

Papua New Guinea

World Vision

Health and human wellbeing



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Video chapters online

1. Papua New Guinea: a country profile	(3' 20'')
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Papua New Guinea: human wellbeing

Unit scenario

“Geographies of human wellbeing focuses on investigating global, national and local differences in human wellbeing between places. This unit examines the different concepts and measures of human wellbeing, and the causes of global differences in these measures between countries ... They explore programs designed to reduce the gap between differences in wellbeing.”

This unit is a case study using an enquiry-based approach to explore human wellbeing, health and disease in Papua New Guinea. It invites students to work in small groups with the following scenario:

- “You are workers with an Australian aid and development non-government organisation (NGO) and have been invited to work with the PNG Government to help improve health outcomes for the people of PNG. Before starting your research, spend time brainstorming all you know about Papua New Guinea and make a list of questions to guide your research. Make sure these questions address social, economic and environmental issues.”

Skills: observing, questioning and planning

- “Watch the PNG country profile video without audio. What further questions does this raise about life in PNG and the health issues facing the people of PNG? Watch the PNG country profile with audio and read the PNG country profile. State your hypothesis regarding patterns, impacts and efforts to address health issues in PNG.”
- “Watch the other video chapters on **HIV and AIDS, Nutrition, Tuberculosis** and **Water-based diseases** – and read the documentation on these topics. Undertake further research and collect data. Watch the AusAID in PNG video below.”

https://www.youtube.com/v/p6JvlzTMK5E?version=3&f=videos&app=youtube_gdata&rel=0

Skills: collecting, recording, evaluating and representing

- “Analyse the data to make generalisations and propose explanations for patterns and predict outcomes. You may need to confirm, reject and/or modify your hypothesis. What is being done and what could be done by groups, NGOs and governments to limit the impact of these diseases on development?”

Skills: interpreting, analysing and concluding

- “Make a series of recommendations to improve the health and human wellbeing of people in PNG – and communicate your recommendations to the PNG and Australian governments. Propose individual and collective action in response to this challenge, taking account of environmental, economic and social considerations; and explain the predicted outcomes and consequences of your proposal.”

Skills: communicating, reflecting and responding

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Papua New Guinea: a country profile

Land

Papua New Guinea (PNG) is located to the north of Australia and is our closest neighbour. The climate is tropical, with high temperatures and humidity levels. Tropical forests which covered much of the country are rapidly being logged. At the same time, the connections between people and their land are very significant and central to their identity.

People

PNG is the most linguistically diverse nation in the world with over 800 indigenous languages spoken. However, the dominant language is Melanesian Pidgin, and English is the official language. Christianity and indigenous animist beliefs are the main spiritual beliefs. One of the challenges for the people of PNG is to reconcile their traditional way of life with the introduced ways of life in a modern, urban economy.

History

Evidence indicates that humans arrived on New Guinea at least 60,000 years ago. In 1885, the eastern half of the island was divided between Germany (north) and England (south). During World War I (1914-18), Australia occupied the German area, and continued to administer the combined areas until independence in 1975. Australia continues to have strong ongoing ties with the country.

Economy

Many tribes in the isolated mountainous interior have little contact with each other, let alone with the outside world. However, there is an increasing urban population. About 80 percent of the population is dependent on subsistence agriculture. A small proportion of the land is suitable for growing cash crops, including coffee, copra and cocoa.

PNG has extensive mineral deposits – including gold, copper and nickel – but the difficult terrain and inadequate infrastructure (poor roads and communications) make mining difficult. There are significant reserves of oil and natural gas and the country hopes to become a significant energy exporter. Oil, copper and gold account for two-thirds of export earnings.



Source:www.your-vector-maps.com

Australian Government aid (A\$491.7 million in 2012-13) is also a significant source of income and includes training for skilled and responsible leadership.

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Papua New Guinea: a country profile

Living conditions

Some 87 percent of Papua New Guinea's people live in rural areas with few facilities. The main problems are limited access to basic health and education services. Roads often don't exist or are of a poor standard. They are hard to maintain because of high rainfall and soil erosion. People must walk long distances to get to school or reach a medical centre.

People in rural areas live in a variety of traditional houses made from bush materials, while people in towns tend to live in Western-style housing. Diet consists of what can be grown in gardens – sweet potato, taro and greens. Only 10 percent of people have a telephone and less than two percent have access to the internet.

Education

Education is highly valued by the people of PNG. However, the public education system is poorly funded and under-resourced – particularly in the more remote areas. Approximately 30 percent of children never attend primary school.

Positively, there are moves to expand the use of *tok ples* (local language) in education programs. Also, there are increasing efforts to improve teacher training and make the curriculum more relevant to student needs.

Health

Health services are extremely poor across PNG, especially in rural areas, where roads often don't exist and there is a shortage of skilled healthcare workers. These limitations have a negative impact on the prevention and treatment of health problems.

In addition, people in remote areas have poor access to clean drinking water and adequate sanitation. This means that communicable diseases such as diarrhoea and cholera are major causes of illness and death, especially in young children. Malnutrition and HIV and AIDS are also long term health problems, and the use of tobacco and alcohol are increasing problems.

A major health challenge in PNG is the limited number of skilled healthcare professionals and hospitals available to the population. PNG has less than 400 doctors in total and only 51 work outside the capital Port Moresby. This is despite the fact that 87 percent of people live in rural areas. PNG has one doctor for every 17,068 people, compared to one doctor for every 302 people in Australia.

