GOVERNMENT

OF

TONGA

REPORT

of the

MINISTER

for

HEALTH

for the year

2009

TABLE OF CONTENTS

List of Tables

List of Figures

Statistical Tables

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.

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.

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.

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 Vision:

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 Neighbouring 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

	INDICATORS	Japan	Aust	NZ	Tonga
		Demographic			
1	Estimated Population ('000)	127692	21542.49	4268.9	103.1
2	Annual Population growth	…	1.71	1.00	0.3
3	Percentage of Population less than 4 years (per 100)	4.23	6.42	7.03	13
	Percentage of Population between 4-14 years (per 100)	9.21	12.83	13.81	25
	Percentage of population 65 years and over (per 100)	22.24	13.21	12.6	6
4	Percentage of urban population (per 100)	66.3	88.6	86.4	36
5	Rate of natural increase (per 1,000)	-1	6.9	8.2	19.9
		Health Status			
6	Crude Birth Rate (per 1,000)	8.6	13.7	14.91	25.4

	INDICATORS	Japan	Aust	NZ	Tonga
7	Crude Death Rate (per 1,000)	8.8	6.6	6.67	5.5
8	Maternal Mortality Rate (per 100,000)	3.2	8.4	6.81	114.4
9	Life Expectancy (Male)	79.19	79	78	70
	Life Expectancy (Female)	85.99	83.7	82.2	72
10	Infant Mortality Rate (per 1,000)	2.6	4.2	4.8	14.5
11	Total Fertility Rate	1.34	1.93	2.15	3.7
		Socioeconomic			
12	Total Health expenditure, amount (in million US$)	351472.94	82120	11683.09	11
	total expenditure on health as % of GDP	8	8.71	8.90	6
	per capita total expenditure on health (in US$)	2750.8	3886	2763.26	105
13	Health workforce				
	Physicians (per 1,000)	2.18	2.93	2.33	0.53
	Dentists (per 1,000)	0.76	0.68	0.45	0.13
	Nurses (per 1,000)	9.66	8.79	10.03	3.27
		Primary Health Care Coverage			
14	Proportion of population with sustainable access to an improved water source	100	100	…	100
15	Proportion of population with access to improved sanitation	100	100	…	100
16	Immunization coverage				
	BCG	89.5	…	…	99.8
	DTP3	98.3	91.8	87	99.8
	POL3	94.7	91.7	87	99.7
	Measles	…	…	…	99.4
	Hepatitis B III	…	94.4	88	99.7
17	Percentage of pregnant women immunized with tetanus toxoid 2	42.9	…	…	97.8
18	Percentage of pregnant women cared for by skilled health personnel	99.97	99.6	100	100
19	Percentage of women in the reproductive age group using modern contraceptive methods	43.9	65	72.0	29.8

Source: **Country Health Information Profile 2009 for 2008 health statistics**
World Health Organization, Western Pacific Region

3 HIGHLIGHTS OF ACHIEVEMENTS IN 2009

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 2009.

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.

To be good role models in participation and commitment of fighting NCD, Health Promotion Unit of the Ministry of Health conducted a mini STEP survey for the Ministry of Health Staff. This survey included measuring of blood pressure, waist, HIP, weight and height. These statistics are used as baseline data for follow up measurements of multiple interventions in compacting NCD at the Ministry of Health working environment. About 88% participation rate at this initial stage and anticipate more in the next round.

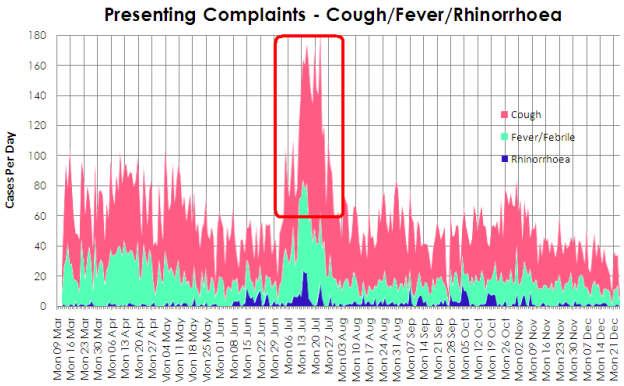
Simultaneously, these following interventions were continuously conducted for the general public:

Health Promoting Churches: This is an initiative established and drives by the Church Leaders to promote healthy life style at the community level. They have successfully implemented a pilot intervention programmes (Physical activity, nutrition and tobacco training, home visit) at Veitongo's community and marked the success on a Veitongo's (Health Day) Festival on the 19th of December 2009. The Ministry through this initiative provided the advisory roles while the implementation was executed by Veitongo's implementation committee.

Health Promoting Schools: Through a close partnership between the Ministry of Health and the Ministry of Education, physical activity and nutrition are now trialed to be included in the primary school curriculum. Ministry of Training, Employment, Youth and Sports is responsible for devising the curriculum for physical activity while the nutrition is managed by the Ministry of Health.

Health Promoting Workplaces: Health Promotion Unit continues to coordinate the annual interdepartmental sports events of "Fiefia Tonga" for employees of Public and Private Sectors in 2009. This event was participated by 24 government and non government organizations.

HINI Influenza A arrived in Tonga in the midst of July 2009 during a common flu epidemic and claimed only one life which is a staff member of the Ministry of Health. Amongst the tested patients that presented with syndromes of the disease, there were only 18 confirmed cases. There was a strong partnership between government stakeholders and with international organization such WHO through the Epidemic Task Force during the period of this epidemic in strictly monitoring the surveillance of this epidemic.



This epidemic was a practical test of the Pandemic preparedness of Tonga for such events.

3.1.2 Key Result Area 2:

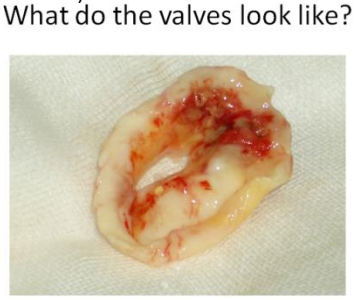
Improve the efficiency and effectiveness of curative health service delivery

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

Medical Superintendent (Dr. Toakase Fakakovikaetau) of Vaiola Hospital is the first winner of King George the V Coronation Award from the Prime Minister of New Zealand as a result of her work on Rheumatic Heart Disease Screening in Primary Schools since 2004. It is the same work that won her the 2008 Heart Hero Award from ProCor, a global network that promotes cardiovascular health in developing countries.

This screening programme has three phases where the second and third phases were carried out in 2009 in the Central District of Tongatapu (Main Island) and 'Eua (one of the four main island of Tonga). Out of 1,828 target population, 91% (1,654) and 61% (1,121) were being screened and ECHOs. There were 23 Rheumatic Heart Disease cases (1.4%) identified from the screening and 17 cases of congenital heart disease (1%). Out of the overall 5,411 total patients that have been screened since Phase 1, 377 have Rheumatic Heart Disease which equate to 69 per 1000 prevalence where 80% are still considered mild and can live a normal life if they comply with their secondary prophylaxis.

Operation Open Heart (OOH) Program: The Open Heart Team that visited in 2008 returned to Tonga from 18th September – 3rd October 2009 at the request from the Ministry of Health. The team consisted of the highest number of Medical Specialists (14 doctors out of the total 40 team members) that any medical team ever visits the country. There were 69 patients (42 adult patients and 27 Paediatric patients) screened by the team on arrival, 25 patients (12 adult and 13 Paediatric patients) were short listed and finally selected 17 patients (6 adult and 11 Paediatric) and underwent successful surgery. Patients were between the ranges of 3 to 54 years old. Visiting team also delivered Hospital Quality Management and Management of Peritoneal Dialysis training for the Ministry's staff including supervising the First Pericardial Effusion drained conducted by local surgeon. In addition, this visit conducted the First Tetralogy Repair of 3 years old patients in Tonga. Operation Open Heart Program is a huge cost saving exercise provided the estimated cost for the 17 patients (AUD$59,228.11) treated in this visit compared to only one patient referred to New Zealand for such similar operation (NZ$60,000.00) without mentioning on the job training and skilled transferred during the events.



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.

A single natural disaster (Tsunami) that stuck Samoa and Tonga claimed 9 lives at Niuatoputapu Island with an estimated population of 895 according to the Reproductive Health Section's record. During this terrifying experience, there were only 4 health staff (Mrs. Paea Fifita, Nurse Practitioner, Ms. Monika 'Uvea, Senior Staff Nurse, Ms. 'Ana Hakaumotu, Staff Nurse (Reproductive Health Nurse) and Ms. Lusia Salt, Dental Therapist) and 4 administrative supporting staff stationed at this Island. The health impact of this disaster was strategically managed under the good leadership and perseverance of Mrs. Paea Fifita and her supporting staff before the disaster relief team arrived in the island. It was a challenging exercise since the Health Centre was amongst the area that were heavily destroyed by the Tsunami where the medication and the equipment were washed away and buried in the debris. Apart from those who died instantly, there were eight patients with major injuries referred to Vaiola Hospital. They all completely recovered except one patient who passed away in few weeks after the incidence at Vaiola Hospital.

After one day from this incidence, a team of medical staff from the main Island arrived in Niuatoputapu with medical supplies to assist with this disaster relief work including environmental health staff that undertook preventative measures to avoid any potential epidemic.

The Ministry is very grateful for the government, churches, donor partners, families and friends that happily volunteered and contribute to assist with fulfilling the responsibility of the Ministry of Health to the people of Niuatoputapu particularly the Church of Latter Day Saints for allowing their building to be a temporary hospital after the Tsunami.

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.

There were a total of 772 permanent staff (at post) and 69 temporary staff employed by the Ministry of Health during the year 2009 and they were stationed as follows.

Division	Tongatapu	Vava'u	Ha'apai	Eua	Niuatoputapu	Niuafo'ou
Nursing	309	30	15	11	3	2
Medical	162	30	13	12	2	0
Dental	31	3	1	1	1	1
Public Health	34	4	2	1	0	0
Administration	59	8	4	3	1	2
Health Planning and Information	23	2	1	1	0	0
Total	618	77	36	29	7	5

Source: Human Resource Section

A total of 29 staff member successfully completed their further education and joint the Ministry's workforce in 2009.

No.	Name	Qualification	Institution
1	Dr. Veisinia Matoto	Master in Internal Medicine	FSM, Fiji
2	Ma'ake Tupou	Master of Medicine in Obstetric and Gynaecology	FSM, Fiji
3	Saia Piukala	Master of Medicine in Surgery	FSM, Fiji
4	Taukei'aho Halauafu	Master of Medical Science	University of the Ryukyus, Okinawa, Japan
5	Selesia Fifita	Postgraduate Diploma in Anaesthesia	FSM, Fiji
6	Elsie Tupou	Master of Development Studies	University of Sydney, Australia
7	Dr. Fololа Lutui	MBBS	FSM, Fiji
8	Dr. Mele Kaloni	MBBS	FSM, Fiji
9	Dr. Tevita Tu'ungafasi	MBBS	FSM, Fiji
10	Dr. 'Ofa Tukia	MBBS	FSM, Fiji
11	Dr. Tongavua Hikila	BDs	FSM, Fiji
12	Mele 'Atuekaho	Bachelor of Nursing	FSN, Fiji
13	Mr. Niu Fakakovikaetau	Bachelor in Environmental Health	Fiji School of Medicine
14	Meleane Eke	Post Graduate Diploma	FSM, Fiji
15	Mele Vuki	Post Graduate Diploma	FSM, Fiji
16	Naomi Fakauka	Graduate Diploma of Health Promotion	Deakin University, Australia
17	Talilotu To'ia	Diploma Anaesthetic Science	University of Papua New Guinea, PNG
18	Tonga Havili	Diploma in Medical Laboratory Technology	POLHN, Pacific Paramedical Training Centre, Wellington, New Zealand
19	Senisaleti Pasikala	Diploma in Medical Laboratory Technology	POLHN, Pacific Paramedical Training Centre, Wellington, New Zealand
20	Filimone Fili	Diploma in Medical Laboratory Technology	POLHN, Pacific Paramedical Training Centre, Wellington, New Zealand
21	Fele'unga Vaka'uta	Diploma in Medical Laboratory Technology	POLHN, Pacific Paramedical Training Centre, Wellington, New Zealand
22	Sokopeti Iketau	Diploma in Medical Laboratory Technology	POLHN, Pacific Paramedical Training Centre, Wellington, New Zealand
23	Timote Fakasi'i'eiki	Diploma in Medical Laboratory Technology	POLHN, Pacific Paramedical Training Centre, Wellington, New Zealand
24	'Aiona Ha'unga	Diploma in Medical Laboratory Technology	POLHN, Pacific Paramedical Training Centre, Wellington, New Zealand
25	Mele Fonua	Diploma in Medical Laboratory Technology	POLHN, Pacific Paramedical Training Centre, Wellington, New Zealand
26	Viela Tapa'atoutai	Diploma in Medical Laboratory Technology	POLHN, Pacific Paramedical Training Centre, Wellington, New Zealand
27	Vaiolupe Finau	Certificate & Diploma in Information Technology	Tonga Institute of Higher Education, Tonga
28	'Alapasita To'a	Certificate in Accounting	Tonga Institute of Higher Education, Tonga
29	'Akanesi Soakai	Certificate in Information Technology	Tonga Institute of Higher Education, Tonga

3.1.5 Key Result Area 5:

Improve Customer Service

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

Customer Service identified during the consultation to formulate the Ministry's Corporate Plan 2008/09-2011/12 as a key area to be strengthened in how the Ministry delivers its services for the public. A special indicator on the area of customer service is both required by the Ministry's Balance scorecard and Public Service Commission. This is the first time that this area was considered in the Key Result Areas thus the initial stage started by collecting baseline data to derive reference standards for monitoring purposes.

Patients admitted to Vaiola were given Customer Service Evaluation Form to be completed as part of the discharge process. This trial continuous to be monitored and harmonized to perfectly meet the Ministry's expectation and can be generalized to also applicable to other hospitals, health centres and division.

At the same time, patients are very pleased with new modernized environment of the new Vaiola Hospital with new equipment as well as continuous maintaining the cleanliness at all times.

Vaiola Hospital experienced a major technological development of having new Hospital Information System called Tonga Hospital Information System (THIS) launched on 30th April 2009. The ultimate aim of the system is to improve the efficiency of providing appropriate clinical information such as laboratory results and administrative data that will assist with the development of health care services delivery at the entire hospital setting. This is a product bought from the major Information Technological Company called Isoft who dominate this market regionally and around the world. This system has huge capacity and it accurately computerized the major business process to determine efficiency and effectiveness of health care delivery at the hospital setting. With minor modification, it can cater for the entire health care services of this nation if sufficient funds available. .

As a result of this investment, most of the operational statistics and data are available live which operational staff has access real time to this wealth of data. These operational data are mapped by Health Information Staff to the key executive information such as workload distribution among staff and so forth.

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.

Refurbishment of Vaiola Hospital

This development initiated by the Ministry of Health with the design of a Master Plan by Alexander & Lloyd Australia Architects with the estimated cost of AUD$36.5 million. Out of the seven phases of the Master Plan, three phases has been completed as follows.

- Package A (Psychiatric Ward, Future Laundry and Kitchen) was commissioned in December 2004. Total cost for Package A was US$3.623 million. The contractor who completed this is Kane Constructions, Melbourne, Australia and supervised by International Project Partnership (IPP) of Brisbane, Australia.
- Package B1 (Operating Theatres and Recovery units, CSSD, Laboratory and X-Rays), Obstetrics/Delivery Ward, Surgical Ward and Waste Treatment Plant), funded by the Government of Japan, was completed together with full installation of medical equipment in February 2006, commissioning took place in March 2006 with a total cost for Package B1 of US$9.743 million. The contractor who completed this is Fujita Corporation of Japan and supervised by Kume Sekkei Co. Ltd also of Japan.

- Package B2 (Paediatrics, Medical and Isolation Wards), funded under the IDA Credit, completed in November, 2007 and commissioned in December 2007. Total cost for Package B2 is US$5.599 million. The contractor who completed this is Kitano Constructions Corporation of Japan and supervised by Kume Sekkei Co. Ltd also of Japan.
- The project has developed and implemented an Estate management policy and ongoing improvement in Hospital Management
- Set up of maintenance Fund, with the Government setting aside 7% of the Annual National health Budget for maintenance purposes
- Implementation of a Health Care Waste Management Plan is currently ongoing
- Setting up of a Hospital Information Systems

As of to date, remaining four phases (C, D, E, F) grouped together as the final phase, is confirmed to be funded by the Government of Japan with construction planned to commence about September 2010 and scheduled to be completed by early 2012. This final phase will include the Hospital Administration Building to accommodate the Outpatient Department, Accident & Emergency, Antenatal Clinic, Central Pharmacy, Medical Record, Special Clinic and Hospital Administration. Renovation of the existing laboratory Building to accommodate Diabetic and Ophthalmology Clinics and Physiotherapy Unit. A new Dental Department, new School of Nursing Building, a multi-purpose Hall and extension to the Mortuary will complete the final phase.

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

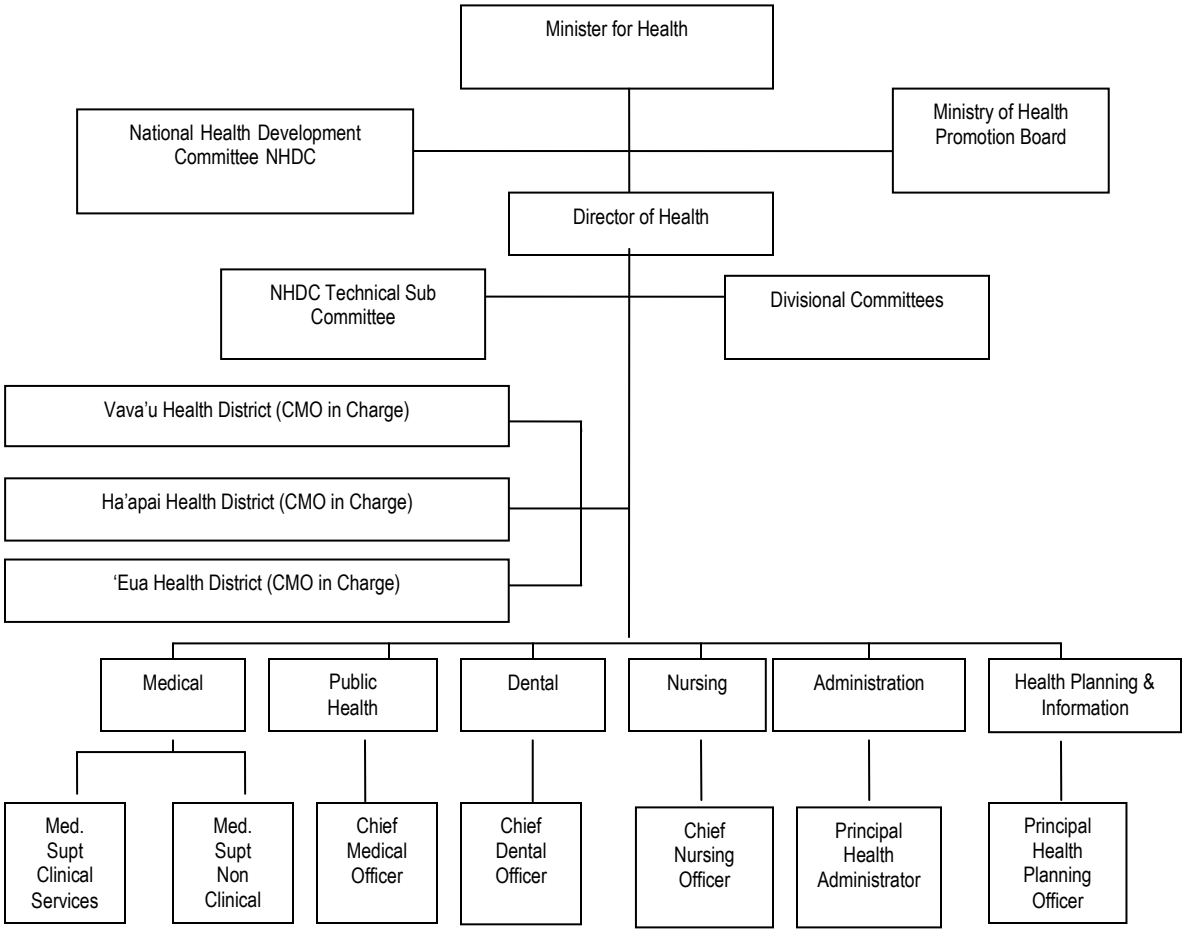
Divisional heads are responsible to the Director of Health for the implementation of each Division's services.

4.1 Ministry of Health Executive

As of 31 December 2009 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. Siale 'Akau'ola** Director of Health
Administration	**Mr Tu'akoi 'Ahio** Principal Health Administrator
Dental	**Dr Sililo Tomiki** Chief Dental Officer
Health Planning and Information	**Mr. Viliami Ika** Acting Principal Health Planning Officer
Medical Superintendent	**Dr. Toakase Fakakovikaetau** Medical Superintendent, Clinical Services
Nursing	**Mrs. Sela Paasi** Chief Nursing Officer
Public Health	**Dr Malakai 'Ake** Chief Medical Officer, Public Health

4.2 Organization Structure



Inpatient	Laundry	Reproductive Health	Curative	Public Health Nursing	Finance	Health Planning
Out-patient	Seamstress	Community Health	Preventative	Nursing Education	Transport	Medical Records
Dietary	Hospital Ground	Health Education	Public Health	Hospital Nursing	HR	Health Information
X-ray	Domestic	Environmental Health	Training		Administration	Project Planning
ENT	Communication	School Health			NHA	Research & Evaluation
Laboratory	Maintenance					
Pharmaceutical	Catering					
Ophthalmology	Hospital Security					

4.3 District Hospitals

As of 31 December 2009 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. Sione Sengili Moala
Senior Medical Officer

4.4 Overview of Health Indicators

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

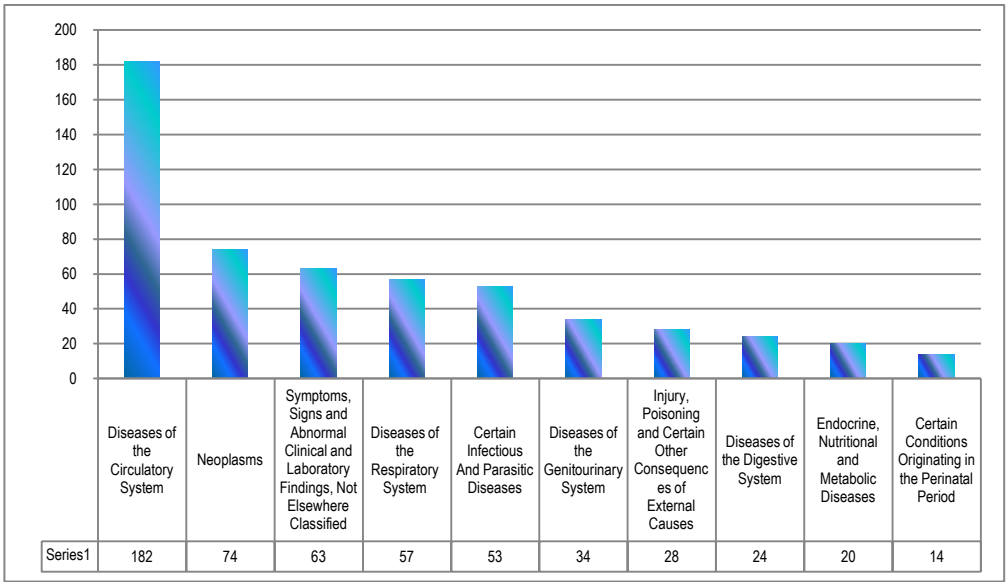
Table 1: Health Indicator(s) for Tonga 2005 – 2009

	INDICATOR	2009	2008	2007	2006	2005
1	Estimated Population ('000)	103.1	102. 3	103.3	102.4	102.3
2	Annual Population growth	0.3	0.3	0.3	0.3	0.3
3	Percentage of Population less than 14 years (per 100) Percentage of population 65 years and over (per 100)	38 6	38 6	38 6	38 6	36 6
4	Percentage of urban population (per 100)	36	36	36	36	36
5	Rate of natural increase (per 1,000)	19.9	21.6	21.3	21.5	20.4
6	Crude Birth Rate (per 1,000)	25.4	26.7	26.5	26.5	25.7
7	Crude Death Rate (per 1,000)	5.5	5.1	5.2	5.0	5.3
8	Maternal Mortality Rate (per 100,000)	114.4	76.1	36.5	110.5	227.8
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 (per 1,000)	14.5	16.4	11.7	10.7	11.8
11	Perinatal Mortality Rate (per 1,000 live births)	13.5	18.9	13.0	13.1	10.8
12	Total Health expenditure ('000) Per Capita As a percentage of total recurrent budget	21375 207 12.0	21580 210 10.0	17761 172 7.5	20170 196 10.4***	17021 170*** 11.6***
13	Health workforce Medical Officers at post Health Officers at post Nursing and Midwifery at post	 55 22 355	 59 19 346	 58 17 302	 57 20*** 325***	 45 21 362***
14	Percentage of population with safe water supply	99.9	99	98	97.5	97
15	Percentage of household with adequate sanitary facilities	99.7	98	99.6	97.2	97
16	Immunization coverage	99.5	99.5	99.6	99.1	99.5
17	Percentage of pregnant women immunized with tetanus toxoid 2	97.8	99.0	97.6	97.2	95.7
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	29.8	27.0	27.7	23.9	19.7
21	Percentage of pregnant women attending ante natal care	98.6	98	98.7	99	99
22	Percentage of deliveries conducted by trained personnel	98.1	97	98	98	96.1
23	Total Fertility Rate	3.7	3.7	3.7	4.1	3.4

*** 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 2009

Ten Leading Causes of Mortality in Tonga, 2009

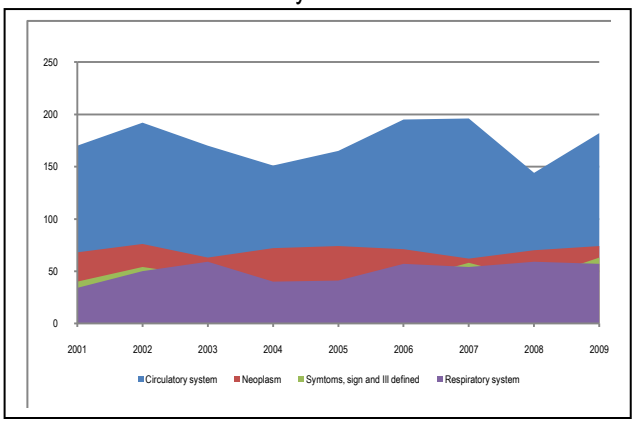


Source: Health Information Mortality Database
Reproductive Health Section
Hospital Admission
Notice and Certificate of Death issued by the Ministry of Health

The issue of major concern specifically on mortality is premature death. Life Expectancy is estimated to be within 67 and 73 based on Government Census and the World Health Report 2009.

Age Group	F	M	Total	%	Cum Freq
<1	1	2	3	2%	2%
1-4	2	1	3	2%	3%
5-14	1	2	3	2%	5%
15-24		2	2	1%	6%
25-34		2	2	1%	7%
35-44	3	4	7	4%	11%
45-54	8	12	20	11%	22%
55-64	11	18	29	16%	38%
65-74	20	23	43	24%	62%
75+	28	42	70	38%	100%
Total	74	108	182	100%	
%	41%	59%	100%		

The causes of death remain constants during this decade with the highest proportion mostly attributed (32%) to heart diseases (Diseases of the Circulatory System). The same reason is also believed to play influential roles on determining the life expectancy of the whole nation. At least 38% of deceased claims by these specific causes of death died at least 3 years earlier than expected as estimated by the Life Expectancy. Interestingly, it is also disproportionate between males and females. Males commonly died earlier than females in most countries but this cause of death generally explains these differences in Tonga.

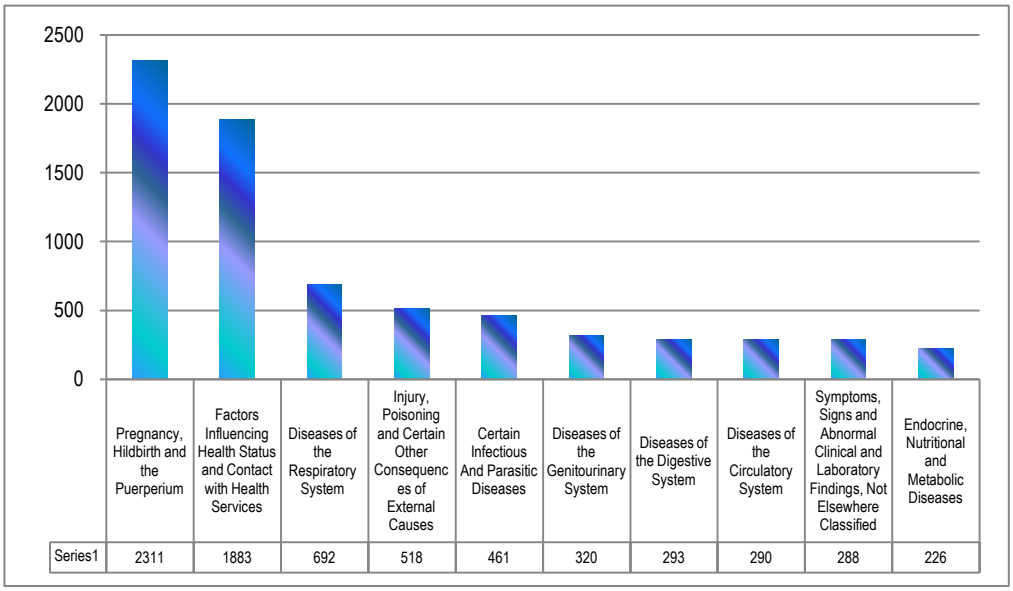


Ministry of Health invest reasonable resources and effort with development partners in research, curative services to save avoidable deaths and identified the best possible approach to minimize the impact of these on Tongan population.

It should be noted that Cancer is not amongst the common causes of admission to any of the hospital

services but it is the second largest causes of death in Tonga for about a decade now. The general pattern of the four leading causes of death fluctuate on the same ranges which they represent about 65% of Total deaths.

Ten Leading Causes of Admission to Vaiola Hospital



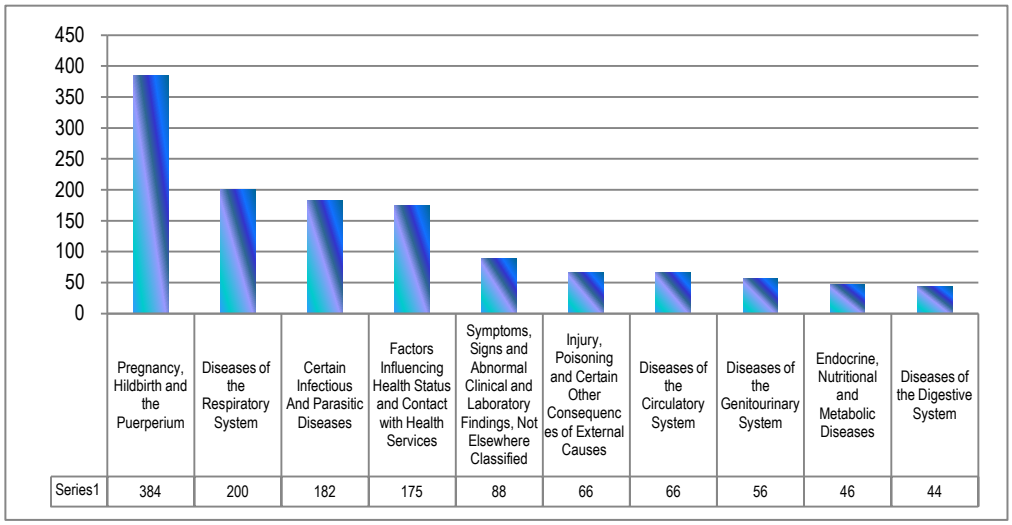
Source: Tonga Hospital Information System

The crude birth rate of 25.4 reaffirms that admission of mothers and new born babies consume the greatest resources in the hospital settings as reflected in the leading causes of admission. Infrastructural development in Vaiola as well as the outer island hospitals, good immunization and reproductive health services delivery found to be the main predominantly factor who maintain favourable child mortality indicators.

From past experience, the four leading causes of admission found to stay shorter than those who were admitted under the Endocrine, Nutritional and Metabolic Diseases (10th leading causes of admission to Vaiola, 9th leading causes of admission to the Outer Island Hospital). This category usually consist of patients with NCD related disease particularly diabetes. It is the same reasons that introduce some types of disability as a result of amputation, blind and so forth.

The common cough epidemic came with HINI were commonly treated at the outpatient departments and does not really have any significant impact on the overall admission level to Vaiola and the remaining hospitals.

