

# Occupational health effects for firefighters: The extent and implications of physical and psychological injuries

A report by **The Centre of Full Employment and Equity**  
(a research unit of the University of Newcastle)

Commissioned by the **United Firefighters Union of Australia, Victorian Branch**

## SYNOPSIS

Firefighters have one of the most dangerous jobs in the world - and suffer high levels of physical and psychological injury, according to a study by a research unit of the University of Newcastle.

Researchers examined international and Australian health studies and interviewed local firefighters. They found that the changing role of firefighting is having a big impact on the health of career firefighters and volunteers.

Fires are not the only issue. Firefighters are also concerned at the stress of dealing with emergency medical response (EMR), suicides, drug incidents, traumatic events involving children such as SIDS, increased violence, and the threat of terrorism. Firefighters are found to have increased levels of Post Traumatic Stress Disorder (PTSD) and other illnesses.

Firefighting differs from other emergency services - they get the heavy jobs, the 'dirty' and dangerous jobs, and are often first on scene.

These risks cannot be mitigated. It is the nature of the job. Firefighters go into danger, as others flee. "Firefighters are exposed to greater stresses than other workers even if management undertake the most extensive risk management." (Report page 33)

The pressure of budget cuts to fire services is also impacting on the stress levels of firefighters. Organisational stressors include inadequate staff, and a lack of communication and consultation.

Firefighters – one of the fittest sectors of the workforce when they begin their career – suffer above-average rates of cancers, heart attacks, chemical and asbestos exposure, PTSD, and other risks.

They often keep their concerns to themselves, and some take to self-medication through alcohol and other drugs. The increased fitness of the workforce when they begin their firefighting career also helps mask health issues (the healthy worker effect).

Support services have not kept pace with the changing role of firefighters. Management may view its support programs as successful, but often the reality is otherwise. Management is disconnected from the workers on the fire ground. In the CFA, peer support personnel are predominantly volunteers with less incident experience than fulltime firefighters.

The hidden cost of these physical and psychological injuries falls on the firefighters, family, fire services and communities, as firefighters are self medicating, taking unplanned time off to recover and going untreated as they do not have access to adequate support to address the root causes. Increasingly firefighters are using such coping mechanisms to mask the true effect of the acute and accumulated exposure that they are confronted with in the workplace.

There is a high cost to the individuals concerned, their families, and the fire services which employ them.

## **FIREFIGHTING: A DANGEROUS AND DEMANDING JOB**

The work of a firefighter is unique. It is physically hard, mentally demanding and exposes the firefighter to hazards unlike most other jobs.

Firefighters perform physically demanding work, encompassing multiple fire ground tasks: fire attack, search and rescue, exterior ventilation, and overhaul activities, where there is a high risk of exposure to hazardous substances.

Firefighters also respond to other emergency situations and are frequently the first responders on scene - before police and paramedics. These situations include emergency medical response (EMR), motor vehicle accidents, and other emergencies such as floods, earthquakes, cyclones and terrorism.

Emergency medical response (EMR) is part of the job in the MFB and is currently being trialled in the CFA. Firefighters often work for lengthy periods trying to resuscitate victims, while waiting for paramedics. Despite often being first on-scene at accidents and EMR incidents, firefighters cannot administer pain relief and also are required to assist distraught family members.

On many occasions a firefighter may go to a combination of a suicide such as a hanging, respond to SIDS and then be deployed to a motor vehicle accident involving fatalities and/or injured members of the public. Firefighters will finish their tour of duty and be expected to assimilate back into family life with the accumulated affect of the trauma still raw in their mind.

In addition to the emotional impact of EMR calls, there is concern at biological exposure and physical danger. The growth of social problems such as social unrest and increased drug use, exposes firefighters to significantly greater risk than in the past. Firefighters face possible exposure to HIV, and deal with people with mental illness and drug problems.

Also firefighters often are required to do the heavy lifting, and the 'dirty' jobs. They cut people out of cars and they deal with biological substances at accident scenes.

