WHO proMIND: profiles on mental health in development: Papua New Guinea


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For feedback or suggestions for the improvement of this publication, please email Dr Michelle Funk (funkm@who.int)
"Papua New Guinea: Strengthening services and human rights in mental health"

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This publication has been produced as part of the World Health Organization's (WHO) profiles on mental health in development (WHO proMIND), and has been written and edited by:

Dr W. Adu-Krow, The WHO Representative in Papua New Guinea, Port Moresby, Papua New Guinea
Dr Michelle Funk, Coordinator, Mental Health Policy and Service Development, Department of Mental Health and Substance Abuse, WHO, Geneva
Dr Priscilla Nad, (former) National Professional Officer, TB-HIV, Office of the WHO Representative in Papua New Guinea, Port Moresby, Papua New Guinea
Dr Ludwig Nanawar, Acting Director of Medical Services, Laloki Psychiatric Hospital, Papua New Guinea
Mrs Christine Ogaranko, Technical Officer, Mental Health Policy and Service Development, Department of Mental Health and Substance Abuse, WHO, Geneva
Mrs Pauline Karahere, Rehabilitation/Research Officer, Social Change and Mental Health Services, National Department of Health, Papua New Guinea
Ms Sarah Skeen, Technical Officer, Mental Health Policy and Service Development, Department of Mental Health and Substance Abuse, WHO, Geneva

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Dr Dong Il Ahn, The WHO Representative in the South Pacific, Suva, Fiji
Dr Temo K. Waqanivalu, Coordinator, Office of the WHO Representative in the South Pacific, Suva, Fiji
Dr Kanna Sugiura, Technical Officer, Mental Health Policy and Service Development, Department of Mental Health and Substance Abuse, WHO, Geneva
Mr Kuowei Tay, Mental Health: Evidence and Research, Department of Mental Health and Substance Abuse, WHO, Geneva

(WHO proMIND): Papua New Guinea
Potential partners interested in finding out more about mental health in Papua New Guinea should also contact project partners based in Papua New Guinea (contact details on page 7).

WHO proMIND
Potential partners and donors interested in supporting or funding WHO proMIND projects should contact Dr Michelle Funk (funkm@who.int), Coordinator, MHP, Department of Mental Health and Substance Abuse, WHO, Geneva, Switzerland.

More information about WHO MIND and WHO proMIND projects are available on the website: http://www.who.int/mental_health/policy/en/
The WHO Pacific Islands Mental Health Network (WHO PIMHnet) was established following a meeting of Ministers of Health for the Pacific Island Countries in Samoa in 2005, as a means to overcome geographical and resource constraints in the field of mental health.

There was unanimous support among countries of the Pacific Region to establish the network, and with the support of New Zealand’s Ministry of Health, the World Health Organization initiated the process to establish PIMHnet. The network was officially launched during the Pacific Island Meeting of Health Ministers in Vanuatu in 2007.

PIMHnet currently counts 19 member countries, each with an officially appointed focal point: American Samoa, Australia, Commonwealth of the Northern Mariana Islands, Cook Islands, Federated States of Micronesia, Fiji, Guam, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, and Vanuatu.

The key aim of the Pacific Islands Mental Health Network is to enable Island countries to work together and draw on their collective experience, knowledge and resources in order to establish mental health systems that can provide effective treatment and care.

In consultation with countries, PIMHnet has identified a number of priority areas of work, including advocacy; human resources and training; mental health policy, planning, legislation and service development; access to psychotropic drugs; and research and information. Network countries meet on an annual basis to develop work plans outlining major areas for action to address these priorities, to be officially endorsed by their Ministers of Health.

PIMHnet has also been successful in forging strategic partnerships with NGOs and other agencies working in the Pacific Region in order to reduce the existing fragmentation of mental health activities and to build more coordinated and effective strategies to address the treatment gap, to improve mental health care and put an end to stigma, discrimination and human rights violations against people with mental disorders.

PIMHnet is funded by the New Zealand Ministry of Foreign Affairs and Trade through the New Zealand Aid Programme.
THE PROJECT

"Papua New Guinea: Strengthening services and human rights in mental health"

Mental Health Services have deteriorated over the years due to challenges associated with leadership and governance as well as financial and human resources and district levels. The number of newly trained psychiatrists is insufficient with most graduate doctors being drawn to other specialities,

Although there has been increase in the number of graduate mental health nurses trained in mental health at the Faculty of Nursing at UPNG (with an average number of 10 mental health nurses having completed their qualifications every year), most of the trained nurses are absorbed into the general medical disciplines in provincial hospitals and major health facilities across the country and do not practise full time as mental health nurses.

Basic information on mental health is not systematically collected which limits evidence-based policy making and planning.

Despite recent advances including the launch of the first national mental health policy (in 2011), significant efforts and strong political commitment are required to support and implement existing policy, paying particular attention to gender issues, poverty reduction and development for people with mental disabilities.

Key next steps include the revision of the mental health law in line with international human rights standards, strengthening of mental health service delivery through the integration of mental health treatment care and support and prevention into general hospitals and primary care facilities; improving the supply of psychotropic medicines and the building of a strong civil society and supportive attitudes in the community. All these actions require a well trained workforce and commitment to human rights protection and promotion.
KEY ACHIEVEMENTS FOR MENTAL HEALTH IN PAPUA NEW GUINEA

- The Laloki Mental Health center was upgraded to Laloki Psychiatric Hospital in 2000 with the appointment of the Chief Executive Officer to oversee the running of the hospital under the Public Hospitals Act with budget allocation given separately from the Mental Health Division of the department of Health.

- The National Government established a Mental Health and Social Change Division 2001-2010 that outlined the priority areas for development in the mental health sector.

- Papua New Guinea became part of the Pacific Islands Mental Health Network in 2007.

- The National Department of Health, Mental Health and Social Change Division sponsored a National Mental Health Conference in 2009 for 63 mental health workers, which focused on networking, training and management of mental disorders.

- There are regular quarterly supervisory visits by psychiatrists to selected provincial hospitals, which have been increased due to greater budgetary provision.

- Development and launch of the National Mental Health Policy in 2011

NEXT STEPS FOR PAPUA NEW GUINEA

The 'Next Steps' outlined below, are taken from the 2001-2010 National Health Plan.

- Develop a national mental health policy and strategic plan.
- Improve mental health services available at provincial and district level.
- Review and update the Public Health Act (part 8) (Chapter No. 266)/Mental Health Act.
- Increase the number of staff and training positions and support training.
- Develop guidelines and material for in-service training.
- Develop and distribute a standard treatment manual.
- Establish and maintain psychiatric units in all public hospitals and the four regional hospitals.
- Upgrade and maintain Laloki Psychiatric Mental Hospital.
- Secure and maintain adequate levels of medicines, equipment and other supplies.
- Secure and maintain inter sectoral collaboration in forensic psychiatry, domestic violence against women, and the control and prevention of substance abuse.
- Develop guidelines and materials for community awareness and education.
- Develop policy guidelines and promote support for community mental health and counselling services.
- Establish and maintain a monitoring and reporting system.
- Develop an alcohol policy in collaboration with other stakeholders.
Papua New Guinea is a culturally and geographically diverse country with over 800 languages spoken and a largely rural population. Access to rural areas is challenging due to rugged terrain and limited infrastructure.

Geographical constrains as well cultural beliefs are key factors influencing mental health care utilization and accessibility. Application of indigenous approaches to mental health issues remains widespread compared to western assessment and treatment approaches and tradition healers are the main point of contact for many people with mental disorders.

While there is evidence of improvement in some areas of health and development, such as an increase in overall life expectancy, infant and maternal mortality rates remain one of the highest in the region, with the latter doubling over the past 10 years. For mental health, the treatment gap remains large, and people with mental disorders experience high levels of stigma and discrimination and a wide range of human rights violations.

The provision of mental health assessment and treatment is predominantly at secondary and tertiary level of centred care. The Port Moresby General Hospital has an existing acute mental health unit. Longer-term mental health treatment is provided at Laloki Psychiatric Hospital located just outside of Port Moresby. Attempts are being made to increase the provision of community-based mental health services with the re-establishment of a Psychosocial Rehabilitation Centre (PRC).

Acquiring and training health care staff in the treatment, management and rehabilitation of mental health disorders is an on-going challenge in PNG, and strengthening the capacities of the local workforce to deliver mental health services remain a central focus. High attrition of mental health care workers as well as closure of psychosocial rehabilitation facilities at Laloki and PRC, have contributed to the deterioration of mental health services over the past decade in PNG.
**HISTORY AND MILESTONES**

1959
An Australian psychiatrist helped to set up a mental health division and to develop the mental health services, which until then had been based next to the correctional facility in Bomana, outside of national capital of Port Moresby.

1967
The first mental health centre was established in Papua New Guinea in Laloki, about 15 kilometres from Port Moresby. The hospital could house 100 patients in single story wards.

1975
Papua New Guinea gained independence from colonial rule.

1980s
Official post-graduate trainings and teachings on mental health by the University of Papua New Guinea (UPNG) commenced.

2000
Laloki Mental Health Centre was upgraded to Laloki Psychiatric Hospital with the appointment of the first Chief Executive Officer. Its upgrade to hospital status meant that it was now able to receive a separate budget funded by the National Government under the Hospital Management Services.

2001
The National Department of Health took steps to ensure that mental health programs were coordinated by the newly established Division of Social Change and Mental Health and that the National Health Plan (2001 - 2010) included goals and strategies related to mental health service development and legislative and policy reform.

2001
A National Psychosocial Rehabilitation Centre was established in Port Moresby.

2006
The mental health unit at Nonga Base Hospital in East New Britain province closed due to volcano eruption.

2010
The mental health unit at Goroka base Hospital in Eastern Highlands province closed due to renovation of the hospital.
The mental health unit at Angal Hospital in Lae Morobe province closed due to termite damage.

