



**Queensland
Government**
Queensland Health

Cairns Base Hospital and associated services Clinical Services Plan 2008

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State Health Publication No:
ISBN:

FOREWORD

The Cairns Base Hospital and associated services Clinical Services Plan 2008 (The Plan) provides strategic directions for the delivery of acute health services to meet the needs of the population and service requirements to the year 2021. The Plan focuses on the Cairns Base Hospital as the major acute care facility in the Cairns and Hinterland Health Service District (District) and for the wider catchment regions of Cape York and Torres Strait.

The Plan has been developed through a series of consultation workshops with community members, Health Council representatives, stakeholders, clinicians and other Queensland Health staff.

Community members from across the District contributed to Community workshops initially conducted in July 2007, and at feedback workshops during July and August 2008. Public consultation was also invited on the draft Plan during April and May 2008.

The Cairns Health Community Council contributed to the development of the Plan through consultations and participating in Community workshops.

A project steering group comprised of senior clinicians and District health service managers oversaw the development and local endorsement of the Plan.

The Plan is set out in three sections. The first section sets out the background and profile of the catchment area including guiding principles and policies, socio-demographic and health status information. The second section determines the demand for health services and the third section projects the supply of health services that will be required at Cairns Base Hospital to 2021.

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EXECUTIVE SUMMARY

Factors influencing demand for health care

Cairns Base Hospital plays a crucial role in providing services to meet the majority of the health needs for the population of almost 250,000 residents in the Cairns and Hinterland Health Service District and the broader catchment areas of Cape York and Torres Strait.

The Plan responds to the specific health status profile of the District based on a review of health status data. The District has a high proportion of Indigenous persons (10 percent in 2006 – three times the State average) with 64 percent in the Cairns Sub-region. The Cairns and Hinterland Health Service District provides a referral service for the residents of the Torres Strait and Northern Peninsula Area Health Service District and the Cape York Health Service District. These two Districts are comprised of 86 percent and 54 percent Indigenous people respectively. Service planning needs to take into account the health needs of Indigenous persons as well as other community members who need to travel to access District referral services. Often this is associated with the dislocation of families and the need for adequate accommodation and support services.

The District has a high proportion of people who are over 70 years of age and over and the inland region has a higher than state average proportion of this population. Longer hospital stays and limited care places for older residents have added pressure on the health service's ability to accommodate acute care demands.

The District has high rates of potentially avoidable hospital admissions for a range of conditions. This highlights the need to develop new models of care that increase the level of service delivery in non-inpatient settings.

Cairns Base Hospital is experiencing significant increases in inpatient activity that is resulting in the extension of waiting lists for a range of services, including medical specialist outpatient and surgical services. A series of strategies have been identified to assist with demand management including strategies to concurrently develop support services.

Projected future activity levels and facility requirements

The following table shows the potential demand for different clinical services from 2006 to 2021. Largely as a result of the aging of the population, significant increases can be seen in the demand for rehabilitation and oncology services. Strategies to address this service demand will be required to meet the health needs of the population into the future. In addition, to address the provision of clinical services, strategies will also be required to address service enablers such as workforce.

Table 1: Projected catchment supply of service related groups 2006 to 2021

Service related group	2006	2021	change from 2006 to 2021
	separations	separations	
Breast Surgery	113	181	60%
Cardiology	1 339	2 261	69%
Cardiothoracic Surgery	26	41	58%
Chemotherapy & Radiotherapy	2 367	3 171	34%
Colorectal Surgery	275	380	38%
Dentistry	192	250	30%
Dermatology	84	123	46%
Diagnostic GI Endoscopy	1 413	2 163	53%
Drug & Alcohol	900	1 023	14%
Ear, Nose & Throat	486	537	10%
Endocrinology	317	604	91%
Extensive Burns	29	25	-14%
Gastroenterology	505	843	67%
Gynaecology	1 315	1 496	14%
Haematology	855	1 595	87%
Head & Neck Surgery	85	124	46%
Immunology & Infections	786	1 204	53%
Interventional Cardiology	158	644	308%
Medical Oncology	376	790	110%
Neurology	862	1 359	58%
Neurosurgery	170	245	44%
Non Subspecialty Medicine	1 964	3 224	64%
Non Subspecialty Surgery	1 709	2 232	31%
Non-acute	543	1 153	112%
Obstetrics	5 344	6 275	17%
Ophthalmology	621	1 408	127%
Orthopaedics	2 447	3 873	58%
Plastic & Reconstructive Surgery	572	880	54%
Psychiatry - Acute	944	1 785	89%
Qualified Neonate	859	1 079	26%
Renal Dialysis	12 078	22 868	89%
Renal Medicine	243	439	81%
Respiratory Medicine	1 102	1 575	43%
Rheumatology	308	481	56%
Tracheostomy	90	140	56%
Unallocated	25	23	-8%
Upper GIT Surgery	406	504	24%
Urology	304	595	96%
Vascular Surgery	258	377	46%
TOTAL	42 470	67 969	60%

Source: acute Inpatient Modeling (aIM)2008

The projected requirements of clinical services will be used as a guide for facility master planning. The projected infrastructure requirements are provided in Table 2. The assumptions used in ascertaining the projected requirements are detailed in this Plan in the relevant sections.

