

**JOINT AusAID-GOVERNMENT OF PNG RESPONSE**

**TO THE RECOMMENDATIONS OF**

***EVALUATION OF RISKS OF TUBERCULOSIS IN WESTERN  
PROVINCE, PNG***

***November 2012***

## Overview

The *Evaluation of Risks of Tuberculosis in Western Province Papua New Guinea* (September 2012) was undertaken by Associate Professor Emma McBryde on behalf of the PNG government and funded by AusAID.

The evaluation assessed the risk of TB and MDR/XDR-TB in Western Province. It also assessed the risk of transmission of TB to Australia from PNG through people movement facilitated by the Torres Strait Treaty and other migration.

In conducting this review, Associate Professor McBryde consulted with stakeholders in both Australia and PNG. The Report was provided to the Government of PNG on 29 October 2012, and formally presented to the Torres Strait Cross-Border Health Issues Committee (HIC) on 31 October 2012.

In summary, the *Evaluation of Risks of Tuberculosis in Western Province Papua New Guinea* (or the 'McBryde Report') concludes that:

1. PNG's approach of treating people with TB in their own communities is appropriate;
2. the risk of drug resistant TB spreading to Australia from PNG, and becoming endemic remains low as long as contact amongst residents is of short duration and/or confined to outdoor activities ; and
3. more needs to be done to expand TB control throughout Western Province, including strengthening infection control measures at Daru Hospital and accelerating the roll out of community treatment outside Daru, including through an expansion of primary health services through the Province.

The McBryde Report deals with a number of key issues and recommendations, broadly grouped into nine areas: infection control; communication; human resources; outreach and education; cross-border cooperation; and health infrastructure; HIV testing; strengthen and expand TB services on a sustained basis; and research.

**PNG and AusAID agree to all of the recommendations of the Report.** This joint response outlines the steps that the PNG and Western Provincial Government and AusAID will take to address the recommendations in the McBryde Report. The response to a number of recommendations will need to be phased over a period of time.

The Report notes that TB services in Western Province were strengthened in 2012 with support from AusAID, leading to improved detection, treatment and management of TB.

The recommendations of the McBryde Report will inform PNG's framework for managing TB in Western Province, as will the annual independent review of TB in Western Province by the World Health Organisation (WHO) in late November 2012. This will be the second annual review by WHO (the first was conducted in 2011) and will comprise an assessment of progress with strengthening TB management in South Fly, including any changes in approach required due to identification of XDR-TB in 2012.

## 1. HUMAN RESOURCES AND STAFF SUPPORT

The Report notes that AusAID has supported the deployment of a TB Medical Officer, TB Program Coordinator, three nurses and two Community Health Workers to help improve TB services in Western Province, through World Vision. In addition, AusAID is supporting a rotating registrar position to supplement medical staff at Daru Hospital. The PNG Government has recently appointed a new CEO at Daru General Hospital which represents a commitment to improved management and leadership.

### **Identified issues and risks**

- Health workers at Daru Hospital (doctors, TB Program Coordinator and nurse) are already under considerable strain, and this is expected to increase with rising caseload.
- Limited staff are able to undertake the training, supervision, monitoring and evaluation, and recording and reporting required.
- Rural health staff levels are insufficient in remote areas of the South and Middle Fly Districts, with some Aid Posts unmanned due to lack of available skilled Community Health Worker applicants and prolonged absenteeism.

### **Report recommendations**

- a) Much more support is required for all levels, particularly monitoring and evaluation and implementation of programmatic management of TB.*

**Agree.** Human resources and staff support are a top priority for the PNG Government and AusAID. Improvements in management and leadership will be essential to have an impact on workforce morale and performance. A new CEO has recently been appointed to Daru General Hospital by the PNG Minister for Health & HIV. The Minister has also advised that a new Daru Hospital Board will be appointed to support better governance.

At the request of the PNG Government, AusAID will support the recruitment of an additional PNG medical officer to provide inpatient TB care. The new medical officer will report to the specialist TB physician at Daru Hospital (Dr Moke), allowing Dr Moke's role to focus on outreach and supervisory activities. AusAID will support recruitment of three TB Disease Control Officers (DCOs) to expand coverage at Basic Management Units<sup>1</sup> (BMUs) (Balimo, and Kiunga). These positions will work under the Provincial TB Coordinator, employed through World Vision.

