

Australia: At least 16 dead in outbreak of waterborne illness after severe storms in northern Queensland

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In the aftermath of heavy rainfall and severe flooding that struck northern Queensland last month, residents of the region are being confronted with an unprecedentedly large outbreak of melioidosis. Some 125 confirmed cases and 16 deaths have been reported in the state since the start of this year, according to the latest Queensland Health figures, from March 9.

Discovered in 1910 by scientists Alfred Whitmore and C.S Krishnaswami working in Myanmar, melioidosis is a water and soil-borne disease, caused by the bacteria *Burkholderia pseudomallei*. It is endemic to the tropical regions of the world, with most strains found in northern Australia and southeast Asia.

The disease is not contagious, but typically infects humans through contact with water or soil contaminated by the bacteria, and is either ingested, inhaled, or enters through open wounds in the skin. Once a person is infected, the bacteria can form abscesses in various parts of the body (often the lungs, liver, and kidneys) causing sepsis and multi-organ failure.

The risk of infection is particularly high following storms and floods, which provide favourable conditions for *Burkholderia pseudomallei* to grow and come into contact with people, by spreading contaminated water and soil over a larger area.

The severity of the illness was described last month to the Australian Broadcasting Corporation by Cairns resident Debbie-Joy Manttan, who was diagnosed with melioidosis in March 2022. Manttan, who believes she inhaled the bacteria after heavy rain, suffered “absolutely cruel chills and fevers... where I was in tears and in so much pain because I was so cold.”

Manttan developed an infection in her leg, leading to a prolonged period of treatment in hospital and intravenous antibiotics at home. “My leg where they found the infection actually broke twice because of the infection, so I was in casts and wheelchairs, and that went on till September last year,” she said.

Even with timely medical care and antibiotics, mortality rates from melioidosis are around 10-20 percent, with many of those infected requiring a prolonged period of hospitalisation.

In countries and regions with poor access to healthcare, rates of death can exceed 50 percent. Additionally, 10 percent of

severe infections can result in a persistent chronic infection and disability.

Globally, approximately 165,000 people are infected with melioidosis each year, with 90,000 fatalities, but due to inadequate testing infrastructure it is likely that both figures are significant undercounts of the true toll.

Prevalence of the *Burkholderia pseudomallei* bacterium also appears to be expanding beyond its traditional range, with both transmission from international shipping and the increased incidence of severe weather events, due to climate change, playing a role.

A 2016 study published in *Nature Microbiology*, reviewing available global data on melioidosis between 1910 and 2014, concluded there were melioidosis-causing strains of *Burkholderia pseudomallei* in as many as 43 tropical and subtropical nations around the world, including Brazil, India, and China, and the southern United States. The same study estimated that the true prevalence of melioidosis may be as high as 400,000 cases a year, with 230,000 deaths.

In 2022, a group of distinguished tropical infectious disease scientists wrote an article in the *Lancet*, calling upon the World Health Organisation (WHO) to recognise melioidosis as a “neglected tropical disease,” rather than being dismissed as a rare disease confined only to a few parts of Australia and Asia. Their call went unheeded, and melioidosis continues to be the subject of limited research and public health efforts.

Both the state Liberal-National and the federal Labor governments have responded to the outbreak largely with complacency. Queensland Premier David Cristafulli blamed health authorities and the public, stating that the large number of cases was due to a failure of people to “take the right precautions when it comes to health and safety, when it comes to footwear ... we must always learn from these things.” He demanded that Queensland Health had to do more to ensure public safety, without suggesting any measures or efforts to protect the public.

Queensland Health Minister Tim Nicholls implied melioidosis was simply a fact of life, stating “the warnings have been out there consistently... it’s a known disease here in

North Queensland, so it's always on our radar." Despite being on the "radar," no programme to improve public health, housing, or flood-prevention infrastructure has been implemented to prevent future outbreaks.

As for the federal Labor government, not a single word has been uttered, nor a statement issued on the melioidosis outbreak, despite the death toll. In keeping with previous federal governments, the issue of melioidosis is regarded as merely a regional issue, and to date no strategy for reducing or eliminating the disease has been articulated.

The implication is that melioidosis is a disease without broader significance on public health. Though melioidosis infections are a regular occurrence in northern Australia, the size of this outbreak is virtually unprecedented, with close to three times as many cases recorded this year than over the same period in 2024.

Moreover, melioidosis cases have been rising across northern Australia (including the tropical regions of Queensland, the Northern Territory and Western Australia,) over the past 30 years. From 2000–2009, the total number of melioidosis cases in northern Queensland was 176, compared with at least 111 in the current outbreak alone.

A 2021 study published by Cairns Hospital found that from 1998 to 2019, the yearly incidence of melioidosis more than doubled in northern Queensland, from an average of 44 cases a year in 1998–2003, to 112 a year in 2016–2019. This was much larger than the population change over that period, which increased only by 26 percent.

While a precise explanation for the spike in melioidosis is difficult, the authors speculated that increased construction of residential housing in soil with poor drainage and increased contamination with *Burkholderia pseudomallei* could be causes.

Other studies of melioidosis outbreaks in Australia and internationally have drawn a connection between increased frequency of severe weather events such as cyclones, driven by climate change, and growing rates of the disease in Taiwan and Australia's Northern Territory.

The unusually large outbreak of melioidosis this year could be related to the extreme rainfall and flooding north Queensland has received.

As climate change increases the number and strength of storms, it is almost certain that rates of melioidosis will rise, without public health interventions.

The main method of preventing melioidosis is to avoid contact with contaminated water and soil, especially under flood conditions. In addition, chlorinating or using UV radiation to sterilise water sources suspected to have the pathogen has been demonstrated to reduce infections considerably in both Australian and international studies.

This requires adequate clothing and housing, education to be aware of the dangers, and access to clean water. The impacts of melioidosis are also greater and deadlier on those suffering

from existing chronic conditions, particularly diabetes and alcohol addiction, as well as lung and kidney disease, especially when these conditions are inadequately treated, due to lack of access to medication and health facilities.

Thus, melioidosis disproportionately infects and kills those without the resources and infrastructure to prevent infection, and who lack access to adequate healthcare to save their lives.

A 2021 study by the Kirby Institute and Cairns Hospital, entitled "Melioidosis – a disease of socioeconomic disadvantage," reviewed the demographics of melioidosis patients in Queensland between 1998 and 2020. The study recorded that, out of 321 patients infected, 48 percent were socioeconomically disadvantaged (defined as being in the poorest 20 percent of Australian society), and 54 percent were Aboriginal, among the most oppressed layers of the Australian working class.

The study further found that economically disadvantaged melioidosis patients were more likely to require treatment in an intensive care unit (ICU), and were twice as likely to die, due to the effects of pre-existing diseases.

Compounding these socio-economic factors, Australia has in recent years been in the depths of a severe housing crisis. Queensland has seen an increase in homelessness of 22 percent over the past 5 years. In Cairns, an estimated 3,000 people were homeless in August 2023, 1.71 percent of the city's population, a figure that has likely worsened since. Without safe housing, homeless populations are even more susceptible to contracting melioidosis as future cyclones and rainstorms batter the region.

The Cristafulli government, like its counterparts in the other states and at the federal level, has no plans to improve public health and address melioidosis or any other danger confronting working people. Rather, like the state Labor government of Palaczuk–Miles that preceded it for nine years, it intends to carry out the dictates of big business. Billions of dollars will be provided for mining infrastructure and to facilitate tax cuts, but nothing will be spent to provide clean water and safe housing.



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