Table 2: Projected facility requirements for Cairns Base Hospital to 2021-22

Specialty	Number of places			
	Available beds	2011-12	2016-17	2021-22
Acute medical other	Inc in medical	58.4	67.1	79.1
Integrated Cardiology/CCU	Inc in medical	20.9	23.9	27.2
Cancer services overnight	Inc in medical	16.1	20.4	24.2
Alcohol & Drug disorders & detox	Inc in medical	5.9	6.5	6.8
Med Assessment / Planning Unit	0	24.0	28.5	33.0
Acute medical total	88	125.3	146.5	170.3
Surgical overnight	83	72.9	83.7	96.1
High dependency	2	3.6	4.2	4.9
Intensive care	9	17.4	19.6	22.3
Obstetrics	39	42.1	45.2	49.1
Gynaecology	Inc in obstetrics	6.8	6.7	6.7
Paediatrics	20	25.4	26.0	27.1
Special care nursery	22	27.9	29.9	32.9
Neonatal intensive care	0	0	0	5.6
Rehabilitation	25	47.1	51.6	56.2
GEM & health maintenance	0	18.5	20.7	23.7
Mental health acute	26	38.5	41.2	44.2
Mental health high dependency	8	6.8	7.3	7.8
Total overnight beds	322	432.2	482.7	546.8
Cancer services day unit	8	14.4	20.0	25.7
Dialysis	13	10.7	15.0	21.1
Surgical day only (excl Gynae and Paed)	20	11.2	13.8	16.8
Total day only places	41	36.3	48.8	63.6
TOTAL BEDS	363	468.5	531.5	610.4
Theatres				
Theatres (overnight)	8	7.8	8.8	9.9
Theatres (obstetrics)		1.2	1.4	1.6
Theatres (day only)		0.9	1.1	1.4
Endoscopy suite		1.5	1.8	2.0
Cardiac catheter lab Public/Private		0.6	0.8	1.0
Birthing Suite	8	7.8	8.0	8.2
Total theatres	16	19.8	21.9	24.1
Emergency Dept				
Resuscitation Areas		3.6	4.8	6.1
Isolation Rooms		5.3	6.8	8.4
Paediatric cubicles		4.2	5.6	7.3
Short Stay beds		8.9	11.9	15.2
General ED spaces		19.1	25.7	33.3
Total ambulatory care places	25	41.0	54.8	70.3

Future directions and service development priorities

Future directions

Cairns Base Hospital will remain the major referral centre for the majority of acute and specialist services for the three Health Service Districts of the Far North Queensland Cluster (the Cluster), namely Cairns and Hinterland, Cape York and Torres Strait and Northern Peninsula Area HSDs.

Focus on ambulatory models of care

Trends in clinical care across key specialties, suggest that the service model for Cairns Base Hospital needs to shift from a focus on inpatient beds to a more balanced mix of ambulatory, inpatient and community outreach services.

While the mix will vary between services, more integrated operational arrangements with community health services in post acute, chronic care, child health, mental health and aged care are central to the model. The aim is to establish assessment and care processes that avoid an acute inpatient admission for people with chronic or complex problems where outpatient community care alternatives are clinically appropriate.

More integrated service systems where core community health services are aligned with acute services and the continuum of care as the priority are required. This should include the development of designated post acute care services at the hospital/community interface and through integrated care planning and discharge planning processes with community based teams and community nurses.

Expansion of access to allied health services, especially physiotherapy, occupational therapy, speech, social work, dietetics and nutrition, podiatry, orthotics, prosthetics and psychology are also indicated. An ambulatory care centre that includes provision for multidisciplinary assessment, therapy and rehabilitation services and specialist pain management and diabetes education is also indicated and will be further explored in the proceeding planning phases.

Expansion of referral services

Cairns Base Hospital has resident demand to host some Far North Queensland wide referral services to manage the growing demand, reduce the need for people to travel for best practice care and to reduce outflows. The priorities nominated by clinicians and the Clinical Services Plan are:

- development of an integrated cancer care service offering multidisciplinary management and to include radiation oncology. This will be affiliated to the Townsville Hospital Tertiary Cancer Care Centre.
- development of a diagnostic angiography and interventional cardiology service for appropriate risk patients.
- progressive development of a Neonatal Intensive Care Unit (NICU) linked to The Townsville Hospital and consistent with the Statewide NICU Plan.
- progressive development of urology services to meet the projected demand.

Service development priorities

Priorities for service development identified in discussions with clinicians and Hospital administration include:

- Redevelopment of the hospital to improve functional relationships and efficiency, address inefficiencies in the mental health unit and the emergency department; increase operating theatres and improve functionality of the ward areas.
- Cairns Base Hospital is the major trauma centre for the Cluster and ED attendances are increasing rapidly. Staffing in medicine and nursing and the physical infrastructure needs to keep pace with the workload. A Medical Assessment & Planning Unit (MAPU) with provision for assessment and initiation of treatment for a range of chronic presenting problems is to be developed as part of a broader care arrangement.
- ICU / HDU demand is high and physicians identified the need to increase the ventilated and monitored beds available to manage the increasing complex workload.
- High volumes of medical admissions, trauma, cancer workloads and managing elective surgical loads are a challenge. Access to vascular surgery needs to increase to support the escalating renal caseload. Alignment with the Queensland Statewide Renal Plan 2008-2017 suggests removing access patients from the elective list and scheduling cases as required.
- Cairns is the major centre for maternity services for the Cluster. Expansion of a midwifery led model of service and an increased capacity in women's services is required. The strengthening of an integrated hospital and community child health service is a priority.
- Cairns is the hub for renal services and projected demand demonstrates that acute capacity needs to increase. The ability to manage end-stage cases and support the expansion of satellite services is a priority.
- Enhancement of support services (diagnostic imaging, pharmacy, interventional radiology and pathology).

SECTION ONE

BACKGROUND

Cairns Base Hospital is a 322 bed hospital (excluding day only beds) and is the major acute health facility in the Cairns and Hinterland Health Service District and the wider Far North Queensland Cluster. It provides medical, surgical, high dependency, obstetrics, paediatrics, renal, oncology and emergency services predominantly at Level 3 as per the Queensland Health Clinical Services Capability Framework; Public and licensed private health facilities Version 2.0, July 2005 (CSCF).

The hospital was established in 1885. The current buildings were built in 1970 and have had several incremental additions over the years. The latest redevelopment and addition of new buildings was completed in June 2002.