There is a similar shortage of nurses in PNG, with approximately one nurse for every 2,270 people. In Australia, there is one nurse for every 100 people (World Bank, 2010)

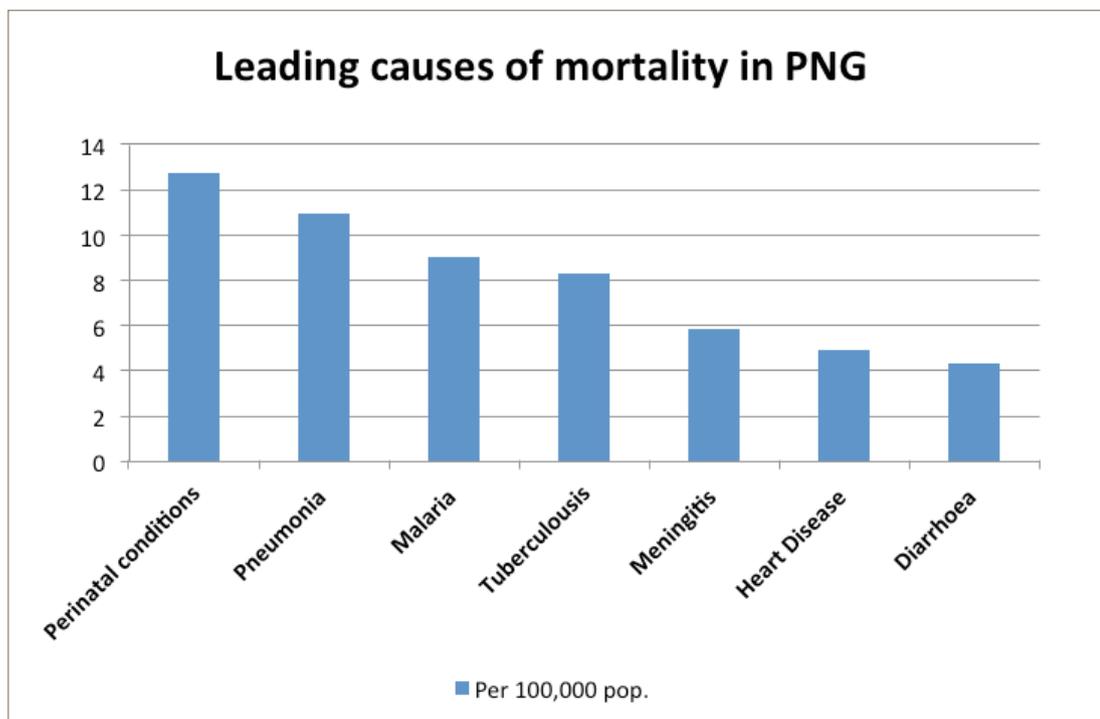
Category	PNG	Australia
Population	7.2 million	23 million
Urban population	13%	89%
Human Development Index	156/187	2/187
% of children reaching Year 5	68%	100%
Population using improved water sources	39%	100%
Adult literacy rate	Male: 63% Female: 51%	Male: 99% Female: 99%
Life expectancy at birth	63 years	82 years
Under-five mortality rate (per 1000 live births)	58	5
Maternal mortality (per 100,000 live births)	733*	7
Population under 15 years	41%	20%

Source: UNDP Human Development Report 2013
* PNG 2006 Demographic Health Survey

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Papua New Guinea: a country profile



Source: WHO 2013

Additional reading

- PNG health statistics
adi.org.au/health-in-png-2/png-health-statistic
- Discover how PNG's population has changed over the years at populationpyramid.net
- * **WATCH** the Papua New Guinea: a country profile video (3' 20'') at worldvision.com.au/schoolresources

Ringo was identified as malnourished and diagnosed with pneumonia. With supplementary food, treatment for pneumonia and immunisation he is now a healthy growing boy. Ringo's mother, Kila, received nutrition education. ►



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HIV and AIDS in PNG

The history of HIV and AIDS, unlike many illnesses, is relatively short. Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) were first recognised as a global epidemic in 1981. Throughout the 1980s spread of the disease exploded and it received increasing global attention. The global HIV and AIDS epidemic has become one of the greatest threats to human health and development.

How is it transmitted?

The most common ways the disease is spread are:

- unprotected sexual intercourse with an infected person;
- transfusions of contaminated blood;
- the sharing of contaminated needles or syringes; and
- mother to child transmission (during pregnancy and breastfeeding).

In PNG, unprotected sexual intercourse between men and women is the main mode of transmission.

What are the symptoms?

Once someone is infected with HIV, they have a high probability of contracting AIDS, unless they undergo full treatment with antiretroviral drugs (ART). AIDS causes death by weakening a person's immune system. As a result, a range of secondary infections set in and the person dies of one or more of these secondary diseases. A common example of a secondary infection is tuberculosis (TB). Poor people in PNG frequently have a weakened immune systems due to a combination of malnutrition, unsafe drinking water and inadequate sanitation. This makes them vulnerable to TB.

What is the prevalence?

In 2011, it was estimated that 34 million people were living with HIV and AIDS worldwide – including 3.34 million children. Each year around 2.7 million more people become infected with HIV and 1.8 million die of AIDS. Although HIV and AIDS are found in all parts of the world, some areas are more afflicted than others.

Sub-Saharan Africa is the most severely affected region. There, nearly one in every 20 adults is infected (UNAIDS, 2011), accounting for 69 percent of all people with HIV and AIDS worldwide. Although HIV prevalence rates are nearly 25 times higher in sub-Saharan Africa than in Asia, almost five million people are living with HIV and AIDS in south, south-eastern and eastern Asia combined.

