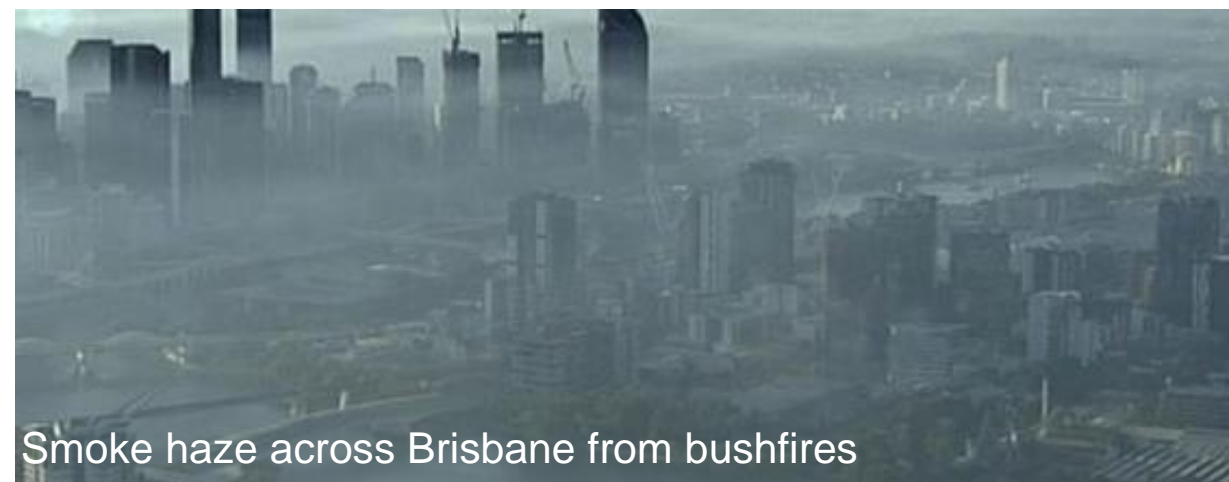


Bushfire smoke exposure and health effects – pilot data

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Background

- Bushfire smoke is major contributor to air pollution and represents a short-term but high-level exposure.
- Epidemiological evidence links BFS to health impacts
- Little known about BFS: more EPFRs, fine particles and more oxidant.
- Prescribed burns an important tool but community concern about health impacts.



Smoke haze across Brisbane from bushfires

The Bushfire Smoke Study

This study aims to answer the following questions using prescribed burns and bushfire smoke days in SEQ:

1. Does household air quality worsen during prescribed burns and bushfire events?
2. Does bushfire smoke (BFS) lead to the presence of environmentally persistent free radicals in homes?
3. Is exposure to particulates from BFS associated with changes in respiratory health and oxidative stress biomarkers?
4. What household characteristics influence the penetration of air pollutants into indoor air?

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Methods

Burn conducted in urban remnant forest in Brisbane, Australia.

Local fire authority pre-planned burn. Two ignition points with fire edge run down the side of a hill.

6 homes recruited and visited at 3 time points

- Pre-exposure (up to 24 hours prior)
- Acute exposure – evening of burn or following morning
- Post exposure – 5 days post burn

Measurements: air quality, dust samples, urine, lung function, activity diary, health and home survey, charcoal from burn site.

Exposure: PM2.5 and EPFRs

Outcomes: Inflammation, Oxidative stress, Lung Function



Acknowledgements

We acknowledge the generosity of the participants for their involvement, LSU for funding pilot and support of CI, TSANZ for funding to expand pilot. References available on request

Results

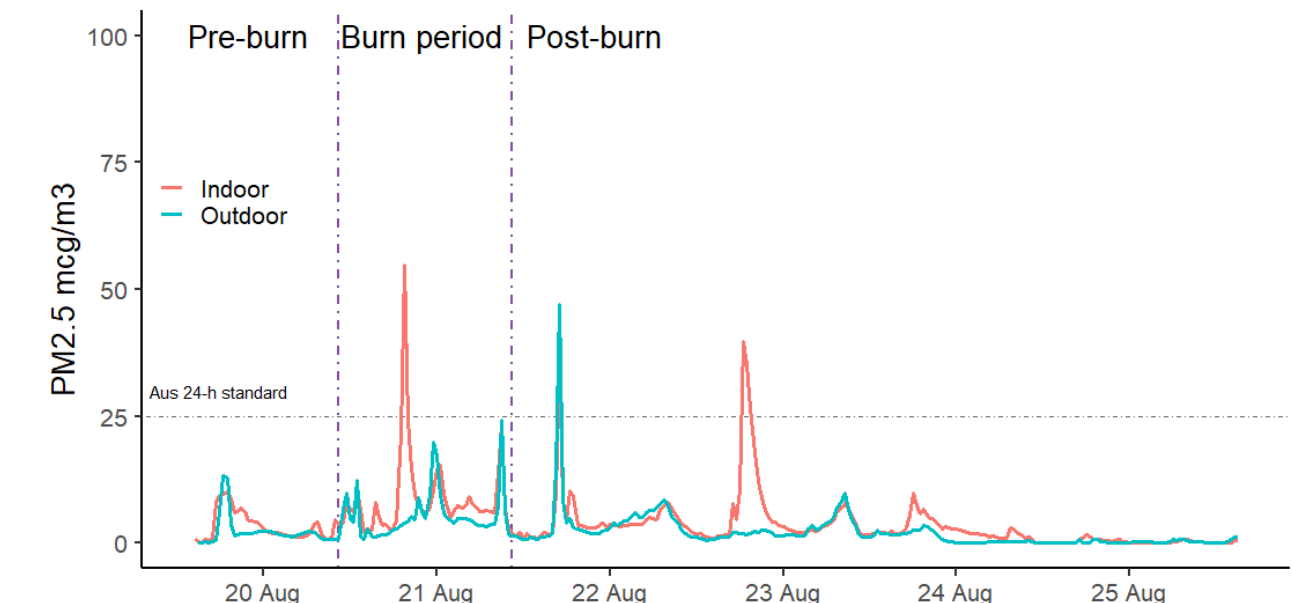
n=6 households, n=18 participants

8 adults and 10 children

Detached homes from 8 – 120 years

2 homes on district roads, 4 on neighbourhood streets

	Pre-burn	Burn period	Post burn
Outdoor	2.3 $\mu\text{g}/\text{m}^3$	5.4 $\mu\text{g}/\text{m}^3$	2.5 $\mu\text{g}/\text{m}^3$
Indoor	3.4 $\mu\text{g}/\text{m}^3$	8.9 $\mu\text{g}/\text{m}^3$	4.0 $\mu\text{g}/\text{m}^3$



Lung function: Ventilation inhomogeneity in children trended down across the time periods

GSA: Increase in adults during acute period

We are recruiting – please scan



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