GOVERNMENT

OF

TONGA

REPORT

of the

MINISTER

for

HEALTH

for the year

2008

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1 OVERVIEW OF THE NATIONAL STRATEGIC DEVELOPMENT PLAN EIGHT 2006/07-2008/09

1.1 Introduction

The Strategic Development Plan VIII, *Looking to the Future, Building on the Past,* for the Kingdom of Tonga for the period 2006-2009 is the second development plan formulated with the strategic approach to economic and social development planning. It is the eighth development plan to be formulated by the Government through lengthy and extensive consultative process.

1.2 National Vision

The Vision for Tonga:

To create a society in which all Tongans enjoy higher living standards and a better quality of life through good governance, equitable and environmentally sustainable private sector-led economic growth, improved education and health standards, and cultural development.

1.3 National Objectives SDP8, 2006/2007 – 2008/2009

The priority objectives for SDP8 are to:

- Guide the formulation of the public sector's corporate and management plans and the annual budgets through which resources are allocated
- Inform the private sector and civil society of Government's policy intentions
- Provide the foundation on which Government can develop its external economic relations and aid donors can construct their country strategies and assistance programs
- Provide indicators by which Government's progress in policy/strategy implementation can be monitored and measured.

1.4 National Goals

The national goals that will be pursued by SDP8 will be as follows:

- Goal 1: Create a better governance environment
- Goal 2: Ensure macroeconomic stability
- Goal 3: Promote sustained private sector-led economic growth
- Goal 4: Ensure equitable distribution of the benefits of growth
- Goal 5: Improve education standards
- Goal 6: Improve health standards
- Goal 7: Ensure environmental sustainability and disaster risk reduction
- Goal 8: Maintain social cohesion and cultural identity

2 ORGANISATIONAL OBJECTIVES AND FUNCTIONS

The Ministry of Health is responsible for the delivery of preventative and curative health services in the country.

2.1 MISSION AND VISSION:

Our Mission

To support and improve the health of the nation by providing quality, effective and sustainable health services and being accountable for the health outcomes.

Our Vision

By 2020, we are the healthiest nation compared with our Pacific neighbours as judged by international determinants.

Our Core Values are:

- Commitment to quality care
- Professionalism and accountability
- Care and compassion
- Commitment to staff training and development
- Partnership in health

2.2 Tonga and its Neighboring Countries:

Like most of the Pacific Islands Countries, Tonga share and learn from experiences of neighboring countries to improve our health services. The Ministry of Health repeatedly refines its focus and regularly reviews its performance to maintain and improve good health of the people of Tonga.

Selected health related indicators for Tonga and neighboring countries were obtained from the Country Health Information Profiles (CHIPs). They are presented to assess the comparability of our health care services delivery and health status to the neighboring developed countries. It is the same indicators which annually assess the health of Tonga. The entire discussion of this section is restricted to the countries and statistics provided in the table below.

Selected Health Related Indicators of Tonga and Neighboring Countries, CHIPs 2007

	INDICATORS	Japan	Aust	NZ	Tonga
		Demographic			
1	Estimated Population ('000)	127 770.00	20 605.50	4027.95	102.3
2	Annual Population growth	0.01	1.31	1.00	0.30
3	Percentage of Population less than 4 years	4.30	6.20	6.83	13.00
	Percentage of Population between 4-14	9.30	13.20	14.70	25.00
	Percentage of population 65 years and over	20.80	13.30	12.32	6.00
4	Percentage of urban population	78.70	88.20	86.20	23.0
5	Rate of natural increase	-0.02	0.64	0.75	1.84
		Health Status			
6	Crude Birth Rate	8.40	12.80	14.10	26.5
7	Crude Death Rate	8.60	6.40	6.60	7.0
8	Maternal Mortality Rate (per 100,000)	5.80	11.00	6.81	76.1
9	Life Expectancy (Male)	78.53	78.50	77.50	70.00
	Life Expectancy (Female)	85.49	83.30	81.70	72.00
10	Infant Mortality Rate	2.80	5.00	4.80	16.4
11	Total Fertility Rate	1.25	1.81	2.00	3.7

	INDICATORS	Japan	Aust	NZ	Tonga
		Socioeconomic			
12	Total Health expenditure, amount (in million US$)	357 907.00	69 197.71	7383.42	12.82
	total expenditure on health as % of GDP	7.70	9.50	8.70	6.10
	per capita total expenditure on health (in	2802.79	3404.00	1801.62	105.0
13	Health workforce				
	Physicians (per 100,000)	211.7	277.1	219.0	59.0
	Dentists (per 100,000)	74.6	43.2	55.0	11.7
	Nurses (per 100,000)	897.7	884.2	854.0	337.0
		Primary Health Care Coverage			
14	Proportion of population with sustainable access to an improved water source	100.00	100.00	NA	99.00
15	Proportion of population with access to improved sanitation	100.00	100.00	100.00	98.00
16	Immunization coverage				
	BCG	NA	100.00	NA	100.00
	DTP3	100.00	100.00	89.00	100.00
	POL3	97.00	100.00	89.00	100.00
	Measles	100.00	99.00	82.00	100.00
	Hepatitis B III	NA	100.00	87.00	100.00
17	Percentage of pregnant women immunized with tetanus toxoid 2	NA	NR	NR	98.00
18	Percentage of pregnant women cared for by skilled health personnel	NA	99.00	100.00	99.00
19	Percentage of women in the reproductive age group using modern contraceptive	59.00	NA	72.00	27.0

Source**:** Country Health Information Profile, 2007
World Health Organization

Remarkably, these indicators highlight the way forward in achieving the Ministry's vision in 2020. These are important message to take note from the above statistics.

Demographically, our annual population growth is the second lowest to Japan compared to other countries. The Government is not pressured with the negative impact of exponential population growth provided our limited resources. Our population distribution suggests that we have enough (25%) younger (4-14 yrs) population to support the elderly population (6%) which is higher than the remaining Pacific Island Countries.

Although we have higher birth rate and generate a premature deaths at less than 1 year (16.4 infants' deaths per 1000 live births) but it fluctuated between 10 and 11 infant deaths per 1000 live births since 2005. In fact, we should be aware that this is a sensitive indicator. An increase by a single infant's death requires at least 100 live births to maintain the same infant death rate.

The estimated life expectancy of a Tongan is shorter by at least 7 years from developed countries. Additionally, the roportion of population who lives for more than 65 years doubles the same population age of New Zealand and Australia.

Limited resources are the major constraint for health care services delivery in the Small Pacific Island Countries. Nevertheless, Tonga is investing reasonably well on health in terms of the economic status of the country (6.1% of the GDP) as compared to developed countries (at maximum of 9%).

Human resource particularly physician and dentist ratio shows a greater difference of 7 times higher for developed countries than Tonga. The ratio of nurses has narrower difference (as high as double).

Evidences proved that the people of Tonga are receiving good coverage of basic primary health services. This result is more than satisfactory despite the scarcity of resources and geographically wide distribution of population in the scattered islands of Tonga. The Public Health Division that delivers majority of these primary health services continuously achieved these target through regular monitoring (Quarterly report and monthly meeting) the progress of the aforementioned indicators. The Ministry

of Health highly acknowledged the huge contribution of international donors such as JICA, UNFPA, UNICEF, WHO and SPC in terms of mentoring and funding these services.

Overall, it is expected that the above statistics could guide the Ministry of Health and its stakeholders in ways to execute its mission and vision.

3 HIGHLIGHTS OF ACHIEVEMENTS 2008

In examining the attainability of the Ministry's vision, it was recognized that there are six key result areas that requires the Ministry's attention in the next 3 financial years.

The Ministry's *Corporate Plan* provides details of strategies, targets and performance indicators. The Ministry's *Annual Report* documents what has been implemented and achieved against each of the key result areas on annual basis.

Individual sections report on selected milestones that contribute to achieving their respective division's mission. Divisional mission and objectives must contribute to relevant strategies of respective key result areas as detailed below.

3.1 KEY RESULT AREAS:

This section highlights the milestones in each Key Result Area that were achieved during 2008.

3.1.1 Key Result Area 1:

Build capability and effectiveness in preventive health services to fight the NCD epidemic and communicable diseases

Goal: We will fight the NCD epidemic and communicable diseases using effective preventative health measures, being good role models and developing public participation and commitment.

The increasing burden from NCDs has resulted in the prioritisation of this issue by the Government and the Ministry of Health of Tonga. This has been reflected by its inclusion as priorities in the Government's National Strategic Plans as well as the Ministry's Corporate Plan.

Tonga has participated in the global and regional collaborative approaches to fight NCDs but it has understood that localizing the strategies in country was just as important.

The emphasis of the programmes is to focus on the risk factors for NCDs namely Physical Inactivity, Unhealthy Diet and Smoking.

The following reports highlight some of the initiatives carried out by the Ministry to address NCDs.

Health Promoting Churches: Since most if not all Tongans are involved with a church and church activities play an important role in the life of Tongans, a programme which would involve a partnership with the churches was envisaged. Church leaders are also respected community leaders and hold a place of authority which can potentially influence Tongan decision making. There is evidence to support this theory in individual, family and community daily lifestyles of many Tongans living both locally and abroad.

The Ministry of Health in conjunction with WHO Office, Tonga, initiated a new approach called Health Promoting Churches in October 2008. This involved a partnership with the Church leaders to develop a strategic plan of action to support fighting the NCD epidemic through the churches. This relationship was also strengthened through other Ministry activities such as officially opening of Pharmacy week. The programme was designed in such a way that the public realises that sustaining good health is the responsibility of everyone including individuals, churches, other partners and the Ministry of Health.

Health Promoting Schools: Tonga is among the countries with the highest access to primary and secondary education. The Health Promoting Schools programme targets the Tonga School System in embedding health message through school

curriculum. Since NCDs are lifestyle related, developing healthy habits early is a key to a healthy lifestyle later in life. The current programme also involves selected schools where activities such as vegetable gardens and aerobics are carried out. Non Smoking signs have been distributed to all the schools.

Health Promoting Workplaces: A workplace based approach has also been used at selected Government and Non Government workplaces. The staff of National Reserve Bank, ANZ Bank, Environment Department and Tonga Cooperation Communication participates in regular health screening and other health initiatives.

Key to the success of the programmes is the active participation of the Ministry's partners both locally and internationally. The Health Promotion Unit is fortunate to have the support of local churches, schools, workplaces, government ministries and NGOs. Development partners providing assistance include AusAID, JICA, NZAID, SPC, WHO and World Diabetes Foundation.

Communicable Disease remains a Global and national concern at all times. The major communicable diseases of concern in Tonga are HIV (less than 3 cases), curable Sexually Transmitted Infectious Diseases (STI) (122 cases for 2008), TB (13 cases), Typhoid (4 cases) and Dengue fever (343 cases).

The Ministry has developed National Strategic Plan to respond to STI and HIV/AIDS 2009-2013 in conjunction with key national stakeholders. There was a new PCR machine which was introduced during the year for testing of Chlamydia.

3.1.2 Key Result Area 2:

Improve the efficiency and effectiveness of curative health service delivery

Goal: We will deliver the range and quality of services to meet the basic health requirements

The transition from the old to the new Vaiola Hospital Buildings provided huge satisfaction gains ultimately for the patients and the staff as well. Concurrently, the availability of new equipment in these building facilitates the improvement in the efficiency and effectiveness of curative health services delivery especially Operating Theatre, Laboratory, Radiology and the hospital wards.

Procurement of retinal camera: The World Diabetes Foundation provided assistance to Tonga for a diabetes project and this included funding for the procurement of a digital retinal camera and accessories to the value of USD$60,000.00. An extra USD$ 4000.00 was earmarked for training in camera use.

This assistance has brought to reality a long term dream of the Eye Clinic. It has meant that patients waiting time will be markedly reduced as patients will generally not need pupillary dilation. It also means that staff will be able to carry out more work as time spent on seeing diabetic patients will be reduced. Since receiving the camera we have seen a threefold increase in the number of patients screened.

Tonga was blessed with eight visiting medical teams.

Ophthalmology had three teams visit during the year, two from the USA through the Surgical Eye Expeditions (SEE) and one from New Zealand through the Volunteer Ophthalmic Surgeons Overseas (VOSO).

A special milestone was the visit of the first ever **Vitreoretinal team** led by Dr. Buys from Oregon USA. They were able to operate on 10 patients, a potential saving of about TOP$ 200,000 had they been sent to New Zealand.

Ophthalmology also had a visit from long time friend Dr. Jeff Rutgard from California and long time benefactors **VOSO** from New Zealand led by another long time friend Dr Andrew Riley who has been to Tonga on numerous occasions. The VOSO team also had the opportunity to also treat some cases at the Outer islands of Tonga namely 'Eua and Vava'u. All together the teams were able to see more than 2000 people.

In April 2008, an **Orthopedic Surgery team** visited Vaiola Hospital and took 12 major orthopedic procedures and 5 arthroscopies. Another **Orthopaedic Surgery** team visited in November 2008 and performed 23 major orthopedic procedures and 7 arthroscopies.

Operation Open Heart (OOH) Program: Open Heart Surgery is the major medical complaints for Overseas Referral of Tongan patients. Repair of Cardiac Congenital Defect is by far the most expensive surgery The Ministry had to encounter for many years costing as high as $40,000 New Zealand or Australian dollars depending on where the patients go. Annually we sent about 2-5 cases for treatment.

Cardiac valvular repair or replacement is the most common cardiac surgery with the cost varying from replacement is the most common cardiac surgery with the cost varying from TOP$25,000 –TOP$40,000 depending on how many valves and type of surgery. Between Paediatric and Medical patients we send 15-20 patients annually. Overtime with presumed early diagnosis and better care we tend to send more patients each consecutive year. Consequently, over the years we had to look for extra sources of funding or wait for the next financial year.

After a feasibility visit by Ms. Annette Baldwin from 14-17th April, Tonga was qualified for a visit from OOH Program scheduled for the 6-25th October 2008. Thirty nine team members were recruited in Australia for the trip with the condition they will pay airfares and donate the time and skills. The Ministry was responsible for accommodation, food and payment for the valves.

The Ministry also received a visit from the **Auckland Spinal Rehabilitation Unit** to Vaiola Hospital in October and offered advice and numerous session of training for Ministry's staff on Spinal injury problems.

The Club Foot Repair Team visited Vaiola Hospital in November and performed 25 surgical operations. They also introduced Ponseti Method.

Rheumatic Heart Disease School Screening: Publication of 2004 Screening in Nature Clinical Practice cardiovascular Medicine: A staff (Dr. Toakase Fakakovikaetau, Pediatrician Specialist) in conjunctions with Jonathan Carapetis (Menzies School of Health Research, Charles Darwin University, Darwin, Australia) published a result of a Rheumatic Heart Disease School Screening which started in 2004. It was published by Nature Clinical Practice Cardiovascular Medicine on April, 2008. This study aimed at screening Rheumatic Heart Disease to detect cases early than instead of detection only when the disease has progressed to cardiac failure. It was a cross sectional studies of 5053 primary school students. The result reports a prevalence of definite RHD of 33.2 per 1,000. The prevalence of RHD increased significantly with age, peaking at 42.6 per 1,000 in children aged 10–12 years. Most valve lesions (91 [54%] of 169) were mild. Based on the findings, it was concluded that screening is a useful method for detecting asymptomatic RHD in regions of high prevalence. The same study report a high chocardiographically confirmed prevalence. On the same month, Tonga RHD Program became the second winner of the Pro Heart Hero Award, which was chosen from applications from 14 countries to receive the prestigious 2007 Louise Lown Heart Hero Award, which the global cardiology network ProCor organizes to highlight innovative preventive approaches to improving cardiovascular health in low resource settings. This award was presented by the Deputy Prime Minister and Minister for Health at the Final Dinner with the Operation Open Heart Program on 20th October, 2009.

3.1.3 Key Result Area 3:

Provision of Services in the Outer Island Districts & Community Health Centres

Goal: We will provide appropriate services to all the Outer Island Districts and community health centres through effective resourcing. Specialized services will be provided through regular programmed visits.

Outer Island and Community Health Centres are critical areas of health care services delivery in Tonga. The findings of the Corporate Plan consultations revealed that the collective efforts of Outer Island and Community Health Centres will contribute significantly for achieving the Ministry's mission and vision.

The Ministry has taken series of strategies to improve these areas and the progress will be reported in 2009. However, these are significant milestones of what has been achieved in the Outer Island and Community Health Centres in 2008.

Niu'ui Hospital, Ha'apai;

- the hospital services in Niu'ui Hospital were transferred back to the Hospital after the successful completion of renovation to the Hospital Building which was affected by the great Earthquake in 2005. This project was jointly funded by the Governments of Australia and New Zealand.
- Through close partnership with the community, the radio station (FM) at Ha'apai broadcasted health programmes at no cost.
- The Japanese South Pacific Team (Dental) visited Ha'apai and delivered health programmes and donated toothbrushes in 'Uiha, Ha'ano and Fakakai.

Health Centre at Niuafo'ou;

- "Hands across the Ocean" from the USA donated wheelchair (1), walker (1), pairs of crutches (2), drugs (6 boxes of flexus) .
- The Niuafo'ou Community in the United State of America also donated wheelchair (1), crutches (1), adult bed (1), mattresses (2), Paediatric bed (1), IV stand (1) and 20 linen.
- The Hospital Board of Visitor organized a gathering of all Government Departments and Private Sectors to highlight the importance of the Ministry's role for the youth.

Niuatoputapu Health Centre;
Every Island District has its own hospital week which provides various health and social programmes for the public and also receives donations for the Ministry. A total of 670 (15+ years old) adult populations of Niuatoputapu Island donated more than $8,000 pa'anga and it was utilized for renovating the health centre at the Niuatoputapu Island.

This Health Centre collected TOP$5,000 which approximately 80% collected from clearance of yacht who visited Niuatoputapu. A new set of computer was provided by the Ministry in response to a request made in 2007.

Niu'eiki Hospital, 'Eua;

The New Zealand AID programme funded new reticulated water supply at Niu'eiki Hospital ('Eua District). The Hospital Board of visitors funded the tile of the waiting area and cemented the driveway at the Hospital.

3.1.4 Key Result Area 4:

Build Staff Commitment and Development

Goal: We will build staff commitment and development by demonstrating to the staff that they are the most valuable asset of the Ministry.

Training: Development of staff through professional training remains the main strategy of this Ministry for its human resources improvement.

The Pacific Health Online Learning Network (PHOLN) offered various online courses for Ministry Staff at no cost to the student and the Ministry. There were 18 staff who took the Laboratory Courses which included Haematology, Microbiology, Biochemistry, Immunology and Transfusion Science. There were 6 taking Drug Management, 3 taking Introduction to Public Health, 5 taking Epidemiology and 3 taking Biostatistics.

The government offered five formal (4 undergraduate and 1 postgraduate) training in these following areas (Anesthesia, Dental, Medicine and Nursing) which commenced at Fiji School of Medicine in early 2009.

Simultaneously, the People's Republic of China accepted two nursing staff to pursue formal undergraduate training in Nursing and Pharmacy.

The Government of Japan funded the following short term training and they were all conducted in Japan.

	Course Title	Duration	Participants
1	Oral Health Science Education	23rd Apr ~ 9th Aug	Dr. Sitaniselao Kisina Mr. Sione Halahala
2	HIV/AIDS Diagnosis, Prevention and Control Plan	4th Aug ~ 6th Sep	Dr. 'Ana F 'Akauola
3	IP Network Engineer for E-Government Promotion	18th Aug ~ 8th Nov	Mr. Clifton Latu
4	Improvement of Infectious Disease Control & Other Health Issues through Enhancement of District/Provincial Health System	30th Sep ~ 30th Nov	Mr. Sione 'Ulufonua
5	The Specialist of Nosocomial Infection Control and Prevention	4th Nov ~ 6th Dec	Ms. Pinomi Latu

Eye Care Training: Meleane Eke and Mele Vuki successfully completed the post graduate diploma in Eye Care at the Pacific Eye Institute, Fiji School of Medicine and graduated in December. The course was a seven month course for experienced nurses doing what normally would be a one year course. The completion of this course will be beneficial for the patients, the Ministry and its ability to provide better services and also just as importantly benefit the staff with their professional development. These training funded from Fred Hollows.

The Ministry received 3 new doctors following completion of their Undergraduate training at Fiji School of Medicine. Dr. Listiate 'Ulufonua successfully completed his Postgraduate Diploma in Paediatric at the same Institution and he is the only successful candidates from the class of 2008. Dr. Veisinia Matoto completed her Master Degree training in Internal Medicine. These four doctors were not in the workforce in previous years for training purposes.

World Health Organization provided ranges of training opportunities including online training, short term attachment and formal training. They funded online training in Health Information Management, Accounting, Health Informatics, Biostatistics and Management. WHO covered the tuition fees and book allowances of the students. WHO funded eight staff on a short term overseas (New Zealand and Australia) attachment in Pharmacy, Nursing, medicine, computing and a formal training in Anesthesia, Medicine, Nutrition, Obstetrics and Gynecology.

There is one component of the WHO budget that supports local training of Dental, Pharmacy, Health Officer, Nursing and Radiology staff. These local ongoing trainings reduce the effects of shortage of staff at lower cost then sending staff overseas. It is a three years training towards certificate and diploma level. Overseas trained staff of this Ministry conducts these training as part of their normal duties.

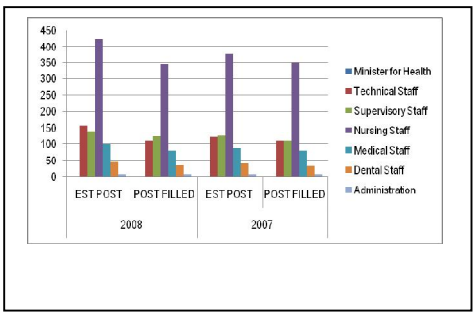
The Ministry also invests on facilities and equipment for the aforementioned training. Top students in these training usually receive scholarship to pursue further studies overseas such as nursing student who receive overseas training opportunities to pursue undergraduate training in medicine, nursing and pharmacy in 2009.

There was one Health Officer who successfully completed her undergraduate degree in medicine in 2008 and it signifies that the local training build solid fundamental knowledge and skills for further training abroad.

Nursing training is now affiliated with Auckland University of Technology (AUT) in which they recognized the local Diploma qualification. Some other areas such as Environmental Health and Dental are now considering the same arrangement with Fiji School Medicine (FSM).

Training for Nursing School Staff: As part of the capacity building to serve the Nursing School (Queen Salote Nursing School), Ministry of Health offers Postgraduate training opportunities for teaching staff. Five teaching staff namely, Mele'ana Ta'ai, 'Akesa Halatanu, Kathy Ramsay, Matangisinga Taufa and 'Ana Fevaleaki of the School of Nursing graduated in October 2008 from Auckland University of Technology (AUT) with Post Graduate Certificate in Health Science and Health Professional Education.

Human Resource: Human resource is the most valuable asset of this Ministry which consumes 62% of the total Recurrent Budget 2008/09.



It shows from the statistics that the Ministry filled an average of 80% of the total positions required to serve the Ministry. This 20% of unfilled positions exist due to lack of qualified staff, vacated by those who pursue overseas training or long leave.

The Department of Health and Ageing of Australia, Canberra assisted the Ministry in assessing the appropriateness of WISN (Workload Information for Staffing Need) Method for Tonga.
This exercise targeted the Nursing and took in-depth assessment of workload, leave entitlement, staff level and the expectation of the Ministry from such Management tools. It was concluded that WISN method might not completely deliver the expectation requires by the Ministry. The importance of having workload standards for Tonga was identified as the primary elements that need to be decided prior the implementation of such Management tools. After series of literature review, it was found that previous similar studies in the Pacific used working standards of big countries such as Australia. This is not applicable to small Pacific Island Countries. The Nursing Division in Tonga under the guidance of the Department of Health and Aging of Australia is now looking at modifying standards of other countries to fit Tongan context or develop its own standard.

This project was funded by AusAID through the Pacific Senior Health Official Network initiatives. It was tried in the Nursing Division in Tonga with the expectation that the findings will be applicable for the rest of the health profession and the remaining Pacific Island Countries.

Health Planning: The Corporate Plan of 2004/05-2007/08 expired in June 2008. The financial assistance of AusAID office in Tonga allows the Ministry in conjunction with its stakeholders to complete the Corporate Plan for 2008/09-2010/11. This work utilized sector wide and consultative approach. The Ministry of Health, as always, is immensely grateful to the Government of Australia through AusAID for the support and assistance provided for the development of 2008/09-2010/11 Corporate Plan.

This Corporate Plan was developed following two rounds of consultation with Ministry of Health personnel and our external stakeholders and additional consultation with key personnel. From August until October 2008 a total of 21 workshops were held throughout the kingdom with 299 Ministry of Health personnel and 72 stakeholders attending and contributing. This Corporate Plan identifies six key results areas that the Ministry will focus on in the next three financial years with revised mission and vision.

Health Care Finance: Through the Health Sector Support Project, the National Health Account section of this Ministry was established in 2003. This project provided technical assistance which allows the Ministry to undertake the NHA studies for 2001/02 and 2003/04. During this exercise, there was a major transfer of skills to local partners and they completed the 2005/06 NHA study under the supervision of NHA Specialist funded by the Project. In completion of the 2005/06 NHA study, there are evidences that the Ministry has the capacity to execute the same task for 2007/08 in 2009 on their own. The Ministry of Health would like to acknowledge the generous and close collaboration with all stakeholders especially Government Statistics Department, Ministry of Finance and the public at large.

Ministry of Health Government Budget 2007/08-2008/09 (Tongan Currency)

Components	2007/08	2008/09	Variance
Salary	$ 10,090,800.00	$ 12,019,628.00	$ 1,928,828.00
Other Staff Cost	$ 759,275.00	$ 1,054,982.00	$ 295,707.00
Unestablished Staff	$ 33,280.00	$ 217,869.00	$ 184,589.00
Drugs	$ 1,500,000.00	$ 2,000,000.00	$ 500,000.00
Medical Supplies	$ 343,005.00	$ 666,000.00	$ 322,995.00
Maintenance of Office Building	$ 632,177.00	$ 1,561,249.00	$ 929,072.00
Overseas Treatment	$ 600,000.00	$ 600,000.00	$ -
Utilities	$ 869,540.00	$ 827,000.00	$ (42,540.00)
Operation	$ 2,932,904.00	$ 2,633,272.00	$ (299,632.00)
Total	$ 17,760,981.00	$ 21,580,000.00	$ 3,819,019.00

Source: Account Section
Ministry of Health

The above table presented the 9 major components of the Ministry's expenditure in the previous financial year (2007/08) compared to the current financial year (2008/09). The Variance column shows an increased in the Ministry's Budget of TOP$3.8 million. There were 6 six components increased, one remain the same and two decreased.

Staff cost including salary, overtime, location, and duty allowance consume majority of the Ministry's budget. The additional cost came from those who graduate after formal (overseas) training, staff promotion and recruitment of new staff.

The Unestablished staff component caters for daily paid staff recruited as reliever of those who took long leave or to fulfill particular tasks for the Ministry. In this current financial year, the Ministry recruited staff with professional skills to cater for Ministry's critical needs such as Nutritionist, Hospital Estate Officer, and Clinical Psychologist. These staff came with Undergraduate and Postgraduate Degree and increased significantly the cost to the Ministry but now they have filled some permanent posts. Strengthening the policy of taking vacation leave annually allow more vacant positions to recruit more reliever which is also a factor who contribute for the increasing cost of unestablished staff.

The effects of the increasing cost of drugs and fluctuation of Tongan currency weakened the purchasing power of local currency to import drugs and medical supplies. The increase of the allocation for current purchase was relatively the same volume of goods as past financial years.

As part of the conditions of the Health Sector Support Project (HSSP), the Ministry of Health agreed to reserve at least 7% of its total annual budget for maintenance of the new infrastructure. Following the completion of Package A, B1 and B2 of the Master Plan for Vaiola, the Government honored this commitment with TOP$1.32 million and that is the major factor for the increase in Maintenance Component.

The Ministry applied special measures to control the operation and utilities expenditures. Estate, Facilities and Equipment Committee was tasked with the responsibility of monitoring the utilization of electricity, water, oxygen and major expensive services. The catering services start to produce internally selected foods such as bread that used to purchase from local shops. Selected initiatives manage to half the cost with the same output. Toward the end of 2008 the cost of fuels decreased. The cost related services like electricity and gas followed. The effects of competition between the only two competitors in telecommunication maintain the cost at lower rate than neighboring countries.

3.1.5 Key Result Area 5:

Improve Customer Service

Goal: We will deliver our services in a professional and friendly manner

This is an area that stands out during the consultation with relevant stakeholders to formulate the Ministry's Corporate Plan 2008/09-2010/11. It was recognized that good customer services have positive correlation with quality medical care and indirectly have good spillover effects on both primary and secondary health care services.

Nevertheless, the Ministry has taken this issue forward in previous years by introducing customer services survey at certain areas such as hospital wards. This survey usually completed as part of the discharge process. It is driven by the nurses with the primary objective to obtain the perception of patients regarding the quality of health services they receive including customer services. Patients usually expressed their gratefulness with the quality of the buildings and the environment with minor issues on inter-personnel relationship with staff. Customer services is one of the standard item reported in quarterly basis from Outpatient Services but this is entirely dependent on patient's preference to take formal complaint.

The Corporate Plan of 2008/09-2010/11 take Customer Service seriously by identifying the key determinants of good customer services to be strengthened such as training of all appropriate staff and development of strategic monitoring system. It is anticipated that the progress in this area would be available in future reports.

Hospital Board of Visitors: All Island Group have their own Hospital Board of Visitors. It consists of Churches Leaders and representative of key role of the public and community but more importantly it is actively led by members of the Royal Family. They provide assistance to the Ministry in various forms to cover the areas that is very essential for the services and also required by the Public. The Ministry has limited budget for inter-island referral of patients and the Hospital Boards of Visitors of Outer Island funded a proportion of Inter-island patient's referral.

Christmas eve at Vaiola Hospital of 2008 was so special than ever before. His Majesty King George Tupou V honoured patients and hospital staff with His presence on Christmas eve. Other Government Official such as the Prime Minister, Deputy Prime Minister and Minister for Health, Minister for Tourism and Representative of Public to the Parliament also attended this special Christmas occasion at Vaiola Hospital.

The Maopa Choir and the Royal Corps of Musician facilitated the occasion with Christmas carols for patients and staff.

The Hospital Board of Visitors of Vaiola Hospital offered $2000 for patient's x- mas presents and supper for the nurses after the x-mas carols for the patients.

Digicel presented gifts to SCN staff and Paediatric children.

LDS children from Tofoa presented 130 baby quilts for the Paediatric children and SCN.

FWC Lotofale'ia group of Auckland, New Zealand visited the hospital on the 19th December 2008, and presented every patient with monetary gift and to the Matron a $520.00 to support the hospital needs.

3.1.6 Key Result Area 6:

Continue to improve the Ministry Infrastructure and ICT

Goal: We will continue to improve the standard of existing facilities and ICT, and construct new facilities and introduce new ICT where needed.

The Ministry through the Government support and International Community's close collaboration has committed to invest heavily on upgrading Infrastructural and ICT standards in support of Health Care Service Delivery in Tonga.

Following the completion of Package A, Package B1 and B2 of Vaiola Hospital Master Plan, the Government of Japan dispersed a Preliminary Study Team on the 21st June ~ 11th July 2008 in response to a request from the Government of Tonga to fund the remaining Packages (C, D, E and F) of the Project for Upgrading and Refurbishment of Vaiola Hospital. The direct cost of these packages exceed USD$14 million as estimated in the Master Plan. In the completion of this exercise, the Preliminary Study Team took the findings to present to the Japanese Government and if it is considered favorably then a Design team will conduct a more detail studies of the design and the cost details.

In December 2008, the Ministry celebrated the foundation laying ceremony of the two Super Health Centres at Mu'a and Vaini under the financial support of the People's Republic of China. These projects constitute 48% of the total funds that China prepares to invest in the Infrastructural Development in Tongatapu and at Ngu Hospital in Vava'u. This improvement is expected to provide a wider range of health service such as Dental that was not permanently provided in these health centres before. A designated doctor will be assigned permanently to these two locations with more appropriate staff.
Concurrently, the building of the Information and Communication Technology (ICT) capacity of this Ministry was initiated to be part of the infrastructural improvement. The Health Sector Support Project provided more than USD$1million for this component. This investment initially started with preparing the current business process for this transition, consultation with staff regarding preferable functionality of the system, improving our IT hardware and Software such as Centralizing and upgrading of our network hardware, introducing new IT initiatives such as Webmail, Active Directory, establishment of more reliable firewall and so forth. This involves procurements of computers and peripheral IT equipment for inpatient and outpatient setting, clinical and non clinical support services.

In February 2008, the Ministry under the Health Sector Support Project purchased a Hospital Information System from one of the recognized International Health IT Company ISoft. Following several test under the guidance of qualified World Bank adviser, the Ministry of Health was convinced that this system have the functionality which meets the expectation of the Ministry.

As part of the preliminary preparation for the new system, a trainer from each division was trained in October 2008 and contributes for finalizing the functionality of the System prior to implementation.

Computer Literacy of staff was amongst the real challenges of this project. The Health Planning and Information Division delivered a Computer Literacy Assessment of appropriate staff. The result of the assessment guided the computer training to focus on those who will work closely with the system but does not meet the computer literacy requirement.

In December 2008, the Ministry agreed on the functionality of the System and successfully installed a test version for trial and training on the Ministry's IT servers. Users were able to access the test version from their respective areas on Ministry's network. A potential changes to the current operation of the Hospital started to review as part of the preparation for the implementation. It was not an extremely difficult exercise to accept provided staff enthusiasm.

Digitization of Ministry's Annual Report from 1956 until 2007 was amongst the major simple development that successfully adapted. The entire cost of this exercise was funded by AusAID. Department of Health and Ageing in Canberra mentored the Ministry's IT staff to implement more improvement on our website as well as intranet. The outcome of this project will be evaluated in 2009 but the results are already available on the Ministry's intranet.

4 HEALTH ADMINISTRATION AND MANAGEMENT

In implementing its services and activities the Ministry is governed by the following Acts:

- Therapeutics Goods (Amendment) Act 2004
- Pharmacy (Amendment) Act 2004
- Nurses (Amendment) Act 2004
- Medical and Dental Practice (Amendment) Act 2004
- Health Practitioners Review (Amendment) Act 2004
- Mental Health (Amendment) Act 2004
- Tobacco Control (Amendment) Act 2004
- Drugs and Poisons (Amendment) Act 2001
- Public Health Act 2008
- Health Services Act 1991
- Waste Management Act 2005
- Health Promotion Act 2007

In delivering its services to the public, the Ministry is divided into six functional divisions,

- Administration
- Health Planning and Information
- Public Health
- Medical
- Nursing
- Dental

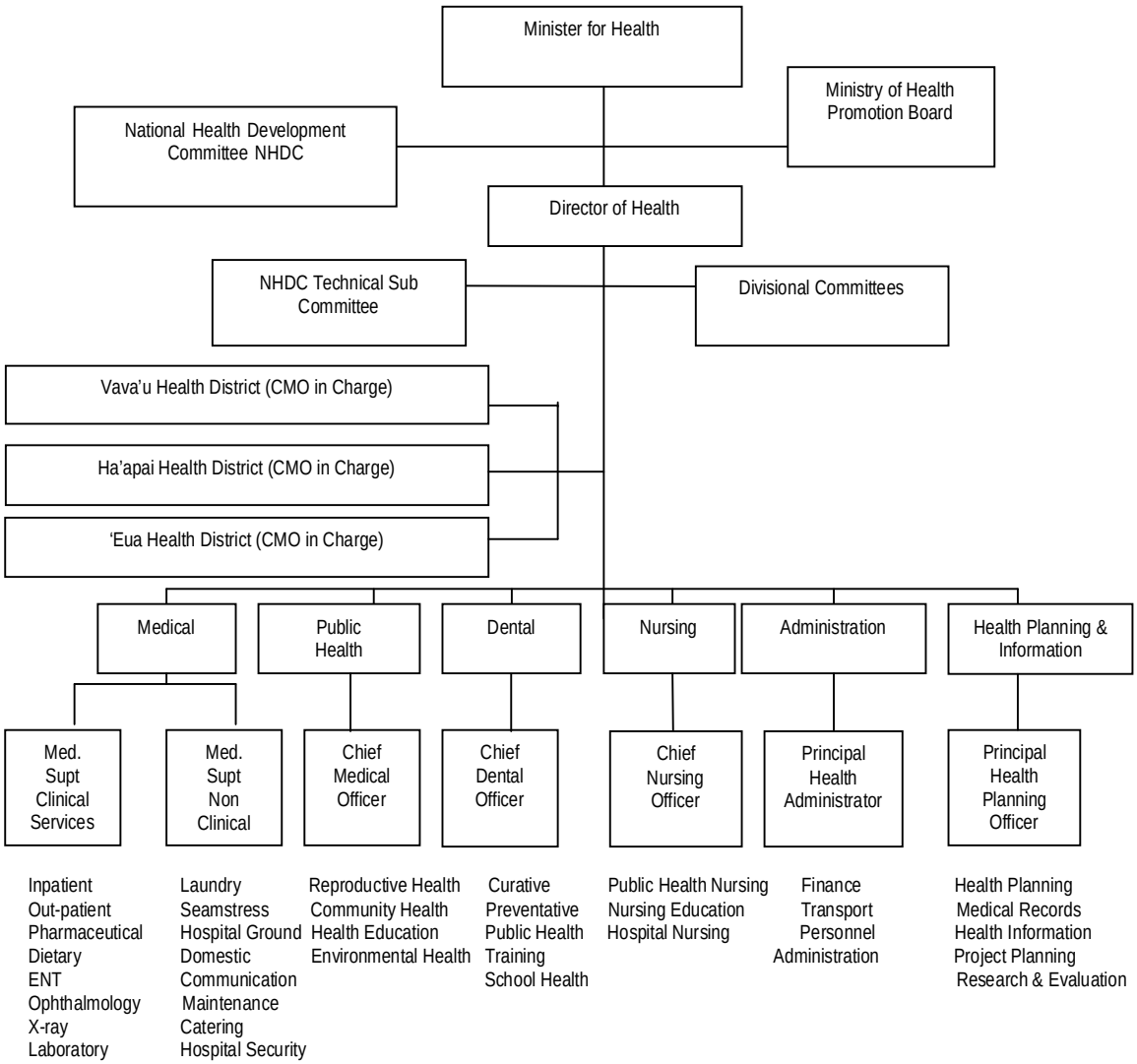
Divisional heads are responsible to the Director of Health for the implementation of each Division's services.

4.1 Ministry of Health Executive

As of 31 December 2008 the following officers were responsible for the administration and management of the Ministry and its respective Divisions.

Deputy Prime Minister and Minister for Health	Hon. Dr Viliami Ta'u Tangi
Head of Department	Dr Litili 'Ofanoa Director of Health
Administration	Mr Tu'akoi 'Ahio Principal Health Administrator
Dental	Dr Sililo Tomiki Chief Dental Officer
Health Planning and Information	Mr Sione Hufanga Acting Principal Health Planning Officer
Medical Superintendent	Dr. Siale 'Akau'ola Medical Superintendent, Clinical Services
Medical Superintendent	Dr. Siaosi 'Aho Acting Medical Superintendent, Support Services
Nursing	Ms 'Ana Kavaefiafi Chief Nursing Officer
Public Health	Dr Malakai 'Ake Chief Medical Officer, Public Health

4.2 Organization Structure



4.3 District Hospitals

As of 31 December 2008 the following officers were responsible for the management of the outer island health districts.

Prince Ngu Hospital Vava'u Health District	Dr Edgar 'Akau'ola Chief Medical Officer
Niu'ui Hospital Ha'apai Health District	Dr Tevita Vakasiuola Acting Senior Medical Officer
Niu'eiki Hospital 'Eua Health District	Dr. Sengili Moala Chief Medical Officer

4.4 Overview of Health Indicators

The health situation for Tonga in the last five years is reflected in the following table.

