MONASH University

Australian Firefighters' Health Study
Q&As

Q. What is the Australian Firefighters' Health Study?

A. The Firefighters' Health Study is a national research study funded by members of the Australasian Fire and Emergency Service Authorities Council (AFAC). It was the first large scale study of firefighters' cancer and causes of death in Australian paid and volunteer firefighters.

Q. Who conducted the study?

A. The study was conducted by the Monash University School of Public Health and Preventive Medicine, with statistical assistance by the University of Melbourne. A stakeholder Advisory Committee, including representatives of fire agencies, trades unions and volunteer associations, and a Technical Reference Group provided advice to the research team on the conduct of the study. You can find a link to the Advisory Committee and Technical Reference Group membership here: http://www.coeh.monash.org/ausfireftr.html.

Q. Who was included in the study?

A. This study included male and female career full-time paid, part-time paid and volunteer firefighters from most of the firefighting agencies across Australia. With Ethics Committee approval, the study population was assembled from past and present employee and volunteer human resources and incident attendance records, provided by the participating agencies. The study included 18,032 career full-time, 13,701 part-time paid, and 201,056 volunteer firefighters. You can find a link to the list of agencies here: http://www.coeh.monash.org/ausfireftr.html.

Q. What are the major mortality findings from the study?

A. There are numerous analyses in this report and it is important to look at the overall patterns of results when interpreting the findings, rather than focus on a single finding.

For male paid firefighters and for male and female volunteer firefighters, the overall risk of mortality was at least 30% decreased compared with the Australian population. In addition, most causes of death, such as from heart or lung diseases, were lower than expected. This is likely to be because firefighters are healthier than the general population when they are recruited and perhaps because of lower smoking rates among male firefighters compared with the Australian population.

When compared to the Australian population, suicide was less common than expected, but appeared to be higher in those among career full time firefighters employed in earlier years.

Overall male volunteer firefighters had a lower than expected number of deaths, but those who attended more incidents had a higher risk of death, especially from heart disease. Male volunteer firefighters had an increased risk of dying in a fire, which was most likely related to two major bush fire events in the past but was not necessarily service related.

There were too few deaths for meaningful analyses for female career full-time and part-time firefighters. Female volunteer firefighters had an approximately 30% increased risk of accidental death, but this was not known to be associated with service as a firefighter.

Q. What are the major cancer findings from the study?

A. **Male career full-time firefighters**

- Overall cancer was higher than that of the Australian population, especially for those who had served as a firefighter for more than 20 years.
- There was an increase in prostate cancer for career full-time firefighters, particularly for those employed for more than 20 years and there was a trend of increasing risk with increasing years of service and number of incidents attended.
- The risk of melanoma was increased, particularly among those who were employed for more than 10 years.
- Male breast cancer was elevated among those employed for more than 20 years.
- There was a trend of increasing risk of blood cancers and kidney cancers with increasing years of service.
- There was some limited evidence of a higher risk of mesothelioma and testicular cancer, but the numbers were small.

Male part-time paid firefighters

- The overall cancer incidence was higher than that of the Australian population.
- There was an increased risk of prostate cancer overall, and this risk was most strongly associated with more than 10 years employment, with a trend with years of service. However, there was no trend with the number of incidents attended.
- There was an increased risk of melanoma overall and the risk was most strongly associated with more than 20 years of employment. However, there was no trend of increased risk with years of service or number of incidents attended.
- There was some limited evidence of a higher risk of some other cancers, including brain cancer, thyroid cancer, blood cancers and digestive system cancers.

Male volunteer firefighters

- There was no overall increased risk of cancer compared to the Australian population and no trend of overall cancer incidence increasing with duration of service, but there was a trend of increasing risk with the number of incidents attended.
- There was an increased risk of prostate cancer overall, which was most strongly associated with those with more than 10 years of service. There was no trend of with number of incidents but there was a trend of increased risk with duration of service.
- Kidney cancer was not elevated when compared to the general population but when compared with other firefighters there was a trend of increased risk with years of service.
- Testicular cancer risk was not elevated. It was increased for those volunteer firefighters who had attended fires compared to those who had not attended fires, and for those who served for more than 20 years when compared to those who served for less than 10 years, and there was a trend of increasing risk with years of service.
- There was some limited evidence of a higher risk of cancer of the lip and digestive organs.
- It is important to note that attendance at fire incidents was considerably lower, on average, among volunteer firefighters compared with paid firefighters.

Female paid firefighters

- There were too few female career full-time firefighters for such analyses.
- For part-time paid female firefighters, there was an increase in brain cancer, but this was based on only three cases.

Female volunteer firefighters

- The overall cancer incidence was similar to that of the Australian population, but was higher for melanomas, particularly for firefighters recruited after 1994. There was no trend of increasing risk with years of service or incidents attended.

Q. How definitive are these findings?

A. While this study was large and was done very carefully, it has some limitations and the results of a single study should be viewed with caution and in relation to the results from other studies. No single epidemiological study ought to be considered definitive.

- The strengths of the study include the size of the groups of male firefighters and of the female volunteer firefighters and the completeness of the national death and cancer data so that deaths and cancers occurring across the country could be identified.
- Even with a study of this size, the ability to make definitive statements about less common cancers, such as brain or kidney cancer, are limited, but this ability will increase with further follow up of the firefighter population in the future.
- The duration of service analyses and incident data analyses allowed internal comparisons which can contribute to our understanding of the work-relatedness of the deaths and cancer findings.

Q. What is the likelihood of me contracting cancer following past exposure as a firefighter?

A. It is very difficult to answer this question because epidemiological studies answer questions about disease based on a group experience, rather than what will happen to any given individual person. Your personal risk of cancer will depend on a range of risk factors you have such as whether you smoke, your genes, as well as your past exposures during firefighting and other jobs you may have done. If you are concerned about this, it is best to talk to your own doctor.

Q. My agency did not participate in the study, so what does this tell me about my cancer risk?

A. For a number of reasons, some agencies did not participate in the study. The researchers reassured the industry that due to the large number of firefighters that were included, additional records would not have an impact on the statistical significance of the study.

Any AFAC member agency who did not provide records will still review the findings along with the rest of the industry and any initiatives to reduce the risks for firefighters will be considered amongst all agencies. Each organisation will be able to review the tables which indicate length of service and number of incidents attended, and compare this information with their own workforce.

As indicated above, this study is not able to provide an individual with information on their personal risk.

Q. Has the study been able to determine why firefighters are more at risk of certain cancers?

A. The study looked at years of service as a firefighter and the number and types of incidents attended, but these measures of exposure were rather imprecise. This study did not look at specific exposure agents, which would require very detailed exposure assessment on an individual basis. This could be investigated in more detail by future research focused on those firefighters in the study who have experienced specific cancers and looking for exposures that differ between them and others who did not develop these cancers.

Q. Where can I find more information about the study?

A. The final study report will be available at the Monash University website http://www.coeh.monash.org/ausfireftr.html and will be published in peer reviewed journals in the future.