The TB medical officer and TB Disease coordinator positions have been advertised and are expected to commence first quarter 2013

World Vision is on track to train 50 volunteer Community Treatment Supporters and 25 Community Health Workers in South Fly by the end of 2012. A total of 75 Community Health Workers and 200 community treatment supporters will be trained across Western Province by mid-2015. The current targets for training are based on available data on TB burden in Western Province. The PNG Government, World Vision and AusAID will

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<sup>1</sup> A Basic Management Unit (BMU) consists of a health facility, a microscope and trained microscopist, and a TB drug dispensary. Each BMU records TB diagnostic and management activity using three books: a TB Suspect Register, a TB Register and a TB Microscopy Register. Triangulation of this data and quarterly reporting is part of the recording and reporting in a TB program.

continue to monitor needs and reassess targets based on updated data on TB in Western Province as it becomes available.

*b) More staff must be recruited and trained if more BMUs are to be opened and functioning.*

**Agree.** The Human Resources Plan for the Western Provincial Division of Health will be revised in 2013. The Provincial Division of Health will identify priority areas for recruitment. World Vision is training Community Health Workers and volunteer Community Treatment Supporters, as outlined above. AusAID will continue to provide midwifery scholarships<sup>2</sup> and offer nursing and Community Health Worker scholarships from 2013. In addition, AusAID will support an audit and quality improvement plan for Rumginae Community Health Worker Training School (in North Fly District) to enable it to accept AusAID scholarship recipients from January 2013.

*c) Adequate staff housing is required to maintain staff morale and ensure staff retention.*

**Agree.** Funding has been secured through the PNG Sustainable Development Program (PNGSDP) for staff housing at Daru General Hospital. Daru General Hospital, Western Province Health Office (WPHO) and PNGSDP will need to reach an agreement on the location of staff housing.

The Middle and South Fly Health Development Program (MSFHDP) will prioritise in-service training, health infrastructure refurbishment and staff housing to help attract and retain staff to rural areas. Infrastructure will be built to PNG National Health Standards, and include water and sanitation. The \$37 million (80 million kina) MSFHDP will be co-financed by AusAID, PNG Sustainable Development Program and Ok Tedi Fly River Development Program, for 5 years from 2013-14.

## **2. INFECTION CONTROL AT DARU GENERAL HOSPITAL**

The McBryde Report notes an interim TB isolation ward at Daru General Hospital became operational in February 2012, with support from AusAID. A new, purpose-built TB isolation ward is currently under construction and scheduled for completion in February 2013.

### **Identified issues and risks**

- There is an infection risk at Daru General Hospital due to lack of appropriate infection controls particularly as a result of the placement of patients relative to the air flow (TB, MDR-TB and General wards), crowded facilities and ventilation issues.
- Masks are not used correctly and other aspects of infection control (hand washing facilities and disposal of clinical waste) are poorly managed.
- Some cases of hospital acquired TB have been identified, including one case of XDR-TB.

### **Report recommendations**

- a) Address Daru General Hospital ward lay out in terms of a separate space/ward for people under investigation, known smear positive, known MDR and known XDR-TB*

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<sup>2</sup> Midwifery scholarships are being provided for two staff from Daru General Hospital in 2012.

*cases. The placement of patients relative to air flow between wards also needs to be addressed to reduce the risk of TB transmission.*

**Agree.** The PNG Government has prioritised the construction of a new TB ward at Daru General Hospital (funded by AusAID). This will provide six MDR-TB isolation beds and 16 TB beds. The design has been assessed by WHO as meeting international infection control standards. Construction is on track for completion by mid-Feb 2013.

At the PNG Government's request, AusAID is supporting the engagement of an infection control specialist to conduct an assessment at Daru Hospital in November 2012 and make recommendations to improve infection control.

The Infection Control specialist will:

- review infection prevention and control practices, including patient placement in the temporary TB isolation Ward, and TB Ward and other patient care areas;
- review current patient placement and isolation practice and recommend improved processes and practices to reduce the incidence of nosocomial (acquired in hospital) infection and reduce the potential for spread of TB within the hospital;
- provide training to staff on PNG infection control standards and procedures.

Progress will be reviewed by an international Infection Control specialist by early February 2013 (also be supported by AusAID).