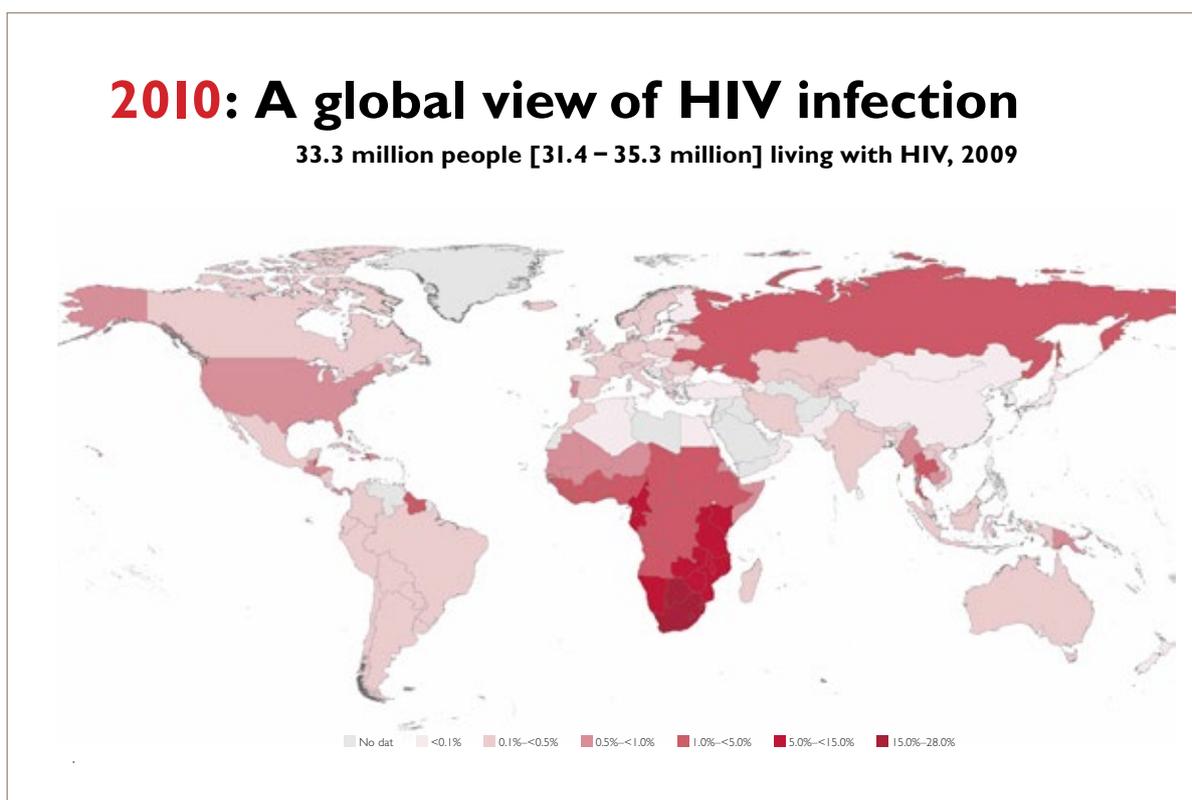
In 2004, PNG declared a HIV epidemic. It is estimated that by 2011, HIV and AIDS had spread throughout PNG, with 30,000-39,000 currently reported cases (UNAIDS 2011). One-third of reported cases are from rural areas and up to 18,000 women are infected. At the same time, between 2001 and 2011, the rate of new HIV infections in PNG fell by 53 percent¹. While HIV and AIDS remains a health problem in PNG, and the risk factors for contracting the virus still exist, the number of people affected has not reached the very high levels initially feared.

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HIV and AIDS in PNG

Since its detection, billions of dollars have been invested into researching methods of prevention and searching for a cure. HIV treatment has improved enormously since the mid-1990s. ART drugs have been developed which help those who are HIV positive to extend and improve their quality of life before developing AIDS. They also help prevent transmission of the disease from a HIV-positive mother to her child. Although we know how to prevent and treat HIV and AIDS, an ongoing challenge is ensuring access to the necessary services, especially for poor people in remote areas of PNG.



Source: UN AIDS - www.unaids.org/documents/20101123_2010_hiv_prevalence_map_em.pdf

Additional reading

- UNAID World AIDS Day Report 2012
unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/gr2012/jc2434_worldaidsday_results_en.pdf
- * **WATCH** the HIV and AIDS in PNG video (3' 51") at
worldvision.com.au/schoolresources

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Responding to HIV and AIDS in PNG

Between 2001 and 2011, the rate of new HIV infections in PNG fell by 53 percent². While HIV and AIDS remains a health problem, and the risk factors for contracting the virus still exist, the number of people affected by HIV has not reached the very high levels initially feared. This is due, in part, to an increasingly coordinated and cooperative approach to responding to HIV in PNG.

Responses have included³:

- increased HIV testing at health centres and clinics;
- greatly increased availability of ART drugs provided by the PNG Government;
- condom distribution across the country by the private sector Business Coalition;
- commitment to addressing stigma and discrimination by the Christian Leaders Alliance; and
- project funding and/or technical support from international organisations like the World Health Organization.

Positive Living Project

Co-funded by AusAID, the Australian Government's overseas aid agency, World Vision runs a drop-in centre in Port Moresby that offers free testing, information and counselling for people wanting to check their HIV status. Additional counselling, support and training programs are available for people who are HIV positive.

The goals of the Positive Living Project are to:

- reduce the prevalence of HIV;
- improve care for people living with HIV and AIDS; and
- minimise the social and economic impact of the illness on individuals, families and communities.



Jacob, a participant and volunteer in World Vision's Positive Living Project.

Jacob's story

Jacob lost his wife and one of his children to illness in 2007. He became increasingly ill himself, and after being tested at a health clinic discovered he was HIV positive. While some of his family were supportive, others weren't at first. "My children were told to stay away from me."

Due to a lack of education, and access to health information, many people in PNG have only limited knowledge of how diseases like HIV are transmitted, safe sex practices and appropriate treatment methods. Jacob wanted to learn more about his illness, and how to avoid infecting anyone else.

Jacob received counselling and participated in the Introduction to HIV and AIDS course. Jacob was able to tell his children, "You won't be affected by sharing things like a plate and spoon. If I cook for you guys you can't be infected unless I have an open cut in my hand." His family learnt that HIV isn't transmitted by actions like hugging, "so my children know they don't need to be scared of me".

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Health and human wellbeing

Responding to HIV and AIDS in PNG

Jacob's story *continued from previous page ...*

Jacob has also participated in economic development courses that train people living with HIV in skills including book keeping and business planning so they can set up small home businesses. By sewing, screen-printing, or running small shops they can earn enough income to look after themselves.

Inspired by the changes in his life, Jacob became a project volunteer. "I have some basic ideas of how to help myself. I must pass it on to another person who needs help from me."

Project volunteers run sessions in local communities to educate people how to reduce their risk of becoming infected with HIV, and to reduce discrimination against people who are living with HIV and AIDS. They encourage people to get tested and know their HIV status. Volunteers like Jacob also visit people who are ill with the virus, and provide them with food and support when they are sick.

Additional reading

- The good news for HIV in Papua New Guinea
ausaid.govspace.gov.au/2012/11/30/the-good-news-for-hiv-in-papua-new-guinea/
- We will get on top of AIDS epidemic: PNG PM
sbs.com.au/news/article/1716489/We-will-get-on-top-of-AIDS-epidemic-PNG-PM
- AIDS epidemic in PNG contained
theage.com.au/national/aids-epidemic-in-png-contained-20130629-2p48a.html



World Vision staff and volunteers participated in a Walk Against HIV and AIDS event in Port Moresby.



