HEALTH EFFECTS OF BUSHFIRE SMOKE

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CLIMATE CHANGE IS THE BIGGEST GLOBAL HEALTH THREAT OF THE 21ST CENTURY

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Both recently and in the past the horrific bushfires across Australia and in particular Victoria have devastated the lives of many people.

The long term health risks faced by millions of people affected by bushfire smoke can be overwhelming and impact the well being of the community for a long time.

Exposure to smoke from bushfires and prescribed burning is a serious public health problem which is predicted to get worse in the future.

The air pollutant that increases most significantly as a result of bushfire smoke is particulate matter with a median aerodynamic diameter less than 10 mm (PM10).

Studies are now linking air pollution with increased rates of hospitalization for respiratory and cardiovascular conditions, reduced life expectancy, and increased incidence of lung cancer.

The elderly, infants, and persons with chronic cardiopulmonary disease, influenza, or asthma are most susceptible to increased rates of mortality and morbidity effects from elevated exposures.

To date little is known about exposure to air pollutants for people affected by bushfire smoke, and the associated health effects and justifies further work in this area.

Research Questions

The study will help answer two important questions

1. What is the effect on health from exposure to bushfire smoke emitted from extreme fires and prescribed burning.

2. What are the health effects of bushfire smoke on communities living in peri urban and regional areas.

Methodology

This PhD study will link in with Activity 6 "smoke dispersion/concentration" of the FIRE-DST (Fire Impact and Risk Evaluation Decision Support Tool) project.

The FIRE-DST project is conducted by CSIRO Marine and Atmospheric Research Department (Chief Investigator: Dr Mick Meyer).

Activity 6 will estimate the impact on air quality from smoke emitted from extreme fires and prescribed burning. The project will follow up on the results by estimating the health risks associated with exposure to the smoke episodes using the newly developed air quality models (resulting from FIRE-DST project).

The project will consist of **both retrospective** and **prospective** parts and will focus on the health effects from previous extreme bushfire events and from future prescribed burning.

Health outcome measures will include: symptoms, medication use, ambulance attendances, and emergency presentation at local hospitals.

Key Research Outcomes

1. Better understanding on the relationship between bushfire smoke exposure and effect on health.

2. Better understanding of exposure to bushfire smoke (emitted from extreme fires and prescribed burning) in rural and urban areas.

3. Help Inform policy makers and clinicians of appropriate public health messages and measures to implement the evidence into practice in the community.

Significance

Bushfire smoke has the potential to affect millions of people and is therefore a major public health problem.

The results from this project will increase the knowledge base and awareness of the health impacts of bushfire smoke in rural and urban communities.

The air quality models will allow projections of air quality both in urban and rural areas. This in turn will enable effective strategies to be developed and implemented to reduce the impact of possible increases in the levels of air pollutants in the future.

Most importantly the results from this study will improve our understanding of the synergies between climate change, air pollution and health and the measures required to reduce the public health impact of air pollution from bushfires especially in the at risk communities.