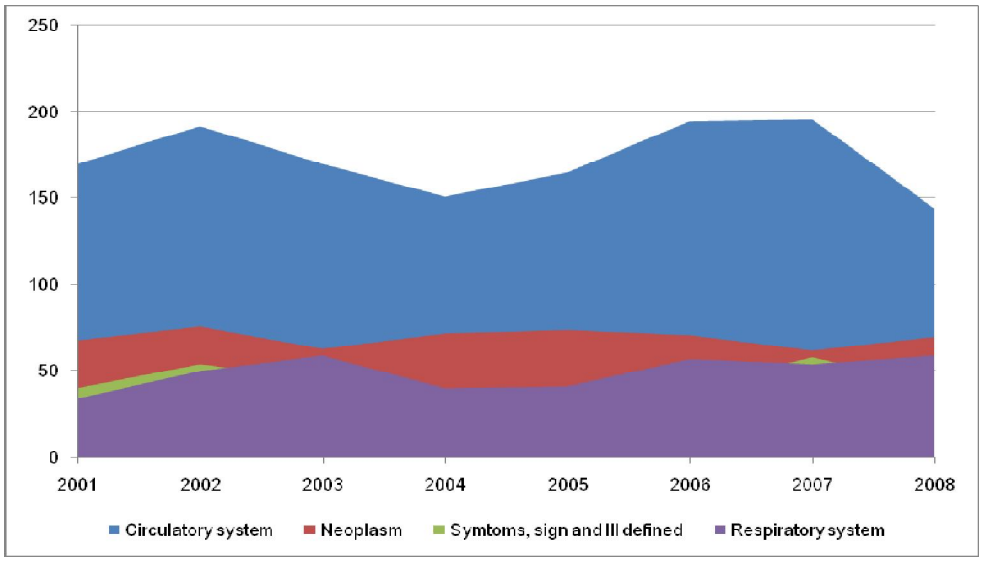
Table 1: Health Indicator(s) for Tonga 2004 – 2008

	INDICATOR	2008	2007	2006	2005	2004
1	Estimated Population ('000)	102. 3	103.3	102.4	102.3	101.8
2	Annual Population growth	0.3	0.3	0.3	0.3	0.3
3	Percentage of Population less than 14 years Percentage of population 65 years and over	35** 6**	35** 6**	35** 6**	35** 6**	36** 6**
4	Percentage of urban population	36	36	36	36	36
5	Rate of natural increase	21.6	21.3	21.5	20.4	17.7
6	Crude Birth Rate	26.7	26.5	26.5	25.7	23.8
7	Crude Death Rate	5.1	5.2	5.0	5.3	6.1
8	Maternal Mortality Rate (per 100,000)	76.1	36.5	110.5	227.8	82.3*
9	Life Expectancy at Birth (combined) Life Expectancy (Male) Life Expectancy (Female)	 70 72	 70 72	 70 72	 70 72	 70 72
10	Infant Mortality Rate	16.4	11.7	10.7	11.8	15.7
11	Perinatal Mortality Rate (per 1,000 live births)	18.9	13.0	13.1	10.8	10.3
12	Total Health expenditure ('000) Per Capita As a percentage of total recurrent budget	21580 210 10.0	17761 172 7.5	20170 196 10.4***	17021 170*** 11.6***	13521 133*** 10.2***
13	Health workforce Medical Officers at post Health Officers at post Nursing and Midwifery at post	 59 19 346	 58 17 302	 57 20*** 325***	 45 21 362***	 41 20 315***
14	Percentage of population with safe water supply	99	98	97.5	97	94
15	Percentage of household with adequate sanitary facilities	98	99.6	97.2	97	90
16	Immunization coverage	99.5	99.6	99.1	99.5	99.6
17	Percentage of pregnant women immunized with tetanus toxoid 2	99.0	97.6	97.2	95.7	92
18	Percentage of population with access to appropriate health care services with regular supply of essential drugs within one hours walk	100	100	100	100	100
19	Percentage of infants attended by trained personnel	100	100	100	100	100
20	Percentage of married couples practicing contraception	27.0	27.7	23.9	19.7	23
21	Percentage of pregnant women attending ante natal care	98	98.7	99	99	99
22	Percentage of deliveries conducted by trained personnel	97	98	98	96.1	98
23	Total Fertility Rate	3.7	3.7	4.1	3.4	3.8

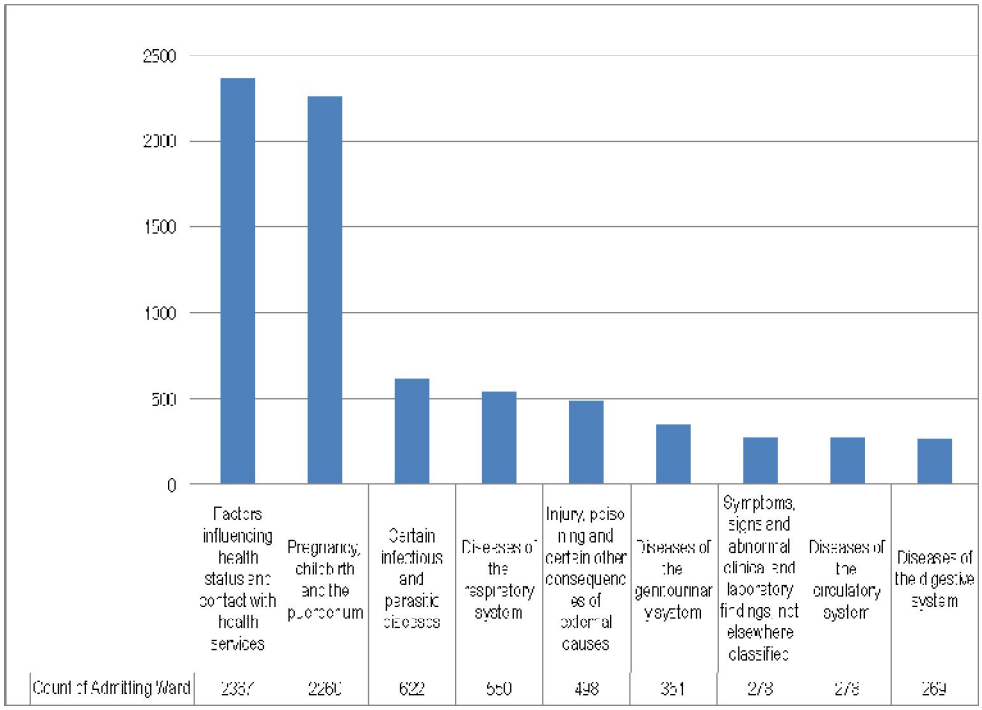
* Maternal Mortality Rate has been calculated using standard formula (per 100,000 live births).
** Calculated based on the assumption fertility rates will decrease and life expectancy will increase overtime.
*** Amended from statistic published in 2001 and 2005 Annual Report.

4.5 Mortality and Morbidity 2008

Mortality:



Morbidity:

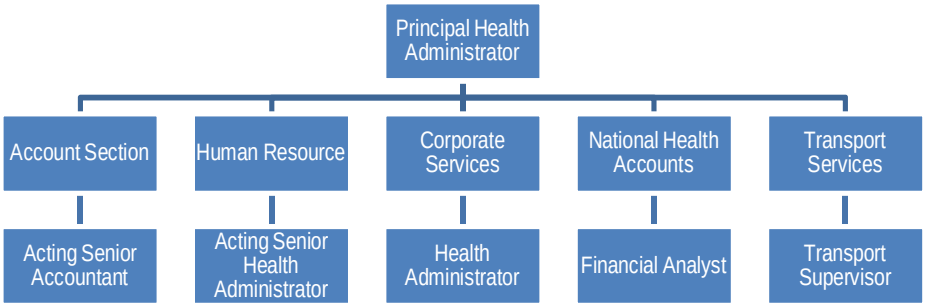


5 LEADERSHIP, POLICY ADVICE AND PROGRAMME ADMINISTRATION

5.1 ADMINISTRATION AND MANAGEMENT SERVICES:

Mission Statement

To provide efficient and effective support services to the Ministry and all health districts with regard to administration, human resources, financial management, national health accounts, transport and communication services.



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Account Section	Ms. Lasini Sinamoni	20	15,500
Human Resource	Mrs. Mafi Hufanga	2	1,001
Corporate Service	Mrs. Hatasou Taulanga	5	0
National Health Accounts	Mrs. Mafi Hufanga	0	19,544
Transport Services	Mr. Sifa Kafa	24	142,240
Total staff and financial resources	4	51	$ 178,285

5.1.1 Account Section:

Account section is responsible for managing the Recurrent Budget, budget development and monitoring,

Objectives	Selected Milestones
▪ To provide a timely payment of staff salary/wages/income tax etc.	▪ 95% of payments meet on time.
▪ To improve revenue collection within the Ministry of Health	▪ Quarterly mobilization of revenue collection from businesses.
▪ Achieve annual revenue target.	▪ 07/08 revenue target achieved.
▪ To provide an update reports on financial matter.	▪ 95% of the financial monthly report distributed on time.
▪ To provide budget to all cost centres and monitor expenditure	▪ 95% achieved.

against the budget.	
▪ To produce a realistic Draft Estimates annually.	▪ 95% achieved.
▪ To broaden staff skills and applies in workplace.	▪ Number of staff completed distance learning courses from the Tonga Institute of Higher Education.

5.1.2 Corporate Services:

Corporate Services is responsible for establishing standard timeframe for processing administrative procedures; update the administrative protocols; and develop an up-to-date asset management procedure and register.

5.1.3 Human Resource:

Human Resource section is responsible for managing all human resources information, provides induction programme for new staff, document and update all human resource Policies and Procedure, and enforce human resources related Rules and Regulations

Objectives	Selected Milestones
▪ To provide staff with relevant trainings which brings motivation needed to provide a high quality HRM support services and assist in retaining staff.	▪ Staff engaged in distance learning courses at the University of the South Pacific Extension Centre 'Atele, funded by the World Health Organization Fellowship Program of 2008 – 2009.
▪ To ensure that staffing levels meet work needs	▪ Policy on annual leave has been successfully enforced with leave schedule in place. Created new databases for personal files and overtime claim.
▪ Maintain an accurate and up-to-date HRMIS	▪ Implemented new databases for staff profiles and the overtime claim.
▪ Managers are provided with Accurate, Relevant and Timely Human Resource Information.	▪ Monthly circulation of updated staff leave entitlements to all Head of Divisions continues
▪ To develop and introduce an induction programme suitable for all new members of staff.	▪ No new staff recruited during the year.
▪ To ensure that staffs are recruited / selected that meets the criteria for the position and fit the culture of the Ministry.	▪ All vacant positions have been openly advertised, shortlisted according to criteria / qualification / experience required by each post, interviewed, and then select the most appropriate person (s) to fill the post.

5.1.4 National Health Accounts:

National Health Accounts section is responsible for revising and developing the revised user fees, assessing the feasibility of implementing Social Health Insurance and providing financial report in regular basis according to the International National Health Account standards.

Objectives	Selected Milestones
▪ To ensure the required number of staff with the appropriate knowledge, skills, and experience are employed to provide efficient and effective national accounts services.	▪ Approval was granted by the Expenditure Review Committee (ERC) for recruiting of one Computer Operator Grade II through recommendations made by the Ministry during the Recurrent Budget 2008/09 Proposals. ▪ This officer will be recruited under the Health Planning and Information Division and provide assistance to the NHA Unit when required.
▪ To provide staff with further appropriate training.	▪ The Principal Health Administrator Tu'akoi 'Ahio, Acting Senior Accountant Lasini Sinamoni and Financial Analyst Mafi Hufanga, attended a Meeting on User Fees Impact on access and equity and on lessons learnt for the Pacific in Nadi, Fiji from 03-05 June 2008. ▪ The Financial Analyst Mafi Hufanga attended a Social Health Insurance Training held in Seoul, Korea from 17 – 27 June 2008. ▪ The Financial Analyst Mafi Hufanga attended the technical workshop and the 4th Joint OECD/Korea RCHSP – APNHAN meeting of Regional Health Accounts Experts held in Seoul, Korea from 08 – 10 July 2008. ▪ The Principal Health Administrator Tu'akoi 'Ahio and Acting Senior Accountant Louhangale Sauaki attended the First Asian Regional Consultation for the Revision of the Systems of Health Accounts held in Shanghai, P. R. China from 08 -10 December 2008.
▪ To ensure staff understand their job descriptions.	▪ Job description for recruitment of Computer Operator Grade II prepared in conjunction with the Health Statistics Officer.
▪ To benchmark national health accounts findings with the other Pacific Islands.	▪ NHA Findings for 2005 – 2006 were presented during the meeting for Pacific Island Countries on User Fees as well as participants from Asian Countries during the Social Health Insurance Training. ▪ Tonga is the first in the Pacific to have established a sub – NHA section on NCD.
▪ To ensure national health accounts surveys and activities are institutionalized.	▪ Data were collected for compilation of NHA Report 2005 – 2006. ▪ Big achievement was the ability of the local team to undertake the data collection, data analysis and write up of the final report with minimal assistance from the Consultant.
▪ To review and update the revised fee schedule every two years.	▪ Following consultation and major amendments, the current medical fees and charges revised in October 2007 was finally submitted and approved in His Majesty's Cabinet Decision # 1259 of 10 December 2008. ▪ Gazette was completed in December 2008 to be effective 01 January 2009.

5.1.5 Transport Services:

Transport section is responsible for providing transportation services including ambulance for the Ministry.

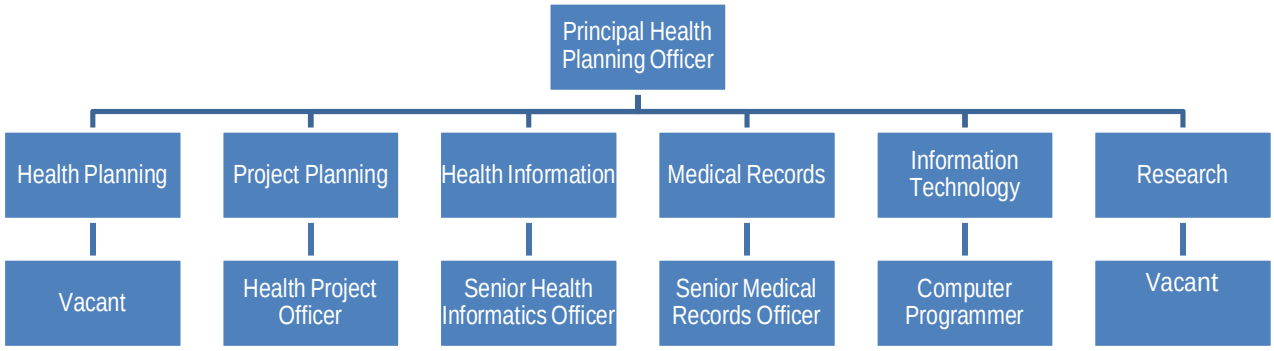
Objectives	Selected Milestones
▪ To ensure the availability of transport for the efficient mobilization of Health Personal and Distribution of medical supplies and equipment throughout the district.	▪ 3 new ambulances and one for standby ▪ Developed staff roster ▪ Developed daily timetable for each vehicle

6 HEALTH PLANNING AND INFORMATION SERVICES:

6.1 HEALTH PLANNING AND INFORMATION DIVISION:

Mission Statement:

To provide efficient and effective health planning, health information, project planning and medical records services to its customers and stakeholders within and from outside the Ministry locally, regionally and internationally.



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Health Planning	Vacant	1	7,000
Project Planning	Ms. Elsie Tupou	0	0
Health Information	Mr. Sione Hufanga	5	4,000
Medical Records	Mr. Sione Veilofia	15	6,150
Information Technology	Mr. Tu'amelie Paea	3	8,000
Research	Vacant	0	0
Total staff and financial resources	4	18	$ 25,150

6.1.1 Health Planning:

Health Planning is responsible for coordinating, formulating and aligning of sectional and divisional planning in a way it will achieve the Ministry's vision and mission. It also responsible for managing all development funds (donor funding) and other section worked under this division.

6.1.2 Project Planning:

Project Planning is responsible for developing, implementing and monitoring of health projects in conjunction with programme managers and donor agencies.

Objectives	Selected Milestones
▪ To increase the number of projects approved and implemented. ▪ To develop plan for the Ministry's equipments/renovation and new building.	▪ China Government projects (Mu'a Super Health Centre, Vaini Health Centre and Prince Ngu Hospital Public Health Centre) ground breaking held in December. ▪ Vava'u Social Sector Program 3 completed. ▪ AusAID new project program approved with a budget of AUD$4,400,000 for its 10 years program. ▪ Completed project proposals for a Sea Ambulance for Ha'apai and a Paediatric Ward for Niu'eiki district hospital. ▪ Annual review of Health Projects registered continued. ▪ New Health Sector Program funded by the AusAID approved with an estimated budget of AUD$4,400,000 for a 10 year program.
▪ To prioritize and maintain the Ministry's training needs.	▪ The Ministry's training needs for 2007 was considered still accurate to be used for the year 2008.
▪ To provide efficient and effective secretarial tasks to the Training and Development Committee and also to the National Health Selection Committee for Training.	▪ The Principal Health Planning Officer is the Chairman of the Committee and permanent members include the Medical Superintendent Clinical Services, Principal QSSN, Principal Dental Officer, Senior Medical Officer Obstetric and Gynaecology, Senior Public Health Inspector, Senior Pharmacist Graduate, Senior Medical Officer Health Promotion and NCD, Senior Health Administrator, Senior Hospital Administrator and Health Project Officer as Secretariat. ▪ Training Development Committee convened 9 meetings during 2008.
▪ To improve staff knowledge and skills by further training.	▪ Ms Elsie Tupou completed her formal training from the University of Sydney with a Master of Development Studies. ▪ Training needs identified for the Section has been revised, prioritized and submitted to the Principal Health Planning Officer, and was tabled in the Training Development Committee's meeting. ▪ Health Project Officer formal training funded by the AusAID completed.

6.1.3 Health Information:

Health Information section is responsible for overseeing the development and operation of information systems and monitor the utilization and quality of the information collected by the Ministry.

Objectives	Selected Milestones
▪ To provide staff with further training in Health Information Management and Data Analysis (Postgraduate studies in Health Informatics, Biostatistics and Epidemiology).	▪ Ms. Nauna Paongo continued her study for a Master Degree in Health Informatics. ▪ Senior Health Informatics Officer also continued his study for a Master degree in Biostatistics. He requires 3 additional semesters to complete this training programme. He is anticipated to pursue a research in the completeness and accuracy of National Health Statistics as part of his training. This will be the preliminary steps to introduce Burden of Disease Concept.
▪ To improve data analysis capability	▪ The Ministry and the Government approved four new posts for this section namely Senior Health Informatics Officer and 3 Computer Operator Grade II. ▪ The Senior Medical Officer i/c Health Promotion offered us an Australian volunteer to work with us for six months. He is a qualified IT, Statistics and Public Health staff from a Hospital in Adelaide, Australia. He assisted the Computer Operator Grade 1 with assessing the computer literacy of Ministry staff and delivering the general computer training for approximately 80 staff. ▪ Health Information Section conducted huge amount of consultation in relation to Hospital Information System. This consultation covers the challenges of the current manual information flow for further improvement. Refining of the information flows, data item names and definition contribute significantly for the efficiency of data analysis. ▪ This is a short overview of the Hospital Information System Project funded by the Health Sector Support Project. ▪ PHASE 1 - Project Implementation Workshop ▪ PHASE 2 – Preparation ▪ PHASE 3 – Implementation ▪ Progress to date: ▪ In phase 1, majority of task regarding preparatory works for the implementation was jointly executed by the representatives of each relevant section and divisions called Super Users and the consultants funded by the Project. ▪ Contract with IBA Health signed in February 08 ▪ First meeting and consultation with the Ministry in March 08 ▪ Approval of Implementation Planning Study (IPS) in August 08 ▪ In Phase II and Phase III (stage 1-3), the same team in conjunction with Vendor (IBA Health) installed, trained and tested the system. ▪ Super User Training in September 2008 ▪ System Testing in December 2008
▪ To improve data quality to international standard	▪ The Senior Health Informatics Officer was invited to join the Annual Health Information Management Association of Australia (HIMAA) with other Pacific Island Countries to discuss strategies for improving health information services in the Pacific. The Pacific Health Information Association was established during the same meeting under the support and guidance from the University of Queensland.

Objectives	Selected Milestones
▪ To improve the reporting of clinical information	▪ Through the support of the Pacific Senior Health official, a new project established in February 2008 with the Department of Health and Aging of Canberra as well as the Ministry of Health of Samoa. The ultimate aim of this project is to access resources that support health care service delivery, research, training and evidence based decision through affordable, most efficient, and effective technology. This is a short overview of this project: ▪ 28 March 2008: Project approved ▪ 22 May 2008: Confirmed funding available from AusAID to support the project. The member countries were regularly updated with the progress by the Secretariat in Canberra. ▪ 10 June 2008: Health Information and Information Technology Section started collating information to build the Ministry's intranet. ▪ 10 October 2008: The first version of the intranet presented to the Executive Meeting including the Deputy Prime Minister and Minister for Health. ▪ 14-16 October 2008: The Projects funded two staff from Tonga to join a follow up training and meeting in Samoa. This meeting confirmed that we will be provided with this list of books: ▪ Fundamental Concepts and Skills for Nursing ▪ The Dictionary of Nursing and Allied Health ▪ Concise Oxford English Dictionary ▪ Oxford Thesaurus of English ▪ Anatomy and Physiology ▪ Nursing Ethics ▪ Primary Health Care ▪ 10-14 November 2008: The project funded three staff from Tonga to join a Database and Website design training in Canberra. The intention of the training is to improve the Ministry's intranet prior implementation and design the strategies for a possible access from Tonga to the E-Library of the Department of Health and Aging Database in Canberra. ▪ Progress to date: ▪ Ministry's intranet is now ready to be implemented. ▪ There is a scheduled visit from the technical staff of Canberra to test possible access to the E-Library (Healthinsite). By the end of this trip, it is anticipated that we can be able to implement the advance functionality of the Ministry's intranet.
▪ To improve report production	▪ Health Information Staff heavily involved in implementing the changes to the Ministry's Annual Report 2007. These changes include these followings: ▪ All section's function summarized into few sentences. ▪ Section's objectives will only be included if and only if related to milestones. ▪ Statistical Presentation will only be included if it has accompanying relevant narrative. ▪ Objectives and milestones are combined in a single table where milestones are matched to objectives. In the rare situation where there is no clear

Objectives	Selected Milestones
	relationship between the two, then we either re-word the objectives or put it in the statistical presentation where necessary. ▪ We have removed all statistics that potentially confuses the readers. Some basic indicators are reported by several sections such as infant mortality rate and MMR. Those common indicators are put at Ministerial level not in any other level. ▪ Managerial explanation are transformed into a divisional charts with accompany tables presenting the number of support staff and allocated financial allocation. ▪ In 2005, we put appropriate title, source and short narrative to all statistical tables in the appendix. Now we have expanded this principle to entire tables and graphs in the text so that the readers would understand who collects and report this information. In addition, we also attempt to reflect in all graphical presentation the data for future reference. ▪ The first section of the Annual Report was adopted from the Corporate Plan with a progress report against related Ministry of Health goals.
▪ To ensure quality of computers and other office supplies are above average expectation.	▪ The Health Sector Support Project procured computers, printers and other peripheral devices requires by the Hospital Information System in preparation for the implementation in March 2009.This shopping cost approximately TOP$80,000.00.

6.1.4 Information Technology:

The IT support section is responsible for supporting the operation of computers within the Ministry and developing policies and procedures for procurement of new IT equipment.

Objectives	Selected Milestones
▪ To improve the quality of the IT services delivered.	▪ Computer Operator Grade I, Clifton Latu attended IP Networking Engineering for E-government Training in Japan for 3 months funded by JICA. ▪ Computer Programmer, Tu'amelie Paea attended Microsoft training on Desktop and Server 2003 in Auckland, New Zealand funded by Health Sector and Support Project for 2 weeks. ▪ Computer Operator Grade 1, Tifa 'Atuekaho attended training for E-library in Samoa and Canberra funded by AusAID. ▪ Computer Operator Grade1, Mesalina Fonua attended training for E-government in Korea funded by republic of Korea for 14 days. ▪ Computer Programmer, Tu'amelie Paea attended training for Essential Red Hat and Red Hat System Administrator funded by Health Sector and Support Project for 2 weeks.
▪ To retain staff	▪ Distributed training opportunities for staffs and specify field for each staff in their interest field in IT. ▪ The Government of Japan offered a JICA volunteer to work with the Information Technology Section Team for 2 years starting February 2009. She is a qualified IT Specialist in System Engineer.

Objectives	Selected Milestones
	▪ An IT consultant worked with us for 5 weeks during implementation of component B: Health Sector and Support Project Master Plan. This IT consultant has 5.5 weeks to complete in 2009.
▪ To identify and address problems/difficulties with computers in sections	▪ According to our helpdesk registration, 90% of computer problems / difficulties identified have been addressed / solved by in-house maintenance.
▪ To ensure computer standards are maintained	▪ IT has developed a specification for computers and it is up to date to standardize procurement of new computers for the Ministry. Every computer procured must use this standard specification. ▪ Information Technology has assigned a specification for computers, printer and server in which to keep the standard up to date. ▪ Infrastructure/Hardware Preparation. ▪ Deliver Hospital Information System (HIS) Server to NZ for installation of Red Hat Operating System and Database Application for HIS. ▪ Installed Hospital Information System Servers.
▪ To optimize support and development costs	▪ We have used Linux Red Hat Server Environment for Hospital Information System and UNIX BSD Environment for Anti-spam Mail Filter and other IT services are on Windows Environment. ▪ Implemented an Intranet and ready to launch in January or February 2009 with basic functionality. ▪ HIS support online will be available mid January 2009 using VPN connection.
▪ To improve data quality	▪ Purchased a Sender Digital Machine to digitize scan documents as Annual Reports for electronic records and also publish to Website and Intranet.
▪ To improve access for health planning and information internationally	▪ We have implemented an IT service VPN remote connection ready to launch in mid January 2009 to enable access to our Local Area Network from anywhere.
▪ To improve workspace	▪ We have used our new server room at old laboratory and wait for renovation of the whole building.
▪ To ensure computers have latest technology available	▪ Information Technology have ensured that the latest computers available are in-line with Hospital Information System launched in March 2009 with 35 Thin Client Computers for users. ▪ The Health Sector Support Project procured computers, printers and other peripheral devices required by the Hospital Information System in preparation for the Implementation.

6.1.5 Research:

Promote, collaborate, and conduct appropriate and high quality health research on priority issues affecting the health of the people of Tonga and the development of national capacity to undertake health research.

6.1.6 Medical Records:

Medical Records is responsible for providing fast, reliable, and secured record services and ensure health data is accurately abstracted and provided for statistical analysis in a timely manner.

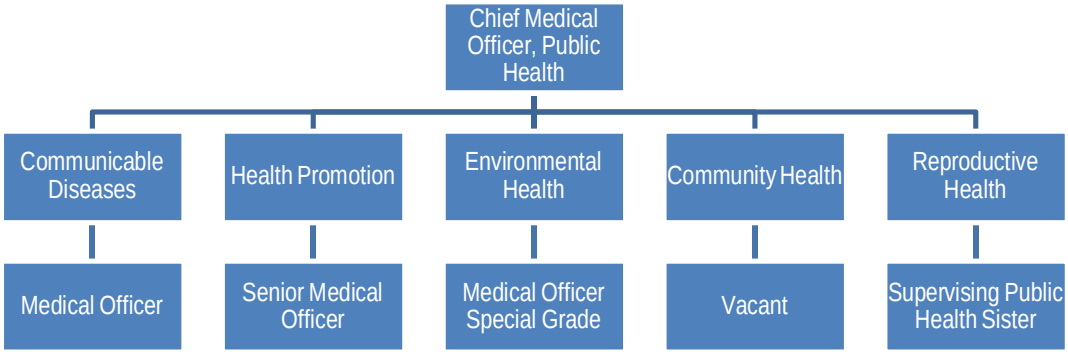
Objectives	Selected Milestones
▪ To continue on-the-job-training and attachments for staff	▪ The SMRO and Senior Health Informatics Officer attended one week study tour to St John of God Hospital as a pilot for HIS. This study tour aimed to ensure the Ministry of Health absorbs the right system to use in Tonga. ▪ PMU sponsored the SMRO to attend the HIMAA CONFERENCES held in Canberra. Established a Pacific Health Information Network (PHIN). HUB will assist in Health Information Management in Tonga. Tonga is an active member on the Pacific Health Information Network (PHIN). ▪ The completion of in-service training for the Junior Medical Recorder from Outer Island Vava'u and Ha'apai. The JMR from 'Eua will be involved in 2009.
▪ To improve providing quality health information for the users to assist in health planning, decision making and other requirements.	▪ Updated PMI and installed the Outpatient database, Coding database, Admission and Discharge database in Vaiola Hospital and it is supervised by the PMU Consultant (Dr Ion – IT Specialist) ▪ The introduction of same medical records system to all hospital includes Vaiola, Ngu, Niu'ui and Niu'eiki Hospital. All hospitals use the same database which is easier for training and work purposes ▪ Continued to monitor use of quarterly report in providing a statistical tables and trends to each ward ▪ The extend of quarterly reports including outer island, Vava'u, Ha'apai and 'Eua ▪ Maintained the use of sticker for Cancer (Red), Mental (Dark Green), Infectious Diseases (Yellow), Allergic (Orange) and Black for Deceased. The stickers warn the clinicians regarding the current condition of patients. ▪ Computerized the census to assist in collection of complete, accurate data and on time. ▪ Recruited two (2) new staff for the post of Junior Medical Recorder (JMR) ▪ Three daily paid JMR became established Junior Medical Recorder ▪ Started working for the new Hospital Information System to improve the health information system

7 PREVENTATIVE HEALTH SERVICES

7.1 PUBLIC HEALTH

Mission Statement:

To help all people in Tonga to achieve the highest attainable level of health defined in WHO's constitution as "a state of complete physical, mental and social well-being and not merely the absence of infirmity"; by significantly reducing morbidity and mortality due to infectious diseases and improving the quality of life.



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Communicable Diseases	Dr. Louise Fonua	4	5,969
Health Promotion	Dr. Paula Vivili	6	17,719
Environmental Health	Dr. Raynold 'Ofanoa	13	16,000
Community Health	Vacant	24	7,502
Reproductive Health	Sr. Sela Paasi	35	78,150
Total staff and financial resources	4	82	$ 125,340

7.1.1 Communicable Diseases:

Communicable Diseases Section is responsible for developing guidelines for prevention and control of outbreak prone diseases; develop treatment protocols; manage the suspected/confirmed STI patients; implement and monitor DOTS strategy.

Objectives	Selected Milestones
▪ To maintain the high level of cure rates of DOTS, and to improve the detection rate (10% of current), and cure rates of pulmonary tuberculosis and screening of contacts:	▪ Dr Louise Fonua,Nukonuka Mafile'o and Saia Penitani attended the first regional workshop in TB Contact tracing held in New Caledonia. This training was conducted by SPC and CDC and a follow on in country contact tracing workshop was held in Tongatapu.
▪ To collaborate more effectively with all stakeholders that provide services for STI including HIV/AIDS, in planning, implementation and monitoring of all strategies	▪ Lineti Koloi 'Isama'u completed six weeks training in Fiji for a certificate in VCCT (Voluntary Confidential Counseling and testing) for HIV. ▪ Tonga can now test for Chlamydia in the laboratory with the installation of the new PCR machine at the Vaiola Laboratory.

developed so far, and in accordance with the National Strategic Plan for Response to STI including HIV/AIDS.	▪ The second round of the second generation surveillance were conducted in Tonga. The surveys were conducted on antenatal mothers, youths aged 15-24 and MSM. The first two have been completed and the MSM is pending completion. ▪ The National Strategic plan to respond to STI and HIV/AIDS 2009-2013 has been developed with the assistance of all key stake holders in Tonga. ▪ A STI treatment guideline on Syndromic management has been produced followed by a training of trainer's workshop.

Statistical Information:

STIs and HIV/AIDS

There were two new cases of HIV in 2008.This brings the total of HIV cases in Tonga since the first case was detected in 1987 to 17.Out of this 17 only two are alive in Tonga and both are not on anti-retro viral therapy.(ARV).One of the two new cases died shortly after being diagnosed from AIDS. Contact tracing was initiated and the second confirmed case returned to country of origin. A milestone in the management of HIV is the ability of Tonga's main Laboratory to carry out CD4 counts which in the past had to be sent to a reference laboratory for analysis.

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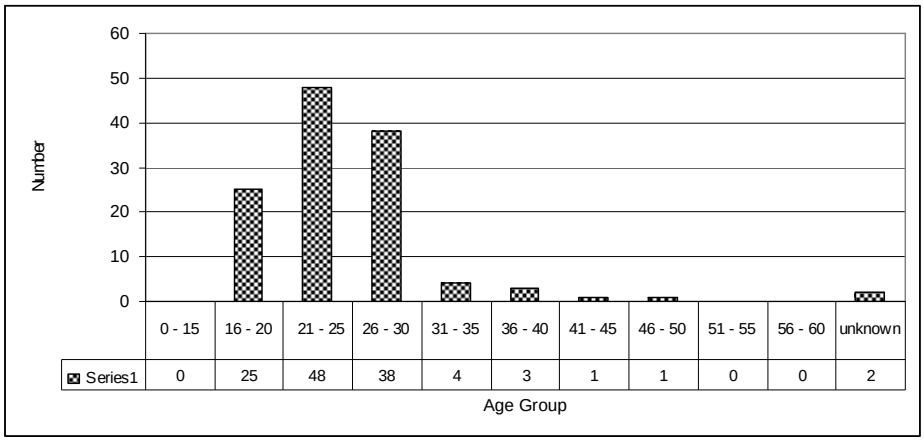
The only other STI clinic in Tonga apart from the MOH is the Tonga family Health Association STI clinic. Their data will be presented together with the STI data from the communicable disease section due to the close working relationship this NGO has with MOH. They conduct counseling but testing and treatment is carried out by the MOH laboratory.

Curable STIs remains a problem especially in the 16-30 age groups. The communicable disease section catered to 122 cases of curable STIs, the majority of which were gonorrhea and Chlamydia. This section uses both lab based and syndromic management to achieve the best results in the control of STIs.

Figure 1: Curable STIS by age groups



Source: CDS registry and laboratory registry

From the table above, 91% of cases were in the 16-30 age groups with the majority in the 21-25 age groups. This is particularly worrying as these are our young people who are mostly affected. The figures show that our young people are continuing to practice unsafe sexual practices and that we must target these age groups with our intervention programs. We should also design our STI clinics to be youth friendly so that they are more accessible to the youths of Tonga.

But looking at the figures for 2008, it is still very much under recorded and under reported. This arises from the fact that some STI clients are treated on the side by other medical professionals and not by qualified doctors. Some doctors however treat cases as well but never report them.

Table 2: Curable STIs by Gender

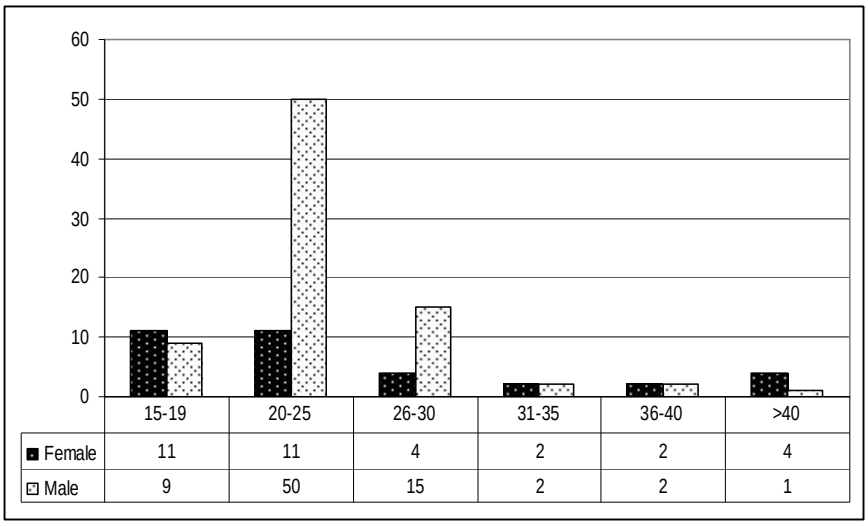
Female	Male	Total
4	118	122

Source: CDS registry and Laboratory registry

There were a total of 122 cases registered at the communicable disease section and 118 were males and only 4 were females. is a great gender imbalance in the figures shown as 97% of cases were males. Reasons for this gender inequality could be explained by the fact that certain STIs are asymptomatic in females as compared to males therefore they do not present themselves to STI clinics. This is as opposed to males who are usually symptomatic and are the first to seek medical assistance.

As I mentioned before that MOH works closely with TFHA STI clinic with cases being referred from them for treatment at the communicable disease section. The following data are the number of STIs seen at the TFHA.

Figure 2: STIs seen at the TFHA



Source: TFHA clinic

The majority of STIs seen at TFHA were gonorrhea and Chlamydia and this is comparable to the MOH data.So for 2008 the total number of STIs for both clinics were 235.

Tuberculosis

Table 3: Registered Tuberculosis Cases by gender, age group and type

AGE GROUP	SM +		SM-		EXPTB		TOTAL	
	M	F	M	F	M	F	M	F
0 – 5	0	0	0	0	0	0	0	0
5 – 10	0	0	0	0	0	0	0	0

AGE GROUP	SM +		SM-		EXPTB		TOTAL	
	M	F	M	F	M	F	M	F
10 – 15	1	0	0	0	0	0	1	0
15 – 20	0	0	0	0	0	0	0	0
20 – 25	1	0	0	0	1	0	2	0
25 – 30	0	0	0	0	0	0	0	0
30 – 35	0	0	0	0	0	0	0	0
35 – 40	2	0	0	0	0	0	2	0
40 – 45	1	0	0	0	0	0	1	0
45 – 50	0	1	0	0	0	0	0	1
50 – 55	1	0	0	0	0	0	1	0
55 – 60	0	1	0	0	0	0	0	1
60 +	2	1	0	0	0	1	2	2
TOTAL	8	3	0	0	1	1	9	4

Source**:** TB register (CDS)/Laboratory register

SM+ = Sputum Smear Positive
SM- = Sputum Smear Negative
EXPTB = Extra Pulmonary TB
F = Female
M = Male

There were a total of 13 TB cases for the year. Nine of them were males and four were females. The majority of cases were in the 60 plus age groups and this is to be expected. TB usually lies dormant and becomes active when the body's immune system is compromised. This usually happens with old age or debilitating diseases as your immunity is weakened therefore the TB mycobacterium becomes active and subsequently causes active diseases.85% of TB cases were of the type sputum positive with only two extra -pulmonary TB. It is a good reflection of Tonga's TB program that most of the cases were sputum positive. Uncomplicated TB cases are treated at home through the DOTS regime and only those that are very sick are admitted to the isolation ward for in-patient care.

Leprosy

There were no new leprosy cases for 2008 however the CDS staff still continues to follow up and dress old cases that have completed treatment.

Typhoid fever

There were four confirmed cases of typhoid fever in 2008.Three were from Tongatapu and were admitted and treated at the Isolation ward of Vaiola Hospital. One case was from Ha'apai and was treated at Niu'ui hospital. Healthy carriers were not identified despite widespread contact tracing. Cases were diagnosed from stool samples, blood and bone marrow aspirate. There were no deaths from typhoid fever for the year.

Table 4: Typhoid Cases by Age/Gender/Method of Diagnosis/Address

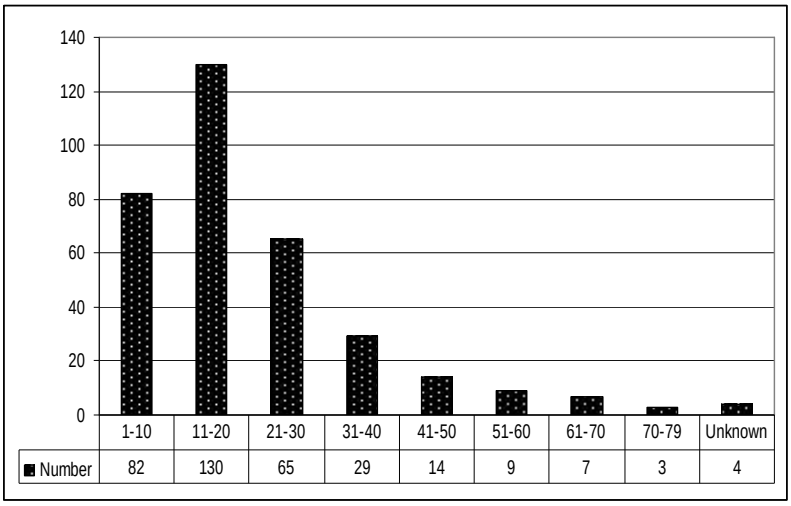
CASE	AGE	GENDER	Method of Diagnosis
1	22	Male	Bone marrow aspiration
2	12	Male	Stool &Blood culture
3	2	Male	Stool
4	3	Male	Stool &Blood

Source: CDS and Laboratory Data

Dengue Fever

An outbreak of dengue occurred in 2008 and a total of 343 cases were recorded. This does not include those that had dengue but did not seek help from the hospital. The age group that was mostly affected were the 11-20 year olds. These particular age group are very mobile and are less likely to use personal protection against the *aedes aegypti* mosquitoes that carry the dengue virus.

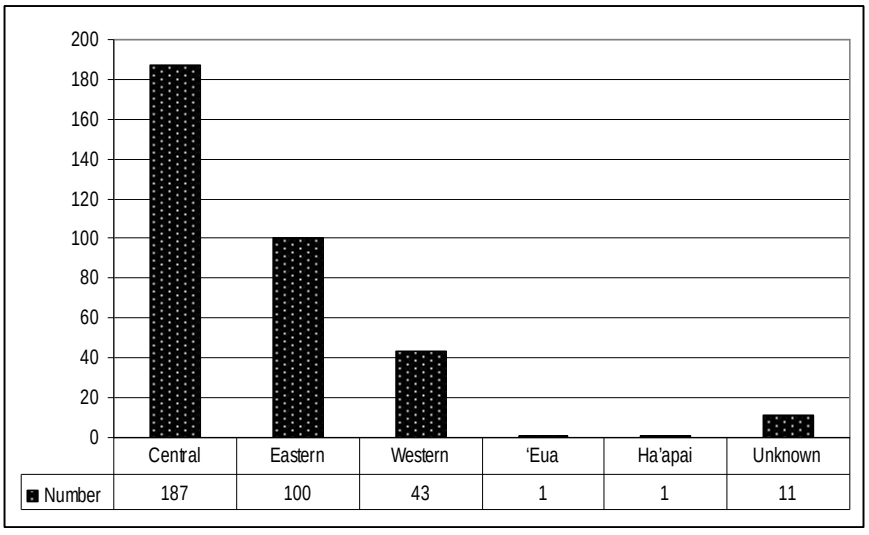
Figure 3: Sero type of dengue was Type 1 and two deaths were attributed to dengue fever by age group



Source: CDS and laboratory records

Dengue cases were distributed all over Tongatapu with a case each from Ha'apai and 'Eua. In Tongatapu most of the cases were located in the Central district. Probably this is due to the fact that the central district is more heavily populated thus facilitating the spread of this virus. Both cases in Ha'apai and 'Eua were imported from Tongatapu.

Figure 4: Sero type of dengue was Type 1 and two deaths were attributed to dengue fever by location



Source: CDS register

Table 5: Number of patients affected by Dengue Fever by gender

Gender	Number
Male	176
Female	167
Total	343

Source: CDS register

Both gender were equally affected thus showing that the dengue virus carrying mosquitoes does not have any preference but affects both males and females as opportunity presents itself.

7.1.2 Health Promotion:

Health Promotion and Non-Communicable Diseases section is responsible for identifying and providing intervention programmes for at risk persons/group in public particularly on Non Communicable Disease.

