

# Fried! Managing the physical and psychological toll on firefighters

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## Abstract

The demands of fireground operations challenge effective leadership. This paper addresses findings from several studies investigating the physical and psychological stressors experienced by firefighters. Previous research suggests that about 50% of volunteer firefighters experience a near-miss incident during operations at some time. Data from firefighters showed that those deployed to the fireline during the 2006/7 season worked a mean shift length of 20 hours. Those who worked night shift experienced particularly heavy workloads, and averaged about 3-4 hours sleep between shifts. Although the firefighters reported satisfaction with their experience overall, interviews revealed a typical pattern of readjustment following deployment wherein firefighters had to recover from the heavy physical and emotional toll of their deployment and reintegrate into every-day life. Interview data indicated that many staff in leadership roles adopted a "sink-or-swim" approach to firefighter recovery and that debriefing following deployment was conducted on an *ad hoc* basis. The best predictor of effective fireground leadership was recent experience in a leader role on the fireground. It seems that agencies need to broaden the scope of the fireground leader role to be more actively concerned with the physical and psychological well-being of firefighters under their command, both during and after operations.

## The demands of the fireground

A "campaign fire" is one that rages over a number of months requiring an extended response from fire agencies. Such a campaign fire occurred in Victoria during the 2006/7 fire season when over a million hectares of Victoria were burned. Campaign fires consume not only enormous practical resources but also enormous human resources. The 2006/7 fires were fought by 3,000 volunteer and paid firefighters from various agencies across the State of Victoria who were deployed from their normal work duties to complete a variable number of shifts over the course of a number of months. Managers of personnel deployed to

firefighting are obviously aware that any of their staff deployed to a campaign fire will be subjected to extraordinary demands. We argue, however, that unless a manager has personal experience of fireground operations, s/he is unlikely to have a comprehensive appreciation of the full extent of the physical and psychological demands placed on staff during campaign firefighting.

We argue that this lack of understanding is likely to compromise managers' ability to properly manage their staff following deployment to the fireground as well as their ability to meet their obligations under the various Occupational Health and Safety (OHS) legislation that requires employers to manage the physical and psychological safety of their employees. Further, co-workers and families of firefighters also contribute to the campaign by covering the workload of absent firefighters and the need to acknowledge and manage this contribution has arguably been neglected.

The aim of this paper is to document the various physical and psychological stressors to which firefighters involved in a campaign fire may be exposed and to recommend methods by which managers may better ensure the well-being of their staff and others who contribute to the success of a campaign fire.

## The physical demands of firefighting

Few people who have not experienced the situation can imagine the extreme physiological demands placed upon firefighters during a campaign fire. Firefighters wear heavy personal protective equipment (PPE) while being exposed to extreme environmental temperatures due to either ambient temperature and/or proximity to the fire. Under these conditions they typically perform laborious work, such as constructing rake hoe trails and carting heavy equipment for many hours, while inhaling smoke and exhaust fumes. These conditions expose the firefighter to risks of dehydration and an increase in core body temperature. These conditions, of themselves, pose a risk to the life of a firefighter. Supply of food to those on the fireground is often variable and may be unpalatable, leaving firefighters hungry and frustrated at the peak of physical demand.

Once their shift has ended firefighters wearily make their way to a staging area where they are fed and then accommodated in conditions that may vary in quality between a motel room to a tent pitched on a sporting ground.

One of the most serious risks to long term welfare is the fatigue to which firefighters are typically exposed over the course of their deployment. Although firefighters theoretically work a 12 hour day or night shift, Cater, Clancy, Duffy, Holgate, Wilson & Wood (2007) found that among Department of Primary Industries (DPI) staff, those who served as general firefighters during the 2006/7 campaign worked a mean longest shift length of 20 hours, with longest shift lengths ranging between 14 and 32 hours. Most affected by fatigue are those firefighters who work night-shift. Cater et al. report that many night-shift firefighters averaged only 3-4 hours of sleep during the day in conditions that were too light, too noisy and too hot for sleep before returning to their duties the following night. Significant challenges to fatigue management identified by Cater et al. included: lack of adequate sleep for staff working night shift; travel time between the fire line and the staging area due to remote fire-fighting operations and firefighters' driving themselves back to the staging area following long shifts.