The infrastructure redevelopments have provided short term benefits in addressing urgent needs. However, in the longer term this has led to poor functionality and inefficient layout unsuitable to contemporary healthcare practices and technology.

In 2006-07, Cairns Base Hospital provided a total of 42,470 separations. Of these, 61 percent were for day only patients. The overnight average length of stay was 6.3 days. The Emergency Department is extremely busy with approximately 37,000 presentations for the same period.

The purpose of the Plan is to identify the health needs of the population served by the Cairns Base Hospital, describe the current services and ascertain the future services required.

The scope for this Plan is to define the health needs of the population living in the catchments for which Cairns Base Hospital is the major acute facility. There are other acute facilities in the District that provide health services for their respective residents and a referral role to Cairns Base Hospital for higher acuity patients.

This Plan is prepared as a revision of the draft Cairns and Hinterland Health Service District Clinical Services Plan undertaken by Aurora Projects in 2007-08 and is part of the process of developing services master planning for Cairns Base Hospital.

This Plan has been informed by senior clinicians and the Cairns Base Hospital Executive members as well as through the consultation process undertaken by Aurora Projects in preparation of the preceding plan. This included guidance by a steering committee chaired by the District Manager of the Cairns and Hinterland Health Services District, consultation forums held to discuss current and future requirements for acute and community services and several public forums.

Recent times have seen an epidemiological transition from infectious disease to chronic and complex conditions. This is consistent with the aging of the population and will require a substantial redesign of services to meet the future requirements. Thus, future health systems will necessarily need to focus on primary and community care in prevention and early intervention programs to ease the burden on the acute care system. This is reflected in the key strategies of the District.

POLICY AND PLANNING FRAMEWORK

Queensland Health plans and policies

The objectives, service delivery principles and strategies for action within this Plan are consistent with the Queensland Government's commitment to health service reform. This commitment is articulated at a state-wide level in the following documents:

Action Plan - Building a better health service for Queensland (Health Action Plan)

The *Health Action Plan*, released in October 2005, announced the government's intention to reform the public health system.¹ The work agenda includes:

- improving health services to all Queenslanders regardless of where they live;
- creating new models for service delivery;
- strengthening partnerships and arrangements with non-government and non-profit organisations.

Queensland Health Strategic Plan and State-wide Health Services Plan

The Queensland Health Strategic Plan (2007-12) identifies four strategic directions for health services in Queensland over the five years to 2012. It reflects recent service delivery reforms contained in the Queensland State-wide Health Services Plan (2007-12) and the critical role of the enabling functions—information, funding, workforce, and infrastructure and assets.^{2, 3}

The Queensland State-wide Health Services Plan (2007-12) identifies the following two clear objectives:

- improving access to safe and sustainable health services;
- better meeting people's needs across the health continuum.

The other two strategic directions in the Queensland Health Strategic Plan (2007-12) are:

- enhancing organisational work processes and systems to support service delivery and business effectiveness;
- developing our people in a way that recognises and supports their role in the delivery of health services.

This Plan has also been influenced by the following specific Queensland initiatives, plans and documents:

- Queensland Strategy for Chronic Disease (2005-2015);
- Partnerships Queensland: Future Directions Framework for Aboriginal and Torres Strait Islander Policy in Queensland (2005-2010);
- Guidelines for Connecting Healthcare in Communities Initiative - Primary Healthcare Partnership Councils (May 2007);

¹ Queensland Health 2005, *Action Plan- Building a better health service for Queensland*, Queensland Government.

² Queensland Health 2007, *Queensland Health Strategic Plan (2007-2012)*, Queensland Government.

³ Queensland Health 2007, *Queensland Statewide Health Services Plan (2007-2012)*, Queensland Government.

- The Health of Queenslanders 2006: Report of the Chief Health Officer Queensland;
- Queensland Health Clinical Services Capability Framework (July 2005).
- Queensland Statewide Renal Health Services Plan 2008-2017
- Queensland Statewide Neonatal Intensive Care Services Project (2006)
- Queensland Statewide Medicine Rehabilitation Plan 2008-2012

Smart State: Health 2020 Directions Statement

In 2002 the *Smart State: Health 2020 Directions Statement*⁴ identified cancer as a priority area for health improvement in Queensland. In 2006, the Queensland Cancer Control Strategic Directions (CCSD) Framework 2005-2010 outlined Queensland Health's intent for cancer services for the five years to 2010.

The Queensland Statewide Cancer Treatment Services Plan (CTSP) 2008

The Queensland Statewide Cancer Treatment Services Plan 2008 has been prepared to guide the implementation of the strategies set out in the CCSD Framework. The CTSP identifies eleven objectives for Cancer Services in Queensland, including:

- developing clearly defined service networks that encompass both public and private sector services and provide formal links between smaller cancer services and specialised referral centres;
- developing service capacity in line with population distribution and growth;
- enhancing multidisciplinary care models including developing and implementing mechanisms to improve communication among health care professionals, cancer patients and their families;
- building workforce capacity in line with planned service development.

In response to this, planning will continue based on the recommendations of safe and sustainable cancer services associated with treatment following diagnosis, ongoing management and palliative care in North Queensland, with direct reference to the Statewide CTSP.

At a Health Service Area level, guiding documents for the plan include:

- (the former) Northern Area Health Services Plan – Future Directions 2007-2012.

This Plan identifies the population health needs into ten key focus areas and strategies to guide the provision of health services for future planning. The focus areas are:

- cancer
- circulatory health
- child health including ear health
- diabetes and renal disease
- digestive conditions and liver disease
- injury prevention
- mental health
- oral health
- reproductive health

⁴ Smart State Health 2020 Report. Queensland Health 2002.

- respiratory health.