Objectives	Selected Milestones
▪ To identify at risk persons/groups within Vaiola Hospital and the broader Community;	**Open Space Aerobics Sessions:** ▪ The Unit is continuously conducting open space aerobic sessions on Monday to Friday afternoon at 5:30pm at waterfront of Nuku'alofa for the general public. In addition, the HPU have facilitated Aerobic sessions for other communities as requested by Pea, LDS of Tokomololo, Kolomotu'a and Hofoa. **Community Health Promotion:** ▪ The Unit was in co-operation with Salvation Army on addressing healthy initiatives at the Kinder-gargen health program at Sopu and Kolovai. HPU also with OPIC on the healthy breakfast program in Ha'alalo. ▪ The HPU provided health talks at the LDS women session in Kolomotu'a and Hofoa with Diabetic Clinic. ▪ Dengue Fever epidemics at the beginning and towards the end of 2008 required the HPU to play a major role in dissemination of information and running the community campaign to protect people from sickness and death. The result of this effort was that only two dengue cases were fatal. Media outreach was particularly diverted to the outbreak as identified on the coverage (item 6) compared to the previous years.
▪ To provide health information and propose strategies to at risk persons/groups;	**Health Promoting Churches** ▪ This initiative is a new strategic action to address healthy lifestyles for church members. This strategy developed from the existing Free Wesleyan Church healthy lifestyle program, prior to the Annual camp on Alcohol misuse, Tobacco control, STI, Suicide and Health Promotion in October. Obviously some churches are already implementing their own healty lifestyle programs, but to be recognized and put internationally and regionally, the program is in the process of consolidating the task force and working group for future interventions. **Health Promoting Schools Project:** ▪ The project proceeded on as per the plan initiated at the very first training before

Objectives	Selected Milestones
	the start of school year. The Unit's Grade I Health Promotion Officer will be central in implementing various initiatives in the designated secondary school communities, supported by the Australian and Japanese volunteers. **No Smoking Signs for Schools:** ▪ HPS is an ongoing program looking at the health curriculum within the Tongan school system. The target now is looking at the study on Tobacco and Reproductive issues. 'Apifo'ou college has developed the Peace Garden for the school and signs of Tobacco and alcohol free zone have been displayed. **General Health Promotion Outreach** ▪ As clearly indicated on the coverage that most of the media outreach was targeted from almost angle to cover areas of healy lifestyle as ways to prevent and control lifestyle diseases.
▪ To work together with the National NCD subcommittee on Physical Activity, Healthy Eating, Tobacco Control;	**National NCD and Sub-Committee on Physical Activity and Tobacco:** ▪ This Unit was actively supporting the works of these three Sub-Committees as follows: ▪ World Health Day on the 7th April, 2008 with theme of "the effect of climate change on health" was hosted and supported by Queen Salote College as one of the health promoting schools. ▪ World No Tobacco Day on 31st May 2008 targeted Tobacco Free Youth and was hosted by 'Apifo'ou College as one of the Health Promoting Schools. ▪ The HPU was responsible for the operation of the Interdepartmental Sport events.
▪ To collect statistics on risk factors for NCDs;	**Healthy Promoting Workplace:** ▪ Some aspects of the Health Promoting Workplace have previously been implemented, namely regular screening by the HPU. Some of these workplaces have commenced their own healthy lifestyle programs: ▪ National Reserve Bank ▪ ANZ Bank ▪ Environmental Department ▪ Tonga Cooperation Communication ▪ This is reflection of the concepts of health ownership and individual responsibility to control their own health that the HPU strives to encourage.
▪ To identify and address staff training needs;	**Local training:** ▪ In-service training on health promotion related topics was conducted every Wednesday afternoon by Australian Youth Ambassadors. ▪ Australian Youth Ambassadors worked with their local counterparts to share various skills and capacity building amongst local staff of the HPU. **National HIV/STI Plan Workshop** ▪ Naomi Fakauka attended the national plan workshop of HIV/STI on 10/03 - 14/03/08. **Media & Social Marketing** ▪ Lesieli Vanisi, Meleane Kava and Melekaloni 'Eukaliti attended the I. E. C. material workshop hosted by Tonga Family Association on 28/04-02/05/08.

Objectives	Selected Milestones
	▪ Pita Fatai and Lesieli Vanisi attended the media training hosted by Tonga Family Health Association on 2-5 September 2008. **Overseas Training/ Workshop:** ▪ Lute malungahu completed attachment at the SPC Training Center in Narere, Suva from March up to October 2008. ▪ Suliana Tu'ipulotu also attended the same attachment as Lute but due to medical reasons, she is to complete her core unit locally by early 2009 with the supervision of the Senior Medical Officer. ▪ 'Eva Mafi attended the last module of Prolead Training hosted by La Trobe University in conjunction with WHO in Melbourne, 23-28 November, 2008. Talahiva Fine of the Ministry of Education and Salesi Finau of the Sia'atoutai Theological College also attended. ▪ Naomi Fakauka is now doing her Post Graduate Diploma in Health Promotion at Deakin University of Melbourne, Australia from July 2008 until June 2009. **Human Resources:** ▪ The Unit's Staff Proposal was successful in getting the post of Senior Health Promotion Officer reinstated. Also new posts for 2 Health Promotion Officers Grade 1 and 4 posts for Health Promotion Officer Grade II were approved and filled during the year. ▪ Japanese Overseas Counterpart Volunteer. Mr. Takamasa Ioninose (Physical Instructor) completed on his voluntarily work in March 2008 and the replacement (Miss Nana Nomura) started in May. ▪ Australia Youth Ambassadors: Ms Sara Gloede (Social Marketing) completed her term in June 2008 while her replacement Ms. Michelle Nunn started in July with the additional responsibility for community intervention. Mr. Dean Lawrie also completed his term in September 2008. Ms Liza Wallis started as the Social marketing Officer with a Nutrition focus and developing I.E.C materials. Ms. Bronwyn Hail commenced in September with plans to implement a permaculture project within the Health Promoting Schools framework.

Statistical Information

Table 6: Radio Broadcast statistics

No	Broadcast Topic	No. prog's
1	Communicable Diseases (Dengue Fever Outbreak, Typhoid, TB, HIV/AIDS, STI)	30
2	Live Talk Show (Dengue Fever Outbreak, Infant Diarrhea, Rheumatic Fever, Diabetes, Foot Sepsis, Tobacco, Drugs, Alcohol, STI&HIV&AIDS, Climate Change, Hospital Cost & Policy)	26
3	General Oral Health (Outreach, health advise, education)	21
4	Non Communicable Diseases (Diabetes, Heart Diseases, Hypertension, Foot Sepsis)	15
5	General Health Promotion (Community Outreached, Outer Islands, Nutrition, Physical Activity, Tobacco, Alcohol, X-mas prevention, Climate Change)	13
6	Infant Health	7

	(Rheumatic Fever, Diarrhea)	
7	Pharmacy (Awareness week, drugs)	6
8	Reproductive Health (Services provided)	1
9	Environmental Health (Sanitation, Food Hygiene)	1
10	Eye Clinic (Conjunctivitis)	1
11	Mental Health (Preparation when disaster happens, General awareness)	1
12	Out Patient (Main consultation, Awareness)	1
13	X-mas Greetings (Hon. Deputy Prime Minister and Minister for Health)	1
	Total	124

Source**:** Health Promotion Section

Table 7: Television Broadcast Statistics

No.	Broadcast Topic	No. prog's
1	Communicable Diseases (Dengue Fever Outbreak, Typhoid, TB, HIV/AIDS, STI)	15
2	General Health Promotion (Nutrition, climate change, physical activity, tobacco control, X-mas Greeting)	13
3	Hospital Administration (Policy, User fee, Health Center)	4
4	Infant Health (Meningitis, Rhemautic Heart, Diarrhoea)	3
5	General Outpatient (Consultation, Triage)	2
6	Mental Health (Mental preparation for any disaster, common mental problem)	2
7	Non-Communicable Diseases (Diabetes Day)	1
8	General Oral Health (Awareness)	1
	Total	41
	Broadcasting Topic (Advertisement)	
1	Dengue Fever prevention	4
2	General Prevention measures during X-mas and New Holidays (Toy gun, swimming in the pool, traffic speed, over crowded passengers)	4
3	TB awareness	2
4	Alcohol problem	2
5	Climate Change	1
6	Exercise – Aerobic at Waterfront	1
	Total	14

Source**:** Health Promotion Section

7.1.3 Environmental Health:

Environmental Health Section is responsible for providing environmental health services for the community, upgrade and maintain the village water supply system, oversee and control of hospital waste management.

Objectives	Selected Milestones
▪ To provide a high standard of environmental health services to the people of Tonga	▪ Continue installation of new village reticulated Water Supplies and Constructions of more Ferrocement tanks for private households to ensure that >97% of the population gain access to portable water supplies.
▪ To reduce the incidence of communicable diseases in Tonga	▪ Fellowship: WHO has approved the funding of a Health Inspector to attend the BA (Environmental Health) early 2009 in Fiji instead of Australia.
▪ To upgrade and maintain village water supplies	▪ 5 Public Health Inspector trainee have been recruited to the section.
▪ To oversee and control Hospital Waste Management	▪ Conducted a workshop on monitoring of Safe Drinking Water in Conjunction with the Tonga Trust and the Community.
▪ To promote and attain a high standard of health throughout the population of Tonga	▪ Leading in the inter district inspection of Tongatapu for His Royal Highness Coronation which was funded by the Royal Princess Pilolevu. ▪ Three incinerators donated by Rotary Japan. One has been installed at Tapuhia Dumping Sites, other 2 has been shipped to Vava'u and Ha'apai.

7.1.4 Community Health:

Community Health section is responsible for providing health services in the community, educates and promotes healthy life style in the community and encourages community participation in community health development.

Objectives	Selected Milestones
▪ To reduce number of patients referral to Vaiola Hospital.	▪ Nukunuku Dental clinic is now available for five days a week instead the two days a week during the normal working hours. ▪ Vaini Health Centre and Mu'a Health Centre ground breaking for the two new centres held at September 2008.
▪ To reduce incidence rate of non – communicable disease.	▪ Conducted a screening program on diabetic / hypertension at 'Utulau and Kala'au in every 3 months.
▪ To promote the environment cleanliness.	▪ Conducted village inspection on a monthly basis.
▪ To introduce diabetes and health care into health centres	▪ Conducted diabetic counseling. ▪ Australia Eye Team visits our clinic in September and gave us our eye glasses. ▪ Each village conducted their own programme for aerobic exercise. ▪ Diabetic Team visits the clinic twice every month.

▪ To develop shared functions between health officer (HO) and public health nurse (PHN)	▪ The Health Officer and Public Health Nurse have jointly delivered the Home Visit and School Visit services.
▪ To include dental services in team approach ▪ To provide in-service training for H/O's to go to remote health centres	▪ Establishment of Dental Clinic two days a week at Nukunuku Health Centre.

7.1.5 Reproductive Health:

Reproductive Health section is responsible for providing reproductive health care services to women of child bearing age, family planning, immunization services, antenatal and post natal care.

Objectives	Selected Milestones
▪ To develop skilled and committed staff to meet the evolving roles of the reproductive health nurses.	▪ Sr. Afu Tei attended the 4th Pacific Immunization Programme Strengthening (PIPs) workshop from 19 – 20 May, 2008. ▪ The seven new Public Health Nurses recruitment attachment to Reproductive Health Section was conducted from 23 August to 10 October 2008. ▪ SPHN Meleane 'Alofi attended the Reproductive Health Training Programme from 12 September to 7 December 2008 in Suva, Fiji ▪ Sr. Sela Paasi attended the AHD, Annual Review and Planning Meeting from 17 – 21 November 2008 in Nadi, Fiji. ▪ Ministry of Education endorsed the requirement of Completed Immunization Certificate for school entry at Primary School of 2008.
▪ To improve and upgrade staff performance	▪ Tonga first Training on Comprehensive STI Case Management Training Workshop was conducted from 24 – 28 November 2008. ▪ Dr. Salesi Katoanga an UNFPA consultant conducted a RH Policy and RH Strategy workshop to develop the National RH Policy from 11 – 13 November, 2008.
▪ To provide effective and quality reproductive health services to women of child bearing age through: ▪ -easy access to reproductive health, adolescent and sexual health. ▪ -maintaining high coverage of ante natal and post natal care. ▪ -Helping couples and individuals to plan their families.	▪ Sr. Sela Paasi attending the TOTS in Comprehensive STI case Management and Field Testing of STI training package from 20 – 25 November, 2008. ▪ Launching of the Tonga first Evidence Informed Guidelines for the Management of Sexually Transmitted Infections by the Hon. Deputy Prime Minister and Minister for Health.
▪ To ensure and monitor good health and normal development among infants and under five years old children through good immunization coverage, good nutrition and good care management of childhood illnesses in the community.	▪ SPHS Seini Mavae attending the JPIPS Workshop on Immunization from 17 – 21 November, 2008 in Suva, Fiji.

Objectives	Selected Milestones
▪ Conduct regular meetings, liaise with other community programs and conduct regular island visits	▪ Supervisory visits to the Reproductive clinics and health centres at Tongatapu by supervisors were conducted throughout the year at regular intervals.

8 CURATIVE HEALTH SERVICES

8.1 CLINICAL SERVICES

8.1.1 Paediatric Ward:

Paediatric Ward is responsible for providing health care services for children aged 0 to 14 years including special care for premature babies.

Objectives	Selected Milestones
▪ Improve and upgrade patient management and staff performance.	▪ Improved Care for children with cancer ▪ The formation of Vaiola Child Cancer Committee and Family support, Child Cancer Foundation insured better care for children with cancer in Tonga. This year we had our first success case to complete treatment locally.
▪ Upgrade and maintain ward equipments and facilities.	▪ New Humidifiers for SCN ▪ We were able to purchase 3 new humidifiers and 20 sets of tubings for CPAP apparatus at the SCN through government funding
▪ Sustain appropriate skills and knowledge among staff to address the overall morbidity and mortality of children throughout the nation.	▪ Better medical staffing ▪ The return of Dr. George 'Aho in July 2008 to the unit was an important milestone for the Section to have two consultants at any one time. Dr. Catherine Latu also joined the service in August both had made a significant increase in the number of medical staff in the ward. As such we were able to help out in general outpatient when needed. ▪ Postgraduate Training of Staff: ▪ Dr. Lisiate 'Ulufonua successfully completed his Diploma in Paediatric at Fiji School of Medicine this year. He was the only successful candidate from the class of 2008.
▪ Establish a Program to address Rheumatic Heart diseases in Tonga and promote the necessary preventive measures.	▪ Winner of Louise Lown Heart Hero Award ▪ Rheumatic Program in Tonga became the winner for this year Heart Hero award. This has provided initiative to continue the screening program of Primary school students. We were fortunate to have the support of sonographers Ms Dianna Bruce and Beverly Jacobson for Tonga Program. ▪ Publication of 2004 RHD Screening Research. ▪ It is a milestone for Child Health to have the Research work we involved with got published this year in a Medical Journal - Nature Clinical Practice cardiovascular Medicine.
▪ Identify strategy to address needs of the people of Tonga in the most	▪ Operation Open Heart (OOH) Visiting Program

Objectives	Selected Milestones
cost effective way.	▪ One of the biggest highlight of the year was OOH visit to Tonga from 13th – 25th October 2008 with a team of 30 staffs who successfully operated on 14 patients in the Kingdom of Tonga. All were successful and patients are doing well to the time of this report. The partnership with the Public is highly commendable. ▪ Tonga achieving Elimination target for Hepatistis B disease ▪ The results of the 2005 study showed HBsAg prevalence of 0.8% among 6 – 59 months old children indicate that Tonga may have achieved the elimination target of less than 1% HBsAg prevalence in children. ▪ Maintaining Relationship:- ▪ Child Health continues its partnership with ROMAC (Reaching Overseas for Medical Aid Children Ltd) who funded another 4 children for cardiac surgery this year. ▪ Donation from Public: ▪ We received many donations this year from individuals and company but most outstanding was the public support for the OOH through the Tonga Broadcasting Commission Radiothon.

Statistical Information:

(Please take note that data for 2005 is not available with the loss of the admission book for that year.)

Paediatric Demographic Data

Paediatric Population

The Paediatric Service provides service to children from age 0 – 14 years; total of 38,831, 37.3 % of the population of Tonga. They provide inpatients and curative services mainly to the population of Tongatapu, receive referral from other island hospitals and also provide consultation services to any part of Tonga.

In addition we provide preventive, health promotion and research activities which involve both medical and nursing staff not only in Tongatapu but also in the other islands.

The total population of Tonga had been fairly static in the last 6 years with a total population of just above 100,000. The natural growth rate for Tonga in 2008 was 1.9% and net population growth of 0.7%.

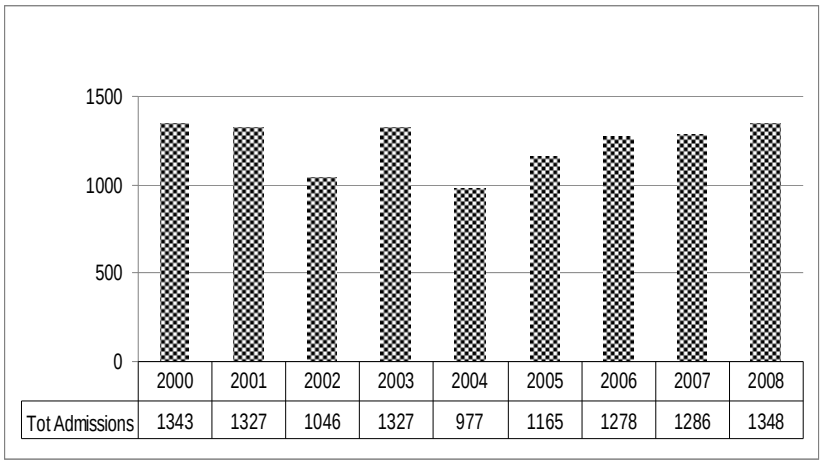
Age and Gender distributions

Age distribution resulted in a wide base graph with children age 14 years old or less consistently composed of around 37% in the last 6 years. The age breakdown of Paediatric population again had remained constant in the last 6 year , similarly to the number of boys and girls per age category.

Paediatric Admissions

Paediatric admission averages about 100 patients per month with 2008 admissions being the highest in the last 9 years with 1348 for the year.

Figure 5: Annual Paediatric Admissions



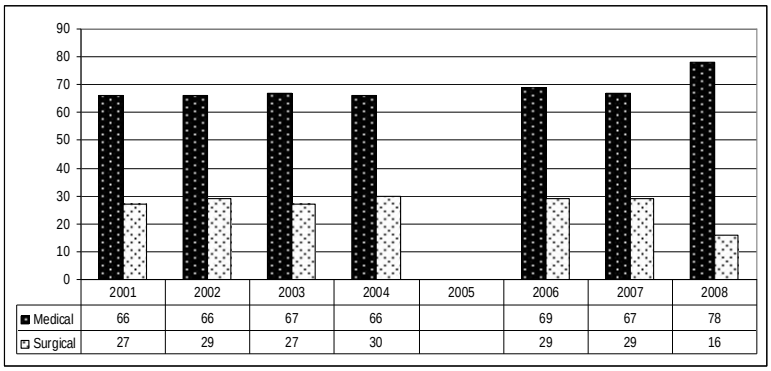
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Tot Admissions	1343	1327	1046	1327	977	1165	1278	1286	1348

Source: Paediatric Ward

Admissions by Team

In 2008 medical admissions contributed 78% and surgical admissions being an all time low with only 16%. There are more male (60%) children being admitted compared to female (40%).

Figure 6: Admissions by Team, 2001-2008



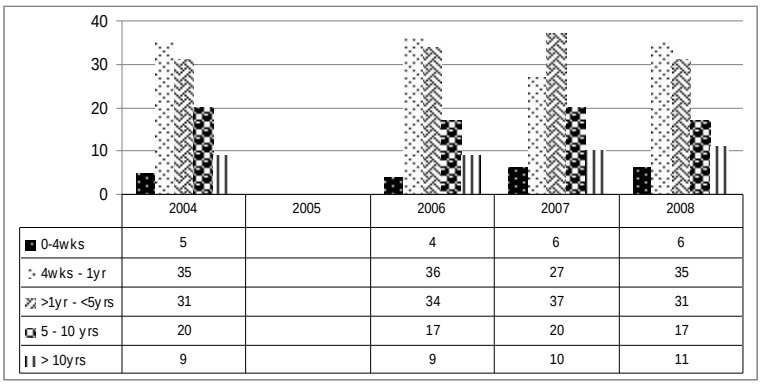
	2001	2002	2003	2004	2005	2006	2007	2008
Medical	66	66	67	66		69	67	78
Surgical	27	29	27	30		29	29	16

Source: Paediatric Ward

Admissions by age group

Infants always dominate the number of admissions except for 2007, there were more under 5 years (>1-<5yrs) than infant children being admitted to the Paediatric ward.

Figure 7: Annual Percentage of total Admissions by age



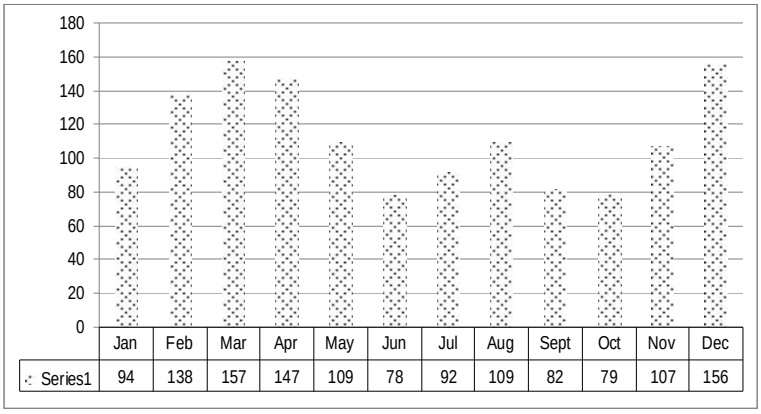
	2004	2005	2006	2007	2008
0-4wks	5		4	6	6
4wks - 1yr	35		36	27	35
>1yr - <5yrs	31		34	37	31
5 - 10 yrs	20		17	20	17
> 10yrs	9		9	10	11

Source: Paediatric Ward

Monthly Admissions 2008

In 2008, the beginning of the cooler months introduced a lot of admissions with acute respiratory diseases and summer months with gastroenteritis. About half of the admissions in December came with gastroenteritis. There was a Dengue epidemic throughout the year which contributing to the high admission rate for 2008.

Figure 8: Monthly Admissions 2008



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Series1	94	138	157	147	109	78	92	109	82	79	107	156

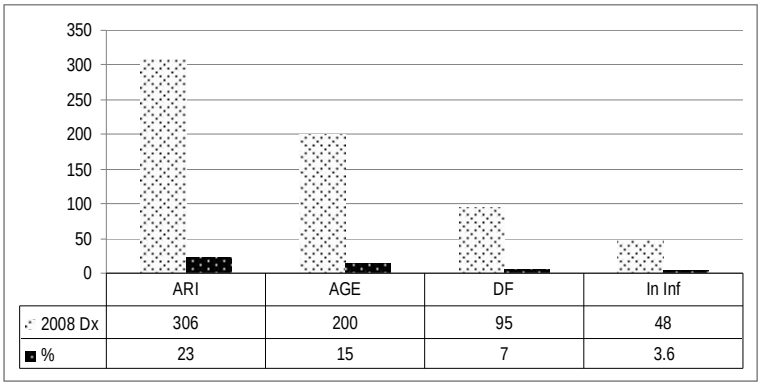
Source: Paediatric Ward

Causes of Admissions

Acute Respiratory Infection (ARI) continued to be the most common cause of admission among the Paediatric population contributing 23% of admissions. Acute Gastroenteritis followed with 15%, 3.6% from Invasive infections and 1% for cardiovascular diseases which was mainly due to rheumatic heart diseases.

As mentioned earlier, Dengue fever caused a significant number of admissions this year with 95 (7%) admissions. MVA causes 10 admissions, 5 cases of malignancy again accounted for 0.5% as predicted and only 6 cases of burn. We had the first case ever of Type 2 Diabetes under the age of 14 years admitted in 2008.

Figure 9: Major Causes of Paediatric admissions for 2008



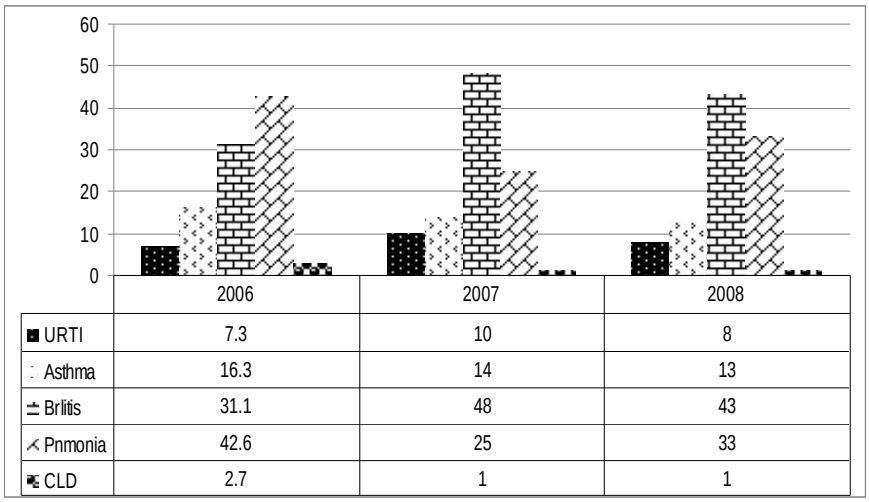
	ARI	AGE	DF	In Inf
2008 Dx	306	200	95	48
%	23	15	7	3.6

Source: Paediatric Ward

Acute Respiratory Infection (ARI)

Bronchiolitis dominated the respiratory condition this year with 43%. Pneumonia accounts for 33% and Asthma accounts for13%.

Figure 10: Breakdown of Respiratory Conditions, 2004-08



	2006	2007	2008
URTI	7.3	10	8
Asthma	16.3	14	13
Brlitis	31.1	48	43
Pnmonia	42.6	25	33
CLD	2.7	1	1

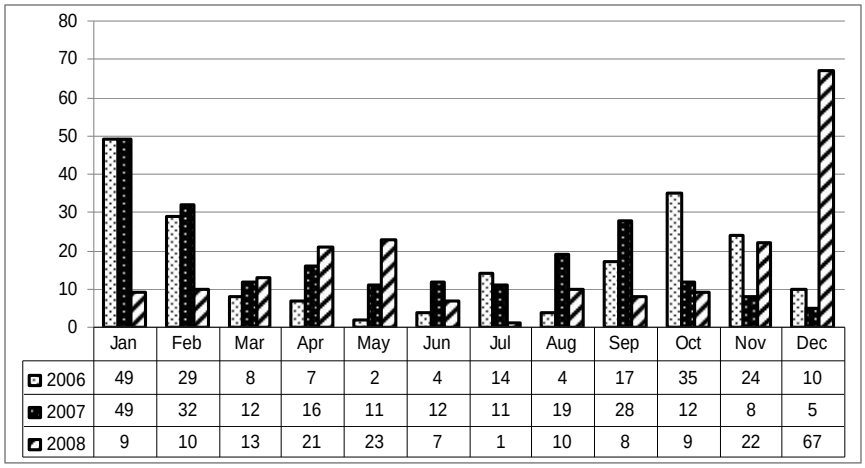
Source : Paediatric Ward

There were two cases of Chronic lung disease, an 8 years with suspected Chediak Higashi syndrome who was diagnosed 3 years ago and a 11/2 year old boy with Cerebral Palsy with recurrent aspiration pneumonia following a very bad Streptococcal meningitis episode. Both children died this year.

Acute gastroenteritis (AGE)

Acute Gastroenteritis contributed 15% to the annual Paediatric admission. It was most common in December with 67 cases which is the highest cases per month in the last 5 years. AGE claimed 4 deaths in the ward and 1 death on arrival.

Figure 11: Gastroenteritis per month, 2006–08



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	49	29	8	7	2	4	14	4	17	35	24	10
2007	49	32	12	16	11	12	11	19	28	12	8	5
2008	9	10	13	21	23	7	1	10	8	9	22	67

Source: Paediatric Ward

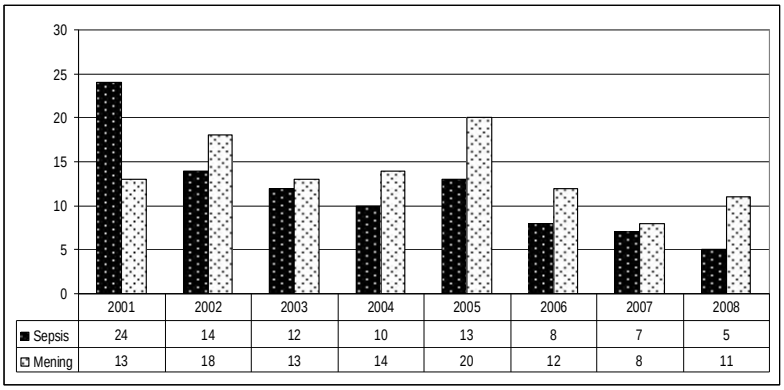
Invasive Infections

Invasive Infection had always been a major cause of morbidity and mortality among Paediatric patients.

Over the last 8 years Septicemia and meningitis contributed a significant proportion of the cases of Invasive Infection. In 2002 Rubella epidemic caused a significant number of Encephalitis whereas Dengue epidemic contributed 105 Dengue Shock Syndrome and 95 Dengue haemorrhagic fever in 2003 and 2008 respectively. Urinary Tract Infection was the leading cause of Invasive infection for 2007 but dominate by Dengue Haemorrhagic fever in 2008. With the introduction of Hib vaccine in 2005, UTI had become the single most common cause of Invasive Infection in last 3 years except for the occasional Dengue epidemic.

The introduction of Haemophilus Influenzae type b (Hib) vaccine in May 2005, diseases commonly causes by this organism like Pneumonia, Meningitis and Septicaemia slowly faded out.

Figure 12: Meningitis and Septicaemia, M&S 2001 – 2008



	2001	2002	2003	2004	2005	2006	2007	2008
Sepsis	24	14	12	10	13	8	7	5
Mening	13	18	13	14	20	12	8	11

Source: Paediatric Ward

There is a definite decline over the years of these serious conditions. Overall Septicaemia and Meninigitis had gone down by more than 60% and 40% respectively since 2002,

Cardiovascular Disease

Congenital and RHDs drain a significant portion of Ministry's budget as most cases require overseas cardiac surgery. One of the new solutions provided for this problem is the invitation of the Operation Open Heart (OOH) team to Tonga.

Rheumatic Heart Screening:

It is estimated that Rheumatic Heart Diseases affect up to 4% (40 per 1000) of children age 3 – 14 years in our country. The support from the Ministry, WHO and NZAids enable restarting of RHD screening programs in Primary Schools. Two Screening programs during the year screened 2,349 Primary school students 83% of the target population with 1,809 ECHO performed. There were 163 (6.9%) students were confirmed to have Rheumatic Heart diseases as per WHO guidelines which gave us a new prevalence rate of 70 per 1000. Almost all of these children had been started on secondary prophylaxis. This work will continue next year and by then we can work out how many screening programs we need to do per year and actual cost involved for long term and sustainable program.

Some technical support from WHF – Dr. Jonathan Carapedis team was provided at the end of the year mainly looking at the database. The partnership developed this year (MOH, WHO, NZAids, World Heart Federation - WHF) had provided strong evidence of a foundation for a successful establishment of a comprehensive secondary prevention program for RHD in Tonga.

Although, cardiovascular problems account for a small percentage of admissions it is a major cause of morbidity and mortality of the 7 cardiovascular admissions, 3 were due to Rheumatic heart diseases and 4 for Congenital heart diseases. There was one death from RHD, a 4 years old boy who died at home. Four children died from inoperable Congenital Heart diseases, 3 died in hospital and one died at home.

Paediatric Malignancies

The expected annual incidence is 8 per year. We diagnosed 7 cases in 2006, 6 in 2007 and 6 in 2008 as listed below.

- A 7 years old boy had presented with signs of SOL. He was taken by family to NZ where a brain was confirmed, but no further details from him.
- A 12 years old boy with Osteosarcoma right femur diagnosed in January and died September 2008.
- A 10 years old boy with L2-3 ALL who died in June after 3 months of diagnosis.
- A 21/2 years old girl with brain tumour (glioblastoma; multiforme) migrated to New Zealand within 2 weeks of diagnosis. She had resection in New Zealand and is still alive.
- A 4 years old boy with Juvenile Myelomonocytic Leukemia (JMML) who died in July at home after 2 months of diagnosis.
- A 6 years old boy with Acute Myeloid Leukemia (AML) who died at home in September after 4 weeks from initial presentation.

Survivors from 2007

- A 9 years old boy from with Chronic Myeloid Leukemia still lives to date on Hydroxyurea alone.
- A year old girl who had surgical resection and completed 8 cycles of chemotherapy for Ewing's Sarcoma right kidney.

Deaths

By the end of the year, 4 of the patients diagnosed in 2008 had died. Two patients who died, one diagnosed in 2006 with Medulloblastoma and 13 years old male with Osteosarcoma diagnosed in 2007 also died this year. In addition, 15 years old female with nasal squamous cell carcinoma diagnosed in 2004 also died this year.

The figures for this year and last year suggest that most childhood malignancies get seen and diagnosed in Tonga. Unfortunately not all could be offered treatment.

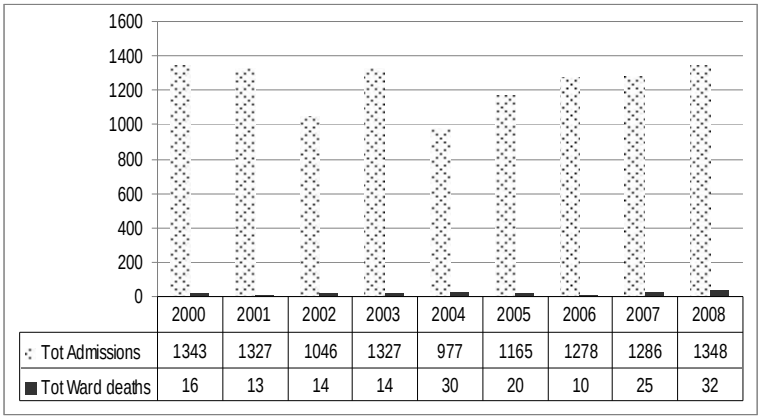
Other Paediatric Conditions

- Motor Vehicle Accidents caused 10 admissions and 1 deaths compared to 22 admissions and 3 deaths last year.
- 6 cases of Burn compared to 13 last year and again no deaths.
- Dengue Hemorrhagic fever had been the third most common cause of admission in 2008.

Case Fatalities

In 2008, there were 23 deaths in Paediatric ward and 9 in ICU making a total of 32 deaths from the Inpatients. There were 4 children who died in the Emergency Department and 7 who died at home, most were known to us.

Figure 13: Total admissions and deaths, 2001-2008



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Tot Admissions	1343	1327	1046	1327	977	1165	1278	1286	1348
Tot Ward deaths	16	13	14	14	30	20	10	25	32

Source: Paediatric Ward

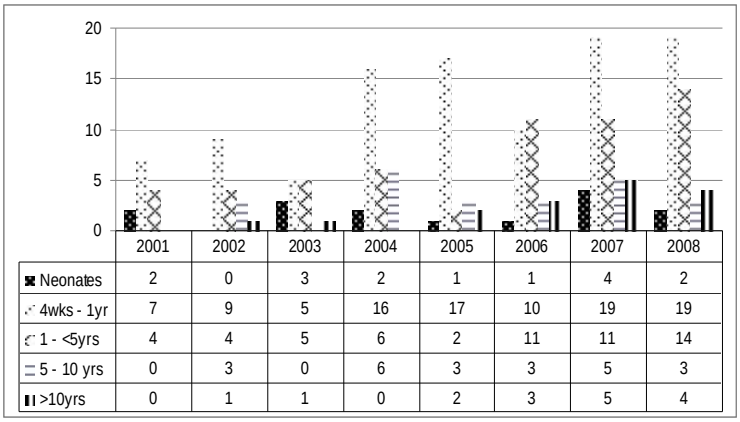
Since 2005 we attempt to record all deaths among children here in Tongatapu as well as the rest of the nation in order to improve validity of child health indicators for the country. Consequently, since 2005 all deaths analysis in the annual report included all deaths inside and outside hospital to determine causes, age at deaths and places of deaths.

In 2007 there were altogether 44 deaths in Tongatapu with 25 deaths in hospitals and in 2008, 42 deaths with 32 in hospital.

Deaths in Tongatapu by age group and Gender

Majority of deaths were under 5 years old with 35 cases (83%). Among these were 2 neonates, 19 Infants and 14 under 5 years old. Three deaths (7%) between 5 and 10 years old and 4 (9%) older than 10 years. Like many previous years there were more male than female deaths under the age of 14 years who died in 2008.

Figure 14: Case Fatalities by Age Group



	2001	2002	2003	2004	2005	2006	2007	2008
Neonates	2	0	3	2	1	1	4	2
4wks - 1yr	7	9	5	16	17	10	19	19
1 - <5yrs	4	4	5	6	2	11	11	14
5 - 10 yrs	0	3	0	6	3	3	5	3
>10yrs	0	1	1	0	2	3	5	4

Source: Paediatric Ward

Causes of Deaths

Infectious diseases had always been the major cause of deaths among Paediatric patients, outweighing all the other causes as shown by Graph 6.2.14a below.

Table 8: Causes of Deaths among Paediatric population 2005/08

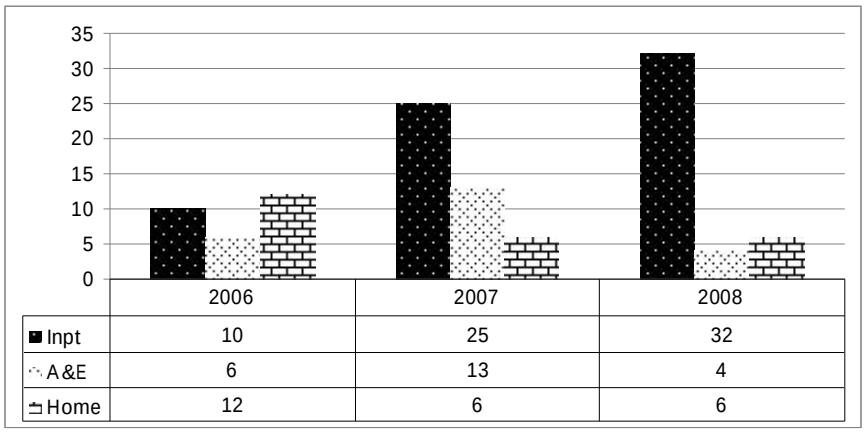
Causes	2005	2006	2007	2008
Infection	15	13	18	18
Perintal Cause		3		
Congenital	4	1	6	4
Drown		1		
Surgical	1	1	4	9
SIDS		2		
Malignancies	1	6	4	5
Unknown		1	3	2
Tonga Medicine			3	1
FTT			3	1
Cardiac			1	1
Suicide			2	
Aplastic Anemia				1
Total	21	28	44	42

Source: Paediatric Ward

In the year 2008, Infection accounted for 18 (43%) deaths. Deaths from surgical conditions in 2008 became the highest rate for the last 4 years which account for 9 (21%) deaths. Deaths from malignancies and Congenital conditions had been the second or third most common cause of deaths in last 3 years

Places of Deaths for Paediatric Population, Tongatapu 2006/08

Figure 15: Places of Deaths for Paediatric Population, Tongatapu 2006/08



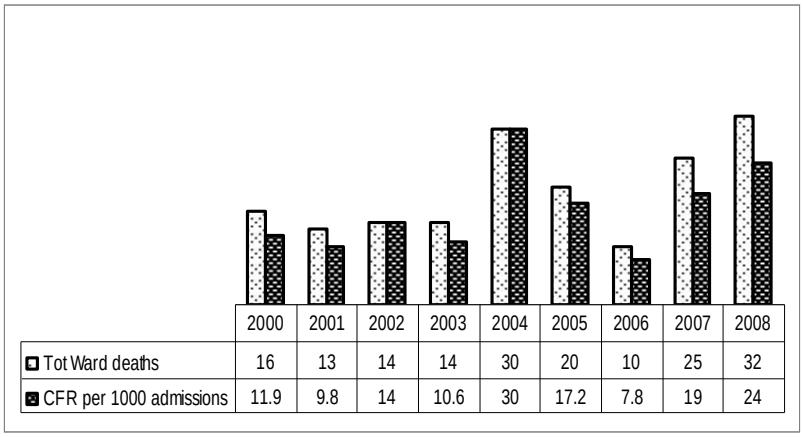
	2006	2007	2008
Inpt	10	25	32
A&E	6	13	4
Home	12	6	6

Source: Paediatric Ward

Over the last three years, more deaths occurred at the hospital. In 2008, 76% of deaths were in the hospital compared to 57% and 36% in 2007 and 2006 respectively. Fewer deaths occurred in the Emergency Department only 4 deaths in 2008.

Out of the 6 who died at home, 5 were terminal cases, 2 cardiac and 2 malignancies and one aplastic anemia. Only one case was refusal of treatment. One terminal case of short bowel syndrome was transferred back to Vava'u and is reported by Ngu Hospital.

Figure 16: Case Fatalities rate among Paediatric Patients, 2000/08



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Tot Ward deaths	16	13	14	14	30	20	10	25	32
CFR per 1000 admissions	11.9	9.8	14	10.6	30	17.2	7.8	19	24

Source: Paediatric Ward

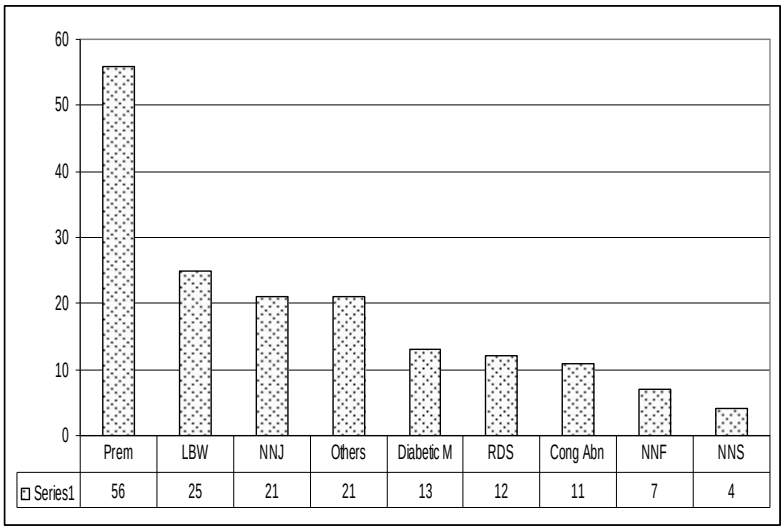
With the 32 deaths that occurred inside the hospital inclusive of both Pediatric and ICU wards; the Case Fatality Rate (CFR) for 2008 Paediatric Inpatients is 24 per 1000 (32 out of 1384 admissions). This is 26% higher then 2007. Improvement in data collection is amongst the main factor who contribute for this high CFR.