World Vision staff and volunteers learn how to use blood tests to determine HIV status.

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Health and human wellbeing

Nutrition, child and maternal health in PNG

Globally, the number of children dying each year under the age of five has fallen from 12 million to fewer than 7 million in the past two decades – a dramatic 42 percent reduction. However, there is still a long way to go. In 2011, 4.4 million children died from conditions which are preventable or treatable: pneumonia, diarrhoea, malaria, birth complications and newborn infections.

Poor diet is the underlying cause of death for an estimated 3 million⁴ children every year. Lack of nutrition weakens a child's immune system placing them at much greater risk of contracting a preventable disease. Poor nutrition also means they have less strength to fight and recover from disease. Long-term lack of nutrition, especially in the early years of life, leads to growth stunting.

Women make up just over half the world's population but **over 60% of the world's hungry people**

Stunting

Globally, about one in four children under five years old is stunted. However, in PNG the prevalence of stunting is 48.2 percent (50 percent in rural areas and 35.3 percent in urban areas)⁵.

Stunting is measured by low height for age. It indicates chronic under-nutrition during the most critical periods of growth and development in early life. Stunting and other forms of under-nutrition reduce a child's chance of survival. It also hinders optimal health and growth. Stunting impacts

brain development, which is likely to have long-lasting harmful consequences for cognitive ability, school performance and future earnings.

First 1,000 days

From a life-cycle perspective, meeting a child's nutritional requirements is most crucial in the first 1,000 days of life, including the period of pregnancy and ending with the child's second birthday. During this time, the child has increased nutritional needs to support rapid growth and development, is more susceptible to infections, and is totally dependent on others for nutrition, care and social interactions.

Less than 40% of babies in the developing world are **exclusively breastfed**

In all regions of the world, **children living in rural areas and children in the poorest 20% of households** are more likely to be stunted

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Nutrition, child and maternal health in PNG

Food, health and care

The nutritional status of children is influenced by four broad factors: food, health, care and home environment. Firstly, ideal nutritional status can be reached when children have access to affordable, diverse and nutrient-rich food. This includes exclusive breast milk for the first six months of life.

Secondly, a child's nutritional status also depends on receiving appropriate maternal and childcare. The mother's nutrition and health status during pregnancy and after birth is also important for the child's development. An undernourished mother is more likely to give birth to a stunted child. Exclusive breastfeeding in the first six months is also crucial.

1 million babies' lives could be saved if all mothers were encouraged and supported to **exclusively breastfed** for the first 6 months of life

Thirdly, children also require adequate health services provided by trained healthcare staff. In PNG, there is one doctor for every 17,068 people, compared to one doctor for every 302 people in Australia. Nearly 90 percent of PNG's doctors are based in urban areas, but nearly 90 percent of the population lives in rural areas.

In PNG, there is approximately one nurse for every 2,270 people. In Australia, there is one nurse for every 100 people (World Bank, 2010).

Finally, children and mothers also need a healthy home environment including safe water, sanitation and good hygiene practices. These factors directly influence nutrient intake and the presence of disease. The interaction between under-nutrition and infection creates a potentially lethal cycle of worsening illness and deteriorating nutritional status. In PNG, only 39 percent of the population has access to safe drinking water.

Additional reading

- Under-nutrition and stunting
who.int/nutgrowthdb/about/introduction/en/index2.html
- * **WATCH** the Nutrition, child and maternal health in PNG video (5' 02'') at
worldvision.com.au/schoolresources



A woman is measured during an antenatal care visit at a rural health clinic.

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Responding to nutrition, child and maternal health in PNG

Actions that can improve maternal and child health include⁶:

- immunisations;
- clean water, improved sanitation and good hygiene;
- education for family and community members on illness prevention and treatment;
- greater access to healthcare services, especially skilled attendants during pregnancy and childbirth;
- immediate and exclusive breastfeeding of newborns until at least six months of age;
- education about and improved access to nutrition; and
- providing micronutrient supplements, for example Vitamin A, zinc, iron and iodine.

Training midwives

Australia, through AusAID, is providing funding for midwife training in PNG. The aim is to assist in expanding PNG's health workforce, making it easier for women to access skilled medical care during pregnancy and childbirth.

Between 2012 and 2015, scholarships will be provided for up to 500 trainee midwives. This is hoped to increase the number of births supervised by a skilled birth attendant by 8,000 each year⁷. AusAID is also supporting the ongoing training of existing nurses and midwives.



Two of Susie's children enjoy a nutritious snack.

Improving nutrition, child and maternal health

World Vision supports agricultural programs to increase the availability of nutritious food, as well as nutrition education programs. These programs are particularly focused on the needs of mothers and children, but can include all members of the community.

Madang Nutrition for Healthy Children Project

The Madang Nutrition for Healthy Children project is run in villages across the Madang Province in partnership with local communities.

Projects like this can be challenging as they can confront traditional beliefs and behaviours. For example, project participant Susie noted, "A lot of women thought colostrums were dangerous. They were encouraged to apply warm water and extract [the] colostrums. It was a cultural practice done for generations." Colostrum is the first breast milk produced by mothers of newborns. In fact, it is rich in antibodies and nutrients making it very important for helping infants to stay healthy.

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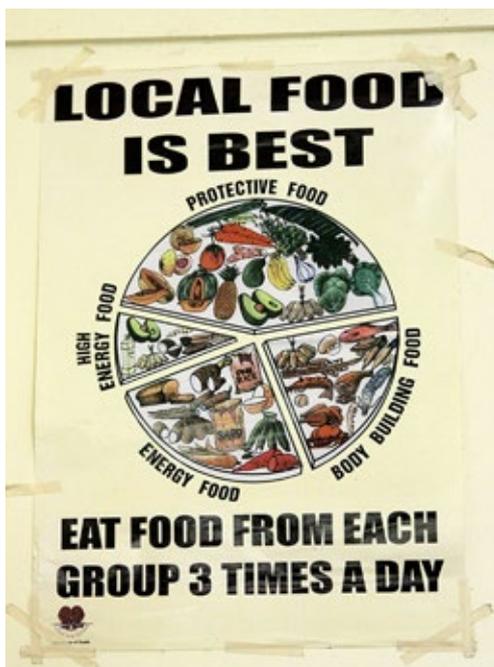
Responding to nutrition, child and maternal health in PNG

Madang Nutrition for Healthy Children Project *continued from previous page ...*

The project educates community members about the frequency of meals and the types of food children need to be healthy, as well as the importance of healthy eating habits during pregnancy. Talking about what she had learnt and how it had changed her behaviour, Susie said that she now fed her three-year-old daughter three times a day rather than twice a day, and gave her more protein-rich food. She also ate more herself, and found that both she and her children had more energy as a result. "Lynette used to cry a lot, and wasn't that playful. Lynette has changed a lot, she is more energised."

