplace at all levels and across all regions. This is an important finding with regard to the context of this report, given that additional distress created by such behaviour can be a contributing factor to cumulative workplace distress. Additionally, workplace distress caused by bullying and harassment can be a considerable contributor to psychological injury, especially when combined with critical incident and home distress. It is also worth noting that that critical incident and home distress may be contributing to the prevalence of bullying and harassment within Fire and Emergency. For example, the DSM-5 notes that individuals with PTSD may display symptoms including irritable behaviour and angry outbursts (with little or no provocation) which may be expressed as physical or verbal aggression toward people (American Psychiatric Association, 2013). Therefore, it would be in the interests of Fire and Emergency to identify workplace stressors and how they may contribute to psychological injury within the organisation, while also investigating how critical incident, workplace, and home distress may contribute to bullying and harassment. Such an investigation will be vital in identifying

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Effect of culture and stigma within fire services

It could be argued that firefighters are often perceived and portrayed as invulnerable heroes who can always be called upon for help, but are rarely in need of help themselves. However, this report has demonstrated that despite the heroic work firefighters do, they are not impervious to psychological distress and injury, and at times will require help themselves. Yet, a persistent culture and stigma around psychological injury within fire services is leading to firefighters not seeking help when they need it (Beyond Blue Ltd, 2018; Mind, 2016a). Jeff Dill, a counsellor and former US firefighter, noted in an interview that firefighters suffer what he calls ‘cultural brainwashing’, where many believe that wearing the uniform means you are to act strong, be brave, offer help, but never ask for it. In the same article, colleagues of Mike Mauser, a US firefighter who died by suicide, noted that it was these ideas that had led to their friend concealing his own mental health issues (Bah, 2016).

The “Fault Lines” article by Bah (2016) states that, in interviews with multiple firefighters and paramedics across the US, the predominant culture in the fire service meant that psychological stressors and injuries were seen as signs of weakness. Stanley, Hom, and Joiner (2016) noted in their research that stigma, preventing the utilisation of services, and a focus on helping others at the expense of focusing on personal needs, were two important factors in relation to emergency service suicide. While it has also been noted that being part of a crew, being labelled as heroes in the media, and having colleagues that depend on them, may result in firefighters being less willing to disclose being affected by trauma (Kehl et al., 2014). Indeed, research carried out by the UK organisation Mind noted that, although members of the emergency services are more likely to experience psychological distress and injury in comparison to the general population, they were also less likely to seek support for such distress and injury. Their research also found that stigma is common within emergency services throughout the UK:

The scoping research revealed that, despite disproportionately affecting blue light personnel, mental health problems are stigmatised within the blue light community. Personnel say that discussion of mental health is not encouraged within their organisations, and there is a widely held suspicion that colleagues would be treated differently by their peers if they disclosed a mental health problem. At the root of this is an often unstated assumption that the people who ‘fix problems’ cannot be seen to have problems themselves. (Mind, 2016a, p. 6)

Interestingly, the Beyond Blue Ltd (2018) report noted that the majority of stigma, within emergency response organisations in Australia, was that of ‘self-stigma’ – the lack of ability to talk openly about personal struggles or a fear of what others think – rather than stigma as a result of what colleagues actually said or did. These findings indicate that the vast majority of emergency responders were supportive and had positive regard for colleagues

experiencing psychological distress and injury. This finding indicated that there was a substantial disparity between how emergency workers regard their colleagues when they are struggling and how they see themselves when struggling.

It is also worth noting that the stigma and stoic culture common in emergency response organisations may lead to under-reporting in psychological health surveys amongst emergency service personnel. Paulus et al. (2017) found, in their psychological health survey of firefighters in the US, that there may have been under-reporting due to reasons such as masculinity, self-reliance, or beliefs regarding the need to be tough, or lack of trust (e.g., fear that surveys were not confidential and may be made available to supervisors). A working paper in the UK reported that 72% of people who died by suicide over the last decade had not made any contact with a health professional the year prior to their suicide (Fire Brigades Union, 2016). It is, therefore, of utmost importance that Fire and Emergency investigate its own culture and the possibility that stigma, in relation to psychological distress and injury, may arrest the reporting and treatment of psychological injuries.

Home stressors

Given the cumulative capacity of distress, it stands to reason that events that have the potential to create distress in the home environment, such as relationship and marital conflict, familial disruption, sickness and injury, and financial difficulties, may all contribute to an accumulation of distress that includes both workplace and critical incident distress. Furthermore, research by Sattler et al. (2014) proposed that firefighter stress, resilience, and coping were affected, in part, by the presence and integrity of what they termed resource caravans. These resource caravans, previously established in the conservation of resource (COR) theory, are made up of four categories and included variables specific to the home environment. Having these resources in place provided what could be thought of as 'psychological PPE', providing a resilience buffer in relation to critical incident exposure and psychological injury. These resource caravans included:

- Personal characteristic resources – such as optimism, self-efficacy, self-esteem
- Condition resources – such as organisational support, home support, camaraderie, advice, good working conditions
- Energy resources – such as physical health, time, money
- Object resources – such as a car, house etc.

Sattler et al. (2014) found that personal characteristic resources, energy resources and condition resources, were negatively associated with post-traumatic stress symptoms. It stands to reason then, that when firefighters' physical health is adversely affected as a result of personal sickness or injury (energy resource), or they lose the ability to make mortgage or rent payments (object resources), or home social support is lost as a result of marital or relationship conflict or the sickness or injury of a child (condition resource), that firefighters may experience additional distress while also losing an important buffer with regard to psychological injury. Furthermore, it is possible that both critical incident and workplace

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distress might contribute to the loss of a number of resource caravans, which in turn creates the potential for elevated home distress.

Part One conclusion

Psychiatrist and trauma specialist Bessel van der Kolk notes that humans have an extraordinary capacity for survival and resilience. This is clearly observable in a global population that has, and continues to, rebound from large catastrophic events such as natural disasters and world wars. This is also true in relation to events experienced more commonly by emergency responders, such as critical incidents and workplace and home stressors. However, van der Kolk also asserts that traumatic experiences leave traces – traces on our mind, our emotions, on our capacity for intimacy and joy; traces that affect our biology and immune systems, and in doing so impact not just ourselves, but also our families, workplaces, and communities (Van Der Kolk, 2014). Firefighters have embodied this extraordinary capacity for survival and resilience. Often faced with stressors that far exceed those experienced by the general population, they continue to turn up and give themselves to the service of the public. However, this report has revealed that firefighters are not immune to the traces of trauma and that, over time, potentially traumatic events can accumulate, and combine with stressors at work and at home. This accumulation and combination of stressors, unchecked, can lead to psychological injuries and maladaptive behaviours that not only negatively impact firefighters, but also their families, their communities, and Fire and Emergency.

Part One of this report has identified a number of indicators and causes of psychological distress and injury within fire services internationally, while also highlighting the prevalence of those psychological injuries. These concerning global trends appear to support the hypothesis that a leading SHW risk, perhaps even the leading SHW risk, facing Fire and Emergency firefighters is that of psychological injury, maladaptive behaviour, and suicide. These findings should signal an urgent alert for a substantial and concerted response from all those wishing to ensure the safety health and wellbeing of firefighters within Fire and Emergency.

Part Two – A Size-Up

The ‘360’ forms part of an initial ‘size-up’ undertaken by an officer upon arrival at a structure fire to establish the presence, location, intensity and the potential spread of a fire. This initial size-up is also used to identify any additional potential hazards that may place firefighting crews in danger. Part One of this report drew upon the concept of the 360 and used it as an operating analogy with regard to a strategy for identifying the potential incidence and prevalence of psychological distress and injury within Fire and Emergency. Furthermore, this strategy was used to identify potential causes and risks associated with psychological distress and injury. In Part Two of this report, the size-up process will again be undertaken to identify the strategy and control measures currently used by Fire and Emergency in relation to firefighter psychological wellbeing, and assess the efficacy of this strategy and control measures.

Part Two objectives

The following research questions will form the foundation of an investigation into the identification of the Fire and Emergency response to psychological wellbeing risks and the efficacy of that response:

- *What is the current strategy of Fire and Emergency with regard to identifying, and eliminating or minimising psychological distress and injury?*
- *Given the findings of Part One of this report, are the current and proposed strategy and resourcing of Fire and Emergency sufficient?*

Part Two methodology

The methodological approach used to examine the research questions in Part Two will differ in some ways from that of Part One. This difference in approach is required due, in part, to a lack of robust and available data with regard to the Fire and Emergency strategy and control measures. These limitations will have some impact in relation to the degree to which the examination and findings are representative. However, a number of steps have been taken to ensure the examination is of value and that the recommendations are evidence-informed despite these limitations. Steps that have been taken to ensure the examination and findings are evidence-informed and of value include the triangulation of the following methodology:

1. Part Two will examine and draw upon the *Ready to Respond* qualitative research report that explored the impacts of incidents on Fire and Emergency firefighters.
2. Part Two will involve the examination of a case study of Fire and Emergency firefighters in relation to a critical incident.
3. Part Two will include feedback from a range of firefighters who were presented with the findings of Part One of this report.

4. Part Two includes the identification and examination of relevant material from experts in the fields of psychology, trauma, post-traumatic stress, and organisational culture.
5. Part Two will include an ethnographic approach that includes drawing upon the researcher's personal experience inclusive of operational fire and emergency work of over 15 years, peer support work since early 2016, feedback from CIPSS workshops presented in Areas 3 and 4 in 2016/17 and research feedback groups in 2018/19.
6. A draft copy of Part Two will be submitted to Fire and Emergency SHW workers, health professionals, and associated agencies for review and comment before the final report is submitted.

Fire and Emergency psychological wellbeing strategy

Research question: *What is the current strategy of Fire and Emergency with regard to identifying, and eliminating or minimising psychological distress and Injury?*

Due to the nature of Fire and Emergency work there are considerable risks to the SHW of Fire and Emergency firefighters. As previously discussed, Fire and Emergency have both a moral and legal duty of care in relation to ensuring that these risks, including psychological distress and injury, are identified and then eliminated or minimised. The Fire and Emergency strategy, in relation to eliminating or minimising these psychological risks and promoting psychological wellbeing, appears to be encompassed, at least in part, by the current CIPSS manual and CIPSS reference guide, as well as the Fire and Emergency SHW manual and Fire and Emergency SHW strategy documents (Fire and Emergency New Zealand, 2017b, 2018d, 2018e, n.d.; New Zealand Fire Service, 2014, 2017). The following section of this report will draw upon these documents in providing a brief examination of this strategy.