Ten Leading Causes of Admission to Outer Island Hospitals



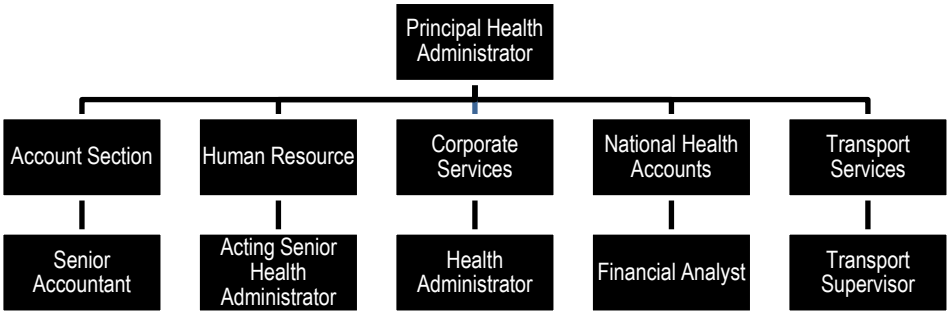
Source: Tonga Hospital Information System

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	Mrs. 'Amelia Tu'ipulotu	14	
Human Resource	Mrs. Mafi Hufanga	2	
Corporate Service	Mrs. Hatasou Taulanga	14	
National Health Accounts	Mrs. Mafi Hufanga	0	
Transport Services	Mr. Sifa Kafa	28	163,100
Total staff and financial resources	4	58	

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.	• 09/10 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 against the budget.	• 95% achieved.
• To produce a realistic Draft Estimates annually.	• 95% achieved.
• To broaden staff skills and applies in workplace.	• Number of staff commenced their distance learning course with the University of the South Pacific.

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.

Objectives	Selected Milestones
• To ensure (justifiable) established vacant posts are filled.	• Continue working on filling vacant posts within the ministry internal and external.
• To improve all staff morale through improved communication and recognition of achievement.	• Section heads monthly meeting are ongoing to get staff posted to different areas to meet on a regular basis.
• To improve customer service	• 96% of the administrative staff are now owned new uniform which is a result of the 2008 customer service's survey. The uniform shows the staff commitment for a better future.
• To establish a standard timeframe for processing administrative procedures and protocols.	• Current procedures and protocols internal and external are well manages and there is a movement towards responding by email are becoming more effectively.
• To have an up-to-date and accurate asset register and furniture of the ministry.	• On-going register lease of land are manages well. • Continue updating the cost estimation of the ministry's equipment and assets.

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, Tonga Campus, '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.
• Maintain an accurate and up-to-date HRMIS	• Implemented new databases for staff health profiles.
• Managers are provided with Accurate, Relevant and Timely Human Resource Information.	• Monthly circulation of updated staff leaves entitlements to all Head of Divisions.
• To develop and introduce an induction programme suitable for all new members of staff.	• New appointees attended an induction program delivered by the Public Service Commission.
• To ensure that staffs are recruited / selected that meets the criteria for the position and fit the culture of the Ministry.	• Vacant positions have been 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 provide staff with further appropriate training	• The Financial Analyst Mafi Hufanga, Accounting Officer Diplomate Louhangale Sauaki and Manavahe Ata attended a Consultation of the System of Health Accounts in the Pacific, Nadi, Fiji from 12 to 14 May 2009. • The Financial Analyst Mafi Hufanga and Accounting Officer Diplomate Manavahe Ata attended a Consultation on Support for the development of National Health Accounts in the Pacific, Nadi, Fiji from 1 to 3 September 2009.
• To ensure staff understand their job descriptions.	• Job Description reviewed and updated to reflect reality of workload in this unit.
• To benchmark national health accounts findings with other Pacific Islands	• NHA Findings for 2005 – 2006 were presented during the two meetings held in Fiji. • 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.	• Standard survey questionnaires circulated to Employers, Donors, Insurance, Providers, and Non Government Organizations to collect data for compilation of NHA Report 2007 – 2008.
• To review and update the revised fee scheduled every two years.	• New Medical Fees and Charges were implemented successfully on 02 February 2009.

5.1.5 Transport Services:

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

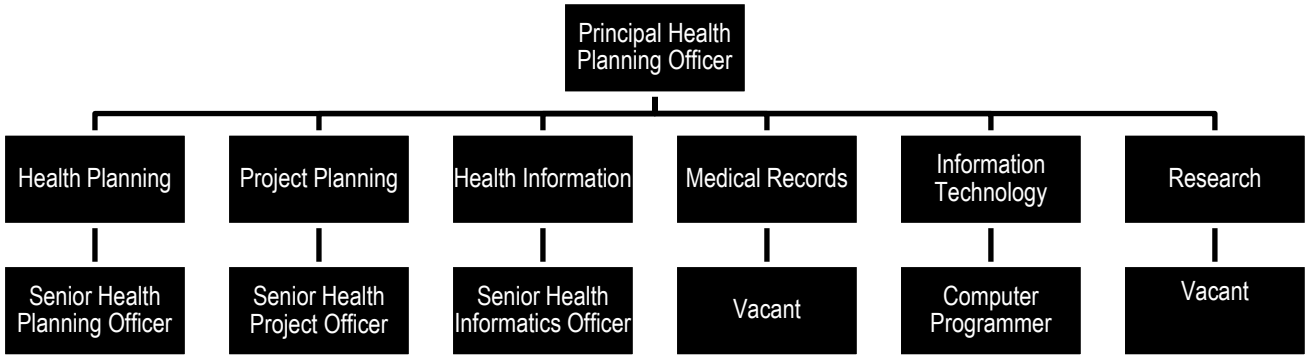
Objectives	Selected Milestones
• To ensure the availability of transport for the efficient mobilization of Health Personal and Distribution of medical supplies and equipment throughout the district.	• One new ambulance donated for standby use. • Identified the on call requirement. • Developed staff roster to meet the workload. • Developed daily operation plan for each vehicle. • Managed the vehicles on use at after hours.

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	Mr. Viliami Ika	1	7,000
Project Planning	Ms. Elsie Tupou	0	500
Health Information	Mr. Sione Hufanga	3	51,400
Medical Records	Mrs. Mioko Veilofia	13	800
Information Technology	Mr. Tu'amelie Paea	3	8,000
Research	Vacant	0	0
Total staff and financial resources	5	20	$ 67,700

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.

Objectives	Selected Milestones
• To ensure the required number of staff with the appropriate knowledge and skills are employed to provide efficient and effective health planning services. • To provide training opportunities for the staff. • To secure funding for staff training. • To prioritize training needs.	• Ms. Elsie Tupou completed her Master Degree. • Recruited three Computer Operator Grade II for the Health Information Section and a Senior Health Planning Officer for the Health Planning Section. • Mr. Sione Hufanga appointed as President of the Pacific Health Information Network (PHIN) for a two year term. • Clifton Latu attended a three months training in Japan. • Ms. Nauna Paongo continues with her distance learning towards her master degree in Health Informatics. • The Senior Health Planning Officer attended with the Medical Superintendent at the Pacific Hub for Health Information Seminar held in Brisbane, Australia, November 2009. • Secured WHO funding for attachment of the Senior Health Planning Officer and distance learning for the IT staff, as well funding for local workshops to be held in 2010 and 2011. • Update of division's training needs is a six monthly exercise.
• To document the planning process. • To disseminate the planning approach and educate staff.	• The Division played a central role in the development of the MOH Corporate Plan from consultation phases to dissemination process, both were national exercises. • This process allows the development of the 2008/09 – 2011/12 Corporate Plan and Key Performance Indicators were identified and incorporated.
• Continue Redevelopment of Vaiola Hospital according to the Master Plan.	• The Vaiola Hospital Information System was launched in April 2009 by the Hon. Deputy Prime Minister and Minister for Health. • The Health Sector Support Project was closed in July 2009, with USD$1.2 million savings reimbursed to the Government of Tonga. Completion report for the project was rated satisfactory. • Government of Japan confirmed funding for the final phase of redevelopment of Vaiola Hospital which includes construction of Outpatient/Accident and Emergency and Hospital Administration Block, Dental Department, Queen Salote School of Nursing, Renovation of the Special Clinic as well as the Extension of the Mortuary.
• To establish research capability. • To provide support for development of relevant health policies.	• Senior Health Informatics Officer Sione Hufanga was approved to undertake researches on Captured – Recaptured Assessment of Mortality in Tonga and Underlying Cause of Death from Medical Record Review in Tonga in conjunction with the School of Population Health, University of Queensland.

• To evaluate planning processes. • Develop the concept of Key Performance Indicators.	• Review of Corporate Plan for the period 2009 – 2012 allowed the documentation of achievements of the Sections, Divisions, and the Ministry as a whole during the period. • The concept of key performance indicators was identified to be still relevant and incorporated in the 2009 – 2012 Corporate Plan.
• Formulation of recommendations on matters pertaining to health policy, including legislation and regulations as required. • Formulate training and human resources plans. • Determine the programmes and projects required to fulfill the health development plan, and recommending development and recurrent estimates to support the programmes. • Fostering intra-service and inter-organisational cooperation and coordination of the various health programmes in operation. • Monitor the implementation of programmes and updating plans and programmes	• The Hon. Minister for Health is the Chairman of the National Health Development Committee and permanent members include the Director for Health, Director for Planning, Chief Medical Officer Public Health, Chief Medical Officer Clinical Services, Medical Superintendent, Chief Dental Officer, Chief Nursing Officer, Supervising Public Health Sister, Principal Health Administrator, Senior Accountant and Principal Health Planning Officer as Secretariat. • The NHDC Committee continues to meet every last Friday of the month. • The Quarterly Reporting System continues to be a useful tool for reporting by the six Heads of Divisions of monthly activities highlighting achievements and constraints.

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.

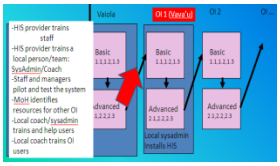
Objectives	Selected Milestones
• To increase the number of projects approved and implemented. • To develop plan for the Ministry's equipments/renovation and new building.	• China Government projects (Mu'a Super Health Centre, Vaini Health Centre and Prince Ngu Hospital Public Health Centre) implemented and anticipated for Mu'a Super Health Centre and Vainin Health Centre to be completed in early 2010. • Tonga New Health Systems – Australia Support program approved with budgeting of AUD$7 million for its 10 years program. • Likamonu Hospital Redevelopment Project approved funding from the European Union with a budget of TOP$2.5 million. • Implementation of Vaiola Hospital Redevelopment Project Phase II designing details with the Nihon Sekkei International Corporation INC. • Niu'eiki Hospital project approved funding from the Japan's GGP program of 2009/2010. • Annual review of Health Projects registered continued.
• To prioritize and maintain the Ministry's training needs.	• Submitted on time and implementation of the ministry's training needs/schedule for 2009/2010 by the Training Development Committee.

• To provide efficient and effective secretarial tasks to the Training and Development Committee and also to the National Health Selection Committee for Training.	• Reviewed the Training Development Committee's Terms of Reference. • 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. • Additional members considered appointing is another senior nursing sister from the Nursing Division. • Training Development Committee convened ten meetings during 2009.
• To improve staff knowledge and skills by further training.	• Training needs identified for the Section has been revised, prioritized and submitted to the Acting Principal Health Planning Officer, and was tabled in the Training Development Committee's meeting.

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 retain staff. • To provide staff with further training in Health Information Management and Data Analysis (Postgraduate studies in Health Informatics, Biostatistics and Epidemiology). • To ensure staff understand their job description.	• Ms. Nauna Paongo continued her study for a Master Degree in Health Informatics. This training anticipated to be completed by mid-2010. • Senior Health Informatics Officer also continued his study for a Master degree in Biostatistics. This training anticipated to be completed by late 2010. • The Ministry and the Government approved four new posts for this section namely Senior Health Informatics Officer and 3 Computer Operator Grade II and successfully filled in July (Ms. Lina Noema), October (Mr. Uaisele 'Epenisa and Mrs. Vaolupe Finau). • Mrs. Vaolupe Finau completed her Diploma in Computer Science from the Tonga Institute of Higher Education in December 2009. • An Australian Volunteer (Mr. Brendan Dennis) from VIDA Programme joined us in July 2009 to assist with the reporting requirement of the Hospital Information System.
• To improve data analysis capability. • To improve data quality to international standard.	• 2009 is a historical HIS year as it experienced the Hospital Information System that has been dreamed since the commencement of the Health Sector Support Project in 2003. This long term commitment made by the Ministry in this investment finally came into operation on the 12th March but officially launched on the 30th April. • In this implementation, few things went perfectly right and contribute significantly for the success of this HIS implementation. • **Separate the Go live Date (12th March) and the Official Launching date (30th April)** • The Vendor (ISoft) was prepared for an Official Launching on the same date we nominated for the go live. The local HIS team examined this approach on

Objectives	Selected Milestones
	the reality of the local context and concluded that the risk is extremely high compare to the alternative of separating these dates. • The main rationale arises since the overall competency and computer literacy of staff is very widely dispersed. Generally, young staff with sufficient computer literacy was not in good numbers to operate every station at all shifts. Additionally, none of them was in the position to operate such software even after attending several sessions of HIS on the test version of the system. • Official launch programme completely took the attention of HIS Team and other relevant staff rather than following the planned implementation approach. This is deal with great risk and it can deliver strongly impression and experience to whoever attended the Official Launching occasion. • **Operate Go live approach in the lowest profile possible** • Following the idea of separating the Go Live and Official Launching Date, it was realized that relevant staff involved in the go live approach should be avoided from possible distraction particularly the media. They are amongst our close partners however the nature of this exercise dealt with strict confidential information of the public where single mistake matters. • It was quite an emotional experience when we operate the go live at the Emergency and Outpatient Department without the knowledge of the public and unrelated staff to HIS. It was hard for the Vendor to accept this approach recommended by the Local HIS team. The local HIS Team maintain their position and swallowed the pride positively associated with the success of this implementation. • When we receive OK signal from A&E and Medical Records, the wards followed and other allied health services and by the end of 20th March 2009, all modules were operational. • **Embedded implementation on top of the current business process** • The capacity of the system can avoid some of the paper based process and eventually demands some business process changes in administrative environment that support clinical practice. Nevertheless, the implementation of the system did not by any mean affect the prime responsibility of the hospital in managing the health of the public. Since this is a major undertaken, selected implementation approaches eliminated all greatest possible factors that reduced the success of the implementation. The system definitely put on hold temporarily and/or permanently any evidence of adverse effect on health care services delivery as a result of the system. • Staff, Vendor and HIS Team pursued with the implementation without any changes to the current business process and made some technical harmonization to suit with this implementation setting and current business process. • **Functionality Stage Implementation**  • This picture was taken from the Implementation Strategy Document written by the Project HIS Consultant (Dr. Ion Stanciu). He envisioned that the most sustainable approach of introducing HIS to the nation is using "Functionality Stage Implementation". That means the implementation should only start with the basic functionality and

Objectives	Selected Milestones
	then move to advance as soon as users are comfortable with the basic one. Additionally, he suggested that we complete these stages for Tongatapu before considering outer island and Health Centre if possible. • HIS Team in conjunction with the vendor set up the implementation strategies in accordance with the above suggestion. During the course, we slowly introduced some selected advance features such as live inputting of clinics times and clinical administrative notes, computerizing of theatre, Anesthesia, ICU and Recovery details. • We planned to introduce referrals features, integrate with Msupply and Diabetic Clinic Database, and further disaggregate user's access to A&E Clinics, bar coding and scanning as well as medical records tracking. These additional features have all been built into the system and it is anticipated to be utilized toward mid-2010. The greatest improvement that we're going to also introduce is live data analysis. The system provided lists of standard HIS report. The role of HIS Team is to provide indicator that strictly requires by the Ministry's quarterly report, Performance Management System KPI, Corporate Plan and other stakeholders. We will provide at the end of this report some statistical tables from the system to generate at any time from the system. • **Unique Advantage of THIS:** • THIS is a combination of Patient Administrative System and Cut-Down Version of Clinical Information System. These are forefront advantage experienced by the Ministry as a result of using THIS. • **Information Sharing** • THIS allows information sharing to all eligible staff. The primary objective of this feature is to promote efficiency and effectiveness of Health Care Services Delivery in all areas connected to the system. The critical clinical planned and rented services to any patients are made available to the clinician and nurses whenever required such as booking to the Operating Theatre, follow up visit to the clinics, appointment, referrals and so forth. It also covers radiology and pathology results except STI, HIV and TB laboratory results. • **Reliable Security** • There are four main access levels within the system. The Technical Access level was restricted to IT staff, Full Access restricted to the Clinicians and the Executive Staff and then module access level cater for the operational staff access. The ward staff only restricted to inpatient and clinics modules while laboratory and the remaining areas are restricted to their respective modules. • The system recorded and displayed to relevant users the name and time of every users accessing the laboratory result as soon as he/she hit the icon which will open the result. Apart from Technical Access Level, users have very limited access to modify, delete and easily manipulate data in the system. • The system automatically backup in daily basis from the Central Server located at the Laboratory to the Administration Building at 1:00am until 1:20am. During this backup process, the system is temporarily turned off until the backup is completed. • Since the system operated on 12th March 2009, we haven't encountered a single system failure for more than 10 minutes. • **Timely Reporting**

Objectives	Selected Milestones
	• These are sample statistics that the system is capable to release at any point in time. These following reports are customized report designed in conjunction with one of our Australian Volunteer (Mr. Brendan Dennis). Mr. Dennis has special skills to automatically retrieve this information in the required format from the latest back up version. The rationale behind this practice is to reconfirm that the backup operate efficiently.
• To improve the reporting of clinical information	• **OUTER ISLAND HOSPITAL STATISTICS REPORTING** • We have completed a Jointly Strengthening of Vital Statistics Collection at the Outer Island 17th November – 8th December 2009. The ultimate outcome of this meeting and training is to improve the efficiency of Vital Statistics Data Collection, strengthen working relationship between relevant Government Departments and devised appropriate doable/affordable solution for Vital Statistics Challenges at the Outer Island. Additionally, it will assist with the development of HIS Strategic Plan as specified on the 50th Strategy of the 6th KRA of the Ministry's Corporate Plan. • The organizer invited key stakeholders (Ministry of Justice, Statistics Department, and Prime Minister's Office) as Guest Speakers for this meeting to ensure complete coverage for this one day meeting and training at each Island Group. The same Vital Statistics Team (except Prime Minister's Office and Government Statistics Department) jointly deliver similar outreached programme in 2006/07 as part of the preparation for our New Mortality Policy and Procedure implementation and it was a significant contributing factor for the success of this implementation. • It was found that there were four main areas of weaknesses with regard to HIS at the outer Island as provided in the table below. The findings were mapped to the KRA through strategies of the HIS Strategic Plan 2010-15. HIS staff is still working on details formulating appropriate strategies with accompanied measurable indicator and achievable target. HIS Strategic Plan process will be tentatively completed by the end of April 2010. • On the same trip, Health Information Staff also contributed for the H1N1 Immunization Preparation Workshop and Reproductive Health Policy 2008-11, organizing a Demographic Health Survey Meeting and assessing the preparedness of data required for the 2009 Ministry's Annual Report. • As a result of this trip, • Ms. Leonia Finau (Junior Medical Recorder from Vaiola Hospital) has been permanently transferred to Ngu Hospital on the 19th December 2009 to assist with data preparation for 2009 Annual Report. • Health Planning and Information Division have provided the computer request from Niu'eiki Hospital. • The letter of request of Technical Assistant to assist with mentoring the design of Project Implementation Plan for DHS Project in Tonga was delivered to UNFPA on 02/02/2010. • **COMMUNITY HEALTH CENTRE STATISTICS REPORTING** • Health Sector Support Project also funded the development of Information System for Community Health Centre. It was started with a single key player which is Salome Manumu'a. She was responsible for preparation of stationeries specifically in stocking and dispersing according to the needs. Additionally, she also collected monthly report from each Community Health

Objectives	Selected Milestones
	Centre and enter into the Health Centre Database. • Ms. Manumu'a retired from work in 2009 and replaced by Ms. 'Ana Timani to cover for her absence. The absent of this player introduced pressure particularly collecting data regularly as well as making summary statistics available to Health Centre's monthly meeting. However, some changes also made to the Health Officer of some Health Centres and the same problem arose as a result. Yet, we still have results at a quality that may be slightly lower than previous years. Health Information Staff will strengthen its training capacity in this coming year to minimize the negative effect of staff changes on quality of HIS services and output from the Community Health Centres.

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 ensure adequate staffing levels	• Computer Operator Grade I, Clifton Latu has achieved IP Networking Engineering for E-government from JICA Training in Japan for 3 months. • Computer Programmer, Tu'amelie Paea conducted a duty visit to Ballarat on Hospital Information System. • IT Section has been awarded with a WHO Fellowship for distance learning to commence in 2010 for two years.
• To retain staff	• Distribute training opportunities for staffs and specify field for each staff in their interest field in IT. • Japanese volunteer joined the team in February for two years. She is a qualified IT Specialist in System Engineer.
• 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.
• To optimize support and development costs	• Completed the Internet Direct Connection process and the IP address for the ministry. Now we can access the ministry's IT service from anywhere the world by using the VPN service. • Outer island hospitals also centralized to use TCC internet service. • Implemented an Intranet and ready to launch in January or February 2009 with basic functionality.

Objectives	Selected Milestones
	• IT provides HIS support online tool using VPN connection.
• To improve data quality	• Implemented the Intranet service and ready to launch. Digitized the annual reports and corporate plan in the ministry's intranet. • Launched the Hospital Information System. Available on the ministry's website for internal use only.
• To improve access for health planning and information internationally	• We have implemented an IT service VPN remote connection to our Local Area Network (LAN) 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 has installed 36 Thin Client computers to use for Hospital Information System. • Information Technology works with Hospital Information vendor in providing the ongoing support update the update the Hospital Information System Servers to the newest version of WebPAS. • Computer implement Virtual Private Network (VPN) remote access connection service as for support online by IT Support and also by Hospital Information System vendor's support.

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.

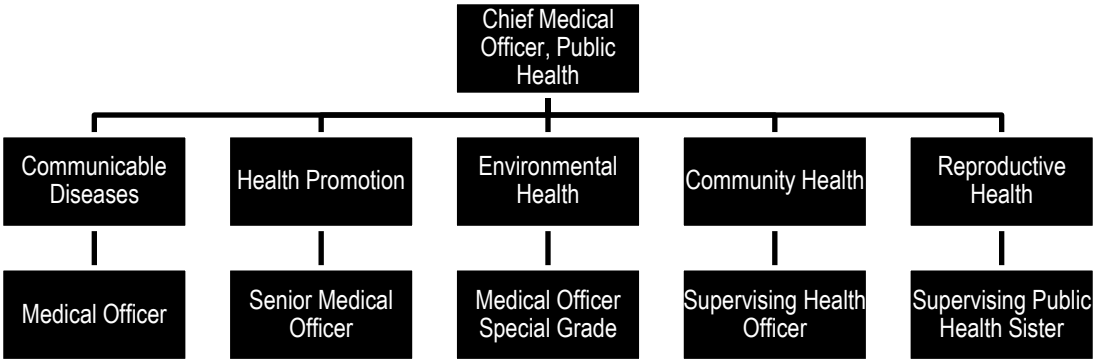
Objectives	Selected Milestones
• To continue on-the-job-training and attachments for staff	• Five Medical Records Staff (Ms. Mioko Veilofia, Ms. Lisita Holani, Ms. 'Ilaise Tu'utafaiva, Ms. Palaniketi Talia'uli, and Ms. Leonia Finau) granted with WHO Fellowship to pursue overseas training toward a Certificate on Medical Administration 3 for two years. • The VIDA application for Health Information Manager from the Health Information Management Association of Australia (HIMAA) was successfully considered by VIDA programme. Through effective partnership with the current President of HIMAA (Vicki Bennette), the former President of HIMAA (Ms. Trish Ryan) willing to take up this 12 months assignment with effect from January until December 2010.

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. Sela Takitaki	4	4,200
Health Promotion	Dr. Paula Vivili	9	318,219
Environmental Health	Dr. Raynold 'Ofanoa	22	6,850
Community Health	Mr. Simione Tei	14	7,502
Reproductive Health	Sr. 'Atalua Tei	48	84,100
Total staff and financial resources	5	97	$

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 reduce the incidence and prevalence of communicable diseases through the implementation of strategies outlined in many health care programs/projects, and through policy development and Health Act to facilitate implementation of public health interventions.	• Mr. Saia Penitani and Mrs. Mele Katea Paea attended a Global Fund Financing meeting in July, 2009, Fiji.
• To maintain the high standard of provision of necessary services for visa applicants, employment recruits and food handlers at all times.	• Ms. Nukonuka Mafile'o attended

• 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.	a Community Based Health Course in October, 2009, Japan.
• To improve surveillance of all communicable diseases but especially those that are prone to outbreaks such as dengue, typhoid and influenza like illnesses.	• Mrs. Saia Penitani and Mr. Siutaka Siua attended a meeting on TB Global Drug Facility for the Pacific on the 21st November, 2009, Suva, Fiji.
• To ascertain proper management of all patients admitted to the Isolation Ward and those that have been discharged but needs to be followed up at home.	• The completion and subsequent publishing of the Tonga National Strategic Plan to respond to HIV and STIs 2009 – 2013.
• To ensure that the capacity of staff at this section is developed appropriately and to ensure a user- friendly working environment, both for staff and users of our services.	
• To collaborate more effectively with all stakeholders that provide services for STI including HIV/AIDS, in planning, implementation and monitoring of all strategies developed so far, and in accordance with the National Strategic Plan to Respond to STI including HIV/AIDS.	• The completion of the second generation survey on antenatal mothers and youths of Tonga.

Statistical Information:

Tuberculosis

Table 2: Tuberculosis notifications by age group, gender and disease classification

Age Group	Gender			Disease Classification			Total
				Pulmonary		Extra- Pulmonary	
	Male	Female	Total	Sputum +ve	Sputum -ve		
0-10	0	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0
21-30	1	0	1	0	0	1	1
31-40	0	1	1	1	0	0	1
41-50	2	0	2	2	0	0	2
51-60	0	2	2	2	0	0	2
61-70	0	2	2	1	1	0	2
70 +	0	0	0	0	0	0	0
Total	3	5	8	6	1	1	8

Source: TB Register/Laboratory Register

There were a total of eight TB cases registered at the National TB centre for the year 2009.One of the cases was in Vava'u and the rest were all in Tongatapu. Of this eight, five were females and three were males. 88% of all TB notifications were Pulmonary TB of which 75% were sputum positive and the rest were sputum negative. Only one of the registered cases was an extra-pulmonary TB and it was TB of the spine. Contact tracing was carried out for all contacts of sputum positive index cases.

Typhoid Fever:

There were no cases of salmonella typhae reported for the year although one case of salmonella para-thyphae was recorded in Vava'u. This is a dramatic drop from the four cases of typhoid fever registered in 2008.The reduction in numbers could possibly be attributed to improved and cleaner water supplies as well as better hygiene and sanitation practices by the people of Tonga.

Leprosy:

No active cases of leprosy were recorded for the year but staff of this section were carrying out visits and dressing s of previously treated cases.

Meningococcal Meningitis

Table 3: Confirmed Meningococcal meningitis by age Group and gender

Age Group	Gender		Total
	Female	Male	
0-5	1	3	4
6-10	0	0	0
11-15	0	1	1
16-20	1	0	1
21+	0	0	0
Total	2	4	6

Source: Communicable Disease Register/Laboratory Register

Six cases of meningococcal meningitis were diagnosed with 83% of cases from the paediatric ward and the rest from the medical ward. This section was then responsible for contact tracing and the administration of prophylactic antibiotics. A total of 328 contacts for all six index cases were traced and either administered prophylactic rifampicin or ciprofloxacin. Unfortunately there was one death as a result of meningococcemia and this was a 17 year old female.

Dengue Fever

Table 4: Cases of Dengue Fever by age group and gender

Age Group	Gender		Total
	Male	Female	
0-10	38	28	66
11-20	41	37	78
21-30	37	37	74
31-40	5	4	9
41-50	6	9	15
51-60	4	5	9
61-70	4	3	7
71+	1	0	1
Total	136	123	259

Source: Communicable Disease Register/Laboratory Register

There were a total of 307 cases of dengue either confirmed or suspected recorded for the year however only 259 cases are shown on the above table. This is due to the fact that 48 cases did not have either their age or gender in the laboratory forms so they could not be classified to either category. Dengue serotype Type 1 and Type 4 were responsible for this outbreak and fortunately there were no loss of life. When cases are broken down by districts, 55% of cases were in the Central District, 22% each in both the Western and Eastern Districts and 1% in the outer islands.

STIs including HIV:

There was one new case of HIV detected in 2009.This brings the total number of HIV cases in Tonga since the first recorded case in 1987 to 18.This person has since been returned to country of origin and appropriate contact tracing carried out. Currently, no one is on anti-retro viral therapy. (ARVs)

Other STIs seen were mostly Chlamydia and Gonorrhoea. This year the communicable disease unit not only catered to outpatient STI cases but antenatal mothers and their contacts as well. Cases referred were offered counseling in addition to the drug management for both index cases and contacts alike.

Table 5: Curable STIs by Age Group, Gender and Type

Age Group	Gonorrhoea		Chlamydia		Both		Total
	Male	Female	Male	Female	Male	Female	
0-15	0	0	0	0	0	0	0
16-20	22	1	1	30	1	9	64
21-25	20	1	1	58	7	0	87
26-30	9	1	6	31	1	1	49
31-35	8	1	3	15	0	0	27
36-40	2	0	2	3	1	0	8
41-45	0	0	0	1	0	0	1
46-50	0	0	0	0	0	0	0
51-55	1	0	0	0	0	0	1
56+	0	0	0	0	0	0	0
Total	62	4	13	138	10	10	237

Source: Communicable Disease Register/Laboratory Register

Tonga is now able to test for chlamydia in the laboratory at Vaiola Hospital whereas the practice beforehand was to offer presumptive treatment for chlamydia or treat chlamydia using syndromic management. There is also a remarkable increase in the numbers of women seen at this unit for STIs as a result of increasing referral from the ante-natal clinic of positive cases for management. The ante-natal clinic are now routinely screening for chlamydia and gonorrhea in addition to all the other usual bloods taken at pregnancy.

From the above table, 67% of those with gonorrhea only are amongst the age group 16-25 and 95% of those are males.60% of those with chlamydia only are amongst this age group and 98% of them are females. It is also shown here that 85% of all cases with both gonorrhea and chlamydia are in this age group. Altogether 95% of all cases of gonorrhea are below the age of 35, 96% of all cases of chlamydia are also in this age group and 95% of those with both infections are less than 35.

The data is suggesting that services provided and outreach programs conducted should be tailored to be more youth friendly. Additional health promotion and educational activities with regards to sexual health should be undertaken particularly targeting our youths.
All in all, the numbers of STIs seen here are still not the full picture for Tonga but only a fraction of it. Cases of STIs are still under reported and a new method should be devised to enable proper documentation and reporting by all those involved in the diagnosis and management of STIs in the country so that more accurate data is collected.

H1N1 (Swine Flu):

Table 6: Confirmed cases of H1N1 by age group and gender

Age Group	Gender		Total
	Male	Female	
0-10	1	2	3
11-20	3	3	6
21-30	0	7	7
31-40	1	0	1
41-50	1	0	1
51-60	0	0	0
61-70	0	0	0
70+	0	0	0
Total	6	12	18

Source: Vaiola Laboratory Register

When H1N1 was sweeping across the globe, Tonga was not spared as it recorded 19 cases confirmed by the laboratory and 1 death to join other Pacific Island countries that were hit by this pandemic. The table above shows 18 but there was also an additional male with no documented age group to bring the total to 19.This unit together with key stakeholders in the ministry worked together to contain the spread of H1N1 and it was very fortunate that no more cases or fatalities were seen. From the above data, 84% of cases were less than 30 years of age and 63% of them were females.

Other Services:

Table 7: Health Certificates for Shop-keepers, Food handlers, Visa, Employment and Missionary purposes by quarters

Quarter	Shop keeper	Food handler	Visa	Employment	Missionary
1	656	524	80	95	37
2	98	132	72	49	18
3	59	49	70	42	14
4	66	27	52	33	9
Total	879	732	274	219	78

Source: Communicable Disease Register

Health certificates are issued for various reasons such as for shop keepers, food handlers, visa purposes, employment and for missionary duties. From the graph above, majority of health certificates are issued on the first quarter. There is a big discrepancy between the numbers seen in the first quarter and the rest of the quarters for the year. This is due to the fact that more people are seen at the hospital during the first quarter for microbiological testing which is mandatory and conducted once a year. The rest of the quarters are for renewal only but the data also shows that many more people do not come in for renewal of their health certificates from the second to fourth quarters.

