

RISK FACTORS FOR DIRECT HEAT-RELATED HOSPITALIZATIONS DURING THE 2009 ADELAIDE HEATWAVE

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Background and Aims: Adelaide experienced an extreme heatwave in the summer of 2009 with six consecutive days over 40°C. The health impacts of this extreme event included an almost 14-fold increase in direct heat-related hospital admissions. However, risk factors for these extra health burdens have not been investigated. This study aims to identify risk factors for direct heat-related hospitalization during the 2009 Adelaide heatwave in order to reduce future health burdens related to extreme heat events and to provide scientific evidence for improving the current South Australian heatwave emergency response system.

Methods: A case-crossover study was conducted in metropolitan Adelaide to compare the characteristics of patients from heatwave (28 Jan to 1 Feb) and non-heatwave periods before and after (21-25 Jan and 11-15 Feb). Direct heat-related hospitalization was based on ICD-10 codes (X30, T67, E86) from any of the principal and other diagnosis of each patient. Analyzed factors included age, gender, country of birth, marital status, socio-economic status, and number/type of co-existing morbidities, including cardiovascular disease, renal failure and diabetes. Logistic regression was applied to estimate the Odds Ratios and 95% CIs.

Results: Among the 355 patients being admitted during the heatwave period, half of them were female; 70% were over 60 years old; 37% were born overseas, 32% were married and the mean number of co-morbidity was 5.7. The factors significantly included in the Logistic regression model were age (OR=1.02: 1.01-1.02), higher socio-economic status (OR=0.57: 0.35-0.96), number of co-morbidity (OR=0.90: 0.86 -0.94) and renal failure (OR=1.67:1.05- 2.62).

Conclusions: The most vulnerable groups to the heatwave include those who are older, with lower socio-economic status and with renal failure. Public health responses to extreme heat events should give priorities to these vulnerable groups. Patients with more co-morbidity may be less likely to be admitted to a hospital with direct-heat related conditions.