Far North Queensland Cluster

The Far North Queensland Cluster comprises the Health Service Districts of Cairns and Hinterland, Cape York and Torres Strait and Northern Peninsula Area. The aim of the Cluster is to provide:

- improved planning and service development opportunities within a networked framework;
- complementary roles of facilities, thus more effective use of resources;
- improved recruitment opportunities for smaller facilities;
- more effective integration of acute clinical services.

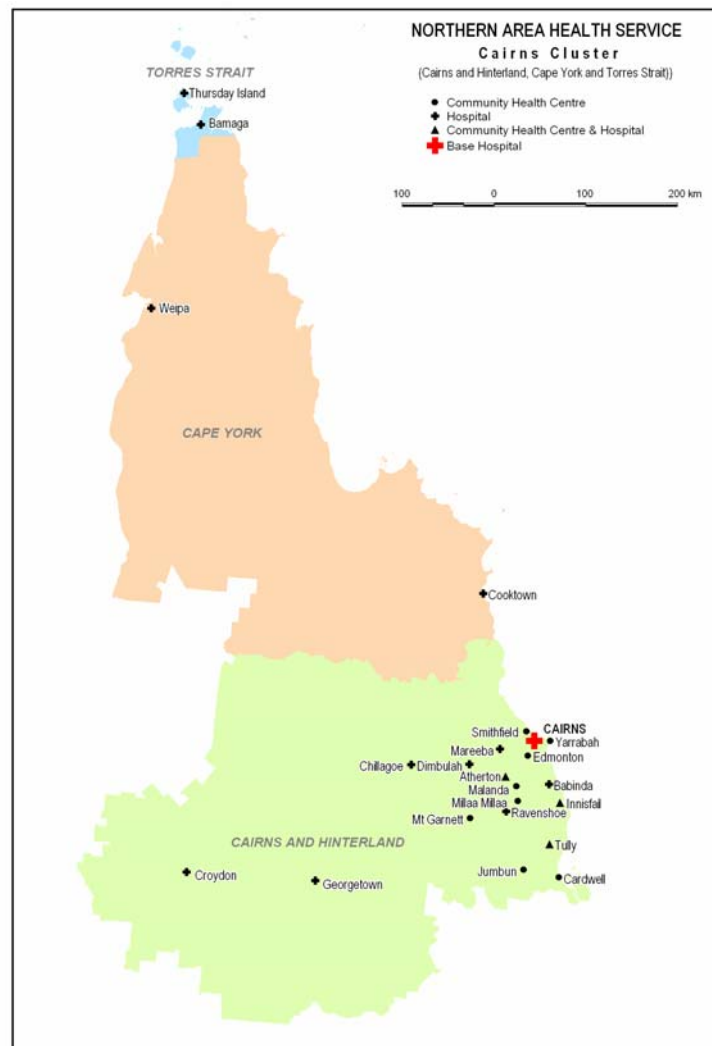
SERVICE NEED

Catchment profile

The Cairns Base Hospital has two catchments comprising the primary catchment of the Cairns and Hinterland Health Service District and the secondary catchment of the wider Far North Queensland Cluster area for which Cairns Base Hospital is the major acute facility.

The Cairns and Hinterland Health Service District stretches from the Bloomfield River in the north, to Cardwell in the south and west to Croydon covering an area of approximately 142,900 square kilometres. Cairns city is the regional centre for the district with the major rural centres being Atherton, Innisfail and Mareeba.

The District comprises eighteen statistical local areas (SLAs). For planning purposes, the SLAs have been streamlined into sub regions in this plan. The sub regions are consistent with the methodology used by the Population Information and Forecasting Unit (PIFU) in the report *"Far North Queensland Region: A Past and Future Demographic Profile"*. The sub regions are based on the former SLA as follows:



Source: TPHN, Spatial Mapping, Epidemiology Unit

- Cairns Sub-region – Cairns City including Cairns City – Part B and Yarrabah Shire
- North Coast Sub-region – Douglas Shire
- South Coast Sub-region – Cardwell and Johnstone Shires
- Inland Subregion – Mareeba, Atherton, Eacham, Etheridge, Croydon and Herberton Shires.

The Cape York and the Torres Strait and Northern Peninsula Area Health Service Districts form the secondary catchment for the Cairns Base Hospital. The Cape York Health Service District comprises the Cape York Peninsula north to the Injinoo Aboriginal Council and south to the Bloomfield River covering an area of about 127,900 square kilometres. The Torres Strait and Northern Peninsula Area Health Service District covers the area north of the Cook Shire on the mainland and the islands situated in the Torres Strait north of the peninsula covering an area of 2438 square kilometres.

In the primary catchment area, the statistical local areas of Mareeba and Croydon are classified as remote and very remote respectively using the Area Remoteness Index for Australia (ARIA+), whereas all areas in the Cape York and Torres Strait and Northern Peninsula Area Health Service Districts are classified as very remote. This indicates that people living in these areas have difficulties in accessing services due to geographical distance from major service centres. Options for addressing access issues alternative from service provision based at the Cairns Base Hospital facility are identified in the Far North Queensland Cluster Plan.

Population growth

The Cairns Health Service District population is projected to grow by 21 percent over the next twelve years. The fastest growing area in terms of actual numbers is the Cairns sub region with growth concentrated along the coastal strip in the southern corridor (Edmonton and Mount Peter). This is expected to continue over the next 12 years.

In the secondary catchment, the Cape York Health Service District has a projected growth of 8 percent from 2006 to 2021 whilst the Torres Strait and Northern Peninsula Area Health Service District is projected to grow by 12 percent for the same period.

Table 3 shows population trends for each region within the primary and secondary catchments.