2011
The launch of the new Mental Health Policy was held on the 24th May 2011.

The Mental Health Secretariat was launched, based on a document endorsed by the National Executive Council, decision no. 265 (2010) on 21st June 2011.

2012
Mt Hagen hospital is renovated with plans to provide inpatient treatment through a mental health unit in 2013. The Creating Futures Conference brought together national counterparts in PNG with international mental health experts, including over 50 Australian specialists to discuss the ways forward for mental health in Papua New Guinea.
Figure 1. Timeline

- 1959: Australian psychiatrist recruited to develop mental health services
- 1962: A National Mental Health Programme established
- 1967: Laloki Psychiatric Hospital established
- 1975: PNG gained independence from colonial rule
- 1980: Formal teachings, post-graduate psychiatry training in 1980 by Prof. Attah Johnson
- 1987: Psychiatric consultation day clinic in Port Moresby General Hospital established in 1987 by Prof. Attah Johnson
- 2000: Laloki Mental Health Centre upgraded to Laloki Psychiatric Hospital with appointment of the first Chief Executive Officer
- 2001: National Psychosocial Rehabilitation Centre established in Port Moresby
- 2011: First “Creating Future” conference held in Port Moresby
- 2011: New Mental Health Policy launched on May 2011
- 2011: The Mental Health Secretariat was launched on 21 June 2011

WHOproMIND: Papua New Guinea | 5
OFFICIAL DOCUMENTS

DEVELOPMENT AND POVERTY REDUCTION POLICIES, STRATEGIES AND PROGRAMMES

- The PNG Development Strategic Plan (PNG DSP) 2010-2030

- Vision 2050 for PNG to 'be a Smart, Wise, Fair, Healthy and Happy Society by 2050'

HEALTH AND MENTAL HEALTH POLICIES, PLANS AND PROGRAMMES

  http://zanggom.files.wordpress.com/2010/10/pngnhp_vol1_final300dpi_020710.pdf


LEGISLATION

- Public Health (Mental Disorders) Regulation 1962.

- Public Health Act (part 8) of 1973 (Chapter No. 266) - The Public Health Act contains certain sections on mental health. The latest amendment was enacted in 1985.

- National Government's Organic Law of 1972 - consists of a set of laws to decentralize powers and responsibilities from the national government to the provincial and local level governments.

- National Health Administration Act 1997 - The Act supports the Organic Law and defines how health services are administered by the national, provincial and local level governments.

- Provincial Health Authorities Act 2007 - The Act creates the right for provinces to choose to create a single Provincial Health Authority responsible for the management of health service delivery within the Province.

SITUATIONAL ANALYSES


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1 Included in Objective 7.4 on non-communicable diseases is strategy 7.4.5 "to improve and expand the standards in mental health service delivery."
MAIN PARTNERS

NATIONAL LEADING PARTNERS
Dr Ludwig Nanawar, Acting Director of Medical Services, Laloki Psychiatric Hospital, Papua New Guinea
Email: l_nanawar@yahoo.com
Dr Goiba Tienang, Chief Psychiatrist, Acting Focal Point

WHO COUNTRY OFFICES
Dr W. Adu-Krow, The WHO Representative in Papua New Guinea, Port Moresby, Papua New Guinea
Email: adukroww@wpro.who.int
Dr Temo K. Waqanivalu, Coordinator, Office of the WHO Representative in the South Pacific, Suva, Fiji
Email: waqanivalut@wpro.who.int

WHO REGIONAL OFFICE FOR THE WESTERN PACIFIC (WPRO)
Dr WANG Xiangdong, Regional Adviser in Mental Health and Control of Substance Abuse, Manila, Philippines
Email: wangx@wpro.who.int

WHO HEADQUARTERS
Dr Shekhar Saxena, Director, Department of Mental Health and Substance Abuse (MSD)
Email: saxenas@who.int
Dr Michelle Funk, Coordinator, Mental Health Policy and Service Development, MSD
Email: funkm@who.int
Ms Natalie Drew, Technical Officer, Mental Health Policy and Service Development, MSD
Email: drewn@who.int
Dr Kanna Sugiura, Technical Officer, Mental Health Policy and Service Development, MSD
Email: sugiuraka@who.int
THE CONTEXT
1. COUNTRY DEMOGRAPHIC AND SOCIOECONOMIC PROFILE

Figure 2
Location of Papua New Guinea

This map is an approximation of actual country borders.
Source: reference (1)

GEOGRAPHY AND CLIMATE

Papua New Guinea (PNG) is the largest nation in the Pacific occupying the eastern half of the island of New Guinea as well as 600 associated islands to the north, including New Ireland and Bougainville. PNG is part of the Melanesian archipelago that stretches from the western part of Indonesia to the Fijian Islands north west of New Zealand (2).

The country is divided into 4 regions and 20 provincial-level divisions which includes 18 provinces and the "National Capital District" and Bougainville, which is an autonomous region.

- Momase Region: Morobe, Madang, East Sepik, West Sepik provinces
- Southern Region: Western, Gulf, Central, National Capital District, Milne Bay, Oro provinces
- Highlands Region: Southern Highlands, Western Highlands, Eastern Highlands, Simbu & Enga Highland province
- Islands Region: Manus, New Ireland, East New Britain, West New Britain and Bougainville Island provinces

By 2012, there will be two additional provinces. Part of the Southern Highlands will become Hela Province; and part of the Western Highlands will become Jiwaka Province bringing the total number of provinces to 22.

The total land area of PNG is approximately 462,840 square kilometres and its geographical features consist of mountain ranges, rain forests, coral atolls, and river systems. About 50% of the total land area is mountainous which results in a lack of sealed roadways and limited access to the rural communities (3). Over 85% of Papau New Guinea's population lives in the rural area, where communities are widely scattered and difficult to reach as only 3% of the roads are paved and many villages are only reachable by foot (4).
PNG due to its geography and climate is prone to natural disasters the country has eight active volcanoes and experiences earthquakes each year followed by tsunamis and landslides. In addition, PNG due to its location is vulnerable to tropical cyclones and flooding to sporadic droughts and frosts in highland areas, and to rising sea levels as result of climate change (5).

INFRASTRUCTURE

The transportation networks in PNG are in poor condition during certain periods of the year, with about 85 percent of the main roads and nearly all feeder roads impassable or abandoned. It is estimated that 10 percent of the population has no access to any road and 35 percent of the population lives more than 10 km from the national road. The capital city of PNG, Port Moresby, is not linked by road to the rest of the country. Only 7% of the population has access to electricity with wide variations across regions (3).

DEMOGRAPHICS

The population of Papua New Guinea is estimated to be 6.9 million people, with almost half of its population (39%) under the age of 15 (6, 7). It is projected that by 2050 the population will increase to over 13 million people at a population growth rate of 2.17 even though it is anticipated that the fertility rate (births per woman) will decrease from 3.8 births to 2.5 births and the crude birth rate (births per 1,000 population) will decrease from 29 to 19 (6). However, the life expectancy is projected to increase and infant mortality and under 5 mortality rates to decrease substantially, which would account for the projected increase in population.

Figure 3 illustrates that as of 2013, around 40% of the population was under the age of 15, while Figure 4 shows the population proportions evening out among people aged 40 and under by 2050, as a result of projected lower birth, fertility, infant mortality and under 5 mortality rates, and increased life expectancy.

Figure 3
Population pyramid for Papua New Guinea, 2013

![Population pyramid for Papua New Guinea, 2013](image)

Source: reference (8)
Papua New Guinea has an abundance of natural resources including gold, oil, copper, silver, as well as many fisheries. It has plantations of cocoa and oil palm and forests of timber that it exports (5). In recent years, PNG’s economic growth has improved mainly due to commodity prices, rising to 6.5% in 2007 and 6.6% in 2008. The government’s budgetary and management performance has also experienced improvements (3).

Despite its wealth in natural resources, PNG remains poor by both regional and international standards. The country is classified as a low middle-income economy group country with 1,480 US$ GNI per capita (9).

**POVERTY**

PNG’s comparative level of poverty in relation to neighbouring countries is increasing and it now ranks 156th out of 187 countries on the United Nations 2012 Human Development Index (10). Only 2% of adults in the country are in formal employment (4) and the poorest segments of the population consist of subsistence farmers, fisherman, and hunters. In the rural areas, poverty is often accompanied by a lack of access to basic services. However, increasingly, a growing number of people are living in settlement and are exposed to poor living conditions, have low income levels and restricted access to basic education and healthcare (3, 5).

**DEVELOPMENT INDICATORS**

Papua New Guinea’s progress towards achieving the Millennium Development Goals (MDGs) has yielded mixed results. This is largely due to the enormous challenges facing the country, including a population rate that is increasing faster than the GDP rate. PNG’s debt burden has increased over the past several years which limit the resources available for health, among other areas. Furthermore, PNG is experiencing an HIV/AIDS epidemic which puts further strain on limited resources (11).

PNG has made some progress in social development over the past 20 years. Life expectancy has risen from 56 to 63 years (7). There has been a downward trend in infant and child mortality; however the rates are high compared to other countries in the Asia Pacific region. The infant mortality rate (infant deaths per 1,000 live births) is 45, and the under-5 mortality rate per 1,000 is 58, and maternal mortality ratio per 100,000 live births remains at 230 (7). As a result, addressing MDGs 4 & 5 (reducing child mortality and improving maternal health) are priorities for Papua New Guinea (3).
Poverty remains a growing concern; although data are unreliable and outdated, estimates are that in 1996 around 40 percent of Papuan New Guineans lived on less than US$1 per day (12). The cost of living in PNG has risen disproportionately relative to increases in salaries.

The literacy rate had increased to 60.6% in 2010 (10). However, only half of all women aged 15 years and above and two-thirds of all men aged 15 years and older have ever attended school, with enrolment rates varying dramatically across the provinces (4).