The Fire and Emergency SHW strategy is intended to ensure that Fire and Emergency is able to meet its legal obligations under the Health and Safety at Work Act 2015 (HSWA), and its own SHW commitments including that "everyone goes home safe and well every time" (Fire and Emergency New Zealand, 2017b; Fire Emergency New Zealand, n.d.). An updated SHW strategy document states "the goal of the strategy is to develop a strong safety, health and wellbeing culture to effectively manage critical risks in a new and more diverse organisation" (Fire and Emergency New Zealand, 2018e). Key areas of focus, intended to assist the organisation in meeting its SHW commitments and legal obligations, include: building an engaged learning culture; developing SHW leadership; reducing harm and supporting recovery; enhancing collaborative relationships (Fire and Emergency New Zealand, 2017c, 2018e, n.d.). The SHW strategy also identifies three risk areas that require management in relation to the SHW goal: physical safety; work related health; psychological wellbeing (Fire and Emergency New Zealand, n.d.). These general risk areas are broken down into a further ten critical risks areas, which were identified, according to SHW documentation, through an analysis of injury and illness data, discussions with the national SHW committee and other operational leaders, and an examination of the HSWA expectations and guidelines (Fire and Emergency New Zealand, 2018e). Among the ten critical risks identified is the risk of "Acute

and post-traumatic psychological stress and related concerns and illness from operational exposure to sudden death and serious injury, or from work pressures or overload" (Fire and Emergency New Zealand, 2018e, p. 13). There appears to be a range of plans and initiatives in relation to ensuring risk management controls are in place, effective, and flexible (Fire and Emergency New Zealand, 2018d). These initiatives include the following lead and lag indicators, which appear to be correlated with psychological distress and injury prevention and treatment:

Lead Indicators:

- Learn – leaders participate in annual safety, health and wellbeing events
- Talk – leaders engage in frequent safety conversations with their personnel
- Understand – all leaders and personnel have training and information about psychological support
- Train – resilience and safety, health and wellbeing training for all recruits and new personnel

Lead/Lag Indicators:

- Support – increase in safe and timely return to work and increase in uptake of psychological support
- Learning and circulating lessons from good incident outcomes and from investigations

Lag Indicators:

- >50% increase in reporting of significant near miss events
- >25% (or greater) reduction in serious injuries
- 10% (or greater) reduction in all injuries

Other lead and lag indicators specific to psychological wellbeing include: measuring uptake of psychological supports through referral numbers; financial spending on professional support; roll-out of the CIPSS programme training and information through SHW advisor workshops; measuring recruits receiving information on supporting themselves and support available (Fire and Emergency New Zealand, 2018e). Implementation of these indicators appear to be supported by the following psychological wellbeing initiatives: recruit psychological wellbeing training; CIPSS programme; psychological wellbeing education for leaders/workers; peer support; preferred provider network (including Employee Assistance Programme (EAP)/Vitae services) (Fire and Emergency New Zealand, 2018e).

Therefore, it is clear that Fire and Emergency do have a strategy, and a number of current and proposed control measures, that are a response to the presence of a range of psychological risks within the organisation. Yet, the presence of a strategy and control measures does not necessarily indicate an effective response to psychological risks within the organisation. To understand the efficacy of the current strategy and control measures the following research question will be explored.

Research question: *Given the findings of Part One of this report, is the current and proposed strategy of Fire and Emergency sufficient?*

The examination of this research question will begin with a brief orientating discussion on the history of psychological support within the NZFS. This will be followed by an investigation of a number of the identified elimination and minimisation initiatives currently outlined in Fire and Emergency SHW documents. This examination is not intended to be exhaustive and will be limited, given there does not appear to have been any epidemiological benchmarking established in relation to the incidence and prevalence of psychological injuries or maladaptive behaviours within Fire and Emergency. The current identified measurement strategies, including identifying changes in referral numbers, have a number of internal validity issues and do not provide an appropriate replacement to quantitative epidemiological research or the quantitative or qualitative reporting of firefighter perceptions of support efficacy with regard to measuring control component efficacy.

Critical incident stress management

Social support, often referred to as camaraderie within the fire service, has existed within society since time immemorial. However, the need for a more structured form of social support for NZFS firefighters was first recognised in 1989 by a group of motivated individuals within the organisation. Their interest in psychological wellbeing and their understanding of the importance of social support, in relation to psychological distress and injury, led to a peer support programme being piloted within the NZFS in 1990 (New Zealand Fire Service, 2017). The pilot was deemed successful; consequently, it was expanded to a nationwide peer support service, based on a multi-component programme known as Critical Incident Stress Management (CISM), with peer support teams established across the country and CISM coordinators located in each Region. The CISM programme was available for utilisation by operational and non-operational, career and volunteer personnel within the NZFS (New Zealand Fire Service, 2014).

CISM is a multi-component programme developed by Professor Jeffery Mitchell who is an ex-paramedic. The goal of CISM is to ensure that exposure to critical incidents does not have a long-term detrimental effect on first responders. The components that make up the CISM programme are meant to cover the pre-, peri-, and post-trauma phases in relation to critical incident exposure. A number of the CISM components are listed below (New Zealand Fire Service, 2014, p. 6):

- Demobilisation – A quick information and rest session immediately follows a major incident. They provide a transition from the traumatic event to normal routine and functioning and reduce the intensity of immediate stress reactions.
- Defusing – Informal discussions are held soon after a critical incident to help reduce the emotional impact of what firefighters have experienced.
- Debriefing – A formal group process allows people to explore their physical and emotional response to an incident that may have had a considerable impact on them. There are strict protocols around the way a debriefing is run and are (sic) only undertaken in the presence of CISM trained mental health professionals.

The debriefing component of CISM is known as Critical Incident Stress Debriefing (CISD) and is perhaps the most well-known component of the CISM programme. CISD includes the following seven phases (New Zealand Fire Service, 2014, p. 7).

1. Introduction phase – Team members introduce themselves and describe the debriefing process.
2. Facts phase – Helps participants to begin talking about what they did at the incident.
3. Thoughts phase – Participants are asked to share what they thought when they realised what was happening at the incident.
4. Emotions phase – This reaction phase is the heart of the debriefing. It focuses on the impact on the people involved and feelings of anger, frustration, sadness, loss and confusion are sometimes discussed.
5. Assessment phase – People are asked to reflect on their feelings at the time of the incident, and to describe any symptoms or signs of stress they are experiencing.
6. Teaching or education phase – People are provided an opportunity to help them understand that any symptoms experienced are common reactions to the event.
7. Re-entry phase – Participants are able to ask questions or make final statements. There is a summary of what was discussed and any next steps were identified.

The implementation of CISM represented an important step forward in the psychological wellbeing space within the NZFS, as it helped to formalise social support and was based on a progressive understanding of psychological distress and injury specific to emergency responders. Furthermore, it assisted the NZFS to meet new requirements set out by the Health Safety and Employment Act 1992, requiring employers to provide a safe workplace for employees (New Zealand Fire Service, 2014). Yet, it is difficult to examine the efficacy of the CISM programme within the NZFS due to a lack of epidemiological data and benchmarking – a problem that continues to exist with regard to the efficacy of the current SHW strategy and CIPSS programme. However, feedback from peer support work, CIPSS presentations, and the attached case study indicate limited uptake of CISM and CISD within some areas of the NZFS, despite the programme being in place since the early '90s.

The CISM programme did experience noteworthy uptake internationally as awareness of the psychological risks inherent in the work of first responders grew, and SHW workers and organisations sought to respond to these risks. However, the CISM programme eventually faced scrutiny with questions raised about the efficacy of components such as CISD (Shave, 2010). As a result of the continuing debate around CISM and CISD, the NZFS launched its own review of the CISM programme in 2010. This review identified that international best practice, with regard to the promotion of the psychological wellbeing of emergency responders, was moving away from the Mitchell model and towards concepts of resilience, interpersonal support, and practical assistance inherent to PFA. It appears these findings were based on the concerns of some researchers in relation to potential weaknesses of CISM including the use of CISD. Concerns in relation to CISD included that there was the potential for vicarious trauma, re-traumatisation, interference with normal patterns of recovery, and the over-pathologising of normal stress reactions (New Zealand Fire Service,

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand 2017; Shave, 2010). It should be noted that research appears to be conflicted with regard to the efficacy of CISD with Sattler et al. (2014) finding that CISD attendance was positively associated with PTG and negatively associated with post-traumatic stress symptoms. However, the initial findings of the review eventually led to the CISM programme being replaced by another multi-component programme known as CIPSS in 2014.

Critical incident and personal stress support

CIPSS, which is based on the principals of PFA, remains the current and predominate programme of psychological support implemented by Fire and Emergency. The purpose of CIPSS is stated as informing, educating, and empowering already resilient firefighters and other personnel to manage themselves in challenging situations and to remain safe, healthy, and well (New Zealand Fire Service, 2017). The current CIPSS programme, like the initial CISM programme, is also intended to ensure that Fire and Emergency meets its responsibilities outlined in the HSWA 2015. Additionally, it is intended to assist in ensuring Fire and Emergency SHW commitments, such as “nothing is more important than our people” and that Fire and Emergency is “committed to ensuring that everyone goes home safe and well after any work they undertake on behalf of the organisation”, are met (Fire and Emergency New Zealand, 2017c, p. 1). The CIPSS manual outlines the objectives of the CIPSS programme that also align with Fire and Emergency SHW commitments (New Zealand Fire Service, 2017, p. 53):

- Protect and promote the psychological wellbeing and resilience of firefighters and other personnel
- Provide a nationally consistent programme for NZFS personnel and their families so everyone, regardless of their geographical location, rank or role has access to evidence-informed strategies
- Provide emotional and practical support following critical incidents and in times of personal and professional need.

It has been stated that CIPSS includes the philosophy and culture of support that CISM encouraged. However, it has taken a different approach to the outworking of that support (New Zealand Fire Service, 2014). Those differences in outworking appear to be built upon the following insights (New Zealand Fire Service, 2014, 2017):

- Firefighters experience distress as a result of exposure to critical incidents, but also as a result of personal and workplace stressors.
- Firefighters have different needs and deal with distress in different ways, often requiring space and time to effectively process an event.
- A greater emphasis needs to be placed on the cumulative effect of trauma on firefighters.
- Support should not be forced on firefighters too soon after a critical incident.
- Support should be available for different stressors, such as personal and workplace stressors.

- Firefighters should not have to participate in strategies they don't think are right for them.

The CIPSS programme includes a number of components of the historical CISM programme while also including some new and updated components. CIPSS documentation outlines the sum of the current components (New Zealand Fire Service, 2014, 2017):

- Worker education (MANERS model of PFA)
- Formal peer support network
- Informal support
- Familial education and support
- Recruit training
- Provision of a preferred provider network (EAP, psychiatrists, psychologists, counsellors, chaplains, doctors, etc.)
- Policies and procedures

The following human resourcing is identified within CIPSS documentation to ensure the delivery and efficacy of these components (New Zealand Fire Service, 2014, 2017):

- Senior Advisor CIPSS Programme
- National Psychological Advisor
- Subject matter experts
- National SHW manager
- Regional SHW coordinators
- Injury Management Unit (IMU)
- Welfare Liaison Officer
- Iwi Liaison Officer

A number of additional initiatives have also been undertaken. These include: a psychological wellbeing for leaders workshop (set to commence in 2019); Leading Psychological Wellbeing workshops provided by the United Fire Brigades Association (UFBA); a qualitative research report examining the impact of illness, injury and death incidents on firefighter wellbeing (findings made available in October 2018); a health standards project, which includes the development of health checks in relation to psychological wellbeing.

