

Submission to the

Senate Education, Employment and Workplace Relations Committee

Re

Safety, Rehabilitation and Compensation Amendment (Fair Protection for Firefighters) Bill 2011

By

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The following is my personal opinion drawn from my experience as a firefighter and research undertaken for tertiary qualifications

Purpose

This submission supports and provides evidence to amend Schedule 1. of the *Safety, Rehabilitation and Compensation Act 1988*.

My History

I joined the South Australian Fire Brigade (SAFB) on January 9 1978.

While working as a fulltime firefighter I completed my Bachelor of Arts Degree in 1982. In 1983 I passed at the graduate level the Institution of Fire Engineers. In 1985 I received a Commonwealth of Nations Scholarship where I studied Occupational Health and Safety in USA, Canada and England. In 1986 I completed my Graduate Diploma in Occupational Health & Safety (OH&S) Management.

After this international study and with my operational experience, exposure and observations I felt that I did not understand the health effects of being a firefighter in Australia. I commenced my Master of Public Health in 1988 with the research component taking from 1990 to 2000. In 2002 I completed my

Master of Public Health thesis, "*A Study of Smoke Inhalation and its Effects on Firefighters*". I have attached an edited version for your consideration.

The Abstract is found below.

Introduction:

Smoke has traditionally been the constant companion of firefighters. The most studied effects are those associated with carbon monoxide (CO) content, but other contaminants are also present within smoke. Extensive research has been conducted into the effects of firefighting on the respiratory system. Many studies have shown a statistically significant decrement in respiratory function through exposure to smoke that has been linked to firefighting and exposure to smoke at fires.

Studies have also been carried out on other possible effects of inhalation exposure from firefighting. Some study findings indicate an association between firefighting and increased risk of cancer. The types of cancer where the evidence is strongest include leukaemia, non-Hodgkin's lymphoma, multiple myeloma, brain and bladder cancer.

Breathing apparatus (BA) use was found to be irregular and often inadequate in many studies that have been carried out on firefighters. My study of smoke inhalation and its effects on firefighters was conducted under current policy in Adelaide, which requires the use of BA to minimise exposure to smoke. The study examines whether under current working conditions firefighters are still being exposed to smoke, and whether, under current conditions, firefighters are at risk of adverse health effects from cumulative exposures to CO and/or other combustion products.

Methods:

The uptake of CO during firefighting under current conditions where it is standard practice to wear BA was measured. To evaluate the level of protection that Adelaide firefighters were receiving during firefighting operations at fires, the uptake of CO was measured by monitoring CO levels from firefighter's expired breath using an Ecolyzer 2000.

Results:

There was no significant increase in CO levels measured in Adelaide firefighters at second alarm fires (mean COHb 0.7%, n=194) when compared to their CO levels when not at fires (mean COHb 0.8%, n=69). Significantly increased levels were found at a ship fire (mean COHb 1.4%, n=141), but even these levels, with a few exceptions, would not be considered dangerous. COHb levels were significantly elevated when exposed compared to when not exposed. However, the increases in COHb level were small.

Smokers were found to have significantly higher COHb levels than non-smokers, and smoking is clearly a more significant contributor to COHb levels of firefighters than the smoke exposure occurring under current firefighting conditions.

Interpretation:

The low COHb levels found in this study provide reassurance that present policies of BA use provide better protection than to subjects of previous studies. This indicates that efforts made in training, education, information on the hazards of firefighting and smoke, incident control procedure and Breathing Apparatus control procedures have had positive results.

The question why?

During this time I continued to attend the funerals of my peer firefighters, many of whom died from cancer without reaching the average life expectancy age of Australian males. I thought that this was normal until another government agency colleague made the observation that in their area of work they could only recall one peer dying from cancer before their average life expectancy year in the past 15 years (this agency had 2000 workers to the 1000 firefighters in my brigade).

So my interest in OH&S, specifically preventing premature death of firefighters was developed from events such as:

- Attending many firefighters' funerals in comparison to other government workers.
- Knowing what it is to grow up as a child without a parent due to a death. My father having died when I was 5 months old.
- A SAFB firefighter dying the year before I joined the brigade.
- International studies reported in the literature indicated that firefighters exposed to smoke and toxic chemicals had a higher rate of some cancers.

- My thesis which was indicating that South Australian firefighters were exposed to smoke.

During my training and early career the dangers of firefighting were in the front of my mind. My reaction was to try to improve firefighter occupational health and safety. Throughout my career I have been able to achieve many safety improvements such as improved personal protective equipment, improved training and improved stress management. These changes have reduced deaths and injuries. These achievements resulted in my receiving the Australian Fire Service Medal.

However I have not yet been able to assist firefighters' families once the firefighter has died.

Anticipated positive effect of this Bill

This Bill if passed will provide compensation for firefighters if they were exposed to hazards such as smoke at a fire. It should also provide the right to rehabilitation and safety.

In the South Australian Metropolitan Fire Service (MFS), formally the SAFB some firefighters who have suffered from cancer have returned to work on modified duties.

Having Schedule 1 introduced will also provide more support for increased medical monitoring or health surveillance. Prevention practices will be reinforced by the acknowledgement that firefighters' exposure to smoke can increase the risk of some cancers.

In the course of their work, firefighters are exposed to numerous substances that have the potential to cause adverse health effects. These can be acute effects, chronic effects or both. The acute effects of inhaling smoke are familiar to every firefighter. Some of these agents may cause immediate irritation, but also, cause damage that does not become apparent until years later.

The literature reviewed during my thesis considered studies on chronic respiratory related illness (Sidor and Peters 1974, Young et al 1980, Loke et al 1980, Cotes and Steel 1987, Tashkin et al 1977, Horshfield et al 1988a, and Minty et al 1985) and deaths in firefighters (Sama 1990, Heyer et al 1990, Rosenstock et al 1988 and 1990, Lewis et al 1983 and Hansen 1990). There are indications that repeated inhalation of smoke during routine firefighting activities can result in chronic bronchitis and abnormal pulmonary function. The results of many of these studies have not been clear-cut, partly due to the healthy worker effect and cross sectional study design. One would expect the morbidity and mortality rates to be lower among firefighters than in the general population containing people who are ill, infirm and generally not suited for fire service.

Because of this, a study may show no difference in morbidity or mortality rates between firefighters and the general population when, in reality, the firefighters may be sustaining greater illness and death than would be expected in a similar healthy group. Additionally, only healthy firefighters stay on the job. Those who become ill may leave the fire service without documented disability before retirement. Others may leave seemingly healthy, only to suffer the long-term effects long after their association with the fire service has ended.

My thesis has shown that low exposure was found at structural fires and that exposure may also occur at the fire station, car fires and shed fires, during overhaul (which is the clean-up phase after the fire is under control), grass fires and bush fires. From the literature review concerns from recent studies show that a plausible case for increased rates of specific cancers exists for firefighters.

More recently Hak Soo Choi, et. al. wrote "Rapid translocation of nanoparticles from the lung airspace to the body" published in Nature Biotechnology, 7 November 2010. They found that nanoparticles can traffic rapidly from lungs to lymph nodes and the bloodstream and then be subsequently cleared by the kidneys. This finding provides evidence that mechanisms that were not understood ten years ago exist and can be cancer causing in firefighters.

I welcome the opportunity to discuss this further and look forward to the considerations of the Senate Committee. I can be contacted on
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