

HEATWAVES INCREASE THE RISK OF EMERGENCY HOSPITAL ADMISSIONS FOR RENAL DISEASES IN CHILDREN

Shilu Tong, *School of Public Health and Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, Australia*

Xiao Yu Wang, *School of Public Health and Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, Australia*

Adrian Gerard Barnett, *School of Public Health and Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, Australia*

Xiaoming Shen, *Department of Developmental and Behavioral Pediatrics of Shanghai Children's Medical Center & Shanghai Key Laboratory of Children's Environmental Health, XinHua Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China*

BACKGROUND: Heatwaves can cause significant health consequences such as increased mortality and morbidity. However, their impact on the children living in tropical/subtropical regions remains to be determined. This study aimed to examine the association between heatwaves and emergency hospital admissions (EHAs) for renal diseases in children (aged 0-14 years) in Brisbane, Australia.

METHODS: A local definition of heatwave was developed ($\geq 37^{\circ}\text{C}$ for two or more consecutive days). EHAs for renal diseases in children and environmental data were obtained for Brisbane city from 1996 and 2005. A time-stratified case-crossover design was used to compare risks for renal diseases between heatwave and non-heatwave periods.

RESULTS: There were 1,747 EHAs for renal diseases in children. Heatwaves exhibited a significant impact on EHAs for renal diseases in children after adjusting for confounders (odds ratio (OR): 2.7; 95% confidence interval (CI): 1.1-6.3). Heat effects on children's renal diseases appeared to be acute and gradually attenuated with lagged days (OR: 2.3 (95% CI: 0.9-6.3) for lag 1; 1.1 (95% CI: 0.4-3.6) for lag 2).

CONCLUSIONS: There were significant increases in EHAs for renal diseases in children during heatwaves in Brisbane, a subtropical city where people are well accustomed to warm weather. This finding may have significant implications for pediatric renal care.