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 until September 2009. In addition, the HPU have facilitated Aerobic sessions for other communities as requested by Veitongo under Health Promoting Church, LDS of Tokomololo, Longolongo and Roman Catholic of Kolofo'ou. **Community Health Promotion:** • The Unit continued to work and co-operate with Salvation Army on addressing healthy initiative at the Kinder-garden health program at Sopu and Kolovai as was the case in 2008. • We also continued carrying out health talks for LDS women's sessions in Kolomotu'a and Longolongo on healthy lifestyle. • The Ma'alahi Organic Committee promoted organic veggies among selected communities and involved assistance from staff from OPIC, MAFFF and NCD/HPU. • The H1N1 pandemic at the beginning of April 2009 required NCD/HPU to play a central role in dissemination of information and running the media campaign. All our Media outreach and programes at this time was diverted to the outbreak as reflected by the coverage report.
• 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 and Veitongo was picked as the pilot community. The national launch of the program was in September 2009 with the support of the Church leaders. Significantly, the establishment of a HPC Task Force and Working Committee is seen as positive developments to assist with providing governance and direction. • The Veitongo (Health Day) Festival on the 19 December 2009 was a success and marked the end of the year for this pilot area for this new initiative. **Health Promoting Schools Project:** • 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. This program was rather stagnant during 2009 due to funding and staff issues. **Health Promoting Workplaces:** • The success of the Tongan workers sports programme known as Fiefia Tonga was a

Objectives	Selected Milestones
	result of close ooperation between the NCD/HPU and its partners in other workplaces. The result of this was at the completion of the 2009 season 24 government ministries and non government sectors participated. In addition to this, the ongoing programmes of support for workplaces with periodic measurements of weight, height and blood sugars continued. **General Health Promotion Outreach** • As indicated on the coverage of Health Promotion programmes that most of the media outreach were dedicated to targeting the H1N1. Healthy lifestyles and prevention and control of lifestyle diseases were also covered.
• To work together with the National NCD subcommittee on Physical Activity, Healthy Eating, Tobacco Control;	**National NCD and Sub-Committee on Healthy Eating, Physical Activity and Tobacco:** • NCD/HPU actively supported and followed the work of the Sub-Committees. Some of the activities carried out were as follows; • World Tobacco Day on 31 May 2009 had the theme "Show the truth, picture warnings save lives". This theme was addressed on television and radio programs and ads. • The Unit facilitated the Interdepartmental Sports programme known as Fiefia Tonga Sports with the support of other partners. The programme was controlled and administered by an appointed committee chaired by Lord Kalaniuvalu. This year the main sponsor was TCC/UCALL and Tonga Health. There was 24 participants and activities included touch rugby, volleyball, netball, tennis, table tennis, aerobics and walk for health. A media release has been sent to all stakeholders. • Tobacco, Healthy Eating and Physical Activity Sub Committee conducted meetings on reviewing of their respective components in the NCD Strategy for the upcoming review of the 2004 – 2009 Strategy and development of the 2010 – 2015 Strategy. • The full membership of the staff at the Ma'alahi Organic farming for the community was more or less contributed on promoting healthy veggies for the membership and appropriate villages. • Apart from supporting the sub committees activities; World Health Day on the 7th April, 2009 with theme of "Hospitals to be safest place for emergencies" was also supported by the Unit. The program was hosted by the Ministry of Health with invited speakers from MOW, JICA, and WHO delivered messages related to the prescribed theme.
• To collect statistics on risk factors for NCDs;	**Healthy Promoting Workplace:** • As alluded to earlier, apart from Fiefia Tonga Sport, some of workplaces such as Tongan National Reserve Bank are running their own health screening assisted by the staff. • The mini-STEPS survey was conducted for the Ministry of Health staff of Vaiola Hospital during November 2009. There was close to 80% participation in the survey. The data collected will be used as baseline data for staff and targeted programmes implemented. **Confiscation of cigarettes**: • There have been 25 cartoons of port royal and 91 cartoons of Winfield and Benson confiscated because of not legally complying with the Tobacco Act.
• 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. • The cooking demonstration of local and healthy recipe between the staff and MAFFF wa

Objectives	Selected Milestones
	done every Wednesday from May to November 2009. • Pita, Suliana and Naomi attended the various STI IEC materials workshop in March and November. • ASOP training with Erin of Australia Sport Institute was held on the 15 to 17 October with the staff aimed at developing a partnership with ASOP and the Unit. **Overseas workshops and training:** • 'Eva Mafi attended the Saitama NCD regional meeting on the 3 to 7 August, 2009. The meeting was in two parts, first the meeting of program officers of NCD from 3 to 5 August in Saitama Public Health complex then meet together with the policy makers on the 6 to 7 August in Tokoyo. • Meleane Kava Fifita attended the training on TB information and communication in Noumea, New Caledonia from 28 September to 2 October, 2009. **Overseas Fellowship:** • Naomi Fakauka completed her Post Graduate Diploma in Health Promotion from Deakin University of Melbourne, Australia in June 2009. • Lesieli Vanisi started her Diploma in Dietetics training at FSM, Fiji in July 2009. **Human Resources:** • Japanese Overseas Counterpart Volunteer: Ms. Nana Nomura is nearing the completion of her two years assignment as a volunteer physical instructor. She also participated on various physical activities such as school athletics, community/waterfront aerobics, and Fiefia Sport. • Australia Youth Ambassadors: Ms. Liza Wallis returned home after completing her one year term in September as the Social Marketing Officer with a Nutrition focus and developing IEC materials. Ms Adelle Purbick started in October as Nutritionist and to continue on developing IEC materials. Ms. Michelle Nunn left in July after completing her volunteer assignment in Community Activity and Social Marketing. • Ms. Bronwyn Hall is working on a permaculture project with MAFFF and Health Promotion. She is a member of Ma'alahi Organic Farming.

Statistical Information

Table 8: Radio Broadcast statistics

No	Broadcast Topic	No. prog's
1	Communicable Diseases (Dengue Fever Outbreak, Typhoid, TB, HIV/AIDS, STI)	20
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)	10
3	Mental Health (Mental preparation for any disaster, common mental problem)	4
	Total	34

Source: Health Promotion Section

Table 9: Television Broadcast Statistics

No.	Broadcast Topic	No. prog's
1	Communicable Diseases (Dengue Fever Outbreak, Typhoid, TB, HIV/AIDS, STI)	20
2	General Health Promotion (Nutrition, climate change, physical activity, tobacco control, X-mas Greeting)	15
3	Infant Health (Meningitis, Rhemautic Heart, Diarrhoea)	2
4	Non Communicable Disease (Diabetes, risk factors)	4
5	Mental Health (Mental preparation for any disaster, common mental problem)	4
	TOTAL	45
	Broadcasting Topic (Advertisement)	
1	Diabetes	4
2	Tobacco awareness on Show the Truth	4
3	N1N1 Pandemic (Swine Flu)	4
4	Oral Halth	1
	Total	13

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 protect our borders from introduction of Communicable Diseases.	• The health inspectors were the first line of defence for the Pandemic H1N1 2009 at our borders (seaport and airport). The passengers were screened with arrival forms and suspected cases were isolated for nasopharyngeal specimens to be forwarded to the laboratory for testing. • There were positive cases identified from suspected cases screened.
• To ensure good quality and quantity rural water supply is available for the different communities.	• There was collaboration with the Tonga Water Board funded by WHO. Setting up a team to describe the current situations of rural water supplies and improvement schedules from 10 selected villages in Tongatapu.
• To upgrade the knowledge and skills of the staff by providing necessary training opportunities.	• Niutupuivaha Fakakovikaetau successfully graduated with a Bachelor Degree in Environmental Health from the Fiji School of Medicine. • Te'efoto Mausia attending an FAO/WHO Training Course on Risk Based Food Inspection and Certification in the Pacific, 30 November to 3 December, 2009 in Wellington, New Zealand.
• To respond effectively to natural disasters to mitigate the environmental health impacts.	• Uatesoni Tua'angalu and Sione Mokena attended the Medical Response Team to the Niuatoputapu Tsunami. They provided repair and maintenance of water supply, vector control and ensuring a healthy sanitation is available.

• To ensure proper segregation, collection and disposal of clinical waste.	• The 3 Hospitals Vaiola, Prince Ngu and Niu'ui have installed and operated their respective incinerators. Therefore they are able to segregate, collection and dispose clinical waste effectively.

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.	• Vaini Health Centre and Mu'a Health Centre is anticipated to be completed in early 2010.
• To reduce incidence rate of non – communicable disease.	• Follow up diabetic patients from Houma to Vaiola Diabetic Clinic. • Organized and do a screening program throughout Houma District. • Working together with the Health Promotion Team running aerobics and walk for health program in focusing on BMI control.
• To promote the environment cleanliness.	• Conducted village inspection on a monthly basis focusing on safety water supply, environmental cleanliness, home vegetables and etc.
• 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. • Health talk have been done in different areas such as primary school, village meeting, youth group and NCD clinic.
• To include dental services in team approach • To provide in-service training for H/O's to go to remote health centres	• Continued with the five days Dental Clinic 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.	• Reproductive Health Nurses attended the in-service training on Adolescent Health Development.
• To improve and upgrade staff performances.	• Sr. Sela Paasi attended the Situation of Reproductive Health including Maternal and Newborn Health in the Pacific Meeting, Nadi, Fiji, from the 31 March to 3 April, 2009.
• To improve communication, teamwork and cooperation, and reduce conflicts and	• Sr. Sela Paasi attended the Fifth Pacific Immunization Programme

misunderstanding among health workers.	Strengthening Workshop, Nagasaki, Japan, from the 11 to 15 May, 2009.
• To provide effective and quality reproductive health services to women of child bearing age.	• Sr. Sela Paasi conducted a Training on Adolescent Health Development for Ha'apai Nurses from the 2 to 3 July, 2009. She was also taking part in the opening of the Ha'apai Youth Centre from the 10 to 13 July, 2009.
• To promote safe motherhood with continuing lows mortality rates and high coverage levels of all services.	• Sr. Atulua Tei attended the Australian Leadership Award Training, Sydney, Australia from the 11 June to 6 July, 2009.
• 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.	• SNMW Taufa Mone and SNMW Leaola Tuiaki attended the VCCT Training. • Sr. 'Alisi Fifita attended the WHO Child Health Growth Standards Workshop, Nadi, Fiji from the 13 to 17 October, 2009.
• To promote and improve the rate of exclusive breast feeding babies at four months and six months.	• Sr. Graduate 'Iunisi Vaikimo'unga attended the JPIP's Workship, Suva, Fiji from the 2 to 6 November, 2009.
• To maintain and equip the reproductive health clinics and health centre with necessary services and adequate equipment.	• Sr. Graduate 'Iunisi Vaikimo'unga attended the JICA Training Programme for Young Leaders in December, 2009. • PHN Kuluveti Wolfgramme, PHN Katalina Malolo, PHN Sitella Minometi, PHN Kafoatu Tupou and PHN Limisesi Kaivelata attended the Review Tuberculosis Contact Tracing Training from the 27 to 29 October, 2009.
• To upgrade public health nurses in public speaking and computer literacy skills.	
• Conduct regular meetings, liaise with other community programs and conduct regular island visits.	• SNM 'Onita Sila attended the Gender Base Violence Workshop on the 27 October 2009.
• Conduct awareness programs through radio and Television.	• Production of the first National Health Policy and Reproductive Health Strategy: 2008 – 2011.
• To assist in developing an occupational health standard for all public health staff.	• Revised Evidence Based Guidelines in Family Planning for Health Care Providers, on November 2009.

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. • Upgrade and maintain ward equipments and facilities. • Reduce overall patients Case fatalities by 10% • Reduce inpatients mortality from common illness by 10%. • Provide protocol and Guidance for management and treatment of common Paediatric and Neonatal Illnesses. • Sustain appropriate skills and knowledge among staff to address the overall morbidity and mortality of children throughout the nation. • Establish and Register Vaiola Hospital as a Baby Friendly Hospital. • Work closely with Reproductive Health and Health Information to validate Child Health Indicators (Rates for Perinatal, Neonatal, Infant and U5 Mortality). • Establish a Program to address Rheumatic Heart disease in Tonga and promote the necessary preventive measures. • Identify strategy to address needs of the people of Tonga in the most cost effective way.	**Better Medical Staffing:** • 2009 continued to have good number of Medical Doctors to staff Paediatric/SCN Ward. In August, Dr. Toakase Fakakovikaetau was appointed Medical Superintendent. Despite this Dr. Fakakovikaetau still has valuable input into decision making in Paediatrics. **Statistical Outcome of Child Health:** • 2009 had less mortalities in SCN compared to the previous year. However it could have been lower perhaps if not for the unfortunate discovery that required a move to Paediatric Ward. • The overall deaths of 15 cases in the Paediatric Ward is lower than last year, however presentations to ED that did not survive more than doubled to Acute Gastroenteritis. • The total deaths for Tongatapu for under 14 years olds were much less (33) compared to 44 in the past 2 years. • Overall results were much improved Health indicators with IMR of 16.6 and U5M of 22.4. **Improved Care for Children.** • This year we had our second success oncology case to complete treatment locally – a case of Hodgin's Lyphoma. **Operation Open Heart (OOH) 2009.** • Providing Cardiac Surgery to Tongans locally including children. Operation Open Heart visited Tonga again this year in September. Team of 40 members including 14 highly specialized doctors, nurses and others joined by the pioneer surgeon of the program Mr. Alan Farnsworth operated on 17 cases where 9 were children under 14 years old. Furthermore, the team were humbled when the Princess Regent, Princess Salote Pilolevu Tuita held an audience with them. **Rheumatic Heart Screening** • RHD screening continues with the hope to prevent at least 80% of 377 children diagnosed with RHD from ever needing to have surgery and the other 20% needing surgery defer to their 30 – 40 years of age. • Again Talipes, orthopedic, ENT and Plastic teams from overseas provide their service locally. **Improved Infrastructure:** • Introduction of Computerized Intranet for Medical Records. • Although in its pilot stage, the introduction of the above program will assist greatly in data collection and annual statistical analysis. There has been numerous problems over the years with lost medical records and clinic details for patients but with this program, hopefully processing will be smoother and continuity of care will be more consistent. **Continuous Supply of Oxygen & Power** • Since our Head of Section became Medical Superintendent there were continuous supply of O2 to the wards and so were reliable electricity supply with a working standby generator.

Objectives	Selected Milestones
	First Winner of KGV Coronation Award: • Head of Section/ current MS was the first winner of King George the V Coronation Award from the Prime Minister of New Zealand. This was in recognition of her work on Rheumatic Heart Disease Screening in Primary Schools. **Publication:** • Although there was no publication from Paediatric Services this year, Head of Section/ current MS was profiled on the Lancet June Edition 2010 again for her work on RHD Screening in Primary Schools.

Statistical Information:

Paediatric Demographic Data

Paediatric Population

The Paediatric Service provides service to children from age 0 – 14 years; total of 38,831, 38 % 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.

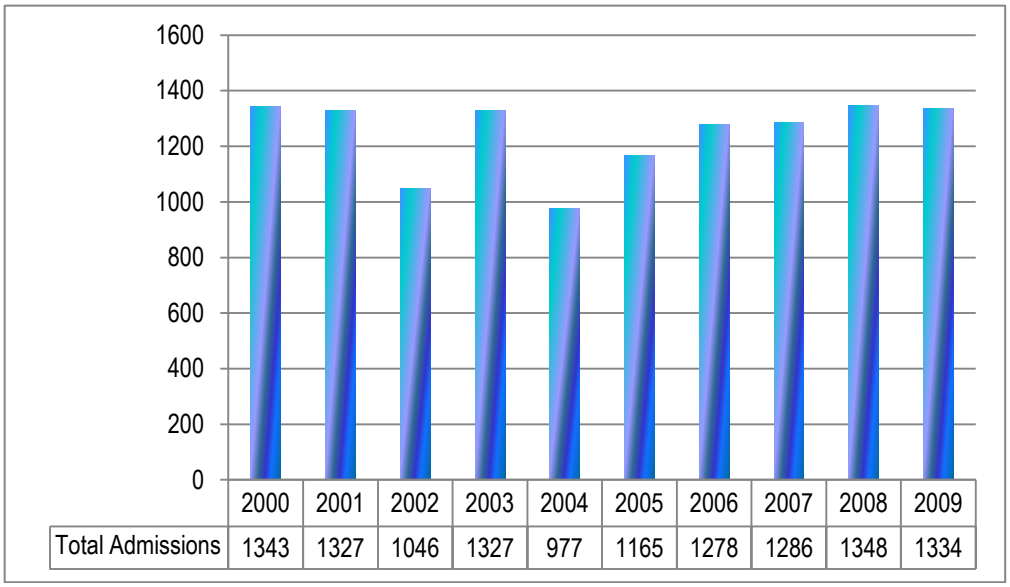
Age and Gender distributions

Age distribution resulted in a wide base graph with children age 14 years old or less consistently composed of around 38% in the last 7 years. The age breakdown of Paediatric population again had remained constant in the last 7 year, similarly to the number of boys and girls per age category.

Paediatric Admissions

Paediatric admission averages about 100 patients per month with 2009 admissions being the highest in the last 9 years with 1334 for the year.

Figure 1: Annual Paediatric Admissions, 2000-2009



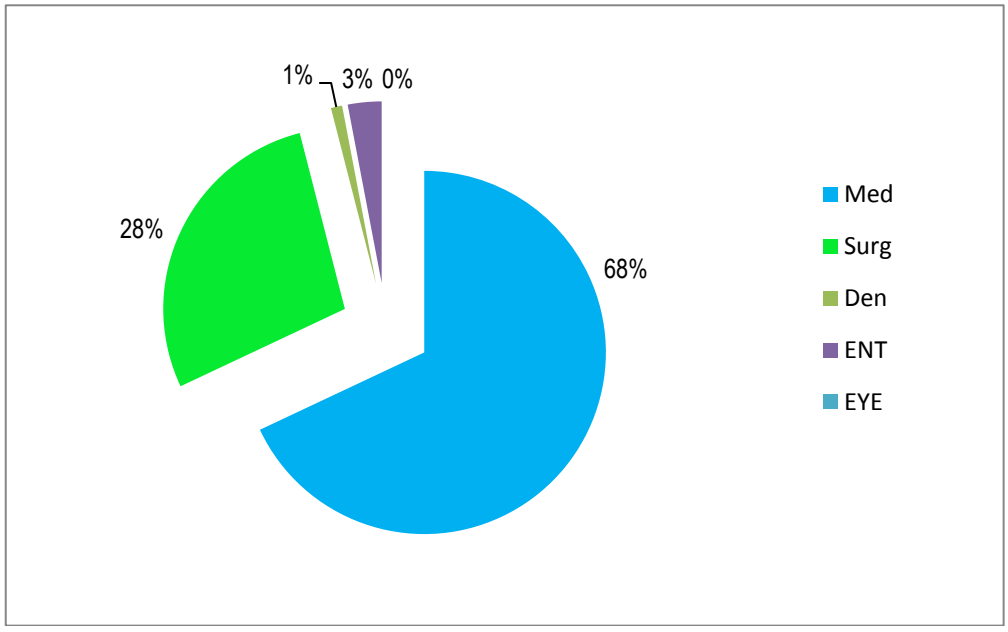
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Admissions	1343	1327	1046	1327	977	1165	1278	1286	1348	1334

Source: Paediatric Ward

Admissions by Team

In 2009 medical admissions contributed 60% and surgical admissions being an all time low with only 30% and the remaining 10% are made up to ENT, Dental and Eye Cases.

Figure 2: Admissions by Team, 2009

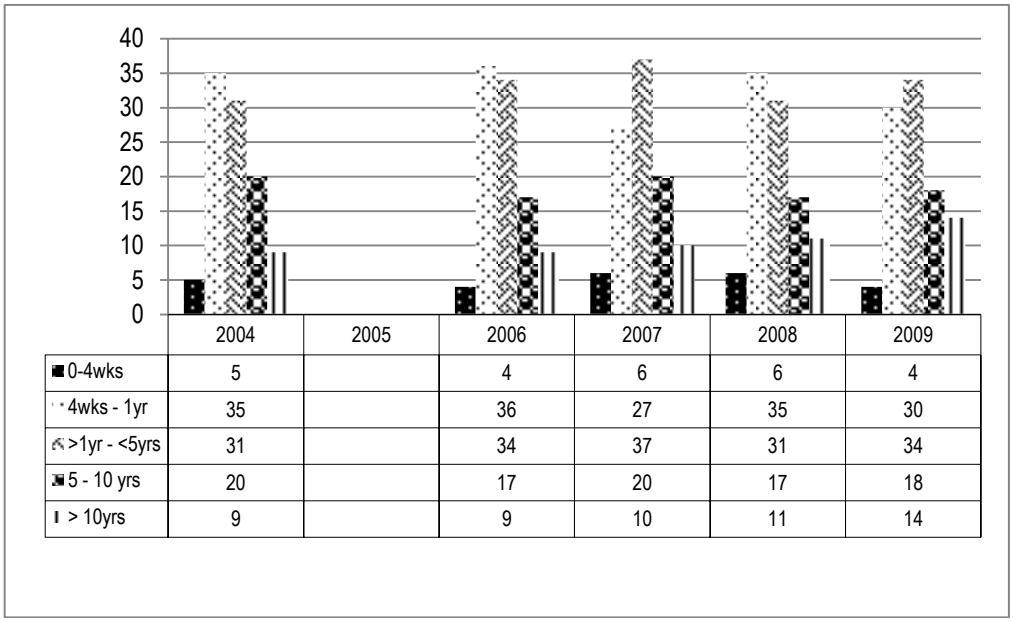


Source: Paediatric Ward

Admissions by age group

Infants always dominate the number of admissions except for 2007 and 2009, there were more under 5 years (>1-<5yrs) than infant children being admitted to the Paediatric ward.

Figure 3: Annual Percentage of total Admissions by age, 2004-2009



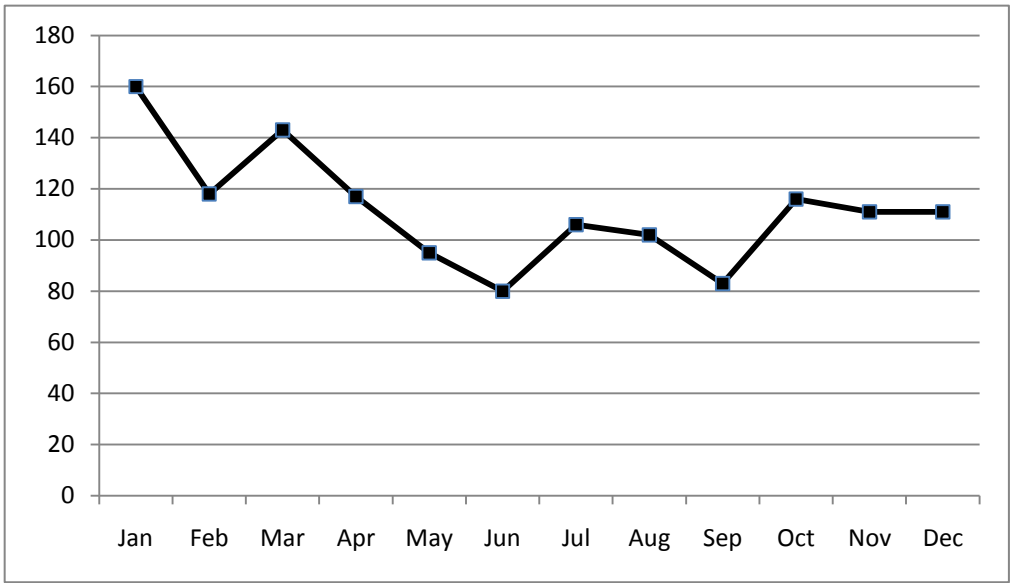
	2004	2005	2006	2007	2008	2009
0-4wks	5		4	6	6	4
4wks - 1yr	35		36	27	35	30
>1yr - <5yrs	31		34	37	31	34
5 - 10 yrs	20		17	20	17	18
> 10yrs	9		9	10	11	14

Source: Paediatric Ward

Monthly Admissions 2009

Monthly admissions often reflect special events or epidemics during the year. Peaks in 2009 were in the months of January, which reflected the influx of admissions due to Dengue Fever in the rainy season. In March came an increase in Bronchiolitis cases, perhaps related to seasonal weather changes.

Figure 4: Monthly Admissions 2009



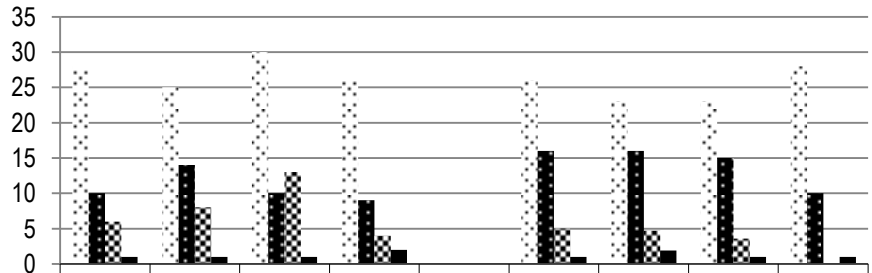
Source: Paediatric Ward

Causes of Admissions

Acute Respiratory Infection (ARI) continued to be the most common cause of admission among the Paediatric population contributing 28% of admissions. Acute Gastroenteritis followed with 10%, a decrease from the previous 3 years with averaged of 15%.

Other causes of admissions for 2009 were mainly surgical. Injuries included fractures, wounds etc. Surgical infections consisted of cellulitis, pyomyositis and infected wounds. There were also 5 cases of septic arthritis and 6 cases of osteomyelitis in the Ward.

Figure 5: Major Causes of Paediatric admissions, 2001-2009



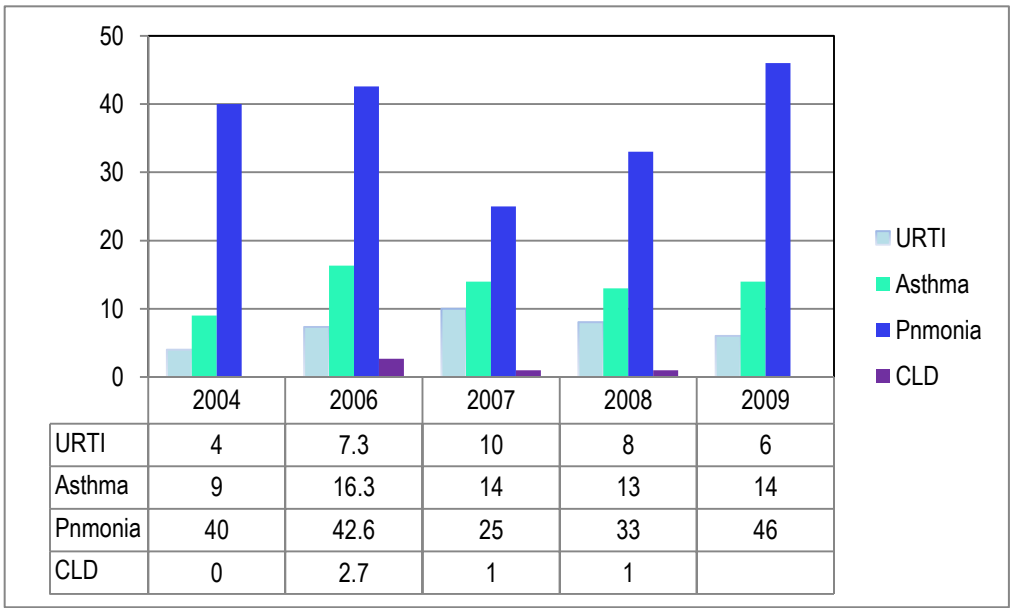
	2001	2002	2003	2004	2005	2006	2007	2008	2009
ARI	28	25	30	26		26	23	23	28
AGE	10	14	10	9		16	16	15	10
Inv Infec	6	8	13	4		5	4.7	3.6	
CVD	1	1	1	2		1	1.9	1	1

Source: **Paediatric Ward**

Acute Respiratory Infection (ARI)

Pneumonia followed by Bronchiolitis dominated the causes of ARI compared to previous years. There was an increase in admissions for community acquired pneumonia in the 8 – 12 year old age range.

Figure 6: **Breakdown of Respiratory Conditions, 2004-2009**



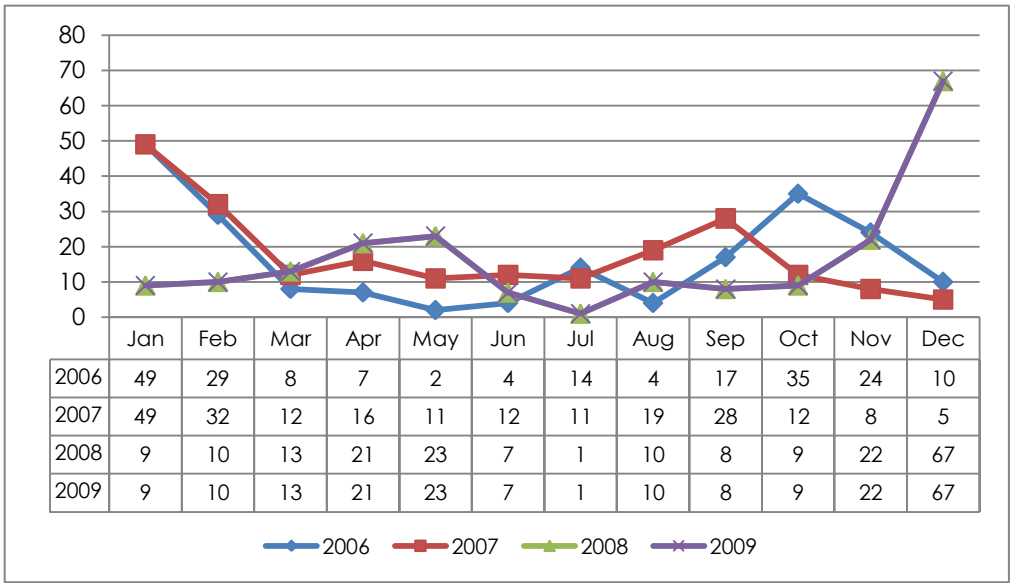
	2004	2006	2007	2008	2009
URTI	4	7.3	10	8	6
Asthma	9	16.3	14	13	14
Pnmonia	40	42.6	25	33	46
CLD	0	2.7	1	1	

Source: Paediatric Ward

Acute gastroenteritis (AGE)

Acute Gastroenteritis contributed 10% to the annual Paediatric admission. It was most common in December with 68 cases which is the highest cases per month in the last 6 years. AGE claimed 4 deaths in the ward.

Figure 7: Gastroenteritis per month, 2006–2009



	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
2009	9	10	13	21	23	7	1	10	8	9	22	67

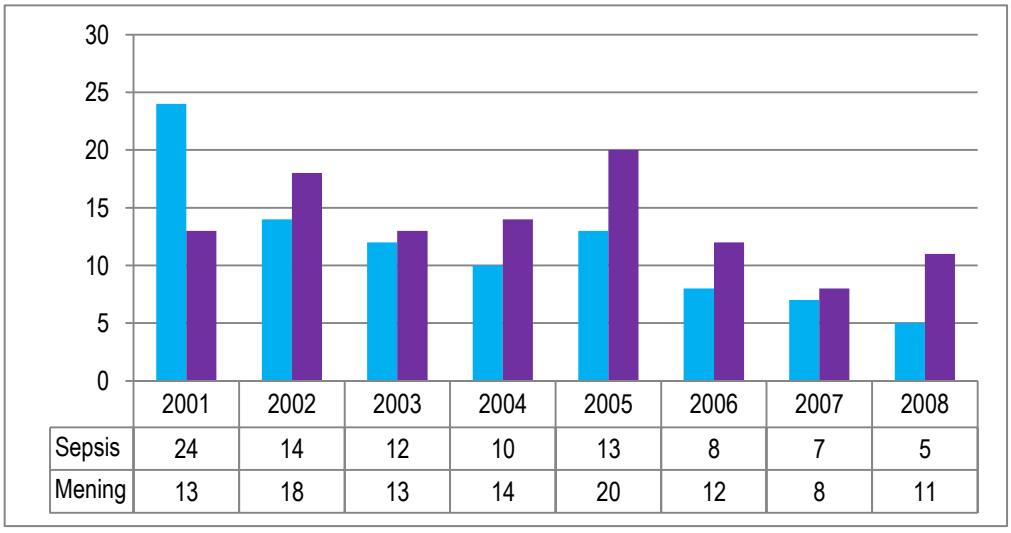
Source: Paediatric Ward

Invasive Infections

Invasive Infection had always been a major cause of morbidity and mortality among Paediatric patients. The major cases being septicaemia and meningitis which overall has seen a decline over the years. The septicaemia cases were 2 cases of salmonella typhi, 1 case of staphylococcus aureus septicaemia, with 1 pericardial pleural effusion with most probably staph. Aureus septicaemia (although came back negative) and 1 case of meningococcal septicaemia.

