

Environmental and Emerging Diseases Unit

Diarrhoea and intestinal diseases

Diarrhoea, primarily caused by intestinal (enteric) infections, remains one of the major causes of death in PNG. Less severe outbreaks cause considerable morbidity and cost to the economy. However, little is known about the causes of diarrhoea in PNG, as the country lacks the necessary facilities and human resources. Identifying pathogens is essential for selecting appropriate antibiotics for treatment and prevention.

Our studies include:

- Diarrhoeal aetiology - analysing stool samples from patients with acute gastroenteritis around PNG, using modern molecular techniques and traditional culture methods to learn more about the diseases. Working with University of Tokyo, Japan, and Monash University, Australia
- Gut microbiome – looks at the natural bacteria living in the intestines of people in PNG, using a variety of molecular and traditional culture methods, while also looking at potential dietary adaptations. Working with University of Tokyo, Japan, and Monash University, Australia.

Zoonotic diseases

Zoonoses are diseases that humans can contract from wild or domestic animals. Many diseases present with symptoms that are easily misdiagnosed for another ailment, such as brucellosis for drug-resistant malaria and rickettsiosis/scrub typhus for common cold. Thus investigations are needed to fully characterize the zoonotic health threats facing Papua New Guineans. We are collaborating with many national and international partners to investigate the threat of zoonotic diseases in PNG, including the National Agriculture Quarantine and Inspection Authority, the Wildlife Conservation Society and the World Health Organization.

Contact us

PO Box 60,
Homate Street,
Goroka, EHP 441,
Papua New Guinea

Phone: +675 532 2800

Fax: +675 532 1998

Email: info@pngimr.org.pg

Website: www.pngimr.org.pg



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About us

The Papua New Guinea Institute of Medical Research (IMR) is a world class research facility looking at ways to improve the health of the people of Papua New Guinea.

Our headquarters is in Goroka in the Eastern Highlands and we have laboratories and research sites across PNG, including in Alotau, Hides, Karkar, Madang, Maprik and Port Moresby.

The Institute was established in 1968 as a statutory body. It is governed by a 14-member council that reports to the Minister for Health and HIV/AIDS.

It is headed by the Director, supported by two deputy directors for science and corporate affairs.



Environmental and Emerging Diseases Unit

Formed in 2012, this unit focuses on environmental and outbreak-prone disease in PNG. While rapid economic and development expansion may bring greater prosperity for many in PNG, disruptions to natural habitats can affect both vector distributions and illnesses caused by pollution of water and agricultural land.

Changes to the environment can impact on both infectious and non-infectious diseases. We focus on infections that we know little about and also look at the interactions between the environment and human health.

We conduct clinically relevant research into the causes, burden and impact of diseases in PNG. We determine the most important agents associated with enteric, febrile and respiratory diseases and develop diagnostic analysis for outbreak-prone diseases.

We provide outbreak-response support to the Department of Health and the World Health Organization. Recently we supported the NDoH with investigation and laboratory confirmation of the nation-wide chikungunya outbreak.

Surveillance studies

We conduct a number of surveillance studies, including:

- Rotavirus – causes acute watery diarrhoea which may result in dehydration and death in young children. We work with the World Health Organization (WHO)
- Influenza - we run the National Influenza Centre for PNG, working with WHO to test samples from patients with suspected influenza virus
- Avian influenza – looking at avian influenza in PNG poultry
- Sentinel surveillance – developing diagnostic tools for febrile and diarrhoeal diseases.

Cholera

Cholera was first diagnosed in PNG in 2009 and there have been an estimated 15,000 cases with a fatality rate of about 4%. The outbreak spread to most coastal provinces and cases continued to be reported throughout lowland PNG until late 2011.

Our studies include:

- Cholera persistence – developing molecular surveillance tools for monitoring outbreaks and analysing factors influencing cholera transmission
- Cholera epidemiology – our cholera rapid response team travels to the site of outbreaks and works with the health authorities to confirm and investigate cholera epidemics.