The Human Development Index (HDI) is a summary composite index that measures a country's average achievements in three basic aspects of human development: health, education, and income.

Figure 5 shows PNG's Human Development Index (HDI) Trend from 1980 to present as compared with the trend for East Asia and the Pacific region, and the world. It is evident by the graph that PNG's HDI rate is markedly lower than that of other countries within the region and outside of the region, and although PNG's HDI value has steadily increased over time, it has done so at a slower rate when compared with other regional and international rates.

Table 1 shows the individual indicators of human development for Papua New Guinea.

Figure 5
Human Development Index Trends 1980 – Present

Source: reference (13)
Table 1
Individual indicators of human development for Papua New Guinea

<table>
<thead>
<tr>
<th>Indicators of human development</th>
<th>Papua New Guinea</th>
<th>Source: reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (2010)</td>
<td>6,858,000.0</td>
<td>(6)</td>
</tr>
<tr>
<td>Population under age 15 (%) (2011)</td>
<td>39.0</td>
<td>(7)</td>
</tr>
<tr>
<td>Urban population (%) (2011)</td>
<td>12.0</td>
<td>(7)</td>
</tr>
<tr>
<td>Rural population (%) (2011)</td>
<td>88.0</td>
<td>(7)</td>
</tr>
<tr>
<td>Population growth rate (%) (2010-2015)</td>
<td>2.17</td>
<td>(6)</td>
</tr>
<tr>
<td>Infant mortality rate (per 1,000 live births) (2011)</td>
<td>45.0</td>
<td>(7)</td>
</tr>
<tr>
<td>Under-fives mortality rate (per 1,000) (2010)</td>
<td>58.0</td>
<td>(7)</td>
</tr>
<tr>
<td>Maternal mortality ratio (per 100,000 live births) (2010)</td>
<td>230.0</td>
<td>(7)</td>
</tr>
<tr>
<td>Life expectancy at birth (years) (2011)</td>
<td>63.0</td>
<td>(7)</td>
</tr>
<tr>
<td>Adult (15+) literacy rate (%) (2010)</td>
<td>60.6</td>
<td>(10)</td>
</tr>
<tr>
<td>Gross primary enrolment (% of school-age population) (2002-2011)</td>
<td>60.0</td>
<td>(10)</td>
</tr>
<tr>
<td>Men with no education (%) (2006)</td>
<td>34.9</td>
<td>(3)</td>
</tr>
<tr>
<td>Women with no education (%) (2006)</td>
<td>39.6</td>
<td>(3)</td>
</tr>
<tr>
<td>GNI per capita (current US$) (2011)</td>
<td>1,480.0</td>
<td>(9)</td>
</tr>
<tr>
<td>Population with access to improved water source (%) 2011)</td>
<td>40.0</td>
<td>(7)</td>
</tr>
</tbody>
</table>

Figure 6 illustrates how the country’s economic wealth is reflected in social development outcomes at the population level in comparison with an average lower-middle-income group. Although Papua New Guinea’s rate of life expectancy at birth is similar to that of the lower-middle-income group, the rates are significantly less in the other three areas including gross national income per capita (dollar value of country’s income in a year), gross primary enrolment (% of school-age population) and access to improved water source (% of population).

Figure 6. Development Diamond 2008
ETHNICITY, LANGUAGE AND CULTURE

The largest ethnic group in PNG is Melanesian. Other ethnic groups include Melanesian, Micronesian, and Polynesian. There are significant sociocultural differences between and within the provinces. Around 800 languages are spoken and each language group has a distinct culture. The official languages are English, Pidgin and Motu (3).

POLITICAL SITUATION AND GOVERNMENT

Due to vast linguistic and cultural diversity within PNG, the sense of nationhood is weak with political divisions across different groups. PNG was ruled by three external powers before gaining independence from Australia in 1975. As a Commonwealth nation, the head of the Independent State of Papua New Guinea is Queen Elizabeth II, and its governance system is based on parliamentary democracy. Politically and administratively, PNG is divided into 4 regions (Southern, Highlands, Momase, and New Guinea Islands), 20 provinces, and 89 districts. Every five years, political leaders are elected to the two tiers of government: national and local.

There is a decentralized system of government which has a significant impact on how health services are delivered and managed. National, provincial, and district levels of government and administrative offices do not work collaboratively with respect to fiscal issues, and the roles and responsibilities for service delivery amongst the three levels is unclear, which creates significant barriers to improving access to health services (3).
2. CONTEXTUAL FACTORS INFLUENCING MENTAL HEALTH NEEDS AND SERVICES

GEOGRAPHIC CHALLENGES
About 88% of the population lives in rural areas with the provision of health and mental health services being constrained by difficult terrain, poor infrastructure and geographic dispersion of the rural populations.

LACK OF TRAINED HEALTH AND MENTAL HEALTH STAFF
Overall, there is a lack of health professionals available in PNG, and specifically a shortage of doctors and midwives in the rural areas. There is no central Human Resource Information System. The aging health workforce has compounded pressure for improving and providing training as well as retention of health professionals (3). Those who completed training overseas in Australia often choose to practice elsewhere. Accordingly, there is a shortage of psychiatric nurses and psychiatrists to provide mental health services. The few psychiatrists in PNG practice in the capital city of Port Moresby and provide tertiary care in a centralized service. There are plans to have Momase regional deputy chief psychiatrist based at Angau Hospital and a deputy chief psychiatrist for New Guinea Island Region based at the Nonga Hospital. There are few services for mental health in rural areas (15).

TRADITIONAL TREATMENT APPROACHES
Culture plays an important role in the assessment and treatment of mental disorders in PNG society (16).

Traditional beliefs regarding the causes of mental illness are rooted in sorcery, witchcraft, spirit possessions/supernatural agents, and violation of social norms and "taboos." Spirits and supernatural agents are believed to cause illness or death when an individual or a group has violated social taboos and norms or have failed to fulfill culturally expected obligations. Alternatively, illness caused by sorcery and witchcraft is thought to be related to frustrations, jealousy of achievements of others, anger, and revenge. It needs to be considered that the beliefs about the different types of spirit possession and sorcery that lead to mental illness vary across cultures in PNG and between the different cultural-linguistic groups (16).

Beliefs underlying causes of psychological and physical illness influence help-seeking behaviors. Traditional treatment is usually sought prior to western treatment. Western treatment is seen as a cure for symptoms whereas traditional treatment is seen as a cure for the cause of the illness. Nevertheless, the strength of these beliefs and resistance to change are important considerations when caring for a person with mental illness.

GENDER-BASED VIOLENCE AND GENDER INEQUALITY
Violence against women and achieving gender equality remain major challenges in PNG. PNG has a high level of gender inequality and is rated 137 out of 169 in the United Nations 2010 Gender Inequality Index. The government of PNG's Second National Progress Report on the Millennium Development Goals (MDGs) in 2009 identified gender-based violence (GBV) as a major threat to the stability and future development of PNG, and one that poses a serious challenge to the achievement of all MDGs (17). About 67 percent of women experience gender-based violence. Of these, 50 percent of women had experienced forced sex and half of all the reported victims of rape were under the age of 15. As a result, women's mental health suffers considerably; however, mental health services are not equipped to support women who are or have been victims of sexual abuse or violence.
HIV AND AIDS EPIDEMIC
PNG has a generalized HIV epidemic driven predominantly by heterosexual transmission at a prevalence rate of 0.8% affecting about 1% of the population. This is fueled by an increase in Drug and Alcohol related problems as revealed by the Independent Review group Report on HIV/AIDS in 2011.

LEADING HEALTH PROBLEMS
Major health problems have largely remained unchanged over the last 15 years. The leading health problems continue to be communicable diseases, with malaria, tuberculosis, diarrhoeal diseases, and acute respiratory disease as major causes of morbidity and mortality. As a result, non-communicable illnesses such as mental illness receive far less attention and priority in health planning, with fewer resources.

INEQUITABLE HEALTH FUNDING
The National Economic and Fiscal Commission of Papua New Guinea has identified that funding for health is inequitable and insufficient across the provinces and is the primary cause of the country's inability to deliver needed health services. Furthermore, the Commission estimates that the provincial health budgets provide only 20% of the cost of essential health service delivery. The insufficient funding is considered to be a result of weak support for health (3).

FRAGMENTED AND UNCOORDINATED PROCUREMENT AND SUPPLY CHAIN SYSTEM
The supply of medication is inconsistent and almost non-existent in the rural and remote areas where 'stock-outs' are common occurrences. Regulations are in place but not enforced, with the pharmaceutical sector being highly susceptible to corruption (4). There is very limited medication in the public health system to treat persons with mental illness. Psychotropic drugs receive donations from time to time from overseas organizations; however, doctors are reluctant to prescribe these medications due to its inconsistent supply of the prescribed medication (18).

MIGRATION AND SUBSTANCE ABUSE
Migration from rural areas into urban centres have created major lifestyle problems including the breakdown of cultural norms, unemployment, increased consumption of alcohol and use of substances such as cannabis (16). An increased consumption of alcohol is particularly prevalent among females and teenagers. Alcohol abuse was cited as the 4th most common cause of morbidity in the 2001-2010 PNG National Health Plan, with 90% of all trauma admissions at hospitals related to alcohol use. There is no known substance abuse plan in place at the national level (19). However, the PNG Narcotics Bureau has initiated a public awareness campaign. There is no treatment and rehabilitation centre for people with substance abuse problems or their dependents in PNG, although there is a proposal for one to be established (15).
MENTAL HEALTH PROBLEMS AND TREATMENT IN PAPUA NEW GUINEA
PREVALENCE AND BURDEN OF DISEASE IN COUNTRY

The national health information system does not include provisions for mental health service use information to be reported by the health workers (18). There is no known formal centralised data collection system for mental disorders in PNG. As a result, the incidence of mental disorders is largely unknown. Existing data are based on estimates from the limited survey and health research conducted in the country. Mental Health Division at the Ministry of Health collects limited information on mental health services from certain provinces every three months.