The meningitis cases were 9 diagnosed clinically with meningitis, 2 grew Neisseria Meningitidis on CSF culture and 1 was diagnosed with Eosinophilic meningistis after being sent to New Zealand. There were 11 cases of meningitis both in 2008 and 2009.

Figure 8: 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**

Cardiovascular Disease

Congenital and RHDs drain a significant portion of Ministry's budget as most cases require overseas cardiac surgery. Operation Open Heart (OOH) team to Tonga provided their support with 17 patients including 10 paediatric cases were operated with no complications.

Cardiovascular Deaths:

Although, cardiovascular problems account for a small percentage of admissions it is a major cause of morbidity and mortality.
Of the total paediatric deaths for 2009, cardiovascular disease accounted for 10% of the deaths. These consisted of 4 deaths; 2 Rheumatic Heart Diseases, 1 Presumed Cardiomyopathy with severe cardiac failure and the last one with a complex congenital heart disease.

Rheumatic Heart Screening:

From 2008 a comprehensive screening program was approved by the Ministry where it is aimed to auscultate every Class 1 and ECHO every class 6 student before they leave Primary School. This provides an aggressive screening program targeting every child in Tonga at Primary School and improves Secondary prophylaxis.

Paediatric Malignancies

In 2009, 7 cases came through the Ward with some sort of malignancy. One case was diagnosed with CML in 2007 and was on hydroxyurea until passed away in October of this year.

New cases in 2009, 3 were under the Surgical Team:

- A 2 years old boy with a untreatable Wilm's Tumor from Hihifo, Ha'apai who later died at home.
- A 2 ½ years old with Retroperitoneal tumor from Fonoi, Ha'apai who unfortunately passed away within 12 hours of admission.
- 12 years old with osteosarcoma from Kolomotu'a who died within 3 days.

Other cases:

- 6 years old boy Tokomololo with Hodgkin's Lymphoma who had a neck mass for at least 12 months. After diagnosis he was sent to New Zealand for 2 cycles of Chemotherapy and we completed the rest of his 4 cycles here in Tonga.
- 22 months old from 'Ahau with unresectable Posterior Fossa Tumor (ependyoma) confirmed by MRI in New Zealand who died 3 months after diagnosis.
- 7 years old from Pili with Lymphoblastic Lymphoma who died after 1 month of diagnosis.

Other Paediatric Conditions:

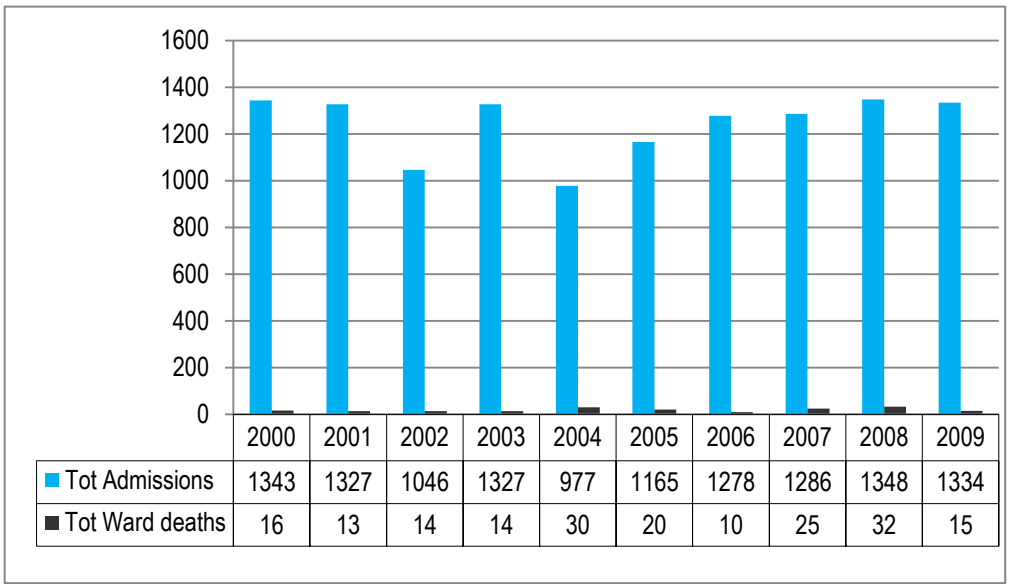
- Motor Vehicle Accidents resulted in 19 admissions but fortunately no fatalities as compared to 2008 where there 10 admissions due to MVA and one death.

- There were 13 burns cases but again no deaths.
- Interesting cases included 1 new case of Congenital Adrenal Hyperplasia, 1 with Primary Hypoaldosteronism, a 3 year old with Guillain Barre Syndrome and an infant with both Hydrocephalus and Omphalocele who lived until he was 4 months of age. This was the first case in whom a VP shunt procedure was performed locally.

Case Fatalities

In 2009, there were 15 deaths in Paediatric ward. This is less than half of the 32 deaths in the previous year for inpatients alone. There were 9 children who died in the Emergency Department and 2 who died at home..

Figure 9: Total admissions and deaths, 2000-2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Tot Admissions	1343	1327	1046	1327	977	1165	1278	1286	1348	1334
Tot Ward deaths	16	13	14	14	30	20	10	25	32	15

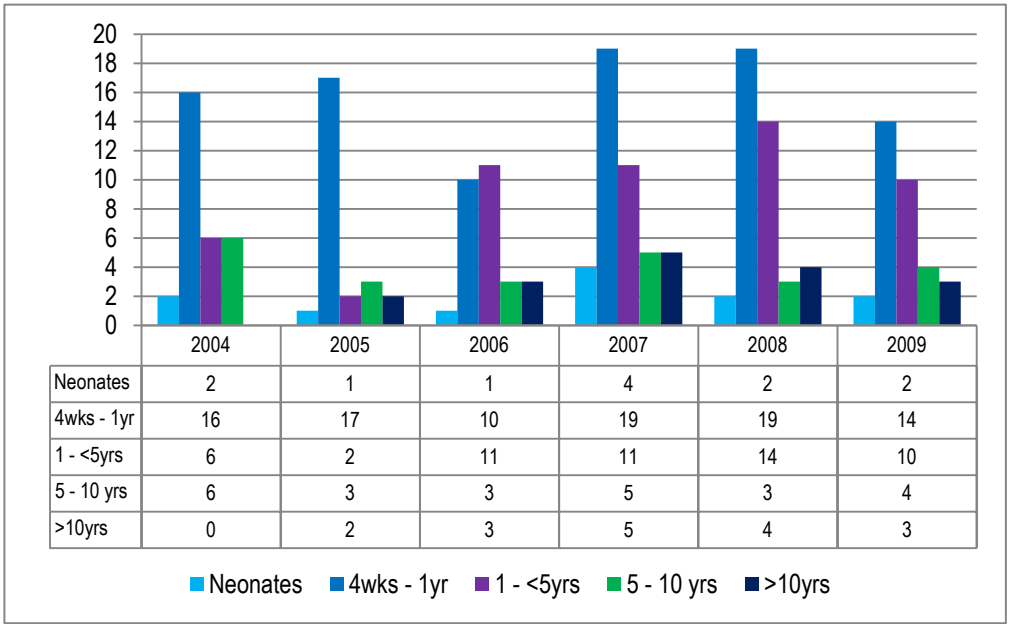
Source: Paediatric Ward

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.

Deaths in Tongatapu by age group and Gender

Majority of deaths were under 1 year old followed by the under 5 years old age group. Overall there were less deaths in Tongatapu in 2009 compared to the last 2 years.

Figure 10: Case Fatalities by Age Group, 2004-2009



	2004	2005	2006	2007	2008	2009
Neonates	2	1	1	4	2	2
4wks - 1yr	16	17	10	19	19	14
1 - <5yrs	6	2	11	11	14	10
5 - 10 yrs	6	3	3	5	3	4
>10yrs	0	2	3	5	4	3

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 Table 10 below.

Table 10: Causes of Deaths among Paediatric patients, 2005-2009

Causes	2005	2006	2007	2008	2009
Infection	15	13	18	18	6
Perintal Cause		3			
Congenital	4	1	6	4	2
Drown		1			
Surgical	1	1	4	9	
SIDS		2			
Malignancies	1	6	4	5	5
Unknown		1	3	2	
Tonga Medicine			3	1	
FTT			3	1	
Cardiac			1	1	
Suicide			2		
Aplastic Anemia				1	
Others					2
Total	21	28	44	42	15

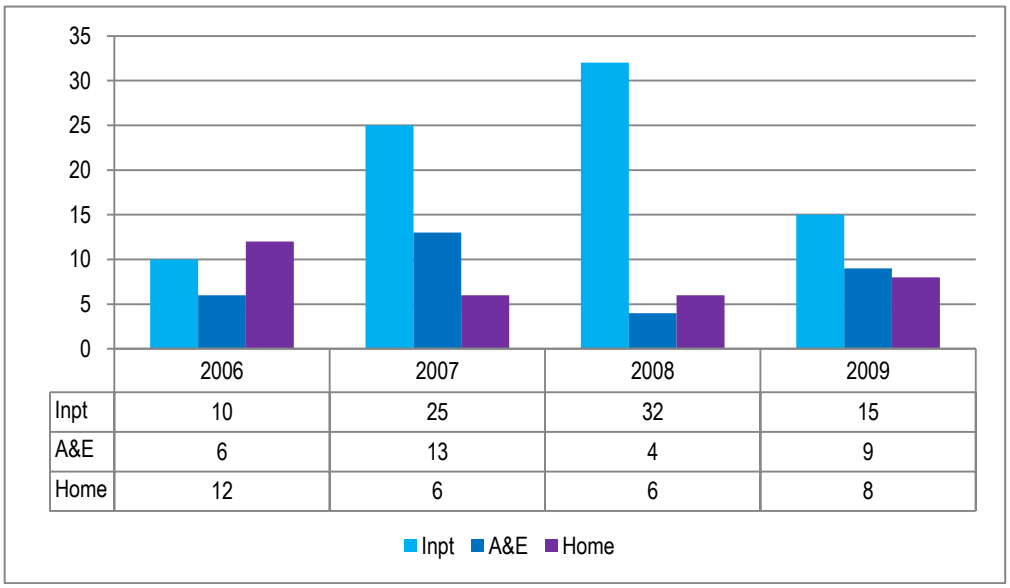
Source: Paediatric Ward

In the year 2009, Infectious accounted for 11deaths. Sepsis accounted for 4 deaths, respiratory related illnesses resulted in 3 deaths and 4 cases were due to Acute Gastroenteritis.

The first ever non-accidental injury (NAI) case that resulted in death occurred in September 2009. Four cardiac cases, 2 RHD, 1 congenital heart disease and the last death was severe cardiac failure secondary to cardiomyopathy. Mortality cases that had surgical input included the NAI case and the infant with Omphalocele/Hydrocephalus for which a VP shunt was inserted and omphalocele repaired locally. Of the 5 malignancies, 2 were under the Surgical Team and 2 MVA cases in ED.

Places of Deaths for Paediatric Population, Tongatapu 2006/09

Figure 11: Places of Deaths for Paediatric Population, Tongatapu 2006-2009

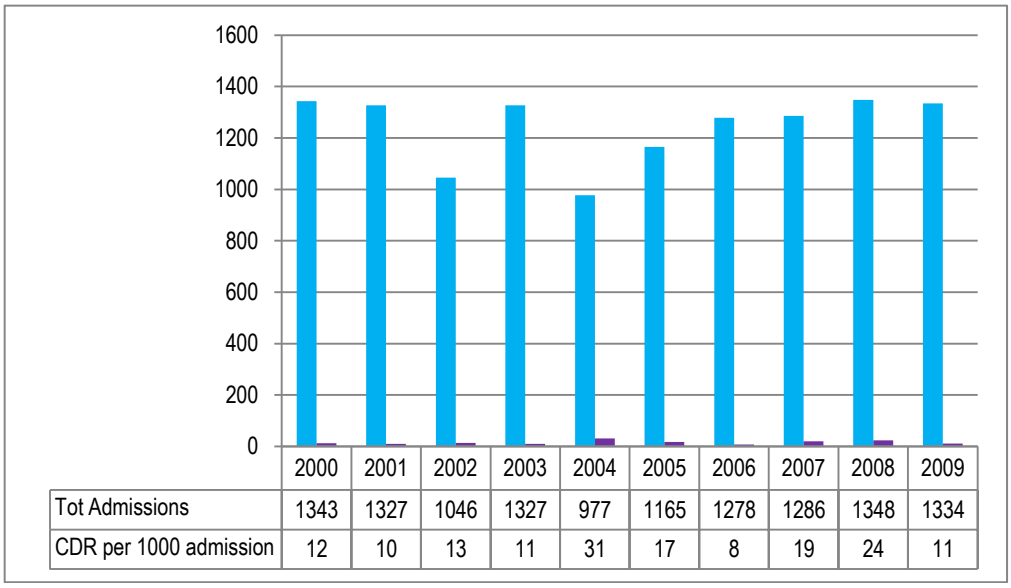


	2006	2007	2008	2009
Inpt	10	25	32	15
A&E	6	13	4	9
Home	12	6	6	8

Source: Paediatric Ward

In 2009, fewer deaths occurred in the ward but more than double patients passed away in the Emergency Department compared to 2008. Death at the Emergency Department includes 4 from AGE complications, 2 MVA, 1 from SIDS and 1 was known RHD with Cardiac Failure.

Figure 12: Case Fatalities rate among Paediatric Patients, 2000-2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Tot Admissions	1343	1327	1046	1327	977	1165	1278	1286	1348	1334
CDR per 1000 admission	12	10	13	11	31	17	8	19	24	11

Source: Paediatric Ward

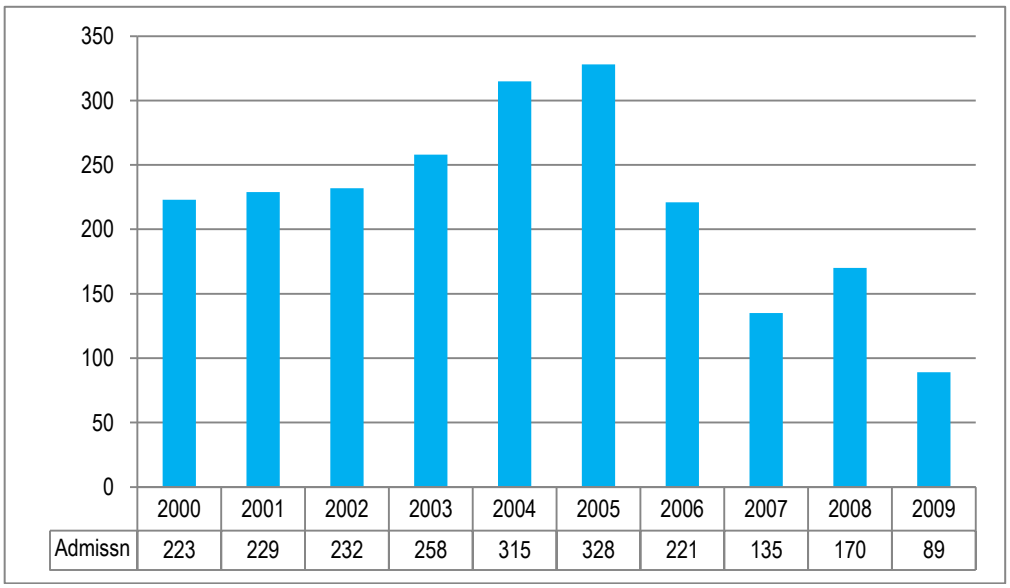
With the 15 deaths that occurred inside the hospital inclusive of both Pediatric and ICU wards; the Case Fatality Rate (CFR) for 2009 Paediatric Inpatients is 11 per 1000. This is less than half of the fatality rate in 2008.

8.1.2 Special Care Nursery (SCN)

Special Care Nursery Admission

There were 164 admissions to the Special Care Nursery with 50/50 male and female. There is a significant decrease in number of admissions to SCN since 2005. This is due to the decrease in number of neonatal jaundice cases over the years. Better breastfeeding practice can be attributed to this decline in admission.

Figure 13: Special Care Nursery Admission, 2000-2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Admissn	223	229	232	258	315	328	221	135	170	89

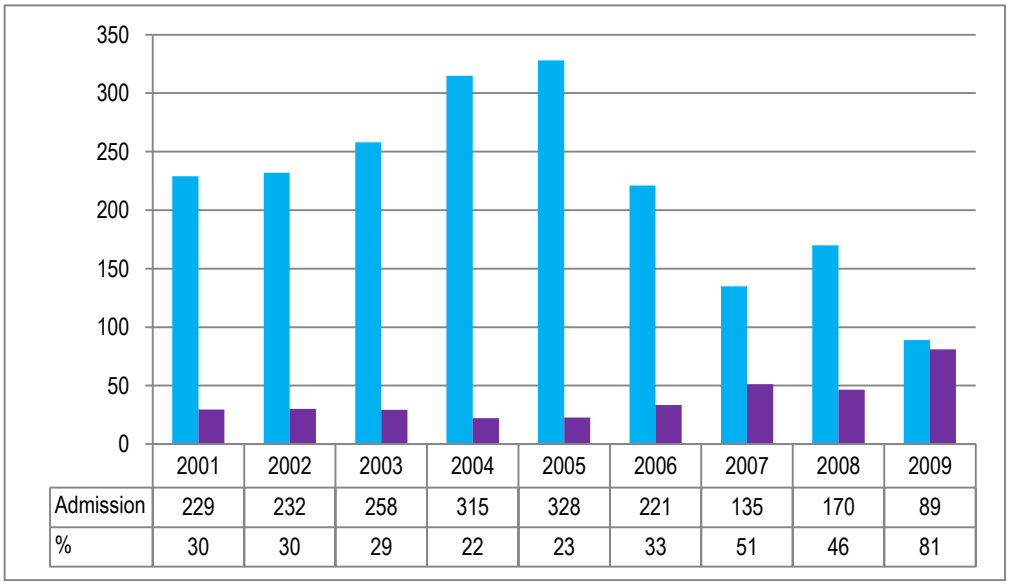
Source: **Paediatric Ward**

Prematurity:

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. The prevalence of Prematurity is 22 per every 1000 births taking the average for the last 8 years

Low Birth Weights (LBW) babies:

Figure 14: **LBW admission to SCN, 2001-2009**

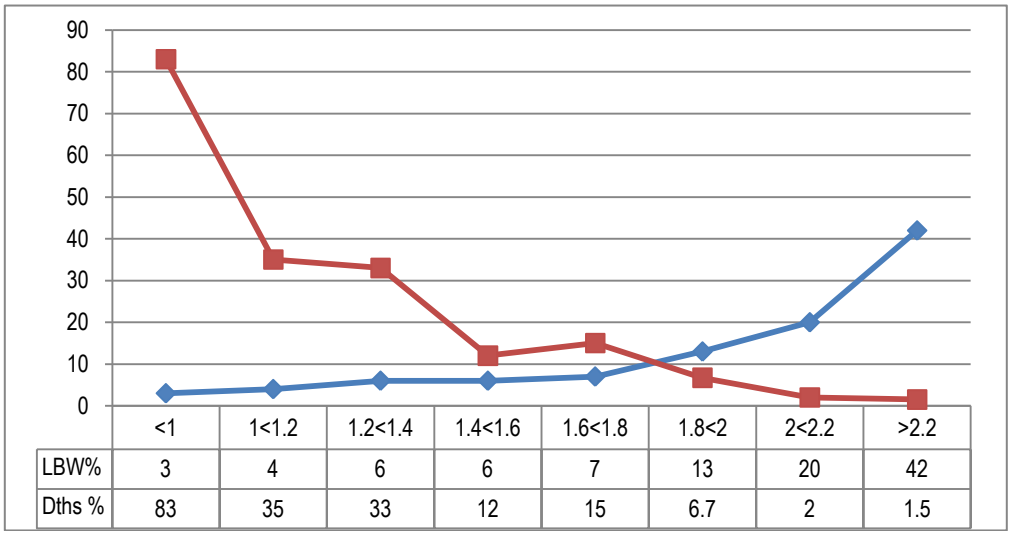


	2001	2002	2003	2004	2005	2006	2007	2008	2009
Admission	229	232	258	315	328	221	135	170	89
%	30	30	29	22	23	33	51	46	81

Source: **Paediatric Ward**

The third most common cause was Low Birth Weight alone which contributed 20% (32 cases) of admissions compared to 16% (22 cases) last year. There were 72 low birth weights Premature babies accounts for more than half of admission to SCN in 2009. The prevalence rate of LBW at Tongatapu is 3.6% compared to 4% in 2008 and it is estimated to be 2.8% for the whole nation.

Figure 15: Prevalence and Mortality of LBW babies at Vaiola SCN, 2002-2009

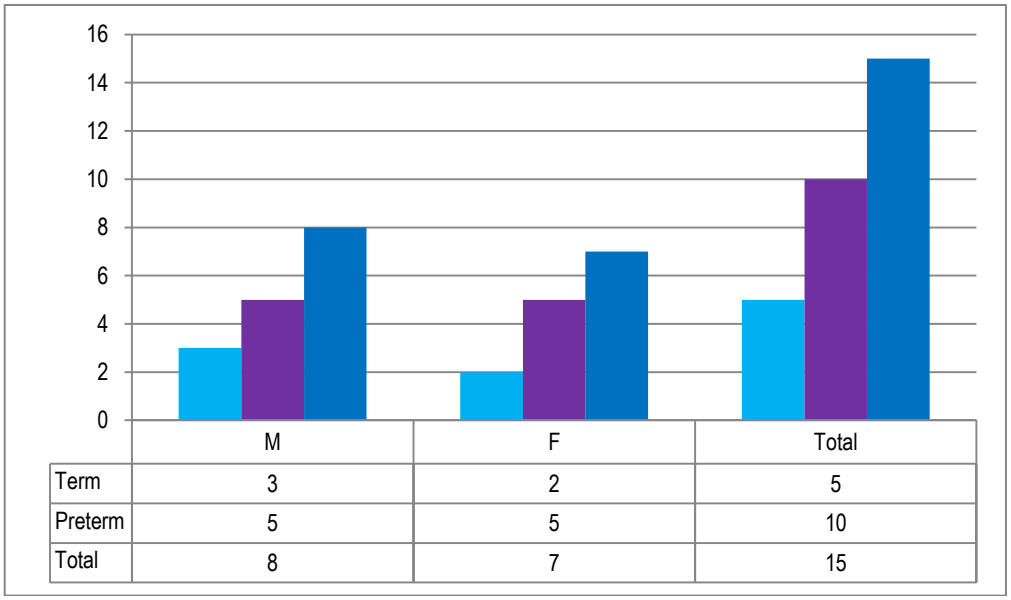


	<1	1<1.2	1.2<1.4	1.4<1.6	1.6<1.8	1.8<2	2<2.2	>2.2
LBW%	3	4	6	6	7	13	20	42
Dths %	83	35	33	12	15	6.7	2	1.5

Source: Paediatric Ward

Case Fatalities in the SCN, 2009:-

Figure 16: Total Deaths at SCN for 2009



	M	F	Total
Term	3	2	5
Preterm	5	5	10
Total	8	7	15

Source: Paediatric Ward

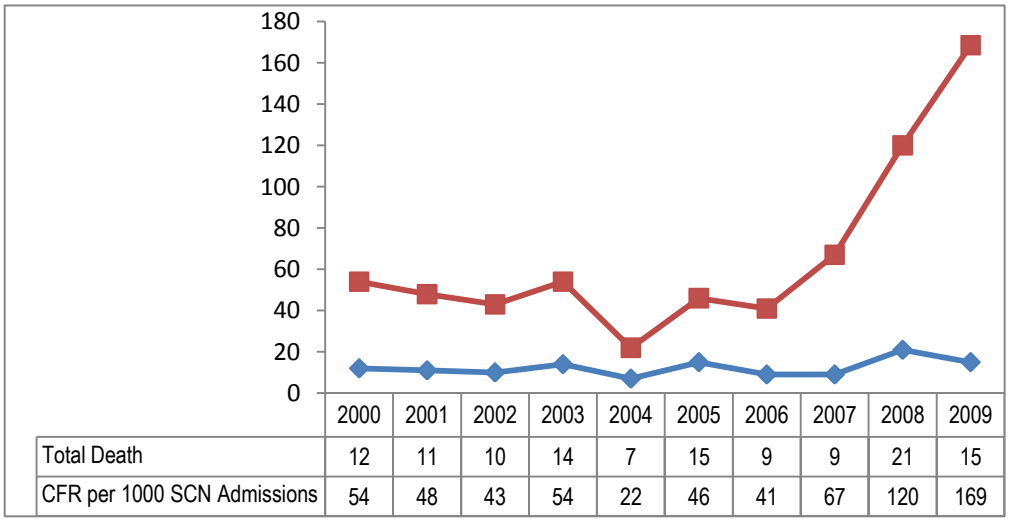
2009 had 15 deaths altogether compared to 21 deaths in the previous year. There were 50/50 male and female deaths for the year 2009.

Prematurity and congenital abnormalities are the two most common causes of deaths in SCN every year. In 2009 however, neonatal sepsis was the second most common cause of death in SCN occurring together with premature cases or in Term babies. In the year 2007 to 2009, prematurity alone caused more than half of the deaths.

Five Term babies died at SCN, 1 from NEC, 1 from gastroschisis that was beyond operable, 1 with a complex congenital cardiac condition, 1 neonatal sepsis and 1 pneumomediastinum.

Case Fatality among SCN patients, Vaiola 2000/08

Figure 17: Case Fatality rate in Vaiola SCN, 2000-2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Death	12	11	10	14	7	15	9	9	21	15
CFR per 1000 SCN Admissions	54	48	43	54	22	46	41	67	120	169

Source: Paediatric Ward

PERINATAL, INFANT & U5 MORTALITY RATE, 2009

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 20
- Total ENND 16 PNMR = 13.5
- Total NND 27 NNMR = 10.4
- Total U5 Deaths 58 U5MR = 22.4

Rheumatic Heart Disease School Screening.

2009 Program 2:

With the cardiologist Dr. Tom Gentle visit in July we were able to complete screening on the remote islands of Vava'u which were not done with the Vava'u program in November 2008. All students from class 1 to 6 in the

Primary schools of Matamaka, Nuapapu, Ovaka, Hunga and Ofu were screened with all being echoed. A total of 116 students out of 119 targeted were involved with a 97% coverage. As I was the only member involved from the local team I was unable to check for vision and hearing and all was done were auscultation and performing ECHO.

2009 Program 3:

This program targeted the rest of Primary schools in Central District of Tongatapu and 'Eua. 8 out of the 9 schools to be screened in Central District were completed except for GPS Ngele'ia. Once again Ocean of Light and Lavengamalie Side Schools were on holiday during the screening weeks and again were not able to cover the 2 schools. All class 1 were auscultated and those with murmurs had an ECHO done. All Class 6 had an ECHO performed.

The last 3 days of the second week were spent at 'Eua where all 6 Primary schools were screened. The bigger schools of GPS Angaha, 'Ohonua & Ha'atu'a had all Class 1, 5 & 6 screened and small schools of Houma, Ta'anga and Tufuiva had all students from Class 1 - 6 screened with ECHO. Of the 485 of the target population of 'Eua 469 – 97%, were screened in 'Eua, the Hearing and Vision tests were performed on all the class 1.

Results and Follow up:

Coverage: Despite a day and a half lost of tsunami warning the screening team were able to cover 14 schools, 1,538 students and performed 1005 ECHOs during Phase 3 screening. For the combined Phase 2 & 3 of 2009 there were total of 1654 students screened out of the 1828 target population – 91% and 1121 ECHO performed.

Table 11: Combined Table (Phase 1 & 2. 2009)

Class	Tot screened	Tot Echoed	Confirmed RHD	Borderline RHD	Congenital	Others
Class 1	1,859	441	25 (1.3%)	22	10	1
Class 5	569	569	51 (7.8%)	26	6	
Class 6	2,141	2,141	219 (9.6%)	46	24	4
Form 1	293	293	26 (8.9%)	5	6	
Form 2	257	257	31 (12%)	8	1	
Others	321	321	25 (8%)	11	2	
Total	5,441	4,022	377 (6.9%)	118 (2.1)	49 (0.9%)	5

- The combined data showed that out of the 5.441 already screened 377 had RHD with a prevalence of 69 per 1000.
- 10 – 20% of all RHD had irreversible RHD but with good secondary prophlylaxis these children can lead a normal good quality life well into middle age. Without prophlyaxis these children will be needing surgery in the next 1 - 5 years.
- At least 80% of RHD are with mild disease, they should continue a normal life if they comply with their secondary prophylaxis for the next 15 – 20 years.
- In summary, Screening with good secondary prophlylaxis in place will delay valvular heart surgery in 12 out of every 1000 children to adulthood and prevent progression of RHD and the need for cardiac surgery in every 50 out of 1000 children in Tonga.
- Next year programs target Eastern district and Ha'apai in addition to annual program in Tongatapu and the biannual program to Vava'u.

8.1.3 Surgical Ward:

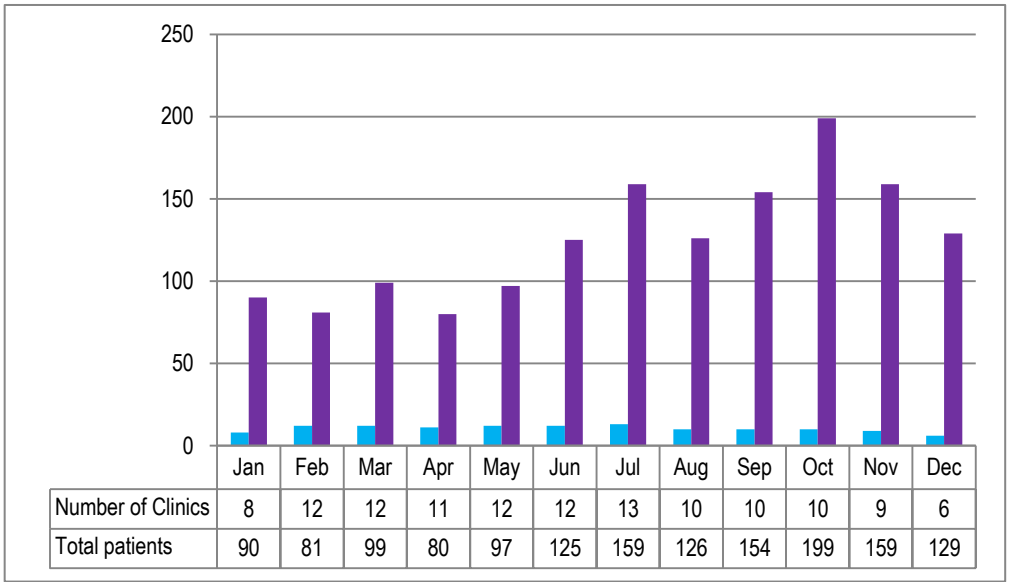
Surgical Ward is responsible for providing health services for all patients presenting with surgical problems.

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. • **Teams visited the surgical ward:** • Dr. Donald Moss and the Urology Team • Cardiac Surgery Team from Sydney Adventist Hospital • Club Foot Surgery Team • Drs Rosenbery and Ridhalgh and the Orthopaedics Team.
• 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.

Specialist visits provide surgical services not normally performed in Tonga. It is important to stress the value of these visits for patients who, under normal circumstances would have required expensive transfers overseas and were instead evaluated and/ or operated on in Tonga close to family and friends.

Statistical Information:

Figure 18: Surgical Outpatient Clinic Consultations by month, 2009 (old and new cases)



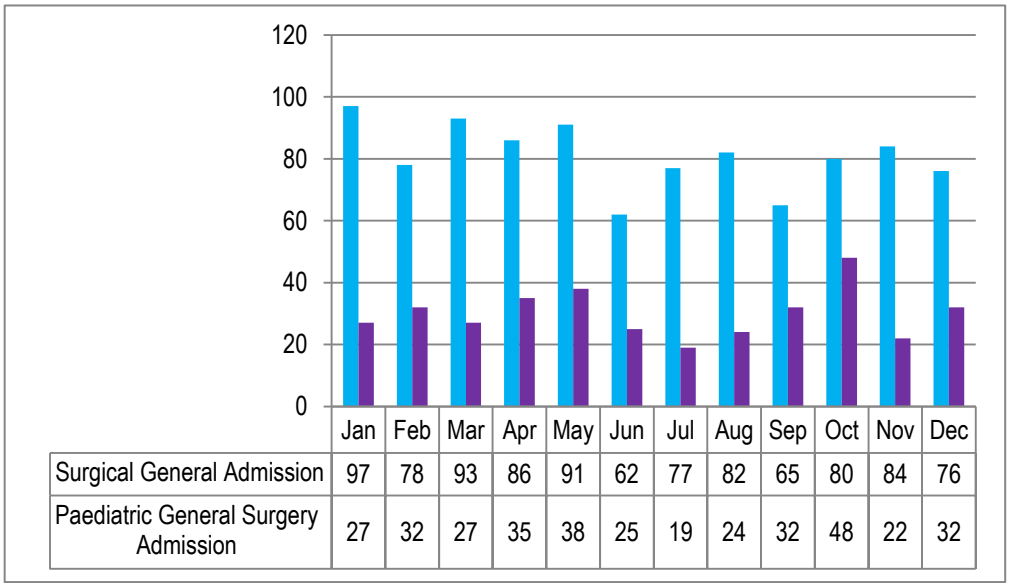
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of Clinics	8	12	12	11	12	12	13	10	10	10	9	6
Total patients	90	81	99	80	97	125	159	126	154	199	159	129

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.

