

Uncontrolled Bushfires and Asthma in Western Australia

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AIMS

- 1) To investigate the effect of uncontrolled bushfires on asthma exacerbations in local communities
- 2) To provide policy recommendations to reduce any identified health impacts from uncontrolled bushfires

METHODOLOGY

Part 1: Statistical Analysis

- 🔥 Poisson Regression Modeling*
- 🔥 Negative Binomial Regression Modeling*

*Adjusted for Age, Sex, Social Economic Status, Remoteness, Land use and Meteorological variables.

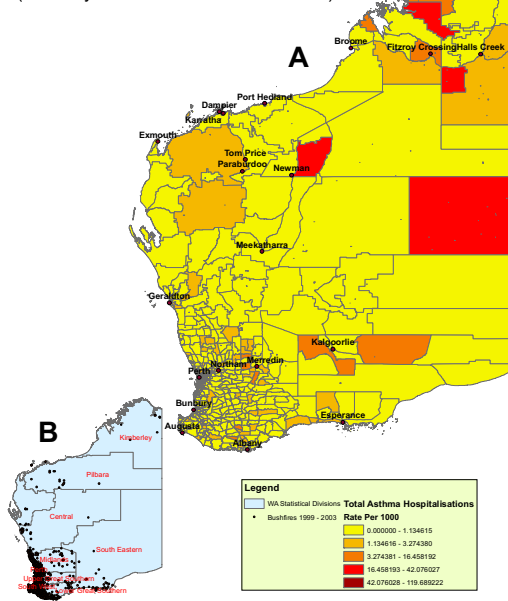
Part 2: Spatial Analysis

- 🔥 Asthma Hospitalisation Rates Mapping**
- 🔥 Uncontrolled Bushfires Mapping**
 - Bushfire Density (Perth)

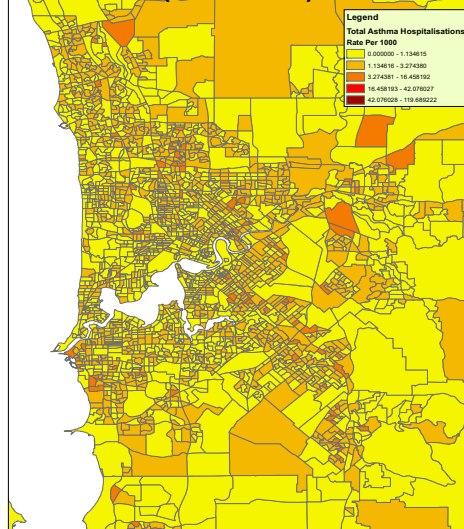
** By Residential Collection Districts (CD)

Western Australian Asthma Hospitalisation Rates (A) and Bushfires (B) (1999-2003)

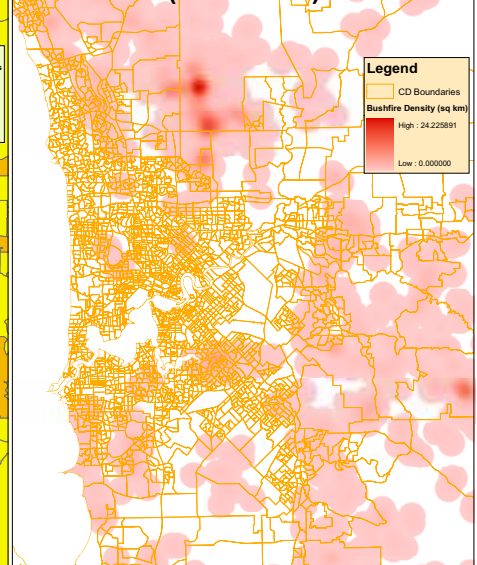
(Rates by Residential Collection District)



Asthma Hospitalisation (Perth) By Residential Collection District (1999-2003)



Bushfire Density (Perth) (1999-2003)



RESULTS

Part 1: Statistical Analysis

- 🔥 Presence of any fire (≥ 1) in the Collection District (CD) during 1999 to 2003 was significant in predicting asthma hospitalisation rates after adjusting for confounders.
- 🔥 However, the number of bushfires in a CD during 1999 to 2003, was not significant in predicting asthma hospitalisations after adjusting for confounders.

Part 2: Spatial Analysis

- 🔥 Asthma hospitalisation rates were highest in rural areas.
- 🔥 Asthma hospitalisation rates in the Perth metro were lower than in rural areas.
- 🔥 The majority of bushfires occurred in the south west region of the state.
- 🔥 Bushfire density maps of the greater Perth region show high density outside of central metropolitan areas.

CONCLUSIONS

- 🔥 The significance of uncontrolled bushfires in a CD in predicting asthma hospitalisation may be due to the vegetation type in the CD. Some vegetation may release more allergenic components than other vegetation during a bushfire.
- 🔥 Further analysis will be conducted using point asthma data from asthma hospitalisations and emergency department.