Additional reading

- Papua New Guinea: Tackling maternal health "crisis"
irinnews.org/report/94352/papua-new-guinea-tackling-maternal-health-crisis
- Tackling PNG's appalling infant and maternal death rate
radioaustralia.net.au/international/radio/program/pacific-beat/tackling-pngs-appalling-infant-and-maternal-death-rate/1128120
- Australia joins global partnership to combat malnutrition
aid.dfat.gov.au/LatestNews/Pages/Australia-joins-global-partnership-to-combat-malnutrition.aspx



An example of a PNG information poster about food groups and healthy eating.



A participant prepares her presentation on nutrition at a Mother and Child Health Peer Education training workshop.

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Tuberculosis in PNG

Tuberculosis (TB) is one of the oldest known diseases. It is a communicable disease caused by bacteria affecting the lungs, and it spreads from one person to another through the air. Today, the disease has essentially been eradicated in the Western world. However, it continues to impact millions of people in the developing world. TB is both preventable and curable.

How is it transmitted?

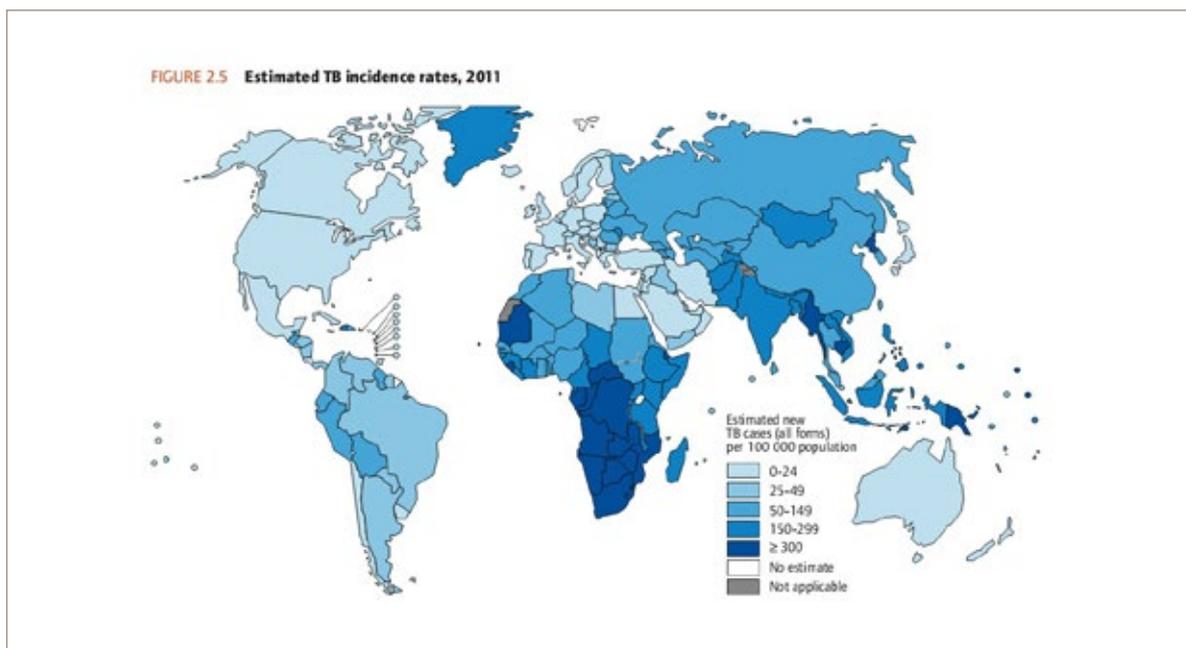
It is estimated that over 90 percent of the population in the developing world carry the TB bacteria. Most of these people do not catch the disease; their TB is dormant or latent. When the bacteria are dormant the disease cannot spread. However, the disease can become active in people with weak immune systems, for example those who are sick, malnourished or living with HIV and AIDS. Once active, the person is contagious and can spread the disease. Left untreated, each person with active TB will infect, on average, between 10 and 15 people every year.

TB is transmitted when an infectious person coughs, sneezes or spits. This propels the TB germ or bacteria into the air and it may be inhaled by others. Only a small amount of bacteria needs to be inhaled for a person to catch the disease.

What are the symptoms?

Symptoms of active TB are coughing, sometimes with blood, chest pains, weakness, weight loss, fever and night sweats. As it is a disease that spreads through the air, TB flourishes in overcrowded areas, with limited sanitation, infrastructure and ventilation. It is often referred to as a disease of the poor.

Map of tuberculosis incidence rates, 2011



Source: World Health Organization, Global Tuberculosis Report 2012 who.int/tb/publications/global_report/gtbr12_main.pdf

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Tuberculosis in PNG

What is the prevalence?

TB occurs in every part of the world. However, over 95 percent of TB deaths occur in low- and middle-income countries, and it is among the top three causes of death for women aged 15 to 44 years. In 2011, the largest number of new TB cases occurred in Asia, which accounted for 60 percent of new cases (WHO, 2012).

One of the greatest challenges to the global control of TB is the HIV epidemic. In 2011, nine percent of all new TB cases in adults were due to HIV infection. There were an estimated 1.8 million deaths from TB and 12 percent were due to HIV. Therefore, prevention of HIV and TB requires a focused effort to control both diseases in areas of high HIV prevalence.

Multi-drug resistant TB (MDR-TB) is a form of TB present in virtually all countries. This type of TB is caused by the inappropriate or incorrect use of anti-TB drugs. In 2011, there were an estimated 630,000 people with MDR-TB.