8% fewer patients were seen at the surgical clinic in 2009 down from the 1616 in 2008.

Figure 19: Surgical Admissions by month, 2009



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Surgical General Admission	97	78	93	86	91	62	77	82	65	80	84	76
Paediatric General Surgery Admission	27	32	27	35	38	25	19	24	32	48	22	32

Source: Surgical Ward

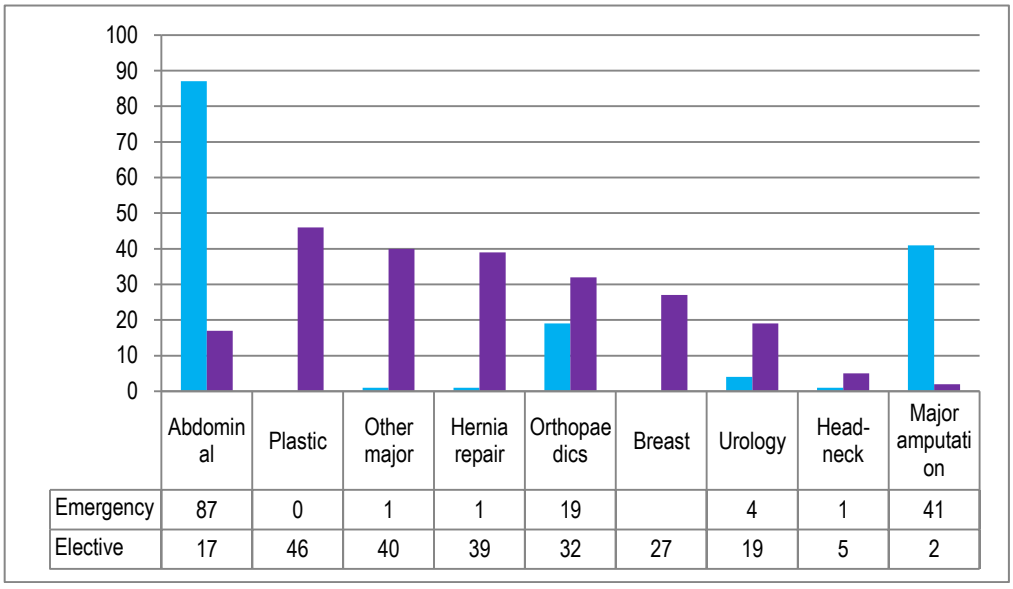
The admission statistics below does not include patients admitted to the surgical ward for gynecology, ENT or maxillofacial problems that are looked after by different teams. There has been a 4% increase in the total number of surgical admissions compared with the 1277 surgical admissions reported in 2008.

- 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.

Major Surgery per Category of Surgery

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.

Figure 20: Major Surgery per Category of Surgery, 2009



	Abdominal	Plastic	Other major	Hernia repair	Orthopaedics	Breast	Urology	Head-neck	Major amputation
Emergency	87	0	1	1	19		4	1	41
Elective	17	46	40	39	32	27	19	5	2

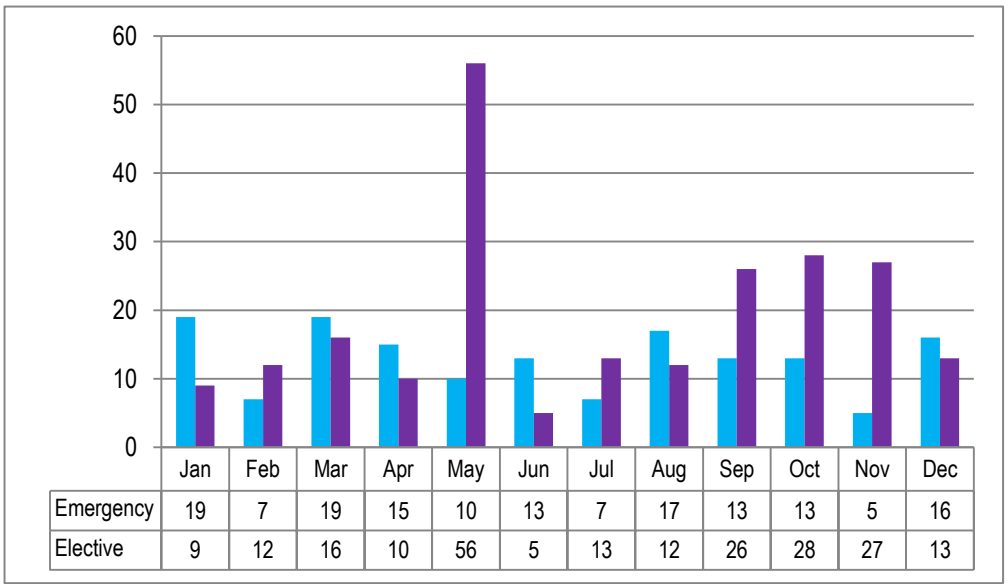
Source: Surgical Ward

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 154 cases, it accounted for 40% of major surgery in 2009, with a monthly average of 13. The most common major emergency was abdominal; 87 cases a year (56% of all major emergencies), including appendicectomies and laparotomies (peritonitis, intestinal obstruction or trauma). Second most common (41 cases) was amputation in diabetic patients.

Compared with 2008, there was a decrease in the number of emergency surgeries from 202 to 154, and an increase in the number of elective surgeries from 207 to 227, with an overall of 7% decrease in the total number of major surgeries performed (409 to 381).

Figure 21: Major Surgery by month, 2009



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergency	19	7	19	15	10	13	7	17	13	13	5	16
Elective	9	12	16	10	56	5	13	12	26	28	27	13

Source: Surgical Ward

Compared with 2008, there was a decrease in the number of emergency surgeries from 202 to 154, and an increase in the number of elective surgeries from 207 to 227, with an overall 7% decrease in the total number of major surgeries performed from 409 to 381.

130 admissions (13% of surgical admissions) were for surgical complications of diabetes mellitus. This figure, stable from 2008 (133 diabetic – related surgical admissions or 13.5%) does not really reflect the work load related to those patients, who spend a long time in the ward and require many dressings and surgical procedures.

In 2009, 39 patients underwent 43 major (below or above-knee) amputations. 35 of them (90%) were suffering from diabetic gangrene. Of the four others, one from a fungating malignant tumor, one from chronic osteomyelitis with intractable pain, one from peripheral vascular disease and one was post-traumatic. One of the diabetics died in hospital.

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. 35 diabetic patients underwent 38 major amputations (2 below – knee amputations were converted to above – knee, one patient had a below –

knee amputation on one side, then an above – knee amputation on the opposite side). On a total of 35 diabetic patients who received a major amputation, 22 (62%) were females, and 13 (38%) males.

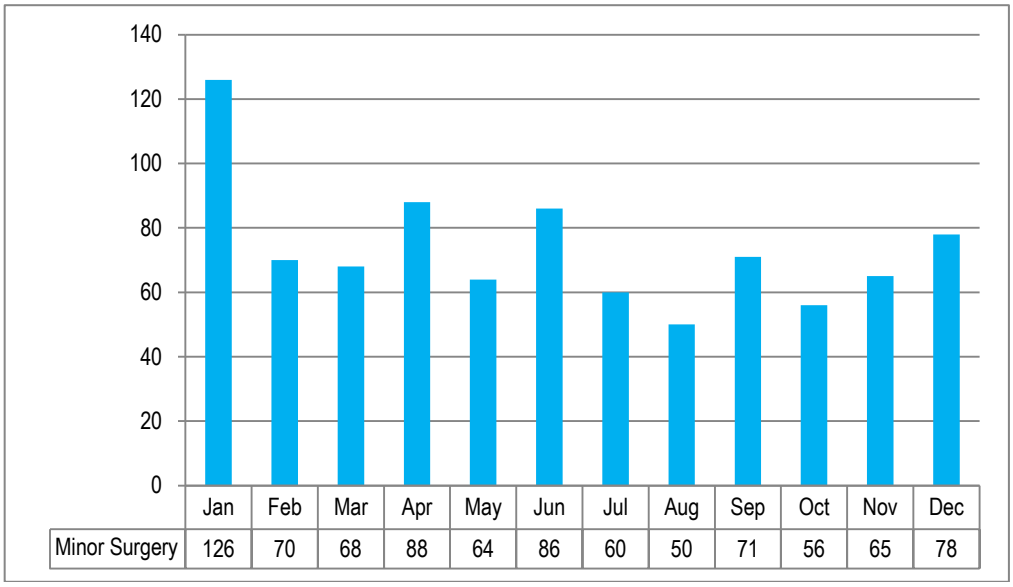
A review of the theatre register for 2007 found that 23 diabetics had 25 major amputations (with 2 conversions from BKAs to AKAs); 56% were females and 44% males, with an average age of 59 years.

Our annual audit for 2008 found that 28 diabetic patients had 29 major amputations (one conversion), 86% of them females, with an average age of 63 years. In conclusion, the total number of diabetics undergoing a major amputation has increased by 25% between 2008 and 2009. The percentage of women has gone down from 82% to 62%, and the average age has remained stable since 2007.

We conclude that Tongan diabetic women aged between 51 and 70 are at increasing risk of loosing a limb and becoming wheel chair bound.

Minor Surgery

Figure 22: Minor Surgery by month, 2009



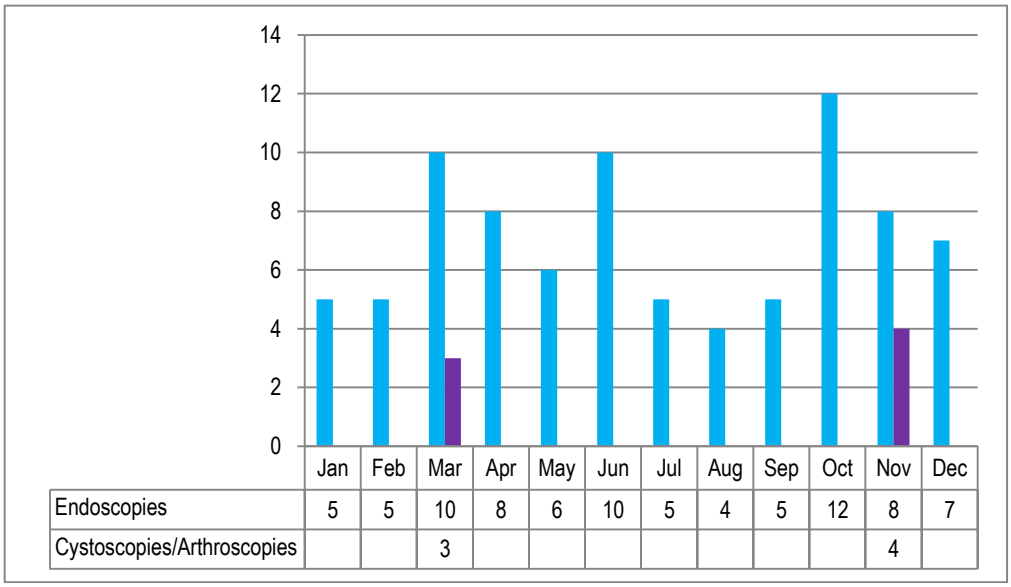
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minor Surgery	126	70	68	88	64	86	60	50	71	56	65	78

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



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Endoscopies	5	5	10	8	6	10	5	4	5	12	8	7
Cystoscopies/Arthroscopies			3								4	

Source: Surgical Ward

To account for possible variations in case definition, especially since 2007, we have put together major surgeries (381), minor surgeries (882), and endoscopy cases (92) are put together, a total of 1355 procedures is reached for 2009. This compares with 1492 in 2008 and 1792 in 2007. There has been a 9% drop of all surgical activity from 2008.

Table 12: Audit of Outcome: 2009 Surgical Mortality

Month	Surgical deaths	Inc. Postoperative deaths
Jan	2	1
Feb	4	0
Mar	3	0
Apr	1	0
May	0	0
Jun	1	1
Jul	3	0
Aug	1	0
Sep	1	0
Oct	2	2
Nov	1	0
Dec	3	0
Total	22	4

Source: Surgical Ward

Surgical deaths are defined as deaths occurring in the surgical and paediatric ward and ICU of patients admitted under the surgical department, whatever the cause of admission and the cause of death and regardless of whether surgery was performed.

Intra and post – operative deaths include all hospital deaths occurring within 30 days of a surgical operation, whatever the cause of death; patients who died postoperatively in the Intensive Care Unit are included; the 22 surgical deaths are a 12% drop on 2008 (25 deaths). The rate of surgical deaths per admissions has also dropped from 1.95% in 2008 to 1.27% in 2009. There has also been a dramatic drop in the number and rate of postoperative deaths from 12 in 2008 to 4 in 2009.

The most common causes of surgical deaths have been:

- Diabetic related – 6
- Trauma related – 7
- Cancer related – 4

Operative mortality:

- Overall operative mortality rate (4 operative deaths/381 major operations)1%
- Emergency surgical mortality – 2.6%
- Elective surgery mortality – 0%

Of the 4 patients who died following a surgical operation:

- 3 died after an emergency laparotomy: one homeless male brought unconscious to hospital with evidence of polytrauma, one two year old child with a retroperitoneal tumor, and one 77 year female with total, acute mesenteric infarction.
- One 51 year old female died after emergency above knee amputation for diabetic gangrene.

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.

Elective surgery has been remarkably safe in 2009, reflecting perhaps the level of patient selection and the safety of anesthesia and preoperative cares.

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 completed the Master Degree training in Internal Medicine from the Fiji School of Medicine, Suva, Fiji, graduating with a Masters in Medicine/Internal Medicine. She joined the Department in February, 2009. • Dr. Sione Latu left for a year attachment at the Cardiac Unit, Greenlane

• To emphasize the principles of evidence-based medical treatment, discussed in the context of cost effective, outcomes oriented care. • To provide ongoing educational opportunities of the highest caliber to practitioners. • 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 adhere to the Standard Treatment Guidelines as Treatment Protocols for management of internal medicine cases. • 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.	Hospital, Auckland, New Zealand. • Vaiola Hospital Computerization of Medical Ward Project – funded by the German Government. With a total cost of $11,490.00 TOP, the Medical Ward received three (LG) computers, a scanner, and a HP colour laserjet printer (with donors included). • Integration of new (adapted) protocols to assist in management of patients, not only in the Medical Ward but also in the Intensive Care Unit and other Departments, thus standardizing patient care. • Return of Staff Nurse 'Atimoa Me'afo'ou after 6 months of attachment in China (at a Medical Unit). • Additional new clinic service – home visits. These are for patients who are unable to attend the usual clinics conducted at Vaiola Hospital, due to mobility problems or some other reasons, the clinic service is brought to their homes instead. • Monthly Ward teaching conducted to update the medical staff. • Echocardiography Laboratory (headed by Dr. Ruggero Ama), set up at the Radiology Department. **Operation Open Heart 2009:** • Total of 17 patients operated on (nine adults) with three having double valve replacements. • About 70 patients with cardiac conditions were screened by visiting team Cardiologist Dr. Noel Bayley. • First Peritoneal Dialysis performed in Vaiola, with the assistance of the Surgical Team, OOH team and the Medical Team resulting in the complete recovery of the patient's renal function (one of the cardiac patients). • Two new Medical Registrars join the Department: Dr. Loutoa Poese (late October, 2009), and Dr. 'Emeline Fonua Saulala (November, 2009). • Chemotherapy treatment given at the Medical Ward – continuation of chemotherapy cycles at the Medical Ward for a patient with Hodgkin's Lymphoma. First cycl was started in Christchurch, New Zealand. • OSSHHM AGM meeting in Suva, Fiji in December 2009.

Statistical Information:

Outpatient Services

There are five Medical Outpatient Clinics operated out of Vaiola Hospital, which are the General Medical, Cardiac/Warfarin Clinic, Chest Clinic, Cardiac Clinic and the Hypertension Clinic. Community Clinics to Mu'a and Kolovai continue on a one in three basis rotating with the Chest Clinic on Wednesday afternoons. With the increase in staffing, an additional outreach clinic was added towards the end of the year. Home visits.

The Clinics are full (>20 patients per clinic) and ideally there should be a decentralization of stable patients with chronic medical conditions to be followed up in peripheral clinics i.e. health centres. This would require retraining health officers and increasing their level of prescribing capabilities with periodic reviews from the central team. We do not have the set up of overseas countries where these stables patients e.g. with hypertension are followed up by general practitioners and are only referred to specialist clinics when complications arise. Ideally the clinics

should only have 2 new cases and 8-10 regular patients to ensure proper assessment of clinic patients and thus improve efficacy.

A formal Echocardiography Laboratory has been set up at the Radiology Department and is run by the Medical Department, supervised by Dr. Ruggero Ama (Intensivist/Anesthetist). Inpatient echos are still continued using the portable echo machine previously used. Echo load has increased with the arrival of the HP Echocardiography machine.

Upper GI endoscopy service has now been handed over to the Surgical Department, with good collaboration between the two departments of Medicine and Surgery. This may be restarted with the return of Dr. Sione Latu from further training overseas.

Table 13: 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

Medical Ward Inpatient Services

The total admissions to Medical Ward for 2009, was 1285. The months of January and February were the highest for admissions, reflecting the Dengue epidemic at that time. While infection (sepsis) remains the most common cause of admission, non – communicable diseases (NCD) and its complications (cerebrovascular accidents, ischemic heart disease (cardiac), hypertension and etc) continues to be on the rise reflecting the overall burden this has on the health system, locally and globally. NCDs together, comprised more than 60% of the admissions alone.

Table 14: Number of Monthly admission to Medical Ward 2009

Month	Medical Ward				
	AD	T/I	T/O	DISC	DEA
January	171	2	1	154	14
February	123	2	1	154	14
March	111	0	3	105	3
April	114	5	3	96	10
May	100	4	7	78	11
June	107	2	1	98	6
July	117	3	2	100	12
August	106	4	1	94	7
September	88	3	0	80	5
October	85	2	7	69	7
November	78	2	4	66	6
December	89	3	4	76	6
Total	1289	32	34	1170	94

Source: Medical Ward Registration

KEY:
AD – Admission patients
T/I – Transfer in
DISC – Discharge patients
T/O – Transfer out
DEA – Death

Death due to Sepsis still is the main cause of mortality. However, if the NCDs with its related complications are lumped together, they will account for more than 60% of deaths. Diabetes related causes such as Chronic Renal Failure contribute significantly to the mortality.

End-stage organ failures along with malignancies are also increasing, although this is not reflected in the ward mortality. This is probably because a significant proportion of patients chose to spend their remaining times at home with loved ones.

The proportion of deaths due to diabetes has been diluted by the singularly-based cause of death classification. Diabetes is a disease with myriad presentations and is variably involved in many of the deaths.

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.	• Psychiatric Social Worker, Mrs. Mele Lupe Fohe attended the Pacific Mental Association Annual Conference in Rarotonga, where she presented an excellent report about Mental Health in Tonga.
• To promote knowledge in Mental Health and Dissolve Misconceptions, Stigmatization, Ignorance and Discriminations.	• 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), Salvation Army, Digicel Tonga and the annual Fofo'anga Christmas party and of course Mr and Mrs Luna Mafi of the Malapo Quarry are an annual event that our patients look forward to. • Tonga Trust donated printing materials and printed the informative material distributed. Funded television and radio programmes and also workshops.
• To develop network.	• This is the 4th year in a row that the component of Mental Health has been incorporated into the Sia'atoutai Theological College curriculum.

8.1.6 Anaesthesia and ICU:

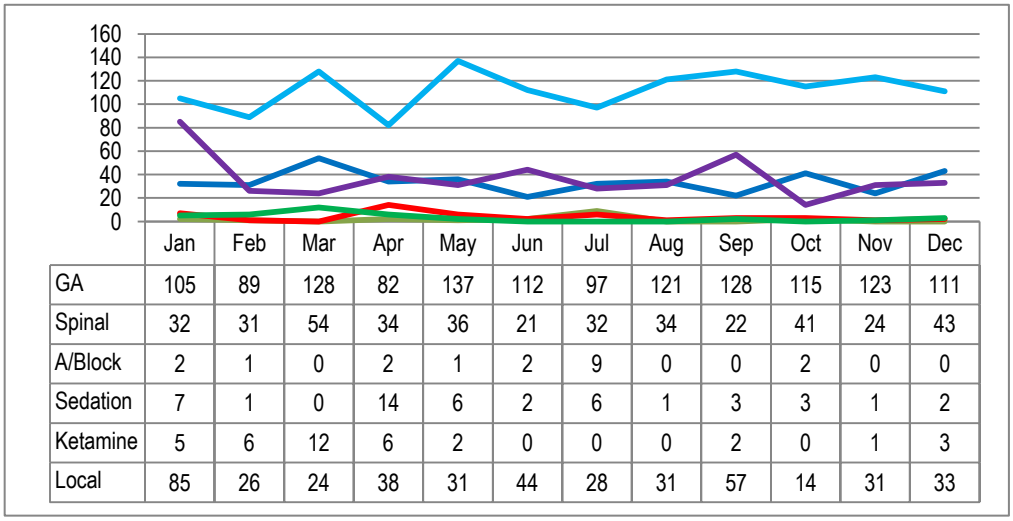
Anaesthesia and ICU is responsible for providing anaesthetic services including managing of Intensive Care Unit.

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	• Dr. Selesia Fifita successfully completed her one year post graduate Diploma

education and training for anaesthetic and ICU staff.	in Anaesthesia at the Fiji School of Medicine, Fiji. • Dr. Ma'ata Sikalu did a 3 months locum at Vaiola Hospital from October to December this year.

Statistical Information:

Figure 24: Monthly distribution of Anaesthesia by types, 2009



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
GA	105	89	128	82	137	112	97	121	128	115	123	111
Spinal	32	31	54	34	36	21	32	34	22	41	24	43
A/Block	2	1	0	2	1	2	9	0	0	2	0	0
Sedation	7	1	0	14	6	2	6	1	3	3	1	2
Ketamine	5	6	12	6	2	0	0	0	2	0	1	3
Local	85	26	24	38	31	44	28	31	57	14	31	33

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 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.	• **Capacity and Team Building:** Training for the NCD Team (Diabetes Centre), Eye Unit and Health Promotion Unit was conducted on 12 to 16 January using the IDF Diabetes Education Modules. • **Increase coverage for annual duty visit to island hospitals:** The World Diabetes Foundation project funded the 2009 duty visit which for the first time included Niuatoputapu. With funding available, it is recommended that this coverage be maintained. • **Activities performed in the duty visit were:** • Clinic consultations • Training for health workers • **Attendance of conference and workshop:** • Regional Meeting on Prevention and Control of Non-Communicable Disease which was held in Japan on 3 to 7 August. Two
• 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	

Objectives	Selected Milestones
(Tertiary prevention). • To participate and support the establishment of National policies for the integrated prevention and control of diabetes and CVD. • To develop and update a National Diabetes Treatment Guideline for in Tonga. The Diabetes Centre currently adopts the Global Guideline developed by the International Diabetes Federation. • To establish and strengthen appropriate epidemiological surveillance and Monitoring of CVD and Diabetes and their risk factors. • To further strengthen the development of human resources research for the Prevention and control of diabetes and CVD.	representatives from the Ministry of Health were sent and they were 'Elisiva Na'ati from the Diabetes Centre and 'Eva Mafi of the Health Promotion Unit. • **Objectives of the meeting were:** • Identify key actions to achieve the goals of the NCD Regional Action Plan at the national level using an integrated approach to NCD prevention and control. • Mobilize the commitment of senior managers for strategic national activities in NCD prevention and control. • Establish a mechanism for ongoing policy dialogue and sharing of experiences in NCD prevention and control. • Pacific Non – Communicable Disease Forum, from the 24 to 28 August. This was the first Pacific NCD Forum to be held. This was organized by the WHO and SPC as part of their joint approach on NCDs. With 22 Pacific Island countries and territories. Representatives from the 22 Pacific Island countries and territories and organizations were called to review progress of NCD planning and implementation, identify challenges, gaps and potential solutions to tackle the epidemic. • 'Elisiva Na'ati and Iemaima Havea, CEO of the Tonga Health were the representatives from Tonga.

Statistical Information:

Table 15: Attendance at the National Diabetes Centre, 2009

Month	Clinic	Rebook	Dental	Screen	New Cases	HbA1c	GTT	GDM
Jan	263	74	20	41	22	38	54	13
Feb	589	39	22	48	29	137	57	13
Mar	702	27	21	49	33	52	57	3
Apr	539	24	23	32	21	84	37	5
May	610	61	24	20	11	69	64	11
Jun	546	64	19	28	11	94	24	3
Jul	579	58	25	29	17	60	61	9
Aug	566	50	17	20	9	69	28	5
Sep	616	44	34	40	20	29	44	4
Oct	534	27	23	25	11	61	63	5
Nov	559	46	17	31	10	61	68	6
Dec	422	15	14	14	6	0	43	5
Total	6525	529	259	377	193	754	600	82

Source: National Diabetes Centre, 2009

- The total register at the Diabetes Centre: 3,417
- Number of known deaths in people with diabetes in 2009: 66

Clinic consultation

Clinic consultations are conducted on Monday through to Thursday mornings with number of patients seen ranging from 30 to 50 per day. Dr. Vivili is at the Diabetes Centre on Tuesday, Wednesday and Thursday mornings to assist Dr. Palu with the consultations. When both doctors are away, the staff will carry out the clinic as scheduled.

Fewer patients are scheduled for Tuesday and Thursday clinics so that some of the staff are available for the community outreach programs including home visits and health centre visits.

Due to the increasing number of diabetic population, restricting the number of patients to 25 to 30 would mean that some of the patients will be seen in 4 to 6 months. Adding to the booking are those that need to be reviewed early after being discharged from the wards or referred from other clinics.

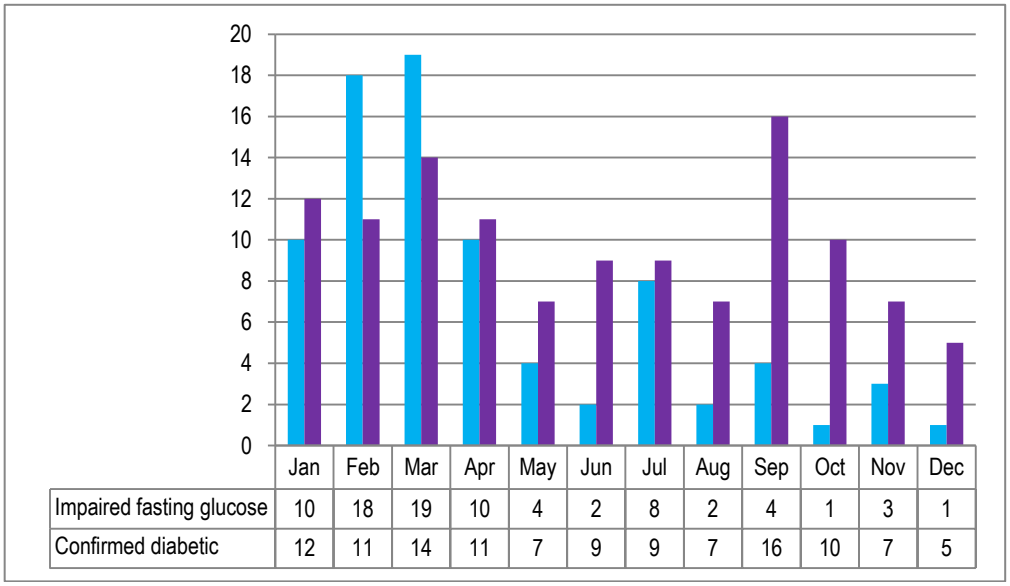
Rebook of appointment/Refill of medication

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 25: Screening for diabetes



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Impaired fasting glucose	10	18	19	10	4	2	8	2	4	1	3	1
Confirmed diabetic	12	11	14	11	7	9	9	7	16	10	7	5

Source: National Diabetes Centre, 2009

Of the total number of people who visited the Diabetes Centre for screening, 51% had some degree of glucose intolerance. There is a 5% increase from 2008. This high prevalence of newly diagnosed patients with diabetes shows that those coming for screening are those who are already symptomatic or have some of the risk factors for diabetes.

Table 16: Wound dressing and diabetic sepsis

Month	No. of dressings	Admission from	Amputation	
		NDC	BKA	AKA
Jan	357	9	4	2
Feb	288	3	2	1
Mar	392	6	2	1
Apr	428	3	1	1
May	378	3	1	1
Jun	281	4	1	3
Jul	378	4	1	3
Aug	276	1	2	1
Sep	286	0	2	0
Oct	347	1	3	3
Nov	254	1	0	1
Dec	325	1	1	0
TOTAL	3,990	36	20	17

Source: National Diabetes Centre, 2008

Admissions from the Diabetes Centre for diabetic sepsis accounts for 11% of the total admission for diabetic sepsis in Surgical Ward. This reflect 89% of the patients admitted with diabetic sepsis did not visit the Diabetes Centre for wound dressing. Out of the 35 patients who had amputation, 7 of them were admitted from the Diabetes Centre out of the 36 admissions. A total of 37 amputations were done to 35 patients. Amputation related to diabetes has increased by 3-fold in the last 5 years.

Screening for GDM

In 2009, out of 600 tested, 82 had GMD, which is an increase from 7% in 2008 to 14% in 2009.

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 and the annual visit to the outer islands hospitals. Niuatoputapu was included for the first time where Health Officer Savelina Veamatahau and Sr. Seilini Soakai visited for 1 week and conducted clinic consultations, screening programs as well as carrying out visual acuity for diabetic patients and school children.

8.1.8 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	• The use of the Tonga Health Information System (THIS) was introduced into

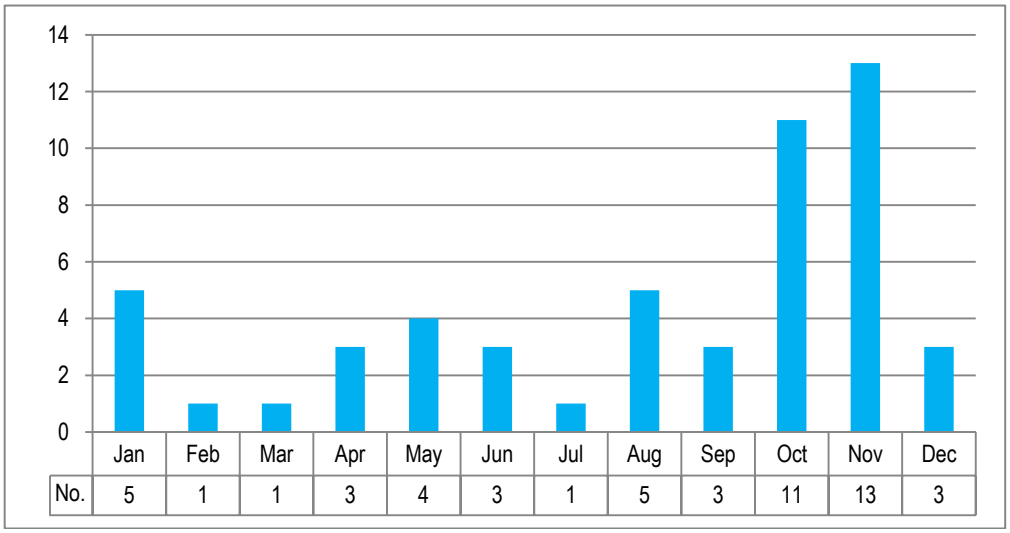
available resources.	the Department on the 12 of March, after period of training.
• To promote and enable continuing education for all staff members.	• Dr. Matamoana Tupou attended a Disaster Risk Management course in Japan at the beginning of the year. • Dr. Lemisio Sa'ale attended a mid year two week workshop in Indonesia. • The Primary Trauma Care (PTC) course was held again this year, utilizing local instructors who had trained in 2008. • The Paediatric team encouraged the use of inhaled salbutamol and prednisone in children, instead of using nebulizer machine. A session was also conducted to show staff the correct technique of using the spacer.
• To achieve and maintain high-quality working relationships within the department.	• The Department received mock-injured patients as part of the Surgical Ward's inaugural fire drill. • Dr. Sa'ale was sent with a team to help during the MV Princess Ashika passenger rescue and injured survivors of the tsunami in Niuatoputapu. • The Airport Disaster Drill was conducted and staff members from the Department went to the site at Fua'amotu Airport.
• To achieve and maintain high-quality working relationships with other hospital departments.	• The internship programme continued with rotations through the Department. • The Medical Superintendent introduced a new duty roster that mixed inpatient and outpatient medical officers to improve coverage of the department during all hours and the hospital as a whole during evenings and night shifts. • Staff changes were very high this year. There were five different Sisters-in Charge in the Department. • Dr. Viliami Vao was transferred to the Psychiatry Department. • There was a temporary all time high period of staffing numbers after the graduation of the Health Officers in March provided the Department with six new graduates.