*b) Investigate suspected TB cases as outpatients wherever possible.*

**Agree.**

*c) TB cases admitted to hospital should have sputum sample performed on same day.*

**Agree.** Improved infection control practices will be implemented at Daru Hospital, based upon recommendations of an Infection Control specialist (outlined above), including ensuring that all TB patients have a sputum sample collected on the day of admission.

*d) Improve infection control facilities (e.g. use of personal protective equipment, hand washing, patient placement) and practices for staff.*

**Agree.** An assessment by the Infection Control specialist will provide further advice to improve approaches in the short term, pending further recommendations provided by an international infection control specialist in early 2013. Daru Hospital will be responsible for implementation of infection control policies and practices by staff. A total of 8 hand basins and hand cleanser dispensers will be installed in wards at Daru Hospital and one hand basin and dispenser in the outpatients department.

### **3. COMMUNICATION**

The Report notes that a Communications Centre was established at Daru General Hospital in December 2011, supported by AusAID. This is equipped with a scanner, two printers, a fax and a photocopier. The Centre also uses the existing health radio network, and AusAID has also supported provision of Blackberries to key TB Program staff.

### **Identified issues and risks**

- Despite improvements, there is currently inadequate communication between Basic Management Units (BMUs) and the provincial TB coordinator. Communication links are important for patient monitoring, referral, outreach and quarterly reporting.

### **Report recommendations**

*a) Communications between BMUs and the Daru-based TB Coordinator must be improved.*

**Agree.** Through World Vision, AusAID will support expansion of the communications network between the TB Coordinator based at Daru General Hospital and Community Health Workers at BMU's, using the closed user group Digicel phone network (through World Vision). A standard format will be agreed for reporting on patient outcomes.

*b) Improve communication links via internet (e.g. viaSat<sup>3</sup>), and provide additional communications equipment (Fax machine, scanner/printer) and antiviral software.*

**Agree.** AusAID is funding installation of viaSat to the TB Communications Centre at Daru Hospital (expected to be operational by 10 December 2012). This will improve internet communications for data transmission and broader communications for TB and general health services.

## **4. OUTREACH AND EDUCATION**

The Report notes that training of Community Health Workers, Health Extension Officers and microscopists in programmatic TB Management has taken place in all districts of Western Province. Daru and Kiunga have active Advocacy, Communication and Social Mobilisation units. The PNG national reference laboratory, Central Public Health Laboratory (CPHL), is providing some quality assurance for microscopy in South Fly District, through AusAID support.

### **Identified issues and risks**

- Western Province has very few functioning Basic Management Units (BMUs), with some not meeting minimum requirements (e.g. microscope and trained microscopist, quality assured microscopy) and others limited in recording and reporting.
- There is delayed access to care and late presentation of TB cases, and a resistance by some patients to come to hospital, particularly treaty villagers.
- Limited capacity of CPHL to perform the required quality assurance for microscopy in Western Province, as the key diagnostic strategy for TB.

### **Report recommendations**

*a) Increase the number of Basic Management Units (BMUs) with funding, staff, and training.*

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<sup>3</sup> viaSat is a satellite broadband provider

**Agree.** The Western Province Health Office (WPHO) has developed strategies to increase the number of BMUs in Western Province. This includes training an additional microscopist (a staff member from Awaba Health Centre) which commenced on 19 November 2012. At the request of the PNG Government, AusAID will support the training of additional microscopists at priority BMUs which have been identified by WPHO.

At the request of the PNG Government, AusAID will also support additional procurement of microscopes at identified BMUs<sup>4</sup>. The Western Province Government will also undertake an assessment of microscopes to determine needs for replacement.

*b) Support BMUs with supervision and outreach.*

**Agree.** WPHO will increase outreach across the province. WPHO is developing a short to medium plan for outreach activities by district staff to BMU's as an interim measure until BMU's are fully functional. AusAID will continue to support World Vision to promote advocacy, communication and Information, Education and Communication (IEC) on TB transmission, including through outreach and provision of materials for South Fly residents.

*c) Aid Posts and Health Centres that are not BMUs need assistance with TB diagnosis, referral and management.*

**Agree.** WPHO is finalising developing a short to medium plan for outreach activities by district staff.

*d) Outreach clinics around treaty villages and up the Fly River are urgently needed and can be used for patient transfer, outreach clinics, training and supervision of Health Extension Officers and microscopists in BMUs.*

**Agree.** The establishment of permanent port facilities at Daru will support an increase in the frequency of use of the sea ambulance. A six-month schedule for expanded outreach clinics via the sea ambulance has been developed. AusAID will also provide two additional boats<sup>5</sup> for use by TB Disease Control Officers in Balimo and Daru to support increased outreach.

