

## **Menzies helps track the travels of the deadly melioidosis bacteria**

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An international team of experts has confirmed the Australian origins of the bacterium (*Burkholderia pseudomallei*) which causes the potentially fatal infectious disease melioidosis and tracked its global dissemination.

The results of the study have been published in the highly prestigious journal *Nature Microbiology*.

The research, led by a team from Wellcome Trust Sanger Institute in the United Kingdom and involving collaborators from the Darwin-based Menzies School of Health Research (Menzies), used whole genome sequencing of a global collection of bacterial isolates to plot the travel history of melioidosis bacteria and to determine the extent and frequency of the spread.

The study confirmed that the organism originated in Australia before being introduced to Southeast Asia, with subsequent spread to Africa and from there to the Americas. Ongoing collaborations are now defining global hot spots for melioidosis as well as unmasking locations where it was not previously thought to be present.

Lead investigator, Professor Sharon Peacock from Wellcome Trust Sanger Institute said it was important that information was available to help people understand if they are at risk, as well as how to prevent being infected by the bacterium.

“We have known about melioidosis for many years, but it’s only in the last 25 years that we have started to understand it better,” Prof Peacock said.

Melioidosis was considered to be something of a medical curiosity and a rare tropical disease for many years, but recent modelling predicts that 165 000 people may develop this infection every year globally, with the model estimating that around 89 000 of these will die from melioidosis.

“We now know that infection can result from bacteria being inoculated, ingested or inhaled which helps to shape guidelines on how to avoid getting this preventable disease,” Prof Sharon Peacock said.

Menzies’s team leader for *Tropical and Emerging Infectious Diseases*, Professor Bart Currie said that gene sequencing has also enabled the team to investigate and better understand the distribution of melioidosis in Australia as well as to pinpoint the origins of infections that have unexpectedly occurred in non-tropical locations such as the USA.

“We now know that the melioidosis bacterium is surprisingly present in some usually very dry locations in the heart of central Australia, with cases of melioidosis following flooding rains.

“There are also recognised pockets of bacteria in the environment in southeast Queensland and southwest Western Australia. What we don’t know is the extent of potential for melioidosis beyond these specific non-tropical locations across Australia.

“We also now know that some imported pasture grasses are a magnet for the bacterium in northern Australia and this, together with predicted global climate change raises concerns that case numbers will continue to rise. In Darwin we have seen a doubling of cases of melioidosis over the last decade,” Prof Currie said.

In addition, Menzies research has shown that severe weather events can result in aerosolisation of the bacteria, which are then inhaled to cause pneumonia and potentially fatal disease.

“For those living in or travelling to the melioidosis regions of northern Australia the preventative messages remain clear; most at risk for severe disease are those with diabetes, hazardous alcohol use, chronic kidney and lung diseases and those on immunosuppressive medication. People in these risk groups should avoid exposure to wet season soils and surface water and stay indoors during periods of wind and rain,” Prof Currie concluded.

For helpful tips on avoiding the melioidosis bacteria please visit the Northern Territory Government’s Centre for Disease Control. <https://nt.gov.au/wellbeing/health-conditions-treatments/bacterial/melioidosis>.

Read the paper in [Nature](#)

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**Menzies School of Health Research**

Menzies School of Health Research is one of Australia’s leading medical research institutes dedicated to improving Indigenous, global and tropical health. Menzies has a history of over 30 years of scientific discovery and public health achievement. Menzies works at the frontline, joining with partners across the Asia-Pacific as well as Indigenous communities across northern and central Australia. Menzies collaborates to create new knowledge, grow local skills and find enduring solutions to problems that matter.