

Health impact and economic cost of residential fires (the RESFIRE study)

Protocol for a population-based cohort study using linked data



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1. Background

Australia has implemented best-practice fire prevention programs, including legislation requiring smoke alarms in every home. Despite this, residential fires remain a significant problem. In NSW (2010-2015) there were 23,700 reported residential fires, with an estimated 3,300 injuries and 115 deaths.[1] There is an urgent need for accurate data to identify high risk populations and to inform targeted prevention efforts.

Using linked person-level data, this study will provide a comprehensive picture of fire characteristics (nature of fire, smoke alarm use, alcohol consumption), first responder use (fire and ambulance services), health service utilisation (emergency department, hospital and specialist burns outpatient clinic use), health outcomes (length of stay, re-admissions and mortality) and economic costs of residential fires.

[1] Fire and Rescue New South Wales. Submission to Commonwealth Senate Inquiry into Smoke Alarms. Submission 20. FRNSW; 2015.

2. Research Questions

1. What is the incidence, risk factors, injury profile, emergency services use, health service utilisation and health outcomes for people resident at an address which has experienced a fire?
2. Does first responder and health service utilisation and health outcomes differ by type of fire, nature of injury, demographic characteristics or geographic location?
3. Has fire incidence, circumstance and fire-related injuries changed over the last decade, and if so, do these trends differ between geographical location?
4. To what extent is there underreporting of residential fires, and fire-related injuries and deaths across the datasets?
5. What are the total economic costs, including future projected costs, associated with residential fires and residential fire-related injuries?

3. Methods

The study cohort includes all persons residing at an NSW residential address which experienced a fire between 1 January 2005 - 31 March 2015.

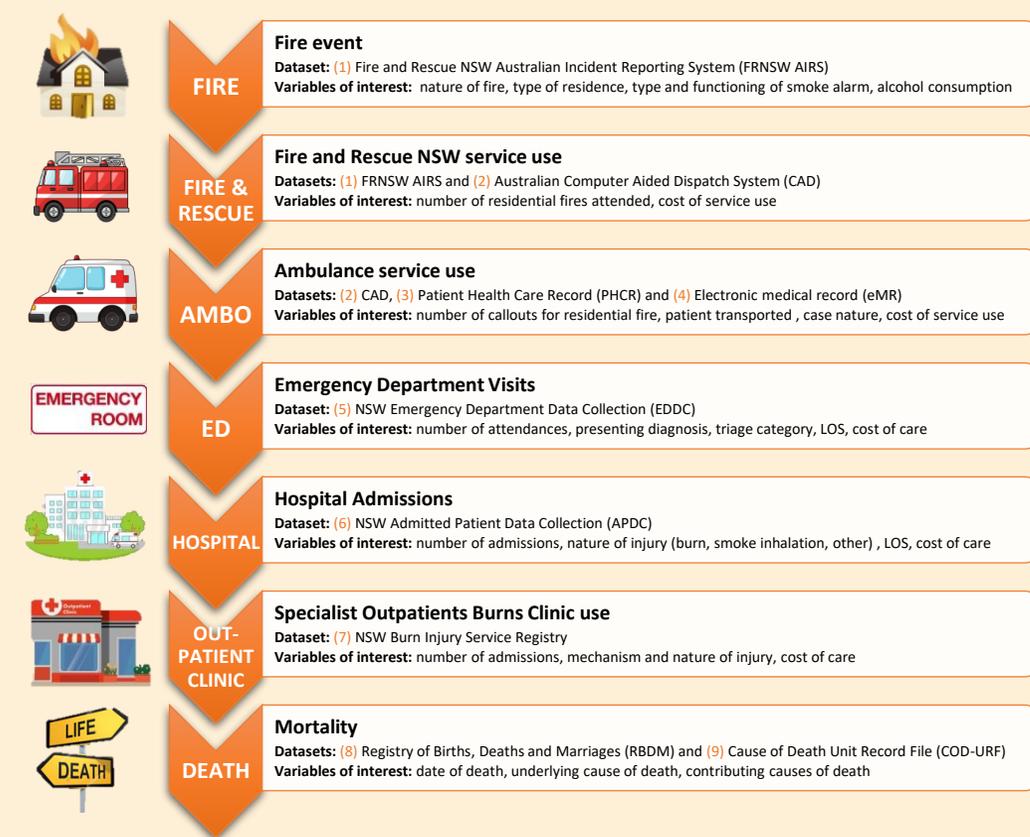
Nine datasets were linked by the Centre for Health Record Linkage (CHReL) to provide information on each person's health trajectory and costs. Datasets are shown in Section 4.

Descriptive statistics will be used to quantify the incidence, demographic characteristics, service utilisation, procedures and health outcomes for persons injured as a result of a residential fire and to describe the fire circumstance and characteristics.

Multilevel mixed generalized linear modelling will be used to identify individual-, fire characteristic-, and service utilisation factors associated with incidence of residential fire-related injury and outcomes.

Costs will be calculated using financial codes for emergency department and hospital visits.

4. Data sources



5. Ethics and dissemination

Ethics approval has been obtained from the NSW Population and Health Services Research Ethics Committee. Dissemination mechanisms include engagement with policy stakeholders through reference group participation, production of policy relevant summary reports and scientific papers.

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