## **5. CROSS BORDER COOPERATION**

The Report notes the increased attention to TB by the Torres Strait Cross Border Health Issues Committee (HIC), an intergovernmental forum for addressing cross-border health issues between Australian and PNG. It is comprised of senior representatives from the PNG National Department of Health, Western Province Health Administration, Australian Department of Health and Ageing, Queensland Health, Department of Foreign Affairs and Trade, Department of Immigration and Citizenship, AusAID and the Australian Customs and Border Protection Service.

### **Identified issues and risks**

- Enhanced cross border cooperation will be required, as some PNG nationals may continue to seek care in Australia.

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<sup>4</sup> Awaba (electric), Wipim (solar) Emeti (Solar) Ningerum (solar) Bosset (Solar) and Lake Murray (solar), Teapopo, Kamusi.

<sup>5</sup> 60HP\*23FT dinghies

- The risk of TB transmission to Saibai and Boigu residents is low as the majority of visits are short and involve outdoor interactions. Overnight stays with families pose considerable risk.
- There is delayed access to care and late presentation of TB cases from Treaty Villages, and a resistance by some patients to come to hospital, particularly treaty villagers.

### **Report recommendations**

- a) *Continue to share information on cross-border cases, particularly details of cases and management history for ongoing care needs when patients return to PNG. Australian clinicians need to rapidly notify PNG when PNG nationals are diagnosed in Australia.*

**Agree.** At the October 2012 Health Issues Committee (HIC) meeting, HIC representatives agreed to pursue improved information sharing between PNG and Australian clinicians, and a joint approach to surveillance for a range of infectious diseases in the Torres Strait cross border region. WPHO will progress measures to improve information sharing with Australian clinicians and utilisation of the agreed cross-border communications protocol.

- b) *Referrals of any PNG nationals presenting at clinics in Saibai should be made directly to the WP TB Coordinator, Daru General Hospital and Mabaduan Health Centre in order to transfer patients to where programmatic management can take place.*

**Agree.** A template and process to facilitate the referral of PNG patients from Torres Strait to PNG (as clinically appropriate) is being finalised by Western Province Health in consultation with Queensland Health.

- c) *Allowing movement of health professionals across to Treaty Villages to provide mentoring and support in PNG (Twinning Arrangements) has merit and would assist in developing sound cross border control measures. For Australian clinicians to continue to play a role in the care of PNG nationals, their services must be integrated into PNG's management of TB in Western Province<sup>6</sup>.*

**Agree.** As agreed at the October 2012 HIC meeting, the technical collaboration which has developed through the joint Australia-PNG handover clinics will be continued through establishment of a joint PNG-Australia clinical collaborative group commencing in early 2013. The first meeting is planned to be held in Daru in late February 2013. Cross-border twinning will be included on the agenda for this meeting. There is potential to support this twinning through the Australian aid program.

- d) *Torres Strait Islanders need to be educated and TB, its mode of transmission and risks, encouraged to present early with cough or fever, and discouraged from spending time in crowded housing conditions while visiting relatives.*

**Agree.** AusAID will liaise with Department of Health and Ageing, Queensland Health and the Torres Strait Regional Authority about progressing this.

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<sup>6</sup> E.g. this would require reporting cases to WP TB management and using the TB programmatic procedures, including FDC drug kits and TB register for recording and reporting.



- e) Enhance facility at Mabaduan including staffing, same day service for sputum microscopy, and a reliable supply of appropriate medications. Upgrading will require reliable electricity, a controlled temperature drug storage facility, reliable water and sanitation, and good communications with Daru.*

**Agree.** Rebuilding the Mabaduan Health Centre is a priority for the PNG and Western Province Government. At their request, AusAID will support the rebuilding of Mabaduan Health Centre, in partnership with PNG Sustainable Development Program. This will include construction of an isolation unit and staff housing. A tender for the scoping of Mabaduan Health Centre was released 12 November 2012. Scoping will be completed in mid-2013, which will be followed by a competitive tender process for construction. In the interim, formal agreement will need to be secured from Mabaduan community to guarantee land use for a new health centre and staff housing at Mabaduan.