8.1.2 Special Care Nursery (SCN)

Special Care Nursery Admission

There were 170 admissions to the Special Care Nursery with more male (55%) than female. For the last 2 years, Prematurity become the leading cause of admission to Special care nursery but it was commonly dominate by Neonatal Jaundice. Recently, there is strong evidence of better breastfeeding practice in the postnatal unit.

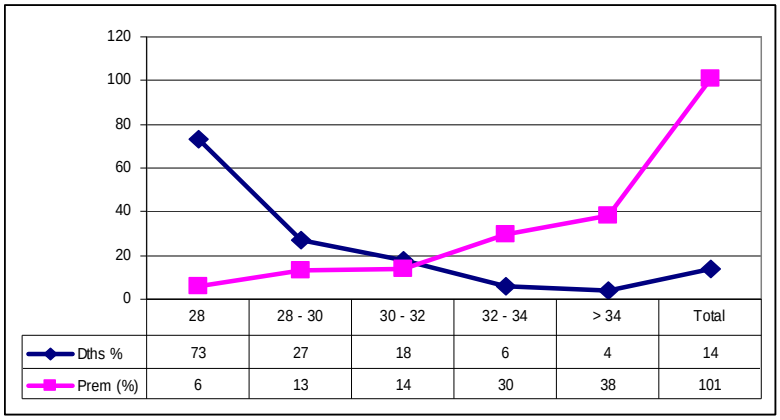
Figure 17: Causes of admission to SCN, 2008



Source: Paediatric Ward

Prematurity:

Figure 18: Prevalence and Mortality of Premature babies by gestational age (GA) at Vaiola SCN, 2008

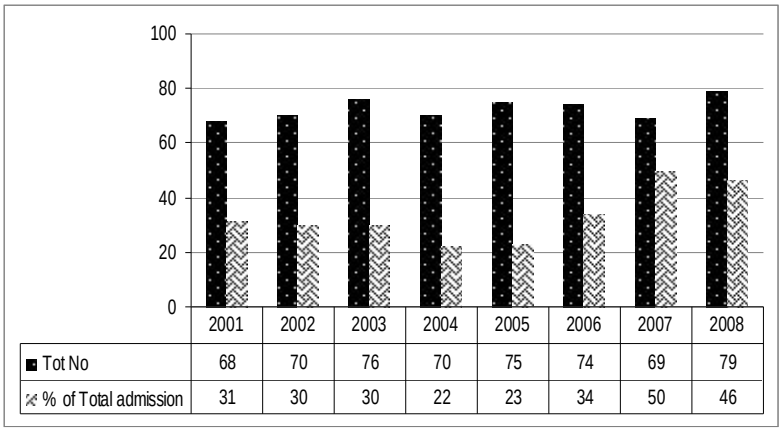


Source: Paediatric Ward

Prematurity is accountable for about 20% of all SCN admissions per year with babies ranging from 23 weeks to 36 weeks gestational age and birth weight as small as 600 grams. With decreasing rate of neonatal jaundice in 2007, Prematurity was the most common cause of admissions and contributes with 35% and 33% of admission in 2007 and 2008 respectively. The prevalence of Prematurity is 22 per every 1000 births taking the average for the last 8 years

Low Birth Weights (LBW) babies:

Figure 19: LBW admission to SCN, 2001/08

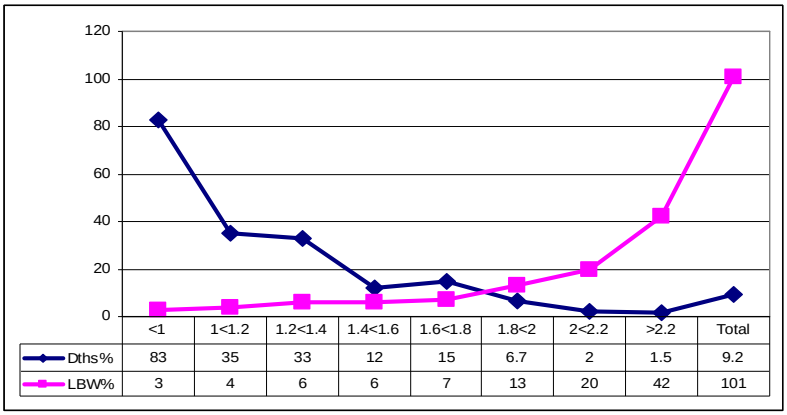


	2001	2002	2003	2004	2005	2006	2007	2008
Tot No	68	70	76	70	75	74	69	79
% of Total admission	31	30	30	22	23	34	50	46

Source: Paediatric Ward

The third most common cause was Low Birth Weight alone which contributed 16% (22 cases) of admissions compared to 11% (24 cases) last year. There were 69 low birth weights Premature babies accounts for more than half of admission to SCN in 2007. The prevalence rate of LBW at Tongatapu is 4% compared to 3.6% in 2007 and it is estimated to be 3% for the whole nation.

Figure 20: Prevalence and Mortality of LBW babies at Vaiola SCN, 2002/08



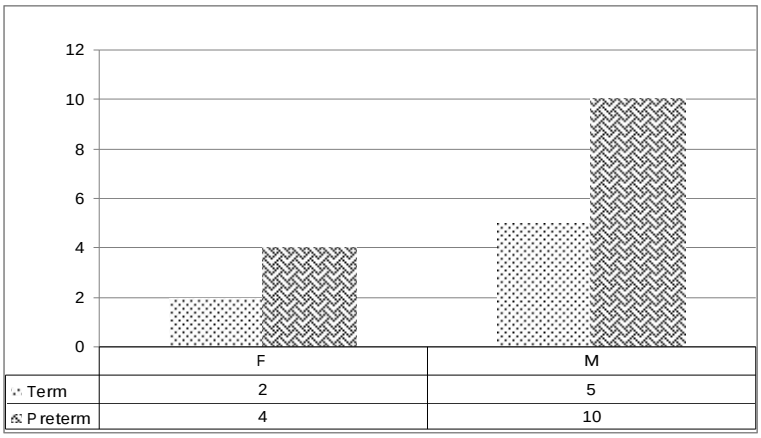
	<1	1<1.2	1.2<1.4	1.4<1.6	1.6<1.8	1.8<2	2<2.2	>2.2	Total
Dths%	83	35	33	12	15	6.7	2	1.5	9.2
LBW%	3	4	6	6	7	13	20	42	101

Source: Paediatric Ward

Case Fatalities in the SCN, 2008:-

2008 had the highest deaths in the SCN over the last 5 years with 21 deaths altogether. There were twice as many male babies who died and Prematurity was either the major cause or a contributing factor to at least 50% of deaths.

Figure 21: Total Deaths at SCN, 2008



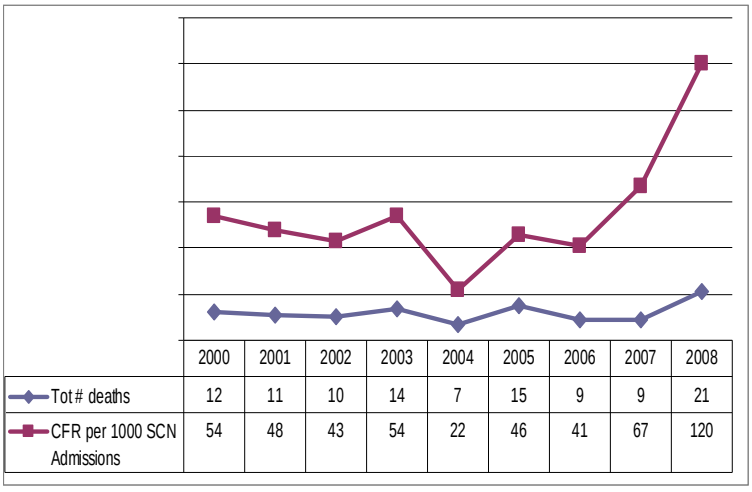
Source: Paediatric Ward

Deaths among term babies:

Seven Term babies died at SCN, 4 from Congenital Abnormalities (Anencephaly, Massive Gastrochisis, Blueberry muffin syndrome, multisyst Abnormalities), two from sepsis and one from birth asphyxia.

Case Fatality among SCN patients, Vaiola 2000/08

Figure 22: Case Fatality rate in Vaiola SCN, 2000/08



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Tot # deaths	12	11	10	14	7	15	9	9	21
CFR per 1000 SCN Admissions	54	48	43	54	22	46	41	67	120

Source: Paediatric Ward

PERINATAL, INFANT & U5 MORTALITY RATE, 2008

Lots of efforts were made to identify all deaths in the Kingdom both in hospitals and communities from all sources (health information, Paediatric Services and Reproductive Health) in order to work out the most accurate Child Health indicators. Therefore, figures found for the whole Kingdom were as follow:-

- Total Number Rate per 1000
- Total SB after 28 weeks 33
- Total ENND 19 PNMR = 20
- Total NND 28 NNMR = 10.6
- Total U5 Deaths 69 U5MR = 26

Vaiola Child Cancer Committee / Paediatric Oncology Steering Group (POSG) Pacific Island Project (2006 – 2008)

Oncologists in New Zealand could not ignore the fact that children in the Pacific islands are dying without treatment. Opinions were asked but they never see the patients. Most of those who could sneak through Immigration were already too late. There was obvious need to address and improve cancer care in the Pacific islands. Consequently, with support from NZAID, Pacific Island Project with five island countries was formed with clear Terms of Reference and Implementation Plan.

Vaiola Child Cancer Committee (VCCC):

The need to sustain and promote the cancer care in Tonga demand a team approach from all relevant areas at Vaiola Hospital and the support of the Ministry. National Health Development Committee (NHDC) endorsed the committee which is chaired by the Medical superintendent.

Local Capacity Building:

Skills of the medical staffs updated through the regional meetings which targeted at prioritizing different types of cancer and formation of a Cancer Treatment Guideline at the country's context. In addition we were attending the concurrent NZ Paediatric Society updates.

In March, two nurses from VCCC received 4 weeks training attachment at different hospitals in New Zealand. They also attended 5 days workshop in Fiji during in May. Pharmacist at the middle of the year had 4 weeks attachment at the Starship Oncology Pharmacy.

Treatment Guideline:

Draft had been completed and in practice we are using this guideline to decide who to treat and what treatment. Some cancers has treatment in Tonga, most will get Induction in New Zealand with maintenance to be given locally. By August, we completed 4 of the six cycles of our first patient (Renal Sarcoma) to be treated locally. She is alive and well at Vava'u. We also offer Palliative Care to 3 patients this year.

Family Support Group:

Child Cancer Foundation for Tonga was formed August and registered in October 2007. Her Royal Highness Princess Nanasi Pau'u launched the Foundation in March 14th 2008. This was also the first fund raising which soon allow CCFT to support to families of children with cancer. The King's Birthday Classical Concert this year also donated all the money to CCFT.

Rheumatic Heart Disease School Screening.

With the work started in 2006 between the Ministry, WHO and World Heart Federation, 2008 turned to be a year for many achievements for our Program in Tonga.

Publication of 2004 Screening in Nature Clinical Practice cardiovascular Medicine.

Firstly was the publication of the biggest ECHO confirmed RHD Screening Research in literature. The work we did in 2004 together with Jonathan Carapetis which provided the baseline for Tonga effort finally accepted on October 2007 and published online by Nature Clinical Practice Cardiovascular Medicine on April, 2008.

Resumption of Rheumatic Heart Screening Programs:

More importantly, with strong support from the Ministry of Health, WHO and New Zealand Aids the Screening Program for Primary Schools was endorsed. In the Screening all Class 1 students get fully examined and Class 6, Form 1 &2 get an ECHO of the heart. Program started in July where schools were busy preparing for the Coronation of King George Tupou V. Vava'u Islands' turn came in November.

The results are summarized on the Table below which includes Phase 1 in Nuku'alofa and Phase 2 in Vava'u. Basically we screened a total of 2,349 which is 83% of the target group and we find a new prevalence of 70 per 1000, higher than the predicted of 40 per 1000 among Primary schools mainly at the age group of 12 – 14 years.

Table 9: Combined Table (Phase 1 & 2. 2008)

Class	Tot Roll	Tot screened	Tot Echoed	Confirmed RHD	Borderline RHD	Congenital	Others
Class 1	752	645	205	12 (1.9%)	9	8	1
Class 5	402	354	354	24 (6.8%)	23	3	
Class 6	1087	786	786	74(9.4%)	35	10	4
Form 1	245	187	187	22 (11.8%)	4	5	
Form 2	238	178	178	23 (13%)	8	1	
Others	107	99	99	8 (8%)	1	1	
Total	2,831	2349	1809	163 (6.9%)	80	28 (1.2%)	5
%		83%	77%	6.9	3.4	1.2	

More detailed results are available from the Screening report. At least 95% of these children had been started on secondary prophylaxis.

Children with Congenital Heart Diseases were also picked up in which one of them was operated later in the year by the visiting Operation Open Heart team.

The Ministry plans to continue this work and build the local capacity for sustainability of the Program. Plan for the near future is for the Program to be guided by a broad-based local RHD Steering committee supported in close collaboration with WHF Pacific RHD team.

Operation Open Heart (OOH) Program:

This is one of the highlights for 2008. Although, the OOH Program benefits the whole Ministry, as secretary to the Vaiola Cardiac Task Force and Local Focal Point for the team I have great pleasure to report this under Child Health Services.

Fortunately OOH Program accepted an invitation from the Ministry to bring the surgery to Tonga. After a feasibility visit by Ms Annette Baldwin from 14 – 17th April, Tonga was qualified for a visit from OOH Program scheduled for the 6th – 25th October, 2008. There was lots of work involved on both sides. AusAid through the Pacific Island Program (PIP) provide the monetary support for the Australian team. Locally, a Vaiola Cardiac Taskforce was set up to get Vaiola ready in manpower, facility, equipments and services provided. It was hard work but well worth it, with a lot of improvement locally.

Between Vaiola and the OOH, we have to match what is needed, if we can't provide they will bring it. They brought the skills, staffs, all the machinery, consumables, valves and any non prohibited drugs, the rest was for us to provide. 39 team members were recruited in Australia for the trip with the condition they will pay airfares and donate the time and skills. Tonga will look after accommodation, feed the team and pay for the valves. A suggestion strongly supported by the Vaiola Task Force

members to request public support to encourage spirit of Volunteerism locally as well. With the permission of the Ministry the Task Force set out its Public Campaign to support the trip.

From 6th – 11th October, a team of 30 personnel led by Ms Annette Baldwin and consisting of 17 nurses, 6 doctors, 1 sonographer, 1 lab technician, 1 physiotherapist, 2 perfusionists and one Public Relation officer arrived in Tonga. First week, was involved in capacity building with nursing staff training in cardiac care. At the same time adult and Paediatric Cardiac clinics were conducted by the 2 cardiologists Drs Malcolm Richardson & Noel Bayley, and the sonographer Ms Kerrie Ricahrdson. Draft list of patients for possible surgery was decided for further discussion with Surgeons.

On Friday 10th all goods from Australia arrived, and during the next 2 days both local and overseas teams were busy setting up theater, ICU and Medical wards. Local surgeons, anesthetists, doctors and staff nurses worked hand in hand to support the program

On Monday 13th despite the fact that the heart and lung machine was not here Operation started with 2 cases of Patent Ductus Arteriosus (PDA). Leading the Operating team was surgeon Mr. Andrew Cochran assisted by Ms Zoe Wainer. Anaesthetist was Dr. Ian Smith and ICU doctor was Dr. Peter Prager supported by Dr. Malcolm Richardson. Over the next 8 days, 14 cases 8 valvular surgery (2 repairs, 6 replacements) and 6 congenital repairs were done. 2 patients had re-exploration for bleeding otherwise all had recovered well and are currently followed up at the Special Clinic.

Both visitors and local staff worked side by side in theater, ICU and Medical ward either operating or looking after patients pre and post-operatively.

On the 11th October, some team members start to leave starting with adult cardiologist and nurses Trainers. Majority of the overseas team left after 12 days on the 23rd October. The last 3 to leave, left on 25th October. For the patients, the last to leave the hospital left on 28th, 7 days after surgery.

Table 10: Total Income & Expenditures, Operation Open Heart Program:

Income		**Expenses**			**Balance**
Public Donation		Vaiola Task Force			
		6 Driving Licenses	$103.50		
TBC Radiothon	$17,877	Kahoa	$133.00		
Personal & Company Donations	$1,852	Presents	$111.00		
Dinner Donations	$1,330	Dinner	$1,466.00		
	$21,059.01	Medicine	$75.00		
		TBC Sound sys	$138.00		
		Stationery	$155.28		
		Accommodations	$15,720.00		
Total	21,059			$17,901.78	$3,157.22
MOH Donation	101,800	Ministry of Health			
		Rations	$2,500.00		
		Accommodations	$6,265.00		
		Dinner	$2,000.00		
		Hospital Supplies	$13,376.00		
		Patients Diets	$4,500.00		
		Lab Supplies	$17,750.00		
		O2 supplies	$10,000.00		
		6 Heart Valves	$26,859.32		

Income		Expenses			Balance
Public Donation		Vaiola Task Force			
				$83,250.32	$18,549.68
	122,859			$101,152.10	$21,706.90

The balance of $3,157.22 from public donation is with the Vaiola Cardiac Task Force Cheque Book until the next visit. The balance of $21,706.90 from the Ministry was returned to the Ministry.

2005 Hepatitis Study

In 2005, Paediatric team embarked on a study to assess the effectiveness of Hepatitis B vaccine in Tonga and determine the current status of the Hepatitis B among under 5 years old. The result was analyzed by Dr. Niklas Danielsson, former WHO CLO for his Master thesis. Abstract of the report is copied below.

Title: Improved immunization practices reduce childhood hepatitis B infection in Tonga.

Hepatitis B infection is hyper-endemic in Tonga and 19 % of pregnant women test positive for hepatitis B surface antigen (HBsAg). Routine childhood immunization against hepatitis B was introduced in 1989 and the target for elimination was set at <1% HBsAg prevalence in children. A study conducted in 1998, a decade after the introduction of hepatitis B immunization, found the HBsAg prevalence to be 3.8% in pre-school children. The finding resulted in the strengthening of the delivery of Hepatitis B vaccine with emphasis on providing the first dose within 24 hours after birth. The aim of this study was to measure the impact of improved immunization practices on the prevalence of hepatitis B infection in pre-school children, and to assess the progress towards hepatitis B elimination in Tonga.

Measured outcome: Prevalence of HBsAg antigen

Type of study: Cross-sectional study

Methods:

Children aged 6 – 59 months who were admitted to Vaiola hospital, Nuku'alofa, Tonga, and had blood collected for clinical investigation, were tested for HBsAg with a rapid serological test. A total of 449 children were recruited and interviewed and 375 (84%) were tested for HBsAg. Immunization status was checked against the children's immunization cards and cross-checked against the records kept by the Public Health nurses. Information about socio-economic status, parent education, blood transfusion, breast-feeding, mode of delivery, and place of birth was collected through interviews with mothers using a standardized questionnaire.

Results:

Three children tested positive for HBsAg resulting in a prevalence of 0.8% (CI 0.2-2.5%). Hepatitis B 1 immunization coverage was found to be high, 99.1% (CI97.7- 99.7) and 91.9 % (CI 88.9-94.2) of children received the first dose of hepatitis B vaccine within 24 hrs after birth. Coverage for the third dose of hepatitis B vaccine was 97.6 % (CI 95.5-98.7) and of the children with complete immunization 84.7% (CI 80.9-87.9) had received all three doses by 6 months of age.

Conclusions:

The results show that the instituted changes in the delivery of hepatitis Bvaccine have been effective in reducing the transmission of hepatitis B to children and indicate that Tonga may have achieved the elimination target of less than 1% HBsAg prevalence in children.

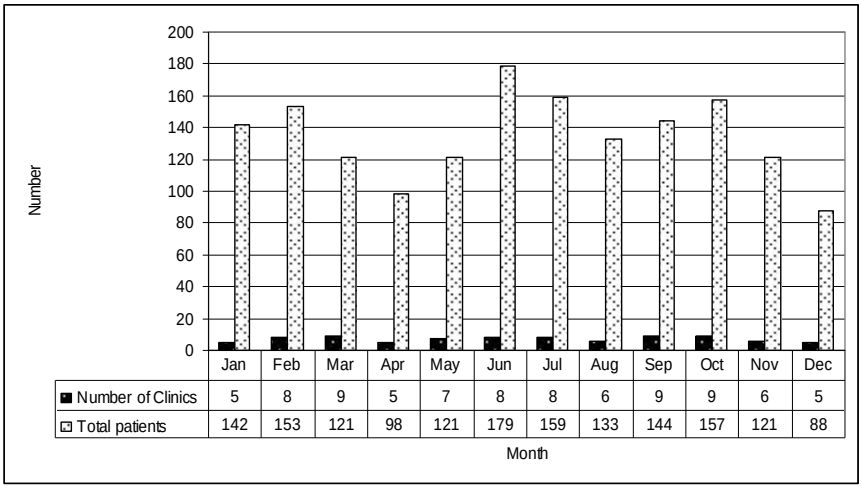
8.1.3 Surgical Ward:

Surgical Ward is responsible for providing health services for all patients presenting with surgical problems.

Objectives	Selected Milestones
▪ Delivering quality surgical services to our population with the best possible outcomes within the Ministry of Health's available resources at all times. ▪ Provide safe, efficient, effective and timely pre-operative services for those undergoing surgery for patients above the age of 12 (in the Surgical Ward) and under the age of 12 (in the Paediatric Ward)	▪ Two full time general surgeons for most of the year and one part time. ▪ April and November: Orthopaedic Surgery visits, (12+23 major orthopaedic procedures, 5+7 arthroscopies) ▪ October: visit by members of Auckland Spinal Rehabilitation Unit; consultations for spinal injury problems and training sessions. ▪ October: (1st time since 1986) very successful Cardiac Surgery visit from Sydney Adventist Hospital; 14 patients operated on and training sessions. ▪ November: club foot repair team visit with 25 surgeries and introduction of the Ponseti Method.
▪ Delivering services with respect for the patient's wishes, providing explanation about their condition and their treatment, and ensuring that informed consent is obtained.	▪ Special effort made these issues, with more to be done, including patient rights to confidentiality.
▪ Ensuring that most surgical patients are provided with health education.	▪ We are trying with the Diabetic Clinic staff to implement regular health education talks in the ward.
▪ Valuing surgical staff sense of pride and commitment through ongoing training, flexibility and innovative practice in all levels of services.	▪ Some lectures given by doctors to the nuring staff and regular section meetings held every Friday morning.
▪ Practicing good communication skills through revising staff job descriptions according to each staff roles and responsibilities.	▪ Section meetings held weekly, staff meetings monthly.
▪ Ensuring full surgical patient care by providing ongoing Special Outpatient Clinics.	▪ Two (sometimes 3) clinics a week conducted throughout the year.

Statistical Information:

Figure 23: Surgical Outpatient Clinic Consultations 2008 (old and new cases)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of Clinics	5	8	9	5	7	8	8	6	9	9	6	5
Total patients	142	153	121	98	121	179	159	133	144	157	121	88

Source: Surgical Ward

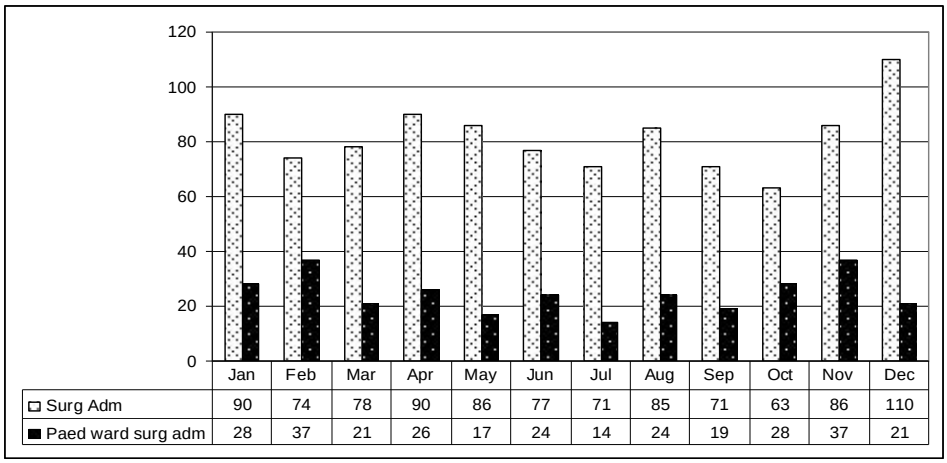
There were 85 surgical clinics conducted in 2009 with an average of 7 clinics and 135 patients per month. This equate to an average of 19 patients per clinic.

The admission statistics below does not include patients admitted to the surgical ward for gynecology, ENT or maxillofacial problems that are looked after by different teams. The 1178 surgical admissions of 2008 is 17% more than the reported admission of 2007 (excluding paediatrics).

Major Surgery is surgery that requires surgical expertise, justifying the need for a trained surgeon. This category includes any surgical operation from and above the scale of a hernia repair.

- Abdominal: any major intra-abdominal procedure, open or laparoscopic, hernias excluded
- Orthopaedics: open reductions and internal fixations, external fixations, tendon and nerve repairs, sequestrectomies for chronic osteomyelitis.
- Hernias: of any kind (inguinal, femoral, incisional)
- Breast: breast lump excisions, mastectomies (not breast abscess or simple biopsies).
- Amputations: major amputations only (not fingers, toes or fore-foot amputations).
- Urology: prostatectomies, nephrectomies, vesicolithotomies, cure of hydrocele, scrotal explorations, and operations on kidney or uretuer (not circumcisions).
- Head-neck: burr-holes, craniectomies, thyroidectomies, thyroglossal cysts, etc.

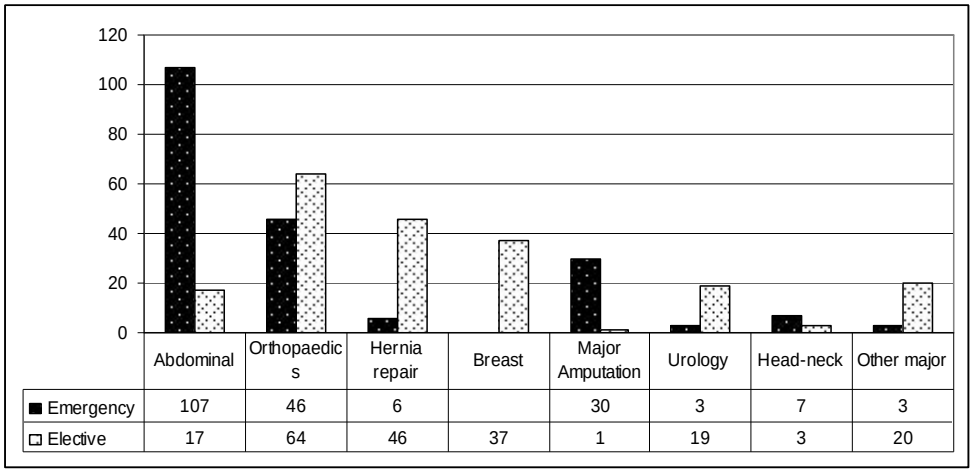
Figure 24: Surgical Admissions 2008



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Surg Adm	90	74	78	90	86	77	71	85	71	63	86	110
Paed ward surg adm	28	37	21	26	17	24	14	24	19	28	37	21

Source: Surgical Ward

Figure 25: Major Surgery per Category of Surgery



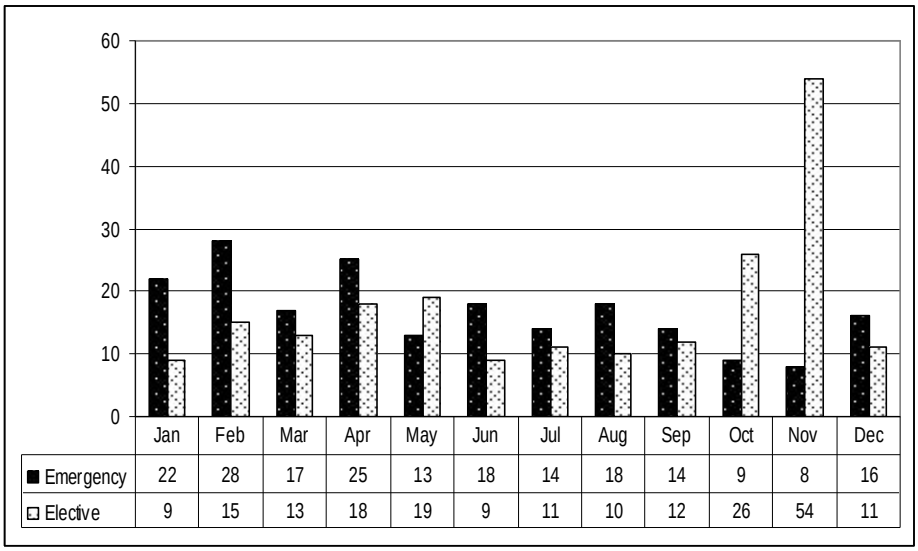
	Abdominal	Orthopaedics	Hernia repair	Breast	Major Amputation	Urology	Head-neck	Other major
Emergency	107	46	6		30	3	7	3
Elective	17	64	46	37	1	19	3	20

Source**:** Surgical Ward

Major Emergency Surgery

Major Emergency Surgery is performed to save a life or a limb or to prevent severe disability or complication; it is a good indicator of the health impact of surgical activities. With 202 cases, it accounted for 49% (202/409) of the major surgery in 2008, with a monthly average of 17. The most common major emergency was abdominal; 107 cases (53% of all major emergencies), including appendicectomies and laparotomies (peritonitis, intestinal obstruction or trauma). Second most common (46 cases) were orthopaedic emergencies (orthopaedic trauma and sepsis).

Figure 26: Major Surgery by month, 2008



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
■ Emergency	22	28	17	25	13	18	14	18	14	9	8	16
□ Elective	9	15	13	18	19	9	11	10	12	26	54	11

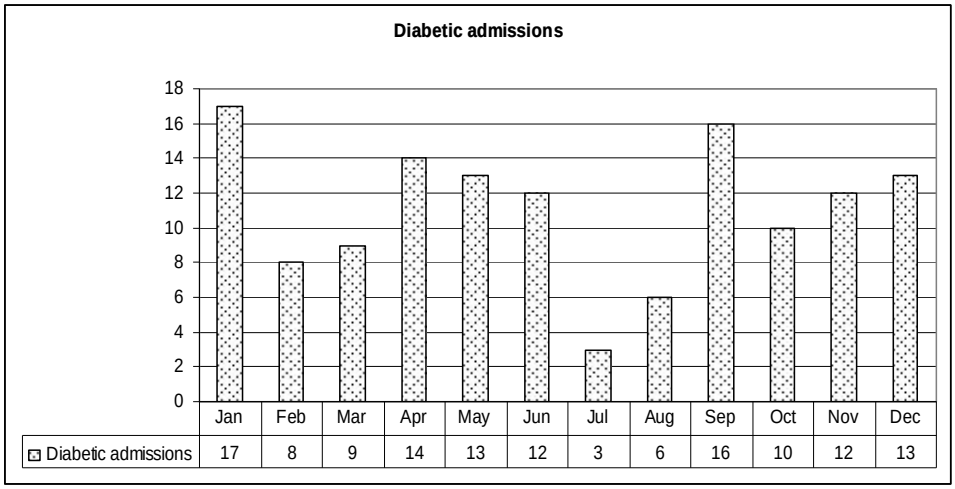
Source**:** Surgical Ward

Major amputations for diabetics have been classified as 'emergencies' although most of them are 'semi-emergencies', not immediately life-threatening, but not elective procedures either. Out diabetic gangrene; the only non-diabetic (who had peripheral vascular disease) was also the only non Tonga. So, all major amputations on Tongans were for complications of diabetes mellitus. One was a conversion from BKA to AKA.

Of those 28 Tongan patients, a large majority of 24 (86%) were females, 4 (14%) were males, and the average age was 63 years with a peak in the 61-70 years age group. Although 17 major amputations for diabetic complications had been reported in the 2007 annual report, a review of the theatre register found 25 documented cases of diabetic amputations on 23 patients, with 2 conversions from BKAs to AKAs; it included 13 females (56%) and 10 males (44%), with an average age of 59 years. The total number of diabetics undergoing a major amputation has therefore increased by 22% in 2008.

The 13.5% diabetic-related surgical admissions equate to 13.5% of total admission to Surgical Ward. Diabetic patients usually spend long time in the ward and require many dressings and surgical procedures.

Figure 27: Surgery of Diabetes in 2008



Source**:** Surgical Ward

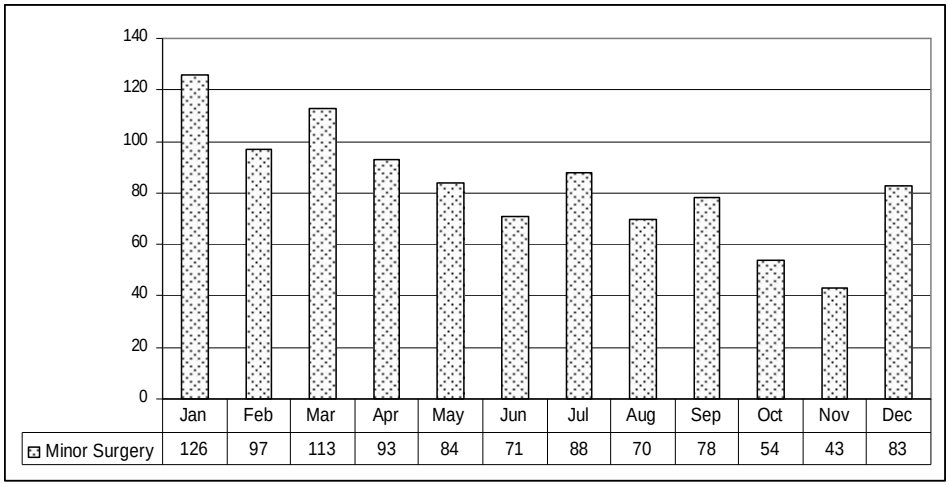
Major elective surgeries (207 cases, 51% of all major surgery performed)

The most common elective major category was orthopaedics, with 64 cases (31% of all major elective operations), mainly because of specialist visits in addition to our routine cases. It is followed by hernia repairs (46 elective cases) and breast surgery (37 cases).

November was the busiest month of 2008 with 62 major surgeries performed. This is because 2 foreign teams came in successions, first the tallipes team, then the adult Orthopaedic team.

Minor Surgery

Figure 28: Minor Surgery

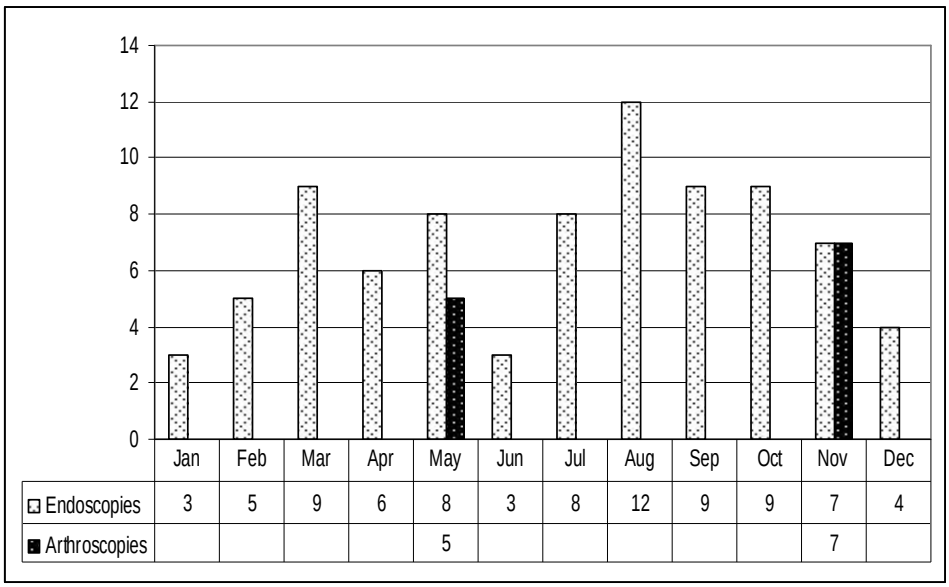


Source**:** Surgical Ward

Definition for minor surgery is any surgical operation below the scale of a hernia repair, done under local or general anaesthesia, Includes manipulation under anaesthesia and Plaster of Paris cast for fractures, skeletal traction, debridement of wounds, diabetic ulcers or burns (except major wounds and compound fractures), suture of minor wounds, excision of small lumps, skin grafts, incision and drainage of abscess, circumcisions, toes, fingers and fore-foot amputations.

Most of the minor surgery is performed by the registrar and the interns.

Figure 29: Endoscopic Procedures (rigid sigmoidoscopies, upper gastrointestinal endoscopies, cystoscopies, arthroscopies)



Source**:** Surgical Ward

Table 11: Audit of Outcome: 2008 Surgical Mortality

Month	Surgical deaths	Inc. Postoperative deaths
Jan	3	2
Feb	2	1
Mar	0	0
Apr	3	2
May	5	1
Jun	1	1
Jul	2	1
Aug	0	0
Sep	4	4
Oct	2	0
Nov	3	0
Dec	0	0
Total	25	12

Source**:** Surgical Ward

These 25 surgical deaths include all deaths occurring in the surgical and paediatric ward and ICU, whatever the cause of admission and the cause of death and regardless of whether surgery was performed; this is close to the 21 deaths reported in 2007, although it was unclear whether patients dying in the ICU (10 in 2008) had been actively traced and included in 2007.

Intra and post-operative deaths include all hospitals deaths occurring within 30 days of a surgical operation, whatever the cause of the death; it includes patients who died postoperatively in the Intensive Care Unit.

The most common causes of surgical death have been;

- Diabetic – related hospital deaths: 5
- Trauma – related hospital deaths: 5
- Cancer – related hospital deaths: 2

The total number of non-operative deaths (13 or 52%) is close to the number of postoperative deaths (12 or 48%).

Operative Mortality:

Overall operative mortality rate (operative deaths/major operations): 2.9% (12/409)

- Emergency surgery mortality: 5.4% (11/202)
- Elective surgery mortality: 0.5% (1/207)

Of the 12 patients who died following a surgical operation:

- 4 died after emergency laparotomy, including one diabetic
- 3 died after emergency surgery for diabetic gangrene (including 1 major amputation)
- 3 children died of abdominal emergencies
- 1 died of a probable pulmonary embolism after mastectomy for breast cancer
- 1 child died after emergency craniectomy for a bizarre, complex condition

The emergency surgery mortality may reflect the quality of the global surgical care, the quality of the Intensive Care or the severity of the cases presenting themselves to the surgeon. The 0.5% mortality for elective surgery reflects the level of patient selection and safety of anaesthesia perioperative care.

8.1.4 Medical Ward:

Medical Ward is responsible for providing internal medicine and primary care for the nation including consultation medicine (inter-departmental, inter-island and overseas referrals).

Objectives	Selected Milestones
▪ To teach medical staff the ethical standard of integrity and professionalism viewed as the traditional hallmarks of the physician.	▪ Dr. Veisinia Matoto jointed temporarily the Unit during breaks from her postgraduate studies at FSMed. ▪ Dr. Veisinia Matoto completed her Masters in Medicine in Internal Medicine from FSMed, in December. She will join the Unit in January, 2009.
▪ To encourage the practice of evidence – based medical treatment, in the context of cost	

Objectives	Selected Milestones
effectiveness as well as outcome care.	▪ Commencement of the ongoing ward tutorials with the nursing staff.
▪ To provide ongoing educational opportunities of the highest caliber to practitioners.	▪ Cardiac Team visited in October.
▪ To review and develop programs that will answer the needs of health care reform and better train medical staff in the environments of the future.	
▪ To reduce morbidity and mortality related to NCDs and related complicated through a concerted primary care approach and risk factor management on a secondary prevention level.	
▪ To send another RMO for postgraduate training at the Masters level and another at the Fellowship level.	

Statistical Information:

Outpatient Services

The Medical Unit provides five Medical Outpatient Clinics with an additional three Procedural Clinics. Community Clinics to Mu'a and Kolovai continued on a 1 in 3 basis rotating with the Chest Clinic at Vaiola Hospital.
Procedural Clinics are Endoscopy, Bronchoscopy and Echocardiogram and they are running smoothly.

Table 12: Medical Ward Outpatients Clinics

Days	AM	PM
Monday	Echo	-
Tuesday	General	Cardiac (INR)
Wednesday	Endoscopy/Bronchoscopy	Chest/Mu'a/Kolovai
Thursday	Cardiac	Hypertension
Friday	Echo	

Source**:** Medical Ward Registration

Table 13:Number of Monthly admission to Medical Ward 2008

Month	Medical Ward						
	R1	AD	T/I	DISC	T/O	DEA	R2
January	13	137	2	121	3	14	14
February	14	152	7	140	1	7	25
March	25	168	5	157	2	12	27
April	27	155	6	143	11	9	25
May	25	107	5	96	8	8	25

Month	Medical Ward						
	R1	AD	T/I	DISC	T/O	DEA	R2
June	25	101	2	88	2	8	30
July	30	119	1	111	2	9	28
August	28	5	4	79	5	13	30
September	30	93	0	89	2	6	26
October	26	55	16	49	15	7	26
November	26	66	3	65	0	5	25
December	25	112	1	113	3	13	9
Total	30	1360	52	1251	54	111	26

Source**:** Medical Ward Registration

KEY:
R1 – Remaining from the previous month
T/I – Transfer in
T/O – Transfer out
R2 – Remaining at end of month
AD – Admission patients
DISC – Discharge patients
DEA – Death

80% of patients admitted to Medical Ward not only have a single disease entity, but rather, other cormobidities in the background with Diabetes Mellitus Type 2 the most common.