It is evident in reviewing CIPSS documentation that the programme aligns with a number of the key findings of Part One of this report. Most notably, it is congruent with findings related to the cumulative potential of trauma and the identification of workplace and home stressors as being potential contributing factors in relation to a psychological injury. It is also evident that the programme includes a number of components that have the potential to eliminate or minimise some of the psychological risks faced by Fire and Emergency firefighters. However, internationally-recognised best practice guidelines, and formal and

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand informal feedback from Fire and Emergency firefighters, suggest that there may be important initiatives missing from the current SHW strategy and, where initiatives do exist, there may be substantial gaps between the imagined and actual effect of those initiatives (SAMHSA, 2014). For example, a number of international emergency agencies provide a 'legacy support' programme for retired personnel as an acknowledgement of their service, and as a result of understanding that this population may be most affected by the cumulative impact of exposure to PTEs. Yet, Fire and Emergency currently has no such initiative. While other SHW control measures do exist, there is evidence of a lack of efficacy. For example, qualitative feedback from Adams et al. (2018) noted that there are still substantial barriers within Fire and Emergency in relation to help seeking. These included stigmatisation around psychological injuries and trust issues related to confidentiality. Additionally, Firefighter X (in the attached case study) had never previously experienced an officer check-in with their crew on the way to the call with trauma in mind, and Officer Y had never offered support in this way before, despite both having over a decade's service and CISM being established in 1990 and CIPSS in 2014 (New Zealand Fire Service, 2017). Finally, informal feedback from firefighters in Fire and Emergency indicates a potential gap between policy and practice with regard to identified control mechanisms:

Fire and Emergency acknowledgement and commitment to Firefighters is that they are saying the right things in speak, some support services offered are fit for purpose but it would appear that there has been little effort in terms of addressing the root cause of some issues. (Senior Station Officer, Region 2, personal communication, December 19, 2018)

I spoke to an experienced SSO who needed a chat. He had been to some very intense situations both for him and his crew (a rookie I think). He had concerns for his crew (understandably) but seemed to be struggling with the lack of real genuine heartfelt support. I realise this may sound a bit airy fairy but I got the impression that the company line of "peer support is there for you and fill in the H&S kiosk" etc. etc. didn't cut it and he needed a more human, compassionate, genuine interest in this situation and his experiences. It annoys me that we currently sit in this position as we have been doing it [medical calls] for some time now and should have got our act together. It upsets me that some of my peers, friends, fellow Officers are saying that they are feeling unsupported in their concerns. (Station Officer, Region 1, personal communication, October 21, 2018)

Though it is evident that there have been a number of important steps forward in relation to the identification and elimination or minimisation of psychological distress and injury within Fire and Emergency, there is also evidence to suggest that current control measures may be insufficient. As a result, it is likely that a trauma-informed culture remains, perhaps severely, underdeveloped within Fire and Emergency. The following report sections will investigate some of the component parts of the current SHW strategy and CIPSS programme. This investigation will seek to identify issues that may be inhibiting the efficacy of the current SHW strategy and control measures, while also identifying if other measures are necessary.

Peer support

Fire and Emergency has a formal peer support programme that forms one of the main components of the CIPSS programme. Formal peer support is an evidence-informed intervention and is recommended by a number of trauma agencies (Phoenix, n.d.; SAMHSA, 2014). One of the strengths of the formal peer support framework within Fire and Emergency is that it is based on the Phoenix Australia guidelines for peer support. These guidelines are reflected in a well-written CIPSS administration guide and peer probationary training manual (New Zealand Fire Service, 2014, 2017). Phoenix Australia, a centre for post-traumatic mental health, comprises a combination of experts in the field of trauma who have developed internationally-recognised programmes of research and evaluation with regard to trauma (Phoenix, n.d.). The centre is of obvious use as a resource, though there may be limitations of external validity, given its isolation from a Fire and Emergency setting and culture. Furthermore, the Phoenix guidelines for peer support are now seven years old, and may not reflect some of the more recent research into peer support and trauma with specificity to firefighters. SAMHSA, the lead governmental agency with regard to public health in the US, also identifies peer support as a key component of support programmes. SAMHSA identifies peer support as one of the six key principles of a TIC approach, recognising peer support as a key vehicle for establishing safety and hope within individuals, organisations, and society (SAMHSA, 2014).

The formal peer support programme within Fire and Emergency has been identified as a high-level control in relation to psychological risks outlined within the current SHW strategy (Fire and Emergency New Zealand, 2018e). The peer support programme is supported by what appears to be well-written policy and procedural guidelines. However, the efficacy of any peer support programme is mediated by a number of important variables (SAMHSA, 2014). For example, the development of a formal peer support network in the NZFS began with formal training in NZ and Australia, which totalled six days. Organisations such as the Queensland Ambulance Service (QAS) mirror this level of training with trainee peer supporters required to undertake a comprehensive six-day live in training programme that is offered twice a year. Recruit training is further supplemented by a four-day live-in refresher course offered twice a year, along with annual local peer support workshops (Queensland Ambulance Service, 2018). This level of training is of obvious benefit, given the responsibility peer supporters have – often being an initial contact for those experiencing psychological distress. Yet, despite policy outlining its necessity, it appears as though there has been little or no supplementary training provided for a potentially considerable amount of peer supporters, for up to 25 years – a number of two day courses have been provided for new peer supporters in recent years (New Zealand Fire Service, 2014).

Another potential issue for Fire and Emergency peer supporters is a lack of appropriate supervision. Supervision is an essential component of any peer support programme and it serves to provide critical support to peers in the work that they do. Research has indicated that supervision can reduce the risk of burnout and vicarious trauma, both of which pose a considerable risk to peer supporters (Bell, Kulkarni, & Dalton, 2003). Supervision also assists to ensure peer supporters are practising safely and appropriately, and are of optimal benefit to their colleagues. Yet, it is not clear that the current Fire and Emergency peer support

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand supervision protocol (one annual clinical supervision session) is being carried out or at least sufficiently monitored. In Regions where supervision appears to be adequate it is not clear, when comparing to an organisation such as the QAS, that one compulsory annual supervision session is sufficient to eliminate or minimise the risks of burnout and vicarious traumatisation. QAS requires peer supporters to attend group supervision sessions and a minimum of two individual sessions with internal counsellors. Further to this, they also have unlimited access to internal/external counsellors at any time for support or supervision (Queensland Ambulance Service, 2018).

It should be noted that some Regions, in more recent times, have had a reinvigoration of their peer support programmes that has led to an increase in training and support for peer supporters. However, these initiatives appear to be the result of a number of committed and concerned individuals who have recognised the lack of consistency in support and training for peer supporters in their area. These reinvigoration programmes are yet to occur as a result of a national directive, and may indicate a lack of governance at a national level and a considerable gap between policy and practice in some Regions. These gaps may be resulting in training and supervision deficits, which is a concern as a core skill of a peer supporter is their ability to recognise the signs and symptoms of trauma and connect individuals in distress with the appropriate support service (New Zealand Fire Service, 2014; SAMHSA, 2014). Furthermore, a lack of training and agency when interacting with people who may be traumatised could be harmful to an individual seeking support, but also to the peer supporter (Armstrong et al., 2014). This finding is supported by the Beyond Blue Ltd (2018) report which found that, among career emergency responders, inadequate support was associated with increasing levels of psychological distress and probable PTSD. In the case study of Firefighter X (see the appendix), if symptoms had persisted and a peer supporter had been contacted, the peer supporter would need to have been confident in identifying if Firefighter X's stress responses had surpassed what would be considered a normal stress reaction. If this were the case, they would then have needed to be capable of connecting Firefighter X with the appropriate support systems. Insufficient supervision and training may account for the inability of a peer supporter to carry out such actions. This is why appropriate support and training is necessary, and must move from policy to practice for all Region peer support teams, for the implementation and sustainability of an effective national formal peer support programme (SAMHSA, 2014).

While peer support is an important component of the CIPSS programme, and other similar programmes such as TIC, there are limitations to its use as a support tool. As previously mentioned, peer supporters may lack appropriate training and necessary supervision, limiting their use as a trauma resource. Another limitation is that peer supporters may not be utilised due to geographical, personality, or identity factors. Consequently, organisations like SAMHSA have recommended an approach such as TIC that, while including formal peer support, also requires that an organisation provide psychological distress and injury training for all members of an organisation, from the receptionist to the CEO. In this way, such limitations are overcome as trauma insights and support are embedded in the culture, and not abstracted solely to psychological support staff. Furthermore, TIC moves training to a familial and societal level, promoting further avenues of support and understanding. This approach assists to ensure that those who experience trauma have the greatest chance of

finding support and hope, as it is not left to one individual or even group to provide, but is evident and available en masse. The current CIPSS programme also includes training and education components and these will be discussed in the next section.

The apparent incongruence between policy and practice within areas of peer support is concerning. Yet, gaps between policy and practice are not a new phenomenon and researchers have discussed the need to create resilient programmes that minimise the difference between what is sometimes referred to as Work As Imagined (WAI) and Work As Done (WAD) (de Carvalho et al., 2018). WAI encompasses policy and procedure and would include, with regard to a Fire and Emergency context, operational instructions (OIs), CIPSS manuals, and SHW commitments. WAD, on the other hand, encompasses the tangible manifestation, or outworking, of such policy and procedure. Researchers note the importance of both WAI and WAD, while also noting the propensity for a gap between the two variables. As a result of the propensity for a gap between the two, researchers recommend that such gaps are identified as soon as possible, discussed, and resolved to ensure more effective outcomes (de Carvalho et al., 2018). Programmes with little or no gap between WAI and WAD can be assumed as resilient. However, programmes with substantial gaps between WAI and WAD are unlikely to be sufficiently effective and may in turn be perceived as an exercise in “box-ticking”, or compliance, rather than a genuine effort to meet the needs of workers.

In conclusion, the Fire and Emergency formal peer support programme has an evidence-informed basis and has clear policy and procedure creating a framework for WAI. Nevertheless, there appears to be a lack of national consistency in relation to the governance, support, and resourcing of Regional peer support programmes. The gap between WAI and WAD may be resulting in insufficient training, supervision, and general governance of peer supporters. This is of concern, as the formal peer support programme has been identified, within the SHW strategy, as a high-level control measure with regard to psychological distress and injury (Fire and Emergency New Zealand, 2018e). It is evident that a review of peer support in each Region is required to identify gaps between WAI and WAD and to help to ensure Fire and Emergency peer support staff experience a sense of self-efficacy, and are also of optimal benefit to personnel who seek their support.

Psychological distress and injury education

The Fire and Emergency SHW manual notes that Fire and Emergency will provide both appropriate training and relevant information so that personnel are able to carry out their duties safely. It also notes that this SHW training should be integrated with other training materials and training courses, such as the Training and Progression System (TAPS), to support consistent delivery and optimal uptake of relevant information (Fire and Emergency New Zealand, 2018d). Additionally, the SHW strategy outlines education in relation to psychological wellbeing as a high-level control initiative in relation to psychological injury (Fire and Emergency New Zealand, 2018e). This section of the report will examine a number of the training and education initiatives developed and implemented by Fire and Emergency in relation to the aforementioned SHW objectives.

CIPSS roll-out

A SAMHSA (2014) document founded on trauma-focused research, practice-generated knowledge, and lessons articulated by trauma survivors, has identified ongoing training and workforce development, in relation to psychological distress and injury, as an essential component in ensuring the embedding of trauma knowledge within an organisation.

Accordingly, the CIPSS programme implemented an education programme based on the MANERS model of PFA, developed by the Victorian Ambulance Counselling Unit (VACU), which began roll-out in 2015. PFA aligns with certain principles of TIC, including a focus on personal support and practical assistance (Phoenix, n.d.). While having limited empirical validation, PFA encompasses an approach that is supported by the consensus of experts in the field of trauma (Litz, 2008; Tessa, Inge, Koen Van, Emmy De, & Philippe, 2014). PFA moves away from prescriptive structured support, such as that of CISD, and towards a less formal approach that includes tapping into individuals' natural resilience, and reducing distress through personal support (New Zealand Fire Service, 2017). Litz (2008) notes the need for PFA to be simplified and structured for a public health setting. This is one of the strengths of the MANERS model of PFA utilised by Fire and Emergency, as MANERS breaks down the concepts of PFA into a more easily remembered acronym. The CIPSS presentation included: a brief history of psychological support within the NZFS; reflections on the evolution of the work firefighters carry out; a breakdown of the components of CIPSS; an explanation of the MANERS model of PFA.