The cumulative effects of this sort of fatigue on the functional capacity of human beings have been well documented (see the publications of the Centre for Sleep Research at the University of South Australia for examples) with research concluding that the effects of extreme fatigue on human performance are essentially equivalent to that of alcohol intoxication. Not surprisingly, the outcome of these physiological demands is that, at the end of their tour, many firefighters reasonably describe themselves as 'fried'.

Cater et al. (2007) argue that a paradigm shift is required by fire agencies to more effectively manage fatigue on the fireground and to meet OHS legislative obligations. Although firefighters are rostered to a 12 hour shift, in reality many firefighters work much longer hours and have limited opportunity to fully recuperate between shifts.

Managers, then, need to be aware of the heavy physiological demands placed on their staff in campaign fires and ensure that staff have sufficient time and support to adequately recover following deployment. Managers should expect that staff returning from firefighting deployment will have a significant "sleep debt" and ensure that staff take sufficient time off following return from deployment to properly recuperate. Once staff return to work following deployment managers should monitor staff for signs of fatigue and organize workload accordingly.

### **Risk of a "near-miss"**

A further example of the extreme demands of the fireground is shown in Clancy & Holgate's (2005) finding that 53% of 110 Country Fire Authority firefighters had experienced a "near-miss" incident at some time during their careers that was potentially life-threatening and made them subsequently more cautious in their assessment of risk. These incidents included such experiences as wildfire burnovers, structure collapses and explosions. Clancy & Holgate found that wildfires represented the greatest proportion of these sorts of incidents and, certainly, wildfires have been the greatest source of firefighter fatalities within Australia.

There has been much research into the risk of post-traumatic stress disorder (PTSD) among emergency services personnel as a result of critical incidents (Harris, Baloglu & Stacks, 2002). We do not argue, however, that managers need to necessarily assume that the average firefighter may have undiagnosed PTSD. Research shows that firefighters are, in general, a psychologically resilient population (Harris, Baloglu & Stacks, 2002). It is clear, however, that exposure to these sorts of critical incidents is not uncommon among firefighters. Managers need to be mindful that there is a possibility that some of their staff may have had experiences on the fireground of a traumatic nature and ensure that policies and procedures are in place to appropriately deal with this risk. With recent research (see Devilly, Gist & Cotton (2006) for a review) and initiatives to establish evidence based best practice in the psychological management of traumatic events (see the Australian Psychological Society website for information) managers should ensure that their policies and procedures reflect current standards for managing possibly traumatized staff and ameliorate the risk of escalation of staff trauma.

### **Readjustment following deployment**

While a firefighter's experience on the fireground may not necessarily be traumatic there is no doubt that it is disruptive of their usual routine and that the stressors to which they are exposed may place challenges to readjustment following deployment. Holgate & Di Pietro (2007) identified a typical pattern of readjustment among 66 firefighters deployed during the 2006/7 campaign. Challenges to readjustment identified by firefighters included:

1. Coming down off the "high" of firefighting.
2. A feeling of disorientation and disengagement from their normal lives.
3. Detachment from loved ones.
4. Pre-occupation with the firefight.
5. A need to "off-load" their experiences, even when these experiences had been uniformly positive.

Firefighters reported experiencing considerable psychological rewards from their deployment such as feelings of mastery, camaraderie, contribution to the community and the development of skills. Due to the extreme demands made upon them, firefighters typically become emotionally immersed in the firefight and reported "operating on adrenalin" to meet these heavy demands. They reported coming home on a considerable "high". This "high", however, was invariably accompanied by feelings of exhaustion which lead to them feeling disoriented, detached from others and pre-occupied with the firefight. Firefighters reported that it typically took them about a week to start feeling reconnected and reintegrated into their normal routines. Fire services could better educate firefighters and families as to the challenges to readjustment that firefighters typically face after a campaign fire and reassure them that some degree of disorientation is a normal part of recovering from the demands of campaign firefighting.