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 26: Pre-hospital emergency ambulance services by month, 2009



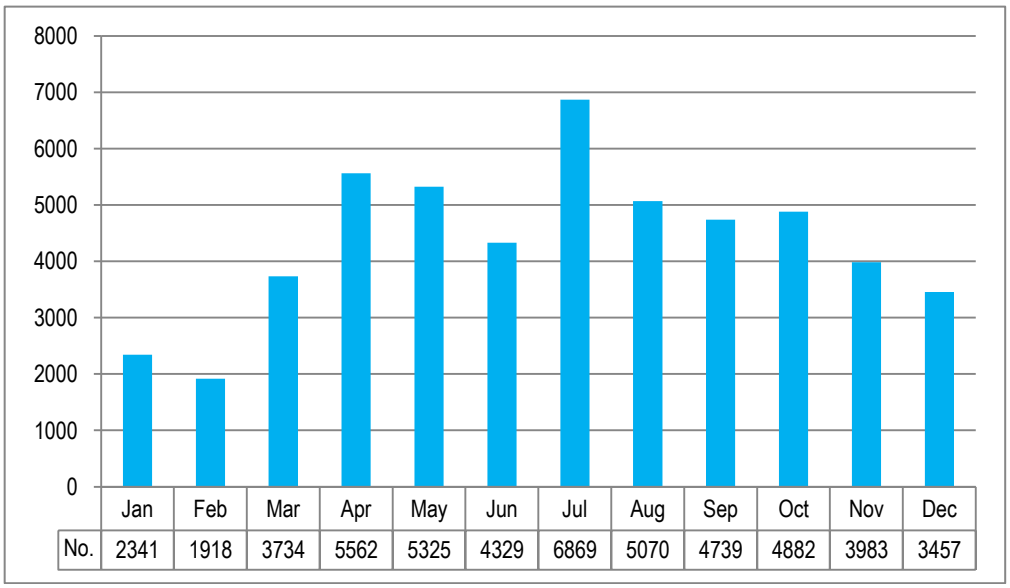
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No.	5	1	1	3	4	3	1	5	3	11	13	3

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 27: Consultation by month for 2009



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No.	2341	1918	3734	5562	5325	4329	6869	5070	4739	4882	3983	3457

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 2009

Months	Admission	DOA	Deaths in ER	Sent Home	Others	Total
Jan	44	5	5	21	0	75
Feb	59	7	0	8	4	78
Mar	63	1	2	21	0	87
Apr	53	3	3	13	0	72
May	67	4	4	14	1	90
Jun	45	7	0	4	0	56
Jul	63	6	3	16	5	93
Aug	71	5	1	17	1	95
Sep	73	4	1	23	2	103
Oct	43	5	2	14	0	64
Nov	48	1	1	22	2	74
Dec	59	9	1	12	1	82
Total	688	57	23	185	16	969

Source: Emergency and Outpatient Registration

About 71% of all ER cases were admitted, 19% were sent home, and 8% died on arrival or Emergency deaths. Of the total admissions from Emergency Room, 43.% went to the medical ward, 31% went to the surgical ward, 22% went to the paediatric ward, 1% went to the obstetric ward, 2% (12 patients) went to the ICU, and there were no admission to the psychiatric ward.

From a total of 146 ER trauma cases (15% of all ER cases), 110 were admitted, 14 were recorded as deaths (15% of all DOA/ER deaths combined), and 22 were sent home. This equates with 75% admissions, 10% deaths and 15% sent home. These numbers exclude other trauma cases seen in the regular consultation rooms.

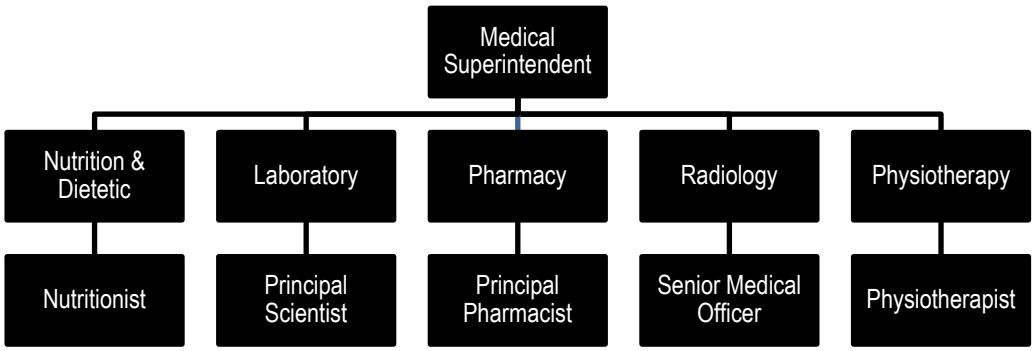
Table 19: Emergency Room (ER) trauma statistics for 2009

Month	MVA	Assult	Falls	Wounds	Spinal/Head Injury	Electric Shock	Suicide	Sports	Others	Death	Admission
Jan	1	1	1	0	2	0	0	0	1	0	6
Feb	7	1	1	2	0	1	0	0	0	2	7
Mar	9	2	1	3	1	1	0	0	2	0	15
Apr	4	2	1	2	1	0	0	1	0	1	8

May	7	0	2	0	0	1	0	0	0	0	7
Jun	3	2	1	2	0	0	2	1	0	2	9
Jul	12	0	0	0	1	1	0	2	0	2	11
Aug	11	0	0	0	0	0	0	0	0	2	6
Sep	7	2	1	0	2	1	1	0	1	2	12
Oct	3	0	1	5	0	0	0	0	0	0	7
Nov	2	0	2	0	0	0	0	0	1	1	4
Dec	10	4	4	0	0	0	0	0	3	2	18
Total	76	14	15	14	7	5	3	4	8	14	110

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 Laboratory:

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

Objectives	Selected Milestones
• To upgrade staff knowledge and skills through continuous	• Four staff graduated with Diploma in Medical Laboratory Technology from the

Objectives	Selected Milestones
training programs.	Pacific Paramedical Training Centre (PPTC), New Zealand. • Tavite 'Eteaki Laboratory Technician Grade II attended a one month training course on Blood Cell Morphology, PPTC, New Zealand. • Latu Soakai, Medical Scientist attended the 2009 HIV Laboratory Seminar and the 21st Annual ASHM Conference, Brisbane, Australia. • Sitanilei Hoko, Senior Medical Scientist attended a workshop on Consultation on Asia Pacific Strategy for Strengthening Health Laboratory Services (2010 – 2015), Nadi, Fiji. • One day in service session conducted by Phil Wakem from PPTC on Blood Cell Morphology. • Sokopeti Iketau, Laboratory Technician Grade II awarded with a scholarship to do a B.Sc in Medical Laboratory Technology at FSM, Fiji.
• Performance of the section regularly assessed and corrective action taken when required.	• The Laboratory's Quality System was audited by Phil Wakem of PPTC in May. Key areas recommended for improvement included strengthening documentation, regular review of Standard Operating Procedures, equipment maintenance and continual on site educational workshops. • The performance of the section was affected by the breakdown of the Echo chemistry and Analyzer at the beginning and towards the end of the year. Corrective action is the purchase of a new and more effective chemistry analyzer. • Customer feedback highlighted some very challenging areas for improvement in the quality of the section's service delivery. Corrective action is ongoing. • An internal management survey was conducted in May to help guide senior staff in their supervisory roles but all would benefit from some management training.
• To increase the capacity of laboratory in services in outer islands.	• Sufficient HIV and HBsAG and RPR test kits were donated by Japan supported the service of the Laboratory Unit. • The reagents for the chemistry analyzer in Prince Ngu Hospital are still provided by expatriate friends of the hospital. • Quarterly order of supplies is going well. Communication with staff and specimen referral to Vaiola Hospital is much improved.
• To regularly review maintenance schedules of essential equipments.	• The maintenance servicing of the haematoloy analyzer is once a year. • Despite the preventive maintenance checks on the Echo chemistry analyzer the supplier from New Zealand still could not fix the problems. The response from the supplier was very disappointing.

Statistical Information

<u>Specimens received increased by 2.6%</u>

The total number of specimens received by all laboratories was 58,988, an increase of 2.6% from the previous year. As usual, most of the specimens received were blood (89.6%) of which the majority (36.5%) went to the Haematology unit.

A closer scrutiny shows a 17.4% drop in specimens received by the Biochemistry unit which could be due to the breakdown of the Echo chemistry analyzers and to the establishment of a private laboratory in town.

Table 20: Number of specimens received by each laboratory in 2009

Unit	Total Specimens	%	Vaiola	Ngu	Niu'ui	Niu'eiki
Haematology	21525	36.49%	18782	1542	559	642
Blood Transfusion	16468	27.92%	15952	343	91	82
Biochemistry	13448	22.80%	12674	774	0	0
Microbiology & TB	6732	11.41%	6476	149	25	82
Histology & Cytology	815	1.38%	815	0	0	0
Medical Legal	0	0.00%	0	0	0	0
Total	58988	100%	54699	2808	675	806

Source: Laboratory Registration

Increased Workload

A Total of 259,066 tests were performed by all units in 2009, an increase of 4.7% from the previous year. The average test burden per day were Vaiola 655 tests/day, Ngu 35 tests/day, Niu'ui 10 tests/day and Niu'eiki 9 tests/day.

Table 21: Distribution of tests performed by Unit and Hospitals

Unit	Total Laboratory Test	%
Haematology	149618	60.49%
Blood Transfusion	40850	16.52%
Biochemistry	41847	16.92%
Microbiology & TB	14061	5.69%
Histology & Cytology	636	0.26%
Total	247328	100.00%

Source: Laboratory Registration

Blood transfusion and Microbiology shows a decrease in tests done which probably reflects the loss of service to the private laboratory. Tests such as HIV, HBsAg, RPR and urinalysis are common requirements for visa applicants and other health check.

All serological tests (HIV, HBsAg, RPR) decreased by 10% compared to the previous year. This is attributed to the availability of these services in the private laboratory. The number of tests referred overseas increased by 11.6% mainly due to the breakdown of the Echo Chemistry Analyzer. This extra expense to the Laboratory can be significantly reduced if a good quality chemistry analyzer is obtained to replace the problematic Echo chemistry analyzer.

Major Pathogens Isolated per Month, Vaiola Hospital Laboratory, 2009

It is noted that only 3 N.gonorrhoeae were isolated by culture compared to previous years. However, qualitative detection of N.gonorrhoeae (GC) and Chlamydia trachomatics (CT) by nucleic acid amplifications using the BD Probe Tec ET System yields a more interesting story. 1404 specimens tested, 186 were positive for GC (13.2%) and 293 (20.9%) were positive for CT. 135 nasopharyngeal swabs taken from 30/6 – 9/12/09 for Influenza A

Surveillance 27 (20%) had Influenza A virus and 21 (15.6%) had the NOVEL Influenza A H1 Swine lineage virus. 371 ZN smears done 13 (3.5%) were AFB positive.

8.2.2 Pharmacy:

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

Objectives	Selected Milestones
• To provide quality, safe, effective and affordable essential drugs and standard medical supplies at all times to all the people of Tonga and ensure its rational use.	• **Upgrade of 3 Assistant Pharmacist Grade II to Grade I:** • Mosese 'Ilangana, Petelo Manu and 'Eleni Fe'aomoeata were upgraded to Assistant Pharmacist Grade I to manage the outer islands hospital pharmacies. • **Drugs for Cardiac Team:** • Pharmacy Section was able to meet the demand of the drugs required by the visiting Cardiac Team from Australia. • **Ward Drug Usage Report:** • The Section now is ready to circulate costing for each ward and would circulate this information upon request. • **Renovation of the Clinic Pharmacy's waiting area:** • The Clinic Pharmacy's waiting area was damaged by the hurricane early in the year and was finally fixed in the last quarter. • **Overseas workshop and training:** • The Principal Pharmacist attended two overseas conferences during the year; • Training Course on Improving Medicines Supply Management for Pacific Island Countries 20 to 25 July 2009. • Expert Consultation on the Regional Framework for action on Access to Essential Medicines in the Western Pacific (2010 – 2015) from the 18 to 20 November 2009. • The Senior Pharmacist also attended four overseas meeting during the year. • TRIPS Suva March 2009. • Pre-conference meeting prior to the Training Course on Improving Medicines Supply Management for Pacific Island Countries 18 t0 25 July 2009, Melbourne, Australia. • TB Management in Suva in November, Fiji. • RHCS Training for Level 1 Health Care Workers from the 7 to 11 December 2009, Port Vila, Vanuatu.

Statistical Information

The Central Pharmacy and Medical Supplies (CPMS) is divided into five different units. The Administration Unit, Manufacturing Unit, Regulatory/Training 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

Table 22: Summary of production output for Manufacturing Unit 2009

No.	Production	No. of Batches	Total Volume	Costing
1	Oral Preparation	115	24990L	248921.48
2	Dermatological Preparation	111	1246L & 191.54 Kg	24382.86
3	Extemporaneous Preparations	84	20.99L	356.35
4	Total	350 Batches	26256.99L 191.54kg	$273660.69

Source: Pharmacy Registration

Regulatory/Training Unit

The Regulatory/Training Unit looks after the Regulatory Affairs as well as the implementation of the Pharmacy and Therapeutics Act. Senior Pharmacist Mr. Siutaka Siua with the help of our Australian Youth Ambassador for Development runs this Unit. The Modules of the Assistant Pharmacist Training was reviewed and updated ready for the commencement of the training next year. The Regulations for the Pharmacy and Therapeutic Goods Act are under review and should be resubmitted again early next year.

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$2,483,388.47 and this included medical drugs and supplies.

Vaiola Hospital Pharmacy

Pharmacist Graduates Mrs. Leva'itai 'Asaeli is the officer in charge of Vaiola Hospital Pharmacy with 9 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 23: Prescription Record for Vaiola Pharmacy Inpatient by month, 2009

Months	Number of Discharging		Value/Cost	No. of Imprest Items to the wards	Value of items/Costs
	Prescription	Items			
Jan	251	569	1379.48	1380	36386.42
Feb	178	398	1003.99	1369	40761.86
Mar	213	443	1624.3	1524	54006.23
Apr	269	600	1787.63	1294	36229.22
May	160	407	3224.86	1412	41324.49
Jun	298	641	7906.87	1305	37077.05
Jul	214	435	2646.45	1525	46361.41
Aug	159	356	2177.12	1343	31540.23
Sep	179	421	2184.67	1340	37957.55
Oct	217	473	5728.59	1003	29502.17
Nov	214	426	1732.35	1095	33198.25
Dec	143	336	1276.28	1215	45322.83
Total	2495	5505	32672.59	15805	469667.71

Source: Pharmacy Registration

Clinic Pharmacy

Two Officers manage the Clinic Pharmacy which opens on normal working days for patients who attended Special Clinics for refilling their medication. These patients have a medication card for their record of prescriptions and medication dispensed. Average item per prescription is about three.

Table 24: Vaiola Clinic Pharmacy Records by month, 2009

Months	Prescription	Items	Value/Cost
Jan	,265.00	5,347.00	24,052.65
Feb	2,248.00	5,332.00	27,025.54

Mar	2,568.00	6,740.00	30,745.38
Apr	2,462.00	6,550.00	23,466.28
May	2,372.00	6,438.00	32,207.02
Jun	2,404.00	6,462.00	20,257.90
Jul	2,528.00	6,787.00	29,348.84
Aug	2,477.00	6,771.00	30,306.43
Sep	2,449.00	6,694.00	22,903.83
Oct	2,585.00	7,094.00	28,395.32
Nov	2,530.00	6,983.00	23,006.60
Dec	2,535.00	7,256.00	33,089.06
Total	29,423.00	78,454.00	324,804.85

Source: **Pharmacy Registration**

Total number of prescription and items in main outpatient pharmacy in both AM and PM shifts were prescription (124,548) and items (208,546). Total cost for the main outpatient pharmacy in both shifts was $257,386.69. Total number of prescriptions dispensed from Vaiola Pharmacy (169,757), total items dispensed and distributed to the wards (313,830) are valued at $1,101,687. It is noted that the cost for operating the inpatient services is about the same as running the outpatient pharmacies.

Table 25: Outpatient Pharmacy Records by month, 2009

Months	AM Shift		PM Shirt		Value/Cost	Outpatient Department		
	Pres.	Items	Pres.	Items		Pres.	Items	Value/Cost
Jan	7,385	12,333	5,739	9,182	26,689	280	464	2,216
Feb	6,966	11,349	4,419	6,589	22,902	260	412	1,005
Mar	7,253	11,919	4,182	6,676	22,116	307	551	1,589
Apr	6,852	11,555	4,747	7,749	19,467	290	477	1,984
May	6,356	11,079	3,696	6,095	17,706	259	397	1,557
Jun	5,809	10,026	2,929	5,083	18,786	224	380	1,123
Jul	7,545	13,088	5,780	9,898	21,247	396	696	1,549
Aug	5,703	9,607	3,139	5,063	20,239	262	429	985
Sep	6,327	10,237	2,914	4,736	18,364	255	430	1,275
Oct	5,049	10,555	3,468	5,127	21,580	229	432	1,791
Nov	5,914	10,135	3,457	5,699	22,275	284	408	897
Dec	5,790	10,022	3,129	4,744	26,016	245	444	1,204
Total	**76,949**	**131,905**	**47,599**	**76,641**	**257,387**	**3,291**	**5,520**	**17,174**

8.2.3 Physiotherapy:

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

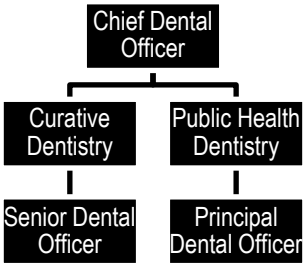
Objectives	Selected Milestones
• Maintain current level of	• Spinal Team from Auckland, New Zealand visited Tonga with an aim to

service to both hospital inpatient and outpatient.	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

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	123,669
Public Health Dentistry	Dr. Salise Faiva'ilo	4	0
Total staff and financial resources	2	31	$123,669

9.1.1 Curative Dentistry:

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

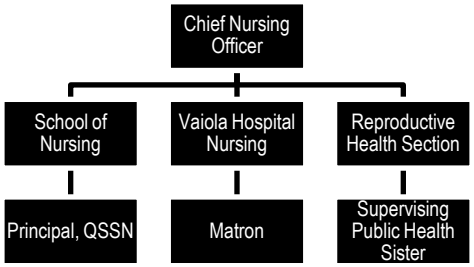
Objectives	Selected Milestones
• To reduce other oral/dental health problem.	• Malimali Project approved funding for another two years with the JICA. • A Japanese volunteer has been assigned to work in Prince Ngu Hospital to

	support the sustainability of the Malimali Programme. • One Dental Therapist has been posted to permanently run the Dental Clinic in Niuafo'ou.
• To create and maintain a working environment that is safe and productive to maintain the interest and motivation of staff.	• Dr. Fusi Fifita completed her Phd in oral pathology from Japan. • Dr. 'Afa Taulangovaka competed his Postgraduate Diploma in Dental Public Health.

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	Mrs. Tilema Cama	6	3,800
Vaiola Hospital Nursing	Sr. 'Ofa Takulua	182	16,000
Reproductive Health Nurse	Mrs. 'Atalua Afu Tei	48	84,100
Total staff and financial resources	3	236	103,900

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 nursing practice.	• **Workshop conference attended by QSSN Staff** • Sr. Kathy Ramsay – PSCI Sub – Regional Advice Committee, Sydney, Australia, from the 2 to 11 April, 2009. • Sr. Folole Suliafu, Training on Teaching and Assessment, Nuku'alofa, from the 14 to 24 April, 2009. • Sr. 'Ana Fevaleaki, Training on VCCT, Nuku'alofa, from the 8 to 19 June, 2009.

Objectives	Selected Milestones
	• Sr. Mele'ana Ta'ai, Fellowship: Australia Leadership Award (ALA), from the 11 to 27 June, 2009. • Sr. Folole Suliafu, Wokrshop on Teaching and Assessment, Nuku'alofa, from the 29 June to 3 July, 2009. • Sr. 'Ana Fevaleaki, TB Workshop on Developing Guidelines, Nuku'alofa, from the 13 to 14 October, 2009, and from the 16 to 17 November, 2009. • Sr. Tilema Cama, TNQAB Workshop on Training Providers Registration, Nuku'alofa, from the 24 to 25 November 2009. • Sr. Folole Suliafu, Clinical Training in Nursing, China, from the 26 November 2009 to 3 May 2010. • A staff Development and Planning Workshop held on 5 to 9 January 2009 where staff plan the academic year, allocate teaching load and review course outlines. • Staff development meetings took place throughout the year which provide support for the teaching staff in relations to teaching strategies, student assessments, clinical placement, clinical learning tools, student supervision and more. • Curriculum Review Workshop (2 days) was held in December 2009. Three days of this workshop was rolled over to January 2010.
• 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 upgrade and maintain the physical facilities at QSSN to sufficiently accommodate staff offices, a nursing science laboratory, and common room facilities.	• Awarded 27 students with their Diploma of Nursing Certificates. • The School worked collaboratively with TNQAB in order to meet the standards required for registration as a 'training provider'. The registration required the development of a Quality Management System. This was an interesting collaboration and the school of nursing aimed to complete this work in early 2010. • Staff reviewed the clinical placement processes for students. • Developed learning objectives, worksheets to assist students with their learning while in clinical practice. • Completed the updated curriculum for Midwifery Post-Basic Training. • All teaching staff has a workstation computer. • Established the electronic communication among the staff for ease of transfer of documents. • Successfully held the Nightingale Week (English Week). • Won the TCC cup for best performances in the Inter – Departmental Sports competition. • Basic renovation of the school facilities and the nurses home to be safer and livable.

10.1.2 Reproductive Health Section:

Reproductive Health section is responsible for providing effective and quality services to mothers, infants, children and adolescents and others through reproductive health strategic approaches throughout the country.

Objectives	Selected Milestones
• To develop skilled and committed staff to meet the evolving roles of the reproductive health nurses.	• Reproductive Health Nurses attended the in-service training on Adolescent Health Development.
• To improve and upgrade staff performances.	• Sr. Sela Paasi attended the Situation of Reproductive Health including Maternal and Newborn Health in the Pacific Meeting, Nadi, Fiji, from the 31 March to 3 April, 2009.
• To improve communication, teamwork and cooperation, and reduce conflicts and misunderstanding among health workers.	• Sr. Sela Paasi attended the Fifth Pacific Immunization Programme Strengthening Workshop, Nagasaki, Japan, from the 11 to 15 May, 2009.
• To provide effective and quality reproductive health services to women of child bearing age.	• Sr. Sela Paasi conducted a Training on Adolescent Health Development for Ha'apai Nurses from the 2 to 3 July, 2009. She was also taking part in the opening of the Ha'apai Youth Centre from the 10 to 13 July, 2009.
• To promote safe motherhood with continuing lows mortality rates and high coverage levels of all services.	• Sr. 'Atalua Tei attended the Australian Leadership Award Training, Sydney, Australia from the 11 June to 6 July, 2009.
• 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.	• SNMW Taufa Mone and SNMW Leaola Tuiaki attended the VCCT Training.
	• Sr. 'Alisi Fifita attended the WHO Child Health Growth Standards Workshop, Nadi, Fiji from the 13 to 17 October, 2009.
• To promote and improve the rate of exclusive breast feeding babies at four months and six months.	• Sr. Graduate 'Iunisi Vaikimo'unga attended the JPIP's Workship, Suva, Fiji from the 2 to 6 November, 2009.
• To maintain and equip the reproductive health clinics and health centre with necessary services and adequate equipment.	• Sr. Graduate 'Iunisi Vaikimo'unga attended the JICA Training Programme for Young Leaders in December, 2009.
• To upgrade public health nurses in public speaking and computer literacy skills.	• PHN Kuluveti Wolfgramme, PHN Katalina Malolo, PHN Sitella Minometi, PHN Kafoatu Tupou and PHN Limisesi Kaivelata attended the Review Tuberculosis Contact Tracing Training from the 27 to 29 October, 2009.
• Conduct regular meetings, liaise with other community programs and conduct regular island visits.	• SNM 'Onita Sila attended the Gender Base Violence Workshop on the 27 October 2009.
• Conduct awareness programs	

through radio and Television.	• Production of the first National Health Policy and Reproductive Health Strategy: 2008 – 2011.
• To assist in developing an occupational health standard for all public health staff.	• Revised Evidence Based Guidelines in Family Planning for Health Care Providers, on November 2009.

10.1.3 Hospital Nursing:

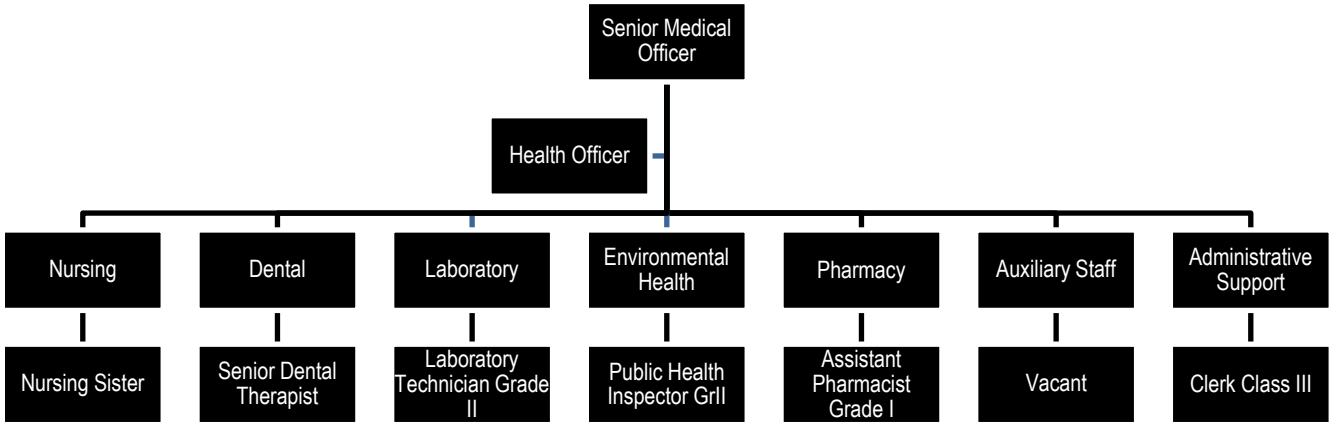
Vaiola Hospital Nursing section is responsible for providing nursing services at hospital setting including clinics and other allied health services in Vaiola Hospital.

Objectives	Selected Milestones
• To facilitate the implementation of activities that contributes to the achievement of the ministry's vision and mission.	• 3 nursing officers joint the Health Emergency Team that travelled to Niuatoputapu following the tsunami incidence: Senior Nursing Sisters Mele Havealeta and Seilini Soakai, and Staff Nurse Sonatane Schaaf. • The following staff were transferred from Vaiola Hospital to the Island Hospitals during the year: • Staff Nurse Diplomate Kanitiola Taufa – Niu'ui Hospital • Staff Nurse Diplomate Heneli Loni – Niu'eiki Hospital • Staff Nurse Diplomate Tovika Vailea – Niu'eiki Hospital • Senior Nurse Midwife Misty Fifita – Niu'eiki Hospital • Staff Nurse Telesia Tu'itupou – Tu'akifalelei Health Centre • Staff Nurse Diplomate Lofitu Mailangi – Ngu Hospital • The following staff were transferred from the Hospital Nursing to the Reproductive Health Nurses • Staff Nurse Katalina Malolo • Staff Nurse Diplomate Melaia Maliepo • Staff Nurse Diplomate Kuluveti Wolfgram
• To uphold and maintain the standard of care demanded by our Code of Ethics.	• Staff Nurse Atimoa Me'afo'ou attended a 6 months course on Clinical Nursing in China • Nursing Sister Graduates Lower Leaving Mafi and Matangisinga Taufa successfully achieved a Bachelor of Nursing Science from Auckland University of Technology.
• To encourage the spirit of team work amongst all health workers delivery patient care within the clinical setting.	• Senior Staff Nurse Meleane Eke and Staff Nurse Mele Vuki were promoted to an Eye Care Practitioners • Midwife Lower Leaving Mafi and Staff Nurse Matangisinga Taufa were promoted to Nursing Sister Graduate • Staff Nurses Lineti Bourke and 'Elisiva Mafi were promoted to Senior Staff Nurse.
• To always provide the best possible care to the patients and families.	• Senior Nurse Midwifes Lata Ma'u and Misty Fifita attended a scientific meeting for Reproductive Health held in Auckland, New Zealand from 23 – 26 March 2009. • Nursing Sister Graduate Pinomi Latu, Senior Staff Nurse Sisifa Pongia and Staff

	Nurse Kineleti Latu attended an Emergency Burn Training in Fiji from 9 – 13 June 2009. • Staff Nurse Hulita Fihaki attended a Training of Trainers workshop on the WHO Child Growth Standard held in Fiji from 13 – 23 October 2009 • Senior Nurse Midwife Taina Palaki attended a workshop on HIV/AIDS in Fiji from 24 – 27 November 2009.

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	68,045
Nursing	Langi Tupou	11	196,585
Dental	Penisimani Taufa	1	25,480
Laboratory	Mele Vea Fonua	0	15,577
Environmental Health	'Amelia Vea	0	15,577
Pharmacy	'Eneasi Palanite	0	25,480
Auxiliary	Dr. Sengili Moala	10	61,164
Administrative Support	Lute 'Eli	1	8,367
Medical Records	Puataukanave Mala'efo'ou	0	5,373
Total staff and financial resources	8	24	$ 421,648

Objectives	Selected Milestones
• To provide an adequate clean water supply for 'Eua District.	• Collaboration with TWB and EWCC to monitor and improve the water supply.

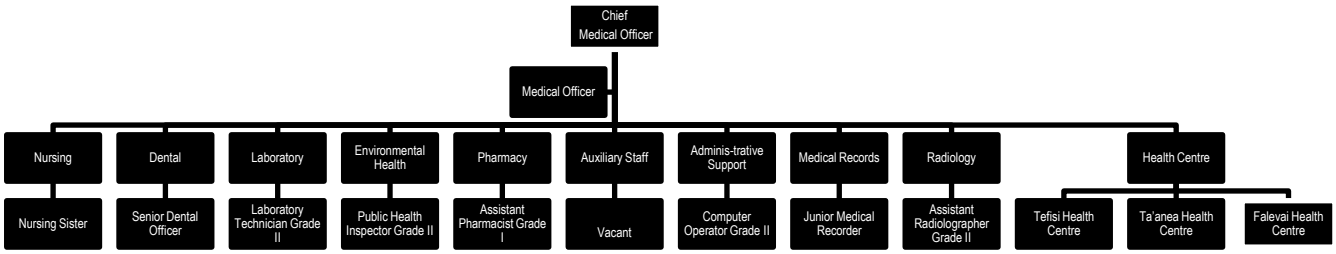
• To improve the staff performances.	• Regular staff meetings to enhance performances. • Encourage further training opportunities overseas and locally. • Reward outstanding performances.
• To reduce the morbidity and mortality from non-communicable diseases.	• Continuation of the outreach village clinics and home visits for non-ambulant cases. • Health education sessions for clinic patients and community groups.
• To improve the financial management systems.	• Reduction of unnecessary expenditures. • Improve revenue collection. • Improve inventory and recordings.
• To cater for the health needs of the people of 'Eua Island by improving the standard of health care services.	• Better communication and referral system with Vaiola Hospital. • Encourage regular clinical meetings and training workshops.