While the CIPSS roll-out represented another substantial step forward in attempts to minimise and eliminate psychological risks within Fire and Emergency, the efficacy of these presentations appeared to suffer, at least in some cases, from a lack of prioritisation, supervision, training, and resourcing. For example, a roll-out of the CIPSS presentations in Region 1 to career and volunteer personnel faced a number of challenges. Initially, it was decided that the roll-out to career staff should occur via Senior Station Officers (SSOs). Peer supporters in the Region queried this approach, as SSOs had received no formal training in the programme, and a number were likely to be unfamiliar with the material and may well have felt uncomfortable delivering such material. After these concerns were raised, a decision was made to roll the programme out through peer supporters, though initially there was no plan to provide them with formal training. Peer supporters believed that training, provided by a professional, would be essential to an effective roll-out. Eventually, a formal one-day training course was approved and provided. However, despite the roll-out beginning in 2016, in Region 1 there have been limited presentations made to the region's volunteers and there are a number of career staff who are yet to receive the presentation. This time frame for delivery is of considerable concern given the findings of Part One of this report. An online presentation of the programme was developed to view through the intranet, potentially to ensure that alternative access to the material was available, given the time frame it was taking to provide a person-to-person roll-out. This initiative, while of some benefit, does not appear to reflect the spirit of the SHW commitments formerly set out by Fire and Emergency indicating SHW as a foremost priority. Other training initiatives, such as the recent national incident ground communications radio replacement roll-out and the current first aid training programme, appear to have a much higher level of governance, resourcing, and administration support than that of the CIPSS roll-out. As an example, Fire

and Emergency require all staff to attend person-to-person physiological first aid training facilitated by trained medical professionals. Attendees are recorded, and further sessions are provided to ensure staff on leave or off work also undergo the training. This administration is accounted for, in part, by an OSM system that indicates real-time competency in first aid. This level of administration and delivery is an obvious standard given the importance of first aid in Fire and Emergency work. It is not clear, then, why a critical control measure such as CIPSS education would receive lesser governance, resourcing, and administration support than other organisational initiatives. Finally, informal support, including informal workmate, familial, and friend support, is identified as a component of the CIPSS programme. Yet, there appears to be barriers to the timely provision of efficacious psychological distress and injury education for firefighters, let alone education for family members.

Recruit, promotional, and station psychological wellbeing education

Career firefighters have had a CIPSS component taught as part of their recruit course for a number of years now. However, there is currently no national directive with regard to CIPSS, or any other psychological wellbeing training, on volunteer recruit courses, despite this gap being noted in a 2017 SHW document (Fire and Emergency New Zealand, 2017b). There is some non-directed training, recently initiated, for volunteer recruits at the Mt Wellington training centre in Region 1. This training has occurred as a result of peer supporters identifying the current gap in volunteer training. However, the training in Region 1 appears to be isolated with no psychological distress or injury training currently provided for volunteer recruits at the National Training Centre (NTC) or training centres in Region 4 and 5. This appears to indicate a current lack of national consistency with regard to recruits' psychological distress and injury education. Further to this, NTC trainers have raised concerns as to the delivery method of the CIPSS component currently provided on career recruits' courses. To date, it does not appear as though their concerns have been addressed (National Trainer, personal communication, February 07, 2019)

Fire and Emergency has a number of systems for ensuring the embedding of information and training throughout the organisation. This includes: TAPS; OSM as a part of the Station Management System (SMS); and promotional exams. With regards to TAPS, a system used to ensure the training development of firefighters, there appears to be little or no integration of psychological wellbeing education at any level of the career or volunteer systems. Components that do exist appear to be aligned with the outdated CISM programme (National Trainer, personal communication, February 07, 2019). With regard to OSM, a station training and monitoring system that provides knowledge check capacity, there appears to be no component currently available related to psychological distress and injury identification, elimination, or minimisation. This is despite previous report recommendations, published by a Fire and Emergency firefighter in 2014, noting that the NZFS should be more proactive in managing distress, and that this could be achieved in part through embedding psychological wellbeing components within TAPS and SMS (Dudley, 2014).

Other psychological distress and injury education programmes

Fire and Emergency have recently developed a further psychological wellbeing education programme known as the Psychological Wellbeing for Leaders workshop. This workshop is being delivered to leaders within Fire and Emergency in 2019. While the programme has some strong component parts, there have been concerns raised in relation to how it will be delivered to operational staff that, it could be argued, are in need of it the most. These concerns relate to: the lack of clear time frames in relation to the roll-out; a lack of operational and trauma survivor input into presentation development and delivery; the necessity of some of the component parts; how it is to fit in with the current CIPSS presentation and roll-out objectives. Other psychological wellbeing educational components provided by Fire and Emergency include a Staying Well handbook and pamphlet, a link to psychological wellbeing supports through a "How Do I" tab on the Portal internet site, and Learning Station videos on CIPSS and MANERS. (Learning Station is a Fire and Emergency online training system.) However, these initiatives, including the learning videos, can remain largely inactive, as they are not currently linked to OSM and rely on undirected or prompted engagement. The UFBA also provide a one and a half day "Leading Psychological Wellbeing" workshop, which urban and rural firefighters may apply for (United Fire Brigades' Association, 2018). However, it was beyond the scope of this report to assess this psychological education initiative.

Given the stated importance of psychological SHW, it would appear imperative that Fire and Emergency provides a gold standard psychological distress and injury education programme. Such programmes need to include evidence-based content that is grounded in the appropriate organisational context. Furthermore, this material needs to be delivered in an engaging manner, fit for Fire and Emergency worker consumption. It could be imagined that an effective delivery strategy would include the use of presenters/trainers who: have operational experience or are supported and informed by those with operational experience; have presentation and facilitation skills that will ensure the presentation is engaging; have some sort of training in psychological wellbeing; and have access to regular supervision. Finally, these educational initiatives should receive a similar level of prioritisation, governance, administration, resourcing and support as that of other essential areas of training, such as first aid and incident ground communications training.

Preferred provider network

Fire and Emergency currently have a number of contracted external providers who make up their preferred provider network. This includes EAP/Vitae services, counsellors, clinical psychologists, and consultant psychiatrists. These services are built into a four-tiered model with differing support requirements correlating with differing support tiers (Fire and Emergency New Zealand, 2018c).

Tier One of this system of support allows Fire and Emergency firefighters and their immediate family members access to EAP/Vitae services. This level of support can be gained anonymously via self-referral, through a manager, or through a member of the SHW team. Fire and Emergency covers the costs involved with engaging with these professional support services (Fire and Emergency New Zealand, 2018c). There are obvious benefits to this

system, including the ability to remain anonymous and the removal of a potentially substantial cost barrier to professional support. Yet, there are a number of limitations to this service, including the potential for an external provider to lack a clear understanding of a Fire and Emergency context, which may be an essential understanding in relation to developing trust – a foundational element of therapy. This issue was highlighted in the Ready to Respond report with a key informant noting:

...they've heard a couple of firefighters had bad experiences dealing with psychologists, and counsellors and so that's been fed back, and so for example, been to the psychologist, didn't understand the role, or the job or couldn't relate to, wasn't a trauma specialist psychologist, so they couldn't help... (Adams et al., 2018, p. 57)

This may also be an issue at other levels of support, including referral to a contracted clinical psychologist (Tier Two) and referral to a consultant psychiatrist (Tier Four). This potential barrier has been overcome in some areas as a result of having contractors who have a substantial history with Fire and Emergency, or who have been appropriately orientated with regard to the culture and context of Fire and Emergency work. In Region 4, this potential barrier to engagement appears to have been overcome, at least to a substantial degree, as a result of having a dedicated Welfare Officer who works closely with a team of psychologists to develop health-monitoring initiatives, provide referrals, and implement psychological education initiatives. A number of external providers have indicated their desire to have a similar system of collaboration and referral to optimise the efficacy of their service. Hawkes Bay, an area in Region 3, appears to have a similar approach, with local psychologists who specialise in trauma visiting all career watches on a quarterly basis (Fire and Emergency New Zealand, 2018c). However, other Regions (for example Region 1) lack an appropriate amount of clinical psychologists to refer to, and also do not have a sufficient system in place for ensuring contractors are appropriately orientated and referrals are handled efficiently. Furthermore, it appears that suboptimal governance is contributing to issues in relation to reporting by preferred providers. Specifically, there is not yet a standardised reporting system for use by providers, which makes it difficult to track worker wellness and identify themes with regard to presenting issues across Fire and Emergency (Safety Health and Wellbeing coordinator, personal communication, March 19, 2019).

It is apparent that a nationally consistent programme with regard to the preferred provider network is lacking. This is of concern given the important role that professional support plays in eliminating or minimising psychological distress and injury.

Variables contributing to response efficacy

While identifying all the variables contributing to response efficacy in relation to firefighters' psychological SHW needs would require a sophisticated multivariate analysis, it is evident that current gaps between policy and practice contribute considerably. The following two sections, governance and resourcing and firefighter and trauma survivor engagement, offers a discussion in relation to two reasonably evident areas that would assist to close the current gaps between policy and practice. Improvements in these two areas would also

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand provide a more robust SHW strategy, and a more effective response to the psychological SHW needs of firefighters.

Governance and resourcing

CIPSS resourcing and span of control

SAMHSA (2014) notes that, with the existence of sufficient supports and interventions, people can and do overcome traumatic experiences. However, difficulties in relation to implementing an effective SHW strategy, and the propensity for gaps to arise between policy and practice, has led SAMHSA to develop guidelines for the implementation and sustainment of effective trauma programmes. For example, SAMHSA (2014) notes the importance of appropriate governance and financing in relation to ensuring the successful implementation and sustainability of a programme such as CIPSS. With regard to governance, SAMHSA (2014) notes the importance of identifying and establishing leaders within the organisation who are responsible for leading and overseeing trauma programmes. With regard to financing, SAMHSA (2014) notes that financing structures need to be designed in such a way as to support sufficient resourcing for areas such as: staff training on trauma; establishment and sustainment of formal peer support; provision of evidence-informed trauma screening, treatment, and recovery supports; and the development and maintenance of cross-agency collaborations (SAMHSA, 2014).

An operational perspective of appropriate governance and resourcing can be garnered from the Fire and Emergency New Zealand (2013) command and control manual. Applied as a analogy, guidelines from the manual can provide helpful insights in relation to what might be required to ensure a coordinated response to eliminating or minimising psychological distress and injury risks. The manual notes that increases in the complexity or size of an incident considerably decreases an Incident Controller's ability to effectively maintain command and control, noting "Escalation must be met with delegation" (Fire and Emergency New Zealand, 2013, p. 6). Larger and more complex incidents require an officer to request more resources and delegate more responsibility. Accordingly, Incident Controllers have the ability to initiate further resourcing through actions such as transmitting greater alarms, which provides further appliances and personnel, and/or requesting specialist appliances and agencies. Delegation is also imperative with larger or more complex incidents, to benefit from sectorisation and logistical and operational command resourcing. Failure to implement further resourcing and/or delegate tasks can lead to officers on the incident ground working outside of optimal spans of control, which can have a negative flow-on effect with regard to the efficacy of rescue and extinguishment efforts, as well as increasing risks in relation to the SHW of firefighting crews.