Deaths in the Medical Ward account for about 65% of all deaths in the Vaiola Hospital. NCDs and related complications are again the major causes of mortality especially cardiac related problems. Malignancy comes in second. Sepsis accounts for less than 15% of deaths. Diabetes may not be a major cause of death, but can be often be found in the background, with its many complications contributing hugely to the mortality.

8.1.5 Mental Health:

Mental Health section is responsible for providing health services and psychiatric care to patients who have suffered institutionalization and to continue the process of deinstitutionalization for all psychiatric cases.

Objectives	Selected Milestones
▪ To ensure the continuity of skilled and committed staff.	▪ SN Lola Jiang attended a three months attachment on Psycho-geriatrics in Auckland, New Zealand. ▪ Establishment of a Clinical Psychologist post in 2008 and it is filled by Mr. Paula Pateta.
▪ To promote knowledge in Mental Health and Dissolve Misconceptions, Stigmatization, Ignorance and Discriminations.	▪ World Health Mental Day, 10th October, 2008 was commemorated as Mental Health Promotion Week with a Mental Health base in Nuku'alofa. Pamphlets were given out on mental health related issues. Tonga Trust donated printing materials and also assisting in printing information on mental health, and funding of number of workshops. Television and radio programmes were conducted by the SMO, Psychiatry. ▪ This is the 3rd year in a row that the component of Mental Health incorporated in the Sia'atoutai Theological College curriculum. ▪ Donations ▪ As always, the Psychiatric Unit continued to be blessed with donations of food or goods from the public during the festive season to the patients of the psychiatric ward. The "Toakase group of women, Fekau'aki 'A Fefine (Catholic Womens Group) the annual Fofo'anga Christmas party and of course Mr and Mrs Luna Mafi of the Malapo Quarry are an annual event

Objectives	Selected Milestones
	that our patients look forward to.
▪ To develop network.	▪ Pacific Island Mental Health Network (PIMHNET) held their second annual meeting in Fiji. Emphasis was on each country completing their Mental Health Act's and Mental Health Policies.

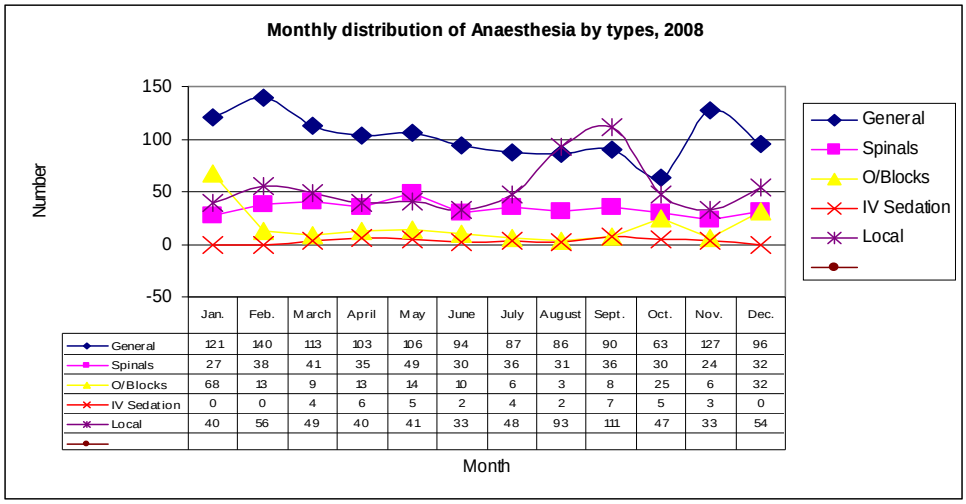
8.1.6 Anaesthesia and ICU:

Anaesthesia and ICU is responsible for providing anaesthetic services including managing of Intensive Care Unit.

Objectives	Selected Milestones
▪ To provide staffing levels to meet services needed	▪ Overseas operating teams visited Vaiola Hospital in various times and conducted operating sessions.
▪ To provide continuing education and training for anaesthetic and ICU staff.	▪ SHO in Anaesthesia Talilotu To'ia completed his one year course for his Diploma in Anaesthesia at the University of Papua New Guinea. ▪ Dr. Ma'ata Sikalu attended in a one week workshop in October of the Pacific Society of Anaesthetists in Suva, Fiji.

Statistical Information:

Figure 30: Monthly distribution of Anaesthesia by types, 2008



	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
General	121	140	113	103	106	94	87	86	90	63	127	96
Spinals	27	38	41	35	49	30	36	31	36	30	24	32
O/Blocks	68	13	9	13	14	10	6	3	8	25	6	32
IV Sedation	0	0	4	6	5	2	4	2	7	5	3	0
Local	40	56	49	40	41	33	48	93	111	47	33	54

Source**:** Anaesthesia & ICU Registration

8.1.7 National Centre for Diabetes and Cardiovascular Diseases:

National Centre for Diabetes and Cardiovascular diseases is responsible for delivering health services and outreach programme for all inpatients and outpatients patients suffering from diabetes and/or cardiovascular diseases.

Objectives	Selected Milestones
▪ To develop and implement integrated strategies for the prevention of diabetes and CVD	▪ Printing of Education booklet developed in 2007. ▪ The Diabetes project with World Bank funded the printing of 1000 copies

Objectives	Selected Milestones
with emphasis on primary prevention and promotion of healthy lifestyles through participation and membership in the National NCD Committee and the Healthy Eating Sub-committee.	which have been distributed to patients attending the clinic at the Diabetes Centre, Health centres and Hospitals in the islands. ▪ Attendance Stamps ▪ At the beginning of the 2008, the Diabetes Centre started using the attendance stamp (letter 'A') which is stamped on the patient's medication card to show that the patient does attend the clinic. This was to overcome the problem of patients defaulting but still getting supplies of their medication from other hospital staff.
▪ To increase community-based prevention and control of CVD and Diabetes Such as Health centre clinics and World Bank community diabetes care and Management project. ▪ To strengthen the management of CVD and diabetes and their complications (Tertiary prevention). ▪ To establish and strengthen appropriate epidemiological surveillance and Monitoring of CVD and Diabetes and their risk factors.	▪ World Bank Project ▪ The diabetes community based project funded by World Bank was started in February and will end in June, 2009. In this project, 3 Health centres were selected to be used which are Tatakamotonga, Fua'amotu and Kolovai. By November, total of 256 diabetic patients were followed up in these Health centres. The obvious overall outcomes are: ▪ Reduction in diabetes complications ▪ Reduction in the complications from associated cardiovascular, cerebrovascular and peripheral vascular diseases ▪ Reduction in mortality associated with cardiovascular disease. ▪ Intermediate outcomes would be improvement in blood glucose, blood pressure, lipid profile, obesity status, smoking rate and frequency of exercise. ▪ Other issue of importance in this project is screening more people for diabetes. The project provided these Health centres with fuel allowance to increase access to people for diabetes. As expected, more cases were identified with more people screened. ▪ In this project, we were able to do tests for HbA1c and total cholesterol as well as purchasing Lipex 20mg for distribution to patients with abnormal total cholesterol levels.
▪ To further strengthen the development of human resources research for the Prevention and control of diabetes and CVD.	▪ 7th International Diabetes Federation Western Pacific Region Congress, Diabetes Asia Pacific: Working for Solutions. ▪ Four staff of the Diabetes Centre were able to attend this conference held in Wellington, New Zealand on 30th March to 3rd April. The attendance of one of the staff was funded by SPC and the remaining 3 were funded by the AusAID Tonga Diabetes Project. ▪ IDF/WPR Asia-Pacific Diabetes Epidemiology & Education Training course, 2008 (APDEC, 2008) ▪ Ms. 'Elisiva Na'ati was able to participate in 1 week training course which was conducted in Tokoyo, Japan on 23rd - 30th August. Participation in this course was funded by IDF. An outcome of this training course was the adoption of the IDF curriculum for the training of Diabetes Educators. The initial training was conducted for the NCD Team- Diabetes Centre staff, Eye clinic staff and Health Promotion staff in the first week of January, 2009. More staff will be trained using this curriculum later on in 2009. ▪ Retinal camera ▪ Through the project with World Diabetes Federation, a Retinal camera was

Objectives	Selected Milestones
	purchased and installed in the Diabetes centre mainly for patients with diabetes. This was in use in July. The staff of the Ophthalmology Unit had special training on the operation and use of this valuable equipment. This not only an advance in the technology but eliminates the problem of diabetic patients defaulting their eye check appointments as it is done in the Diabetes centre while waiting to see the doctor or after being seen by the doctor.

Statistical Information:

Table 14: Attendance at the National Diabetes Centre, 2008

Month	Clinic	Rebook	Dental	Screen	New Cases	Dressing	GTT	GDM	Home visit
Jan	454	64	11	37	27	382	-	-	109
Feb	628	89	18	61	31	250	-	-	
Mar	564	56	7	36	16	285	-	-	
Apr	597	73	17	36	11	275	-	-	
May	588	65	13	28	10	226	18	0	89
Jun	476	80	17	31	16	222	46	4	
Jul	630	55	20	21	11	297	46	2	
Aug	495	43	6	25	7	221	54	5	
Sep	517	59	16	52	13	309	44	1	87
Oct	558	69	21	34	14	268	53	0	
Nov	539	53	15	40	22	305	26	6	
Dec	534	46	21	22	15	313	45	4	87
Total	6580	752	182	423	193	3353	332	22	372

Source: National Diabetes Centre, 2008

The total register at the Diabetes Centre: 3,272
Number of known deaths in people with diabetes in 2008: 70

Clinic consultation

Clinic consultations are conducted on Monday through to Thursday. Patients who are on insulin or who also have hypertension, some cardiac conditions and with complications are seen in the Monday and Wednesday clinics. The consultation on Wednesday is being shared by Dr Palu and Dr Vivili in which the booking ranges from 40 – 60. Patients with good control and with less or no other problems are seen on Tuesday and Thursday and a maximum of 25 patients are booked as some of the staff will be conducting clinics in the Health Centres.

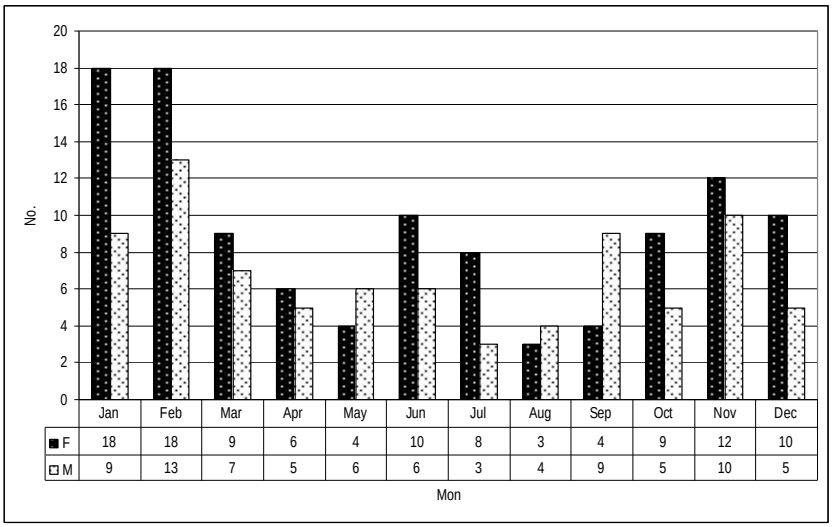
Rebook of appointment/Refill of medication

Patients who failed to attend their scheduled clinic appointments visit the Diabetes Centre for rebook of clinic appointments and an update of medication card.

Dental clarification

Patients requiring clarification of fitness for dental treatment are seen for a test of blood glucose and blood pressure and a note to notify fitness by the doctor or staff.

Figure 31: Screening for diabetes



Source: National Diabetes Centre, 2008

Of the total number of people who visited the Diabetes Centre, 4% came for screening for diabetes and of the total number of those who came for screening, 46% were confirmed to have diabetes type 2 according to the IDF and WHO Guideline for screening and diagnosis.

Table 15: Wound dressing and diabetic sepsis

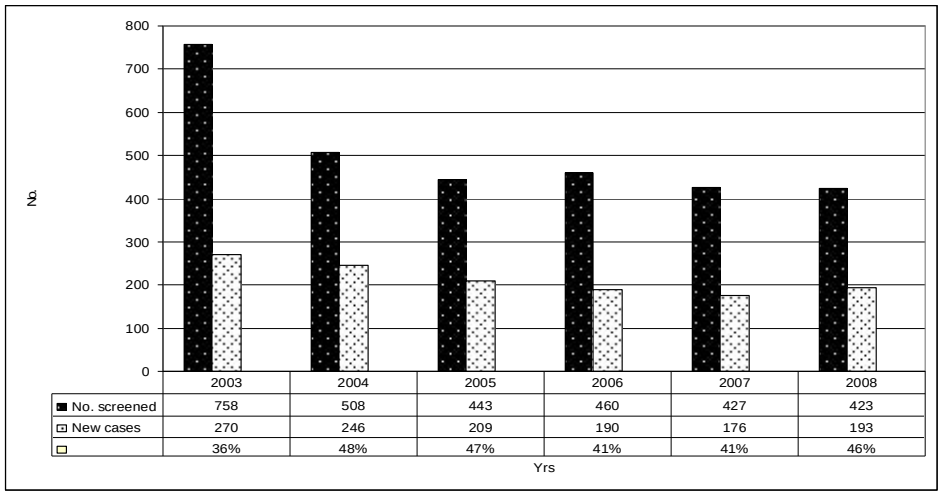
Month	No. of dressings	Admission from	Diabetic related admissions in Surg.Wd	Amputation		BKA progress to AKA
		NDC		BKA	AKA	
Jan	382	4	17	3	2	
Feb	250	4	8	3	1	1
Mar	285	3	9	0	0	
Apr	275	3	14	2	3	
May	226	1	13	0	3	
Jun	222	2	12	2	0	
Jul	297	0	3	0	0	
Aug	221	0	6	0	1	
Sep	309	7	16	0	0	
Oct	268	1	10	1	1	
Nov	305	6	12	2	1	
Dec	313	10	13	3	0	
TOTAL	3353	41	133	16	12	1

Source: National Diabetes Centre, 2008

Twenty eight patients underwent 29 amputations (one BKA converted to AKA in the same month). 17 of these patients were defaulters of the clinic, 2 were patients attending private clinics and 1 NZ resident who was visiting Tonga. The remaining 8 were patients followed up at either the National Diabetes centre or at one of the Health Centres. 2 of the defaulters consulted

a surgeon's private clinic and returned to the hospital when conditions became intolerable. A review of the theatre register in 2007 showed a total of 23 diabetic patients who had 25 major amputations

Figure 32: Screened Vs New Cases of Diabetes



	2003	2004	2005	2006	2007	2008
No. screened	758	508	443	460	427	423
New cases	270	246	209	190	176	193
	36%	48%	47%	41%	41%	46%

Source: National Diabetes Centre, 2008

The number of new cases does not reflect the growth of diabetes in Tonga as screening for diabetes is voluntary and largely depends on people presenting to the Diabetes Centre for screening.

Screening for GDM

A total of 332 women who were pregnant and were between week 24 – 28 gestation were referred from the Ante-natal clinic for screening for GDM. 22 (7%) of them were positive.

Community Outreach

Home visit is done quarterly where patients are seen at home due to immobility or difficulty of access to the Diabetes Centre or a Health centre.

Clinics to Health centres are also part of the community outreach. The 3 Health centres, namely, Tatakamotonga, Fua'amotu and Kolovai that are in the World Bank Project are seen every month while the remaining 4 are seen once a quarter.

Annual Duty visit to the outer island hospitals

The Diabetes and Eye clinic teams were able to visit and conduct clinic consultations as well as diabetic retinopathy check and laser treatment to patients in 'Eua, Vava'u and Ha'apai.

Table 16: Annual duty visit to the outer island hospitals

Date	Venue	Clinic consultation	HbA1c	D/Retinopathy check	Laser	Questionnaire (Default)
6/11/08 – 7/11/08	'Eua	83/200	24	55	0	10
26/11/08– 28/11/08	Vava'u	165/700	83	51	1	20

Date	Venue	Clinic consultation	HbA1c	D/Retinopathy check	Laser	Questionnaire (Default)
2/12/08 – 3/12/08	Ha'apai	106/350	31	57	0	2
	Total	354	138	163	1	32

Source: National Diabetes Centre, 2008

As part of the duty visit, patients who have not attended the clinic in these hospitals for more than 3 months were included in the Barrier to Access survey which attempts to identify reasons for patients defaulting clinic appointments.

8.1.8 Ophthalmology:

Ophthalmology is responsible for delivering eye care services for inpatients and outpatient patients.

Objectives	Selected Milestones
▪ To provide appropriately trained staff to carry out primary care education of the public.	**Completion of Post Graduate Diploma in Eye Care training by Meleane Eke and Mele Vuki.** ▪ Meleane Eke and Mele Vuki successfully completed the post graduate diploma in Eye Care at the Pacific Eye Institute, Fiji School of Medicine and graduated in December. The course was a seven month course for experienced nurses doing what normally would be a one year course. The completion of this course will be beneficial for the patients, the Ministry and its ability to provide better services and also just as importantly benefit the staff with their professional development. Financial assistance from Fred Hollows Foundation NZ and long time benefactor Hawaiian Eye Foundation enabled the nurses to attend the course.
▪ To provide adequately equipped facilities to ensure provision of quality eye care at all hospitals.	**Procurement of retinal camera** ▪ The WDF in December approved assistance to Tonga for a diabetes project. This included funding for the procurement of a non mydriatic digital retinal camera and accessories to the value of USD$60,000.00. An extra USD$ 4000.00 is earmarked for training in camera use. ▪ This assistance will bring to fruition a long term dream of the Eye Clinic. It will mean that patients waiting time will be markedly reduced as patients will generally not need pupillary dilation. It also means that staff will be able to carry out more work as time spent on seeing diabetic patients will be reduced. **Donations to the Section** ▪ A majority of the Unit's supplies tend to be donated. This includes consumables for surgery, glasses and medications. Over the year the donated supplies was in excess of TOP$50,000.00. We are grateful to SEE and VOSO who were responsible for a vast majority of the donations.
▪ To develop a system for the delivering of eye care services both centrally and also an outreach component.	**Continuation of the visiting teams.** ▪ As alluded to earlier, visiting teams and donations continued to be milestones for the Section. We had three teams visit during the year, two from the USA through the Surgical Eye Expeditions (SEE) and one from New Zealand through the Volunteer Ophthalmic Surgeons Overseas

Objectives	Selected Milestones
	(VOSO). ▪ A special milestone was the visit of the first ever Vitreoretinal team led by Dr. Buys from Oregon USA. They were able to operate on 10 patients, a potential saving of about TOP$ 200,000 had they been sent to New Zealand. ▪ We also had a visit from long time friend oculoplastics specialist and cataract surgeon Dr. Jeff Rutgard from California who has been to Tonga on numerous occasions before. ▪ We also had a visit from long time benefactors VOSO from New Zealand led by another long time friend medical retina specialist and cataract surgeon Dr Andrew Riley. On this trip we were able to provide services in Tongatapu, Vava'u and 'Eua. **Outreach** ▪ Two trips to Vava'u, one to Ha'apai and one to 'Eua were carried out during the year. Training of staff in the outer islands in Basic Eye Care is an important component in the long term sustainability of the Outreach programme.

8.1.9 Emergency and Outpatients:

Emergency and Outpatients is responsible for delivering health services for patients seeking emergency and outpatient care.

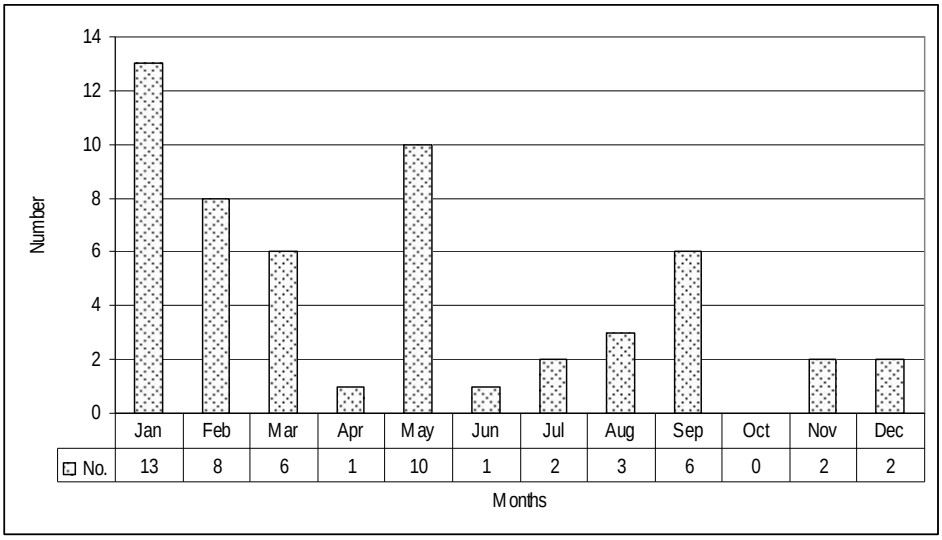
Objectives	Selected Milestones
▪ To improve and provide the best services possible with the available resources.	▪ Medical Officers and Health Officers from other departments assisted regularly to try and maintain the ideal situation of two officers for each AM and PM shift, and one officer for each night shift. ▪ The internship programme included the department as a regular 8-week attachment.
▪ To promote and enable continuing education for all staff members.	▪ Dr. Matamoana Tupou graduated with a Master in Medical Science (Community Emergency Medicine). ▪ Dr. Sione 'Akau'ola went for further studies in emergency care in Australia. ▪ A Primary Trauma Care course was conducted, including an instructor's course for local instructors. Several of the staff were able to attend.
▪ To achieve and maintain high-quality working relationships within the department.	▪ An Airport Disaster Exercise was conducted and included the department for the emergency response, triage and patient throughput to other wards.
▪ To achieve and maintain high-quality working relationships with other hospital departments.	▪ An informal survey was conducted regarding waiting times in the Vaiola Hospital Emergency and General Outpatients using the current triage system. This followed after many patients complained about waiting too long to be seen. There were 167 medical records taken from a random day in April before being returned to the records. They showed that in general, patients are seen within the ideal waiting times according to their allocated triage score, but that category 1 and 2 patients were seen beyond the recommended waiting time. However, the total numbers were small and warrant a larger audit.

Statistical Information:

Pre-hospital Emergency Ambulance Services

This service is provided for those cases requesting emergency assistance from home, and occasionally for sick people who are unable to walk and cannot be carried, or cannot find alternative transportation. A programme to acquire and maintain dedicated ambulance drivers trained in first-aid measures is still being looked into. Currently the drivers are shared with other departments for all Ministerial transportation needs. This sometimes causes undue delays in reaching emergency sites.

Figure 33: Pre-hospital emergency ambulance services

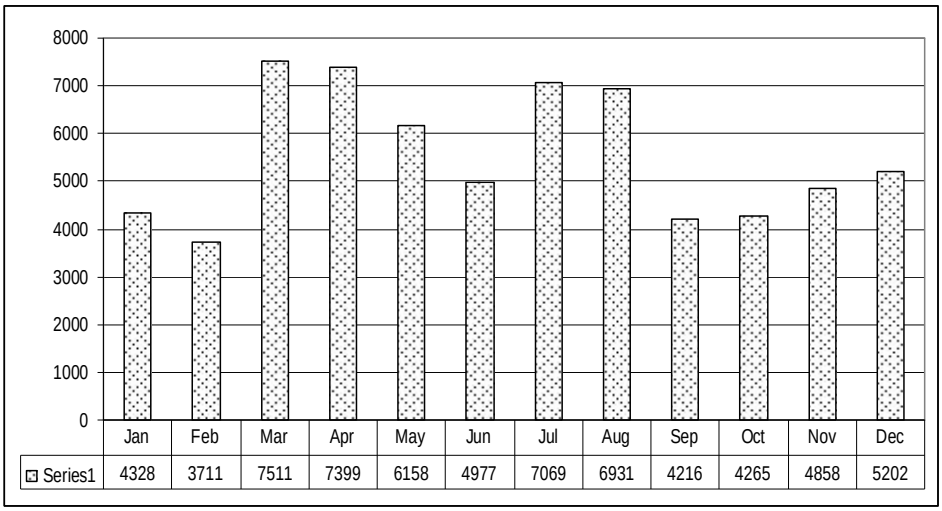


Source**:** Emergency and Outpatient Registration

In-hospital Emergency and Out-patient Services

Patients are initially seen at the front triage room window. An abbreviated history and personal details are obtained. Any patient with a triage score of 4 or 5 (non-urgent cases) are asked to get their charts from the records. Patient with triage score of 2 and 3 may be either transferred directly to the emergency room, or to the observation bed.

Figure 34: Consultation by month for 2008



Source: Emergency and Outpatient Registration

Emergency cases (triage score of 1) are taken immediately to the Emergency Room (ER), or transferred there if arriving by the non-emergency entrance. Some cases initially brought to the emergency room may be transferred to the other observation/consultation room if found to be triage 4 and 5. The Australian Triage is currently used as follows:

Table 17: Australian Triage Score

Category	Waiting Time
1	None
2	10 minutes
3	30 minutes
4	1 hour
5	2 hours

Table 18: Emergency Room Statistics by Month for 2008

Months	Admission	DOA	Deaths in ER	Sent Home	Others	Total
Jan	73	4	2	10	0	89
Feb	62	3	0	9	4	78
Mar	66	7	2	13	1	89
Apr	72	7	0	17	1	97
May	64	6	0	15	0	85
Jun	63	2	2	11	0	78
Jul	62	11	1	10	1	85
Aug	80	4	0	18	1	103
Sep	72	2	2	9	0	85
Oct	45	7	0	22	1	75
Nov	53	9	3	16	1	82
Dec	40	5	1	7	1	54

Months	Admission	DOA	Deaths in ER	Sent Home	Others	Total
Total	752	67	13	157	11	1000

Source: Emergency and Outpatient Registration

About 75.2% of all ER cases were admitted, 15.7% were sent home, and 6.7% died on arrival or Emergency deaths. Of the total admissions from Emergency Room, 43.6% went to the medical ward, 28.7% went to the surgical ward, 24.3% went to the paediatric ward, 2.4% went to the obstetric ward, 0.9% (7 patients) went to the ICU, and 0.1% (1 patient) went to the psychiatric ward.

From a total of 192 ER trauma cases (19. 2% of all ER cases), 138 were admitted, 20 were recorded as deaths (25% of all DOA/ER deaths combined), and 34 were sent home. This equates with 71.9% admissions, 10.4% deaths and 17.7% sent home. These numbers exclude other trauma cases seen in the regular consultation rooms.

The other function of the department is to cater for general outpatient consultations. An informal audit conducted between the 18th to the 31st of December to determine the number of patients sent per clinician and the average consultation times revealed the following.

On the AM and PM shifts, the average number of consultations per clinician was 75 per shift, but ranged from 45 to 109 consultations per clinician per shift. The average consultation time per patient during AM and PM shift is 5.97 minutes. This is below recommended adequate consultation times. During the peak hours, consultations may be as short as two minutes in duration. An emergency case may take up to two hours depending on the severity and staff numbers available. This leaves less time for other consultations.

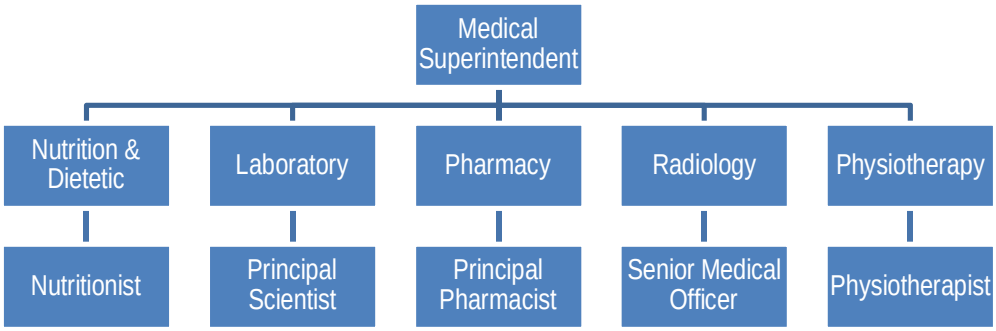
Table 19: Emergency Room (ER) trauma statistics for 2008

Months	MVA	Assult	Gunshot	Falls	*Others	Admissions	Total
Jan	3	1	1	0	8	11	24
Feb	6	2	0	0	5	11	24
Mar	9	1	0	2	1	8	21
Apr	6	2	2	0	8	12	30
May	9	2	1	0	10	15	37
Jun	4	2	0	1	7	11	25
Jul	6	5	0	1	8	15	35
Aug	12	2	0	1	12	17	44
Sep	0	3	0	4	6	12	25
Oct	14	3	0	1	2	14	34
Nov	6	0	0	0	4	6	16
Dec	7	1	0	0	1	6	15
Total	82	24	4	10	72	138	330

* Include trauma from sports, work, electric shock, suicide, wounds and spinal/head injuries with unspecified causation.

Source: Emergency and Outpatient Registration

8.2 CLINICAL SUPPORT SERVICES



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Nutrition & Dietetic	Ms. Soana Muimuiheata	1	1,400
Laboratory	Mrs. Ane Ika	28	46,100
Pharmacy	Mrs. Melenaite Mahe	26	1,552,114
Radiology	Dr. 'Ana 'Akau'ola	6	45,500
Physiotherapy	Sione Po'uliva'ati	0	0
Total staff and financial resources	5	61	$ 1,645,114

8.2.1 Nutrition and Dietetic Unit:

Nutrition and Dietetic is responsible for providing health services for all inpatients and outpatients patients with diet related problems.

Objectives	Selected Milestones
▪ To develop and implement integrated strategies to improve dietary intake of each patient in the hospital according to each clinical condition.	**Nutrition Values of each Diet Applied.** ▪ Diets provided in the hospital are the right meal portion to each patient according to their clinical dietary intake. These diets are calculated based on SPC's RDI. The table below shows the RDI and average daily nutrient facts of all diets provided in our catering services.

	▪ RDI	▪ Normal Diets	▪ Special Diets
▪ Energy	▪ 2550kcal	▪ 1600kcal	▪ 1200kcal
▪ Protein	▪ 55g	▪ 55g	▪ 50g
▪ Fat	▪ 20-25%	▪ 20%	▪ 15%
▪ Carbohydrate	▪ 55-60%	▪ 55%	▪ 50%
▪ Cholesterol	▪ 300g	▪ 160g	▪ 140g

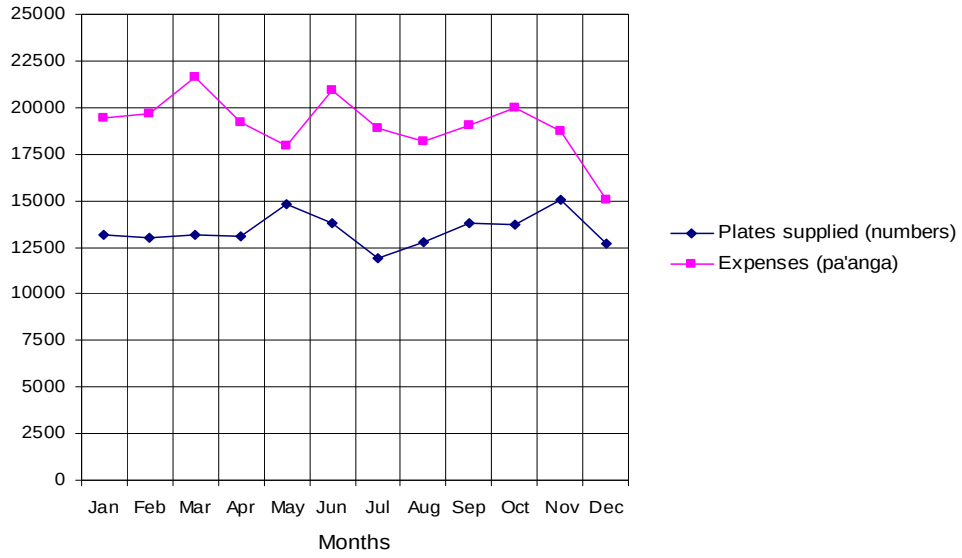
<table>
<tr><th>Objectives</th><th>Selected Milestones</th></tr>
<tr><td></td><td>
<table>
<tr><td>▪ Iron</td><td>▪ 12mg</td><td>▪ 13mg</td><td>▪ 10mg</td></tr>
<tr><td>▪ Dietary Fiber</td><td>▪ 30g</td><td>▪ 21g</td><td>▪ 16g</td></tr>
<tr><td>▪ Vitamin C</td><td>▪ 30g</td><td>▪ 200g</td><td>▪ 150g</td></tr>
<tr><td>▪ Calcium</td><td>▪ 300mg</td><td>▪ 400g</td><td>▪ 250g</td></tr>
<tr><td>▪ Sodium</td><td>▪ 2300mg</td><td>▪ 1075mg</td><td>▪ 744mg</td></tr>
</table>
▪ Nutrient values of normal and special diets provided in our catering services are very low in compared with the Recommended Dietary Intake (RDI). This is because of the budget given is very low. In addition, inpatients are not allowed to eat from any foods except the foods provided from our catering services. However, foods from outside are still secretly taken to the patients. Therefore, diets with lower nutrition values in compared to RDI are advisable.
▪ Normal Diets are similar to everyone. Special diets are different depend on different clinical condition of each patients.
</td></tr>
<tr><td>▪ To improve patients awareness of risk factors and disease complications, and to be able to manage their diet accordingly.</td><td>
Nutrition Education Intervention proposed for 2009.
▪ Nutrition survey among inpatients in the beginning of 2008 as an original data for designing of this intervention.
▪ Intervention will focus on improving dietary knowledge on diet and its related diseases.
▪ NCD complications in relation to poor diet management.
▪ Daily Meal Management including budgeting.
▪ Right Food Choices for better health.
▪ Healthy Food Combinations.
Food Preparation Skills.
▪ Providing nutrition education materials: “Ma’alahi Breakfast” was one of nutrition education materials which will be used as a handy guidebook in managing a healthy simple breakfast for each patient when they are discharged. This book designed for mothers of primary school children under the Ma’alahi project. However, will be reviewed and re-published to be used as one of education materials in this proposed intervention for Yr 2009.
</td></tr>
<tr><td>▪ To upgrade the standard of our catering service.</td><td>
Disease Infection Control Procedures
▪ Implemented regular medical health checkup for all staff following the health inspection procedures and policy.
▪ Neat completed uniform must wear during food preparation. This includes black cap, white shirt, white long pant, mouth mask, glove pair, apron, and safety shoe.
</td></tr>
</table>

Objectives	Selected Milestones
	 **Purchase Ordering System** ▪ Imported goods from shops are monthly basis and it delivered by the supplier to the hospital kitchen every 1st week of the month. Eggs also in monthly ordered basis but the weekly needed quantity are delivered every Mondays. This is to provide fresh eggs in our food preparation. ▪ Meat, fish and food crops are weekly ordered basis. ▪ Fruit and vegetables are delivered by each fixed suppliers to our catering services twice a week, which is Monday and Thursday before 11:00AM. ▪ All foodstuffs delivered to our catering service are checked by Nutritionist for quality of each products and Procurement officer for completion of order and price control, and with the company of the catering supervisor for further discussion. This has to be competed at 11:00AM every Mondays and Thursdays. **Data/ Statistics & Information** ▪ Implemented catering weekly meeting with nutritionist, followed with a weekly report to both nutritionist and hospital administrator. ▪ Catering Staff Performance ▪ Budget was well managed this year than last year. ▪ 2 daily paid Assistant cook became established Assistant Cook Staff. ▪ Catering Supervisor was established and she is in charge of operating the catering services. ▪ Improvement appeared from the catering staffs performance like their food preparation skills, standard of cleanliness in the kitchen etc.
▪ To upgrade the standard of technical equipment in our service to reduce high numbers of human work needs and make work faster.	▪ Two new dishwashing machines waiting at the kitchen for installation.

Statistical Information:

Figure 35: Expenses and plates supplies by catering services, 2008

Figure1: Expenses and plates supplied by catering service, 2008



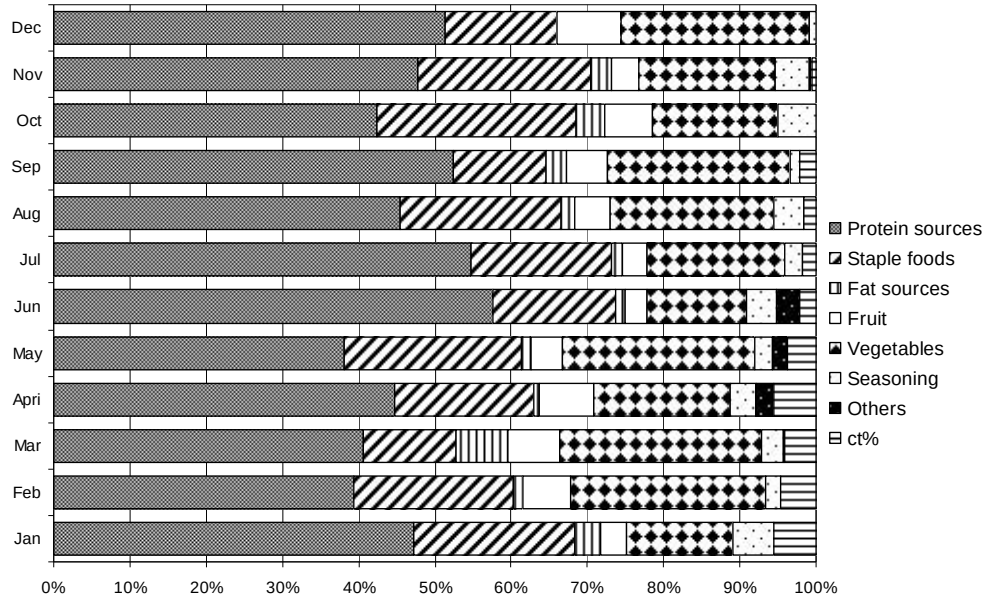
Source: Catering Service Register, Ministry of Health.

This data reveals the number of plates supplied by catering services and those expenses from January until December 2008. There were high spending in March and June as compared with numbers of plates supplied during these two months. In May, the spending dropped while the number of plates supplied increased. These happened because the budget was not enough to cover completely until the end of financial year 2007/08. Therefore, the catering orders were not constant as it should be. In March and June extra fund available and the payment were mainly on these two months to clear the previous debts. Some of the payment for food order in May was completed in June, and food gift offered by Rev. Taliai Niumeitolu to the catering service also one of the factors contribute to the drop in expenses in May.

This data reveals the monthly expenses on each food sources ordered to catering services in 2008. Protein food sources were the most expensive food kinds in every month. These include meat, (such as chicken, chuck beef, sausage, corned beef, and pork,) milk and milk products (cheese), egg and fish (tin fish). The prices for these food items were highly fluctuated throughout the year. The spending on staple foods were not that much because of its low price, and some foods present to the catering service as gift for the patients' diets. Spending on vegetable was high as well because of the high quantity needed in preparing diets for the patients.

Figure 36: Expenses on various food sources, catering services, 2008

Figure 2: Expenses on various food sources, catering service, 2008



Source: Catering Service Register, Ministry of Health.

Table 20: Different types of diets supplied for patients admitted in 2008.

Months	Types of Diets Requested for Patients						
	Normal	Special	Soft	Fluid	Light	High Protein	High Energy
Jan	10482	1253	28	5	90	0	0
Feb	10237	1239	69	18	90	0	0
Mar	10390	1185	72	15	93	0	0
Apr	10162	1387	48	25	90	0	0
May	10582	1448	112	20	93	20	0
Jun	9822	1432	48	19	87	18	0
Jul	9956	1196	2	27	0	0	0
Aug	10231	879	41	5	9	10	7
Sep	10533	1158	19	2	0	0	0
Oct	10820	1451	31	27	18	0	0
Nov	10511	1447	67	46	2	0	0
Dec	9270	1206	23	18	3	0	0

Source: Catering Service Register, Ministry of Health.

The table above reveals the actual number of all different diets supplied by the catering service for all patients admitted from January until December, 2008. All these different diets were well planned and prepared according to each patient's clinical condition. Normal Diets supplied for those patients with no diet related problems. These diets provided on average energy of 1600kcal/day, which is advisable. Special Diets supplied for those patients with diabetic, high blood pressure, heart failure etc. These diets provided on average energy of 1400kcal/day. The nutrients value of these diets varies for each patient according

to their various clinical dietary intakes. Soft Diets are diets for elderly and toddlers. Light and Fluid Diets supplied for those with abdominal surgery and some cases with difficulties in chewing. High energy and High protein are commonly supplied for those reported as malnourished. Failure to thrive is usually related to some other medical problem and children usually due to poor feeding practices or early weaning.

8.2.2 Laboratory:

Laboratory is responsible for providing laboratory services for Vaiola Hospital and the entire nation.