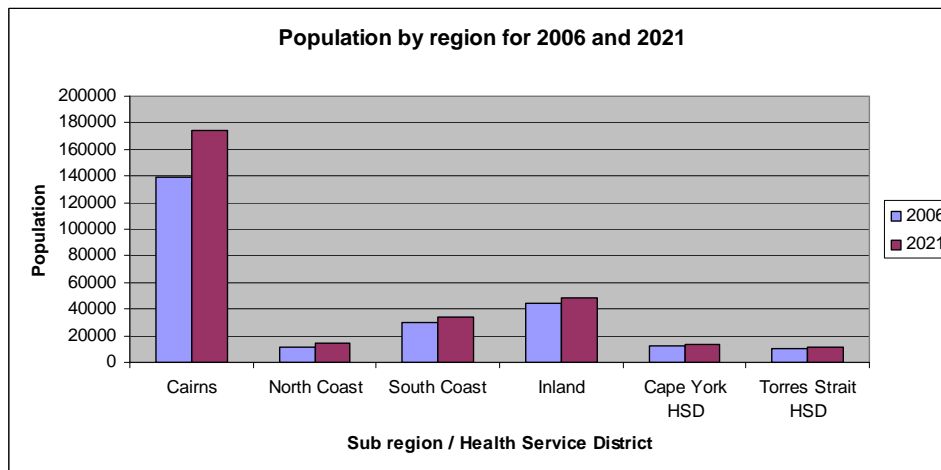
Table 3: Projected population growth for the catchments 2006 to 2021

CLUSTER	DISTRICT	Sub regions	2006 ⁵	2011 ⁶	2016	2021	Growth 2006 to 2021
			Total	Total	Total	Total	
FAR NORTH QUEENSLAND	Cairns & Hinterland	Cairns	139 157	146 078	160 045	174 346	25%
		North Coast	10 947	12 512	13 644	14 874	36%
		South Coast	29 601	31 871	32 982	34 122	15%
		Inland	44 796	44 934	46 536	48 174	8%
		Sub total	224 501	235 395	253 207	271 516	21%
	Cape York	Health Service District	12 625	12 801	13 244	13 644	8%
	Torres	Health Service District	10 463	10 461	10 747	11 685	12%
	Total	TOTAL	247 589	258 657	277 198	296 845	20%

⁵ 2006 population sourced from Australian Bureau of Statistics 2006 Census Estimated Resident Population.

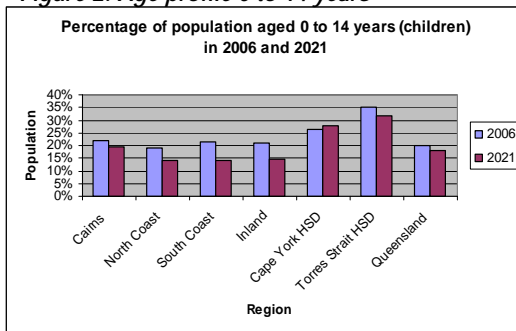
⁶ 2011, 2016 and 2021 population projections sourced from Population Information and Forecasting Unit medium series projections

Figure 1: Population projections by region 2006 to 2021



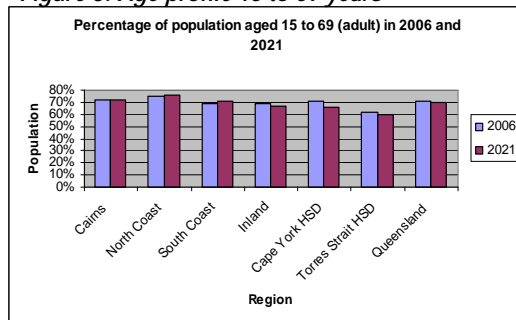
Age profile

Figure 2: Age profile 0 to 14 years



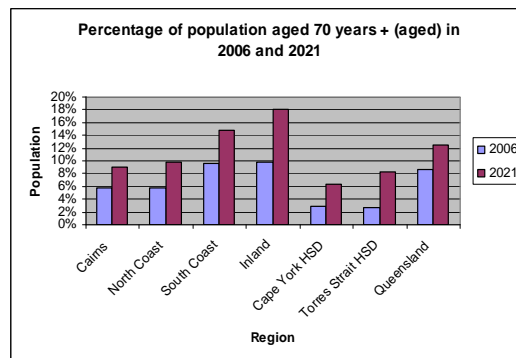
The sub regions in the Cairns and Hinterland Health Services District have similar proportions of children aged 0 to 14 years as the rest of the State in 2006. In the Cape York and Torres Strait Health Services Districts this age group is significantly higher than the State average and this is projected to remain high to 2021. This signifies the high proportion of Indigenous people in these regions reflecting the higher birthing rate for this population.

Figure 3: Age profile 15 to 69 years



The adult population across the Cluster is similar to the State average as shown in Figure 3 except for Torres Strait and Northern Peninsula Area Health Service which demonstrates a lower percentage of the 15 to 69 year age group. The North Coast and South Coast regions are projected for the largest percentage growth in adults 15 to 69 years.

Figure 4: Age profile 70 + years



The South Coast and Inland sub regions have a projected higher than State average population for the over 70 year age group. This age group is the greatest user of health care services. Services aimed at improving access to services and aged care in these regions is required in the future. Figure 4 indicates that the Torres Strait and Cape York Health Service Districts have a significantly lower proportion of people aged 70 years, reflecting the high proportion of Indigenous peoples in these Districts and the higher mortality rate of this population.

Sources: 2006 population sourced from Australian Bureau of Statistics 2006 Census Estimated Resident Population
2011, 2016 and 2021 population projections sourced from Population Information and Forecasting Unit medium series projections

Tourism and visitors to the region

Tourism has a significant impact on population numbers in the catchment area. In the 2006 census, a total of almost 32,000 visitors were recorded in the wider catchment with the majority of these (79 percent) being located in the Cairns and Hinterland District. Overall, the visitors to the catchment represent nearly twice the Queensland average.

Tourism has a significant impact on health services, particularly trauma / emergency services, orthopaedics and to a lesser extent, oncology and dialysis. As the data for this clinical services plan is derived from current activity and relative utilisation, the impacts of tourism is built into the modelling.

