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Cardiorespiratory Health Effects Of 2006/2007 Bushfire Smoke In Victoria

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Bushfires are predicted to get more frequent and intense

Exposure to smoke from bushfires is a serious public health problem

PM (particulate matter) is the pollutant of most concern during bushfires

About the study

Study Aim: To assess the **cardiorespiratory (CR)** health effects from exposure to 2006/2007 bushfire smoke in the Victorian communities

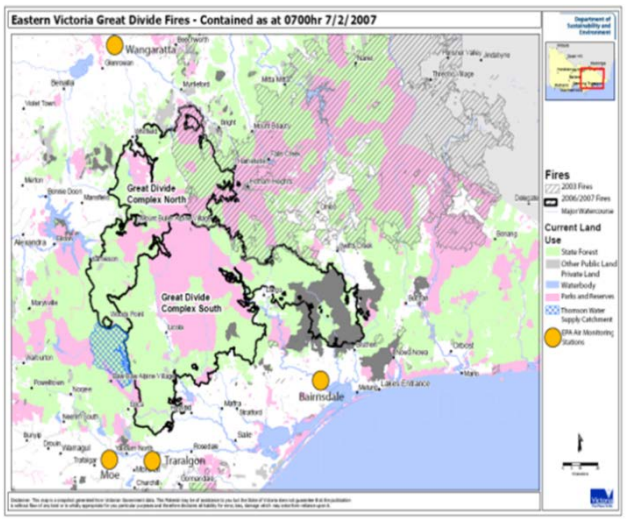
Study Design: Time Stratified Case Cross Over study

Study Site: State of Victoria

***Study Event*:** 2006-2007 Victorian bushfires

1.2 million hectares of land burnt over 69 days

Increased levels of PM air pollutants



Map of NE Victoria showing burnt areas (courtesy: DSE)

Data Collection (Dec 06-Jan 07)

Health (cardiac and respiratory)

➢Ambulance attendances for out of hospital **cardiac arrests** due to heart disease

➢**Hospital admissions**

➢**Emergency department (ED) visits**

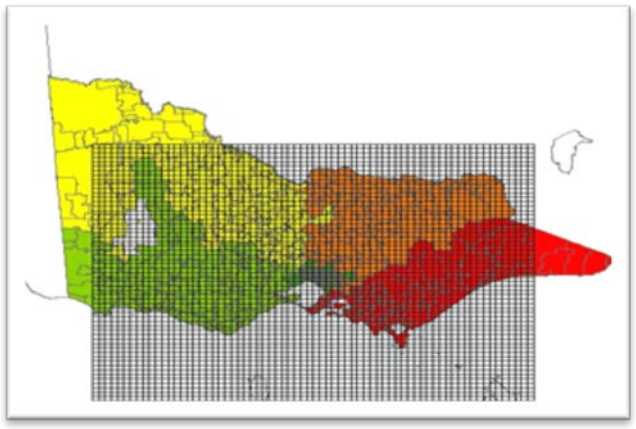
Air Exposure (Modelled)

➢Daily average $PM_{2.5}$ levels, temperature, relative humidity

The Air Pollution Model-Chemical Transport Model (TAPM-CTM)

Assess the spread &impact of air pollution in both urban and regional areas

Victorian Modelling Domain(9km x9km)



Courtesy: CMAR

Preliminary Results

Modelled Air Exposure Data (Dec 06-Jan 07)