It is possible to apply these command and control concepts, in relation to resourcing and delegation, to the 'incident ground' of psychological distress and injury. Accordingly, this section of the report will identify and examine the current management structure and resourcing of CIPSS, which appears to be the primary control measure for risks related to psychological distress and injury. CIPSS documentation indicates the following structure with regard to the governance of the programme (New Zealand Fire Service, 2014, 2017):

- **National Safety and Wellbeing Committee** – who are to provide a level of governance to ensure the programme is visible and supported across the organisation
- **CIPSS Senior Management Champion** – who has a primary role in promoting the programme at a senior management level, as well as providing ongoing support to leaders to ensure the objectives of the programme can be met
- **National Clinical Advisor** – who is to provide clinical skills, professional input and advice to the programme
- **Senior Advisor CIPSS Programme** – who is a member of the SHW team and responsible for the day-to-day management of the programme; and provides information, support and resources to the Region SHW coordinators in order for Regional efficacy with regard to the programme
- **Subject matter experts** – who understand the support programme within Fire and Emergency and ensure that the programme remains congruent with its values and principles
- **Welfare Liaison Officer** – who works with the Region SHW coordinators to ensure delivery of the peer support programme
- **Region Safety Health and Wellbeing Coordinators** – who manage the peer support teams and the CIPSS programme in their respective regions
- **Region CIPSS Advisor** – who implements CIPSS into Regions and appoints, trains, and provides day-to-day support of peer support teams
- **Peer Support Team Leader** – who provides a peer support team coordination role
- **Peer Support teams** – who are located in each Region
- **The Preferred Provider Network** – which includes contracted providers such as counsellors, EAP, clinical psychologists, chaplains etc.

It is obvious that a clear governance framework is identified and is, on face value, providing a reasonable span of control to assist in ensuring gaps between policy and practice are eliminated or minimised. However, when one examines the details of these components and juxtaposes them with other programmes, then the appropriateness of the current governance and resourcing becomes less obvious. For example, the National Clinical Advisor role is not substantive; instead, it appears that there is an external contractor who provides advice intermittently as requested. This is different from an organisation such as Victoria Ambulance (who have less than a third of the workers of Fire and Emergency, and whose counselling unit Fire and Emergency adopted the MANERS programme from) that has two psychologists working fulltime in advisory roles. In addition to this, Victoria Ambulance have two full-time chaplains who support these psychologists, and there is further support from two peer supporters who work in a paid support role on a month-by-month rotation basis. Furthermore, Ambulance Victoria has three full time coordinators overseeing their psychological wellbeing programme, allowing for a superior span of control, including a fulltime project coordinator and two additional fulltime coordinators/counsellors (C. Laufale,

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand Paramedic and peer supporter for St John, personal communication, October 12, 2018). In contrast, Fire and Emergency, with approximately 14,000 staff, currently has one part-time CIPSS coordinator (two days per week) for the coordination of the national CIPSS programme, and no internal psychologists or counsellors.

The CIPSS programme is implemented and managed at a Regional level, at least in substantial part, by Region SHW coordinators. However, it appears that there are a number of variables that are negatively affecting the SHW coordinators' ability to ensure an efficacious delivery of this essential service. These variables appear to include competing demands as a result, in part, of large spans of control. SHW coordinators have substantial responsibilities with regard to both the physiological and psychological safety of workers; in some Regions, this responsibility extends to in excess of 1000 workers. Furthermore, SHW coordinators have identified that governance and resourcing issues are further impacting their ability to provide an optimal service. These span-of-control, governance, and resourcing issues appear to be contributing to workloads that at times can compromise what should be a primary control measure with regard to the critical risk of worker psychological safety, health and wellbeing. The cause and effect of the current situation has been articulated by one of the SHW coordinators:

"Our workloads are huge and as a group of workers charged with supporting others and facilitating access to wellbeing services we are – despite our best intentions and desire to be of service - challenged and compromised in our capacity to deliver. This also affects our own wellbeing and stress levels."

(Safety Health and Wellbeing coordinator, personal communication, March 19, 2019)

Feedback from SHW coordinators indicates that variables including suboptimal governance, resourcing and spans of control may be negatively impacting their ability to deliver an optimal service, while also potentially compromising their health and wellbeing. Consequently, it is possible to identify parallels between firefighters who may experience a loss of a sense of self-efficacy as a result of inadequate training, resourcing, and support, and SHW coordinators who are also being asked to provide an essential service with what appears to be suboptimal governance, resourcing and support.

Finally, while some SHW coordinators have considerable training and experience specific to psychological wellbeing, others coordinators' training and experience is more aligned with the physiological aspects of personnel's SHW. This may be why documentation indicates that there are to be CIPSS advisor positions for each Region. It is likely that the addition of trained CIPSS advisors, and/or welfare officers, in each Region would lead to an increased ability to identify, eliminate or minimise SHW matters related specifically to psychological wellbeing. These roles would also provide increased support to Region SHW coordinators, which would likely contribute to improved service delivery (New Zealand Fire Service, 2017). However, it appears as though the CIPSS advisor positions are being assumed by SHW coordinators who, in some cases, are also adopting the peer support team leader role. It is also worth noting that there is currently only one Welfare Officer, based in Region 4, in Fire and Emergency. It appears that this additional resource, unique to Region 4, has led to

noteworthy benefits for that Region's workers, as articulated in the Fire and Emergency Psychological Wellbeing for Leaders resource (Fire and Emergency New Zealand, 2018c).

Management resourcing and span of control

The span-of-control issue appears to extend beyond just that of the SHW personnel. It appears that in some Regions, Fire and Emergency Managers, Assistant Area Managers (AAM) and Area Managers (AM) face a number of barriers that make it more difficult to prioritise initiatives that would likely lead to an increase in POS, e.g. regularly visiting stations and providing face-to-face time with crews. These barriers appear to fall into two main categories with one manager noting that these factors are, in part, contributing to firefighters missing out on what they deserve and need (Area Manager, personal communication, February 22, 2019):

1. **Span of control** – Managers, particularly in metro brigades, can have span-of-control issues in relation to the numbers of personnel under their management. This span-of-control issue can be furthered complicated by factors such as the geographical spread of personnel and traffic congestion. Further to this, a lack of appropriate administrative support, streamline administration and recruit posting processes and systems can contribute to managers having to allocate considerable time to office duties, at the cost of face-to-face time with firefighters.
2. **Management mandate** – The prioritisation of the SHW of Fire and Emergency personnel is outlined at a national level through SHW commitments and SHW policy. However, it does not appear as though this mandate, in relation to the prioritisation of worker wellbeing and care, is embedded into all Region and Area business plans, at least to any substantial degree, that relate to management performance as measured by key performance indicators (KPI) and business output targets.

POS and perceived social support are catalysed, in part, by meaningful personnel-focused initiatives that require a substantial investment of time. Undoubtedly, there are other issues leading to a lack of prioritisation of worker wellbeing initiatives, such a lack of understanding around psychological distress and injury; however, the aforementioned variables, individually or in combination, pose a considerable barrier to managers having meaningful engagement with workers and that may be resulting in low levels of POS, which would otherwise be a protective factor in relation to firefighter psychological distress and injury.

In conclusion, it is likely that gaps between SHW policy and practice are occurring, in part, as a result of inappropriate spans of control, governance, and resourcing. Unaddressed, these gaps will be a contributing factor with regard to the inability to ensure current SHW commitments are met.

Relationship - firefighter and trauma survivor engagement

Fire and Emergency SHW documentation notes that there is “very good support available when we know about wellbeing issues or concerns” (Fire and Emergency New Zealand, 2018c, p. 12). There are a number of points to note in relation to this statement. Firstly, previous sections of this report have identified that key support services, at least in some

cases, may have considerable shortcomings that are resulting in the needs of firefighters not being met, which contradicts this statement. Additionally, the second part of the statement indicates a need to know of wellbeing issues or concerns so that appropriate support can be provided. This is important to note as a strong theme, related to feelings of disconnect, has developed as a result of feedback from firefighters at CIPSS presentations, feedback groups, and the recent Ready to Respond qualitative research study (Adams et al., 2018). That is to say that it is likely that a considerable number of firefighters believe that Fire and Emergency are at times disconnected from the issues frontline personnel are contending with, and therefore are unable to appropriately respond with sufficient support initiatives. For example, the Ready to Respond report noted that a number of firefighters felt like management were distant from the day-to-day realities of operational work, and the stressors that come with such work (Adams et al., 2018). While other firefighters, who took part in feedback groups, identified a lack of understanding and empathy from management resulting from a lack of connection. For example, one officer provided the following feedback: "I feel there is a disconnect between management and the crews on the appliances. 'Them and Us.' How this is addressed, I just don't know. But more empathy and understanding is needed." (Station Officer, Region 1, personal communication, December 21, 2018). This perception of disconnection is concerning, as it is likely to contribute to lower levels of POS, while also accounting in part for gaps between policy and practice. On the other hand, when relationship and connection are present, positive outcomes tend to follow, as exemplified in the experience of Firefighter Y in the attached case study. In this case, connection, relationship and trust were key variables in identifying a psychological risk and minimising that risk, while also providing an opportunity for empowerment, learning, and growth.

SAMHSA (2014) notes the importance of being connected to the needs of workers and trauma survivors, if an organisation wishes to develop and provide an effective response to psychological distress and injury. SAMSHA also notes that it is essential to understand connection from the perspective of the cultural context of an organisation. Connection is a concept familiar to firefighters, as camaraderie has long been a value and foundation of the NZFS, now Fire and Emergency, organisation. For the most part, firefighters believe in this camaraderie ethic both on the incident-ground and also outside of it, often going to tremendous lengths to support each other in times of difficulty. This contextual understanding of the importance of looking after each other may go some way to explain the intensity of perceived violation that occurs when firefighters do not believe they are valued or cared for by Fire and Emergency. The importance of connection and relationship can also be seen in the wider cultural context of Te Ao Māori. In a Māori context, the concepts of whakawhanaungatanga and whanaungatanga, translating roughly as the forming and maintaining of relationship, are seen as transcendent values that Māori have used to determine 'right' and 'wrong' conduct towards one another (Quince, 2007; "Whakawhanaungatanga," n.d.). It was believed that adherence to principles of whanaungatanga would lead to a state of ora (wellbeing), within an individual and within a group. For Māori familiar with the concept of whanaungatanga, it is likely that they would see the gaps in a SHW strategy and gaps between SHW policy and practice as a result (in part) of a lack, or inability to maintain appropriate connection with frontline workers. It is possible that this lack of connection manifests in at least two forms:

1. A lack of sufficient connection to the observations and needs of firefighters and other personnel who are experiencing psychological distress and injury
2. A lack of sufficient connection to a values hierarchy where transcendent values such as integrity and the wellbeing of personnel are prioritised above all else, and that these values manifest not only in words but in tangible action and behaviour.

When an organisation and its leaders are connected to the observations and needs of workers, and are committed to addressing those needs in ways that are not perceived as compliance or ‘box ticking’, then it can be assumed that a natural outcome will be the formation and maintenance of a relationship that grows trust between employer and employee, and fosters the wellbeing of all (Sinek, 2014). This emphasis on relationship and connection is further highlighted in SAMHSA (2014) guidelines for a trauma-informed approach within an organisation, such as Fire and Emergency, which emphasises the importance of engagement with workers and trauma survivors. More specifically, SAMHSA (2014) notes that workers should have a substantial involvement, voice, and meaningful choice with regard to areas related to SHW strategy and control management, including programme design, implementation, delivery, evaluation, and quality assurance. There is clear cause for such processes, as they assist to ensure a relationship is maintained between those who develop strategy and initiatives, and those who the strategy and initiatives are aimed at. Failure to involve and give voice to firefighters who are experiencing increased levels of PTE exposure, and those who have experienced a psychological injury, may result in a strategy and control measures that do not sufficiently meet the needs of Fire and Emergency firefighters. More recently, Fire and Emergency have taken steps to increase the voice of firefighters in relation to policy, for example: the Ready to Respond report; Beacon (a Fire and Emergency crowdsourcing initiative); and working groups with firefighter representation. However, it is evident, given the feedback of a considerable number of firefighters, that more must be done, especially in the area of wellbeing, to identify the observations and needs of firefighters, and have firefighters involved in the development of initiatives that would meet these needs.