Aboriginal and Torres Strait Islander population

The Far North Queensland Cluster has a substantial Indigenous population (38,590)⁷ much higher than the State average of 4 percent⁸. In the Cairns and Hinterland Health Service District, 10 percent of the total population are Indigenous (22,823) and in the Cape York and Torres Strait and Northern Peninsula Area Health Service Districts, people identifying as Indigenous account for 54 percent (6,763) and 86 percent (9,004) respectively. Compared with the total population, Indigenous people face additional challenges relating to early childhood and development, substance abuse, chronic disease and remoteness. These challenges have major implications for program priorities, community development and infrastructure needs.

Ethnicity

Sixteen percent of the Cairns and Hinterland Health Service District population were born outside of Australia (Census 2006), with 8 percent of the population speaking a language other than English. The main languages other than English spoken at home are Italian, Japanese, German and Australian Indigenous languages.

It is recognised that people from culturally and linguistically diverse backgrounds are less likely to rate their health status as 'excellent' or 'very good', and are less likely to access health services. The reasons for this are varied and include language difficulties and difficulties accessing interpreter services; cross-cultural understanding of staff members; and inaccessibility of information on health services and health care, including preventative health care⁹

Socioeconomic status

The Australian Bureau of Statistics produces the Socio-Economic Indexes for Areas that provides a method for determining the level of social and economic well-being of Australian communities. The Index of Relative Advantage/Disadvantage is based on several factors including income, educational attainment, occupational status and unemployment.

Socio-economic disadvantage is associated with a lower life expectancy, a greater burden of disease, higher levels of avoidable deaths and hospital separations¹⁰

⁷ 2006 Census ERP

⁸ Australian Bureau of Statistics - Indigenous and Non-Indigenous experimental estimated resident Queensland population by Queensland Health District - at 30 June 2006

⁹ Northern Area Health Services Plan 2007-2012 (Technical Paper)

¹⁰ The Health of Queenslanders 2006

Of the ten most disadvantaged SLAs in Queensland, eight are located in Far North Queensland. Yarrabah, an Indigenous community in the Cairns and Hinterland District, is considered the most disadvantaged SLA in Queensland, whilst the Cape York District SLAs of Kowanyama, Napranum, Wujal Wujal and Hope Vale, are ranked the third, fourth, ninth and tenth most disadvantaged areas in Queensland. The Torres Strait and Northern Peninsula Area District SLAs of Umagico, Boigu and Injinoo, are ranked the fifth, seventh and eighth most disadvantaged SLAs in Queensland.

Epidemiology profile

The health status of the population in Far North Queensland can be inferred through examination of causes of death and hospitalisation. Health status is influenced by social, environmental, behavioural and genetic factors. Health determinants, the factors that can have a positive or negative impact on health include education, employment, income, healthy behaviours and psychosocial, physiological and biological factors.

The major causes of illness and death in the Cairns and Hinterland Health Service District are coronary heart disease, stroke, chronic obstructive pulmonary disease, depression, lung cancer, dementia, diabetes, colorectal cancer, asthma and osteoarthritis.

Health determinants of significant impact include harmful alcohol consumption, smoking, poor nutrition, overweight and obesity, physical inactivity, and risk and protective behaviours for mental health.

In comparison to urban populations, rural and remote populations have greater death and illness due to injury and poisons, particularly road transport injury.

Table 4: Estimated number of C&HHSD residents with specific conditions, 2001

Key Conditions	Estimated case number	
Condition and age group	Males	Females
Diabetic adults, aged 25 years and older	5 200	5 000
Overweight adults, aged 20 years and over	31 000	18 500
Obese adults, aged 20 years and older	15 500	17 000
Overweight children, aged 5 – 14 years	1 700	2 500
Obese children, aged 5 – 14 years	600	1 100
Asthmatic Children, aged 0 – 9 years	1 650	1 100

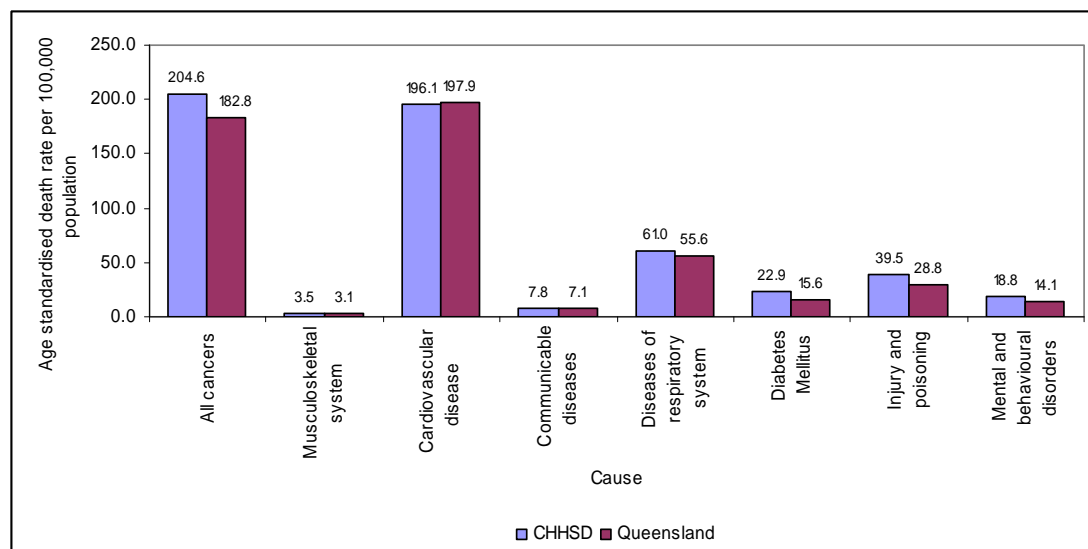
Source: Health Determinants Queensland 2004, aggregation of Cairns, Innisfail & Tablelands HSD

The *Health Determinants Queensland 2004* report estimates the number of specific conditions of residents within the Cairns and Hinterland Health Service District. Overweight and obese adults are a major concern for the Cairns and Hinterland Health Service District.