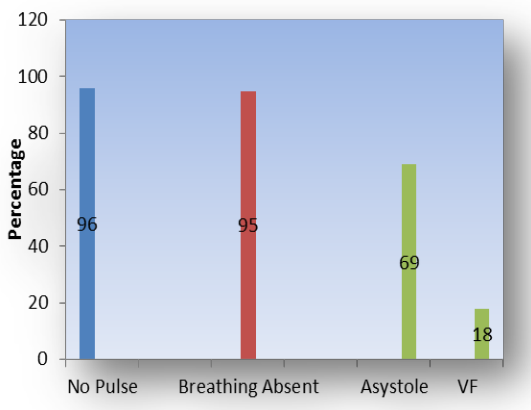
Variable	Mean	SD	Min	Max
$PM_{2.5}$(µgm/m^3)	16.99	22.45	1.08	127.92
Temperature (^{0} C)	18.82	4.73	9.44	31.79
Relative Humidity (%)	59.77	13.23	24.11	83.51

Health data

Percentage of **ambulance attendances** for out of hospital cardiac arrest. Victoria (Dec 06-Jan 07)

457 *ambulance attendances for cardiac arrest*

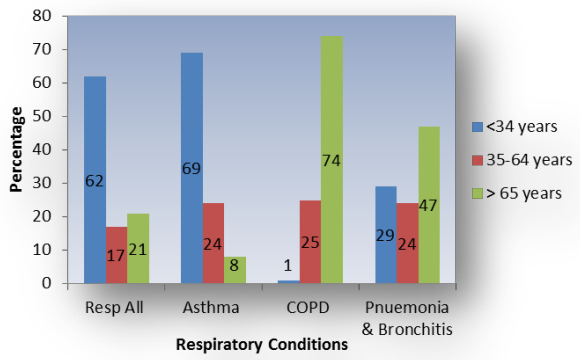
66 % *over the age of 65 years &* ***62 %*** *males*

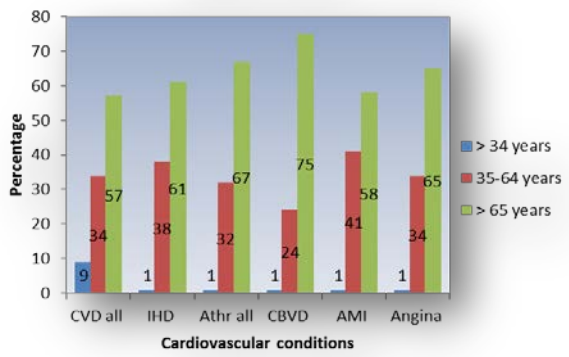


Percentage of ***ED attendances*** for CR conditions. Victoria (Dec 06-Jan 07*)*

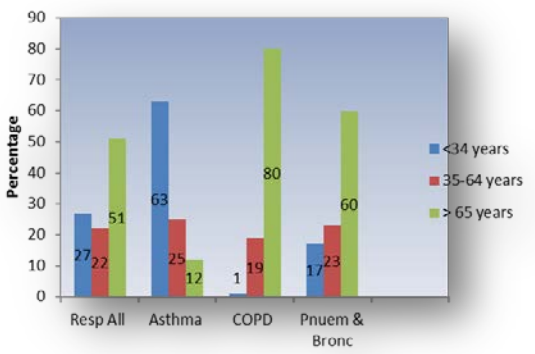
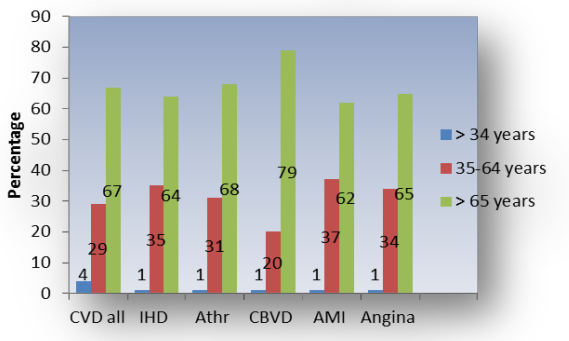
56% *diagnosed as respiratory conditions*

44% *diagnosed as cardiac conditions*





Percentage of ***Hospital admissions*** for CR conditions. Victoria (Dec 06-Jan 07)

41% *diagnosed as respiratory conditions*

59% *diagnosed as cardiac conditions*