Table 26: Demographic Summary of 'Eua Island Group for 2009

Population	**Male**	**Female**	**Total**	
			Number	**%**
Infants (below 1yr)	50	50	100	2%
1 – 4 years	257	255	512	11%
5 – 9 years	321	303	624	13%
10 – 14 years	293	249	542	11%
15 – 19 years	270	229	499	10%
20 – 24 years	231	192	423	9%
25 – 29 years	199	182	381	8%
30 – 39 years	259	258	517	11%
40 – 49 years	231	257	488	10%
50 –59 years	162	152	314	7%
60 – 69 years	114	120	234	5%
70 + years	64	74	138	3%
TOTAL POPN – this period	2451	2321	4772	
TOTAL POPN – last period	2619	2692	5311	
	Male	Female	Total	
Migration out > 6/12	407	418	825	
Migration in > 6/12	108	106	214	
Total Deaths	16	15	31	
Natural Popn Growth 1.4 %	$= \frac{(Births - Deaths)}{Total\ Population} \times 100$ =			
Net Population Growth - 11.3%	$= \frac{(Births - Deaths) + (Migration\ in - Migration out)}{Total\ Population} \times 100$ =			

Source: Reproductive Health Section

11.2 VAVA'U



Staffing and financial information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Medical	Dr. Edgar 'Akau'ola	2	
Nursing	Meliame Tupou	27	
Dental	Sitaniselao Kisina	0	
Laboratory	Epitani Vaka	1	
Environmental Health	Manase Malua	5	
Pharmacy	Mosese 'Ilangana	2	
Auxiliary	Vuna Kupu	18	
Administrative Support	Manavahe Ata	1	
Medical Records	Leonia Finau	1	
Total staff and financial resources			$

Objectives	Selected Milestones
• To fight and reduce the incidence of NCD and Communicable Diseases by using effective preventative health measures.	• Prince Ngu Hospital visited by the following teams from Vaiola Hospital and overseas teams; • Dr. Paula Vivili and the Eye Team • Dr. Ngalu Havea and the ENT Team from Melbourne, Australia
• To improve the efficiency	• Dr. Toakase Fakakovikaetau and the Cardiac Team from Starship Hospital,

Objectives	Selected Milestones
and effectiveness of our curative health service delivery, using the available resources and current staff. • To establish good relationship and good communication with the people of Vava'u, other ministries and organization, Hospital Board and etc.	Auckland, New Zealand. • Dr. Viliami Vao and the Psychiatric Team • Dr. Andrew Cockrane, Cardia Surgeon from Melbourne, Australia. • Dr. Richard Thompson and the American Team who has donated the new ambulance. • Mr. Andy Lyons, Biomedical Engineer visited to fix the x-ray machine. • Prince Ngu Hospital new Public Health Centre commenced the construction phase and anticipated to be finished in 9 to 10 months times.

Statistical Information:

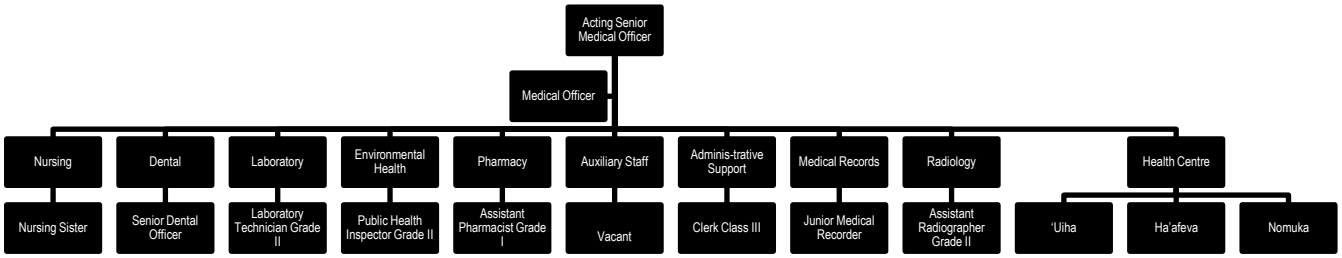
The Vava'u Group is consisted of 10 minor subgroups which is the main island known as 'Uta Vava'u and nine smaller islands known as Vahe Motu. There are one main sub Hospital which is located at Neiafu and four Health Centers in Ta'anea, Falevai, Tefisi and Hunga.

Table 27: Demographic Summary of Vava'u Island Group for 2009

Population	Male	Female	Total	
			Number	%
Infants (below 1yr)	213	168	381	2%
1 – 4 years	771	755	1526	10%
5 – 9 years	1119	939	2058	13%
10 – 14 years	1011	880	1891	12%
15 – 19 years	816	785	1601	10%
20 – 24 years	562	573	1135	7%
25 – 29 years	453	496	949	6%
30 – 39 years	833	885	1718	11%
40 – 49 years	758	753	1511	10%
50 –59 years	530	567	1097	7%
60 – 69 years	358	388	746	5%
70 + years	310	354	664	4%
TOTAL POPN – this period	7734	7543	15277	
TOTAL POPN – last period	7987	7784	15773	
	Male	Female	Total	
Migration out > 6/12	772	751	1523	
Migration in > 6/12	408	373	781	
Total Deaths	75	56	131	
Natural Popn Growth 1.4 %	$= \frac{(Births - Deaths)}{Total\ Population} \times 100$ =			
Net Population Growth - 3.5%	$= \frac{(Births - Deaths) + (Migration\ in - Migration out)}{Total\ Population} \times 100$ =			

Source: **Reproductive Health Section**

11.3 HA'APAI



Staffing and financial information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Medical	Tevita Vakasiuola	1	0
Nursing	Kalisi Finau	15	314,199
Dental	Tongovua Fifita	1	0
Laboratory	'Aiona Kauvaka	1	0
Environmental Health	Mosese Fifita	2	37,114
Pharmacy	'Eleni Fahamokioa	0	0
Auxiliary	Vacant	10	0
Administrative Support	Hisipanio Iketau	0	0
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	32	$351,313

Objectives	Selected Milestones
• Medical Services: • Better working facilities with better environment • Conducted one island tour • Provision of special clinic • General services	• Completion of the renovation of Foa Health Clinic and the staff quarter. • Partial completion of the construction of 'Uiha Health Clinic, Kauvai Health Clinic and the staff quarters for both clinics. • Opening of the Ha'apai Youth Friendly Clinic at Pangai funded by the Tonga Family Health Association. • Biomedical Technician from the Pacific Partnership 09 visits the hospital. • People of Ha'apai were very fortunate to received services from the US

Objectives	Selected Milestones
	Navy including outpatient services, dental services, environmental health works, engineering works and pharmaceutical supplies. • Completion of the new boundary fence for Niu'ui Hospital and the staff residence. • Niu'ui's medical team managed to conduct a complete medical services island tour at Nomuka, Ha'afeva, 'Uiha and Kauva • Special clinics proved to be still active. Diabetic Team from Vaiola Hospital visited during the year. Special clinics were also conducted. • FM Station of Ha'apai offered free air health education program. • US Navy Team conducted Basic Life Supports (BLS) trainings to the staff of the Fire Department, Police Department, Ha'apai Water Board and the Tonga Power Department. • The Team also conducted Public Education activities on Maternal and Child Health, Nutrition and Diet, Physical Education, STI and etc. • Provide emergency health services to the victims from the sinking of MV Princess Ashika.
• Dental Section: • Improved the dental services to Ha'apai District.	• Conducted outer island visits to Kauvai, Ha'afeva and 'Uiha. • 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. • About 20% of the population uses this service.
• Dispensary Section: • To improve working environment	• Permanently transferred in of Assistant Pharmacist Grade I from Vaiola Hospital. • Conducted one island tour. • Availability of most drugs from the Essential Drug List.
• Laboratory: • Maintaining the standard services	• Continue sending biochemistry sample to Vaiola Hospital. • Most of the laboratory services are available in Niu'ui Hospital.
• Nursing: • To improve staffing	• Received one extra nurse from Vaiola Hospital. • Conducted staff meeting in a monthly basis to improve staff commitment.
• CSSD: • To upgrade services and facilities.	• Up to date sterilization are in place.
• Ha'afeva Health Centre • To improve the public health	• Good immunization coverage. • Conducted regular inspection of households. • Promoted physical activities in Ha'afeva. • Installation of new water supply funded by the Japanese Government.

Objectives	Selected Milestones
• Nomuka Health Centre	• Conducted regular tour to Mango and Fonoi. • RHPN reached out program is in excellent operation.
• Reproductive Public Health: • Provide antenatal care to all pregnant mothers. • Provide post natal care to all mothers and babies. • To give and supply family planning to mother to improve their health. • Keep immunization coverage >95% • To detect, treat and trace STI patients.	• 97% coverage. • Conducted health awareness and education to pregnant mothers. • Health Education on too frequent birth and too many children > 4. • Detect high risk pregnancy like anemia and etc. • All antenatal mothers received Tetanus Toxoid Immunization. • 100% coverage. • 35% coverage. • Immunization coverage was >99%. • Chlamydia screening for ANC. • Counseling of single mothers is very active.
• Environmental Health: • Improve Services • Reduce incidence of CD • Upgrade and maintain village water supplies. • Oversee and control Niu'ui Hospital Waste Management.	• Enforce Public Health Act. • Village and Island Sanitation Inspection • Adequate village's sanitation inspection. • Two new reticulated water supply installed at Lofanga and Ha'afeva Islands. • One reticulated water supply at Nomuka is under construction. • Installed new incinerator donated by the Rotary Japan through the PP09 Program. • Sustainable Coast liners from New Zealand organized and carry out one day campaign picking rubbish throughout the island.

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.

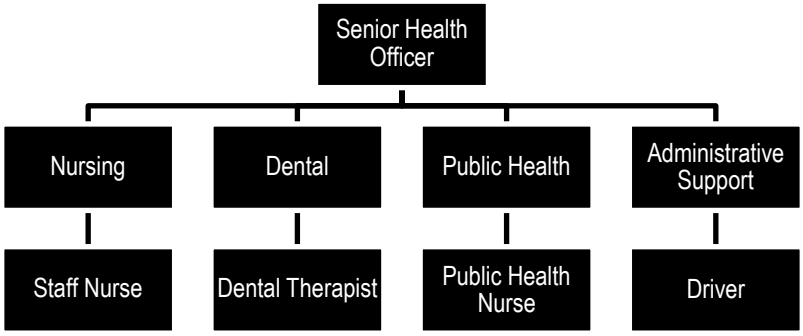
Table 28: Demographic Summary of Ha'apai Island Group for 2009

Population	Male	Female	Total	
			Number	%
Infants (below 1yr)	87	84	171	2%
1 – 4 years	324	337	661	9%
5 – 9 years	428	388	816	12%
10 – 14 years	454	380	834	12%

15 – 19 years	405	335	740	11%
20 – 24 years	315	306	621	9%
25 – 29 years	250	267	517	7%
30 – 39 years	395	414	809	12%
40 – 49 years	326	331	657	9%
50 –59 years	239	268	507	7%
60 – 69 years	164	207	371	5%
70 + years	148	157	305	4%
TOTAL POPN – this period	3535	3474	7009	
TOTAL POPN – last period	3868	3598	7101	
	Male	Female	Total	
Migration out > 6/12	281	302	583	
Migration in > 6/12	187	201	388	
Total Deaths	27	24	51	
Natural Population Growth 1.5 %	$= \frac{(Births - Deaths)}{Total\,Population} \times 100$ =1.2%			
Net Population Growth 1.3 %	$= \frac{(Births - Deaths) + (Migration\,in - Migration out)}{Total\,Population} \times 100$			

Source: **Reproductive Health Section**

11.4 NIUAFO'OU



Staffing and Financial Information:

Sections	Head of Section	Number of supporting staff	Operation Cost
Medical	Viliami Falevai	0	3,652
Nursing	Telesia Tu'itupou	0	0
Dental	Lu'isa Salt	0	0
Public Health	Fifita Hafoka	0	0
Administrative Support	Vacant	0	9,391
Total staff and financial resources	4	0	$ 13,043

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.	• Continued with the outreach program to reach all level within the community. With the new vehicle from Vaiola Hospital the program has been conducting well. The community health awareness program has been operating well with conducting speeches in group activities regarding healthiness.

Statistical Information:

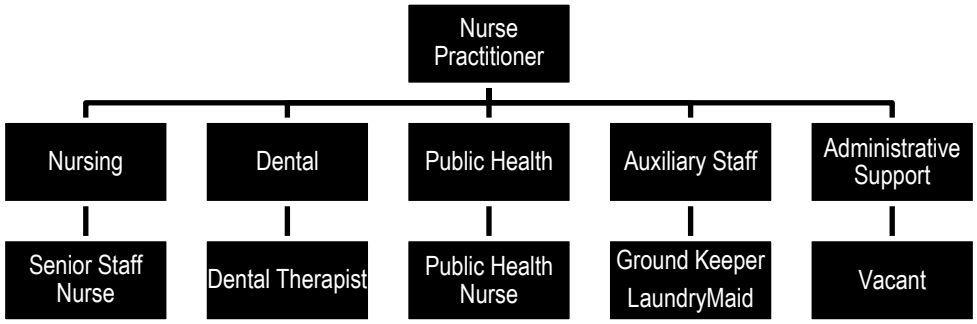
Table 29: Demographic Summary of Niuafo'ou Island Group for 2009

Population	Male	Female	Total	
			Number	%
Infants (below 1yr)	2	5	7	1%
1 – 4 years	37	17	54	10%
5 – 9 years	28	24	52	10%
10 – 14 years	32	25	57	11%
15 – 19 years	40	38	78	15%
20 – 24 years	23	24	47	9%

25 – 29 years	13	10	23	4%
30 – 39 years	35	39	74	14%
40 – 49 years	33	22	55	10%
50 –59 years	14	22	36	7%
60 – 69 years	20	15	35	7%
70 + years	11	6	17	3%
TOTAL POPN – this period	288	247	535	
TOTAL POPN – last period	350	303	653	
	Male	Female	Total	
Migration out > 6/12	91	90	181	
Migration in > 6/12	24	36	60	
Total Deaths	3		3	
Natural Popn Growth 0.7%	$= \frac{(Births - Deaths)}{Total\,Population} \times 100$			
Net Population Growth - 21.8%	$= \frac{(Births - Deaths) + (Migration\,in - Migration out)}{Total\,Population} \times 100$ =			

Source: **Reproductive Health Section**

11.5 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	Vacant	0	
Auxiliary	Leo 'Onesi	2	0
Total staff and financial resources	4	3	$

Objectives	Selected Milestones
• To provide and serve, with the best possible quality, health care to all the people of Niuatoputapu within the limited resources available	• LDS Church in Hihifo was used as a temporary hospital following the tsunami and they helped feed, bath, cloth, and comfort the patients.
• To treat sickness, restore and maintain the health of the population of Niuatoputapu	• Twenty four hours (24hrs) consultation, dressing, injection, suture • Weekly shift clinic for other two villages (Vaipoa / Falehau)
• To help the financial situation of the Ministry by increasing the revenue collection and decrease our financial expenses without affecting the quality of health care we provide	• Achieved 80 – 90% of targeted revenue collection mainly for yacht clearances. • NTT Health Board Committee fund the air fares for majority of patients referred to Vaiola Hospital.
• To make sure that the message of the Ministry of Health reaches the people of Niuatoputapu	• 3 – 4 monthly visit to Tafahi for clinic/consultation and village inspection • Minimum of one monthly home visit to elderly people and patients that cannot come to the Hospital
• To take care of Ministry properties	• Australian Direct Aid Programme donated the following to the Hospital following the tsunami incidence: washing machine, sewing machine, gas stove with three full gas bottles and solar fridge for immunization serums. • US Peace Corps volunteers in NTT and many yachts people donated a baby scale, bathing tub for babies, rubbish container, four solar torches, ophthalmoscope set, mobile phone, lap top computer, gas stove with one full gas bottle.

Table 30: Demographic Summary of Niuatoputapu Island Group for 2009

Population	Male	Female	Total	
			Number	%
Infants (below 1yr)	7	8	15	3%
1 – 4 years	35	36	71	13%
5 – 9 years	45	51	96	18%
10 – 14 years	72	46	118	22%
15 – 19 years	54	45	99	19%
20 – 29 years	29	24	53	10%
30 – 39 years	25	26	51	10%
40 – 49 years	43	53	96	18%
50 –59 years	46	55	101	19%
60 – 69 years	48	49	97	18%
70 + years	34	26	60	11%
TOTAL POPN – this period	459	436	895	
TOTAL POPN – last period	530	480	1010	
	Male	Female	Total	

Migration out > 6/12	128	98	226
Migration in > 6/12	67	51	118
Total Deaths	6	5	11
Natural Popn Growth 0.2%	$= \frac{(Births - Deaths)}{Total\,Population} \times 100$		
Net Population Growth - 11.8%	$= \frac{(Births - Deaths) + (Migration\,in - Migrationout)}{Total\,Population} \times 100$		

Source: **Reproductive Health Section**

12 APPENDIX

Appendix 1: Officials and Personnel of the Ministry of Health by Posts, 2005- 2009

POST	2009		2008		2007		2006		2005	
	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	7	8	8	10	5	9	7
Director of Health	1	1	1	1	1	1	1	1	1	1
Principal Health Planning	1	1	1	1	1	1	1	1	1	1
Principal Health	1	1	1	1	1	1	1	1	1	1
Senior Health Administrator	1	1	1	1	1	1	1	0	0	0
Health Administrator	2	2	3	3	3	3	4	2	4	3
Hospital Administrator	1	1	0	0	0	0	1	0	1	1
Assistant Secretary	1	0	1	0	1	1	1	0	1	0
MEDICAL STAFF	**84**	**78**	100	81	88	81	100	80	103	75
Royal Physician	1	1	1	0	1	1	1	1	1	1
Medical Superintendent	1	1	2	1	2	1	2	2	2	2
Chief Medical Officer	3	3	3	3	3	3	5	2	4	2
Senior Medical Officer	18	17	16	16	15	14	11	9	14	10
Medical Officer Special	6	6	7	4	6	6	10	9	10	4
Medical Officer	29	24	35	31	31	28	30	23	31	22
Chief Surgeon Specialist	1	1	1	1	1	1	1	1	1	1
Anaesthetist Specialist	1	1	1	1	1	1	2	1	2	1
Physician Specialist	1	1	1	1	1	1	1	0	1	0
Obstetrician Gynaecologist	0	0	0	0	0	0	1	0	1	0
Paediatric Specialist	1	1	1	1	1	1	1	1	1	0
Medical Officer Trainee	0	0	0	0	0	0	2	1	2	1
Supervising Health Officer	1	1	1	1	1	1	1	1	1	1
Senior Health Officer	6	6	6	4	4	4	5	5	5	4
Health Training Co-	0	0	0	0	0	0	1	0	1	0
Health Officer	14	14	17	16	13	12	16	14	16	16
Health Officer Trainee	1	1	8	1	8	7	10	10	10	10
DENTAL STAFF	**41**	**35**	46	35	40	33	52	40	53	43
Chief Dental Officer	1	1	1	1	1	1	1	0	1	1
Oral Pathologist Specialist	1	1	0	0	0	0	0	0	0	0
Principal Dental Officer	2	2	2	2	2	1	2	2	2	2
Senior Dental Officer	3	3	4	3	4	4	5	4	5	4
Dental Officers	4	4	6	4	7	3	7	4	9	6
Senior Dental Therapist	3	3	3	2	2	2	5	3	4	4
Dental Therapist	17	17	19	12	13	12	13	13	13	13
Senior Dental Technician	0	0	0	0	0	0	1	1	1	1
Dental Prosthodontist	1	1	1	1	1	1	1	1	1	1
Dental Technician	0	0	2	2	2	1	2	2	2	2
Dental Receptionist	1	1	1	1	1	1	1	1	1	1
Dental Therapist Trainee	6	0	6	6	0	0	5	0	5	0
Dental Technician Trainee	2	2	2	1	0	0	0	0	0	0
Dental Chairside Assistant	0	0	0	0	6	6	8	8	8	7
NURSING STAFF	**390**	**355**	424	346	378	350	425	325	421	362
Chief Nursing Officer	1	1	1	1	1	1	1	0	1	1
Matron	1	1	1	1	1	1	1	0	1	1
Assistant Matron	0	0	0	0	0	0	1	0	1	1
Supervising Public Health	1	1	1	1	1	1	1	1	1	1
Senior Nursing Sister	3	3	3	3	2	2	3	2	6	5
Nursing Sister	13	13	13	13	13	11	14	12	18	15
Senior Staff Nurse	22	22	24	23	24	21	26	24	26	22
Assistant Senior Nursing	1	1	1	1	1	0	1	1	1	1
Staff and Student Nurse	172	144	221	159	211	198	235	188	245	219
Staff Nurse Diplomate	112	106	89	86	50	50	51	41	21	21
Principal Q.S.S.N	1	1	1	1	1	1	1	1	1	1
Nursing Sister Graduate	4	4	5	2	5	3	8	5	8	6
Senior Tutor Sister	2	2	2	2	1	1	2	1	2	1
Senior Nurse Midwife	10	10	7	7	9	9	7	7	16	16
Public Health Sister	1	1	1	1	1	1	1	1	2	2
Public Health Sister	1	1	2	1	2	2	3	2	3	3

Officials and Personnel of the Ministry of Health by Posts, 2005- 2009

POST	2009		2008		2007		2006		2005	
	EST POST	EST FILLED	EST POST	EST FILLED	EST POST	EST FILLED	EST POST	POST FILLED	EST POST	POST FILLED
Public Health Nurse	12	12	9	6	12	10	22	9	18	8
Public Health Nurse Midwife	1	1	2	1	2	2	3	2	3	2
Nurse Midwife	7	6	10	8	12	10	10	2	18	12
Senior Public Health Sister	2	2	1	1	0	0	1	0	1	1
Tutor Sister (Graduate)	1	1	2	2	2	2	4	3	4	4
Clinical Nurse Tutor	0	0	1	1	1	1	1	0	1	1
Clinical Nurse Tutor (Graduate)	1	1	1	0	1	1	1	0	1	1
Senior Public Health Nurse	15	15	16	15	18	15	17	13	17	12
Librarian	1	1	1	1	1	1	1	1	1	1
Nurse Practitioner	4	4	4	4	4	4	2	2	2	2
Senior Public Health Nurse Midwife	1	1	5	5	2	2	7	7	2	2
TECHNICAL STAFF	**1359**	**1229**	158	110	121	110	162	115	158	121
Senior Health Promotion Officer	1	1	1	1	0	0	1	0	1	1
Health Promotion Officer	0	0	0	0	0	0	1	0	1	1
Health Promotion Officer Graduate	0	0	1	0	1	1	1	1	1	1
Health Promotion Officer (Education)	0	0	1	0	3	1	1	0	1	1
Health Promotion Assistant Grade II	0	0	2	0	2	2	2	2	2	2
Senior Health Education Technician	0	0	0	0	0	0	1	0	1	0
Senior Health Education Assistant Grade II	0	0	0	0	0	0	1	0	1	0
Health Promotion Officer Grade I	3	2	3	3	2	1	2	1	2	1
Health Promotion Officer Grade II	8	4	4	4	3	1	3	1	3	0
Health Promotion Officer (Technician)	1	1	1	1	1	1	1	1	1	1
Health Promotion Technician Trainee	0	0	1	0	1	1	1	1	1	1
Supervising Public Health Inspector	1	1	1	1	1	0	1	1	1	1
Senior Public Health Inspector	1	1	2	1	2	2	2	2	2	2
Public Health Inspector Graduate	0	0	1	0	1	1	1	1	1	1
Public Health Inspector	0	0	0	0	0	0	1	0	1	1
Public Health Inspector Grade I	2	2	2	0	2	2	1	1	1	1
Public Health Inspector Grade II	8	8	9	9	9	9	14	10	14	10
Public Health Inspector Trainee	5	5	0	0	0	0	0	0	0	0
Public Facilities Attendant	0	0	0	0	0	0	1	0	1	1
Sanitation Officer	3	3	4	4	4	4	5	4	4	4
Water Maintenance Officer	3	2	3	3	3	3	3	3	3	3
Public Health Assistant Grade I	3	3	3	3	3	3	3	2	3	2
Public Health Assistant Grade II	0	0	1	0	1	1	1	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	2	2	1	0	2	2
Senior Pharmaceutical Technologist	0	0	0	0	0	0	1	1	1	0
Assistant Pharmacist Grade I	6	6	6	5	3	2	3	3	3	3
Assistant Pharmacist Grade II	11	11	12	12	15	15	17	17	15	15
Assistant Pharmacist Trainee	6	6	1	0	0	0	6	0	2	0
Procurement Officer	2	2	2	2	1	1	1	1	1	1
Stock Control Officer	0	0	0	0	0	0	1	0	1	1
Eye Care Practitioner	2	2	0	0	0	0	0	0	0	0
Principal Medical Scientist	1	1	1	1	1	1	1	1	1	1
Senior Medical Scientist	3	3	3	2	3	3	3	3	3	3
Medical Scientist	4	4	4	4	4	4	4	4	3	2
Senior Laboratory Technician	1	0	1	0	1	1	1	1	1	1
Laboratory Technician Grade I	3	3	3	3	3	3	4	4	4	4
Laboratory Technician Grade II	14	14	15	14	15	14	18	16	15	14
Assistant Laboratory Technician Grade II	0	0	0	0	0	0	1	0	5	4
Senior Radiology Technologist	0	0	0	0	0	0	1	0	1	1
Radiographer	0	0	0	0	0	0	1	0	1	0
Senior Ultrasonographer	0	0	0	0	0	0	1	0	1	1
Radiographer Graduate	0	0	0	0	0	0	1	0	1	0
Assistant Radiographer Grade I	2	2	2	2	2	2	5	2	5	2
Assistant Radiographer Grade II	5	5	5	5	4	4	7	5	7	6
Radiology Technologist	0	0	1	0	1	0	1	1	1	1
Assistant Radiographer Trainee	0	0	0	0	0	0	3	0	3	0
Assistant Radiographer Grade II Trainee	3	3	30	0	0	0	1	0	1	0
Psychiatric Assistant Grade I	0	0	0	0	0	0	2	1	1	0

Officials and Personnel of the Ministry of Health by Posts, 2005- 2009

POST	2009		2008		2007		2006		2005	
	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED	EST POST	POST FILLED
Senior Nutritionist	1	1	1	1	1	1	1	1	1	1
Clinical Psychologist	1	0	1	1	0	0	0	0	0	0
Psychiatric Assistant Grade II	4	3	5	4	5	3	7	5	7	5
Mental Health Welfare Officer	1	1	1	1	1	1	2	1	2	1
Psychiatric Social Worker	1	1	1	1	1	1	1	1	1	1
Nutritionist	2	1	2	2	2	2	2	2	2	2
Physiotherapist	1	1	1	1	0	0	0	0	0	0
Assistant Physiotherapist	0	0	0	0	1	1	1	0	1	1
Occupational Therapist	0	0	0	0	0	0	1	0	1	0
Senior Health Informatics Officer	1	1								
Health Statistics Officer	0	0	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	5	5	4	4	1	1	1	1
Senior Medical Record Officer	1	0	1	1	1	1	1	1	2	0
Senior Health Project Officer	1	1	0	0	0	0	0	0	0	0
Health Project Officer	0	0	1	1	1	1	1	1	1	1
Senior Health Planning Officer	1	1	0	0	0	0	0	0	0	0
Health Planning Officer	0	0	1	1	1	1	1	1	1	1
Senior Sterile Supply Assistant	0	0	1	1	0	0	1	1	1	0
Sterile Supply Supervisor	1	1	1	1	0	0	1	0	1	1
Sterile Supply Assistant	5	5	5	4	6	6	4	4	4	4
Asset Manager	1	0	0	0	0	0	0	0	0	0
Hospital Estate Officer	1	0	0	0	0	0	0	0	0	0
ACCOUNTING AND CLERICAL	**55**	**50**	56	51	44	41	58	42	57	47
Senior Accountant	1	1	1	1	0	0	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	2	2
Senior Hospital Executive Officer	1	1	1	1	1	1	1	1	1	1
Clerk Class I	2	2	2	2	2	2	3	2	3	3
Clerk Class II	2	2	2	2	3	3	3	3	3	3
Medical Record Officer	0	0	0	0	0	0	1	0	1	0
Senior Medical Recorder	0	0	0	0	0	0	1	0	1	1
Medical Recorder	2	1	2	2	2	2	3	2	3	3
Junior Medical Recorder	13	13	13	13	10	8	10	9	10	5
Typist Clerk Grade III	0	0	0	0	1	1	1	1	1	1
Computer Operator Grade II	5	5	5	2	2	2	3	1	3	3
Computer Operator Grade III	5	5	5	5	5	5	7	3	7	5
Computer Assistant	13	10	14	13	9	9	10	7	9	9
Registry Clerk	1	1	1	1	0	0	0	0	0	0
Health Registry Recorder	0	0	0	0	1	1	2	2	2	2
Financial Analyst	1	1	1	1	1	1	1	0	1	0
Accounting Officer Diplomate	2	2	2	2	2	2	2	2	2	2
Clerk Class III	4	3	4	3	2	1	6	5	6	5
SUPERVISORY AND DOMESTIC	**117**	**112**	138	123	125	110	174	132	169	154
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	0	0	1	0	1	1	1	1	1	1
Store Assistant	3	3	3	3	3	3	4	3	3	3
Catering supervisor	1	1	1	1	0	0	0	0	0	0
Chief Cook	1	1	1	1	1	1	2	0	2	2
Assistant Cook	13	12	13	11	12	11	14	13	14	14
Seamstress Supervisor	0	0	0	0	0	0	1	0	1	1
Seamstress	0	0	0	0	0	0	1	0	1	1
Domestic Supervisor	2	2	2	2	2	1	1	0	2	2
Laundry Supervisor	1	1	1	1	1	1	1	1	1	1
Laundryman	4	4	4	4	4	4	5	4	5	5
Laundry Maid	7	7	11	9	11	9	13	11	12	11
Male Orderlies	9	9	10	10	10	9	18	10	16	16
Wardmaids	15	14	18	16	18	15	23	18	23	16
Laboratory Maid	3	3	11	9	4	3	5	4	5	5
Dental Maid	1	1	1	1	1	0	1	0	1	0
Transport Supervisor	1	1	1	1	0	0	1	1	1	1
Senior VIP Driver	1	1	1	1	1	1	1	1	1	1
VIP Driver	1	0	1	1	1	1	1	1	1	1
Driver	25	24	25	25	24	23	27	25	26	23
Senior Driver	0	0	0	0	0	0	1	1	1	1
Mechanic	0	0	0	0	0	0	1	1	1	0
House Keeper	2	2	2	2	2	2	2	2	2	2
Groundskeeper	3	3	4	3	4	3	7	4	7	6
Caretakers	2	1	2	1	2	1	2	2	2	2

Officials and Personnel of the Ministry of Health by Posts, 2005- 2009

POST	2009		2008		2007		2006		2005	
	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	0	0	1	0	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	0	0	1	0	1	1
Oxygen Plant Operator	1	1	1	1	1	1	1	1	1	1
Engineer	0	0	0	0	0	0	1	1	1	1
Senior Telephone Operator	1	1	1	1	1	1	1	1	1	1
Telephone Operator	3	3	5	3	2	2	4	4	4	4
Painter	0	0	0	0	0	0	1	1	1	1
Senior Hospital Engineer Graduate	0	0	1	0	1	1	1	1	1	1
Plumber	1	1	1	1	1	1	2	1	2	2
Kitchen Hand	1	1	1	1	1	0	2	0	2	2
Plumber Tradesman Leading hand	1	1	1	1	1	1	1	1	1	1
Sewage Plant Operator	0	0	0	0	0	0	1	0	1	1
Hospital Fitter Electrician	1	1	1	1	1	1	1	1	1	1
Hospital Service Foreman	0	0	0	0	0	0	1	0	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	2	2	1	1	1	1	6	3	5	5
Security Officer	0	0	1	1	1	0	1	1	1	1
Garbage Removal Supervisor	0	0	0	0	0	0	1	1	1	0
Garbage Remover	0	0	0	0	0	0	3	0	3	3
GRAND TOTAL	830	758	931	754	805	734	982	740	971	810

Source: Human Resource Section, Ministry of Health

Description: This table presents the staff establishment of the Ministry of Health from 2005 to 2009.

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Appendix 2: Estimates of Health Expenditure and Revenue Government of Tonga, Fiscal Years 2003/2004-2009/2010

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
2009/2010 (App Bud)	21,375,000	1,000,000	21,375,000	103,185	207
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	174
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, 2004/2005 - 2009/2010

FISCAL YEAR	HEALTH SERVICES EXPENDITURE	TOTAL GOVERNMENTS RECURRENT EXPENDITURE	% OF TOTAL GOVERNMENT EXPENDITURE
2009-2010 (Est)	21,375,000	182,596,569	11.7%
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%

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: Population by Sex, 2000 – 2009

YEARS	BOTH	MALE	FEMALE
2009	103185	52351	50834
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

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 2009. Note that there are slight differences between this table and the Tonga Population Census 2006 but this is attributed to decimal point rounding.