Objectives	Selected Milestones
▪ To ensure all staff follow the procedures in the laboratory quality system.	▪ The introduction of daily worksheets which shows the actual work done and, therefore, give a more accurate estimate of expenses. Daily worksheets also strengthen staff accountability and make it easier to identify any problems affecting quality of results produced. ▪ This is an ongoing sub-section to review existing worksheets or design new ones.
▪ To conduct regular reviews of the laboratory quality system.	▪ Most standard operating procedures (SOPs) were reviewed. There was no internal and external audit carry out due to financial constraint.
▪ To strengthen the quality of laboratory service in outlying islands.	▪ Haemoglobinometers were introduced in Niu'ui and Niu'eiki hospital laboratories, which produced more accurate Hb results within a very short time. ▪ Some old equipment (microscopes and spectrophotometers) were replaced with spare equipment from the main lab in Vaiola Hospital. ▪ Improvement in shipping specimens to Vaiola. Outlying laboratories were issued with internationally approved IATA packages for shipping specimens. However, most are still transported through the goodwill of passengers. More practical ways are being looked into.
▪ To provide staff with opportunity for self-development.	▪ At least 8 of the junior staff that joined the POLHN courses completed all 5 modules and will be awarded certificates from the Pacific Paramedical Training Centre (PPTC), NZ. Two lab-technicians (F. Tomu and F. Timani) attended short-term training courses (Blood cell Morpohology, Blood Bank Technology) at PPTC, NZ. ▪ Staff also attended local workshops held throughout the year: ▪ HIV/AID/STI (V. Pakalani, F. Vaka'uta, T. 'Apikotoa, S. Iketau) ▪ Avain Influenza and Infection Control (L. Soakai, L. Lenati, S. Lenati, V. Kalavi, A. Ika) ▪ TB Training in outlying islands laboratories by M. Fakahau ▪ Environment (S. Finau)
▪ To ensure sufficient stock is available for uninterrupted delivery of key tasks.	▪ Extra funds requested from the Ministry in 2007/08 ensured there was sufficient supply of key reagents from Jan-Jun 08. ▪ Japanese Government and Global Funds provided supplies with estimate cost of TOP65, 377.96 and TOP16, 970.92 respectively. ▪ Reagents worth TOP17,629.92 were purchased with extra funds assigned by the Ministry for the Operation Open Heart Tonga in October 2008.

Objectives	Selected Milestones
	▪ Reagents and supplies for key tests were available to the end of the year. Unfortunately, the interruption to delivery of key tests came from the breakdown of the 2 chemistry analyzers.

Statistical Information

Specimens received increased by 14%

The total number of specimens received by all laboratories was 57468, an increase of 14% from the previous year. On average the lab in Vaiola received 146 specimens a day (51 per day for Haematology, 36 per day for Blood Transfusion, 42 per day for Biochemistry, 15 per day for Microbiology, and 2 per day for Histology). On the same token, Vava'u received 8 per day, Ha'apai 2 per day and 'Eua is less than 1 per day.

Table 21: Number of specimens received by each laboratory in 2008

Unit	Total Specimens	%	Vaiola	Ngu	Niu'ui	Niu'eiki
Haematology	20776	36.15%	18443	1418	599	316
Blood Transfusion	13897	24.18%	13293	426	146	32
Biochemistry	16285	28.34%	15382	903	0	0
Microbiology & TB	5859	10.20%	5523	250	86	0
Histology & Cytology	651	1.13%	651	0	0	0
Medical Legal	0	0.00%	0	0	0	0
Total	57468	100.00%	53292	2997	831	348

Source**:** Laboratory Registration

Increased Workload

A Total of 247,012 tests were performed by all units in 2008, an increase of 11.7% from the previous year. Approximately 78% of the tests were on blood specimens and 61% of these were carried out in Haematology. The number of tests done in Biochemistry (Vaiola) decreased by 11.7% due to the breakdown of the two echo analyzers around late October – December 2008.

Table 22: Distribution of tests performed by Unit and Hospitals

Unit	Total Laboratory Test	%	Vaiola	Ngu	Niu'ui	Niu'eiki
Haematology	148427	60.01%	138817	6622	2672	316
Blood Transfusion	42214	17.07%	37657	1840	1210	1507
Biochemistry	41990	16.98%	38717	3130	0	143
Microbiology & TB	14061	5.69%	12294	1349	418	0
Histology & Cytology	636	0.26%	636	0	0	0
Medical Legal	0	0.00%	0	0	0	0
Total	247328	100.00%	228121	12941	4300	1966

Source: Laboratory Registration

Dengue Outbreak

The Dengue Outbreak which appeared in 2007 continued into 2008. Of 451 patients tested 236 (52%) were positive by the PanBlo IgG/IgM screening tests.

Routine screening of antenatal patients for syphilis, which started in late 2007 continued throughout the year due the provision of RPR tests kits from Global Funds. There was an increase in RPR tests compared to 2007.

A 19% increase in donors bled was mostly driven by the Operation Open Heart Tonga and the resurgence of the dengue outbreak.

Table 23:Serological Tests performed, 2008

Type of test	All Hospitals	%	Vaiola	Ngu	Niu'ui	Niu'eiki
BLD/Donors Bled	2390		1808	483	86	13
Number used	1662	69.54%	1480	97	75	10
Number in Bank	0	0.00%	0	0	0	0
Number Discarged	23	0.96%	11	8	2	2
Number tested	1310	78.82%	1088	147	59	16
Number positive	152	9.15%	129	12	8	3
HIV (PA)						
Number tested	5044		4809	115	108	12
Number positive	28	0.56%	28	0	0	0
HBsAg(RPHA)						
Number tested	4207		3965	115	114	13
Number positive	143	3.40%	122	11	8	2
RPR						
Number tested	5626		5427	115	72	12
Number positive	20	0.36%	20	0	0	0
Dengue						
Number tested	451		408	36	7	0
Number positive	236	52.33%	235	0	1	0
Visa						
Number tested	1435		1435	0	0	0
Number positive	66	4.60%	66	0	0	0
Employment						
Number tested	369		369	0	0	0
Number positive	11	2.98%	11	0	0	0
ANC Screening						
Number tested	2190		2005	105	80	0
Number positive	56	2.56%	48	8	0	0
STI Cases						
Number tested	86		84	1	1	0
Number positive	1	1.16%	1	0	0	0
Patients						
Number tested	694		516	15	163	0
Number positive	54	7.78%	51	3	0	0
Routine Checks						
Number tested	60		21	36	3	0
Number positive	21	35.00%	4	17	0	0
Other						
Number tested	112		69	43	0	0
Number positive	16	14.29%	15	1	0	0

Source: Laboratory Registration

Major Pathogens Isolated per Month, Vaiola Hospital Laboratory, 2008

There is a decrease in number of N. Gonorrhoeae isolated (from 55 in 2007 to 20 in 2008). It is suspected that this is a positive effect of better management/control of STI's.

With the introduction of the Chlamydia/gonococci nucleic acid amplification tests, in October, an increased positive yield is expected. In fact, of the 39 test done since its implementation, 19 were positive for Chlamydia and 12 for gonococci. These tests use either urine or genital swabs.

Table 24:Monthly Laboratory Statistics (Major Pathogens), Vaiola Hospital, 2008

Pathogens	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Salmonella Typhi	1	1	0	0	0	0	1	0	0	3	0	0	6
Others	0	0		0	1	0	0	0	0	0	0	0	1
Shigella	0	1	2	0	0	0	0	4		3	0	0	10
E. Coli	12	13	13	16	12	10	16	17	13	4	11	16	153
Klebsiella	0	5	4	2	6	0	2	4	1	0	7	3	34
Proteus	6	12	10	3	12	10	7	6	12	12	4	6	100
Pseudomonas	3	7	5	7	13	3	8	4	1	6	6	0	63
Staph Aureus	13	22	15	15	8	4	5	7	5	13	16	6	129
MRSA	0	0	1	1	0	1	2	0	1	1	1	0	8
Pneumococcus	1	1	1	1	0	1	0	0	1	1	0	0	7
Haemophylus	3	0	1	0	3	1	0	0	0	0	0	1	9
Strept GRP A	4	0	0	0	0	1	2	0	0	2	3	0	12
N. Gonorrhoea	2	3	0	1	0	1	1	0	0	5	5	2	20
N. Meningitidis	2	0	0	0	0	0	0	0	0	0	0	0	2
M.T.B	0	3	0	6	4	4	3	2	0	0	0	0	22
Others	72	60	64	40	41	62	45	38	32	17	22	26	519
Total	119	128	116	92	100	98	92	82	66	67	75	60	1095

Source**:** Laboratory Registration

8.2.3 Pharmacy:

Pharmacy is responsible for providing pharmaceutical services for Vaiola Hospital and the entire nation.

Objectives	Selected Milestones
▪ To ensure availability of drugs and medical supplies at all times in the hospitals.	▪ Most of the time the 90% availability target was achieved.
▪ To improve inventory control.	▪ There has been a reduction of wastage through use of mSupply.
▪ To improve distribution of drugs and medical supplies.	▪ Better communications and mobilization of low stock items from outer-islands to Vaiola.
▪ To plan expand the PIMS to Niu'ui and Niu'eiki Hospital Pharmacy.	▪ Niu'eiki hospital has received the hardware and should start soon once the software is reloaded again. ▪ Niu'ui is to receive their hardware once the IT staff are available for

Objectives	Selected Milestones
	installation and training.
▪ To implement the relevant Acts.	▪ Crown Laws expects to have the Regulations approved in the coming year.

Statistical Information

The Central Pharmacy and Medical Supplies (CPMS) is divided into five different units. The Administration Unit, Manufacturing Unit, Procurement /Drug Registration Unit, Stores and Distribution Unit, and Dispensing Unit.

Administration

The Principal Pharmacist supervises the Administration Unit which deals with human resource issues as well as taking care of the financial matters relating to the Pharmaceutical Section. Mrs. Silia Muna updates our vote book manually and reconcile with the accounts at Vaiola. She also process vouchers for payment of all expenditures related to our votes and advises all leave for this section.

Manufacturing Unit

Manufacturing Unit is organized and run by the Assistant Pharmacist Grade I Mr. Sakea Fusitu'a. Other staff assisting him are Store Assistant Mr. Samuela Fifita and Assistant Pharmacist Grade II Mr. Siakumi Tu'iniua.

The list of oral preparations currently prepared locally includes the followings:

Paracetamol 120mg/5ml elixir for children
Promethazine 5mg/ml elixir for children
Magnesium Trisilicate Mixture
Ammonia and Ipecacuanha Mixture
Pholcodine Linctus Adult 5mg/5ml
Pholcodine Linctus Infant 2.5mg 5cc

Summary of production output for Manufacturing Unit 2008

Item 4, 5 and 6 were discontinued during the year due to unavailability of raw materials which can no longer be imported. Item 2 have been ordered as ready made preparations for the same reason.

Order products prepared here include dermatological preparations such as hydrocortisone creams, compound benzoic acid ointment and paint, calamine lotion, liniment and various preparations for antiseptics and disinfectants.

Extemporaneous preparations are freshly prepared items for individual patient use particularly Paediatric Patients.

Table 25: Production for Oral Preparation, Dermatological and Extemporaneous Preparation, 2008

Production	Number of Batch	Volume Total	Cost
Oral preparations	201	9933 L	$69866.31
Dermatological preparations	151	1752 L	$14127.71
Extemporaneous preparations	161	28.976 L	$433.29
Total	514	117713.976 L 172 kg	$84,427.31

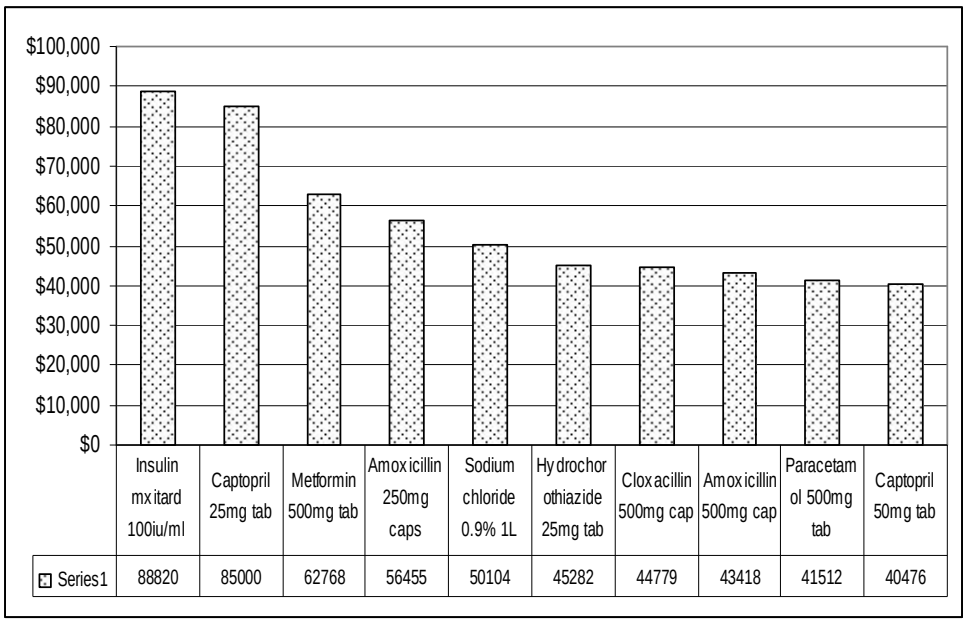
Source**:** Pharmacy Registration

Store and Distribution Unit

Staff of this unit are responsible for receiving all incoming goods, check, record, store and distribute upon receipt of requisitions from each requisitioning stations throughout Tonga. They serve 4 hospitals, 14 health centres, 34 Reproductive Health Clinics, and some village health workers throughout Tonga.

The total value of goods issued from CPMS as TOP$2129910.00 and this included medical drugs and supplies.

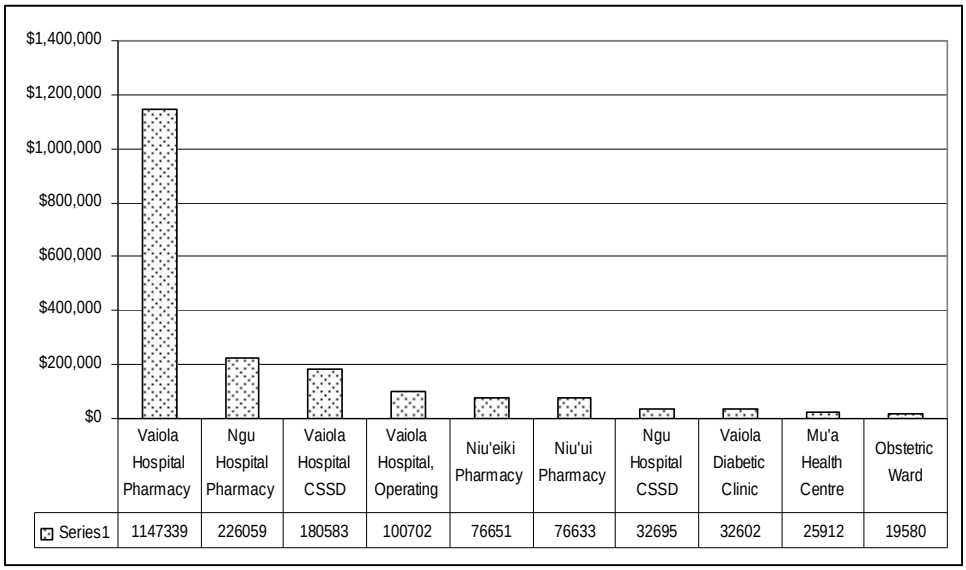
Figure 37: Cost of ten commonest drugs utilized, 2008



Source**:** Pharmacy Registration

It should be noted that the above figures represent the direct supply of medical drugs and supplies from CPMS, but some wards still order and receive their needs through Vaiola CSSD. Through team work, this unit managed to serve their clients in a more structured time (timetable). This idea encouraged weekly planning of requisition which works for most of the clients including health centres.

Figure 38: Cost of ten commonest clients, 2008



Source**:** Pharmacy Registration

Procurement/Registration Unit

The Procurement and Registration have been combined together to ensure that Products brought into the country by the CPMS are registered. This is to comply with the law. In the later part of 2008, Mr. Siutaka Siua was relocated to CPMS to oversee the procurement and assisted by Procurement Officer Ms. Mele Finefeuiaki.

Drugs and Medical Supplies are procured from all over the world. A tender is put out each year for the majority of our requirements and the small items are procured direct from suppliers. Procurement is based on the approved Essential Drug List and Standard Supply List of the Ministry of Health.

Vaiola Hospital Pharmacy

Mr. Siutaka Siua is the officer in charge of Vaiola Hospital Pharmacy with 10 supporting staff. The main function of this Unit is to provide in-patient and outpatient pharmacy care which include replenishing ward stock, providing drug information for patients and other health workers, counseling and working closely with patients to ensure correct usage of their medication.

The Pharmacy now has an Inpatient Pharmacy and an Outpatient Pharmacy. This separation is to ensure that both inpatient and outpatient have the same quality care. The outpatient also opens from 8.30am till 4.30pm during weekdays and from 8.30am to 12.30pm and 4:00pm to 12 midnight during the weekends and public holidays. There is one outpatient pharmacy for the outpatient clinic as well as normal consultation.

The pharmacy staff also participates in monthly visits to Mu'a and Kolovai Health Centres together with the clinicians to replenish patient's medication, which are not available at the centres.

Table 26: Prescription Record for Vaiola Pharmacy Outpatient for normal shift only

Mon	AM Shift		Clinic		PM Shift	
	Presc.	Item	Presc.	Item	Presc.	Item
Jan	8499	15176			2301	3324

Mon	AM Shift		Clinic		PM Shift	
	Presc.	Item	Presc.	Item	Presc.	Item
Feb	6124	11087			2912	3109
Mar	11529	17528			6194	9656
Apr	10397	18858	1890	5379	6877	11411
May	8849	16231	2429	6829	4646	7781
Jun	5489	9686	2314	6410	2270	4037
Jul	6061	14239	2838	7682	4095	7145
Aug	10991	13178	2303	6435	4246	7772
Sep	5660	9909	2636	7254	2813	5144
Oct	10205	19090	2385	6299	5328	8929
Nov	5387	8633	2388	6328	3227	4952
Dec	5937	10449	2429	6674	3946	6243

Source**:** Pharmacy Registration

The average item per prescription for the clinic patients is 2.7 while it is 1.7 for daily consultation. The overall item per prescription is 1.8. It should be noted that about 30% use the after hour consultation and about 70% at the normal working hours (13% for clinic patients and 57% for normal consultation).

Prince Ngu Pharmacy

In 2008, there were only two Assistant Pharmacists Grade II, Ma'u Tu'ineau and Polonitina Tai who worked at the Prince Ngu Pharmacy. Their working hours are 8.30 to 4.30 and 6.00pm to 10pm from Monday to Friday. During the weekends and public holidays they are on call during the morning and open only from 6.00 to 10.00pm in the evening.

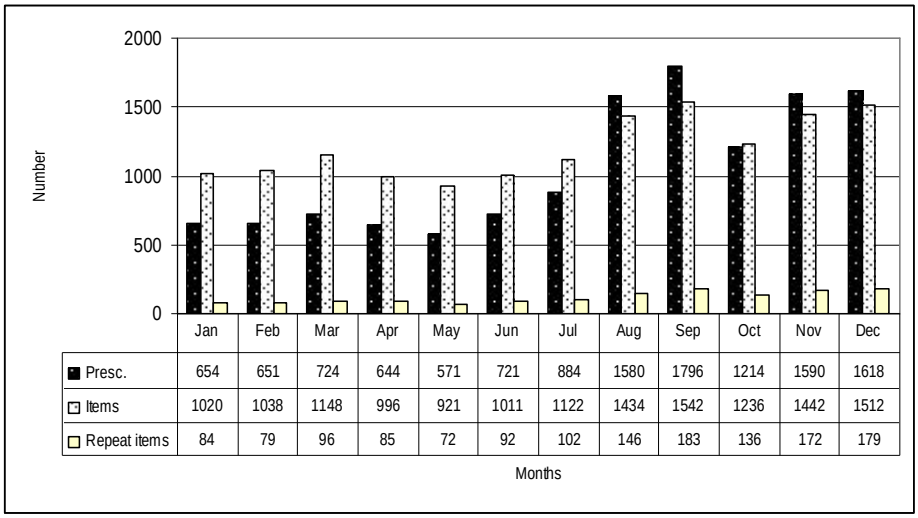
The officers are also involved in the visits to the health centres and clinics like Ta'anea, Leimatu'a, Pangaimotu and Longomapu and home visits.

Niu'ui Hospital Pharmacy

Ms. Neini Tulikaki is the Assistant Pharmacist working at Niu'ui Hospital Pharmacy.

The increase in number of consultation in the second half of the year was driven by having two medical officers and two Medical Students working in Niu'ui.

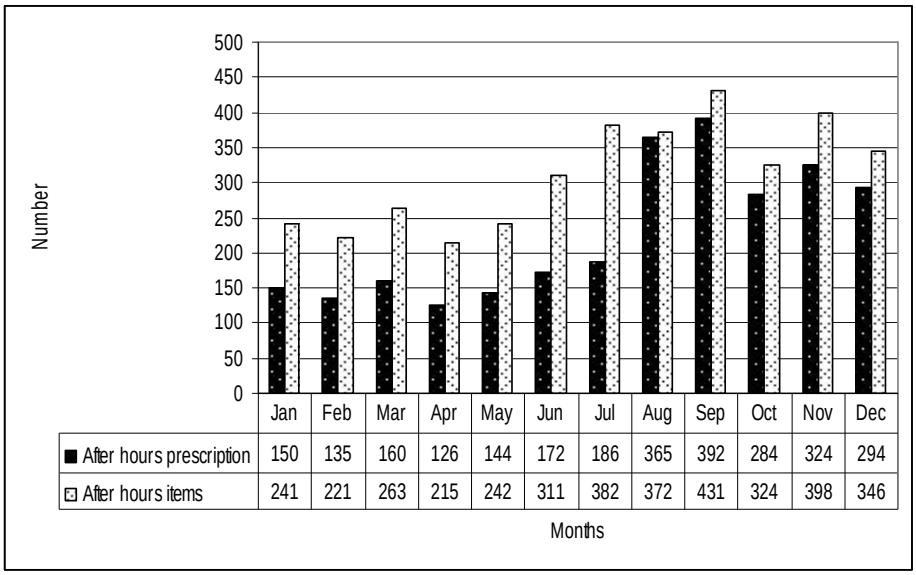
Figure 39: Prescription Record for Niu'ui Hospital Pharmacy, 2008



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Presc.	654	651	724	644	571	721	884	1580	1796	1214	1590	1618
Items	1020	1038	1148	996	921	1011	1122	1434	1542	1236	1442	1512
Repeat items	84	79	96	85	72	92	102	146	183	136	172	179

Source**:** Pharmacy Registration

Figure 40: Monthly registration of after hour items and prescription, Niu'ui Hospital 2008



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
After hours prescription	150	135	160	126	144	172	186	365	392	284	324	294
After hours items	241	221	263	215	242	311	382	372	431	324	398	346

Source**:** Pharmacy Registration

There were 305 diabetic and 46 patients who regularly attended and received health services from Niu'ui Hospital. The volume of the above workloads suggested considering one more pharmacy staff to serve Niu'ui Hospital and the Ha'apai Island Groups.

Niu'eiki Hospital Pharmacy

One Assistant Pharmacist Grade II Mr. 'Eneasi Palanite runs Niu'eiki Pharmacy. This officer was promoted in August to fill the Assistant Pharmacist Grade 1 post vacant when Mr. Tanginoa Fonua passed away. The Principal Pharmacist visited in December 2008 to install and implement mSupply.

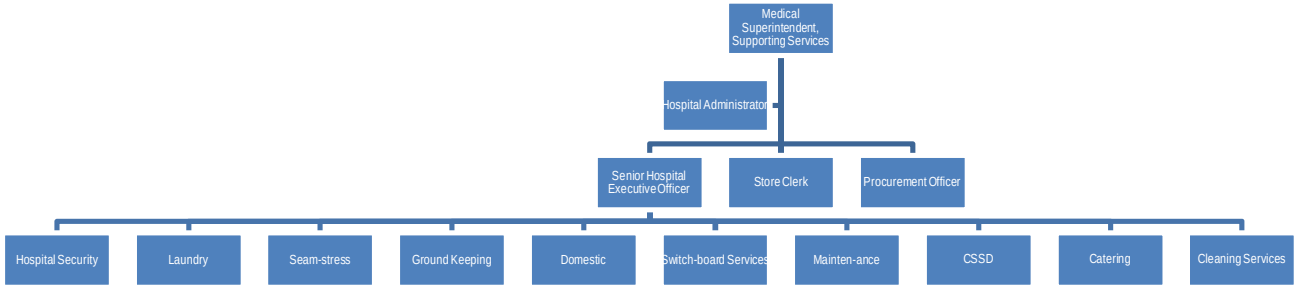
The officer works from Monday to Friday 8.30am till 4.30pm. On other days he is on call. When the officer is sick or has casual leave, a nurse fills in for him as he is the only pharmacy officer.

8.2.4 Physiotherapy:

Physiotherapy is responsible for providing appropriate physiotherapeutic treatment for both inpatients and outpatients patients.

Objectives	Selected Milestones
▪ Maintain current level of service to both hospital inpatient and outpatient.	▪ Spinal Team from Auckland, New Zealand visited Tonga with an aim to establish a rehabilitation Unit in Vaiola Hospital. ▪ Aussie team Mr. Andrew Leicester with clubfoot team visited in October and donated POP saw to support the Ponseti technique in Tonga. ▪ Secured funds from the German Embassy for equipments for 2009.
▪ Make services available to sporting teams upon request, as a representative of vaiola hospital.	▪ Designated physiotherapist: ▪ Two rugby teams for Pacific rugby tournament and the Olympic Team Tonga to Beijing, China. ▪ South Pacific Game 2007 in Samoa ▪ Local sporting tournament

8.3 NON-CLINICAL SUPPORT SERVICES



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Hospital Administration	Salote Puloka	2	36,000
Hospital Security	Contracted out	1	50,000
Laundry	Funaki Vea	13	5,000
Catering	'Ana 'Akau'ola	13	210,000
Seamstress	Fusi Lavaki	0	500
Grounds keeping	Contracted out	3	10,000
Domestic	'Ailine Foster	9	36,000
Switchboard Services	Luseane Polota	4	0
Maintenance	Feleti Eke	13	632,167
CSSD	Petulisa Tu'itupou	4	2000
Cleaning Services	Contracted Out	1	90,000
Total staff and financial resources	7	63	$ 1,071,667.00

8.3.1 Non Clinical Support Services (NCSS):

Non Clinical Support Services is responsible for delivering Maintenance, Domestic, Catering, Laundry, Seamstress, Grounds Keeping, Central Sterile Supply and Switchboard Operation services for Vaiola Hospital.

Objectives	Selected Milestones
▪ To Manage the overall operation of the non clinical support services of Vaiola	▪ Implemented weekly meeting/weekly report throughout the year with all NCSS supervisors.
▪ To recruit well qualified human resource for this section	▪ Promotion of store clerk Ms. Siale Fonua to Procurement Officer.
▪ To centralized order for this section and standardize so that easy to manage and audit	▪ Implemented Centralization of Domestic orders and supplies to Vaiola Hospital.
▪ Weekly meeting to train the supervisor about data and indicator to document and report to Hospital Administrator weekly	▪ Collected vital data from all section to help the planning of improvement of the NCSS.
▪ To improve the process of purchase order for the catering section	▪ Procedure formulated and Implemented
▪ To develop checklist for monitoring contract services at Vaiola for Cleaning services , Ground keeper, and Security Contract	▪ Checklist developed and implemented
▪ To improve customer services from the division	▪ A survey was conducted on quality of services provided by the NCSS.
▪ To provide high quality NCSS to the Ministry of Health in a very cost effective way	▪ Weekly meeting with all supervisors and monitoring performance of each section.
▪ To monitor Human Resource	▪ Implemented of weekly duty roster.
▪ To Monitor the General Waste Pick Up Contract for Vaiola Hospital	▪ Developed Policy and Procedures for proper pick ups of waste bins from Vaiola Hospital to maintain cost target of less than $1,000 per month.

8.3.2 Laundry Services

Objectives	Selected Milestones
▪ Improve the management of the section by the Laundry supervisor	▪ Implemented weekly meeting/weekly report with Hospital Administrator.
▪ Improve the quality of laundry and ironing of linen for the Ministry of health.	▪ The service was improved significantly by the installation of new washing machine, new dryer in February and roller in March.

Objectives	Selected Milestones
▪ Develop standard for proper handling of hospital infectious linen within the laundry hospital section	▪ Partially implemented but need to improve the service by providing proper equipment such as trolleys and laundry bags and proper collection and distribution of laundry linen.
▪ To continue to collect statistical data for improving the services of the section	▪ Implemented weekly report.
▪ To enhance professional performances of this section by wearing proper uniform during working hours	▪ Staff now wear proper uniform with compliments of Westpac Bank of Tonga.
▪ To maintain a high standard of service and continue to operate in cost effective manner.	▪ Gas operated machine is now used instead of steam from outdated boiler.

8.3.3 Security Services

Objectives	Selected Milestones
▪ Upgrade the standard of Security services especially in the movement of visitors and patient attendants.	▪ The Ministry of Health agreed to renew VIP Security Services following re-advertisement and interviews.
▪ To ensure the security and safety of hospital patients, staff, visitors as well as facilities and assets of the Ministry of Health.	▪ The Ministry of Health and the VIP Security Services continued to work together to ensure that policy and procedures is closely monitored.

- The Security covers the whole of Vaiola Hospital areas.
- Agreed rate between Jan-June was $2.50 per hour. New rate in August was $3.50 per hour.
- Current contract has been serving for 3 years and good relationship has been established.

8.3.4 Communication Services

Objectives	Selected Milestones
▪ To be robust in responding to telephone calls with in 1-2 rings only.	▪ Monitored and reported by supervisor during weekly meeting with Hospital Administrator.
▪ To investigate and install the most reliable and efficient switchboard	▪ Still under investigation.
▪ To improve customer service	▪ Promotion of Daily paid Operator to staff. Management of Mortuary by registering decease and revenue collection is part of this section but in collaboration with Security services and Matron office.

8.3.5 Seamstress Services

Objectives	Selected Milestones
▪ To sew all specified linen requirement of the hospital in quality standard	▪ Implemented weekly meeting and reporting with Hospital Administrator.
▪ To sew linen requirement for health centers and other hospitals of the Ministry of Health	▪ Working condition improved by provision of new floor covering and repair of sewing machine

8.3.6 CSSD Services

Objectives	Selected Milestones
▪ To ensure that the Sterility standard of CSSD sterile equipments is maintained at all time	▪ Implemented by the promotion of Sterile Assistant to Supervisor.

8.3.7 Domestic Services

Objectives	Selected Milestones
▪ To ensure that hospital environment is clean and free of infection	▪ Implemented regular weekly inspection and completion of checklist by Hospital Administrator and Senior Health Executive Officer.
▪ To supply proper equipment and facilities to enhance proper hand washing and prevention of nosocomial infection in the hospital environment.	▪ Purchase of trolleys for cleaners.
▪ To ensure that clean and friendly environment provided by domestic services of Vaiola Hospital.	▪ Implemented standardization of Domestic Supplies refilling and replacement of domestic supplies is ongoing.
▪ Monitor the Domestic supplies order for Vaiola	▪ Managed to standardize order and install of hand proper towel, liquid dispenser and jumbo roll throughout the hospital.
▪ Monitor the collection of waste bin from the hospital.	▪ Achieved target of reduction of cost from more than TOP$2,000 per month in the beginning of the year to less than TOP$1,000 at the end of the year.

Statistical Information:

Table 27: Issued Forms for Hospital Services

Name	Jul	Aug	Sept	Oct	Nov	Dec
Prescription form	4968	8452	10100	1200	200	3100
Continuation	1500	1200	900	300	100	900
Adult Sick leave	900	650	800	100	200	187
Student Sick leave	1100	-	600	100	-	-
Haematology	500	500	1114	400	-	1100
Chemistry	300	100	500	400	-	600
Microbiology	-	-	400	-	-	-
Lab Request form	-	-	400	300	-	-
X-ray form	300	700	550	300	100	400
2nd page of Admission	300	200	300	-	-	-
Cat 5	4000	7400	1350	500	-	1500
Cat 4	-	-	200	-	-	-
Referral	-	-	-	-	-	-
Police Record	-	-	-	-	-	-
Investigation	300	400	400	200	-	400
Fluild Balance	500	400	200	100	-	500
Temperature	400	784	300	200	100	50
Drugs Administrative	200	200	-	-	-	-
Prescription sheet	471	-	-	-	-	-
Drugs & Prescription	-	-	-	100	46	-
Diabetic form	-	200	100	-	-	-
ENT form	-	-	-	200	30	-
Consent form	163	89	-	100	-	100
Blood Transfusion	100	-	100	-	-	100
Histology	200	-	50	-	-	-
Appointment (Clinic)	450	1500	-	300	-	100
Appointment (obs)	400	-	100	-	-	-
Newborn Referral	200	150	1500	-	100	-
Babies Name	200	200	-	-	-	100
Daily Ward Census	-	100	200	-	-	200
Admission form	100	500	-	100	100	200
Observation	20	200	300	-	-	-
Nursery Admission	20	50	300	-	-	-
Problem Listing	20	50	50	-	-	-
Handover	50	200	50	-	-	100
Request Overtime	50	30	-	-	-	-
Claim Overtime	20	-	-	-	-	-
Operation List	50	-	-	-	-	-
Prenatal	-	-	-	-	-	-
Materity leave	50	-	-	-	-	-
Anaesthetic form	200	-	-	-	-	100
Baby Movement	-	50	100	-	-	-

Name	Jul	Aug	Sept	Oct	Nov	Dec
Infant Referral	-	200	-	-	-	-
Medication Card	-	200	-	-	-	-
Post-natal	-	-	-	50	-	-
Scan (OBS)	100	-	100	-	-	-
Grand-Total	18132	24705	21064	4950	976	9737

Source**:** Non Clinical Support Services

It is amongst the responsibility of this section to provide forms as listed in the above table to support the operation of the Hospital Services. The recording of the above information was strengthened in the current financial years despite the limited budget from the Recurrent Budget.

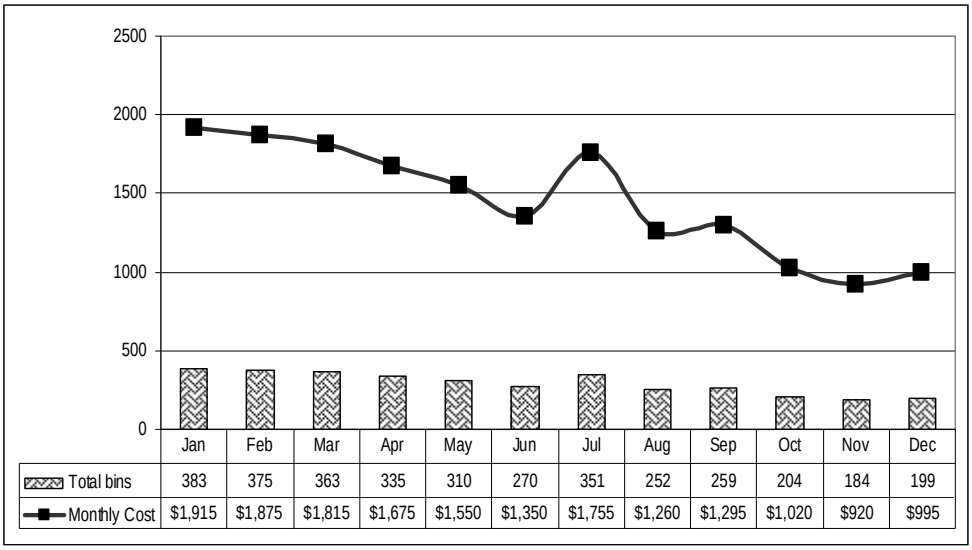
The above table shows the existing volume of forms funded for the first 6 months of the current financial year and it is expected relatively the same amount of forms may be required for remaining 6 months. We introduced several monitoring and procurement strategies such as bulk buying to reprioritize our expenditure but found that allocated funds are far short than the requirement of respective areas.

Domestic Supplies distributed by the Store Clerk included items such as toilet Rolls, Jiff, Harpic, Mop Head, Plastic Bags, Soap, Pine o Clean and air freshener. These medical supplies cover Vaiola Hospital, all the clinics in Tongatapu and Pharmacy Section at Vaiola Motu'a.

Monitoring of General Waste Pick up Contract from Vaiola Hospital

The Ministry has contract with Mr. Richard Rass Garbage Removal Services for picking up of General Waste from Vaiola. The cost of picking up one large General Rubbish Green bin is $5.00. To minimize cost, a target of not more than 200 bins per month was achieved and maintained since November 2008.

Figure 41: Cost of General Waste Collection



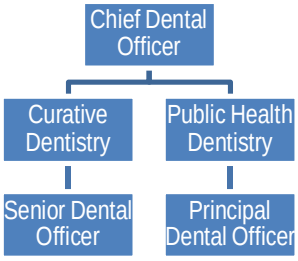
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total bins	383	375	363	335	310	270	351	252	259	204	184	199
Monthly Cost	$1,915	$1,875	$1,815	$1,675	$1,550	$1,350	$1,755	$1,260	$1,295	$1,020	$920	$995

Source : Hospital Administration

9 DENTAL SERVICES

Mission Statement:

To provide a Dental Health Service for Tonga in such a way that people would actively participate and make Tonga a dentally fit country.



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Curative Dentistry	Dr. 'Amanaki Fakakovikaetau	27	116,125
Public Health Dentistry	Dr. Salise Faiva'ilo	4	0
Total staff and financial resources	2	31	$ 116,125

9.1.1 Curative Dentistry:

Curative Dentistry section is responsible for providing oral/dental services in the Hospital Setting.

Objectives	Selected Milestones
▪ To reduce other oral/dental health problem.	▪ Nukunuku Clinic is now open from Monday to Friday to serve the people of the Western District. ▪ Completion of an Oral Health Survey of the 6 & 12 years old/Tongan School children with the help of Dr. Ekke Martini and the Ballarat Rotarian Team.
▪ To create and maintain a working environment that is safe and productive to maintain the interest and motivation of staff.	▪ Two of our dental officer and one dental therapist participate at the four month training proramme in Japan Sponsored by JICA.

9.1.2 Public Health Dentistry:

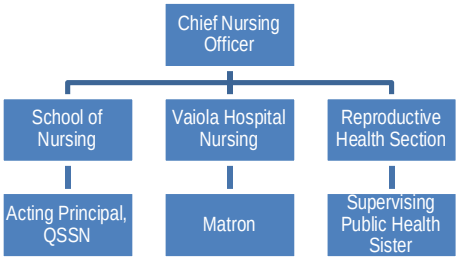
Public Health Dentistry section is responsible for providing preventative programmes to reduce the incidence of dental caries and other dental health problems in the public particularly in primary schools.

Objectives	Selected Milestones
▪ To reduce incidence of dental caries in our school children (pre-school, primary and secondary schools).	▪ Continue to extent the fluoride programme to cover all the primary school at Tongatapu except 'Atata & 'Eueiki.
▪ To implement various school preventive programmes.	▪ Continuation of the pit and fissure scalant program for the class 2 children at the primary school.
▪ To ensure that all people of Tonga are access and achieve optimum oral/dental services with available resources.	▪ Sustainability of the schools preventive programme known as Malimali Programs at Ngu Hospital. ▪ Continue support of SPM Team from Japan to fund the Malimali Program for the schools at Ha'apai.

10 NURSING SERVICES:

Mission Statement:

To provide quality nursing service for the entire country.



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
School of Nursing	Sr. 'Amelia Tu'ipulotu	7	8,237
Vaiola Hospital Nursing	Sr. 'Ofa Takulua	230	44,000
Reproductive Health Nurse	Sr. Sela Paasi	42	78,150
Total staff and financial resources	3	279	$130,387

10.1.1 School of Nursing:

School of Nursing is responsible for training of student and staff nurse for the nursing services in Tonga.

Objectives	Selected Milestones
▪ To provide a continuous process of curriculum development / review based on evidence – base practice and assessment of its effectiveness in the preparation of students for	**Workshop conference attended by QSSN Staff** ▪ Sr. Kathy Ramsay – PSCI Sub – Regional Advice Committee, Sydney, Australia 3rd – 12th March 2008. ▪ Sr. Mele'ana Ta'ai – Fellowship: AUT, Auckland, New Zealand 15th May – 16th June 2008.

Objectives	Selected Milestones
nursing practice.	▪ Sr. 'Amelia Tu'ipulotu – Research Student Seminar and Review Program: Sydney, Australia 16th – 23rd June 2008. ▪ Sr. Kathy Ramsay – Fellowship: AUT, Auckland, New Zealand: 30th June – 4th August 2008. ▪ SSN Matangisinga Taufa – Fellowship: AUT, Auckland, New Zealand 20th August – 20th September 2008. ▪ Mele Siutiti Faka'iloatonga – Fellowship: AUT, Extramile Training, Auckland, New Zealand 4th August – 3rd October 2008. ▪ SSN 'Ana Fevaleaki – Fellowship: AUT, Auckland, New Zealand 20th September – 20th October 2008. ▪ Sr. 'Amelia Tu'ipulotu – Global Alliance on Nursing Education and Scholarship, Toronto, Canada 1st – 3rd October 2008. ▪ Sr. 'Amelia Tu'ipulotu – Research Student (PhD) Workshop, University of Sydney, Australia 20th – 28th November 2008. ▪ A clinical mentoring workshop conducted in August 2008 by Auckland University of Technology (AUT) consultant Mary Macmanus for staff of QSSN – clinical and public health nurses were also part of this workshop. ▪ Weekly in-service training was conducted to enhance staff development and to ensure the quality nursing education. ▪ Five (5) of the teaching staff namely, Mele'ana Ta'ai, 'Akesa Halatanu, Kathy Ramsay, Matangisinga Taufa and 'Ana Fevaleaki of the School of Nursing graduated in October 2008 from AUT with Post Graduate Certificate in Health Science in Health Professional Education.
▪ To develop the full potential of the nursing student to enable him/her to apply the knowledge and skills in various health care setting. ▪ To direct educational programme to utilize physical, medical and social sciences and humanities as foundation for learning the art and science of nursing. ▪ To develop appropriate instructional strategies to cope with individual differences of the learner. ▪ To render student-based training to nursing students. ▪ To utilize other health professionals in the training of nursing students. ▪ To facilitate the upgrading of instruments/equipments in hospital wards as support service for student learning.	▪ 38 students of 2005 Class sat the examination with 36 students passed the exam.

