Title
Exploring thunderstorm asthma in South Australia

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Background
Thunderstorm asthma is an incompletely understood phenomenon with significant public health implications. It likely results from a complex interaction between environmental and individual susceptibility factors, with aeroallergens including pollens thought to play a key role. Thunderstorm asthma has not previously been documented or scientifically investigated in South Australia.

Objectives
This study explored the associations between severe thunderstorm activity and markers of asthma morbidity across six regions in South Australia over the period 2003 to 2017.

Methodology
Poisson regression analyses were used to explore the associations between severe thunderstorm activity and asthma morbidity outcomes including ambulance callouts, emergency department presentations, and hospital admissions for asthma among adults and children. The analyses were adjusted for environmental covariates including daily weather variables, pollen counts and air pollutant concentrations (where available).

Results
Results demonstrate an increase in the risk of asthma in association with severe thunderstorm activity in the Adelaide Metropolitan and Hills region, particularly among children. Seasonal trends are apparent, with thunderstorms associated with an increase in the risk of childhood asthma in the warmer months in the Adelaide region.

Discussion/conclusion
Interestingly, daily pollen count was not found to be a significant mediator in the relationship between thunderstorms and asthma in this study. Further research is needed to better understand the relationships between thunderstorms and asthma in South Australia and the potential role of aeroallergens and other environmental triggers.