In PNG, TB is particularly prominent, with over 435 in every 100,000 people suffering from the disease. It is one of PNG's leading causes of death. Many people believe that TB is caused by sorcery. This means those infected may turn to the local witchdoctor or sorcerer for help instead of trained health workers. By the time some TB patients arrive at a health clinic, it's too late for medical treatment to work. Many people die because of this misinformation.

Additional information

- Symptoms and spread of tuberculosis (Khan Academy YouTube – 12' 24")
[youtube.com/watch?v=CSWrrhWdsKU](https://www.youtube.com/watch?v=CSWrrhWdsKU)
- Interaction of HIV and TB (Khan Academy YouTube – 8' 57")
[youtube.com/watch?v=S8s-g7KZR50](https://www.youtube.com/watch?v=S8s-g7KZR50)
- * **WATCH** the Tuberculosis in PNG video (3' 47") at
worldvision.com.au/schoolresources

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Responding to tuberculosis in PNG

The World Health Organization (WHO) developed the Stop TB Strategy in 2006 to provide focus for the global response to TB. PNG's national Stop TB Strategy is coordinated by the PNG Government with support from PNG's development partners.



Dotsy, TB DOTS mascot, at a World TB Day event in Port Moresby.

DOTS – Directly Observed Treatment Short-course

The preferred method for treating TB is known as DOTS (Directly Observed Treatment Short-course). Launched by WHO in 1995, the aim of DOTS is to ensure TB patients complete the full six months of antibiotics treatment. A trained patient supporter watches the patient take their medication, and in some programs the patient supporter actually provides the patient with their medication. The medication is provided for free in PNG.

The DOTS method allows patients to be treated in their home community rather than having to stay in hospital. This makes it cheaper, and allows patients to keep leading normal lives. It also means that patients are more likely to finish their course of treatment and

so reduces their chances of developing multi-drug resistant TB, which is harder and more expensive to treat.

World Vision's TB program trains people to be patient supporters and educates the community about TB. The program uses a mascot called Dotsy to increase community awareness about TB and how DOTS works. For example, during 2013 World TB Day activities, Dotsy and World Vision staff visited schools around Port Moresby to educate students and demonstrate the process of receiving DOTS. They reached nearly 12,000 students, who were encouraged to go home and talk to their families about what they had learnt.

Stop TB in Western Province Program

Poverty and PNG's rugged landscape make providing and accessing health services difficult. In the Western Province, people in very remote communities have struggled to access health services for TB diagnosis and receive a full course of treatment. As a result incidence rates of TB and multi-drug resistant TB (MDR-TB) were increasing⁸.

"AusAID has committed \$32.9 million over seven years to help support the Government of PNG to improve health services in Western Province, including detecting and treating TB⁹." This funding includes the renovation of Daru Hospital, the provision of new medical equipment, and training for additional community health workers and volunteer patient supporters. The funding also provides specialist TB staff and a sea ambulance to transport patients, deliver medicines, and bring medical staff to remote communities along the coast.

The program is showing signs of success, with MDR-TB mortality rates reduced from 25 percent to 5 percent in just one year¹⁰. Future challenges include the need to continue to expand TB control measures throughout all of Western Province, and ensure the sustainability of health services.

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Responding to tuberculosis in PNG

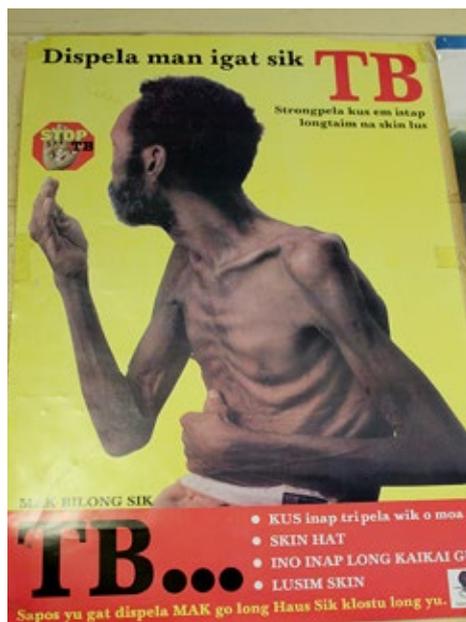
The Global Fund to Fight AIDS, Tuberculosis and Malaria

The Global Fund is an international institution that provides funding for large-scale prevention and treatment programs that address life-threatening diseases like TB. It is a public-private partnership that includes UN agencies, aid agencies like AusAID, the private sector and civil society organisations. Australia provides financial support to Global Fund programs through AusAID.

Worldwide, the Global Fund provides around 80 percent of international funding for TB programs¹. In PNG, the Global Fund is supporting the government's national TB management efforts. Initially, US\$28.2 million was provided for programs running between 2007 and 2014. In June 2013, the Global Fund granted PNG an additional US\$9.5 million to extend the funding for the National TB Program².

Additional reading

- PNG under strain to tackle drug resistant tuberculosis
abc.net.au/news/2013-06-19/an-png-under-strain-to-tackle-drug-resistant-tuberculosis-infec/4766896
- New isolation ward boosts the fight against TB in PNG
aid.dfat.gov.au/LatestNews/Pages/New-isolation-ward-boosts-the-fight-against-TB-in-PNG.aspx
- Stop TB in my lifetime
aid.dfat.gov.au/LatestNews/Pages/Stop-TB-in-my-lifetime-Australian-Ambassador-for-TB-joins-PNG-commemorations.aspx



An example of a poster raising awareness about TB.



Participants in the 2013 World TB Day walkathon, Port Moresby.

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Water-based diseases in PNG

Unsafe drinking water, inadequate sanitation and poor hygiene are a dangerous combination for the health of people living in poor communities. Water-related diseases such as diarrhoea, typhoid, malaria and cholera are major causes of illness and death. People with low immunity, such as malnourished children or people living with HIV, are at greater risk of death if infected.

Cholera

Cholera is an acute diarrhoeal infection caused by the intake of food or water contaminated with the bacterium *Vibrio cholera*. The bacteria live in water, particularly brackish water and estuaries.

What are the symptoms?