Appendix 5: Population Break Down by Sex and Age Group, 2009

AGE GROUPS	TOTAL	ACCUMULATE %	MALE	FEMALE
ALL AGES	103185	100%	52351	50834
0 - 4	13685	13%	7107	6578
5 - 9	13078	13%	6881	6197
10 - 14	12245	12%	6396	5849
15 - 19	10694	10%	5554	5140
20 - 24	8687	8%	4472	4215
25 - 29	7666	7%	3814	3852
30 - 34	6275	6%	3086	3189
35 - 39	6010	6%	2985	3025
40 - 44	5622	5%	2858	2764
45 - 49	4338	4%	2200	2138
50 - 54	3554	3%	1701	1853
55 - 59	2978	3%	1417	1561
60 - 64	2437	2%	1160	1277
65 - 69	2081	2%	1001	1080
70 - 74	1681	2%	821	860
75 - 79	1118	1%	510	608
80+	1036	1%	388	648

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 2009 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 6: Reported Livebirths, Total Deaths and Infant Deaths Under 1 Year, 2004 – 2009

YEARS	LIVEBIRTHS		DEATHS		INFANT DEATHS	
	TOTAL	CRUDE BIRTH RATE*	TOTAL	CRUDE DEATH RATE *	TOTAL	INFANT MORTALITY RATE **
2009	2623	25.4	571	5.5	38	14.5
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

* 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 7: Reported Livebirths by Age of Mother and District, 2009

Age Group	Female	Male	Total	%	Tongatapu	Vava'u	Ha'apai	Eua
<15	4	8	12	0%	11	1	0	0
15-19	62	73	135	5%	107	22	2	4
20-24	305	368	673	26%	550	88	17	18
25-29	366	405	771	29%	651	85	22	13
30-34	266	300	566	22%	464	65	20	16
35-39	158	187	345	13%	283	39	13	10
40-44	44	49	93	4%	73	14	4	2
45 – 49	10	18	28	1%	26	1	1	0
Total	**1215**	**1408**	**2623**	**100%**	**2166**	**315**	**79**	**63**

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 3%.

Appendix 8: Reported Deaths By Age and District, 2009

	Whole Kingdom				Place of Death				
Age Group	F	M	BOTH	Accum%	Vaiola	Ngu	Niu'ui	Niu'eiki	Not in Hospital
<1	12	26	38	7%	26	1	0	1	10
1-4	8	9	17	3%	10	0	0	0	7
5-14	2	8	10	2%	6	2	0	0	2
15-24	5	9	14	2%	10	1	0	0	3
25-34	9	11	20	4%	11	0	0	0	9
35-44	10	11	21	4%	11	0	1	0	9
45-54	21	34	55	10%	22	4	1	1	27
55-64	34	46	80	14%	30	7	1	1	41
65-74	58	63	121	21%	39	7	3	1	71
75+	82	113	195	34%	32	12	5	1	145
Total	**241**	**330**	**571**	**100%**	**197**	**34**	**11**	**5**	**324**

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 9: Health Facilities by District, 2009

DISTRICT	LOCATION	ESTIMATED POPULATION	AVAILABLE HEALTH FACILITY		
			HOSPITAL	HEALTH CENTRE	MCH CLINIC
TONGATAPU	Tofoa	70716	1	0	19
	Kolonga	5043	0	1	0
	Mu'a	5709	0	1	0
	Fua'amotu	4088	0	1	0
	Vaini	6338	0	1	0
	Houma	4350	0	1	0
	Nukunuku	3164	0	1	0
	Kolovai	3580	0	1	0
VAVA'U	Neiafu	16592	1	0	5
	Ta'anea	2419	0	1	0
	Falevai	1333	0	1	0
	Tefisi	2507	0	1	0
HA'APAI	Hihifo	8590	1	0	5
	Nomuka	775	0	1	0
	Ha'afeva	1352	0	1	0
'EUA	Niu'eiki	5209	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 4: Health Services: Health Centre Activities, 2008-2009

Row Labels	Mu'a		Kolonga		Fua'amotu		Vaini		Nukunuku		Houma		Kolovai		Tongatapu		Niutoputapu		Niuafo'ou	
Year	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**
Total Patient	19772	16516	5817	6644	6419	6814	5604	6340	522	3951	8487	5022	6479	5552	53100	50839	226	Na	185	2083
Type of Diseases																				
Acute	14930	13425	4146	3405	6479	6599	5655	4511	457	2430	7473	3977	5650	4718	44790	39065	221	Na	185	1907
Infectious	2030	5246	1946	2074	2001	644	36	21	0	77	0	71	0	0	6013	8133	0	Na	0	0
Chronic	1057	1236	2	32	178	395	359	663	62	340	749	273	691	789	3098	3728	0	Na	0	0
Diabetes	790	876	80	112	389	556	94	245	62	328	702	299	459	628	2576	3044	17	Na	19	368
Hypertension	223	273	48	34	56	225	49	187	62	249	448	103	399	133	1285	1204	17	Na	21	189
Heart Disease	7	0	0	4	5	6	2	3	0	0	1	0	9	11	24	24	3	Na	0	0
Accident	0	1	0	4	0	0	0	0	0	1	15	0	0	0	15	6	0	Na	0	14
Cancer	0	2	0	1	1	8	0	0	0	0	2	0	0	0	3	11	0	Na	0	2
Total Visit	19037	21059	6222	5666	9109	8433	6195	5630	643	3425	9390	4723	7208	6279	57804	55215	258	0	225	2480
Age Group																				
<2	1132	1052	535	1326	713	509	345	422	42	460	501	663	369	540	3637	4972	9	Na	14	233
2-5	3551	3032	1056	1301	1077	1032	783	1018	64	466	1267	805	857	694	8655	8348	39	Na	36	294
6-15	3173	2679	999	1197	1649	1145	868	1079	58	583	1837	903	887	778	9471	8364	24	Na	25	300
16-25	2690	2062	729	798	658	701	831	672	88	400	1068	471	477	363	6541	5467	31	Na	25	271
26-35	2274	1682	618	665	1354	632	917	680	54	418	879	467	385	325	6481	4869	28	Na	16	254
36-45	2100	1612	502	588	754	705	838	750	76	401	753	553	679	483	5702	5092	26	Na	20	226
46-55	1785	1353	519	439	538	575	602	555	66	365	791	400	1014	819	5315	4506	19	Na	18	188
56-65	1790	1385	420	308	565	650	382	429	35	278	746	382	1259	1142	5197	4574	23	Na	15	175
66-75	1201	978	305	339	536	446	379	453	45	220	499	232	405	635	3370	3303	17	Na	12	131
76+	621	542	263	182	417	429	239	302	20	427	232	413	307	55	2099	2350	8	Na	3	75
Health Programme																				

Row Labels	Mu'a		Kolonga		Fua'amotu		Vaini		Nukunuku		Houma		Kolovai		Tongatapu		Niutoputapu		Niuafo'ou	
Year	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008
Home Visit	34	48	9	25	111	92	3	93	34	28	378	44	128	188	697	518	13	Na	4	109
Preventative	14	21	11	231	11	6	12	1108	1	995	12	638	12	0	73	2999	1	Na	1	0
Immunization	14	0	10	193	11	294	12	0	1	0	12	0	12	0	72	487	1	Na	1	0

Source: Health Officers' Monthly Report

Description: Summary of the 9 major activities delivered in the health centres and the number of services delivered.

Appendix 5: Laboratory Tests Referred and Performed in the Hospital Laboratories, 2004-2009

TYPE OF TEST	2009	2008	2007	2006	2005	2004	%	TT	VV	HP	'EUA
Blood	52871	234314	45016	164218	156635	160097	**91.9%**	48776	2683	650	762
Urine	1970	8204	2269	3783	8279	7590	**3.4%**	1834	92	19	25
Stool and Rectal swabs	462	50	1078	997	1251	1475	**0.8%**	422	21	6	13
Sputum	505	30	487	268	541	443	**0.9%**	494	5	0	6
Cerebro-Spinal Fluids	40	281	68	561	317	215	**0.1%**	40	0	0	0
Pleural & Other body fluids	0	0	35	561	140	110	**0.0%**	0	0	0	
Skin Scrapping	8	8	23	49	138	173	**0.0%**	8	0	0	0
Water	197	0	56	748	15	12	**0.3%**	197	0	0	0
Leprosy skin biopsy	0	0	0	0	0	8	**0.0%**	0	0	0	0
Medico - legal Test	0	0	4	2	5	2	**0.0%**	0	0	0	0
Semen	5	5	9	0	0	5	**0.0%**	5	0	0	0
Pus & Other swab	668	1667	395	520	1235	1071	**1.2%**	661	7	0	0
Bone Marrow	0	0	0	0	0	3	**0.0%**	0	0	0	0
Cytology	99	119	106	106	109	162	**0.2%**	99	0	0	0
Histology	716	517	711	642	522	661	**1.2%**	716	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%**	0	0	0	0
TOTAL	**57541**	**245195**	**50257**	**169187**	**172027**	**167607**	**100.0%**	**53252**	**2808**	**675**	**806**
Specimens for oversease tests:											
Blood	0	2084	1087	1418	425	463	**99.4%**	0	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%**	0	0	0	0
Block	0	0	0	1	39	0	**0.0%**	0	0	0	0
Tissues	1	0	0	0	0	4	**0.0%**	1	0	0	0
Urine	7	12	0	6	2	3	**0.0%**	7	0	0	0
Miscellaneous	0	0	0	0	1	0	**0.0%**	0	0	0	0
TOTAL	8	2096	1087	**1425**	**467**	**470**	**100%**	**8**	**0**	**0**	**0**

Source: Laboratory Manual Registration

Description: This table contains the types of tests referred and preformed in the hospitals laboratories in 2009 and the previous five years.

Appendix 62: Psychiatric Ward Admissions, 2005-2009

CAUSES	2009	2008	2007	2006	2005
Schizophrenia	80	104	44	49	30
Schizoaffective disorder	13	3	2	2	0
Bipolar mood disorder	55	45	43	36	23
Acute and transient psychotic disorder	15	0	2	0	2
Personality and behavioural disorder due to brain disease, damage and dysfunction	2	1	0	1	3
Other Non-Organic psychosis	2	0	6	3	3
Delusional disorder	3	4	2	1	1
Other anxiety disorder	0	0	0	0	0
Other non-organic psychotic disorder and panic disorder	0	0	0	0	0
Dementia	7	3	2	4	3
Other mental disorder due to brain damage, and dysfunction and physical disease	4	1	0	2	2
Mental retardation	1	9	4	7	1
Mental and behavioural disorders due to use of alcohol	3	4	2	1	0
Mental and behavioural disorders due to use of cannabinoids	1	3	0	4	0
Conduct disorder	0	2	0		1
Mental and behavioural disorder due to psychoactive substance use	3	1	7	3	4
Non-organic sleep disorder, unspecified	0	0	0	0	0
Dissociative (conversion) disorder	0	2	3	1	0
Borderline Personality disorder	0	0	0	0	0
Other schizophrenic-like disorder	0	0	0	0	0
Obsessive compulsive disorder	1	0	1	0	0
Acute stress disorder	0	3	3	0	0
Panic disorder	0	0	0	0	0
Alcohol withdrawal	0	0	1	1	1
Adjustment disorder with parasuicidal act	4	0	0	4	3
Schizotypal Disorder	0	0	1	2	1
Medical induced movement disorder	0	0	1	0	0
Adjustment disorder	16	13	18	17	4
Recurrent depressive disorder	0	0	0	0	0
Depressive episode	3	1	3	3	0
Conduct disorder and Organic Amnestic	0	0	0	0	1
Mental Retardation and Bipolar affective disorder	9	0	5	7	3
Mental and behavioural disorder associated with the puerprium NEC	1	9	0	0	0
Dissocial personality disorder	3	0	5	0	1
Manic episode	6	0	5	7	4
Tic disorder	0	9	0	0	0
Paranoid Personality disorder	0	0	0	0	0
Mental disorder, not otherwise specified	0	1	0	0	2
Somatoform	0	2	2		
TOTAL ADMISSIONS	**232**	**225**	**162**	**155**	**93**

Source: Mental Health Ward Manual Registration

Description: Statistics on the causes of admission to the Psychiatric Ward for 2009 and the previous four years

Appendix 13: Queen Salote School of Nursing Student Roll, 2006-2009

Class	No.of Student 1/1/09	No. of student 31/12/09	Graduated	Resigned	Terminated	Defer
2006	27		27			
2008	33	29			4	
2009		33			0	
Total	**60**	**62**	**27**		**4**	

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 14: Ante Natal Clinic Attendance (New) by Trimester and District, 2009

TRIMESTER	TONGA		TT		VV		HP		'EUA		NIUA'S	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Early (12 weeks)	189	7.1%	114	5.9%	15	4.1%	25	13.4%	26	19.5%	9	37.5%
1 (13-20 weeks)	686	25.8%	439	22.6%	109	29.6%	83	44.6%	48	36.1%	7	29.2%
II (21-32 weeks)	1298	48.9%	980	50.4%	196	53.3%	64	34.4%	50	37.6%	8	33.3%
III (33+)	444	16.7%	381	19.6%	42	11.4%	13	7.0%	8	6.0%	0	0.0%
No Booking	38	1.4%	***30***	1.5%	6	1.6%	1	0.5%	1	0.8%	0	0.0%
TOTAL	**2655**	100.0%	**1944**	100.0%	**368**	100.0%	**186**	100.0%	**133**	100.0%	**24**	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 2009.

Appendix 15: Deliveries by Attendant and Place of Birth, 2009

Place of Birth	Traditional Birth Attendant	Medical Officers	Nurses	Health Officers	Others	No. of Deliveries for 2009
Home	18	0	4	0	22	**44**
HC & Clinics	1	0	14	12	0	**27**
Hospital	0	635	1877	8	1	**2521**
Others	0	0	0	0	7	**7**
TOTAL	**19**	**635**	**1895**	**20**	**30**	**2599**

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 2009. 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 16: Immunization Programme Coverage, 2009

Immunization		Tonga			Tongatapu		Vava'u		Ha'apai		'Eua		Niua's	
		Tot	Imm.	%	Tot	Imm.	Tot	Imm.	Tot	Imm.	Tot	Imm.	Tot	Imm.
BCG	1	**2813**	**2806**	**99.8%**	2067	2064	381	381	165	165	100	98	100	98
POLIO	1	**2731**	**2729**	**99.9%**	2036	2034	358	358	161	161	88	88	88	88
	2	**2662**	**2661**	**100.0%**	2000	1999	339	339	161	161	81	81	81	81
	3	**2590**	**2582**	**99.7%**	1975	1967	321	321	152	152	71	71	71	71
HEP B	1	**2813**	**2813**	**100.0%**	2067	2067	381	381	165	165	100	100	100	100
	2	**2731**	**2729**	**99.9%**	2036	2034	358	358	161	161	88	88	88	88
	3	**2590**	**2582**	**99.7%**	1975	1967	321	321	152	152	71	71	71	71
DPT/HIB	1	**2731**	**2729**	**99.9%**	2036	2034	358	358	161	161	88	88	88	88
DPT/HIB	2	**2662**	**2661**	**100.0%**	2000	1999	339	339	161	161	81	81	81	81
DPT/HIB	3	**2588**	**2582**	**99.8%**	1973	1967	321	321	152	152	71	71	71	71
MR	1	**2698**	**2681**	**99.4%**	1940	1928	397	397	147	146	107	105	107	105
	2	**2502**	**2469**	**98.7%**	1869	1838	314	314	143	141	88	88	88	88
DPT	4	**2502**	**2469**	**98.7%**	1869	1838	314	314	143	141	88	88	88	88
TOTAL		**34613**	**34493**	**99.7%**	**25843**	**25736**	**4502**	**4502**	**2024**	**2019**	**1122**	**1118**	**1122**	**1118**

Source: Reproductive Health Manual Registration

Description: This table shows the type immunization provided by Public Health Nurses, the coverage rate of immunization for 2009.

Appendix 17: Infant Nutritional Mode, 2009

Nutritional Mode	TONGA		Tongatapu		Vava'u		Ha'apai		'Eua		Niua's	
	No.	**%**	No.	%	No.	%	No.	%	No.	%	No.	%
A. Exclusive Breast Feeding:												
(4 - 12 months)	**1776**	**69.6%**	1265	68.8%	292	71.6%	129	83.8%	75	58.6%	15	68.2%
B. No Breast Feeding:												
(4 - 12 months)	**175**	**6.9%**	130	7.1%	33	8.1%	6	3.9%	3	2.3%	3	13.6%
C. Breast Feeding with Supplement:												
(4 - 12 months)	**522**	**20.5%**	376	20.4%	83	20.3%	42	27.3%	18	14.1%	3	13.6%
Total No.of Mother's interviewed	**2552**		**1840**		**408**		**154**		**128**		**22**	

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 2009.

Appendix 18: Number of New Acceptors by Method, 2009

DISTRICT	IUD	PILL		CONDOM		RHYTHM	VAS	TUB	DEPO	OTHERS	TOTAL
Tongatapu	87	60	185	168	23	0	35	0	453	188	**1199**
Vava'u	23	16	44	30	2	0	0	0	121	29	**265**
Ha'apai	9	12	31	35	0	0	0	0	54	40	**181**
Eua	8	4	2	15	0	0	0	0	20	4	**53**
Niua's	1	4	2	4	0	0	0	0	10	8	**29**
TFH											
Total	**128**	**96**	**264**	**252**	**25**	**0**	**35**	**0**	**658**	**269**	**1727**
%	7.4%	5.6%	15.3%	14.6%	1.4%	0.0%	2.0%	0.0%	38.1%	15.6%	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 2009.

Appendix 19: Total Contraceptive Users by Method and Age, (Method Mix), 2009

AGE GROUP	IUD	PILL		CONDOM		TL	VAS	NATURAL METHOD	DEPO	TOTAL	%
		C	M								
Below 20	3	13	7	14	1	0	0	1	40	**79**	**1%**
20 - 24	65	60	93	102	7	6	0	52	316	**701**	**10%**
25 - 29	143	127	123	179	10	43	2	72	530	**1229**	**17%**
30 - 34	155	133	95	158	8	179	6	101	740	**1575**	**22%**
35 - 39	181	95	47	95	3	402	12	69	544	**1448**	**20%**
40 - 44	111	53	22	64	1	447	2	63	269	**1032**	**15%**
45 +	62	14	5	10	0	264	1	42	101	**499**	**7%**
TFHA	100	11	3	328	11	0	0	0	57	**510**	**7%**
TOTAL	**820**	**506**	**395**	**950**	**41**	**1341**	**23**	**400**	**2597**	**7073**	**100%**

C:- Combined
M:- Mini-pill

Source: Reproductive Health Manual Registration

Description: This table shows the contraceptive users by method and age group for 2009.

Appendix 20: Medically Certified Causes of In-Patient and Out-Patient Deaths by Age Group, 2009

Causes of Death	TOTAL			<1		1-4		5-14		15-24		25-34		35-44		45-54		55-64		65-74		75+	
	BOTH	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Diseases of the Circulatory System	**182**	**74**	**108**	**1**	**2**	**2**	**1**	**1**	**2**		**2**		**2**	**3**	**4**	**8**	**12**	**11**	**18**	**20**	**23**	**28**	**42**
Acute myocardial infarction, unspecified	48	12	36								1				3	2	6	1	7	3	7	6	12
Acute subendocardial myocardial infarction	2	0	2																				2
Acute transmural myocardial infarction of anterior wall	1	1	0																	1			
Acute transmural myocardial infarction of inferior wall	1	0	1																1				
Aneurysm of iliac artery	1	0	1																		1		
Atrioventricular block, complete	2	2	0																	1		1	
Cardiac arrest, unspecified	44	14	30		1	1			2		1		2	2			4	2	6	3	4	6	10
Cardiac arrhythmia, unspecified	2	2	0																	1		1	
Cardiovascular disease, unspecified	3	2	1													1				1			1
Cerebral infarction due to thrombosis of cerebral arteries	1	1	0																			1	
Cerebrovascular disease, unspecified	1	0	1																1				
Chronic ischaemic heart disease, unspecified	8	4	4											1					1	3			3
Congestive heart failure	11	4	7													1		1		1	2	1	5
Dilated cardiomyopathy	1	0	1												1								
Endocardial fibroelastosis	1	1	0			1																	
Endocarditis, valve unspecified	1	0	1																		1		
Heart disease, unspecified	1	1	0	1																			
Heart failure, unspecified	6	5	1													2		1		1		1	1
Intracerebral haemorrhage in brain stem	1	1	0													1							
Intracerebral haemorrhage, unspecified	1	1	0															1					
Intracranial haemorrhage (nontraumatic), unspecified	8	6	2														1	2		3		1	1
Left ventricular failure	1	1	0																			1	
Other cerebral infarction	2	1	1																	1	1		
Other specified cerebrovascular diseases	1	0	1																		1		
Pulmonary embolism without mention of acute cor pulmonale	1	1	0																			1	
Pulmonary heart disease, unspecified	6	0	6																		2		4
Rheumatic heart disease, unspecified	2	1	1				1	1															
Stroke, not specified as haemorrhage or infarction	20	13	7		1											1		3	1	1	3	8	2
Sudden cardiac death, so described	4	0	4														1		1		1		1
Neoplasms	**74**	**31**	**43**		**1**	**2**	**2**		**1**		**1**	**3**	**4**	**1**	**1**	**5**	**3**	**6**	**9**	**12**	**11**	**2**	**10**
Acute erythraemia and erythroleukaemia, without mention of	1	0	1																1				
Hodgkin disease, unspecified	1	0	1								1												
Liver cell carcinoma	3	0	3																2		1		

Causes of Death	TOTAL			<1		1-4		5-14		15-24		25-34		35-44		45-54		55-64		65-74		75+	
	BOTH	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Malignant neoplasm of bladder, unspecified	2	0	2										1										1
Malignant neoplasm of brain, unspecified	4	3	1			1						1	1			1							
Malignant neoplasm of breast, unspecified part	9	8	1													2		3	1	3			
Malignant neoplasm of bronchus or lung, unspecified	8	1	7																3	1	2		2
Malignant neoplasm of cervix uteri, unspecified	1	1	0									1											
Malignant neoplasm of colon, unspecified part	1	0	1																1				
Malignant neoplasm of connective and soft tissue, unspecified	1	0	1				1																
Malignant neoplasm of endometrium	1	1	0																	1			
Malignant neoplasm of head, face and neck	5	1	4										1							1	3		
Malignant neoplasm of ill-defined sites within the digestive	1	0	1																		1		
Malignant neoplasm of intestinal tract, part unspecified	1	0	1																		1		
Malignant neoplasm of kidney, except renal pelvis	1	0	1																		1		
Malignant neoplasm of liver, unspecified	8	1	7												1		2	1	1		1		2
Malignant neoplasm of long bones of lower limb	1	0	1		1																		
Malignant neoplasm of ovary	1	1	0											1									
Malignant neoplasm of pancreas, part unspecified	1	1	0																			1	
Malignant neoplasm of pelvis	1	1	0																	1			
Malignant neoplasm of prostate	3	0	3																				3
Malignant neoplasm of rectosigmoid junction	1	0	1														1						
Malignant neoplasm of retroperitoneum	1	1	0			1																	
Malignant neoplasm of small intestine, unspecified	1	0	1										1										
Malignant neoplasm of stomach, unspecified	2	2	0													1		1					
Malignant neoplasm of uterus, part unspecified	3	3	0																	3			
Malignant neoplasm without specification of site	3	2	1									1									1	1	
Myeloid leukaemia, unspecified, without mention of remission	1	0	1						1														
Non-Hodgkin lymphoma, unspecified type	1	0	1				1																
Secondary malignant neoplasm of breast	1	1	0													1							
Secondary malignant neoplasm of genital organs	1	1	0																	1			
Secondary malignant neoplasm of liver	1	0	1																				1
Secondary malignant neoplasm of other specified sites	2	2	0															1		1			
Secondary malignant neoplasm of pleura	1	0	1																				1
Symptoms, Signs and Abnormal Clinical and Laboratory	**63**	**29**	**34**	**1**	**7**		**1**			**1**		**1**		**2**	**1**	**1**		**1**		**5**	**1**	**17**	**24**
Acute abdomen	2	1	1															1			1		
Acute pain	1	1	0																	1			
Asphyxia	2	0	2		2																		
Bradycardia, unspecified	1	1	0																	1			
Haemorrhage, not elsewhere classified	6	4	2																			4	2

Causes of Death	TOTAL			<1		1-4		5-14		15-24		25-34		35-44		45-54		55-64		65-74		75+	
	BOTH	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Hepatomegaly, not elsewhere classified	1	0	1																				1
Hypovolaemic shock	5	3	2	1	2							1								1			
Instantaneous death	1	1	0													1							
Intra-abdominal and pelvic swelling, mass and lump	1	0	1		1																		
Other and unspecified convulsions	1	0	1				1																
Other ill-defined and unspecified causes of mortality	9	5	4		1										1					1		4	2
Senility	29	11	18											1						1		9	18
Shock, unspecified	2	2	0							1				1									
Sudden infant death syndrome	1	0	1		1																		
Unknown and unspecified causes of morbidity	1	0	1																				1
Diseases of the Respiratory System	**57**	**23**	**34**	**3**		**2**		**1**	**2**			**1**	**2**	**1**	**1**		**3**		**1**	**3**	**9**	**12**	**16**
Acute bronchiolitis, unspecified	1	1	0	1																			
Acute respiratory failure	1	1	0									1											
Asthma, unspecified	2	2	0																			2	
Bronchiectasis	1	0	1										1										
Bronchopneumonia, unspecified	4	1	3																			1	3
Chronic obstructive pulmonary disease with acute	1	0	1																		1		
Chronic obstructive pulmonary disease, unspecified	13	7	6	1																2	2	4	4
Haemothorax	1	0	1														1						
Hypostatic pneumonia, unspecified	7	4	3																	1		3	3
Lobar pneumonia, unspecified	1	0	1																				1
Other disorders of lung	5	1	4											1			1		1		1		1
Pleural effusion, not elsewhere classified	1	0	1														1						
Pneumonia, organism unspecified	1	0	1																				1
Pneumonia, unspecified	6	2	4			1			1												2	1	1
Pneumonitis due to food and vomit	4	3	1	1		1		1	1														
Pulmonary oedema	2	0	2										1		1								
Status asthmaticus	1	0	1																		1		
Unspecified acute lower respiratory infection	5	1	4																		2	1	2
Certain Infectious And Parasitic Diseases	**53**	**24**	**29**	**1**	**2**		**2**		**1**	**2**	**1**	**1**		**1**	**2**	**3**	**3**	**3**	**3**	**6**	**9**	**7**	**6**
Acute hepatitis B without delta-agent and without hepatic coma	1	0	1																		1		
Dengue fever [classical dengue]	1	0	1												1								
Diarrhoea and gastroenteritis of presumed infectious origin	1	0	1		1																		
Meningococcaemia, unspecified	1	1	0							1													
Sepsis due to Staphylococcus aureus	1	1	0															1					
Sepsis due to unspecified staphylococcus	3	1	2		1		1													1			
Sepsis, unspecified	43	20	23	1			1		1	1	1	1		1	1	3	3	2	3	5	7	6	6

Causes of Death	TOTAL			<1		1-4		5-14		15-24		25-34		35-44		45-54		55-64		65-74		75+	
	BOTH	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Viral infection, unspecified	2	1	1																		1	1	
Diseases of the Genitourinary System	**34**	**18**	**16**		**1**					**2**		**1**		**2**		**2**	**2**	**4**	**6**	**4**	**2**	**3**	**5**
Acute renal failure, unspecified	5	3	2							1						1		1					2
End-stage renal disease	10	4	6											1			2		3	1		2	1
Other disorders of urinary system	1	0	1		1																		
Unspecified chronic renal failure	6	4	2											1		1			1	2			1
Unspecified renal failure	11	6	5							1		1						3	2		2	1	1
Urinary tract infection, site not specified	1	1	0																	1			
Injury, Poisoning and Certain Other Consequences of	**28**	**7**	**21**			**1**	**2**		**1**		**5**		**3**		**2**		**4**	**2**	**2**	**2**	**2**	**2**	
Anaphylactic shock, unspecified	1	0	1												1								
Asphyxiation	1	0	1								1												
Crushing injury of head, part unspecified	1	0	1												1								
Drowning and nonfatal submersion	13	5	8			1	1						1				3	1	2	2	1	1	
Fracture of skull and facial bones, part unspecified	1	0	1								1												
Injuries of brain and cranial nerves with injuries of nerves and	1	0	1								1												
Injury of blood vessel(s) of unspecified body region	1	0	1						1														
Injury of blood vessels of head, not elsewhere classified	1	0	1				1																
Injury, unspecified	1	0	1																		1		
Multiple fractures involving skull and facial bones	1	0	1														1						
Unspecified injury of head	6	2	4								2		2					1				1	
Diseases of the Digestive System	**24**	**9**	**15**													**1**	**4**	**4**	**4**	**2**	**2**	**2**	**5**
Acute peritonitis	1	0	1																1				
Alcoholic hepatic failure	1	0	1																1				
Duodenal ulcer, chronic or unspecified with haemorrhage	1	1	0																			1	
Gastrointestinal haemorrhage, unspecified	6	3	3													1	1	1				1	2
Hepatic failure, unspecified	8	2	6														2	2	2		1		1
Obstruction of bile duct	1	1	0															1					
Other and unspecified cirrhosis of liver	2	1	1														1			1			
Other and unspecified intestinal obstruction	1	0	1																		1		
Other diseases of jaws	1	0	1																				1
Peptic ulcer, chronic or unspecified with perforation	1	1	0																	1			
Peptic ulcer, unspecified as acute or chronic, without	1	0	1																				1
Endocrine, Nutritional and Metabolic Diseases	**20**	**11**	**9**		**1**													**3**	**2**	**4**	**2**	**4**	**4**
Fluid overload	1	0	1																				1
Hypoglycaemia, unspecified	1	0	1																				1
Other disorders of electrolyte and fluid balance, not elsewhere	1	1	0																	1			
Other specified diabetes mellitus with other specified	1	1	0															1					

Causes of Death	TOTAL			<1		1-4		5-14		15-24		25-34		35-44		45-54		55-64		65-74		75+	
	BOTH	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Thyrotoxicosis, unspecified	1	1	0																			1	
Type 2 diabetes mellitus with advanced renal disease	7	3	4															2	2		1	1	1
Type 2 diabetes mellitus with features of insulin resistance	2	2	0																	2			
Type 2 diabetes mellitus with poor control	1	0	1																				1
Type 2 diabetes mellitus without complication	4	3	1																	1	1	2	
Volume depletion	1	0	1		1																		
Certain Conditions Originating in the Perinatal Period	**14**	**5**	**9**	**5**	**8**		**1**																
Apnoea of newborn, unspecified	1	0	1		1																		
Bacterial sepsis of newborn, unspecified	5	2	3	2	3																		
Congenital pneumonia, unspecified	1	1	0	1																			
Extreme immaturity, 24 or more completed weeks but less	1	0	1		1																		
Intra-amniotic infection of fetus, not elsewhere classified	1	0	1		1																		
Necrotising enterocolitis of fetus and newborn	1	0	1		1																		
Other preterm infant, 28 or more completed weeks but less	1	1	0	1																			
Prematurity, unspecified	1	0	1		1																		
Respiratory distress syndrome of newborn	2	1	1	1			1																
Diseases of the Blood and Blood-Forming Organs and	**5**	**3**	**2**													**1**	**1**					**2**	**1**
Acute posthaemorrhagic anaemia	1	0	1																				1
Anaemia in other chronic diseases classified elsewhere	1	1	0													1							
Anaemia, unspecified	2	2	0																			2	
Sarcoidosis, unspecified	1	0	1														1						
Congenital Malformations, Deformations and	**5**	**2**	**3**	**1**	**3**							**1**											
Congenital hydrocephalus, unspecified	1	0	1		1																		
Congenital malformation of heart, unspecified	2	0	2		2																		
Gastroschisis	1	1	0	1																			
Klippel-Trenaunay-Weber syndrome	1	1	0									1											
Diseases of the Nervous System	**4**	**2**	**2**		**1**	**1**															**1**	**1**	
Epilepsy, unspecified	1	0	1																		1		
Meningitis, unspecified	3	2	1		1	1																1	
Pregnancy, Hildbirth and the Puerperium	**1**	**1**	**0**									**1**											
Other immediate postpartum haemorrhage	1	1	0									1											
Diseases of the Ear and Mastoid Process	**1**	**1**	**0**																			**1**	
Mastoiditis, unspecified	1	1	0																			1	
Diseases of the Skin and Subcutaneous Tissue	**1**	**0**	**1**														**1**						
Cutaneous abscess, furuncle and carbuncle, unspecified	1	0	1														1						
Unknown Cause of Death	5	1	4						1								1		1		1	1	
Grand Total	**571**	**241**	**330**	**12**	**26**	**8**	**9**	**2**	**8**	**5**	**9**	**9**	**11**	**10**	**11**	**21**	**34**	**34**	**46**	**58**	**63**	**82**	**113**

Source: Medical Records Inpatient Death Database.
Vaiola Hospital Mortuary Registration Book
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 2009.