According to the World Mental Health Survey from 2004, it can be estimated that 13% of a country's adult population will experience a mental disorder over their life time, of which 10% will experience a moderate to mild form of mental illness and 3% will have a serious mental illness (20). When these percentages are applied to Papua New Guinea's current adult population (over age 15), we can estimate that 547,170 adults will experience a mental health disorder during their lifetime, and 126,270 adults will experience a severe form of mental illness.

Recent data from the National Health Plan 2011-2020 indicated that in 2008, there were 0.14 per 100000 deaths related to mental health conditions, or 0.13% of the total deaths in PNG (2).

TREATMENT AND SERVICE UTILIZATION DATA

Determining mental health treatment utilization is complicated by the lack of data collected through the mental health information system, as well as the fact that people experiencing mental health problems will often seek help from traditional healers in the first instance prior to formal mental health services. These factors have contributed to lack of mental health treatment data and underestimation of individuals seeking mental health support.

The recent National Plan 2011-2020 indicates that the total bed days for mental health disorder in 2008 were 14 075, or 0.95 of the total bed days for all conditions. In 2008, mental health accounted for 7.7 admissions per 100000 populations, or 0.21% of total admissions.

Table 2 outlines the estimated number of people who received treatment in a mental health facility by type in 2010.

Table 2
Total number of people accessing mental health facilities by type in 2010

<table>
<thead>
<tr>
<th>Type of mental health facility</th>
<th>Number of people treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outpatient facilities ( Port Moresby General Hospital)</td>
<td>1,775</td>
</tr>
<tr>
<td>Day treatment facilities</td>
<td>No data available</td>
</tr>
<tr>
<td>General hospital psychiatric units (admissions) (PMGH only)</td>
<td>47</td>
</tr>
<tr>
<td>Psychiatric hospital (admissions) Laloki Psychiatric Hospital</td>
<td>181</td>
</tr>
<tr>
<td><strong>Total number of people treated in mental health facilities</strong></td>
<td><strong>2003</strong></td>
</tr>
</tbody>
</table>

Source: reference (21)
Figure 7
Laloki Psychiatric Hospital admission trend, 2009-2010

Source: reference (22)
TREATMENT GAP

The treatment gap is the difference between the prevalence of mental illness in a country and the number of people who have received treatment for their illness. Figure 8 illustrates the estimated mental health treatment gap in Papua New Guinea for all mental disorders and separately for severe forms of mental illness. If we assume that the 2003 individuals receiving mental health treatment in 2010 had a severe form of mental illness, it is estimated that the treatment gap for people with a severe mental disorder is 99.8%. Alternatively, if we assume that the 2003 individuals had mental disorders ranging from moderate to severe, the treatment rate would be less than 1% (.004%).

Figure 8
The estimated treatment gap for mental disorders in Papua New Guinea
MENTAL HEALTH WITHIN THE GENERAL HEALTH SYSTEM
4. MENTAL HEALTH WITHIN THE GENERAL HEALTH SYSTEM

Health services in PNG are comprised of three distinct systems: public health care system, private health care system; and the traditional health care system. The government is the largest provider of health care, although the Church Health Service operates approximately half of the rural health centres and sub-centres. Both government and church operated health services are financed primarily by public sector funds. Other providers of health services include businesses, e.g. mines, a small private sector, and traditional healers (4).

The Ministry of Health Organogram and mapping of mental health services against the general health system are presented in Figures 9 and 10.

PNG's national health system consists of a national referral hospital (located in Port Moresby), 3 regional hospitals, and 16 public provincial hospitals (one is operated by the Church Health Service). The national, regional, and provincial hospitals in PNG are assigned levels with corresponding roles.

**Level 1** refers to the National Referral Hospital, Port Moresby General Hospital, which provides tertiary medical care is also a base hospital for the National Capital District and Central provinces. The Port Moresby General Hospital has a 13 bed psychiatric inpatient unit for female patients.

**Level 2** refers to regional hospitals that include Mt. Hagen (Western Highlands), Angau (Morobe province) and Nonga (East New Britain province) which take referrals from provincial hospitals for specialist medical care. Only Mt Hagen has a psychiatric inpatient unit.

**Level 3** refers to provincial hospitals that are base hospitals in each province that provide essential specialist medical care, e.g. Obs/Gynae, Mecial, Surgery, and Pediatrics. There are 8 such hospitals each located in the provinces of Milne Bay; Southern Highlands; Enga; Eastern Highlands; Madang; East Sepik; Western Highlands; and New Ireland. The provincial hospitals accept referrals for patients that require acute inpatient psychiatric care; however the beds are located in the general medical units.

**Level 4** consists of provincial hospitals that do not have the entire specialist services offered and are staffed with medical officers with general medical training. There are 8 such hospitals with one each located in the following provinces: Western; Gulf; Oro; Simbu; West Sepik; Manus; West New Britain; and the Autonomous Region of Bougainville. In addition, there are 3 privately operated hospitals in PNG; however the government has not yet determined the level of care they provide.

The district health services are on the periphery of the national health system and have a clearly defined administrative boundary. There are officially 89 Districts; however only 66 are considered accessible according to the Minimum Standards for District Health Services. There are three levels of health facilities within a district health service: 1) District Health Centre/Hospital/Rural Health Centre; 2) Urban Clinic; and Aid Post.

District Health Centres/hospitals provide **Level 5** health care services and are the center of health administration for the district and first referral level for patients who cannot be managed at the other health centres and aid posts. The health centre is the next level of health care provided and is defined as providing services to a catchment population of 5,000 - 10,000 people with a capacity of 20 beds. There are 697 governments and Church Health Service operated health centres in PNG, many of which are not functioning. Urban health clinics receive referrals from aid posts with a catchment population outside of the provincial capital around 10,000 people. There are 69 urban clinics in PNG. Aid posts generally serve an area consisting of 500 - 2000 people. There are 2,672 aid posts open with 550 aid posts closed. It should be further noted that nearly two-fifths of health centres and an even greater proportion of the aid posts have no access to electricity or essential medical equipment (5).
The distribution of roles and responsibilities for health services among the three levels of government in PNG are outlined in the Organic Law of 1972 and the National Health Administration Act of 1997. Since 1978, most of the central health functions have been decentralized from the National Department of Health, Port Moresby to the provincial and local level governments.

The responsibilities for each level of government as it relates to health are as follows:

**National government:** National Department of Health formulates and administers health policies; provides technical assistance and advice; provides education and training for health workers; develops health standards; coordinates health planning; coordinates national and external health resources, and manages the provincial hospitals.

**Provincial governments:** Provincial Division of Health oversees rural health services (health centres, health sub-centres, rural hospitals and aid posts); coordinates provincial health programs; and provides support to districts.

**District/Local governments:** District Health oversees district health facilities; monitors performance; supervises facilities and provides resources to facilities.

The decentralization of health services is considered by some to have been a failure due mainly to the lack of capacity to effectively implement the decentralization process. There exists a high degree of fragmentation in the institutional and fiscal relationships between national, provincial and local levels of government, which has contributed to poor health outcomes. Despite the laws in place, the allocation of service delivery among the three level of government remains unclear, and this creates significant barriers to improving access to services. Improving rural health services in particular is perceived as a key to improving health outcomes and attaining the health related MDGs (3).

In 2001, a National Health Conference held in PNG supported a proposal to create a unified provincial health system. In 2007, the Provincial Health Authorities Act came into effect creating the right for provinces to choose to create a single Provincial Health Authority responsible for the management of health service delivery within the Province. Three provinces including Milne Bay, Eastern Highlands, and Western Highlands signed in 2009 to pilot the implementation of the Provincial Health Authority. Several other provinces also indicated their intention to implement these reforms (4).

The National Government has put together a long-term vision for the development of health services, called Health Vision 2050. This forty-year strategy will transform the current health care delivery system in PNG. It includes the progressive introduction of community health posts, district hospitals, and regional specialist hospitals. Community health posts will be staffed by Community Healthcare Workers with skills in maternal and child health, midwifery, health promotion and in creating community awareness programs. Health centres will be the intermediary referral point between Community Health Posts and District Hospitals. District Hospitals will be gradually introduced to most districts. Provincial public hospitals will be progressively upgraded and will contain a range of minimum services (mental health services are not explicitly mentioned (2).
Mental health is in blue. The general health system is in grey. The blue dashes infer that these facilities are considered to be part of the general health system and they provide specialized mental health services and/or they provide care to people with mental disorders.
Figure 10. Mental Health Services Mapped Against the General Health System

Sources: reference (2)

Traditional Health Practices
Traditional healers are often sought first for conditions related to thought processes.

Private Health Sector
Hospitals and clinics financed and managed by mining companies and private corporations.

Church Operated Health Services
Churches manage health centres and provide training to health professionals.

Public Health System
Health facilities and services that are primarily publicly funded and managed by the National Department of Health.