10.1.2 Vaiola Hospital Nursing:

Mission Statement:

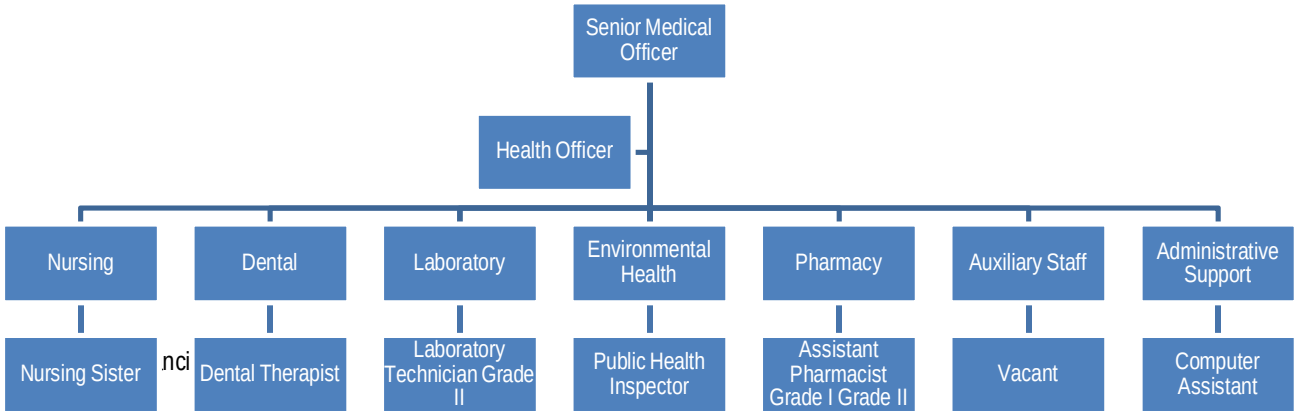
To provide quality nursing services for the entire country.

Vaiola Hospital Nursing section is responsible for providing nursing services at hospital setting including clinics and other allied health services in Vaiola Hospital.

Objectives	Selected Milestones
▪ To upgrade staff's knowledge and skills	▪ NMW Lower Leaving Mafi awarded with a Postgraduate Certificate in Health Science in Health Professional Education from Auckland University of Technology, New Zealand. ▪ S/SN Meleane Fatafehi Eke and SN Mele Latai Vuki awarded with a Postgraduate Diploma in Eye Care from Fiji School of Medicine, Fiji. ▪ SN Siosi'ana Tongia and SND Laumanu Hausia attended a month training attachment on Paediatric Oncology Nursing in Christchurch, New Zealand. They also attended one week training on Oncology in Suva, Fiji. ▪ SN 'Eseta 'Unufe attended a two month training attachment on ENT in Auckland, New Zealand. ▪ SN Lola Jiang attended a two month training attachment on Psychiatric Geriatric Nursing in Auckland Hospital, New Zealand. ▪ SN 'Atimoa Me'afo'ou undertook a six month course on Nursing Medicine in China. ▪ SND 'Ana Seini 'Alofi and SND Uaisele Mafi currently on study leave in China while pursuing their Bachelor Degree in Nursing. ▪ Sister Graduate Pinomi Latu attended one month training on Infection Control in Japan.
▪ To upgrade the standard of Hospital Nursing Services	▪ Mr. John Macdonald of St. John God Hospital, Ballarat, Australia visited Vaiola Hospital to enforce the nurse's special training on wound care. ▪ Cardiac Surgery Team from SDA Hospital, Sydney, Australia visited in November and conducted heart surgery. Nursing staff from operating theatre, ICU, Paediatric and Medical Ward have been beneficial from their involvement in the pre – cardiac surgery. The team also conducted trainings on anatomy, physiology and pre and post operative care.
▪ To upgrade and improve the Nursing Staff's management	▪ Hospital Board of Visitors offered $ 2000 for patient's x- mas presents and suppers for the nurses after the x-mas carols for the patients. ▪ Digicel staff presented gifts to SCN and Paediatric children. ▪ LDS children from Tofoa presented 130 baby quilts for the Paediatric children and SCN. ▪ FWC Lotofale'ia group of Auckland, New Zealand visited the hospital on the 19th December 2008, and presented every patient with monetary gift and to the Matron a $520.00 to support the hospital needs. ▪ HM King George Tupou V honoured patients and hospital staff with His presence on x- mas eve.

11 ISLAND HEALTH DISTRICTS

11.1 'EUA



Staffing and financial information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Medical	Dr. Sengili Moala	1	61,860
Nursing	Langi Tupou	9	162,288
Dental	Penisimani Taufa	1	16,0866
Laboratory	Mele Vea Fonua	0	14,161
Environmental Health	'Amelia Vea	0	14,161
Pharmacy	'Eneasi Palanite	0	23,164
Auxiliary	Vacant	10	0
Administrative Support	Lute 'Eli	1	7,807
Medical Records	Puataukanave Mala'efo'ou	0	4,885
Total staff and financial resources	8	25	$ 304,412

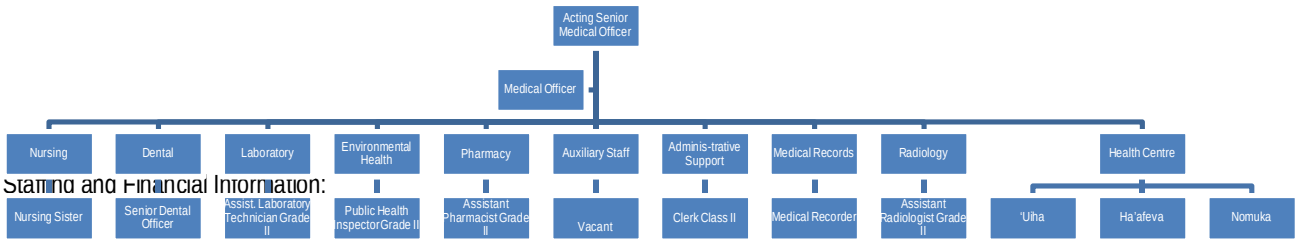
Objectives	Selected Milestones
▪ To provide an adequate clean water supply for 'Eua District.	▪ Completion and commission of the new reticulated water supply funded by New Zealand Aid program.
▪ To improve the hospital waiting area and driveway.	▪ Tiled floor for waiting area and cemented driveway to Niu'eiki Hospital provided and funded by the Hospital Board of Visitors.
▪ To cater for the health needs and reduce morbidity of non-communicable disease.	▪ Conducted monthly outreach village clinics at Houma and weekly home visits for non-ambulant cases.

Table 28:Demographic Summary of 'Eua Island Group for 2007

Population	Male	Female	Total	
			Number	%
Infants (below 1yr)	80	64	144	3%
1 – 4 years	247	281	528	11%
5 – 9 years	303	347	650	14%
10 – 14 years	325	341	666	14%
15 – 19 years	274	265	539	11%
20 – 29 years	270	244	514	11%
30 – 39 years	259	291	550	12%
40 – 49 years	210	206	416	9%
50 –59 years	174	177	351	7%
60 – 69 years	134	128	262	6%
70 + years	61	61	122	3%
TOTAL POPN – this period	2337	2405	4742	100%
TOTAL POPN – last period	2533	2596	5129	
	Male	Female	Total	
Migration out > 6/12	70	93	163	
Migration in > 6/12	72	59	131	
Total Deaths	17	15	32	
Natural Popn Growth %	$= \frac{(Births - Deaths)}{Total\ Population} \times 100$ =2.1%			
Net Population Growth %	$= \frac{(Births - Deaths) + (Migration\ in - Migrationout)}{Total\ Population} \times 100$ =1.5%			

Source**:** Reproductive Health Section

11.2 HA'APAI



Staffing and Financial Information:

Staffing and financial information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Medical	Tevita Vakasiuola	2	49,727
Nursing	Kalisi Finau	18	236,451
Dental	Canieli Poese	1	27,458
Laboratory	Viela Tapa'atoutai	1	0
Environmental Health	Mosese Fifita	2	0
Pharmacy	Neini Tulikaki	2	0
Auxiliary	Vacant	9	0
Administrative Support	Hisipanio Iketau	1	99,271
Medical Records	Lesieli 'Ali	0	0
'Uiha	Saane Fangaloka	0	0
Ha'afeva	Fusi Kaho	1	0
Nomuka	Tupou Taufa	1	0
Total staff and financial resources	11	39	$

Objectives	Selected Milestones
Medical Services:	
▪ Better working facilities with better environment	▪ In October services were moved back to the hospital after the renovation co-funded by the Government of New Zealand and AusAID program. The works was conducted by the Kiwi Tonga Construction Company.
▪ Conducted one island tour	▪ Niu'ui's medical team managed to conduct a complete medical services island tour at Nomuka, Ha'afeva, 'Uiha and Kauvai.
▪ Provision of special clinic	▪ Special clinics proved to be still active. Diabetic Team from Vaiola Hospital visited during the year. Special clinics were also conducted
▪ General services	▪ FM Station of Ha'apai offered free air health education program.
Dental Section:	
▪ Improved the dental services to Ha'apai District.	▪ Recruitment of Dr. Canieli Poese – Dental Officer toward the end of the year. ▪ School visits undertaken and covers fluoride rinsing, oral examination, oral hygiene education, tooth brushing techniques and fluoride application. ▪ Conducted oral health education program on air via Ha'apai's FM station. ▪ Japanese South Pacific Team visited Ha'apai and its islands including 'Uiha, Ha'ano and Fakakai. The team donated toothbrushes.
Dispensary Section:	
▪ To improve working environment	▪ Moving of the dispensary services to the new renovated hospital. ▪ Received one new freezer for drugs requires cooling. ▪ Conducted one island tour.
Laboratory:	
▪ Maintaining the standard services	▪ Continue sending biochemistry sample to Vaiola Hospital. ▪ Availability of new testing method for Chlamydia in the ante natal clinic. Specimen prepared prior sending to Vaiola Hospital for testing. ▪ Availability of the dengue fever serology testing strip.
Nursing:	
▪ To improve staffing	▪ Received one extra nurse from Vaiola Hospital.
CSSD:	
▪ To upgrade facilities	▪ Installed water supply to the machine.
Ha'afeva Health Centre	
▪ To improve the public health	▪ Installed rubbish bins in various places in Ha'afeva. ▪ Conducted regular inspection of households.

Objectives	Selected Milestones
	▪ Promoted physical activities in Ha'afeva.
Fakakai Nursing Centre: ▪ To improve services	▪ AusAId approved to fund one staff quarter for the uses of nurses assigned to Fakakai.
Environmental Health: ▪ To improve the quality of the water supply ▪ To improve food control	▪ Chlorinated (CR2) the water supply of Ha'apai District. ▪ All food handlers registered and controlled.

Statistical Information:

The Ha'apai Group is consisted of 6 minor subgroups which is Lifuka, Foa, Kauvai, 'Uiha, Lulunga and 'Otu Mu'omu'a. there are one main sub Hospital which is located at Lifuka and two Health Centers in Nomuka and Ha'afeva. There are also three nurses clinic located at Lotofoa, Fakakakai, and 'Uiha.

The population of Ha'apai is about 7369 with the majority residing in Lifuka and Foa. There are two Medical Officers stationed at Niu'ui Hospital with a Health Officer at Nomuka and a Nurse Practitioner at Ha'afeva.

Table 29:Demographic Summary of Ha'apai Island Group for 2008

Population	Male	Female	Total	
			Number	%
Infants (below 1yr)	89	67	156	2.2
1 – 4 years	356	345	701	9.9
5 – 9 years	468	396	864	12.2
10 – 14 years	431	403	834	11.7
15 – 19 years	405	339	744	10.5
20 – 29 years	305	288	593	8.3
30 – 39 years	233	236	469	6.6
40 – 49 years	424	412	836	11.8
50 –59 years	320	337	657	9.3
60 – 69 years	241	264	505	7.1
70 + years	187	216	403	9.7
TOTAL POPN – this period	3620	3481	7101	
TOTAL POPN – last period	3686	3598	7284	
	Male	Female	Total	
Migration out > 6/12	229	260	489	
Migration in > 6/12	102	94	196	
Total Deaths	31	15	46	
Natural Popn Growth %	$= \frac{(Births - Deaths)}{Total\ Population} \times 100$ =1.2%			
Net Population Growth %	$= \frac{(Births - Deaths) + (Migration\ in - Migration\ out)}{Total\ Population} \times 100$ =1.6%			

Source**:** Reproductive Health Section

Table 30: Monthly summary of admission, outpatient visit, patients transferred out of hospital and died in hospital, 2008

Month	Admission	Outpatient Visit	Transfer Out	Death
Jan	50	1392	0	1
Feb	34	1133	2	3
Mar	49	1176	2	2
Apr	39	1216	6	1
May	35	1251	0	0
Jun	26	1041	2	0
Jul	29	1104	1	1
Aug	41	1151	1	0
Sep	38	1756	0	0
Oct	36	1114	0	1
Nov	27	1555	3	0
Dec	27	1218	0	0
Total	431	15,107	17	9

Source**:** Niu'ui Hospital

Also the medical team is doing home visits around Lifuka and Foa once a month and twice a month visits to the Lotofoa Health Centers. We have a small laboratory that can do the basic lab test and to sent the rest to Vaiola. Our X-Ray was out of order the whole year and the technician was transferred back to Vaiola, we are still waiting on the X-ray room to be upgraded before the Japanese Government donates a new x – ray machine.

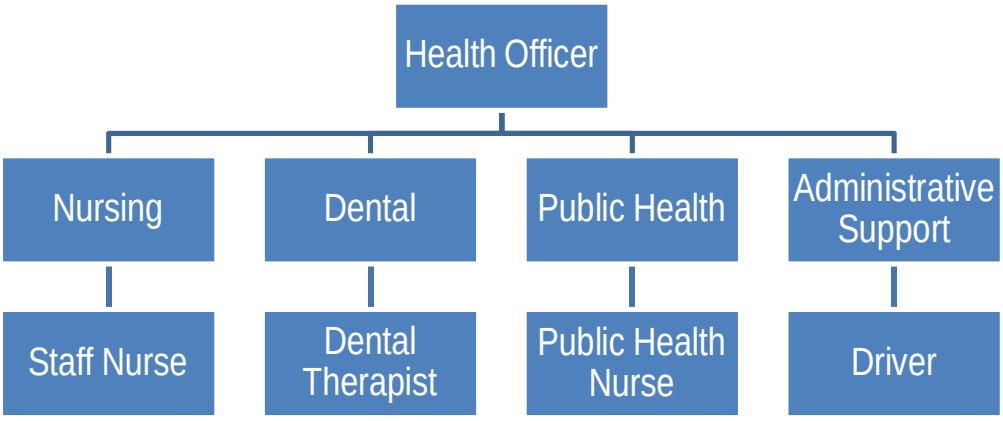
Dental Section is running under two Dental therapists and they perform dental outpatient, inpatient and also the fluoride visit to the Primary school of Lifuka and Foa. They were later joined by Dental Officer Dr. Canieli Poese.

Table 31:Staff Transfer

No.	Division/Section	Staff transferred from Niu'ui Hospital	Place where the staff has been transferred	Staff transfer to Niu'ui Hospital
	Medical	Dr. Lisiate 'Ulufonua	Vaiola	Dr. Tevita Vakasiuola
	Medical	Dr. Macaque Tupou	Fiji	Dr. Loutoa Finau Poese
	Medical	Dr. Violet Tupou	Fiji	
	Dental			Dr. Canieli Poese
	Public Health/Environmental Health	Sela Fa'u	Vaiola	Mosese Fifita
	Medical/Laboratory	Falekakala Tomu	Vaiola	Viela Tapa'atoutai
	Medical/Radiology	Suka 'Ahovalu	Vaiola	
	Nursing	SN Sauliloa Suka	Vaiola	
	Public Health/Community Health	'Amone Vaka'uta	Vaiola	Fusi Kaho
	Nursing/Reproductive Health	'Ana Vaka'uta	Vaiola	Satua Kanogata'a
	Health Planning and Information/Medical Records	Lesieli 'Ali	Vaiola	'Ilaise Tu'utafaiva
	Public Health/Community Health	Paea Fifita	Niua	

Source**:** Niu'ui Hospital

11.3 NIUAFO'OU



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Medical	Viliami Falevai	0	3,189
Nursing	Telesia Tu'itupou	0	0
Dental	Lu'isa Salt	0	0
Public Health	Fifita Hafoka	0	0
Administrative Support	Vacant	0	11,938
Total staff and financial resources	4	0	$ 15,127

Objectives	Selected Milestones
▪ To work together as a team in the Health Centre and the Public through outreached programme to achieved all our respective sectional goals.	▪ We received 1 wheelchair, 1 walker, 2 pairs of clutches, drugs, 6 box flexus donated by "Hands Across the Ocean" a group from the United States of America.
	▪ We received 1 wheelchair, 1 clutches, 1 adult bed, 2 mattresses, 1 Paediatric bed, 1 IV stand and 20 linen donated by Tongan Niuafo'ou Community in the United State of America.
	▪ On the 26th December 2007 (Youth day), all villages participated in sports, traditional dancing and followed by social night.
	▪ On the 1st January 2008, the Hospital Board of Visitor organized a gathering of all Government Departments and Private Sectors to mark the importance of our role for the youth.

Statistical Information:

Table 32: Major Health Services delivered in Tu'a-ki-Falelei Health Centre

No.	Items	Number
	Total Consultations	2716
	Admission	16
	Viral Influenza	??
	Broncho Pneumonia	21
	Bronchiolitis	8
	Brocho Asthma	3
	Infant Diarrhoea	0
	Gastro-enteritis	3
	Minor Surgery	17
	Stature	28
	Hypertension	10
	Diabetes	16
	Heart Diseases	2
	Diabetes/Hypertension	9
	Referrals to Vaiola	3
	Total live births	3
	Total Deaths	2

Source**:** Tu'a-ki-Falelei Health Centre

This is the general health care services delivered by this Health Centre during 2008.

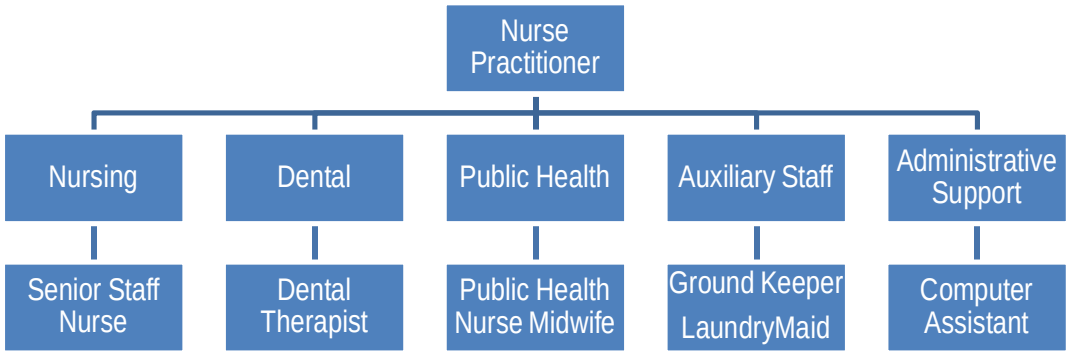
Table 33: Demographic Summary of Niuafo'ou Island Group for 2007

Population	Male	Female	Total	
			Number	%
Infants (below 1yr)	6	5	11	2%
1 – 4 years	38	24	62	10%
5 – 9 years	46	52	98	15%
10 – 14 years	42	41	83	13%
15 – 19 years	42	38	80	12%
20 – 29 years	39	31	70	11%
30 – 39 years	18	17	35	5%
40 – 49 years	50	45	95	15%
50 –59 years	18	15	33	5%
60 – 69 years	27	22	49	8%
70 + years	19	10	29	4%
TOTAL POPN – this period	345	300	645	100%
TOTAL POPN – last period	391	309	700	
	Male	Female	Total	
Migration out > 6/12	5	7	12	
Migration in > 6/12	6	4	10	
Total Deaths	5	0	5	
Natural Popn Growth %	$= \frac{(Births - Deaths)}{Total\ Population} \times 100$ =7.3%			

Net Population Growth %	$= \frac{(Births - Deaths) + (Migration\ in - Migration out)}{Total\ Population} \times 100$ =11.2%

Source: Reproductive Health Section

11.4 NIUATOPUTAPU



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Medical	Paea 'I Moana Fifita	0	
Nursing	Monika 'Onesi 'Uvea	1	0
Dental	Luisa Salt	0	
Public Health	Vacant	0	0
Administrative Support	Lilo Kohinoa	1	
Auxiliary	Leo 'Onesi	2	0
Total staff and financial resources	5	4	$

Objectives	Selected Milestones
▪ To provide the best possible quality health care to all people of Tafahi and Niuatoputapu within the limited available resources. ▪ Improve outreached programme for elderly people, mother and child ▪ Improve community environmental health, healthy lifestyle and exclusive breast feeding.	▪ 2008 hospital week collected over $8,000 and it was used for renovating of the internal area of the health centre. ▪ The centre's revenue collected over $5,000 and about 80% came from the yacht clearance. ▪ One transfer case was on a yacht to Vava'u F.O.C. ▪ Mail boats and yachts contributed medical equipments and medication for the centre. One of them was a stethoscope set which the Ministry couldn't provide since 2007. ▪ The centre received a new computer set including a printer which greatly

Objectives	Selected Milestones
▪ To establish health committee for the community.	assists the centre daily business. ▪ With the supports of the Niuatoputapu Health Committee for 2008 and various donors. The centre therefore managed to conduct a number of health activities during the year.
▪ To minimize financial expenses and increase revenue collection.	

Table 34: Demographic Summary of Niuatoputapu Island Group for 2008

Population	Male	Female	Total	
			Number	%
Infants (below 1yr)	7	6	13	1%
1 – 4 years	27	33	60	6%
5 – 9 years	63	59	122	13%
10 – 14 years	84	51	135	14%
15 – 19 years	73	63	136	14%
20 – 29 years	40	38	78	8%
30 – 39 years	46	53	99	10%
40 – 49 years	40	57	97	10%
50 –59 years	48	40	88	9%
60 – 69 years	41	35	76	8%
70 + years	21	25	46	5%
TOTAL POPN – this period	490	460	950	100%
TOTAL POPN – last period	559	531	1090	
	Male	Female	Total	
Migration out > 6/12	56	61	117	
Migration in > 6/12	18	17	35	
Total Deaths	4	1	5	
Natural Popn Growth %	$= \frac{(Births - Deaths)}{Total\ Population} \times 100$ =0.9%			
Net Population Growth %	$= \frac{(Births - Deaths) + (Migration\ in - Migrationout)}{Total\ Population} \times 100$ =7.2%			

Source**:** Reproductive Health Section

12 APPENDIX

Appendix 1 Officials and Personnel of the Ministry of Health by Posts, 2004- 2008

POST	2008		2007		2006		2005		2004	
	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED
MINISTER FOR HEALTH	1	1	1	1	1	1	1	1	1	1
ADMINISTRATION	8	7	8	8	10	5	9	7	8	6
Director of Health	1	1	1	1	1	1	1	1	1	1
Principal Health Planning Officer	1	1	1	1	1	1	1	1	1	1
Principal Health Administrator	1	1	1	1	1	1	1	1	1	1
Senior Health Administrator	1	1	1	1	1	0	0	0	0	0
Health Administrator	3	3	3	3	4	2	4	3	3	3
Hospital Administrator	0	0	0	0	1	0	1	1	1	0
Assistant Secretary	1	0	1	1	1	0	1	0	1	0
MEDICAL STAFF	100	81	88	81	100	80	103	75	83	63
Royal Physician	1	0	1	1	1	1	1	1	1	1
Medical Superintendent	2	1	2	1	2	2	2	2	2	2
Chief Medical Officer	3	3	3	3	5	2	4	2	4	2
Senior Medical Officer	16	16	15	14	11	9	14	10	15	10
Medical Officer Special Grade	7	4	6	6	10	9	10	4	7	4
Medical Officer	35	31	31	28	30	23	31	22	25	21
Chief Surgeon Specialist	1	1	1	1	1	1	1	1	1	1
Anaesthetist Specialist	1	1	1	1	2	1	2	1	2	2
Physician Specialist	1	1	1	1	1	0	1	0	1	0
Obstetrician Gynaecologist Specialist	0	0	0	0	1	0	1	0	1	0
Paediatric Specialist	1	1	1	1	1	1	1	0	0	0
Medical Officer Trainee	0	0	0	0	2	1	2	1	0	0
Supervising Health Officer	1	1	1	1	1	1	1	1	1	1
Senior Health Officer	6	4	4	4	5	5	5	4	5	4
Health Training Co-ordinator	0	0	0	0	1	0	1	0	1	0
Health Officer	17	16	13	12	16	14	16	16	17	15
Health Officer Trainee	8	1	8	7	10	10	10	10	0	0
DENTAL STAFF	46	35	40	33	52	40	53	43	45	41
Chief Dental Officer	1	1	1	1	1	0	1	1	1	1
Principal Dental Officer	2	2	2	1	2	2	2	2	2	2
Senior Dental Officer	4	3	4	4	5	4	5	4	5	5
Dental Officers	6	4	7	3	7	4	9	6	8	5
Senior Dental Therapist	3	2	2	2	5	3	4	4	4	4
Dental Therapist	19	12	13	12	13	13	13	13	6	6
Senior Dental Technician	0	0	0	0	1	1	1	1	1	1
Dental Prosthodontist	1	1	1	1	1	1	1	1	1	1
Dental Technician	2	2	2	1	2	2	2	2	0	0
Dental Receptionist	1	1	1	1	1	1	1	1	1	1
Dental Sterile Supply Assistant	1	1	1	1	1	1	1	1	1	1
Dental Therapist Trainee	6	6	0	0	5	0	5	0	7	7
Dental Chairside Assistant	0	0	6	6	8	8	8	7	8	7
NURSING STAFF	424	346	378	350	425	325	421	362	400	315
Chief Nursing Officer	1	1	1	1	1	0	1	1	1	1
Matron	1	1	1	1	1	0	1	1	1	1
Assistant Matron	0	0	0	0	1	0	1	1	1	0
Supervising Public Health Sister	1	1	1	1	1	1	1	1	1	1
Senior Nursing Sister	3	3	2	2	3	2	6	5	5	5
Nursing Sister	13	13	13	11	14	12	18	15	16	14
Senior Staff Nurse	24	23	24	21	26	24	26	22	25	20
Assistant Senior Nursing Sister	1	1	1	0	1	1	1	1	1	1
Staff and Student Nurse	221	159	211	198	235	188	245	219	258	200
Staff Nurse Diplomate	89	86	50	50	51	41	21	21	0	0
Principal Q.S.S.N	1	1	1	1	1	1	1	1	1	1
Nursing Sister Graduate	5	2	5	3	8	5	8	6	8	7
Senior Tutor Sister	2	2	1	1	2	1	2	1	2	2
Senior Nurse Midwife	7	7	9	9	7	7	16	16	9	8
Public Health Sister	1	1	1	1	1	1	2	2	2	2
Public Health Sister Graduate	2	1	2	2	3	2	3	3	3	2

Officials and Personnel of the Ministry of Health by Posts, 2004- 2008

POST	2008		2007		2006		2005		2004	
	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED
Public Health Nurse	9	6	12	10	22	9	18	8	20	12
Public Health Nurse Midwife	2	1	2	2	3	2	3	2	3	3
Nurse Midwife	10	8	12	10	10	2	18	12	17	12
Senior Public Health Sister	1	1	0	0	1	0	1	1	1	1
Tutor Sister (Graduate)	2	2	2	2	4	3	4	4	4	4
Clinical Nurse Tutor	1	1	1	1	1	0	1	1	1	1
Clinical Nurse Tutor (Graduate)	1	0	1	1	1	0	1	1	1	1
Senior Public Health Nurse	16	15	18	15	17	13	17	12	14	11
Librarian	1	1	1	1	1	1	1	1	1	1
Nurse Practitioner	4	4	4	4	2	2	2	2	2	2
Public Health Senior Nurse Midwife	5	5	2	2	7	7	2	2	2	2
TECHNICAL STAFF	158	110	121	110	162	115	158	121	161	130
Senior Health Promotion Officer	1	1	0	0	1	0	1	1	1	1
Health Promotion Officer	0	0			1	0	1	1	1	1
Health Promotion Officer Graduate	1	0	1	1	1	1	1	1	0	0
Health Promotion Officer (Education)	1	0	3	1	1	0	1	1	2	2
Health Promotion Assistant Grade II	2	0	2	2	2	2	2	2	3	2
Senior Health Education Technician	0	0	0	0	1	0	1	0	1	0
Senior Health Education Assistant	0	0	0	0	1	0	1	0	1	1
Health Promotion Officer Grade I	3	3	2	1	2	1	2	1	2	1
Health Promotion Officer Grade II	4	4	3	1	3	1	3	0	0	0
Health Promotion Officer (Technician)	1	1	1	1	1	1	1	1	1	1
Health Promotion Technician Trainee	1	0	1	1	1	1	1	1	1	1
Supervising Public Health Inspector	1	1	1	0	1	1	1	1	1	1
Senior Public Health Inspector	2	1	2	2	2	2	2	2	2	2
Public Health Inspector Graduate	1	0	1	1	1	1	1	1	1	1
Public Health Inspector	0	0	0	0	1	0	1	1	1	1
Public Health Inspector Grade I	2	0	2	2	1	1	1	1	1	1
Public Health Inspector Grade II	9	9	9	9	14	10	14	10	11	11
Public Health Inspector	0	0	0	0	1	0	1	0	0	0
Public Facilities Attendant	0	0	0	0	1	0	1	1	3	2
Sanitation Officer	4	4	4	4	5	4	4	4	5	4
Water Maintenance Officer	3	3	3	3	3	3	3	3	3	3
Public Health Assistant Grade I	3	3	3	3	3	2	3	2	3	3
Public Health Assistant Grade II	1	0	1	1	1	2	3	2	3	2
Principal Pharmacist	1	1	1	1	1	1	1	1	1	1
Senior Pharmacist Graduate	1	1	1	1	1	1	1	1	1	1
Pharmacist Graduate	2	2	2	2	1	0	2	2	2	2
Senior Pharmaceutical Technologist	0	0	0	0	1	1	1	0	1	1
Assistant Pharmacist Grade I	6	5	3	2	3	3	3	3	3	3
Assistant Pharmacist Grade II	12	12	15	15	17	17	15	15	14	11
Assistant Pharmacist Trainee	1	0	0	0	6	0	2	0	6	6
Procurement Officer	2	2	1	1	1	1	1	1	1	1
Stock Control Officer	0	0	0	0	1	0	1	1	1	1
Principal Medical Scientist	1	1	1	1	1	1	1	1	1	1
Senior Medical Scientist	3	2	3	3	3	3	3	3	3	3
Medical Scientist	4	4	4	4	4	4	3	2	3	3
Senior Laboratory Technician	1	0	1	1	1	1	1	1	1	1
Laboratory Technician Grade I	3	3	3	3	4	4	4	4	4	4
Laboratory Technician Grade II	15	14	15	14	18	16	15	14	15	12
Assistant Laboratory Technician Grade	0	0	0	0	1	0	5	4	7	4
Senior Radiology Technologist	0	0	0	0	1	0	1	1	1	1
Radiographer	0	0	0	0	1	0	1	0	1	1
Senior Ultrasonographer	0	0	0	0	1	0	1	1	1	1
Radiographer Graduate	0	0	0	0	1	0	1	0	1	0
Assistant Radiographer Grade I	2	2	2	2	5	2	5	2	5	2
Assistant Radiographer Grade II	5	5	4	4	7	5	7	6	7	6
Radiology Technologist	1	0	1	0	1	1	1	1	1	1
Assistant Radiographer Trainee	0	0	0	0	3	0	3	0	3	0
Assistant Radiographer Trainee Grade II	30	0	0	0	1	0	1	0	1	0
Psychiatric Assistant Grade I	0	0	0	0	2	1	1	0	0	0

Officials and Personnel of the Ministry of Health by Posts, 2004- 2008

POST	2008		2007		2006		2005		2004	
	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED
Senior Nutritionist	1	1								
Psychiatric Assistant Grade II	5	4	5	3	7	5	7	5	9	7
Mental Health Welfare Officer	1	1	1	1	2	1	2	1	2	1
Psychiatric Social Worker	1	1	1	1	1	1	1	1	1	1
Nutritionist	2	2	2	2	2	2	2	2	2	2
Assistant Physiotherapist	1	1	1	1	1	0	1	1	1	1
Occupational Therapist	0	0	0	0	1	0	1	0	0	0
Health Statistics Officer	1	1	1	1	1	1	1	1	1	1
Computer Programmer	1	1	1	1	1	1	1	1	1	1
Computer Operator Grade I	5	5	4	4	1	1	1	1	1	1
Senior Medical Record Officer	1	1	1	1	1	1	2	0	1	0
Health Project Officer	1	1	1	1	1	1	1	1	1	0
Health Planning Officer	1	1	1	1	1	1	1	1	1	1
Senior Sterile Supply Assistant	1	1	0	0	1	1	1	0	1	0
Sterile Supply Supervisor	1	1			1	0	1	1	1	1
Sterile Supply Assistant	5	4	6	6	4	4	4	4	6	5
ACCOUNTING AND CLERICAL	56	51	44	41	58	42	57	47	51	47
Senior Accountant	1	1	0	0	1	1	1	1	1	1
Principal Accounting Officer	1	1	1	1	1	1	1	1	1	1
Accounting Officer	2	2	2	2	2	2	2	2	1	1
Senior Hospital Executive Officer	1	1	1	1	1	1	1	1	1	1
Clerk Class I	2	2	2	2	3	2	3	3	2	2
Clerk Class II	2	2	3	3	3	3	3	3	5	4
Medical Record Officer	0	0	0	0	1	0	1	0	1	0
Senior Medical Recorder	0	0	0	0	1	0	1	1	1	1
Medical Recorder	2	2	2	2	3	2	3	3	3	3
Junior Medical Recorder	13	13	10	8	10	9	10	5	7	7
Typist Clerk Grade III	0	0	1	1	1	1	1	1	1	1
Computer Operator Grade II	5	2	2	2	3	1	3	3	0	0
Computer Operator Grade III	5	5	5	5	7	3	7	5	8	8
Computer Assistant	14	13	9	9	10	7	9	9	10	9
Registry Clerk	1	1								
Health Registry Recorder	0	0	1	1	2	2	2	2	2	2
Financial Analyst	1	1	1	1	1	0	1	0	1	0
Accounting Officer Diplomate	2	2	2	2	2	2	2	2	2	2
Clerk Class III	4	3	2	1	6	5	6	5	4	4
SUPERVISORY AND DOMESTIC	138	123	125	110	174	132	169	154	193	162
Medical Storeman	1	1	1	1	1	1	1	1	1	1
Assistant Medical Storeman	1	1	1	1	1	1	1	1	1	1
Storeman Clerk	1	0	1	1	1	1	1	1	1	1
Store Assistant	3	3	3	3	4	3	3	3	4	3
Chief Cook	1	1	1	1	2	0	2	2	3	2
Assistant Cook	13	11	12	11	14	13	14	14	15	13
Seamstress Supervisor	0	0	0	0	1	0	1	1	1	0
Seamstress	0	0	0	0	1	0	1	1	4	2
Domestic Supervisor	2	2	2	1	1	0	2	2	2	1
Laundry Supervisor	1	1	1	1	1	1	1	1	1	1
Laundryman	4	4	4	4	5	4	5	5	7	5
Laundry Maid	11	9	11	9	13	11	12	11	13	12
Male Orderlies	10	10	10	9	18	10	16	16	17	15
Wardmaids	18	16	18	15	23	18	23	16	29	22
Laboratory Maid	11	9	4	3	5	4	5	5	5	5
Dental Maid	1	1	1	0	1	0	1	0	1	0
Transport Supervisor	1	1	0	0	1	1	1	1	1	1
Senior VIP Driver	1	1	1	1	1	1	1	1	0	0
VIP Driver	1	1	1	1	1	1	1	1	1	1
Driver	25	25	24	23	27	25	26	23	27	27
Senior Driver	0	0	0	0	1	1	1	1	1	1
Mechanic	0	0	0	0	1	1	1	0	1	1
House Keeper	2	2	2	2	2	2	2	2	4	2
Groundskeeper	4	3	4	3	7	4	7	6	9	5
Caretakers	2	1	2	1	2	2	2	2	2	2

Officials and Personnel of the Ministry of Health by Posts, 2004- 2008

POST	2008		2007		2006		2005		2004	
	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED
Building Tradesman Leading Hand	1	1	1	1	1	1	1	1	1	1
Steam Maintenance Fitter	1	0	1	1	1	1	1	1	1	1
Boilerman	2	2	2	2	2	2	2	2	2	2
Refrigeration Mechanic	1	1	1	1	1	1	1	1	1	1
Leading Hand Electrician	1	1	1	1	1	1	1	1	1	1
Master	0	0	0	0	1	0	1	1	1	1
Oxygen Plant Operator	1	1	1	1	1	1	1	1	1	1
Engineer	0	0	0	0	1	1	1	1	1	1
Senior Telephone Operator	1	1	1	1	1	1	1	1	1	1
Telephone Operator	5	3	2	2	4	4	4	4	4	4
Painter	0	0	0	0	1	1	1	1	2	2
Senior Hospital Engineer Graduate	1	0	1	1	1	1	1	1	1	1
Plumber	1	1	1	1	2	1	2	2	1	1
Kitchen Hand	1	1	1	0	2	0	2	2	2	2
Plumber Tradesman Leading hand	1	1	1	1	1	1	1	1	1	1
Sewage Plant Operator	0	0	0	0	1	0	1	1	1	1
Hospital Fitter Electrician	1	1	1	1	1	1	1	1	1	0
Hospital Service Foreman	0	0	0	0	1	0	1	1	1	1
Hospital Maintenance Electrician	1	1	1	1	1	1	1	1	1	1
Technician Electromedical	1	1	1	1	1	1	1	1	1	1
Mechanical Supervisor	1	1	1	1	1	1	1	1	1	1
Handyman	1	1	1	1	1	1	1	1	1	1
Hospital Security Officer	1	1	1	1	6	3	5	5	9	6
Security Officer	1	1	1	0	1	1	1	1	1	1
Garbage Removal Supervisor	0	0	0	0	1	1	1	0	1	1
Garbage Remover	0	0	0	0	3	0	3	3	3	3
GRAND TOTAL	931	754	805	734	982	740	971	810	942	765

Source**:** Civil List
Human Resource Section, Ministry of Health

Description: This table presents the staff establishment of the Ministry of Health from 2004 to 2008.

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Appendix 2 Estimates of Health Expenditure and Revenue Government of Tonga, Fiscal Years 2003/2004 - 2008/2009

FISCAL YEAR	MINISTRY OF HEALTH GROSS RECURRENT EXPENDITURE	MINISTRY OF HEALTH TOTAL REVENUE	MINISTRY OF HEALTH NET RECURRENT EXPENDITURE	PROJECTED POPULATION OF TONGA	MINISTRY OF HEALTH GROSS RECURRENT EXPENDITURE PER HEAD
2008/2009 (App Bud)	21,580,000	506,000	21,074,000	102,724	210
2007/2008 (App Bud)	17,760,981	506,353	17,254,628	102,259	172
2006/2007 (App Bud)	20,170,094	330,544	19,839,550	102,907	196
2005/2006 (Prov)	17,442,899	338,056	17,104,843	102,369	170
2004/2005 (Prov)	13,520,930	371,126	13,149,804	101,865	133
2003/2004 (Act)	11,765,173	336,136	11,429,037	101,404	116

Source**:** Program Budget Estimate of the Government of Tonga
Tonga Population Census 1996 Demographic Analysis, Statistics Department
Tonga Government Gazette, 27th June 2005
Ministry of Finance

Description: This table contains data of financial resources allocated from the Government of Tonga to the Ministry of Health. It also shows the revenue generated from services delivered by the Ministry of Health and deposited with the Ministry of Finance. The Net Recurrent Expenditure column is derived as the difference between Gross Recurrent Expenditure and Total Revenue. The Gross Recurrent Expenditure per head is derived by dividing Gross Recurrent Expenditure by Projected Population Column.

App Bud- Approved Budget
(Act) - Official amount that has been Gazetted.
(Prov) - Provisional amount provided by Ministry of Finance but has been not Gazetted
(Est) - Estimated Amount from the Budget Estimate of the Government of Tonga for the Current Financial Year.

Note: All data in this table have been revised from the Annual Report 2005 except Projected Population. This revision was based on the adjustment of the Gross Recurrent Expenditure and Ministry of Heath's Total Revenue column from Estimated to Actual and Provisional Amounts.

Appendix 3 Ministry of Health Recurrent Expenditure and Government Recurrent Expenditures: Government of Tonga, 2003/2004 - 2008/2009

FISCAL YEAR	HEALTH SERVICES EXPENDITURE	TOTAL GOVERNMENTS RECURRENT EXPENDITURE	% OF TOTAL GOVERNMENT EXPENDITURE
2008-2009 (Est)	21,580,000	215,639,239	10.0%
2006-2007(Est)	17,760,981	235,608,737	7.5%
2005-2006 (Est)	14,845,304	167,333,724	10.4%
2004-2005 (Est)	13,344,463	114,576,468	11.6%
2003-2004 (Est)	11,544,180	112,980,798	10.2%

Source**:** Program Budget Estimate of the Government of Tonga
Tonga Population Census 1996 Demographic Analysis, Statistics Department
Tonga Government Gazette, 27th June 2005
Ministry of Finance

Description: This table contains the Gross Recurrent Expenditure of the Ministry of Health and the Government of Tonga. The percentage of Total Government Expenditure is derived from the Ministry and the Government's Recurrent Expenditure.

Appendix 4 Transport Services: 2007-2008

	Vaiola		Ngu		Niu'ui		Niu'eiki		NTT		NF		TOTAL	
	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008	**2007**	**2008**
Established drivers	17	17	3	3	1	1	1	1	1	1	1	1	**24**	**24**
Un-established drivers	3	1	2	1	0	0	0	0	0	0	0	0	**5**	**2**
Number of Vehicles	32	32	6	4	2	2	1	1	1	1	1	1	**43**	**41**
Motor cycles	0	1	0	1	1	0	0	1	0	0	0	0	**1**	**3**

Source**:** Transport Section-Manual Data Collection

Description: This table reflects the number of drivers employed by the Ministry, as well as the number of vehicles operated by the Ministry of Health in 2007 and 2008.

