


Human Health and Social Impacts Node

Climate change and allergy in New South Wales: vulnerability and adaptation

A wide-angle photograph of a field of tall, golden-brown grass in the foreground. In the background, a bright sunset or sunrise is visible through a layer of dark, dramatic clouds. A faint rainbow is visible in the sky on the right side of the image.

The impacts of climate change on aeroallergens and allergic respiratory diseases are one of the main impacts of climate change on human health.

Photo: Unsplash/Jan Lawrence

The proposed project will assess the impacts of climate change on allergies in New South Wales, including analysis of vulnerability and recommendations for adaptation. It will identify the key climate and related environmental factors, clinically important aeroallergens (pollen grains and fungal spores), evidence for observed and projected future impacts, and the status of related allergic diseases such as asthma and allergic rhinitis (hay fever).

The project considers not only the impacts of changes in average climate, but also changes in climate extremes and severe events, including a focus on thunderstorm asthma. Thunderstorm asthma has previously occurred in rural NSW, such as the well-documented severe event in

Wagga Wagga in 1997. This component of the project will conduct a review of what is known regarding thunderstorm asthma, quantify the current status of the separate components of thunderstorm asthma events (e.g. rye grass cover extent and distribution in New South Wales; thunderstorm seasonality, frequency, and distribution) and examine the State's vulnerability to future impacts of climate change with regard to thunderstorm asthma with recommendations for adaptation to reduce or avoid such impacts.

Close collaboration with partners in Department of Industry, Planning and Environment - Environment, Energy and Science, NSW Health, and the Australian Bureau of Meteorology will ensure the project has a policy basis.

Research outcomes

- The first assessment of the impacts of climate change on outdoor aeroallergens (pollens and fungal spores) in New South Wales.
- Identification of aeroallergen's current impacts on allergic respiratory diseases (e.g. allergic asthma and rhinitis) to provide a baseline against which to accurately assess future impacts of climate change.
- Vulnerability assessment of the New South Wales population to the impacts of climate change on allergens.
- Development of recommendations for adaptive measures that could reduce population vulnerability to these impacts.
- Identification of the health impacts and environmental factors associated with a past thunderstorm asthma event in Sydney to help inform whether climate change projected for New South Wales (e.g. increasing temperature and changes to the distribution of rainfall and storms) may change the risk of future thunderstorm asthma events.

Who will use this information?

- Government (e.g. NSW Department of Planning, Industry and Environment, NSW Health, NSW Office of Emergency Management).
- Existing networks (e.g. Australasian Society of Clinical Immunology and Allergy (ASCIA), Asthma Australia).
- Other relevant government and community organisations.

Human Health and Social Impacts Node

Building on current sources of health and climate change information, the Human Health and Social Impacts Node supports the NSW Government by:

1. delivering robust, sector-specific information targeting the health system, vulnerable communities and government agencies
2. establishing baselines for monitoring, evaluation and analysis of adaptation programs that seek to protect and promote health, and strengthen the delivery of health services, in the face of a changing climate
3. improving understanding of vulnerability in the context of exposure, sensitivity and adaptive capacity
4. providing practical information on building resilience in communities and in the health sector.

The work program of the Node is informed by eco-social understandings of relationships between climate change and health. The approach taken acknowledges the range of environmental, social and economic consequences of climate change, including regional variation in impacts and vulnerability.

The Node is a partnership between:

- **Department of Planning, Industry and Environment**
- **University of Sydney**
- **NSW Health**

More information

Dr Sinead Boylan | Executive Officer Human Health and Social Impacts Node
E sinead.boylan@sydney.edu.au

Published by:

Department of Planning, Industry and Environment,
Environment, Energy and Science
59 Goulburn Street, Sydney South NSW 2000
Phone: 1300 361 967 TTY: +61 2 9211 4723
Email: info@environment.nsw.gov.au;
Website: www.environment.nsw.gov.au

Report pollution and environmental incidents:
Environment Line: 131 555 (NSW only)

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