Holgate & Di Pietro (2007) also found that (non-operational) debriefing of firefighters by management was typically conducted on an *ad hoc* basis and that the best predictor of whether a manager adequately debriefed staff about their experiences was the manager's own experience of deployment on the fireground. Those managers who had experience of a fireground role had a much better appreciation of the stressors their staff had been exposed to than those who had no experience of actual fireground conditions.

Firefighters reported that they felt a need to "off-load" about their experience, even when this experience had been positive. This suggests that managers should take some time to ensure that all staff are given an opportunity to talk about the impact of their experience on the fireground, even if this is just informally over a cup of coffee.

### **The neglected contributors to the firefight: Family and co-workers**

While firefighters are deployed to a campaign fire the ordinary work they do at their workplace or within the family has to be covered by others. Staff who are not deployed to the fireground often have an increased workload as they struggle to cover the duties usually performed by absent co-workers. Families must cope without the support of one of their members, leaving many families feeling like they have been turned into a single parent literally overnight (Regehr, 2005).

There is a paucity of research into the issues affecting staff and families left behind when firefighters are deployed (see Cowlshaw & McLennan (2006) for a review of the limited literature) but it is clear that the deployment of firefighters to campaign fires places considerable stress on those staff and families left

behind. Families and staff might rightly complain that, although many people are interested in researching the stress of firefighting, no-body is interested in researching their stress.

Apart from the practical stressors of covering workload Cowlshaw & McLennan (2006) point out that families face significant anxiety over the well being of their loved ones on the fireground. Often this anxiety is compounded due to the fact that communications from the fireground back to families may be of erratic reliability for a variety of reasons (e.g. lack of mobile phone coverage, logistics of the fireground). No doubt an awareness of the stress their families are under further exacerbates the stress of firefighters. Managers could better acknowledge the stressors of non-deployed staff and families and encourage planning for the management of workload and family support in anticipation of future campaign fires.

## **Discussion**

Anecdotal accounts from firefighters, their families and the staff who cover their workload suggest that many feel that their respective sacrifices are under acknowledged by the management of fire agencies. Although firefighters gain considerable rewards from their involvement in a campaign fire many feel that management does not appreciate how taxing their contribution has been to their physical and psychological resources. Many staff who cover for absent co-workers during campaign fires feel that their contribution should be better acknowledged. The families who are left behind may feel isolated and unsupported.

Fire agencies have obligations under OHS legislation to properly manage the physical and psychological well being of their staff. Part of being able to properly manage the demands that campaign fires make on staff is an understanding of those demands from the perspective of all involved. Better education and planning could do much to better meet the demands of campaign fires.

### **Recommendations for effective management of staff involved in campaign fires**

1. Develop an understanding of the heavy physiological and emotional toll that firefighting takes on staff. Firefighting typically results in physical and psychological exhaustion. Managers, firefighters and their families need to be better educated to anticipate the effects of this fatigue on well-being.
2. Ensure that structures are in place to deal with the potential of traumatized staff. The occurrence of near-miss incidents on the fireground is more common than fire agencies recognize. Managers should ensure that

there are procedures for the reporting of such incidents and monitor the well-being of staff who may have been exposed to such incidents and have in place procedures for providing best-practice psychological support if this is needed.

3. Educate staff and their families about the demands of the fireground and the readjustment process following deployment. Managers, firefighters and their families need to anticipate that a readjustment period will be required following deployment and that it may take a week or more before firefighters reintegrate into their normal routine.

4. Managers should ensure that they debrief all firefighting staff about their experiences on the fireground following deployment in order to assist with the readjustment process. This does not mean that formal debriefing mechanisms necessarily have to be put in place, informal debriefing over a cup of coffee is likely to be as effective and any formal debriefing.

5. Managers need to anticipate the additional workload that will be placed on non-deployed staff during a campaign fire and develop plans to ensure support of these staff.

6. As part of the planning process before campaign fires occur managers should encourage staff to develop plans to support families of firefighters throughout the firefight.

Fortunately the 2007/2008 fire season did not see a repeat of the campaign fires that had occurred in the previous year. Fire agencies throughout Australia should anticipate, however, that campaign fires that require months long firefight will occur in future years. Now is the time to start planning the response to those fires.

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