An examination of the research questions established in Part Two of this report has identified that Fire and Emergency have responded to psychological distress and injury risks within the organisation. Furthermore, a number of the initiatives that make up this response are evidence-informed and ‘a step in the right direction’. However, Part Two of this report has also established that there is evidence to suggest that the current SHW strategy and control measures lack the scope and sophistication required to ensure SHW commitments and objectives are met. Furthermore, there is evidence that suggests there are substantial gaps between policy and practice in relation to these objectives and control measures. While a multivariate analysis would be required to identify all the variables accounting for these issues, it is evident that a lack of appropriate governance and resourcing and a lack of connection to frontline workers are two substantial contributors.

Part Two conclusion

The prioritisation of people, above all else, is summed up in the Maori proverb “He aha te mea nui o te ao. He tāngata, he tāngata, he tāngata” translated - “What is the most important thing in the world? It is people, it is people, it is people” (Caldwell, 2015). This Māori proverb has been identified by Fire Emergency as a key value, and has contributed to the development of SHW initiatives that form the current response to psychological distress and injury risks faced by firefighters (Fire and Emergency New Zealand, 2017c). However, Part Two of this report has identified that this current response is unlikely to be sufficient with regard to its objectives of identifying, eliminating and minimising psychological risks faced by firefighters. An insufficient response to these risks is likely to be contributing to an increased incidence and prevalence of psychological distress and injury within Fire and Emergency. It is also likely to be contributing to higher rates of absenteeism and worker turnover, while negatively affecting productivity and operational efficacy. Improving the response to psychological distress and injury risks faced by Fire and Emergency firefighters will involve a range of initiatives including improved governance and resourcing, but mostly it will involve ensuring more is done to identify, connect, and respond to the needs of firefighters. Failure to respond in a timely manner to these needs will likely be seen, by a considerable number of firefighters, as a violation of previously stated SHW commitments and the preeminent value of Fire and Emergency – the prioritisation of people’s wellbeing above all else.

Part Three – Make Pumps

In the context of a structure fire, the completion of a ‘360’ provides an officer with enough initial information to decide on an appropriate strategy for rescue and extinguishment, as well as a strategy for the elimination or minimisation of any identified hazards. Furthermore, an officer will have a foundation of information that will allow them to identify and request what resources they will require to ensure they can execute their strategy for effective rescue, extinguishment, and hazard control. Part Three of this report has been titled *Make Pumps*, as this term correlates to a request for additional resources in the form of further fire appliances when an officer, on completion of their size-up, identifies that they will require further support and resources to achieve their incident ground objectives. Drawing on this analogy, the following section of the report will provide a brief examination of an evidence-informed framework, TIC, that would likely provide a more substantial and sophisticated response to psychological distress and injury risks identified in Part One and Part Two of this report. TIC will also assist in improving initiatives currently employed by identifying and closing gaps between policy and practice. This analysis of TIC will be followed by recommendations based on the findings of Part One and Part Two of this report.

Part Three objectives

The following research question will form a foundation for identifying appropriate recommendations in relation to the findings of Part One and Part Two of this report:

What would enhance Fire and Emergency’s current response with regard to identifying and eliminating, or minimising psychological distress and injury?

Part Three methodology

Trauma-informed care

Given the scope of this report, it was not possible to examine all psychosocial health frameworks for suitability with regard to a Fire and Emergency context. However, an assessment was carried out in which a number of frameworks were considered for further examination. Trauma-informed care (TIC) was selected for primary examination after consultation with a number of health professionals and as a result of its evidence-informed foundations and its established application in an NZ context.

Recommendations

Recommendations in Part Three were compiled via: an analysis of the findings of Part One and Two of the report; findings from the Ready to Respond and Beyond Blue reports; feedback from operational and SHW workers; feedback from health professionals; and guidelines provided by SAMHSA.

Trauma informed care

Research question: *What would enhance Fire and Emergency's current response with regard to identifying and eliminating, or minimising psychological distress and injury?*

The implementation of a TIC framework has been identified, as a result (in part), of the findings of Part One and Two of this report. Consequently, TIC has been identified as a framework that would assist Fire and Emergency to improve its response to psychological SHW risks.

The following section of this report will provide an outline of the core principles and assumptions of TIC, as the TIC philosophy and framework will contribute to the report recommendations. The implementation of the over-arching framework of TIC to a Fire and Emergency context would not necessarily be intended to replace the current SHW strategy and control measures. Rather, it would be used to strengthen and support the good examples of policy and practice that already exist, while also suggesting new ways to improve the organisational response to psychological distress and injury. Accordingly, a TIC approach could be adapted to a Fire and Emergency context to assist the organisation in the following ways:

- Contribute towards the identification and elimination or minimisation of psychological distress and injury within Fire and Emergency
- Identify and remedy gaps between current psychological SHW policy and practice
- Ensure SHW commitments and legal responsibilities are upheld
- Increase current levels of POS
- Reduce absenteeism and worker turnover
- Improve service to the NZ public.

TIC is congruent with current and proposed objectives of Fire and Emergency, including aligning with the current SHW commitments, the proposed organisational vision, and the proposed key areas of change (Fire and Emergency New Zealand, 2017a, 2018a; Fire Emergency New Zealand, n.d.)

SAMHSA has noted that it is evident that addressing trauma requires a multi-layered approach inclusive of: early detection for prevention; effective trauma-specific assessment and treatment; and public and organisational education and awareness. TIC is an overarching framework that assists organisations and communities to maximise the impacts of pre-, peri-, and post-psychological trauma initiatives aimed at identifying, preventing, and treating psychological distress and trauma (SAMHSA, 2014). A report by the British Psychological Association notes an emerging body of evidence that suggests that interventions based on trauma-informed principles are effective in reducing low mood, trauma reactions, self-harm, suicidality and re-victimisation. The report also notes that there is evidence that TIC may help increase adaptive coping skills, improve physical health, and reduce general 'mental health symptoms' (Johnstone & Boyle, 2018).

The TIC philosophy involves an evolution in health practice that centres on identifying what has happened to people rather than what is wrong with people. This is an important focus shift, as previous philosophies that focused on what was wrong with people may have contributed, in part, to the stigma issues identified earlier in this report. Thus, the TIC approach involves the education and involvement of everyone in an organisation, from receptionist to CEO, in understanding this philosophy and having an active role in trauma prevention and treatment. The importance of TIC is now recognised amongst most health services, as it has become clear that trauma interventions are not enough in and of themselves, and that organisational and societal culture plays a vital role in maximising the impact of specific interventions (SAMHSA, 2014; Yatchmenoff, Sundborg, & Davis, 2017). In NZ, TIC has been recognised and recommended by the NZ Ministry of Health and organisations such as Te Pou o te Whakaaro Nui, a national centre of evidence-based workforce development for mental health in NZ (Te Pou o te Whakaaro Nui, 2018). This section of the report will draw upon the SAMHSA (2014) TIC implementation guidelines in demonstrating how a TIC framework could assist Fire and Emergency in achieving its SHW objectives. The guidelines for the development of a TIC approach form a solid foundation for implementation having integrated: trauma-focused research; insights articulated by trauma survivors; and practice-generated knowledge with regard to trauma interventions (SAMHSA, 2014).

Principles and assumption of trauma informed care

There are four key assumptions and six key principles to a TIC framework that could be applied to Fire and Emergency. The following section will identify and apply these assumptions and principles to a Fire and Emergency context:

Assumptions of trauma-informed care

1. **Realise** – A trauma-informed Fire and Emergency would realise the widespread impact of trauma and be able to identify prospective paths to recovery.
2. **Recognise** – Workers within a trauma-informed Fire and Emergency would be able to recognise the signs and symptoms of trauma within themselves, their colleagues, their families, and the communities they work within.
3. **Respond** – A trauma-informed Fire and Emergency would respond by fully integrating trauma insights into procedures, policies, and practices.
4. **Resist re-traumatisation** – A trauma-informed Fire and Emergency, having insights into the aetiology of psychological trauma, would seek to actively resist re-traumatisation.

Principles of trauma informed care

A TIC approach involves adhering to six key principles, rather than a prescriptive set of check-boxes, making it simpler to adapt for a Fire and Emergency context. The six key principles are listed below, followed by a brief explanation of congruence and suitability for a Fire and Emergency setting (SAMHSA, 2014, p. 10):

1. Safety
2. Trustworthiness and transparency
3. Peer support
4. Collaboration and mutuality
5. Empowerment, voice and choice
6. Cultural, historical, and gender issues

Safety

Renowned psychiatrist and trauma researcher Judith Herman has repeatedly emphasised the importance of establishing a foundation of safety and security in the initial stages of psychological trauma recovery (Herman, 1992). In TIC, feelings of safety are recognised not only as a foundation for recovery, but also as a foundation for prevention. In TIC, it is recognised that workers who feel psychologically safe and well are more likely to carry out their duties effectively and have their risk of psychological trauma minimised or eliminated than those who do not feel safe in their work environment. This is important to note given the recent findings of the Shaw (2019) report into bullying and harassment within Fire and Emergency. Furthermore, it notes that the development of practices related to a culture of safety should be largely informed by workers, which provides a number of benefits including increased buy-in from workers. The concept of the establishment of safety to eliminate and minimise injury can be seen within the operational aspects of Fire and Emergency where appropriate PPE, training, policy, and procedure form a ‘preparedness’ ethic to ensure risks associated with exposure to incidents, such as motor vehicle incidents and structure fires, are eliminated or minimised. In much the same way, TIC insists that tools with regard to psychological safety are provided to ensure staff feel safe and the prevention of psychological distress and injury is maximised (SAMHSA, 2014).

Trustworthiness and transparency

One of the fundamental goals of the trustworthiness and transparency principle is to ensure that workers feel they can trust each other, their managers, and the organisation itself.

Research by Sattler et al. (2014) noted that some firefighters rated organisational distress as being greater than the distress created by exposure to critical incidents. Variables leading to organisational distress include communication breakdowns and the lack of frontline staff involvement in decision-making processes. In TIC, it is believed that transparency, with regard to organisational decisions and operations, can help to build a foundation of trust. From this foundation, relationships of trust can be formed and maintained. This concept is reflected in Te Ao Māori where proper relationship is summed up in the concepts of

whanaungatanga and whakawhanaungatanga, which emphasise the importance, for the group and individual, of the forming and maintaining of relationship through adherence to principles similar to that of trustworthiness and transparency (Quince, 2007; SAMHSA, 2014).

Peer support

In TIC, peers are defined as individuals who have lived experiences of trauma, and who are able to use their experiences to help others. These lived experiences are seen as vital for communicating a message of trust, safety, and hope. It is believed that collaboration with and through peers can lead to changes in culture that help to ensure a trauma message is relevant and therefore effective (SAMHSA, 2014). Indeed, it has been shown that firefighters value peer support as a resource for coping with distress (Sattler et al., 2014).