Cholera is an extremely virulent disease that can kill within hours. Symptoms include watery and persistent diarrhoea with severe dehydration. The bacteria can remain present in an infected person's faeces for 7-14 days after infection and are passed back into the environment, potentially infecting other people.

What is the prevalence?

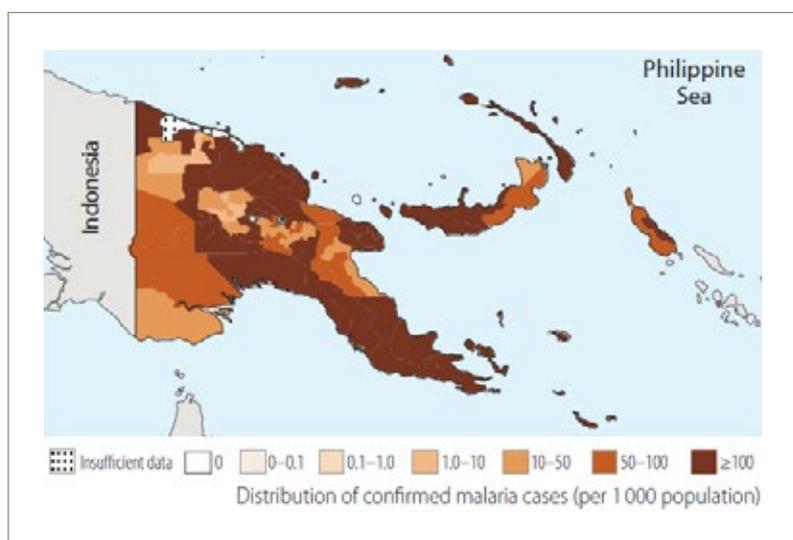
Every year around the world, there are an estimated 3-5 million cholera cases and 100,000-120,000 deaths. In 2009, PNG experienced its first outbreak of cholera. By 2011, 15,000 people had been infected and over 500 had died (WHO, 2012).

Malaria

Malaria is most often found in tropical equatorial regions and is caused by parasites transmitted to people through the bites of infected mosquitoes. These infected mosquitoes lay their larvae and breed in still or stagnant water.

What are the symptoms?

Malaria symptoms typically include fever and headache, which in severe cases can progress to coma or death. Malaria is an entirely preventable and treatable disease. Using insecticide-treated mosquito nets, spraying insecticides and taking anti-malarial tablets can stop its spread.



Source: WHO World Malaria Report 2012

What is the prevalence?

In 2010, there were an estimated 219 million cases of malaria and 660,000 deaths around the world. In PNG, malaria was the leading cause of all outpatient hospital visits, the fourth leading cause of hospital admissions and the third leading cause of death in 2008. The disease is endemic in every PNG province. On average, 1.65 million suspected cases of malaria are seen at healthcare facilities across PNG every year. The mortality rate for those affected by malaria in 2008 was estimated at 9.7 for every 100 000 people (WHO, 2012).

Papua New Guinea

Health and human wellbeing

Water-based diseases in PNG

Diarrhoea

Diarrhoea is defined as the passing of three or more loose or liquid stools per day. It is usually a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral and parasitic organisms. Infection is spread through contaminated food or drinking water, or from person-to-person as a result of poor hygiene. Each episode deprives children of important nutrition.

What are the symptoms?

Diarrhoea can last several days and leave the body without the water and salts necessary for survival. Most people who die from diarrhoea actually die from severe dehydration and fluid loss through liquid stools, vomit, sweat and urine. Interventions to prevent diarrhoea, including safe drinking water, use of improved sanitation and hand washing with soap, can reduce disease risk. Diarrhoea can be treated by drinking a solution of clean water, sugar and salt plus zinc tablets.



Clean drinking water helps to prevent the spread of water-based diseases.

What is the prevalence?

Diarrhoeal disease is the second leading cause of death in children under five years old, and is responsible for killing around 760,000 children every year. Worldwide, 780 million people lack access to improved drinking water and 2.5 billion lack improved sanitation. In PNG, the incidence of diarrhoea among children under six years is 13.3 percent.

Additional reading

- Search for fact sheets on each of these diseases at who.int/mediacentre/factsheets/en/
- * **WATCH** the Water-based diseases in PNG video (3' 03") at worldvision.com.au/schoolresources

Papua New Guinea

Health and human wellbeing

Responding to water-based diseases in PNG

Cholera

Most people with cholera can be treated by using oral rehydration salts to combat diarrhoea, and severely dehydrated patients can be treated with intravenous fluids. The challenge is ensuring people can access treatment quickly, particularly when they live in remote areas or with limited access to healthcare¹³.

The main goal in responding to cholera is to limit the extent of an outbreak. The best ways to limit transmission and ensure long-term protection are improving access to safe drinking water and sanitation facilities, and promoting good hygiene behaviours.

Since 2009, when the cholera outbreak occurred in PNG, many organisations have been working to support local health authorities.

- The WHO provided technical and logistical support, including medical specialists, monitoring the spread of the disease, providing health information and water and sanitation engineering¹⁴.
- AusAID initially provided \$1.7 million between September 2009 and July 2010 for medical supplies and staff to treat cholera patients. Later in 2010, additional funding, medical supplies and staff were also provided to help contain the outbreak¹⁵.
- World Vision ran cholera prevention education sessions with at-risk communities. To improve access to clean water and sanitation, rain catchment tanks were installed and toilets constructed in partnership with communities.

Malaria

Prevention of malaria is addressed through the identification of stagnant water sources, and the use of insecticide-treated bed nets. Infected mosquitoes mostly bite people between dusk and dawn. The nets protect people against bites while they are sleeping and can be effective for 3-5 years.

“The world's first trial of insecticide treated mosquito nets [was] in Papua New Guinea in 1986”¹⁶. In PNG, the National Department of Health in partnership with the Rotarians Against Malaria have distributed over 5.5 million nets. Health surveys showed that between 2009 and 2011 the incidence of malaria infections decreased, which was linked to the use of bed nets.

Challenges for the ongoing use of insecticide-treated nets include ensuring people continue to use the nets and use them correctly. Funding the replacement of nets as they reach the end of their effectiveness is also a sustainability issue.



Insecticide-treated bed nets help to protect against malaria.