## **THE PSYCHOLOGICAL COST**

*You go home and you sleep at home the next night. You can't sleep because you're waiting for the bells to go off (Group 1).  
Report Page 49*

*It's really traumatic when you work on someone for 45 minutes, sometimes 10 minutes before the ambos turn up ... families stood beside you crying ... and you're just drained; I mean emotionally, physically, mentally.  
Report, page 44*

*I think it's like our job is a filing cabinet and one day the file is full (Group 3).  
Report page 52*

Firefighters

- work in situations where their physical safety is threatened
- attend traumatic incidents such as EMR or motor vehicle calls
- have long periods of performing non emergency duties followed by periods of emergency response (calm to chaos)
- provide 24 hour coverage

These factors are inherent to the job.

A number of incidents cause higher levels of stress in firefighters including:

1. rare incidents such as major disasters and terrorist events; and
2. incidents that firefighters deal with in the normal course of their duties such as
  - a) witnessing the death or injury of co-workers or patients,
  - b) sustaining a serious injury,
  - c) being exposed to hazardous substances,
  - d) attending multiple fatalities or
  - e) incidents involving infants and young children.

The most common adverse psychological impacts include acute stress disorder (ASD), posttraumatic stress disorder (PTSD), major depressive disorders, hypersensitivity and substance abuse.

International and Australian studies have reported high levels of PTSD in firefighters:

- 22 per cent in SA Volunteer Firefighters after the 1983 SA bushfires (MacFarlane, 1988)
- 17-26 per cent in the US (Del Ben et al., 2006),
- 22 per cent of US firefighters and 17 per cent of Canadian firefighters (Corneil et al., 1999)
- 18.2 per cent of German firefighters, while 27 per cent had a mental illness (Wagner et al., 1998)

The CFA told a WA inquiry into trauma arising from disasters such as Black Saturday that:

*...based on the previous research, in the first 12 months post the disaster something like 25% of exposed people potentially developing symptoms of post-traumatic stress disorder, 26% of exposed people potentially experiencing clinical depression symptoms, and something like 10% experiencing generalised anxiety ... we also anticipated a 40% increase in drug and alcohol use-substance abuse, if you like-and a 50% increase in partner conflict.*

Due to the psychological impact of firefighting there is a probability that firefighters are more likely to commit suicide but there is a lack of available data on this.

The psychological cost is heightened by organisational issues including:

- inadequate staffing
- inadequate resources
- poor communication and consultation
- lack of management support

A common example of inadequate staffing which causes considerable stress is when a three-person crew attends a structure fire where a person may be trapped inside. The dilemma is whether to wait for adequate staff before entering the building (a minimum crew of four is required) or breach Standard Operating Procedure and attempt the rescue despite the risk of injury.

The most stressful incidents for Victorian firefighters are:

- Death of a co-worker
- A fire with multiple deaths
- Sudden infant death
- Seriously injured child
- Death of a patient after a lengthy attempted resuscitation
- Assisting a seriously injured friend or relative
- Serious injury to a co-worker
- Multiple casualty motor vehicle accident
- Exposure to hazardous chemicals

Section 4 of the report provides detailed insight into the difficult and demanding role of firefighters as explained by Victorian firefighters. This section is important to read to comprehend the extent of the precipice that firefighters face.

## **THE PHYSICAL COST**

***One incident captured by the study involved the rescue of children entrapped on the second floor of a fully involved residence. The incident resulted in severe physical and emotional stress on the firefighters driving heart rates to levels in excess of 100% of their predicted maximum. Two hours after returning to station (some three hours following the completion of rescue operations), heart rates of individuals involved in the rescue remained in excess of 100 beats per minute. Essentially, the physical and emotional triggers for heart attack stay with the firefighter for some time after an incident. (Brown and Stickford, 2009: 70)***  
***Report pages 9-10***

The health impacts of firefighting are understated. Studies that compare outcomes for firefighters with the general population or even the working population understate the health consequences for firefighters due to the healthy worker effect.