Collaboration and mutuality

A TIC organisation recognises that *everyone* has a role to play in minimising and eliminating trauma. This involves ensuring that rank and power are used creatively, in a way that promotes an environment of collaboration and respect, where decision-making is informed by reflected experience from a range of areas – for example, the inclusion of peer voices on groups tasked with identifying an appropriate organisational response in relation to psychological injuries (SAMHSA, 2014). While this can be more difficult to achieve in paramilitary organisations, such as Fire and Emergency, it is possible. Recent practice by Fire and Emergency is evidence of the organisation’s commitment to a sophisticated model of management that can shift gears depending on the setting (Fire and Emergency New Zealand, 2018a).

Empowerment, voice, and choice

In a TIC organisation, workers are empowered to do their work as effectively as possible by ensuring adequate organisational support is provided. This support would include recognising the strengths and experiences of individuals within the organisation and putting them to use. In a Fire and Emergency context, it would include commitment to the development and promotion of resilience and post-traumatic growth education for firefighters, Fire and Emergency as a whole, and the communities in which Fire and Emergency serves. Senior staff within Fire and Emergency would have an awareness of how the misuse of power can contribute to an oppressive atmosphere that is not congruent with the principles of safety and trustworthiness. Fire and Emergency would work to empower its people through shared decision-making in the area of psychological wellbeing (SAMHSA, 2014).

Cultural, historical, and gender issues

In a TIC organisation, traditional cultural approaches to wellbeing (such as Te Whare Tapa Wha) are integrated as part of a response to trauma (SAMHSA, 2014). This assists to ensure that areas important to many cultures – such as the physical, mental, familial, and spiritual – are acknowledged and catered for. Furthermore, historical issues are acknowledged and

Why We 360: An investigation of psychological distress, injury, and suicide within Fire and Emergency New Zealand addressed and the organisation actively seeks to move past cultural stereotyping (SAMHSA, 2014).

Implementation domains

The SAMHSA (2014) model of TIC grounds the development and implementation of a trauma-informed approach into ten implementation domains. These domains could provide a foundation for measuring the current Fire and Emergency SHW strategy and control measures in relation to the elimination or minimisation of psychological distress and injury. These domains are not to be thought of as a prescriptive step-by-step process or a checklist, but a guide – based on organisational change literature and models for establishing trauma-informed care – that can provide a foundation for the establishment and maintenance of a TIC Fire and Emergency (SAMHSA, 2014). The following section provides examples of initiatives, based on the assumptions, principles, and guidelines for implementation of TIC provided by SAMHSA (2014), that Fire and Emergency could take, and which would be likely to lead to improvements in psychological wellbeing for Fire and Emergency workers. The ten implementation domains are outlined below (SAMHSA, 2014, p. 12):

1. Governance and leadership
2. Policy
3. Physical environment
4. Engagement and involvement
5. Cross-sector collaboration
6. Screening, assessment, treatment services
7. Training and workforce development
8. Progress monitoring and quality assurance
9. Financing
10. Evaluation

Governance and leadership

- Identify and resource a team for assessing the Fire and Emergency SHW strategy in relation to TIC and, if necessary, implementing changes that would see current policy and/or practices align with a TIC approach.
- Identify a Fire and Emergency manager to oversee a TIC assessment. This individual would have operational experience as well as an understanding of the aetiology of psychological trauma and the TIC approach.
- Identify and invest in a number of workers that would share responsibility for the leadership of the TIC approach assessment. These individuals would have operational experience as well as an understanding of psychological trauma with regard to firefighters, and also have a clear understanding of the TIC approach. These individuals would report directly to the identified manager and work in collaboration with them in achieving the TIC assessment and objectives.

- Identify and invest in a clinical supervisor with appropriate clinical training and practice with regard to trauma within a first response context. This individual would provide supervision and support to the team responsible for the investigation and implementation of TIC within Fire and Emergency. It would be useful if this individual had a prior understanding of TIC.
- Identify and engage the assistance of a local research institution or university to assist the TIC team in the identification and application of necessary research tools and processes.

Goals of the TIC team would then include all of the remaining nine domains.

Policy

- Seek to ensure that current national and local policy and practices are congruent with the assumptions and principles of TIC. Investigate if these policies and procedures include cross-agency protocols that reflect trauma-informed principles and move beyond compliance to integrated practice.
- Examine if current staffing policies adequately demonstrate a commitment to TIC training, assumptions, policies, and practice.
- Seek to identify and rectify gaps between policy and practice that may lead to inefficacy and a perception of ‘box ticking’.

Physical environment of the organisation

- Identify if the physical environment that staff inhabit promotes collaboration and a sense of safety. Identify if firefighters, managers, and support staff believe they are able to work collaboratively from a place of trust, openness, and transparency within Fire and Emergency.
- Seek to establish a benchmark of POS to measure the perception of the physical environment.

Engagement of trauma survivors

- Identify and involve firefighters and other staff who have experienced and recovered from trauma in ascertaining the appropriateness of current and proposed psychological wellbeing initiatives.
- Investigate how peer support can be further integrated into a service delivery approach.

Cross-sector collaboration

- Identify and develop potential key partnerships with other first response organisations, such as St John and the NZ Police. Identify the potential for shared resourcing, research, and interventions.
- Investigate the potential of collaborating with a local research institute or university with regard to psychological trauma research.

Screening, assessment, and treatment services

- Seek to identify if internal and external psychological support services are suitable as measured by client centeredness, cultural appropriateness, and trauma-informed congruence.
- Seek to identify if gender and culture specific trauma services and supports are available.

Training and workforce development

- Ensure appropriate and ongoing systems of trauma education are in place and that human resource systems incorporate trauma-informed principles in relation to hiring, supervision, work accident and non-work accident processes, and staff evaluation.
- Identify if appropriate tools and systems are in place that assist in addressing emotional distress that can arise from working in a trauma environment.

Progress monitoring and quality assurance

- Identify a local research institute or university that could assist in the development of identifying appropriate evidence-based trauma-specific screening, assessments, and treatments as well as developing a psychological health survey for the purposes of measuring the incident and prevalence of psychological injury within Fire and Emergency.
- Investigate appropriate means for benchmarking trauma interventions within Fire and Emergency to assist in ensuring efficacy.
- Instigate a continual review process to ensure a Fire and Emergency approach to TIC reflects the assumptions and principles of TIC and focuses on efficacy rather than compliance.

Financing

- Review the appropriateness of current funding for ensuring support of a trauma-informed approach. This would include: assessing resourcing to ensure appropriate spans of control for SHW workers, assessing resourcing for staff education; continued support, supervision, and training of peer supporters; engagement of research for the purposes of identifying incidence and prevalence rates of psychological injury; and the support of cross-agency collaboration efforts.

Evaluation

- Identify if current measures and evaluation designs used by Fire and Emergency reflect an appropriate understanding of trauma.
- Identify if there are measures in place for gathering feedback in relation to the efficacy of Fire and Emergency psychological wellbeing initiatives.

Recommendations

Research question: *What would enhance Fire and Emergency's current response with regard to identifying and eliminating, or minimising psychological distress and injury?*

The following recommendations are based upon the findings of this report as well as literature from SAMHSA in relation to establishing a TIC organisation, feedback from Fire and Emergency firefighters, findings from the Beyond Blues national study, and Section 44 of the HSWA 2015.

The recommendations have been split into the following sections:

- *Action*: The 12 recommendations on action provide some immediate options available to Fire and Emergency that are likely to assist in the prevention and treatment of psychological distress and injury.
- *Monitoring*: The three recommendations on monitoring address a number of avenues available to Fire and Emergency to improve identification and monitoring of psychological health within the organisation. This section also provides avenues for measuring the efficacy of initiatives implemented in relation to psychological wellbeing.
- *Research*: The five recommendations on research will assist in bridging the data gap currently present within Fire and Emergency in relation to psychological wellbeing, by providing a detailed national picture of psychological distress and injury within the organisation. This data will provide a much clearer pathway to an improved response to psychological SHW risks, which will assist Fire and Emergency to ensure it is meeting its SHW legal obligations and SHW commitments.

Action

1. **Trauma-informed care** – It is recommended that Fire and Emergency implements TIC as an evidence-informed overarching framework to assist Fire and Emergency in assessing gaps in the current SHW strategy, and gaps between current SHW policy and practice related to psychological distress and injury risks. Furthermore, TIC may assist Fire and Emergency to increase POS by strengthening current and proposed psychological wellbeing initiatives, by improving organisational culture, and by increasing collaboration.
2. **Career and volunteer training** – It is recommended that a comprehensive psychological wellbeing education component be included as part of all career and volunteer recruits' courses, and as a part of career and volunteer promotional progression and training material and courses. Examples of psychological education components include: training to improve a sense of self-efficacy and agency at critical incidents; psychological distress and injury awareness, prevention, and treatment; training related to incident emotional aspect exposure; training for dealing with families at incidents; education with regard to help seeking; and

training for the facilitation of witness welfare. Additionally, it is recommended that aspects of CIPSS, PFA, and concepts such as resilience and PTG be covered as part of these psychological education components. It is also recommended that current progression and training literature be reviewed to ensure it reflects current best practise in relation to psychological distress and injury. Finally, it is recommended that operational workers and trauma survivors play a considerable part in the design and delivery of these education components.

3. **Ongoing training** – It is recommended that Fire and Emergency provides regular, person-to-person psychological education in relation to the components identified in recommendation 2. Additionally, it is recommended that this training be embedded into the Operational Skills Maintenance (OSM) system. Finally, it is recommended that these initiatives be developed in collaboration with operational workers and trauma survivors.
4. **Wellness checks** – It is recommended that Fire and Emergency investigate a national directive in relation to the provision of regular wellness checks as an early detection and preventative measure with regard to psychological distress and injury. While there is work underway in this regard, it is recommended that Fire and Emergency ensure operational personnel and trauma survivors play a considerable part in the development of wellness checks.
5. **Managerial resourcing and mandate** – It is recommended that a review of management spans of control and administration support be carried out to assist in ensuring managers are able to prioritise personnel wellbeing. Additionally, it is recommended that Fire and Emergency provide a clear mandate for managers, embedded into Regional/Area management business plans, with regard to the prioritisation of personnel wellbeing above all other duties.
6. **Stigma** – This report revealed the negative impact that self-perceived stigma in relation to psychological injuries could have on help seeking. It is recommended that Fire and Emergency carry out an investigation with regard to stigma in relation to psychological injury within the organisation. This investigation should be used to inform a campaign to address stigma in relation to psychological injury, maladaptive behaviour and help seeking.
7. **Support services** – It is likely that a rise in critical incident exposure and an increase in awareness of the impact of psychological injury will place pressure on existing support services. It is vital that Fire and Emergency ensures that an increase in demand for support can be fully met by appropriate support providers. This would include ensuring that enough appropriately trained psychological support providers, for each of the four tiers of support, are in place, readily available, and supported by an integrated and well-managed system for referrals. Furthermore, it is recommended that those involved in the prevention and treatment of psychological injury, and those involved in monitoring and researching psychological injury, have a sufficient understanding of the operational realities facing the modern day Fire and Emergency firefighter. It is also important that these providers are regularly briefed on relevant trauma-related literature.