WPHO proposes to hold consultations with communities regarding health services (provided by local, provincial and national PNG governments).

## **6. HEALTH INFRASTRUCTURE**

The Report notes infrastructure improvements commenced at Daru General Hospital in 2011, including AusAID's support for the construction of the Communication Centre and refurbishment of the interim TB isolation ward, as well as upgrading of X-Ray and installation of a GeneXpert machine (both in May 2012). The PNG Government has decided to undertake a Hospital Master Plan before further improvements are made to Daru General Hospital.

### **Identified issues and risks**

- Attempting to control high levels of MDR-TB without a very significant investment in health care infrastructure could lead to a breakdown in the healthcare system, with insufficient staffing, medication and hospital beds to manage MDR-TB properly.
- Health infrastructure is poorly maintained.
- AusAID is supporting a program of routine maintenance, including refurbishing/replacing hand washing facilities, pending the completion of the Master Plan.

### **Report recommendations**

- a) MDR-TB program success will require better infrastructure, especially around BMUs and in rural Aid Posts for those patients requiring treatment support.*

**Agree.** In addition to prioritising the rebuilding of Mabaduan Health Centre (as noted in previous response) PNG is identifying ongoing infrastructure priorities under the Middle and South Fly Health Development Program, to be co-financed through a combination of PNG Government funding, donor assistance and other support (e.g. PNG Sustainable Development Program, Ok Tedi Fly River Development Program). This will include funding for refurbishment of health facilities and associated staff housing. Refurbishment priorities will be based on a stocktake of facilities, which is expected to commence first quarter of 2013.

*b) Time spent in hospital with MDR-TB is much longer and measures are necessary to boost hospital beds throughout South Fly (and potentially other districts).*

**Agree.** AusAID is supporting the construction of a new TB unit at Daru General Hospital which is on track for completion by mid-February 2013. Once complete, it will provide six isolation beds, and a 16 bed TB ward. The design has been assessed by WHO as meeting international infection control standards.

A Master Plan for Daru General Hospital will be completed by April 2013 to assess existing facilities and options for upgrading facilities. This will include an assessment of services to be provided, demographics, future health trends, and capital and recurrent costs and development of an implementation strategy. Further scoping work will be completed for the Outpatients and Services Block for Daru General Hospital, comprising the outpatients area, laboratory, operating theatres, and pharmacy. AusAID is providing funding for the development of the Master Plan for Daru General Hospital, as well as the scoping works for the Outpatients and Services Block. The tender for this work was released on 12 November 2012.

Funding has also been allocated by the PNG Government to complete the construction of the Community Health Post at Buizi. Subject to the priorities identified in the Daru General Hospital Master Plan, AusAID will commit additional funding to support new infrastructure.

## **7. HIV TESTING**

The Report notes that integration of TB and HIV services has commenced in Daru and is ready to commence at Kiunga and Balimo.

### **Identified issues and risks**

- While HIV rates are not considered to be driving increases in TB and MDR-TB in Western Province, if left unabated rates of HIV may rise and manifest in increased incidence of TB in the next five years.
- Not all hospitals routinely testing TB patients for HIV, despite access to rapid tests. Implementing Provider Initiated Counselling and Treatment (PICT) appears to be a bottleneck due to lack of private space for counselling. Uptake rates for HIV testing are poor.

### **Report recommendations**

*a) Explore cultural and professional causes that could be contributing to poor uptake rate of HIV testing, and invest in space to remove this obstacle to PICT.*

**Agree.** Building capacity for HIV/AIDS prevention and care, including strengthening PICT at all health facilities is an integral part of primary health care. This includes increased testing of TB, Sexually Transmitted Infections and antenatal care patients for HIV.

AusAID will provide additional support in this area, including through:

- training for health workers in PICT;
- supporting the supply of HIV test kits, Antiretroviral Therapy drugs and laboratory testing equipment;

- funding the inclusion of HIV dedicated space in new facilities.

World Vision will develop information, education and communication (IEC) materials that will cover issues relating to TB and HIV co-infection. AusAID will also propose to World Vision that future training on TB Directly Observed Treatment Short-course (DOTS) should include training in PICT.

HIV prevention activities will be expanded to focus on Middle and South Fly through AusAID support to Tingim Laip, PNG's largest community-based HIV prevention and care project.