Despite this firefighters are three times more likely to be fatally injured at work. (Clark and Zak, 1999)

Firefighting is a significant trigger for heart attacks. Heart attacks are a leading cause of on-duty fatalities. There is also a high number of non-fatal heart attacks. (Brown and Stickford, 2009)

Firefighters work in hazardous situations and are exposed to very high concentrations of a range of toxic and carcinogenic chemicals. International studies have found firefighters face increased rates of numerous cancers. (LeMasters et al., 2006)

## **THE WIDER COST**

The physically and emotionally demanding role of firefighters - combined with the impact of 24 hour coverage - causes high rates of physical and psychological injuries. This also leads to self medication, family conflict, and workplace absence.

The impact of psychological injuries is often worse than physical injuries. The time lost due to a PTSD claim is 2 to 4 times the average time off work due to injury (Comcare, 2008). However much psychological distress is undiagnosed and unreported. It is likely that both the national ABS data and WorkSafe Victoria data significantly understate the injury burden from psychological distress.

Recent cuts to the budgets of the MFB and the CFA do not auger well for implementing effective strategies to minimise workplace stress such as ensuring adequate staffing and operational capacities as recommended by Worksafe Victoria and Comcare.

## **SUPPORT FOR FIREFIGHTERS**

*I've had family members turn up while we're trying to do our job and they're screaming and yelling .... You rely on your shift mates to support you when you get home, and your family (Group 3)  
Report page 45*

*Most of my stress and anxiety goes through the way that management especially in the CFA and obviously in the MFB do not understand what we do and how we do it and I find that extremely disappointing and stressful (Group 1).  
Report page 49*

Support services have not kept pace with the changing role of firefighters.

Management may view its support programs as successful, but often the reality is otherwise. Management are disconnected from the workers on the fire ground.

In the CFA, peer support personnel are predominantly volunteers with less incident experience than fulltime firefighters. They are expected to provide peer support to firefighters with significantly different experience.

*... there's no career person who's going to sit there and have a volunteer that turns out 20 times a year come and sit down with them and then start to debrief them over an incident. It just doesn't, the whole system just doesn't work. It's totally inappropriate.  
(Report, page 54)*

The MFB and CFA have specific programs to minimise or prevent adverse psychological effects, but there is a perception that there is inadequate support from management, particularly for CFA members. One participant elaborated concerns for individuals who have PTSD and also for firefighters who may succumb in the future:

*We've got a couple of people in the CFA that have been diagnosed with posttraumatic stress syndrome. The CFA just feel that that's a person's weakness. They just think that's a weak minded person that couldn't deal with what everyone else deals with. They just throw them on the scrapheap... They don't recognise that it's a syndrome, they don't recognise it's a problem. They don't recognise that there's a whole heap of older blokes walking around there at the moment that [it] could be the next job that gets to them, that pushes them over the edge (Group 1).  
(Report, page 53)*

This perception of lack of support from management presents a significant problem for the successful implementation of the welfare programs established to deal with psychological stress.

Further there is a reluctance by firefighters to use welfare programs:

***It's expected as a firefighter you're a rock and nothing can break through that shell and you're there to help other people (Group 1).  
People don't want to give away weaknesses ... I don't want someone else to think that I'm the weak link in the truck (Group 2).  
You don't want management to know....once they realise that you have some issues there, you're going to get pushed aside (Group 1).  
They're a bit loath to let management know that they're going through something because it might impact on them. The fear is it might impact on them down the road (Group 2).  
Report page 55***

Firefighters face these demands every day in order to protect the community. This comes at a great personal cost.

***You may be first on scene at something that's rather traumatic for everyone involved and you know none of those people will be going back to work that day or doing anything else ... But you know we're straight back in the truck after dealing with all that and we might go to the same thing again in half an hour's time ... I think there's also the stress of just maintaining that professionalism that the public expect and that you want to provide as well' (Group 2).  
Report page 51***