National Hospitals: 2 national hospitals
- Laloki Psychiatric Hospital
  - 60 beds incl. forensic beds
- Port Moresby General Hospital
  - Psychiatric Unit - 13 beds (women only)
  - Psychiatric Outpatient Service

Regional Hospitals
3 regional hospitals
- Angau Hospital, Lae, Morobe Province
- Mt Hagen Hospital, Mt Hagen W Highland province
- Nonga Hospital, Nonga, East New Britain Province

Provincial General Hospitals
16 provincial level hospitals (Level 3+4)
- One hospital Central Province
  - Psychiatric services provided
- One District Rural Hospital

Rural health - District Health Centres
375 Health Centres

Rural health - Primary Health Care
- Psychosocial Rehabilitation Centre (now closed due to funding)
- 69 urban clinics, 2,672 aid posts (550 now closed)

Traditional Healers

Mental health is in blue. (beds allocated for psychiatric patients as above) The public health care system is in green. The private health care sector is in grey, including church-run services even though they are partially publicly funded.
COORDINATION

The National Department of Health, Division of Social Change and Mental health is responsible for coordinating health care service delivery, including mental health services. As previously mentioned, PNG's health system is decentralized with regional and district levels responsible for the delivery of health and mental health services. This is complicated by the fact that the National Department of Health is responsible for the national and regional hospitals, but not the provincial and district hospitals/health centres which come under the provincial health Advisor in the province. This is because the two systems are budgeted separately. Thus there are parallel systems working but not coordinated well resulting in fragmentation of mental health treatment and rehabilitation with very minimal support provided at the District level.

The referral pathway for persons with a mental disorder reflects the referral process in the general health system in that it is based on a tiered system of health care services. Persons experiencing mental health problems will most likely approach a traditional healer in the village before seeking assistance from a community health worker. The community health worker is most often the first point of entry to the formal mental health service system. If the person is experiencing a severe form of mental illness, they are referred to a district hospital/health centre, and if they require inpatient treatment, they are referred to the local provincial hospital or a regional hospital if it is within the same jurisdiction. Individuals experiencing more serious forms of mental disorder are referred to the Port Moresby General Hospital Mental Health Unit, and if they require long-term inpatient care, they are referred to Laloki Psychiatric Hospital located just outside of Port Moresby.

LEGAL FRAMEWORK

Mental health legislation in PNG is contained in the Public Health Act (part 8) (Chapter No. 266) and a revised Mental Health Act is in the process of being developed.

MENTAL HEALTH POLICY AND PLAN

The 2001-2010 National Health Plan (2) sets out the following goals and strategies for mental health:

Goal
To reduce the number of people who become ill after and die from mental illness through protection and promotion of mental health and social well-being, prevention of substance abuse, access to quality care, and effective rehabilitation.

Strategies

1.1 Improve mental health services available at provincial and district level
1.2 Review and update the Public Health Act (part 8) (Chapter No. 266)/Mental Health Act
1.3 Increase the number of staff and training positions and support training
1.4 Develop guidelines and material for in-service training
1.5 Develop and distribute a standard treatment manual
1.6 Establish and maintain psychiatric unites in all public hospitals and the four regional hospitals
1.7 Upgrade and maintain Laloki Mental Hospital
1.8 Secure and maintain adequate levels of medicines, equipment and other supplies
1.9 Secure and maintain inter sectoral collaboration in forensic psychiatry, domestic violence against women, and the control and prevention of substance abuses
1.10 Develop guidelines and materials for community awareness and education
1.11 Develop policy guidelines and promote support for community mental health and counselling services
1.12 Establish and maintain a monitoring and reporting system.
The Plan also set out a number of policy directions and priorities for mental health care, including:

- Private psychiatric care should be free of charge.
- All physicians caring for adult patients in public hospitals shall be responsible for hospital-based psychiatric units in the absence of psychiatrists.
- Laloki Psychiatric Hospital shall remain the national referral centre.
- Four regional referral and supervisory centres to be established.
- The cost of referral to the national referral hospital and to the regional centres to be the responsibility of the referring hospital.
- Community-based patient treatment and rehabilitation to be established and supported.

In the latest National Health Plan 2011-2020, mental health has not been included as a Key Result Area. However, it falls under Key Result Area 7: Promote Healthy Lifestyles, with the objective to "reduce morbidity and mortality from non-communicable diseases" (Objective 7.1) through "Improving and expanding the standards in mental health service delivery". In addition, efforts are currently underway to develop a National Alcohol policy led by the Law and Justice Department.

The National Mental Health Policy, published in 2010 and launched in 2011, has an overarching goal to minimize the number of people who become ill and die from mental illnesses. It also aims to improve access to quality care and effective recovery for people suffering from mental disorders. It set out the following objectives:

- To provide client focused oriented services, and protection of vulnerable groups of people from developing a mental and neurological disorder
- To prevent mental disorders through mental health promotion activities
- To integrate mental health into general health including primary health care
- To promote the human rights of people with mental disabilities and promote good mental health through sectoral and intersectoral initiatives

HUMAN RIGHTS AND EQUITY

The human rights of persons with mental disorders receiving mental health services in PNG are not being addressed. In inpatient mental health facilities, the right to informed consent, legal capacity, right to information and other fundamental basic human rights are inadequate if not absent. At times there is overcrowding and a limited number of beds available, resulting in people sleeping on the floor (23). Access to mental health services, especially community-based mental health services, is limited and is characterized by an inconsistent and insufficient supply of medication as well as a shortage of human and financial resources.

In addition, the country does not have disability benefits for persons with mental disorders (21). There is no known body that monitors the human rights of vulnerable populations, including persons with mental disorders. Papua New Guinea has recently ratified the Convention on the Rights of Persons with Disabilities in April of 2012 (24).
5. RESOURCES FOR MENTAL HEALTH

FINANCING

Papua New Guinea is classified as a low-income group country, and as previously noted, poverty is a significant issue. The latest estimation is from 1996 and predicted that almost 40% of the population lived on less than $1 per day (12). The country’s total expenditure on health as a percentage of GDP was in 2011 as low as 4.3% (25). Mental health services, consisting mainly of hospital-based care, receive 1% of the annual health budget provided by the government of PNG. Laloki Psychiatric Hospital receives separate funding. At present, PNG spends less than 1.5% of the total health budget on mental health services.

Table 3
Papua New Guinea’s expenditures in health

<table>
<thead>
<tr>
<th>Income &amp; the economy</th>
<th>Indicator</th>
<th>Source: reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total expenditure on health as % of GDP (2011)</td>
<td>4.3</td>
<td>(25)</td>
</tr>
<tr>
<td>(%) population below $1 (PPP) per day, (1996)</td>
<td>35.8</td>
<td>(12)</td>
</tr>
<tr>
<td>Country Income Classification</td>
<td>Low income group country</td>
<td>(9)</td>
</tr>
</tbody>
</table>

Table 4.
Total annual budget for health in USD
(below budget in PGK and USD if this can be converted to USD)

<table>
<thead>
<tr>
<th>Current cost baseline 2010</th>
<th>K'000</th>
<th>USD'000*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>371,312</td>
<td>167740</td>
</tr>
<tr>
<td>General Hospitals</td>
<td>171,946</td>
<td>77676</td>
</tr>
<tr>
<td>Rural Health Services</td>
<td>81,736</td>
<td>39924</td>
</tr>
<tr>
<td>General Hospitals</td>
<td>46,710</td>
<td>21101</td>
</tr>
<tr>
<td>Total Costs baseline year (2010)</td>
<td>924,886</td>
<td>417817</td>
</tr>
</tbody>
</table>

* converted 4 September 2011
Source: reference (2)
HUMAN RESOURCES

Within the general health system, there are four categories of general clinical health workers: 1) Medical Practitioners (MPs); Health Extension Officers (HEOs); Nursing Officers (NOs); and Community Health Workers (CHWs). There are 392 Medical Practitioners; 452 Health Extension Officers; 3777 Nursing Officers; and 4449 Community Health Workers (Table 6). Medical Practitioners are medical doctors primarily located in hospitals, health centres and urban clinics. Health Extension Officers are primarily managers and supervisors within the health centres and Nursing Officers practice in hospitals, health centres, and urban clinics. Community Health Workers deliver the majority of primary health care in the rural and remote areas, and they are most often the first point of contact for individuals experiencing mental health difficulties. They are employed in hospitals, health centres, and urban clinics.

The mental health workforce in PNG is very small. There are a total of 9 psychiatrists in PNG and all are located in the capital city of Port Moresby, with 3 psychiatrists practicing at the Port Moresby General Hospital and 2 at Laloki Psychiatric Hospital. The second psychiatrist at Laloki Hospital is currently studying Public Health under an AUSAID Funded Scholarship in Australia. Another psychiatrist attached to the Port Moresby General Hospital is completing her specialist training in Child & Adolescent Psychiatry from the New South Wales Institute of Psychiatry this year. Two psychiatric registrars are completing their clinical training under supervision of senior psychiatrists. In addition, they will be involved in an Australia-PNG collaborative research project aimed at strengthening mental health research capacities in the country. The number of trained psychiatric nurses is unknown and varies according to the source of information, but is estimated to be between 43 and 74. There is no indication that there are Occupational Therapists practicing in PNG. There is 1 qualified Social Worker in PNG, working within the National Department of Health, Public Health Division, Division of Social Change and Mental Health and at Laloki Psychiatric Hospital. Table 5 illustrates the number of health professionals working in mental health in Papua New Guinea.

Table 5
Number of Psychiatric Health Professionals by Discipline

<table>
<thead>
<tr>
<th>Psychiatrists and/or Registrars</th>
<th>Psychologists</th>
<th>Psychiatric Nurses</th>
<th>Social Workers</th>
<th>Occupational Therapists</th>
</tr>
</thead>
<tbody>
<tr>
<td>12*</td>
<td>1</td>
<td>43 - 74</td>
<td>&gt;3</td>
<td>0</td>
</tr>
</tbody>
</table>

* Of the 12 psychiatrist, 4 psychiatrists are in a clinical role, 5 in an administration role and 3 are psychiatric registrars.