8. **Peer support** – It is recommended that Fire and Emergency provides a national mandate with regard to the reinvigoration of Regional peer support programmes. This should include ensuring policy and practice are aligned with international best practise guidelines and that gaps between policy and practice are identified and minimised or eliminated. This would include reviewing governance and practice related to training and supervision.
9. **Governance and resourcing** – It is recommended that Fire and Emergency carries out an immediate review of the current number of Fire and Emergency workers employed to assist with the prevention and treatment of psychological injuries. As a part of this review, consideration should be given to the provision of further Region/Area resources such as internal psychologists, wellbeing officers, and chaplains. It is also recommended that a review of current human resourcing be carried out to ensure personnel in SHW positions are not exceeding optimal spans of control, and that succession planning is in place for these positions, as these variables are likely to have a considerable impact on service delivery. Furthermore, it is recommended that the governance and resourcing of individual Regions/Areas be reviewed to ensure they reflect the unique risks and obstacles faced by each Region/Area in delivering effective prevention and treatment initiatives in relation to psychological distress and injury.
10. **Collaboration** – It is recommended that an annual symposium, related to firefighter psychological distress and injury, is provided for firefighters, trauma survivors, and SHW staff as a catalyst for an improved response to psychological SHW risks within Fire and Emergency. This symposium would serve as an ongoing catalyst for collaboration, education and action with regard to psychological distress and injury. This symposium would also provide an opportunity to invite other emergency response organisations, such as the NZ Police and St John, to identify how we might collaborate on future initiatives aimed at preventing and treating psychological injury, maladaptive behaviour and suicide within our respective organisations.
11. **Retired firefighters** – Retired and long serving firefighters appear to have an increased risk of psychological injury as a result, in part, of the cumulative potential of critical incident exposure and the loss of resource caravans. Therefore, it is recommended that Fire and Emergency investigates and resources a programme, such as ‘legacy support’, for the purposes of supporting retired firefighters. This support should include: assisting with transition out of the firefighting role; ongoing monitoring of psychological health; and provision of psychological wellbeing assistance.
12. **Leadership** – POS appears to be a significant factor in relation to the resilience and wellbeing of workers. Consequently, it is recommended that all workers in a position of leadership are made aware of the connection between worker wellbeing and POS. There should be a concerted endeavour by leaders within Fire and Emergency to demonstrate this understanding in the way they interact with their workers and in how they apply this understanding in organisational decision-making processes.

Monitoring

1. **Data recording** – It is recommended that Fire and Emergency takes the following three actions to improve data gathering.
 - A. Investigate and implement changes to the incident reporting system that would allow officers to include information with regard to identifying SHW risks, in relation to medical calls and other potentially traumatic incidents.
 - B. Create a data catchment for career, volunteer, and retired firefighter suicide.
 - C. Review the current exit interview framework to establish if these interviews provide sufficient opportunity for feedback in relation to psychological distress and injury in relation to personnel turnover.
2. **Surveys** – It is recommended that Fire and Emergency develops and implements two surveys for the purposes of identifying and benchmarking workplace stressors and organisational culture aspects related to psychological wellbeing:
 - A. A workplace health survey that seeks to identify workplace stressors that may contribute to psychological injury – resulting data could then be used to identify and change aspects of organisational function that contribute to psychological distress
 - B. An organisational culture survey for the purposes of identifying current catalysts and barriers to the uptake of current and proposed initiatives related to the prevention and treatment of psychological injuries.

It is important that operational staff and trauma survivors contribute significantly to the design and delivery of such surveys.

3. **Regular review** – It is recommended that Fire and Emergency initiates a programme of regular review with regard to assessing the efficacy of the Fire and Emergency psychological wellbeing strategy and associated control measures. This should include ensuring gaps between policy and practice are being identified, eliminated and/or minimised, and that strategy and control measures align with international best practice.

Research

1. **Perceived organisational support** – It is recommended that Fire and Emergency sponsors research examining POS within a Fire and Emergency context. This research should include identifying contributors to POS while also providing a measurement of current levels of POS within Fire and Emergency. This research can then be used as a benchmark to ensure the identification and monitoring of an important protective variable in relation to psychological distress and injury.
2. **Epidemiological data** – Both the Beyond Blue Ltd (2018) study and the SAMHSA (2014) TIC implementation guide note the importance of gathering national epidemiological data with regard to establishing the incidence and prevalence of psychological distress and injury within a population. Therefore, it is recommended

that Fire and Emergency capitalise on the unique opportunity that now exists to collaborate with the Beyond Blue Ltd (2018) researchers, drawing upon their existing framework, to establish the incidence and prevalence of psychological distress, injury, and maladaptive behaviour with regard to current and retired Fire and Emergency firefighters. This will have the additional benefits of providing a national benchmark that can be used to assess the efficacy of control measures, while providing a considerable saving of both time and money.

3. **Frontline connection** – It is recommended that Fire and Emergency sponsors research to identify the observations, needs, and requests of firefighters in relation to the critical incident and workplace stressors they are exposed to. Additionally, this research should include examining communication pathways are best suited to connecting insights, training, and support services with Fire and Emergency firefighters.
4. **Resilience and post-traumatic growth** – It is recommended that Fire and Emergency sponsors research examining resilience, adaptive coping, and PTG in relation to Fire and Emergency firefighters.
5. **Community risk reduction** – This report has highlighted the radiating effects of psychological injury and revealed the importance of understanding these effects on the families of Fire and Emergency firefighters, on the Fire and Emergency organisation, and on the communities in which Fire and Emergency firefighters serve. It is recommended that further research specific to Fire and Emergency firefighters identify the presence, prevalence, and effect of these radiating factors. Furthermore, it is recommended that Fire and Emergency investigate avenues for the organisation to reduce psychological distress for communities involved in a critical incident in which Fire and Emergency workers are in attendance.

Limitations

As with most research, there are a number of limitations to the findings in this report. This report has been based on the concept of a 360 where an incident is briefly walked around as part of an initial size-up process. Due to the brief nature of this approach, it should be noted that this report is not exhaustive with regard to identifying psychological SHW risks, missing SHW strategy components, or gaps between SHW policy and practice. It should also not replace in-depth scientific enquiry into the many topics covered. Additionally, it was beyond the scope of this report to examine variables such as sex, age, and ethnicity in relation to the findings.

Furthermore, this report has identified a number of factors that contribute to a psychological injury such as exposure to critical incidents, as well as home, and workplace stressors. However, it was beyond the scope of this report to examine pre-employment factors such as previous trauma, childhood experiences, and personality.

This report has relied, in part, upon international research in establishing the presence and prevalence of psychological distress and injury, while not fully examining the limitations of each research piece. Furthermore, there are a number of unique variables differentiating the experiences of Fire and Emergency firefighters from international firefighters and emergency responders. Additionally, this report has, at times, drawn upon the anecdotal experiences of firefighters that do not account for the views of all firefighters.

The transition from the NZFS to Fire and Emergency included amalgamating with rural fire services. While a considerable amount of the report findings will apply to rural firefighters, it was beyond the scope of this report to examine the research questions with specificity to a rural firefighting context.

Medical figures quoted in this report were based on data from fire incident reporting. This data has limitations, given that there is some subjectivity involved in classifying a call.

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Abbreviations

ACE – Adverse Childhood Experience

ASD – Acute Stress Disorder

CIPSS – Critical Incident and Personal Stress Support

CISD – Critical Incident Stress Debriefing

CISM – Critical Incident Stress Management

DSM-V – Diagnostic and Statistical Manual of Mental Disorders: DSM-5

EAS – Emergency ambulance service

Fire and Emergency – Fire and Emergency New Zealand

HSWA – Health and Safety at Work Act 2015

MOU – Memorandum of Understanding

MVA – Motor Vehicle Accident

NZFS – New Zealand Fire Service

OIs – Operational Instructions

OrgLT – Organisational Leadership Team

OSM – Operational Skill Maintenance

PFA – Psychological First Aid

PPE – Personal Protective Equipment

PTE – Potentially Traumatic Event

PTG – Post-traumatic Growth

PTS – Post-traumatic Stress

PTSD – Post-traumatic Stress Disorder

QAS – Queensland Ambulance Service

RECEO – Risk to life, Exposures, Containment, Extinguishment, Overhaul

RET – Repeated Exposure to Trauma

SAMHSA – Substance Abuse and Mental Health Services Association

SFF – Senior Firefighter

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SHW – Safety, Health and Wellbeing

SMS – Station Management System

SSO – Senior Station Officer

TAPS – Training and Progression System

TIC – Trauma Informed Care

UFBA – United Fire Brigades Association

VACU – Victorian Ambulance Counselling Unit

WAD – Work As Done

WAI – Work As Imagined

WHO – World Health Organisation

Appendix

Case Study

Attendance at PTEs, such as suicides and paediatric cardiac arrests, are now commonplace for many firefighters in New Zealand. The following case study is a result of interviews carried out with a firefighter and an officer who attended the same critical incident during the course of their duties. The names of both the firefighter and officer have been masked to protect their identities.

Firefighter X

Firefighter X is a career firefighter with over 10 years of service. In the course of their duties they responded, with their crew, to a PTE in the form of an attempted suicide involving an adolescent. The following section includes a summary of this PTE (Firefighter X, Fire and Emergency firefighter, April 29, 2018, personal communication).

Officer Y

Officer Y is a career firefighter with over 10 years of service. Officer Y was in charge of the crew and incident responded to by Firefighter X (Officer Y, Fire and Emergency officer, May 9, 2018, personal communication).

Potentially traumatic event

Firefighter X, as part of a crew of four firefighters, responded to a medical co-response call in the early hours of the morning during a routine night shift. On the way to the incident Officer Y, who is responsible for the crew of four, received further details from the fire communication centre stating that they would be attending an attempted suicide via hanging. Officer Y passed this information onto their crew at which point Firefighter X recalls what they described as “white hot anxiety” going through their body, while simultaneously experiencing negative thoughts such as “this will be too much for me” and “I can’t do this”.

Officer Y, after passing on the details of the call to the crew, took a further step asking if any of the crew would prefer not to take an active role in the incident. Firefighter X noted that they could not recall another time, in their career, where an officer had verbalised such an option. Firefighter X, after pausing momentarily, vocalised to their officer and crew that they were uncomfortable with assisting at this call. At this point Officer Y and the remaining crew immediately acknowledged that it was okay for Firefighter X to take a less active role at the incident. Firefighter X noted a marked decrease in the distressing physiological and psychological symptomology that they had been experiencing to this point. This reduction occurred immediately after the combination of Firefighter X vocalizing their discomfort at assisting at the call, and the acknowledgement by Officer Y and the remaining crew that this was acceptable.

On arrival at the call Firefighter X noted they felt a lot calmer as a result of no longer being required to assist. As a result of this relative sense of calm, they decided that they would be able to provide assistance to the crew, knowing they had permission to step out of that assistance if required. Firefighter X was able to carry out CPR on the patient as a result of this. Firefighter X noted that throughout their CPR efforts both the officer and crew checked in on them to see how they were coping. After being relieved from carrying out CPR by a fellow crewmember, Firefighter X returned to the appliance and began to debrief and engage coping insights that they found useful in calming the residual distress they were experiencing. When the other crewmembers returned to the appliance Firefighter X was able to help facilitate a 'hot debrief'. During this debrief, the other crewmembers, as a result of Firefighter X's actions, felt comfortable mentioning how intense the call had been for them and even thanked Firefighter X for their approach to the call.

Later that morning Firefighter X and their crew were turned out to a further medical co-response call. Firefighter X noted that not only did they not experience the same distressful physiological and psychological symptomology, they believed – no matter the intensity of the call – they would be able to handle it, given the mutual crew understanding that was present, and the mutual support that would be provided.