Appendix 5 Population by Sex, 1999 – 2008

YEARS	BOTH	MALE	FEMALE
2008	102730	52127	50603
2007	102259	51898	50361
2006	102907	52561	50346
2005	102369	52260	50109
2004	101865	51975	49890
2003	101404	51711	49693
2002	101002	51473	49529
2001	100673	51273	49400
2000	100283	51019	49264
1999	99821	50732	49089

Source**:** Tonga Population Census 2006 Demographic Analysis, Statistics Department

Description: This data was extracted from the Tonga Population Census 2006 to project the estimated population for 2008. Note that there are slight differences between this table and the Tonga Population Census 2006 but this is attributed to decimal point rounding.

Appendix 6 Population Break Down by Sex and Age Group, 2008

AGE GROUPS	TOTAL	ACCUMULATE %	MALE	FEMALE
ALL AGES	**102730**	**100%**	52127	50603
0 - 4	**13755**	**13%**	7150	6605
5 - 9	**12977**	**13%**	6836	6141
10 - 14	**12311**	**12%**	6414	5897
15 - 19	**10473**	**10%**	5466	5007
20 - 24	**8875**	**9%**	4536	4339
25 - 29	**7545**	**7%**	3755	3790
30 - 34	**6256**	**6%**	3084	3172
35 - 39	**6137**	**6%**	3054	3083
40 - 44	**5420**	**5%**	2775	2645
45 - 49	**4195**	**4%**	2092	2103
50 - 54	**3528**	**3%**	1679	1849
55 - 59	**2918**	**3%**	1390	1528
60 - 64	**2443**	**2%**	1157	1286
65 - 69	**2116**	**2%**	1035	1081
70 - 74	**1654**	**2%**	808	846
75 +	**2127**	**2%**	896	1231

Source**:** Tonga Population Census 2006 Demographic Analysis, Statistics Department

Description: The above data was extracted from the Tonga Population Census 2006 to show the estimated population and age group for 2008 and age group. Please note that there are slight differences between this table and the Tonga Population Census 2006 but this is attributed to decimal point rounding.

Appendix 7 Reported Livebirths, Total Deaths and Infant Deaths Under 1 Year, 2003 – 2008

YEARS	LIVEBIRTHS		DEATHS		INFANT DEATHS	
	TOTAL	CRUDE BIRTH RATE*	TOTAL	CRUDE DEATH RATE *	TOTAL	INFANT MORTALITY RATE **
2008	2746	26.7	520	5.1	45	16.4
2007	2738	26.8	541	5.3	32	11.7
2006	2716	26.5	514	5.0	29	10.7
2005	2634	25.7	543	5.3	31	11.8
2004	2429	23.8	617	6.1	38	15.7
2003	2658	26.2	588	5.8	34	12.8

* Rate per 1,000 population
** Rate per 1,000 livebirths

Source**:** Death Database, Health Information Section
Livebirth Database, Health Information Section
Vaiola Hospital Mortuary Registration Book
Admission and Discharge Database, Health Information and Medical Records Section

Description: The table reflects the absolute number and rate of livebirths, deaths and infant deaths for the whole of Tonga.

Appendix 8 Reported Livebirths by Age of Mother and District, 2008

Age of Mother	WHOLE KINGDOM	TONGATAPU	VAVA'U	HA'APAI	EUA
Unknown	23	17	6	0	0
<15	1	1	0	0	0
15-19	137	120	13	1	3
20-24	759	658	77	16	8
25-29	787	665	89	21	12
30-34	562	468	70	13	11
35-39	368	297	53	14	4
40-44	104	79	20	1	4
45-49	5	5	0	0	0
Total	2746	2310	328	66	42

Source**:** Livebirth Certificates issued by the Ministry of Health.

Description: This table captures the distribution of livebirths by age of mother and by district. The primary data source of this database is the duplicate copies of the Certificate of livebirth which are issued by staff of the Ministry of Health for livebirths occurring in hospitals, health centres and the community.

Limitations: There is a small percentage of livebirths that may not be captured in the Ministry's livebirth process. A validation process is taking place between the Health Information Database, Reproductive Health Section and Obstetric Wards data to improve reporting. The discrepancies between these sources are now less than 1%.

Appendix 9 Reported Deaths By Age and District, 2008

AGE GROUP	WHOLE KINGDOM				DISTRICT			
	BOTH	F	M	Accum %	Tongatapu	Vava'u	Ha'apai	'Eua
< 1	45	18	27	9%	45	0	0	0
1 - 4	16	4	12	3%	15	0	0	1
5 - 14	11	4	7	2%	11	0	0	0
15 - 24	11	1	10	2%	8	2	1	0
25 - 34	23	9	14	4%	20	2	1	0
35 - 44	31	11	20	6%	26	2	2	1
45 - 54	47	17	30	9%	40	3	3	1
55 - 64	87	41	46	17%	77	4	3	3
65 - 74	97	34	63	19%	60	24	5	8
75 +	152	73	79	29%	99	33	12	8
TOTAL	520	212	308	100%	401	70	27	22

Source**:** Medical Records Inpatient Death Database
Vaiola Hospital Mortuary Registration Book
Death Certificates issued by the Ministry of Health

Description: This table reflects the pattern of mortality by age group, sex and districts irrespective of cause of death.

Limitation: It is acknowledge that there may be cases of unreported deaths especially those who die in the community and the isolated islands. Further work is being undertaken to validate community deaths.

Appendix 10 Health Facilities by District, 2008

DISTRICT	LOCATION	ESTIMATED POPULATION	AVAILABLE HEALTH FACILITY		
			HOSPITAL	HEALTH CENTRE	MCH CLINIC
TONGATAPU	Tofoa	70724	1	0	19
	Kolonga	5044	0	1	0
	Mu'a	5710	0	1	0
	Fua'amotu	4089	0	1	0
	Vaini	6339	0	1	0
	Houma	4350	0	1	0
	Nukunuku	3165	0	1	0
	Kolovai	3580	0	1	0
VAVA'U	Neiafu	16594	1	0	5
	Ta'anea	2420	0	1	0
	Falevai	1333	0	1	0
	Tefisi	2508	0	1	0
HA'APAI	Hihifo	8591	1	0	5
	Nomuka	775	0	1	0
	Ha'afeva	1352	0	1	0
'EUA	Niu'eiki	5210	1	0	3
NIUA'S	Niuatoputapu	1354	0	1	1
	Niuafo'ou	775	0	1	1

Source**:** Estimated Population based on Statistics Department projections.

Description: This is a list of health facilities (Hospital, Health Centre and MCH Clinic), their location and the estimated population living in these area served by the respective health facility.

Assumption: Due to a lack of precise indicators to measure the population mobility and the variance of natural increase, the Ministry assumes that the proportion of the population living in each place remains the same over time.

Appendix 11 **Health Services: Health Centre Activities, 2008**

ACTIVITY	Whole Kingdom	TONGATAPU							HA'APAI		NIUA'S	
		Mu'a	Kolonga	Fua'amotu	Vaini	Nukunuku	Houma	Kolovai	Nomuka	Ha'afeva	Ntt	Nf
Total Patient	52922	16516	6644	6814	6340	3951	5022	5552	Na	Na	Na	2083
Type of Diseases												
Acute	40972	13425	3405	6599	4511	2430	3977	4718	Na	Na	Na	1907
Infectious	8133	5246	2074	644	21	77	71	0	Na	Na	Na	0
Chronic	3728	1236	32	395	663	340	273	789	Na	Na	Na	0
Diabetes	3412	876	112	556	245	328	299	628	Na	Na	Na	368
Hypertension	1393	273	34	225	187	249	103	133	Na	Na	Na	189
Heart Disease	24	0	4	6	3	0	0	11	Na	Na	Na	0
Accident	20	1	4	0	0	1	0	0	Na	Na	Na	14
Cancer	13	2	1	8	0	0	0	0	Na	Na	Na	2
1. Total Visit	57695	21059	5666	8433	5630	3425	4723	6279	Na	Na	Na	2480
Age Group												
<2	5205	1052	1326	509	422	460	663	540	Na	Na	Na	233
2-5	8642	3032	1301	1032	1018	466	805	694	Na	Na	Na	294
6-15	8664	2679	1197	1145	1079	583	903	778	Na	Na	Na	300
16-25	5738	2062	798	701	672	400	471	363	Na	Na	Na	271
26-35	5123	1682	665	632	680	418	467	325	Na	Na	Na	254
36-45	5318	1612	588	705	750	401	553	483	Na	Na	Na	226
46-55	4694	1353	439	575	555	365	400	819	Na	Na	Na	188
56-65	4749	1385	308	650	429	278	382	1142	Na	Na	Na	175
66-75	3434	978	339	446	453	220	232	635	Na	Na	Na	131
76+	2425	542	182	429	302	427	413	55	Na	Na	Na	75
3. Health Programme												
Home Visit	627	48	25	92	93	28	44	188	Na	Na	Na	109
Preventative	2999	21	231	6	1108	995	638	0	Na	Na	Na	0
Immunization	487	0	193	294	0	0	0	0	Na	Na	Na	0

Source**:** Health Officers' Monthly Report

Description: Summary of the 9 major activities delivered in the health centres and the number of services delivered. The statistics of the three Health Centres in Vava'u are not included in this table due to limited number of Health Officers to run these clinics.

Appendix 12 Ophthalmic Clinic: Examination and Treatment,2005- 2008

ACTIVITY	DISTRICT								YEARS			
	VAIOLA		NGU		NIU'UI		NIU'EIKI					
	2008	2007	2008	2007	2008	2007	2008	2007	2008	2007	2006	2005
Routine Test	112	56	0	0	0	0	0	0	112	56	517	424
Refraction	227	150	0	0	0	0	0	3	227	153	887	680
Conjunctivities	1126	1512	0	0	0	0	0	0	1126	1512	2380	496
Diabetic eye check	1188	1104	283	140	67	80	71	60	1609	1384	2001	1121
Presbyopia	740	960	358	0	0	0	135	0	1233	960	1554	470
Cataract	160	165	0	0	0	0	0	0	160	165	610	353
Contusions Eye injury	132	182	0	0	0	0	0	0	132	182	266	149
Pterygium	58	75	0	0	0	0	0	0	58	75	250	135
Corneal Ulcer	49	52	0	0	0	0	0	0	49	52	113	50
Glaucoma	2	3	0	0	0	0	0	0	2	3	3	2
Uveitis	24	40	0	0	0	0	0	0	24	40	49	49
Review	612	417	0	0	0	0	0	0	612	417	1265	685
Others	284	310	0	0	0	0	0	0	284	310	770	132
Minor Surgery	94	14	0	0	0	0	0	0	94	14	34	26
Major Surgery	20	92	24	24	0	0	0	0	44	116	215	126
Argon Laser for Retinopathy	64	143	14	32	0	0	0	0	78	175	364	150
Yag for Capsulotomy	7	9	0	0	0	0	0	0	7	9	15	10
No Diabetic Retinopathy	1016	0	0	0	0	0	0	0	1016	0	0	0
Some Diabetic Retinopathy	172	0	0	0	0	0	0	0	172	0	0	0
Retinal Surgeries	10	0	0	0	0	0	0	0	10	0	0	0
TOTAL SERVICES	**6097**	**5284**	**679**	**196**	**67**	**80**	**206**	**63**	**7049**	**5623**	**11293**	**5058**

Source**:** Ophthalmic Section Manual Registration

Description: This table contains the main conditions treated and services provided by the ophthalmic clinic in the four district hospitals for 2008 and the previous two years.

Appendix 13 Vaiola Hospital Outpatient Special Clinics, 2004 – 2008

ACTIVITY	2008	2007	2006	2005	2004
1. DIABETIC CLINIC					
Total Register	3485	3126	2595	2434	2463
No. of Attendances	6798	6300	6662	8277	10094
Dressings	3353	11276	3408	3194	3175
Others	698	1151	1715	423	6919
Mode of Therapy:					
Insulin and OHA	1262	519	515	460	415
Oral Hypoglycemic Agents	1245	2201	1772	1637	1798
Insulin	294	100	53	98	30
Diet Alone	685	306	255	285	220
Special Tests:					
Micro Albuminium	-	-	-	-	-
Glycated Haemoglobin	378	10	196	162	411
No. of new cases	193	176	190	209	246
No. of old cases	3295	6124	2405	2225	2199
2. HYPERTENSION CLINIC					
Responsible Medical Officer (s)	1	1	1	1	1
No. of Attendance's	1182	867	813	716	1087
Male	846	550	525	333	586
Female	336	317	293	383	501
No. of new cases	NA	49	NA	41	NA
No. of old cases	NA	813	NA	948	1087
3. GENERAL MEDICAL CLINIC					
Responsible Medical Officer (s)	1	1	1	1	2
No. of Attendances	906	630	657	686	476
Total No. of Patients	1416	1196	1183	949	585
4. CARDIAC CLINIC					
Responsible Medical Officer (s)	1	1	1	1	2
No. of Attendances	1668	1473	1412	1476	1085
No. of RHD	NA	90	NA	NA	NA
No. of RHD referred overseas	NA	N/A	75	NA	NA
No. of IHD	NA	100	95	NA	NA
5. PEDIATRIC CLINIC					
Responsible Medical Officer (s)	4	1	2	2	2
No. of patients	1104	928	951	605	850
Male	436	452	302	260	458
Female	402	301	321	181	392
No. of Attendances	838	753	623	441	NA
Pediatric cardiac clinic					
No. of patients	742	431	425	426	405
Male	324	155	133	165	200
Female	414	178	164	152	185
No. of Attendances	738	323	297	317	385
6. SURGICAL CLINIC					
Responsible Medical Officer (s)	3	3	3	3	3
No. of patients	2482	2031	2487	1612	1378
Male	1400	1200	827	650	763
Female	1082	831	666	513	615
7. CHEST CLINIC					
Responsible Medical Officer (s)	1	1	1	1	1
No. of Patients	1234	839	944	840	913
Male	821	310	227	344	441
Female	321	234	167	283	417
No. of Attendances	1142	544	394	627	858

NA- Not Available

Source: Special Clinics Manual Registration and the Diabetic Database

Description: This table captures the clinician's workload in the seven special clinics, and the numbers of visits for 2008 and the previous four years.

Appendix 14 Laboratory Tests Referred and Performed in the Hospital Laboratories, 2003-2008

TYPE OF TEST	2008	2007	2006	2005	2004	2003	%	TT	VV	HP	'EUA
Blood	**234314**	45016	164218	156635	160097	155896	**95.6%**	217184	11594	3886	1650
Urine	**8204**	2269	3783	8279	7590	6830	**3.3%**	6536	1282	386	0
Stool and Rectal swabs	**50**	1078	997	1251	1475	1552	**0.0%**	15	15	20	0
Sputum	**30**	487	268	541	443	840	**0.0%**	12	12	6	0
Cerebro-Spinal Fluids	**281**	68	561	317	215	242	**0.1%**	281	0	0	0
Pleural & Other body fluids	**0**	35	561	140	110	194	**0.0%**				
Skin Scrapping	**0**	23	49	138	173	95	**0.0%**	0	0	0	0
Water	**0**	56	748	15	12	65	**0.0%**	0	0	0	0
Leprosy skin biopsy	**0**	0	0	0	8	0	**0.0%**				
Medico - legal Test	**0**	4	2	5	2	2	**0.0%**	0	0	0	0
Semen	**0**	9	0	0	5	30	**0.0%**				
Pus & Other swab	**1667**	395	520	1235	1071	1106	**0.7%**	1627	38	2	0
Bone Marrow	**0**	0	0	0	3	7	**0.0%**				
Cytology	**119**	106	106	109	162	125	**0.0%**	119	0	0	0
Histology	**517**	711	642	522	661	623	**0.2%**	517	0	0	0
Food	**0**	0	0	0	0	0	**0.0%**	0	0	0	0
Tissues	**0**	0	0	0	0	0	**0.0%**				
TOTAL	**245182**	50257	**169187**	**172027**	**167607**	**175454**	**100.0%**	**226291**	**12941**	**4300**	**1650**
Specimens for oversease tests:											
Blood	**2084**	1087	1418	425	463	457	**99.4%**	2084	0	0	0
Sputum / TB Sensitivity	**0**	0	0	0	0	0	**0.0%**	0	0	0	0
Body Fluid	**0**	0	0	0	0	0	**0.0%**	0	0	0	0
Bone Marrow	**0**	0	0	0	0	0	**0.0%**				
Block	**0**	0	1	39	0	0	**0.0%**				
Tissues	**0**	0	0	0	4	27	**0.0%**				
Urine	**12**	0	6	2	3	1	**0.0%**	12	0	0	0
Miscellaneous	**0**	0	0	1	0	0	**0.0%**				
TOTAL	**2096**	1087	**1425**	**467**	**470**	**485**	**100%**	**2096**	**0**	**0**	**0**

Source**:** Laboratory Manual Registration

Description: This table contains the types of tests referred and preformed in the hospitals laboratories in 2008 and the previous 4 years.

Appendix 15 Psychiatric Ward Admissions, 2004-2008

CAUSES	2008	2007	2006	2005	2004
Schizophrenia	104	44	49	30	50
Schizoaffective disorder	3	2	2	0	3
Bipolar mood disorder	45	43	36	23	42
Acute and transient psychotic disorder	0	2	0	2	0
Personality and behavioural disorder due to brain disease, damage and dysfunction	1	0	1	3	0
Other Non-Organic psychosis	0	6	3	3	2
Delusional disorder	4	2	1	1	1
Other anxiety disorder	0	0	0	0	0
Other non-organic psychotic disorder and panic disorder	0	0	0	0	0
Dementia	3	2	4	3	5
Other mental disorder due to brain damage, and dysfunction and physical disease	1	0	2	2	2
Mental retardation	9	4	7	1	10
Mental and behavioural disorders due to use of alcohol	4	2	1	0	0
Mental and behavioural disorders due to use of cannabinoids	3	0	4	0	0
Conduct disorder	2	0		1	1
Mental and behavioural disorder due to psychoactive substance use	1	7	3	4	6
Non-organic sleep disorder, unspecified	0	0	0	0	0
Dissociative (conversion) disorder	2	3	1	0	0
Borderline Personality disorder	0	0	0	0	0
Other schizophrenic-like disorder	0	0	0	0	0
Obsessive compulsive disorder	0	1	0	0	0
Acute stress disorder	3	3	0	0	0
Panic disorder	0	0	0	0	0
Alcohol withdrawal	0	1	1	1	0
Adjustment disorder with parasuicidal act	0	0	4	3	0
Schizotypal Disorder	0	1	2	1	0
Medical induced movement disorder	0	1	0	0	0
Adjustment disorder	13	18	17	4	7
Recurrent depressive disorder	0	0	0	0	1
Depressive episode	1	3	3	0	0
Conduct disorder and Organic Amnestic	0	0	0	1	0
Mental Retardation and Bipolar affective disorder	0	5	7	3	0
Mental and behavioural disorder associated with the puerprium NEC	9	0	0	0	0
Dissocial personality disorder	0	5	0	1	1
Manic episode	0	5	7	4	3
Tic disorder	9	0	0	0	0
Paranoid Personality disorder	0	0	0	0	0
Mental disorder, not otherwise specified	1	0	0	2	0
Somatoform	2	2			
TOTAL ADMISSIONS	**225**	**162**	**155**	**93**	**134**

Source**:** Mental Health Ward Manual Registration

Description: Statistics on the causes of admission to the Psychiatric Ward for 2008 and the previous four years

Appendix 16 Queen Salote School of Nursing Student Roll, 2006-2008

Class	No. Students		Graduates	Resigned	Termination	Defer
	1/1/2008	31/12/2008				
2006	28	27			1	
2008	36	32		1	2	1
TOTAL	**64**	**59**		**1**	**3**	**1**

Source**:** Queen Salote School of Nursing Student Roll

Description: Total number of new nursing students recruited at the beginning of each training program since 2006. This also indicates the number of students that successfully completed the training program, and those who left without completing.

Appendix 17 Ante Natal Clinic Attendance (New) by Trimester and District, 2008

TRIMESTER	TONGA		TT		VV		HP		'EUA		NIUA'S	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Early (12 weeks)	189	7.4%	113	6.1%	15	3.8%	39	23.6%	19	16.4%	3	8.3%
1 (13-20 weeks)	642	25.1%	411	22.2%	116	29.7%	48	39.1%	50	43.1%	17	47.2%
II (21-32 weeks)	1231	48.1%	902	48.8%	208	53.2%	68	41.2%	41	35.3%	12	33.3%
III (33+)	446	17.4%	386	20.9%	45	11.5%	8	4.8%	5	4.3%	2	5.5%
No Booking	49	1.9%	***37***	2.0%	7	1.4%	2	1.2%	1	0.9%	2	5.5%
TOTAL	**2557**	**99.9%**	**1849**	**100.0%**	**391**	**100.0%**	**165**	**99.9%**	**116**	**100.0%**	**36**	**100.0%**

No Booking: No ante natal care

Source**:** Reproductive Health Section

Description: This table provides the number of mothers attending the Ante Natal Clinic by the stages of pregnancy by District for 2008.

Appendix 18 Causes of Complaint During Pregnancy, 2008

CAUSES	TONGA	TT	VV	HP	'EUA	NIUA'S
	No.	No.	No.	No.	No.	No.
1. Bleeding Ante Postpartum	**26**	22	1	2	1	0
2. Hypertension	**58**	45	9	1	1	2
3. Diabetes	**58**	46	7	3	0	2
4. Teenage Pregnancy	**130**	101	14	8	7	0
5. Elders (too old)	**295**	198	64	11	16	6
6. Frequent births (less than 2 yrs)	**505**	395	57	24	22	7
7. Too many children (more than 4)	**589**	424	99	30	25	11
8. Anaemia	**407**	379	16	6	6	0
9. Other	**12**	6	1	2	3	0
TOTAL	**2080**	**1616**	**268**	**87**	**81**	**28**

Source**:** Reproductive Health Section

Description: Statistics of the major causes of complaints during pregnancy by district for 2008.

Appendix 19 Deliveries by Attendant and Place of Birth, 2008

Place of Birth	Traditional Birth Attendant	Medical Officers	Nurses	Health Officers	Others	No. of Deliveries for 2007	No. of Deliveries for 2008
Home	43	0	2	0	8	69	**53**
HC & Clinics	0	0	14	10	0	16	**24**
Hospital	0	613	1890	52	16	2513	**2571**
Others	0	0	0	0	1	1	**1**
TOTAL	**43**	**613**	**1906**	**62**	**25**	**2599**	**2649**

Source**:** Reproductive Health Section Manual Registration

Description: This table provides statistics on the location of deliveries and the type of personnel attending the delivery for 2008. This information was compiled by Public Health Nurses. This number of deliveries counts all livebirths irrespective of whether the babies have been issued a Certificate of livebirth or not.

Appendix 20 Immunization Programme Coverage, 2008

Immunization		Tonga			Tongatapu		Vava'u		Ha'apai		'Eua		Niua's	
		Tot	Imm.	%	Tot	Imm.	Tot	Imm.	Tot	Imm.	Tot	Imm.	Tot	Imm.
BCG	1	2788	2777	99.6%	2077	2067	402	402	159	159	116	115	34	34
POLIO	1	2756	2754	99.9%	2077	2075	381	381	159	159	108	108	31	31
	2	2653	2648	99.8%	2013	2009	361	361	153	153	95	95	31	30
	3	2552	2541	99.6%	1973	1963	330	330	135	135	86	86	28	27
HEP B	1	2788	2785	99.9%	2077	2074	402	402	159	159	116	116	34	34
	2	2752	2749	99.9%	2073	2071	381	381	159	159	108	108	31	30
	3	2591	2541	98.1%	2009	1960	329	329	138	138	86	86	29	28
DPT/HIB	1	2756	2754	99.9%	2077	2075	381	381	159	159	108	108	31	31
DPT/HIB	2	2653	2648	99.8%	2013	2009	361	361	153	153	95	95	31	30
DPT/HIB	3	2552	2541	99.6%	1973	1963	330	330	135	135	86	86	28	27
MR	1	2677	2652	99.1%	2002	1981	364	364	156	155	130	129	25	23
	2	2394	2353	98.3%	1831	1796	278	278	129	128	125	123	31	28
DPT	4	2394	2363	98.7%	1831	1806	278	278	129	128	125	123	31	28
TOTAL		34306	34106	1292.1%	26026	25849	4578	4578	1923	1920	1384	1378	395	381

Source**:** Reproductive Health Manual Registration

Description: This table shows the type immunization provided by Public Health Nurses, the coverage rate of immunization for 2008.

Appendix 21 Infant Nutritional Mode, 2008

Nutritional Mode	TONGA		Tongatapu		Vava'u		Ha'apai		'Eua		Niua's	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
A. Exclusive Breast Feeding:												
(4 - 12 months)	1662	72.7%	1210	72.6%	266	66.8%	96	74.4%	77	50.0%	13	86.7%
B. No Breast Feeding:												
(4 - 12 months)	122	5.3%	108	6.5%	14	3.5%	0	0.0%	0	0.0%	0	0.0%
C. Breast Feeding with Supplement:												
(4 - 12 months)	501	21.9%	348	20.9%	43	10.8%	33	25.6%	77	50.0%	2	13.3%
Total No.of Mother's interviewed	2285		166		323		129		154		15	

Source**:** Reproductive Health Manual Registration

Description: This table shows the number and rates of the different types of infant feeding for the main island of Tonga as reported by mothers who were interviewed for 2008.

Appendix 22 Number of New Acceptors by Method, 2008

DISTRICT	IUD	PILL		CONDOM		RHYTHM	VAS	TUB	DEPO	OTHERS	TOTAL
Tongatapu	63	71	167	126	2	15	0	98	458	10	**1010**
Vava'u	9	12	77	17	0	0	0	15	101	0	**231**
Ha'apai	14	3	22	26	0	57	0	7	39	0	**168**
Eua	4	3	6	6	0	0	0	3	23	0	**45**
Niua's	2	2	2	3	0	2	0	1	4	0	**16**
TFH											
Total	**92**	**91**	**274**	**178**	**2**	**74**	**0**	**124**	**625**	**10**	**1470**
%	6.3%	6.2%	18.6%	12.1%	0.1%	5.0%	0.0%	8.4%	42.5%	0.7%	100.0%

Source**:** Reproductive Health Manual Registration

Description: This table shows the number of new users of contraceptives by method for the main islands of Tonga in 2008.

Appendix 23 Total Contraceptive Users by Method and Age, (Method Mix), 2008

AGE GROUP	IUD	PILL		CONDOM		RHYTHM	VAS	TUB	DEPO	OTHERS	TOTAL
		C	M								
Below 20	3	9	7	6	0	1	0	0	32	0	**58**
20 - 24	57	59	100	71	0	30	0	2	365	3	**687**
25 - 29	137	125	130	134	0	55	0	31	550	3	**1165**
30 - 34	170	132	125	105	0	58	1	163	543	1	**1298**
35 - 39	176	101	63	90	2	60	0	392	409	2	**1295**
40 - 44	129	44	33	51	1	53	0	466	247	1	**1025**
45 +	60	14	2	11	0	21	2	256	92	0	**458**
TFHA	104	74	5	232	0	0	0	0	78	0	**493**
TOTAL	**836**	**558**	**465**	**700**	**3**	**278**	**3**	**1310**	**2316**	**10**	**6479**

C:- Combined
M:- Mini-pill

Source**:** Reproductive Health Manual Registration

Description: This table shows the contraceptive users by method and age group for 2008.

Appendix 24 Tuberculosis Case Notification, Detection and Cure Rates, 2003-2008

Year	Smear Positive	Smear Negative	Extra Pulm TB	Retreatment Cases	Total	Notification (All types)	CASE DETECTION	
							All type	Smear Pos
							WHO est. (89/100000)	WHO est. (40/100000)
2003	11	3	2	0	16	16	18%	28%
Cure rate					88%			
2004	8	3	1	0	12	12	14%	30%
Cure rate					88%			
2005	11	3	5	0	19	19	21%	48%
Cure rate					89%			
2006	14	3	1	0	18	18	20%	35%
Cure rate					100%			
2007	14	5	4	0	23	23	26%	40%
Cure rate					93%			
2008	11	1	1	0	13	13	15%	28%
Cure rate					100%			
Ave. Cure rate					93%			

Source**:** Communicable Disease Manual Registration

Description: This table shows the reported TB cases, cure rates and the case detection from 2003 until 2008.

Appendix 25 Environmental Health Services by District, 2008

Sanitary Inspection:	Tongatapu	Vava'u	'Eua	Total
Allotment:				
Occupied allotment:	3793	1210	1122	**6125**
Unoccupied allotment:	592	271	137	**1000**
Building:				
Dwelling House:	3795	1209	1003	**6007**
Public Dwelling:	179	76	119	**374**
Bath Facilities:	3781	1193	1081	**6055**
Kitchen Facilities	3782	1193	979	**5954**
Water Supply:				**0**
Piped	3792	626	913	**5331**
Well	0	4	3	**7**
Water Tank	2351	703	1049	**4103**
Sample Collection	119	33	0	**152**
Toilet Facilities:				**0**
Septic Tank	3070	336	640	**4046**
Water Seal Toilet	372	32	114	**518**
Pit Toilet	506	474	362	**1342**
Household without	26	13	6	**45**
Food Premises Inspection:				**0**
Wholesale Store	25	6	4	**35**
Retail Store	692	212	56	**960**
Restaurant	83	23	4	**110**
Bakeries	11	4	1	**16**
Aerated Water Factory	3	0	0	**3**
Snack Bars	13	2	0	**15**
Butcher Shop	10	0	0	**10**
Ice – Cream Factory	6	0	0	**6**
BBQ	27	2	0	**29**
Hawkeries	101	16	0	**117**
Food Handler	1731	513	83	**2327**
Refuse Disposal:				**0**
Collection Services	1713	0	0	**1713**
Burn	2080	1193	1003	**4276**
Bury	22	4	0	**26**
Meat Inspection:				**0**
Bovine Carcass	2	1	8	**11**
Pork Carcass	3	0	4	**7**
Hospital Waste: (kg)				**0**
Sharp	3794	0	0	**3794**
Clinical	14903	0	0	**14903**
General	2519	0	0	**2519**
Food Premises Inspection:				**0**
Wholesale Store	25	6	4	**35**
Retail Store	692	212	56	**960**
Restaurant	83	23	4	**110**
Bakeries	11	4	4	**19**
Aerated Water Factory	3	0	0	**3**
Ice Cream Factory	4	0	0	**4**

Sanitary Inspection:	Tongatapu	Vava'u	'Eua	Total
Food Premises Inspection:				0
Snack Bars	16	0	0	16
Butcher Shop	17	0	0	17
BBQ	27	0	3	30
Hawkeries	92	16	0	108
Building Plan:				
Public Building	106	13	4	61
Private Building	126	63	2	185
Septic Tank	232	76	6	234
Sites	232	76	6	246
Quarantine Services:				
Number of ship arrivals	211	179	0	248
Number of pratique issues	207	179	0	248
Community Education:				
Public Meeting	30	17	16	97
Radio Programme	12	6	0	12
TV Programme	10	0	0	3

Source**:** Environmental Health Manual Registration

Description: This table presents the major environmental health activities undertake in 2008 and the previous three years.

Appendix 26 Medically Certified Causes of In-Patient and Out-Patient Deaths by Age Group, 2008

Causes of Death	Total	F	M	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
Certain conditions originating in the perinatal period	15	5	10	14							1		
Bacterial Sepsis of Newborn Unspecified	3	1	2	3									
Dehydration of newborn	1		1	1									
Hyperkalaemia of Newborn	1	1		1									
Neonatal Aspiration Syndrome Unspecified	1		1	1									
Neonatal ASPR Amniotic Fluid & Mucus	3	1	2	2							1		
Other preterm infant, 28 or more completed weeks but less than 32 completed weeks	2		2	2									
Respiratory Distress Syndrome of Newborn	2	2		2									
Slow Fetal Growth Unspecified	1		1	1									
Unspecified Perinatal Pulmonary Haemorrhaage	1		1	1									
Certain infectious and parasitic diseases	39	21	18	8	1	1		3	2	2	8	6	8
Chronic Viral Hep B WO Delta Agent	1		1									1	
Dengue haemorrhagic fever	1		1					1					
Diarrhoea and gastroentiritis of presumed infectious origin	2	2											2
Meningococcal Infection Unspecified	1		1									1	
Other Tetanus	1		1							1			
Sepsis due to Unspecified Staphylococcus	1	1				1							
Sepsis, Unspecified	30	17	13	8	1			2	2	1	7	4	5
Staph Aureus Cause Disorder Classied to Other Chapter	1		1								1		
Viral Infection Unspecified	1	1											1
Congenital malformations, deformations and chromosomal	3	2	1	2	1								
Discordant Atrioventricular Connection	1	1		1									
Double Outlet Right Ventricle	1		1		1								
Gongenital Malformation of Heart UNSP	1	1		1									
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	2	1	1			1				1			
Anaemia Unspecified	1	1								1			
Aplastic Anaemia Unspecified	1		1			1							
Diseases of the circulatory system	144	50	94	1	1	2		4	11	17	31	31	46
Acute Myocardial Infarction Unspecified	26	7	19					1	4	8	4	6	3
Acute Subendocardial MI	1		1										1
Acute Transmural MI of Anterior wall	2	2									1	1	
Acute Transmural MI of Unspecified site	1		1								1		
Acute Transmural of other sites	1	1											1
Atrial fibrillation and flutter	2	1	1								1	1	
Cardiac Arrest Unspecified	27	9	18	1				1	4	3	5	6	7
Cardiac Arrhythmia Unspecified	1		1								1		
Cardiovascular Disease Unspecified	16	5	11								6	3	7
Chronic IHD Unspecified	8	2	6					1	1	1	1	1	3
Congestive Heart Failure	19	5	14							3	2	4	10
Essential (primary) hypertension	2	2								1			1
Genl & Unspecified Atherosclerosis	1		1						1				
Heart Disease Unspecified	2	1	1								2		
Heart Failure Unspecified	5	2	3			1						2	2

Causes of Death	Total	F	M	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
Hypertensive Renal Disease with Renal Failure	2	1	1										2
Intracerebral Haem in Hemisphere Subcort	1		1									1	
Intracerrebral Haemorrhage Unspecified	1	1									1		
Intracranial Haem (Nontraumatic) UNSP	4		4						1		1	2	
Pulmonary Embolism with Mention of Acute Cor Pulmonate	1	1										1	
Pulmonary Heart Disease Unspecified	2		2									1	1
Sequelae of Stroke Not Haemorrhage or Infarction	1	1											1
Stroke, not specified as haemorrhage or infarction	13	8	5			1				1	4	1	6
Subdural Haemorrhage (Acute) (Nontraumatic)	3	1	2		1							1	1
Supraventricular Tachycardia	1		1					1					
Ventricular Fibrillation and Flutter	1		1								1		
Diseases of the digestive system	18	6	12			1		1	3	4	5	2	2
Acute and subacute hepatic failure	1	1									1		
Disease of Intestine Unspecified	1		1			1							
Gastrointestinal Haemorrhage UNSP	2	1	1									1	1
Hepatic Failure Unspecified	3	1	2						2	1			
Inflammatory Liver Disease Unspecified	2	1	1						1	1			
Liver Disease Unspecified	2	2									2		
Other and Unspecified Cirrhosis of Liver	4		4							1	2	1	
Other and Unspecified Intestinal Obstruction	3		3					1		1			1
Diseases of the ear and mastoid process	1	1				1							
Adhesive middle ear disease	1	1				1							
Diseases of the genitourinary system	39	15	24	1				3	4	5	8	11	7
Acute Renal Failure Unspecified	3	1	2	1				1		1			
Chronic Renal Failure Unspecified	7	4	3					1		1	3	1	1
End-Stage Renal Disease	13	4	9						4		1	5	3
Inflammatory disorder of breast	1	1								1			
Inflammatory Disorder of Scrotum	1		1										1
Nephrotic Syndrome Unspecified	1		1								1		
Unspecified Chronic Renal Failure	7	4	3					1		1	3	1	1
Unspecified renal failure	6	1	5							1		4	1
Diseases of the musculoskeletal system and connective tissue	1	1											1
Pyogenic Arthritis Unspecified Ankle & Foot	1	1											1
Diseases of the nervous system	4	3	1		1			1					2
EPIL Unspecified WO IE	1	1											1
Epilepsy Unspecified	1	1											1
Intracranial Abscess and Granuloma	1	1						1					
Vascular Myelopathies	1		1		1								
Diseases of the respiratory system	59	26	33	2	4	1	2		1	2	6	8	33
Abscess of lung without pneumonia	1		1		1								
Acute Respiratory Failure	3	1	2								1		2
Asthma Unspecified	2		2									1	1
Bronchiectasis	1	1				1							
Bronchitis Pneumonitis DT Chemical Gases	1	1			1								
Bronchopneumonia Unspecified	1		1										1
Chronic Respiratory Failure	2	1	1							1		1	
Copd Unspecified	7	2	5									2	5
Hypostatic Pneumonia Unspecified	8	5	3										8

Causes of Death	Total	F	M	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
Pneumonia Due to Staphylococcus	1	1		1									
Pneumonia Unspecified	11	6	5	1			1		1		2	1	5
Pneumonitis Due To Food and Vomit	4		4		2							1	1
Respiratory Disorder Unspecified	1	1											1
Respiratory Failure Unspecified	8	2	6							1	2	2	3
Status asthmaticus	1	1											1
Unspecified acute lower respirotary infection	7	4	3				1				1		5
Diseases of the skin and subcutaneous tissue	1	1											1
Decubitus (Pressure) Ulcer, Stage 1 Dehydration of newborn	1	1											1
Endocrine, nutritional and metabolic diseases	14	5	9	1		1			1	3	1	2	5
Hypoglycaemia Unspecified	1		1										1
Type 2 Diabetes Mellitus with lactic acidosis, without coma	2	1	1							1	1		
Type 2 Diabetes Mellitus Without Complication	9	4	5						1	2		2	4
Volume Depletion	2		2	1		1							
Injury, poisoning and certain other consequences of external causes	26	6	20		1		9	6	2	2	2	3	1
Asphyxiation	2		2					1	1				
Complications of Open Wound	1		1				1						
Complications of Open Wound UNSP	1		1				1						
Drowning and Nonfatal Submersion	3	1	2					2	1				
Effects Electric Current	2		2				1	1					
FB in Respiratory Tract Part UNSP	1	1									1		
Flail Chest	1		1									1	
Mult Open Wounds Abdo Lower Back Pelvis	1	1											1
Multi Injuries of Head	2	1	1		1		1						
Open Wound of Head Part Unspecified	2		2					1			1		
Open Wound of Scalp	1	1								1			
Other Effects of Decompression and Barotrauma	1		1					1					
Unspecified Injury of Head	8	1	7				5			1		2	
Neoplasms	70	33	37	2	2	2		3	5	7	17	22	10
Acute Myeloid Leukaemia in Remission	1	1										1	
Leukaemia Unspecified	3	1	2			1			1			1	
Leukaemia Unspecified without remission	3	1	2			1			1			1	
Liver Cell Carcinoma	5	1	4								2	2	1
Malg Neoplasm Intest Tract Part Unspecified	2	2										1	1
Malg Neoplasm of Colon, Unspecified part	2	1	1							1	1		
Malg Neoplasm Superior Wall Nasophrynx	1		1							1			
Malg Neoplm BNE & Artlr Cartilage Unspecified	3	1	2	1	1							1	
Malignant Melanoma of Skin Unspecified	3	3								1	1	1	
Malignant Neoplasm Bronchus or Lung UNSP	4	1	3								1	1	2
Malignant Neoplasm Cervix Uteri Unspecified	2	1	1	1								1	
Malignant Neoplasm of Abdomen	1	1										1	
Malignant Neoplasm of Brain Unspecified	1		1					1					
Malignant Neoplasm of Cardia	2	1	1								1	1	
Malignant Neoplasm of Cerebellum	1		1		1								
Malignant Neoplasm of Endocervix	2	2								1	1		
Malignant Neoplasm of Liver Unspecified	1		1								1		
Malignant Neoplasm of Lower Limb	1		1									1	
Malignant Neoplasm of Main Bronchus	6	2	4							2		1	3

Causes of Death	Total	F	M	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
Malignant Neoplasm of Nipple and Areola	1	1							1				
Malignant neoplasm of ovary	1	1							1				
Malignant Neoplasm of Pelvis	1		1								1		
Malignant neoplasm of prostate	4		4								1	1	2
Malignant neoplasm of rectum	2	1	1								1	1	
Malignant neoplasm of uterus, part unspecified	1	1										1	
Malignant Neoplasm Stomach Unspecified	7	3	4							1	1	4	1
Malignant neoplasm without specification of site	3	2	1					1			1	1	
Neoplasm of Uncertain and Unknown behaviour of other Digestive System	1	1									1		
Neoplasm Unc/Unk Beh Brain Unsp	3	2	1					1			2		
Neoplasm Uncertain or Unknown Beh Colon	1	1									1		
Neoplasm Uncertain or unknown behaviour of other and unspecified sites	1	1							1				
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	42	18	24	1	2			2	1	2	3	7	24
Asphyxia	2	1	1		1						1		
Cardiogenic Shock	1		1										1
Gangrene, not elsewhere classified	2	2						1					1
Haemorrhage, not elsewhere classified	2		2		1			1					
Hypovolaemic Shock	3	1	2	1					1			1	
Instantaneous Death	4		4							1		2	1
Intra-Abdominal PELV Swelling/Mass/Lump	1	1										1	
Other ill-defined and unspecified causes of mortality	6	2	4							1	1	1	3
Senility	19	10	9								1	2	16
Unknown and unspecified causes of morbidity	2	1	1										2
Unknown	42	18	24	13	3	1			1	2	5	5	12
Unknown Cause of Death	42	18	24	13	3	1			1	2	5	5	12
Grand Total	520	212	308	45	16	11	11	23	31	47	87	97	152

Source**:** Medical Records & Inpatient Death Database.
Death Certificates issued by the Ministry of Health

Description: This table displays the statistics of specific causes of deaths by sex and age group for 2008.