Source: references (2, 4)
Table 6. **Health personnel (selected categories) by health sector in Papua New Guinea**

Sources: references (2, 4)

<table>
<thead>
<tr>
<th>In hospitals</th>
<th>Medical doctor</th>
<th>Psychiatrist or registrar</th>
<th>Psychologist</th>
<th>Nurse (including midwives)</th>
<th>Community health workers CHW*</th>
<th>Psychiatric Nurse</th>
<th>Social worker/dental doctors/therapists/other AHW**</th>
<th>Occupational Therapist</th>
<th>Health Extension officers (HEO)</th>
<th>Lab Technicians/assistance</th>
<th>Others including support staff</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government</strong></td>
<td>326</td>
<td>12</td>
<td>0</td>
<td>1622</td>
<td>1093</td>
<td>Unknown</td>
<td>197</td>
<td>0</td>
<td>87</td>
<td>92</td>
<td>3238</td>
</tr>
<tr>
<td><strong>Private</strong></td>
<td>Data N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>Unknown</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Non-governmental organization</strong></td>
<td>Data N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>Unknown</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Faith-based organization</strong></td>
<td>Data N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>Unknown</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>TOTAL IN HOSPITALS</strong></td>
<td>326</td>
<td>0</td>
<td>0</td>
<td>1622</td>
<td>1093</td>
<td>Unknown</td>
<td>197</td>
<td>0</td>
<td>87</td>
<td>92</td>
<td>3238</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Health centres other than hospitals</strong></th>
<th>Medical doctor</th>
<th>Psychiatrist or registrar</th>
<th>Psychologist</th>
<th>Nurse (including midwives)</th>
<th>Community health workers CHW*</th>
<th>Psychiatric Nurse</th>
<th>Social worker/dental doctors/therapists/other AHW**</th>
<th>Occupational Therapist</th>
<th>Health Extension officers (HEO)</th>
<th>Lab Technicians/assistance</th>
<th>Others including support staff</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government</strong></td>
<td>66</td>
<td>0</td>
<td>0</td>
<td>2155</td>
<td>3356</td>
<td>Unknown</td>
<td>54</td>
<td>0</td>
<td>365</td>
<td>84</td>
<td>1457</td>
</tr>
<tr>
<td><strong>Private</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Unknown</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Non-governmental organization</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Faith-based organization</strong></td>
<td>Included with govt</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Unknown</td>
<td>Included with govt</td>
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<td>Included with govt</td>
<td>Included with govt</td>
<td>Included with govt</td>
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<tr>
<td><strong>TOTAL IN OTHER HEALTH CENTRES</strong></td>
<td>66</td>
<td>0</td>
<td>0</td>
<td>2155</td>
<td>3,356</td>
<td>Unknown</td>
<td>54</td>
<td>0</td>
<td>365</td>
<td>84</td>
<td>1457</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>392</td>
<td>12</td>
<td>0</td>
<td>3777</td>
<td>4,449</td>
<td>43-74</td>
<td>251</td>
<td>0</td>
<td>452</td>
<td>176</td>
<td>4695</td>
</tr>
<tr>
<td><strong>TOTAL PER 10 000</strong></td>
<td>0.62</td>
<td>0.0011</td>
<td>0</td>
<td>6.3</td>
<td>6.8</td>
<td>0.05-0.12</td>
<td>0.42</td>
<td>0</td>
<td>0.75</td>
<td>0.29</td>
<td>7.8</td>
</tr>
</tbody>
</table>

* CHW: Community health workers
** AHW: Additional health workers
Table 7. Human Resources by Facility in Papua New Guinea, 2012

<table>
<thead>
<tr>
<th>Facility/Level</th>
<th>Medical Doctor</th>
<th>Nurse</th>
<th>Occupational Therapist</th>
<th>Midwife</th>
<th>Social Worker</th>
<th>Pharma cist</th>
<th>Comm. Health Worker</th>
<th>Psychiatrist</th>
<th>Psychiatric registrars</th>
<th>Clinical Psychologist</th>
<th>Psychiatric Social Worker</th>
<th>Psychiatric Nurse</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TERTIARY LEVEL CARE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port Moresby General Hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>231</td>
<td>445</td>
<td>0</td>
<td>61</td>
<td>4</td>
<td>&gt;5</td>
<td>234</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Health Centres</td>
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<td>0</td>
<td>0</td>
<td>&lt;2</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>Typical Average Sialum</td>
<td>NA</td>
<td>NA</td>
<td>0</td>
<td>NA</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>Urban Clinics</td>
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</tr>
<tr>
<td>Typical Small Wewak</td>
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<td>NA</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Typical Large Buimo</td>
<td>NA</td>
<td>NA</td>
<td>0</td>
<td>NA</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Typical Average Nine Mile</td>
<td>&lt;1</td>
<td>5</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>
### Table 8. Number of Staff per Province

Source: reference (2)

<table>
<thead>
<tr>
<th>PNG Provinces</th>
<th>2009 Urban Population</th>
<th>2009 Rural Population</th>
<th>2009 Total Population</th>
<th>Health Centre Staff and Hospital Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SSMO</td>
</tr>
<tr>
<td>1 Western</td>
<td>44,229</td>
<td>161,103</td>
<td>205,332</td>
<td>0</td>
</tr>
<tr>
<td>2 Gulf</td>
<td>13,875</td>
<td>120,803</td>
<td>134,678</td>
<td>0</td>
</tr>
<tr>
<td>3 Central</td>
<td>7,068</td>
<td>218,698</td>
<td>225,766</td>
<td>0</td>
</tr>
<tr>
<td>4 NCD</td>
<td>349,415</td>
<td>0</td>
<td>349,415</td>
<td>12</td>
</tr>
<tr>
<td>5 MBP</td>
<td>15,924</td>
<td>246,852</td>
<td>262,776</td>
<td>4</td>
</tr>
<tr>
<td>6 Oro</td>
<td>14,452</td>
<td>154,669</td>
<td>169,121</td>
<td>0</td>
</tr>
<tr>
<td>7 SHP</td>
<td>16,008</td>
<td>775,059</td>
<td>791,067</td>
<td>0</td>
</tr>
<tr>
<td>8 Enga</td>
<td>9,725</td>
<td>371,873</td>
<td>381,598</td>
<td>1</td>
</tr>
<tr>
<td>9 WHP</td>
<td>37,362</td>
<td>512,169</td>
<td>549,531</td>
<td>0</td>
</tr>
<tr>
<td>10 Simbu</td>
<td>11,554</td>
<td>296,087</td>
<td>307,641</td>
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</tr>
<tr>
<td>11 EHP</td>
<td>32,003</td>
<td>494,642</td>
<td>526,645</td>
<td>2</td>
</tr>
<tr>
<td>12 Morobe</td>
<td>174,930</td>
<td>516,666</td>
<td>691,596</td>
<td>5</td>
</tr>
<tr>
<td>13 Madang</td>
<td>48,735</td>
<td>415,302</td>
<td>464,037</td>
<td>0</td>
</tr>
<tr>
<td>14 ESP</td>
<td>38,902</td>
<td>378,525</td>
<td>417,427</td>
<td>0</td>
</tr>
<tr>
<td>15 WSP</td>
<td>17,720</td>
<td>212,216</td>
<td>229,936</td>
<td>0</td>
</tr>
<tr>
<td>16 Manus</td>
<td>9,086</td>
<td>45,576</td>
<td>54,662</td>
<td>0</td>
</tr>
<tr>
<td>17 NIP</td>
<td>13,858</td>
<td>139,178</td>
<td>153,036</td>
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<tr>
<td>18 ENB</td>
<td>12,851</td>
<td>262,075</td>
<td>274,926</td>
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</tr>
<tr>
<td>19 WNB</td>
<td>27,828</td>
<td>225,835</td>
<td>253,663</td>
<td>1</td>
</tr>
<tr>
<td>20 ARB</td>
<td>4,665</td>
<td>195,580</td>
<td>200,245</td>
<td>1</td>
</tr>
<tr>
<td><strong>Southern</strong></td>
<td><strong>444,963</strong></td>
<td><strong>902,125</strong></td>
<td><strong>1,347,088</strong></td>
<td><strong>16</strong></td>
</tr>
<tr>
<td><strong>Highlands</strong></td>
<td><strong>106,652</strong></td>
<td><strong>2,449,830</strong></td>
<td><strong>2,556,482</strong></td>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>Momase</strong></td>
<td><strong>280,287</strong></td>
<td><strong>1,522,709</strong></td>
<td><strong>1,802,996</strong></td>
<td><strong>5</strong></td>
</tr>
<tr>
<td><strong>Islands</strong></td>
<td><strong>68,359</strong></td>
<td><strong>888,244</strong></td>
<td><strong>956,603</strong></td>
<td><strong>5</strong></td>
</tr>
<tr>
<td><strong>PNG TOTAL</strong></td>
<td><strong>900,261</strong></td>
<td><strong>5,742,908</strong></td>
<td><strong>6,643,169</strong></td>
<td><strong>29</strong></td>
</tr>
</tbody>
</table>
TRAINING

PNG offers formal training courses in mental health. The University of Papua New Guinea has a bachelor course for basic nursing in mental health which is a one year course and a master course for medicine in psychiatry which is a four year course. Since 1992, there are 4 psychiatrists who have finished the master course.

It also offers a formal training course in mental health for nurses and since 2002 two hundred mental health nurses throughout the provinces have graduated with a post basic bachelor in mental health nursing. The course is offered by the University of Papua New Guinea. Despite this increase in the number of formally trained mental health nurses, mental health is not regarded as a priority and as a result new knowledge and skills have not been put into practice.

There is virtual no exposure to mental health issues during the training of general health workers in their undergraduate curriculum. Essentially health extension officers have had basic training of three (recently increased to four) years at the College of Allied (Faculty of) Health Sciences, Divine Word University in Madang followed by a one-year internship. Nursing officers have three years basic training and community health workers have two years basic training and are trained to work in aid-posts in villages with limited facilities. They are primary health care workers who identify common illnesses and refer their patients to health centres or health sub-centres for further management.

Several ad hoc training workshops have been held to improve the ability of health care workers to provide treatment and care. For example, in 1999, the PNG government with the support of the World Health Organization, funded training for 19 physicians to provide psychiatric services at each of the provincial hospitals and in 2002-2004, the WHO supported the training of health care workers in primary mental health care at the provincial and district levels within the four regions. In addition since 2000, Laloki Psychiatric Hospital has provided training to rural community health workers.