Papua New Guinea

Health and human wellbeing

Responding to water-based diseases in PNG

Diarrhoea

Using clean water and practising good hygiene behaviours when drinking, cooking, eating, and cleaning are important for preventing diarrhoea. Interventions may include providing access to safe drinking water, building improved sanitation facilities, and running community education workshops about personal and food hygiene. Challenges include cultural taboos about talking openly about sanitation and lack of knowledge about contamination, health and how diseases can be spread.

In Madang Province, Wari, a villager whose daughter had been badly affected by diarrhoea, remembers, “World Vision came to us and made awareness about how to wash our hands, and how to wash our plates and dishes, and to keep our places clean.”

Delma, from another village, remembers, “In the past we had to walk three or four hours up and back down the mountain to get our water. It was very hard walking back with the water. It is heavy and sometimes we would fall over and spill the water. Our children were often sick with diarrhoea.”

World Vision worked with Delma’s community to install a gravity-fed water supply system with access via a tap in the village. The village created a committee to manage and maintain the water system and each month they collect 1 kina (approximately 44 cents) from each household to pay for repairs. Delma noted that with the new water supply the children aren’t as sick as before.

Additional reading

- Papua New Guinea: Cholera outbreak slows
irinnews.org/report/88817/papua-new-guinea-cholera-outbreak-slows
- Bed net indifference threatens PNG progress on malaria
irinnews.org/report/97481/bednet-indifference-threatens-png-progress-on-malaria
- Community takes control of their water supply
wvi.org/papua-new-guinea/article/community-takes-control-their-water-supply
- * **WATCH** David Bridie and George Telek: A Public Health Announcement video (0’ 48’’) at
worldvision.com.au/schoolresources



A Ventilated Improved Pit (VIP) toilet.



The water tap installed in Delma’s village.

Papua New Guinea

Health and human wellbeing

Further information

Papua New Guinea

- At a glance: Papua New Guinea statistics
unicef.org/infobycountry/papuang_statistics.html
- Papua New Guinea Country Program
aid.dfat.gov.au/countries/pacific/png/Pages/default.aspx
- AusAID in Papua New Guinea
[youtube.com/watch?v=0CfUIFUWnoc&list=PLCCE04032CC7ABABA](https://www.youtube.com/watch?v=0CfUIFUWnoc&list=PLCCE04032CC7ABABA)

HIV and AIDS

- 10 Facts About HIV/AIDS
who.int/features/factfiles/hiv/facts/en/index.html
- MDG 6: Combat HIV/AIDS, Malaria and Other Diseases
un.org/millenniumgoals/aids.shtml
- Fighting AIDS
theglobalfund.org/en/about/diseases/hivaids/

Tuberculosis

- 10 Facts About Tuberculosis
who.int/features/factfiles/tb_facts/en/index.html
- MDG 6: Combat HIV/AIDS, Malaria and Other Diseases
un.org/millenniumgoals/aids.shtml
- Fighting Tuberculosis
theglobalfund.org/en/about/diseases/tuberculosis/

Nutrition, child and maternal health

- 10 Facts About Nutrition
who.int/features/factfiles/nutrition/facts/en/index.html
- MDG 1: Eradicate Extreme Poverty and Hunger
un.org/millenniumgoals/poverty.shtml
- MDG 4: Reduce Child Mortality
un.org/millenniumgoals/childhealth.shtml
- MDG 5: Improve Maternal Health
un.org/millenniumgoals/maternal.shtml

Papua New Guinea

Health and human wellbeing

Further information

Water-related diseases

- 10 Facts About Cholera
who.int/features/factfiles/cholera/facts/en/index.html
- 10 Facts About Malaria
who.int/features/factfiles/malaria/malaria_facts/en/index.html
- MDG 6: Combat HIV/AIDS, Malaria and Other Diseases
un.org/millenniumgoals/aids.shtml
- MDG 7: Ensure Environmental Sustainability
un.org/millenniumgoals/envIRON.shtml
- Fighting Malaria
theglobalfund.org/en/about/diseases/malaria/

Sources

- ¹ UNAID World AIDS Day Report 2012, p. 12
- ² Ibid, p. 12
- ³ UNAIDS Global AIDS Report 2012 – Country Progress Report: Papua New Guinea
- ⁴ Levels and Trends in Child Mortality Report, 2012 - UN Inter-agency group.
- ⁵ 2009-2010 Papua New Guinea: Household Income and Expenditure Survey, p. 90
- ⁶ World Vision International, 2012, Never Had a Chance: Why millions of children still die needlessly every year, p. 6
- ⁷ AusAID, Maternal and child health. Accessed August 2013. <http://www.ausaid.gov.au/aidissues/health/Pages/maternal-child-health.aspx>
- ⁸ Emma McBryde, 2012, Evaluation of Risks of Tuberculosis in Western Province Papua New Guinea, p. 7-8
- ⁹ AusAID, Tuberculosis management in Western Province. Accessed August 2013. www.ausaid.gov.au/countries/pacific/png/Pages/tb-png.aspx
- ¹⁰ AusAID, Tuberculosis management in Western Province. Accessed August 2013. www.ausaid.gov.au/countries/pacific/png/Pages/tb-png.aspx
- ¹¹ AusAID, Australia and the Global Fund. Accessed August 2013. www.ausaid.gov.au/Publications/Documents/australia-global-fund-fact-sheet.pdf
- ¹² AusAID, Tuberculosis management in Western Province. Accessed August 2013. www.ausaid.gov.au/countries/pacific/png/Pages/tb-png.aspx
- ¹³ WHO, 2012, Cholera Factsheet. Accessed August 2013. www.who.int/mediacentre/factsheets/fs107/en/index.html
- ¹⁴ WHO Global Task Force on Cholera Control, 2010, Cholera Country Profile: Papua New Guinea
- ¹⁵ DFAT, 13 November 2010, Australia provides support to PNG to tackle Cholera Outbreak. Accessed August 2013. foreignminister.gov.au/releases/2010/kr_mr_101113.html
- ¹⁶ Catherine Wilson, 2012, Papua New Guinea Casts Wide Net Against Malaria. Accessed August 2013. www.ipsnews.net/2012/07/papua-new-guinea-casts-wide-net-against-malaria