Collaboration Case Study: Menzies School of Health Research – The Malaria Research Program in Indonesia

Primary Partners or End Users:
Indonesian Ministry of Health

Sector (eg. government department, private industry):
Government; private industry; civil society

Sources of Support: (Please include details of support such as grants, programmes/schemes, financial and in-kind support)

PT Freeport Indonesia
- In-kind support: IT, transportation, health workers salaries (+AUD1m)

Rumah Sakit Mitra Masyarakat (RSMM) Hospital
- Clinical laboratory space provided in-kind

Mimika District Government
- Funding for promotion of Artemisinin-based Combination Therapy (ACT) in Timika

Indonesia Ministry of Health [both district and national]
- Salary support for MOH researchers

DFAT [Australian Aid Program]
- +$1.2m through the Strengthening the Timika Translational Research Facility
- Australian Leadership Award funding, including for Dr Rini Poespoprodjo, an Indonesian paediatrician. Dr Rini completed her PhD on “Maternal and Child Health in Papua Indonesia – the epidemiology of malaria and strategies for its treatment and prevention”.

LPMAK [local Papuan NGO]
- Use of buildings and purchase of anti-malarial drugs

Purpose of programme/project
- Malaria is a major cause of death in the Asia-Pacific, infecting around 500 million people each year of whom up to 600,000 die.
- Almost half of Indonesia’s population of 250 million live in malaria endemic areas with 15 million people seeking treatment for clinical malaria each year. Papua province not only has the highest prevalence of malaria in Indonesia but also the highest prevalence of multidrug resistance to both P. vivax and P. falciparum.
- The Malaria Research Program in Indonesia aimed to:
  - Undertake clinical and field work to investigate the occurrences of drug resistance and advance our understanding of how Plasmodium parasites – that cause human malaria – result in severe diseases and death.
  - With this knowledge, identify better ways to prevent and treat malaria in different environments, facilitating policy change and monitoring the impact of such change on the health of communities.
Summary of collaborative approach

Our work in Papua Indonesia represents a collaborative partnership between Menzies, the Indonesian Ministry of Health, local government and civil society. The partnership has also worked closely with industry partners, including PT Freeport Indonesia for in-kind support. The purpose of our work is to undertake translational research to inform national policy and practice, and to assist the Papua region develop local expertise, in research, education and training, health policy and service delivery. The partnership with the Indonesian Ministry of Health has been underpinned by a Memorandum of Understanding.

Health Policy Makers

- Center for Disease Control, Indonesian MoH, Jakarta
- Mimika District Health Authority/ local government
- Papua Provincial Health Authority/local government

Indonesia National CDC and Papua local government, both on district and provincial levels, are regularly informed of Menzies’ research findings and have incorporated research findings into national and local health policy.

Service Delivery

- Mimika District Health Authority, Timika
- Mimika General Hospital (RSUD), Timika
- Mitra Masyarakat Hospital (RSMM), Timika

The research agenda has had the full support of the Mimika Health Authority, with the two hospitals in Timika, RSUD and RSMM, active participants in the research program. Our research findings have been incorporated into practice in both primary care clinics and hospitals in Timika.

Other Non-Governmental Partners

- Papuan Health and Community Development Foundation (PHCDF)
  PHCDF has become the umbrella organisation of TTRF. It is committed to improving the health status and well-being of people in Papua and the region through research, education/training and capacity building. PHCDF receives full support from the local government and other stakeholders.

- Lembaga Pengembangan Masyarakat Amungme dan Kamoro (LPMAK), Timika
  LPMAK is the umbrella organisation of RSMM. The main agenda of this foundation is to improve economic, education and health status of Amungme and Kamoro community, which are the main tribes in Mimika district.

- PT Freeport Indonesia, Timika
  PT Freeport Indonesia has been a key player and supporter of the TTRF. The support from PT Freeport has been very wide, including: salary of health workers, supply of equipment and consumables such a liquid nitrogen, electricity, freight for goods and samples, discounted rates for transportation of researchers and Timika staff or staff from partner institutions.

Details and analysis of impact

Over the last 20 years, the collaboration has had an immense impact on the health of the Timika population, especially in vulnerable pregnant women and infants. In our key areas of research we can trace the following impacts:

Malaria

- A Deloitte’s report (2012) valued Menzies economic contribution in the region through research on malaria at $297m, with a return on investment factor of 72.
In Mimika district, these studies and resulting policy and treatment changes resulted in: a 49% reduction in malaria, fivefold reduction in hospital admissions, and threefold reduction in perinatal mortality.

Investment has resulted in antimalarial clinical trials and peer-reviewed articles that have directly impacted on national and regional policy, as well as World Health Organisation guidelines.

Based on our research, Indonesia became the first country to adopt DHA-piperaquine as first line malaria treatment of uncomplicated malaria from all species, including pregnant women and young children. A large multicentred study of severe malaria demonstrated the superiority of intravenous artesunate over iv quinine, resulting in Indonesian and global policy change.

Maternal and Child Health

Menzies and its partners have helped to change policy for the treatment of malaria in pregnancy and babies. This resulted in significant reductions in low birth weight babies and perinatal mortality. On the basis of this evidence, Indonesia changed national policy to DHA-piperaquine for pregnant women. The WHO is currently reviewing the implication of these findings with regard to international policy.

Our impact comes from a unique translational approach, from an appreciation of the local healthcare providers and priorities, and the relationships we have built with key stakeholders. Our staff and partners include key policy makers, healthcare providers and community leaders. Furthermore, we have established an innovative public private partnership with the local commercial sector, resulting in private funds being leveraged to support the research facility and hospital.