In 2003, the PNG government pioneered a wireless method to reach the remote communities for the purpose of providing training in health. This high frequency, state of the art radio telephone network, or HEALTH NET, was supplied by AusAID and installed in more than 1000 radios throughout the country. The National Control Room is located at the Ministry of Health. It was used to communicate between hospitals and clinics in order to obtain advice and emergency aid and to disseminate information. It had been underutilized for mental health services but has recently been used to provide training and supervision to remote populations by the Mental Health Division (26).
Table 9.
Training and work for psychiatric health professionals in Papua New Guinea

<table>
<thead>
<tr>
<th>Human Resources</th>
<th>Training available in Papua New Guinea</th>
<th>Degree courses</th>
<th>Continuing Professional Development number/training weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatrists</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Neurosurgeons</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Neurologists</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Psychiatric nurses</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Psychologists</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Occupational therapists</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Social workers</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Traditional healers</td>
<td>No</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>General Health Workers</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nurses</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Community health workers</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Health extension officers</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: reference (26)

MEDICATIONS

As discussed, the supply of medication in PNG has been inconsistent and almost non-existent in the rural and remote areas where ‘stock-outs’ are common occurrences.

A comprehensive analysis of medicine expenditure funding undertaken in 2005 and 2006 showed that 4 pacific island countries, Papua New Guinea had the lowest per capita public pharmaceutical expenditure (PPE) and total pharmaceutical expenditure (TPE) (see Table 10).

Table 10
Per capita public pharmaceutical expenditure (PPE) and total pharmaceutical expenditure (TPE) in selected Pacific Island countries

<table>
<thead>
<tr>
<th>Country</th>
<th>PPE (US$)</th>
<th>TPE (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook Islands</td>
<td>33.89</td>
<td>50.77</td>
</tr>
<tr>
<td>Fiji</td>
<td>6.69</td>
<td>12.55</td>
</tr>
<tr>
<td>PNG</td>
<td>2.00</td>
<td>4.17</td>
</tr>
<tr>
<td>Samoa</td>
<td>13.57</td>
<td>21.99</td>
</tr>
<tr>
<td>Tonga</td>
<td>7.33</td>
<td>14.35</td>
</tr>
</tbody>
</table>

Source: reference (27)

There is very limited medication in the public health system to treat persons with a mental illness. Psychotropic medicines are donated by overseas organizations. However, doctors are reluctant to prescribe these medications due to the lack of resources to maintain a consistent supply of the prescribed medication. Access to psychotropic medications is free in PNG. According to information recently received from PNG, primary health care doctors and nurses are allowed to prescribe and/or continue prescription of psychotherapeutic medicines but with restrictions.

---

2 Nursing officers complete a three year course
3 Community health workers complete a two year course
4 Health extension officers complete a four year course
Table 11
Comparison of the WHO List of recommended psychotropic medications and the National Essential Medicines List in Papua New Guinea

<table>
<thead>
<tr>
<th>Drugs included in WHO Essential Psychotherapeutic Medicines 2009</th>
<th>Drugs included in Papua New Guinea’s National Essential Medicines List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert √ where medication is included in the list</td>
<td></td>
</tr>
<tr>
<td>Chlorpromazine</td>
<td>✓</td>
</tr>
<tr>
<td>Haloperidol</td>
<td>✓</td>
</tr>
<tr>
<td>Fluphenazine</td>
<td>✓</td>
</tr>
<tr>
<td>Amitriptyline</td>
<td>✓</td>
</tr>
<tr>
<td>Fluoxetine</td>
<td>✓</td>
</tr>
<tr>
<td>Diazepam</td>
<td>✓</td>
</tr>
<tr>
<td>Clomipramine</td>
<td>✓</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>✓</td>
</tr>
<tr>
<td>Valproic acid</td>
<td>✓</td>
</tr>
<tr>
<td>Lithium</td>
<td></td>
</tr>
<tr>
<td>Methadone</td>
<td></td>
</tr>
<tr>
<td>Nicotine replacement therapy</td>
<td></td>
</tr>
<tr>
<td>Olanzapine</td>
<td>✓</td>
</tr>
</tbody>
</table>

INFORMATION SYSTEMS

The National Department of Health has relied on a computerized national health information system established in 1989 based on a set of performance indicators for monitoring performance of health facilities at the district, province and national levels. The data is gathered first at the Aid Post and then forwarded to the district health centre. Information is then gathered monthly from each health centre and is sent to the provincial health office through the district health office. The data is then sent to the national level where it is transferred into the national computerized system. Despite the regular input of data into the national health information system, an evaluation of the system revealed multiple problems. Data at the village level was not consistently included in the national level data. As well, there were problems of under- and over-reporting, and transcription errors. The national level data does provide a view of health in the country as a whole, but due to the absence of village level data, it cannot be used to guide local action or evaluate interventions (28).

The national health information system does not include provisions for mental health data. As a result, there is an absence of mental health service utilization data at the district, provincial, and national levels. Some limited data is collected by the National Department of Health with respect to the Psychosocial Rehabilitation Centre, which includes the number of people accessing the service along with their age, sex, and diagnosis (21).
Figure 11. Mapping Health Care Services in Papua New Guinea

† Location of Provincial Hospitals

● Location of Mental Health Unit within the National Hospital
FACILITIES AND SERVICES

1. National/ Specialist Hospitals

National/Specialist Hospitals refer to facilities that provide specialist services such as cardiac care or psychiatric care, and/or are accessible to the country's entire population.

Laloki Psychiatric Hospital
Laloki Psychiatric Hospital is the only long-term psychiatric facility in PNG and it is located 15 kilometres outside of Port Moresby. The hospital was built in 1967 for 100 patients; however it now has 60 beds. The facility is often crowded, with many sleeping on the floor. There are separate wards for males and females, and the patient population is mixed with forensic and non-forensic patients. As of August 2011 there were 80 patients admitted and it was not possible to admit female patients due to a shortage of space following the closure of a ward in 2002.

Previously, the facility consisted of one locked ward, an open ward, a rehabilitation annexe and an occupational therapy unit. The locked ward housed most of the forensic cases and individuals with severe mental illness, where individuals slept on wooden beds or the concrete floor. The open ward was also in poor conditions although some mattresses and pillows were provided at the time of the author's visit. The patients (with nursing staff supervision) were responsible for keeping the ward clean. However, as of August 2011, these wards were closed indefinitely to lack of workforce.

The average length of stay is two months for the patients from Port Moresby; however, it can be as long as six months for patients from distant provinces. The primary reason for the long stay is that provincial health authorities have not provided plane tickets for patients to return home. In addition, some forensic patients have stayed for over 15 years due to pending legal decisions regarding their cases.

The human resources at Laloki Psychiatric Hospital consist of mental health trained nurses, general nurses, community health care workers, one permanent psychiatrist and one psychiatric training registrar. Psychiatrists at the Port Moresby General Hospital are available on-call and do weekly rounds covering for Laloki Hospital when patients present to the emergency section. There are 18 nurses with mental health nursing qualifications, 12 general nurses, and 26 community health workers. Laloki Hospital extends its services beyond the boundaries to the local community in terms of primary health care and the inclusion of 3 midwives aiding accessibility to essential services; in return the community looks after the hospital.

Port Moresby General Hospital
The Port Moresby General Hospital is a national referral hospital consisted with approximately 600 beds. The staff includes specialists in the following areas: Neurosurgery, urology; Paediatric surgery, radiology, physicians, paediatrics, emergency medicine, general surgery, ENT (otolaryngology), ophthalmology, Dermatology Orthopaedics; Cardiology; and Psychiatry.

Ward 6 of the Port Moresby General Hospital has 13 inpatient psychiatric beds for women only; however, it houses 18 to 20 individuals. The ward consists of two large rooms with basic furniture and one other room used for the distribution of medication, family visits and physical examinations. The Ward's staff includes 3 psychiatrists and 2 psychiatric registrars.

In addition, the Port Moresby General Hospital has an outpatient clinic which was first established in 1987 and it also has a child guidance clinic managed by one trained psychiatrist who will complete her specialist training in 2012 in child and adolescent mental health. There were 97 new cases of children and adolescents with mental health problems seen at the clinic in 2002.
2. General hospitals

**General hospital inpatient mental health services**

As of 2012, no regional hospitals were providing mental health inpatient services.

Mt Hagen Hospital in Western Highland province was recently renovated in 2012 and there are plans to provide a mental health inpatient unit in 2013.

Nonga Base Hospital in East New Britain had a mental health unit but this was closed in 2006 due to damage from a volcanic eruption.

Angau Hospital in Lae Morobe Province had termite damage and was closed in 2010. The hospital will be relocated and there is a plan to set-up a mental health inpatient unit as part of hospital services.

16 provincial general hospitals provide psychiatric inpatient care as part of the general medical unit service provision.

With the exception of the 3 regional hospitals, most all the provincial hospitals now have at least 1 to 2 trained mental health nurse working in the general medical wards. Psychiatrists from Port Moresby General Hospital provide clinical support to provincial hospitals through specialist clinical visits and provide consultation regarding new and existing cases. They also conduct training seminars for local health staff.

**General hospital outpatient mental health services**

13 of the general hospitals provide outpatient mental health services by dedicated mental health nurses include: Madang, Milne Bay, West Sepik Province, East Sepik Province, East New Britain Province, Autonomous Region of Bougainville, Morobe Province, Eastern Highlands Province, Western Highlands Province, Oro Province, Gulf Province, New Ireland Province and West New Britain Province. Each hospital sees between 5 to 10 patients depending on the population density of the province. The most densely populated provinces (e.g. Morobe Province, Mt Hagen and Eastern Highlands Provinces) will see a higher number of patients with mental disorders.

