



# Australian Firefighters' Health Study

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# Study design

## Retrospective study

- Assemble from existing fire agency records
  - > Identify ever active firefighters from job history
- Various measures of exposure identified
- No individual data on risk factors e.g. smoking

Advisory Committee - stakeholders

Technical Reference group

# Size of the study

	Male	Female	Total
Full time	17,391	641	18,032
Part time	12,660	1,041	13,701
Volunteers	163,094	37,962	201,056

# External analyses – SMR, SIR

## Duration of service

(>3 months - 10 years, 10 - 20 years, 20+ years)

Era of first service (pre 1970, 1970-1994, 1995+)

Employment complete before end 1985

(full-time career only) change to diesel started 1985

# Internal analyses – RMR, RIR

Duration of service

(>3 months -10 years, 10 - 20 years, 20+ years)

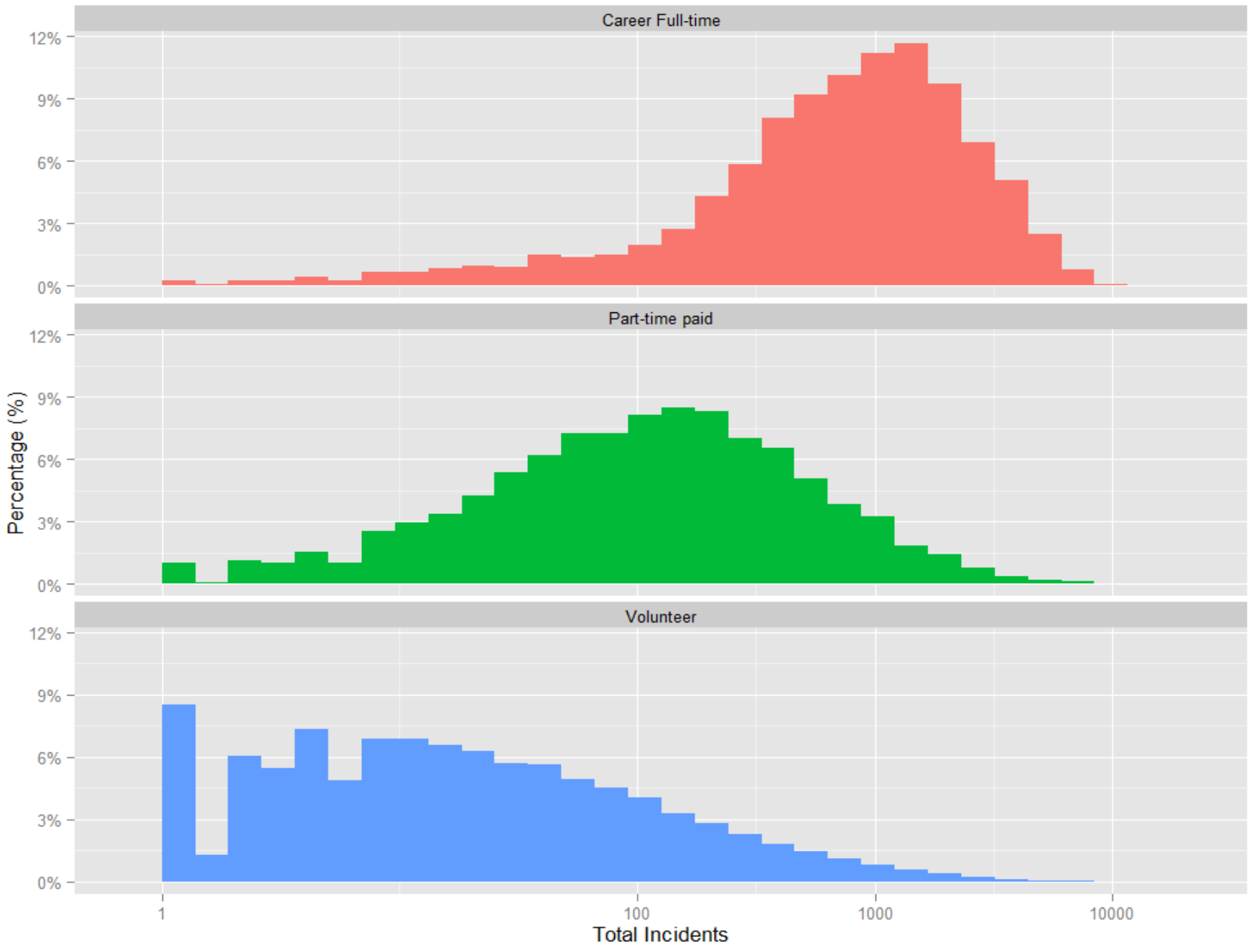
Employment complete before end 1985

Tertiles of number of incidents attended

Trend tests across duration or number of incidents

# Incident data

- Recorded at the time ie no recall bias
- Standardised computerised data
- Contributed to national database
- Linked to individual firefighters at Agency
- Date to 1990 (2.4 million records)
- All incidents inc. false alarms
- Fires categorised
  - Structural, landscape, vehicle, (and other)



# Differences in incidents attended

Firefighter Group	Type of incidents attended (%)				
	Non-fire incidents	Any fire	Structural fire	Landscape fire	Vehicle fire
Career full-time	53	47	17	15	6
Paid part-time	22	78	21	33	8
Volunteer	47	53	13	27	6



# Incident data uncertainty

- Not available for 1 agency for individuals
- Doesn't cover whole period of employment
  - Earliest agency 1990, some later
  - Impute earlier periods or drop if terminated prior
  - If no data, drop individual from analyses
- Are all attendees recorded?
- Are all incidents recorded or recorded correctly
- Will be more robust in future

# Mortality of full-time career firefighters

Probable Healthy Worker Effect

Likely lower smoking rates but no individual smoking data

Lung cancer incidence 0.81 (0.66 - 0.99)

SMRs no increase in **cardiovascular or respiratory deaths**

Attendance at fires associated with elevated RMR for circulatory causes when compared to those who have attended fewest fires

No association with duration of employment

# Cancer incidence full-time career firefighters

cont'd

**Overall cancers** overall SIR raised **1.08 (1.02 - 1.14)**

Also for >20 years employment

No duration trend in overall RIR

Trend in with vehicle fire incidents

**Prostate cancer** overall SIR raised **1.23 (1.10 - 1.37)**

Also >20 years employment

Trend with duration

Trend with incidents

**Melanoma** overall SIR raised **1.45 (1.26 - 1.66)**

Raised for >10 years employment

Raised for all eras of first employment

Raised compared to state rates



# Exposure assessment

- Duration external (SIR)
  - All malignancies, prostate cancer, melanoma, male breast cancer
- Duration internal (RIR)
  - Prostate cancer, kidney cancer, LH cancer
- Incident analyses
  - All malignancies, prostate cancer

# Acknowledgements

Funding: Fire Agencies via Australasian Fire and Emergency Service Authorities Council (AFAC).

Assistance: Advisory Committee

Technical Reference Group

Australian Institute of Health & Welfare