Leading Causes of Death

The leading causes of death for the Cairns and Hinterland Health Service District as per (ICD) Chapters between 2002 and 2004 were for all cancers (365 deaths) and for cardiovascular disease (322). Figure 4 below shows age standardised death rates per 100,000 population for the Cairns and Hinterland Health Service District and Queensland population. Death rates from all cancers, injury and poisoning, diabetes mellitus, and mental and behavioural disorders are statistically higher in the Cairns and Hinterland Health Service District than for the Queensland population.

Figure 5: Direct age standardised death rates per 100,000 population, Cairns and Hinterland Health Service District and Queensland, 2002-2004



Notes: All cancers exclude non melanocytic skin cancer; injury and poisoning exclude self inflicted harm and complications of medical / surgical care; Arthropathies and systemic connective tissue disorders retitled to musculoskeletal system.

Source: Queensland Health

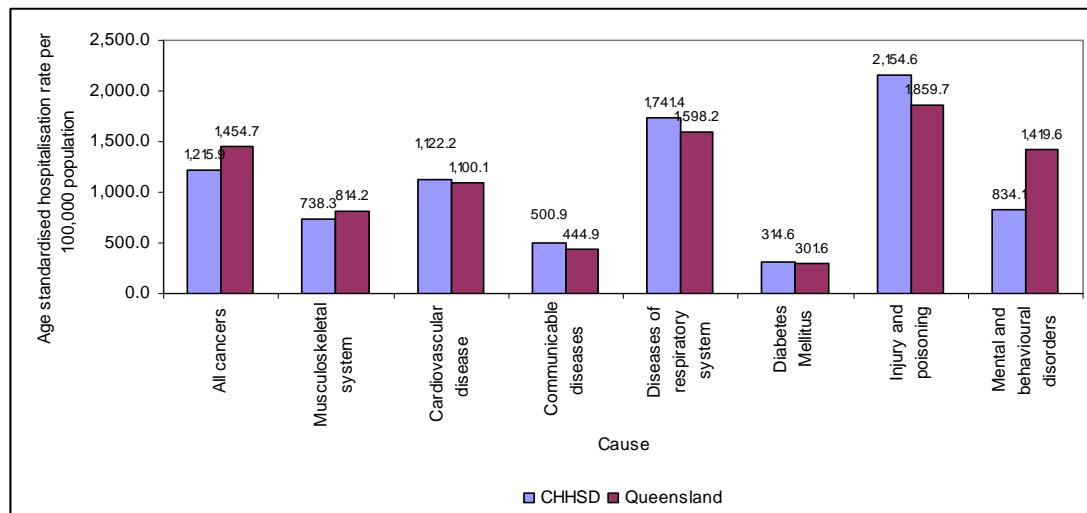
Hospitalisation Rates

The leading causes of hospitalisations in 2002 to 2006 were for injury and poisoning (4,359 hospitalisations), diseases of the respiratory system (3,447) and for cancer (2,329). Figure 5 below shows age standardised hospitalisation rate per 100,000.

Compared with Queensland, the Cairns and Hinterland Health Service District had higher rates of hospitalisation for cardiovascular disease, communicable diseases, diseases of the respiratory system, diabetes mellitus, and injury and poisoning.

Hospitalisation rates for all cancers, musculoskeletal system, and mental and behavioural disorders were statistically lower in the Cairns and Hinterland Health Service District than for the Queensland population. An analysis of prevalence figures for all cancers indicated that residents of the District had similar prevalence levels to the rest of Queensland, but lower levels of hospitalisation.

Figure 6: Direct age standardised hospitalisation rate per 100,000 population, Cairns and Hinterland HSD and Queensland, 2002-03 to 2005-06



Notes: All cancers exclude non melanocytic skin cancer; injury and poisoning exclude self inflicted harm and complications of medical / surgical care; Arthropathies and systemic connective tissue disorders retitled to musculoskeletal system.
Source: Queensland Health

SECTION TWO

DEMAND FOR HEALTH SERVICES

A key component to services planning methodology is to determine firstly what services are required by the population and then identify where and how these services are best supplied. This is based on the analysis of the relationship between demand and supply.

Demand is the health service activity generated by a population irrelevant of where services are received. Supply is the total amount of services available in a given population. As this plan is a precursor to facility planning, demand and supply modelling for future services has been used as the methodology to ascertain the needs of the community to 2021.

The population of 224,501 in the primary catchment area and 23,088 in the secondary catchment utilised a total of 94,888 separations in 2006-07 as shown in Table 5 below. This is the total use of hospital inpatient services used by residents of the catchments irrelevant of where they received services.

Of the total 94,888 separations, 59.8 percent were for day only patients. For overnight separations, the average length of stay was 5.6 days.

7.9 percent of the total separations were for children aged 0 to 14 years and this group utilised 8.4 percent of the total bed days.

Adults aged 15 to 44 years accounted for 33.3 percent of the separations whilst using only 26.2 percent of bed days. Adults aged 45 to 69 years used the highest number of separations at 40.1 percent and 33.9 percent of the bed days.

People aged 70 years and over accounted for 18.7 percent of the separations reflecting the lower proportion of people in this age category in the catchments. However, this group utilised a high proportion of bed days at 31.5 percent.

Of the total resident demand of 94,888 separations, 31.0 percent used private hospitals accounting for 20.5 percent of the total bed days.