3. Formal community mental health services

Formal community mental health services refer to day centres, crisis teams, residential services, and in-home support. There are no formal mental health community services apart from the community mental health outreach undertaken by Laloki Hospital.

The Psychosocial Rehabilitation Centre is currently closed due to inadequate funding support by National Department of Health. First opened in February 2001. It was the first and only psychosocial rehabilitation facility in PNG. The Centre, while operational, accommodated 15 individuals via referrals from various hospitals; it provided rehabilitation services including assistance in daily living activities; a support group for families; public education and community awareness (e.g. news articles on issues of mental illness and stigma); and a day programme covering group therapy, craftwork for sale, cooking, exercises and outings. In addition, the staff conducted home visits. The Human Resources at the Centre included a psychiatrist, a volunteer, a social worker, and a psychiatric nurse (23).

4. Formal community mental health services

Although the majority of the populations (87%) live in the rural areas of PNG, general/community health workers based at the rural health centres, urban clinics and aid posts are not skilled to undertake mental health assessments and treatments. In addition, access to psychotropic medications is limited (16). Individuals experiencing more serious mental health issues are referred...
to provincial general hospitals by way of district health centres/hospitals due to limited knowledge and skills in mental health. The Church Health Service operates approximately one-quarter of the rural health centres and aid posts. The Churches are also responsible for training many of local health workers including nurses and community health workers.

5. Non-government Organizations

The National Disability Resource & Advocacy Centre produces the Network Magazine; the national disability magazine for Papua New Guinea (29).

The Foundation for People and Community Development (FPCD) is a national non-government organization that has been involved in integrated community development since 1965. The Foundation worked with the National Department of Health on the Youth and Mental Health Project to assist youth to reach their potential through self-employment (30).

The Family Support Group (FSG) was formed to provide encouragement to family members of persons with mental illness; however the group has not been functioning since the closure of the psychosocial rehabilitation centre. The Group consisted of parents and guardians of individuals accessing the services of the Psychosocial Rehabilitation Centre. Workshops for the FSG members are organized through the Youth and Mental Health Project. The FSG had planned to register itself as an association; however it is unknown if they have done so (31).

The Centre for Domestic Violence is located in Port Moresby and provides shelter to women and their children. The psychiatrists in PNG are not directly involved in the Centre's activities, and the Centre receives support from NGOs overseas (23).

In addition family Support Centres are being planned for all provinces to address Gender Based Violence (GBV) with the Guidelines in draft at present to address interpersonal violence as well.

6. Informal community care

Traditional medical practitioners in PNG provide care for many mental health problems. One traditional healer is involved directly with the mental health services, however there are probably many others providing mental health care. For more detailed contextual information regarding traditional culture and beliefs and its impact on mental health service delivery, refer to the 'context' section of this summary (16).

7. Other

Bomana Correctional Institutional Service, Psychiatric Services

Bomana Correctional Institutional Services is PNG's largest correctional facility with 630 prisoners. The prison has an infirmary for individuals experiencing mild mental illness. Persons who have a more serious mental illness and who have been charged with capital crimes to Laloki Psychiatric Hospital are sent. A qualified mental health nurse and 2 community health workers are employed by the Bomana Correctional Institutional Service. The acting psychiatrist from Laloki hospital provides consultation service at the prisons (23).
### Table 12: Service Utilization in Papua New Guinea
**NA:** Data not available

<table>
<thead>
<tr>
<th>Facility/Level</th>
<th>GENERAL HEALTH</th>
<th>MENTAL HEALTH INPATIENT</th>
<th>MENTAL HEALTH OUTPATIENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Number of Beds</td>
<td>Total Number Beds</td>
<td>Average length of stay</td>
</tr>
<tr>
<td><strong>TERTIARY LEVEL CARE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Port Moresby General Hospital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>600</td>
<td>13</td>
<td>6±2 weeks</td>
</tr>
<tr>
<td><strong>Laloki Psychiatric Hospital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>60</td>
<td>8±2 weeks</td>
</tr>
<tr>
<td><strong>SECONDARY LEVEL CARE</strong></td>
<td>Regional Hospitals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mt. Hagen</td>
<td>300+</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Angau</td>
<td>Downsizing/ relocating due to termites infestation</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nonga</td>
<td>Downsizing/ relocating due to volcano</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>NA</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Provincial General Hospitals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical Small Hospital New Ireland</td>
<td>200</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Typical Large Hospital Goroka base Hospital</td>
<td>NA</td>
<td>10</td>
<td>NA</td>
</tr>
<tr>
<td>Typical Average Hospital Boram</td>
<td>200</td>
<td>5</td>
<td>NA</td>
</tr>
<tr>
<td><strong>District Hospitals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical Small Hospital Maprik</td>
<td>5</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Typical Large Hospital Kudjip</td>
<td>10</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Typical Average Hospital Tinsley</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
Figure 12(a) and (b). The WHO Pyramid of Care and the reality in Papua New Guinea

Figure 12(a)
The ideal structure for mental health care in any given country

Figure 12(b)
The reality of mental health care in Papua New Guinea
The levels of care that are non-existent, poorly developed or inappropriate have been removed from the pyramid of care.
BIBLIOGRAPHY

INTERNET RESOURCES

Mental health and development: Targeting people with mental health conditions as a vulnerable group

Improving health systems and services for mental health

WHO/Wonca joint report: Integrating mental health into primary care - a global perspective


The WHO Mental Health Policy and Service Guidance Package

- The mental health context
- Mental health policy, plans and programmes - update
- Organization of services
- Planning and budgeting to deliver services for mental health
- Mental health financing
- Mental health legislation & human rights
- Advocacy for mental health
- Quality improvement for mental health
- Human resources and training in mental health
- Improving access and use of psychotropic medicines
- Child and adolescent mental health policies and plans
- Mental Health Information Systems
- Mental health policies and programmes in the workplace
- Monitoring and evaluation of mental health policies and plans

### APPENDIX

**Essential psychotherapeutic medicines**  
(WHO Model List of Essential Medicines, 16th list, March 2009)

Where the [c] symbol is placed next to the complementary list it signifies that the medicine(s) require(s) specialist diagnostic or monitoring facilities, and/or specialist medical care, and/or specialist training for their use in children.

#### Psychotic disorders

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorpromazine</td>
<td>Injection 25 mg (hydrochloride)/ml in 2ml ampoule</td>
</tr>
<tr>
<td></td>
<td>Oral liquid 25 mg (hydrochloride)/5 ml</td>
</tr>
<tr>
<td></td>
<td>Tablet 100 mg (hydrochloride)</td>
</tr>
<tr>
<td>Fluphenazine</td>
<td>Injection 25 mg (decanoate or enantate) in 1ml ampoule</td>
</tr>
<tr>
<td>Haloperidol</td>
<td>Injection 5 mg in 1ml ampoule</td>
</tr>
<tr>
<td></td>
<td>Tablet 2 mg; 5 mg</td>
</tr>
</tbody>
</table>

**Complementary list [c]**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorpromazine</td>
<td>Injection: 25 mg (hydrochloride)/ml in 2 - ml ampoule</td>
</tr>
<tr>
<td></td>
<td>Oral liquid: 25 mg (hydrochloride)/5 ml</td>
</tr>
<tr>
<td></td>
<td>Tablet: 10 mg; 25 mg; 50 mg; 100 mg (hydrochloride)</td>
</tr>
<tr>
<td>Haloperidol</td>
<td>Injection: 5 mg in 1 - ml ampoule</td>
</tr>
<tr>
<td></td>
<td>Oral liquid: 2 mg/ml</td>
</tr>
<tr>
<td></td>
<td>Solid oral dosage form: 0.5 mg; 2 mg; 5 mg</td>
</tr>
</tbody>
</table>

#### Depressive disorders

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>Tablet 25 mg (hydrochloride)</td>
</tr>
<tr>
<td>Fluoxetine</td>
<td>Capsule or tablet 20 mg (present as hydrochloride)</td>
</tr>
</tbody>
</table>

**Complementary list [c]**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoxetine</td>
<td>Solid oral dosage form: 20 mg (present as hydrochloride)</td>
</tr>
<tr>
<td></td>
<td>a &gt;8 years</td>
</tr>
</tbody>
</table>

#### Bipolar disorders

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>Tablet (scored) 100 mg; 200 mg</td>
</tr>
<tr>
<td>Lithium carbonate</td>
<td>Solid oral dosage form: 300 mg</td>
</tr>
<tr>
<td>Valproic acid</td>
<td>Tablet (enteric coated): 200 mg; 500 mg (sodium valproate).</td>
</tr>
</tbody>
</table>

#### Generalized anxiety and sleep disorders

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diazepam</td>
<td>Tablet (scored): 2 mg; 5 mg</td>
</tr>
</tbody>
</table>

#### Obsessive-compulsive disorders and panic attacks

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clomipramine</td>
<td>Capsule 10 mg; 25 mg (hydrochloride)</td>
</tr>
</tbody>
</table>

#### Medicines used in substance dependence programmes

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine replacement therapy</td>
<td>Chewing gum: 2mg, 4mg</td>
</tr>
<tr>
<td></td>
<td>Transdermal patch: 5mg to 30mg/16 hrs; 7mg to 21mg/24 hrs</td>
</tr>
</tbody>
</table>

**Complementary list [c]**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone*</td>
<td>Concentrate for oral liquid 5 mg/ml; 10 mg/ml</td>
</tr>
<tr>
<td></td>
<td>Oral liquid 5 mg/5 ml; 10 mg/5 ml</td>
</tr>
</tbody>
</table>

*The square box is added to include buprenorphine. The medicines should only be used within an established support programme.

Source: reference (32)


23. WHO. Situational Analysis: Mental health situation in Papua New Guinea. 2005