

# IMPACT OF EXTREME TEMPERATURE ON HOSPITAL ADMISSION IN SHANGHAI, CHINA

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**Background and Aims:** No previous study exists in China examining the impact of extreme temperature on morbidity outcomes. This study aimed at investigating the impact of heat wave and cold spell on hospital admission in Shanghai, China.

**Methods:** Daily hospital admission data between January 1, 2005 and December 31, 2008 were collected from the Shanghai Health Insurance Bureau. Heat wave was defined as a period of at least 7 consecutive days with daily maximum temperature above 35.0 °C and daily average temperatures above the 97 percentile during the study period. Cold spell was defined as a period of at least 7 consecutive days with daily maximum temperature and daily average temperatures below the 3 percentile during the study period. We calculated excess cases of hospitalization and rate ratios (RRs) to estimate the impacts of heat wave and cold spell on hospital admission.

**Results:** We identified one heat wave period (from 24 July to 2 August, 2007) and one cold spell period (from 28 January to 3 February, 2008) between 2005 and 2008. Heat wave was associated with 2% (95% CI: 1% - 4%), 8% (95%CI: 5% - 11%), and 6% (95%CI: 0% - 11%) increase of total, cardiovascular and respiratory hospital admission. Cold spell was associated with 38% (95%CI: 35%, 40%), 33% (95%CI: 28%, 37%) and 32% (95%CI: 24%, 40%) increase of total, cardiovascular and respiratory hospital admission. The differences between heat wave and cold spell-related hospital admission were statistically significant for all causes and cardiovascular causes, but not for respiratory causes.

**Conclusions:** Both heat wave and cold spell were associated with increased risk of hospital admissions in Shanghai. Cold spell seemed to have a larger impact on hospital admission than heat wave. Public health programs should be tailored to prevent extreme temperature-related health problems in the city.