## **8. STRENGTHEN AND EXPAND TB SERVICES IN WESTERN PROVINCE ON A SUSTAINED BASIS**

At the most recent HIC meeting (30 to 31 October 2012), HIC members commended PNG on progress made in implementing programmatic management of TB in Western Province.

### **Identified issues and risks**

- The rate of drug resistant TB may be so high that simple programmatic management will be insufficient to control it, even if implemented very effectively throughout the province. This is the case in Daru and treaty villages.
- Sustained commitment is fundamental to the success of the program. MDR drug costs are 320 times more expensive than standard TB drug treatment.

### **Report recommendations**

*a) Well-coordinated TB management and general health care provisions must be urgently expanded in Western Province to avoid increases in MDR and XDR-TB.*

**Agree.** PNG continues to prioritise improvements in TB management and general health care provisions in Western Province. Further work is planned, including increasing the recruitment and training of Community Health Workers for TB management, better integration with HIV services, and improved communication of patient reports.

*b) Roll out of programmatic TB management to Middle and North Fly, but a rapid assessment of drug susceptibility is needed.*

**Agree.** AusAID support for World Vision to implement the "Stop TB in Western Province" program (initial funding for the period February 2012 – June 2015) covers the whole province, with an initial focus on South Fly District. AusAID will continue to work with World Vision to explore the possibility of rolling the program out faster across Western Province.

As is common in PNG, quality of data and estimating the true burden of the disease remains a challenge, but is important as a basis for policy, programming and measuring progress. An anti-TB Drug Resistance Survey is being undertaken in four PNG provinces – Madang, Morobe, National Capital District and Western Province. Samples will be drawn from Health Centres in Rumginae and Tabubil Health Centres in North Fly (as well as Daru in South Fly). AusAID is funding this survey, at the request of the PNG Government. Results will be

available in late 2013.

*c) More investment in TB management is required, and in particular district and provincial level government engagement and cooperation is necessary, as is engagement on the hospital executive throughout the province.*

**Agree.** The PNG National Department of Health is committed to providing ongoing support for improved TB services, including through funding. PGK 2.1 million has been provided through the PNG national budget for TB in 2013.

AusAID is committed to long term support and engagement on this issue (at least ten years). Improved TB management depends on strengthening the health system. AusAID is taking a two-track approach of supporting development of TB services, together with broader support to improve Primary Health Care services in Western Province. However, Primary Health Care outcomes will require longer timeframes, and can only be achieved through multiple inputs, significant funding, as well as strong and sustained management, commitment and leadership by the PNG Government.

The Middle and South Fly Health Development Program (MSFHDP) is a key activity to improve Primary Health Care in Western Province. The Program will invest PGK 80 million over five years to strengthen primary health services in the Middle and South Fly region. AusAID has committed additional resources to the Program, alongside contributions by WHPO, PNG Sustainable Development Program and Ok Tedi Mining Ltd. The Program will:

- Provide technical support for planning, resource allocation and monitoring and evaluation and improving partnerships and coordination with stakeholders
- Refurbish health facility infrastructure (including staff housing and medical supplies and equipment), training and development for health workers and village health volunteers, revitalising communications, and providing transport to support outreach and referrals
- Implement community-based primary health care initiatives to address child survival, maternal health, TB and other communicable diseases, health lifestyles and preparedness for disease outbreaks.

## **9. RESEARCH**

The report recommends further research and analysis to strengthen the evidence base to manage TB in Western province.

### **Report recommendations**

Recommended research includes:

- a) Genotyping isolates to test for epidemiologically-linked clusters.*
- b) Study at population level on the social determinants of TB.*
- c) Operational research to investigate efficient management of drug delivery and other services in the context of the logistical challenges in Western Province.*

- d) Modelling of interventions strategies and the potential impact and adverse consequences.*
- e) Qualitative research involving people of Treaty Villages, their response to illness and the reasons behind actions surrounding transfer of care.*

**Agree.** Future research priorities will need to be discussed and endorsed by stakeholders prior to proceeding, and subject to Australian and PNG ethical standards for research. The Australian Development Research Awards (ADRA) scheme could potentially be used as a source of funding provided relevant topics are included on annual research priority list for both PNG and AusAID. This type of research could be undertaken by a range of Australian and International research organisations.