Table 5: Demand for inpatient services - Far North Queensland Cluster 2006-07

Far North Queensland Cluster Service Related Groups	Total resident demand			Public hospital demand		
	Separations	bed days	beds*	Separations	bed days	beds*
Breast Surgery	529	831	3	178	346	1
Cardiology	3 515	10 621	34	3 090	9 138	30
Cardio-thoracic Surgery	293	3 148	10	198	2 162	7
Chemotherapy & Radiotherapy	4 505	4 505	15	2 788	2 788	9
Colorectal Surgery	646	3 620	12	346	2 233	7
Dentistry	1 690	1 877	6	548	734	3
Dermatology	415	892	3	360	697	2
Diagnostic GI Endoscopy	5 101	7 122	23	2 104	3 683	12
Drug & Alcohol	1 401	3 006	10	1 362	2 704	9
Ear, Nose & Throat	1 868	2 131	7	746	929	3
Endocrinology	997	4563	15	868	4 071	13
Extensive Burns	88	619	2	85	581	2

Far North Queensland Cluster	Total resident demand			Public hospital demand		
Service Related Groups	Separations	bed days	beds*	Separations	bed days	beds*
Gastroenterology	1 803	4 523	15	1 694	4 178	14
Gynaecology	3 691	5 570	18	1 724	2 942	10
Haematology	1 525	3 481	11	1 152	2 549	8
Head & Neck Surgery	427	699	2	121	283	1
Immunology & Infections	2 023	7 689	25	1 863	6 970	23
Interventional Cardiology	1 160	3 355	11	361	1 293	4
Medical Oncology	956	4 343	14	725	3 496	11
Neurology	1 984	8 871	29	1 818	8 108	26
Neurosurgery	653	2 021	7	582	1 759	6
Non Subspecialty Medicine	5 299	13 477	44	4 378	11 921	39
Non Subspecialty Surgery	4 973	13 554	44	4 040	10 832	35
Obstetrics	7 655	17 675	69	6 926	14 805	58
Ophthalmology	2 732	3 295	11	1 007	1 551	5
Orthopaedics	6 330	19 439	63	3 828	12 959	42
Plastic & Reconstructive Surgery	2 094	4 219	14	975	2 777	9
Psychiatry - Acute	1 399	14 670	47	1 350	13 553	44
Renal Dialysis	17 589	17 589	57	12 031	12 031	39
Qualified Neonate	1 088	8 944	35	1 027	8 598	34
Renal Medicine	611	2 002	6	428	1 683	5
Respiratory Medicine	3 558	14 359	48	2 669	11 970	40
Rheumatology	687	1 677	6	566	1 409	5
Tracheostomy	127	4 232	14	119	3 867	13
Transplantation	6	91	0	6	91	0
Unallocated	89	774	3	62	646	2
Upper GIT Surgery	1 165	3 549	11	794	2 657	9
Urology	1 881	4 028	13	907	2 260	7
Vascular Surgery	506	4 114	13	385	3 383	11
Non-acute Rehabilitation	970	13 556	41	449	11 309	34
Non-acute Palliative	246	3 540	11	243	3 506	11
Non-acute Other	613	21 275	65	604	20 822	63
TOTAL	94 888	269 546	887	65 507	214 274	706

Source: QHAPDC

Excludes unqualified neonates

* notional beds based on 85% occupancy with 70% for maternity and paediatrics and 90% non-acute

Total public demand for inpatient services

The table above provides a breakdown of the separations into service related groups. The majority of obstetrics and medical services are provided by public facilities.

In 2006-07 there was a demand for 65,507 separations at public hospitals by residents from the catchments. The total of 214,274 bed days translates as approximately 706 beds at 85, 70 and 90 percent occupancy for adults, maternity and children aged 0 to 14 years and non-acute respectively. This is shown in the table above in the far right column.

The total public demand for renal dialysis, shown in the table above, also depicts the chairs available in public facility. Further public chairs are contracted from the private sector and are shown in the total resident demand.

A high proportion of the bed days were for non acute care. This equates to around 114 beds. A large number of these were for longer stay patients occupying acute hospital beds as well as aged

and palliative care places across the District. Longer stays have been identified for indigenous remote area patients.

Location of treatment of Far North Queensland residents

The public health facilities in Far North Queensland provided 93 percent of the public hospital inpatient needs of the residents, as indicated in Table 6 below. Cairns Base Hospital provided around 53 percent of the total demand, reflecting a high proportion of self sufficiency.

The average cost weighting in the far right column shows that Cairns Base Hospital had the highest acuity of patients across the District reflecting its status as the major referral hospital in the region. Cost weighting separations enable the level of resource usage to be reflected and are indicative of complexity (The average acuity of a separation across the state has a cost weight of 1). The average cost weight of 2.2 for patients flowing out of the region reflects services provided by tertiary hospitals (state-wide services) primarily in Townsville or Brisbane. It is assumed throughout this Plan that these high acuity outflows will not be reversed due to the requirement of super specialty services to maintain a critical mass of throughput to ensure specialisation and efficiencies.

Table 6: Cost weighted separations for Cairns and Hinterland residents 2006-2007

Hospital	separations	% Total separations	Public self sufficiency	bed days	cost weighted separations	average cost weight
Atherton	5 088	10.3		12 158	3 111.0	0.61
Babinda	360	0.7		1 651	277.0	0.77
Cairns	26 282	53.2	53.2	96 595	29 766.6	1.13
Innisfail	2 769	5.6		8 239	1 875.4	0.68
Mareeba	3 056	6.2		8 024	2 006.5	0.66
Mossman	1 615	3.3		3 821	934.9	0.58
Tully	1 324	2.7		4 211	973.3	0.74
C&H other	928	1.9		1 452	452.3	0.49
Cape York & Torres	4 353	8.8		11 410	2 663.6	0.61
TOTAL FNQ CLUSTER	45 775	92.7	92.7	147 561	42 060.6	0.92
Other	3 617	7.3		16 257	7 969.0	2.20
TOTAL PUBLIC	49 392	100.0		163 818	50 029.6	1.01

Acute inpatients and qualified newborns, excludes unqualified newborns, renal dialysis and chemotherapy

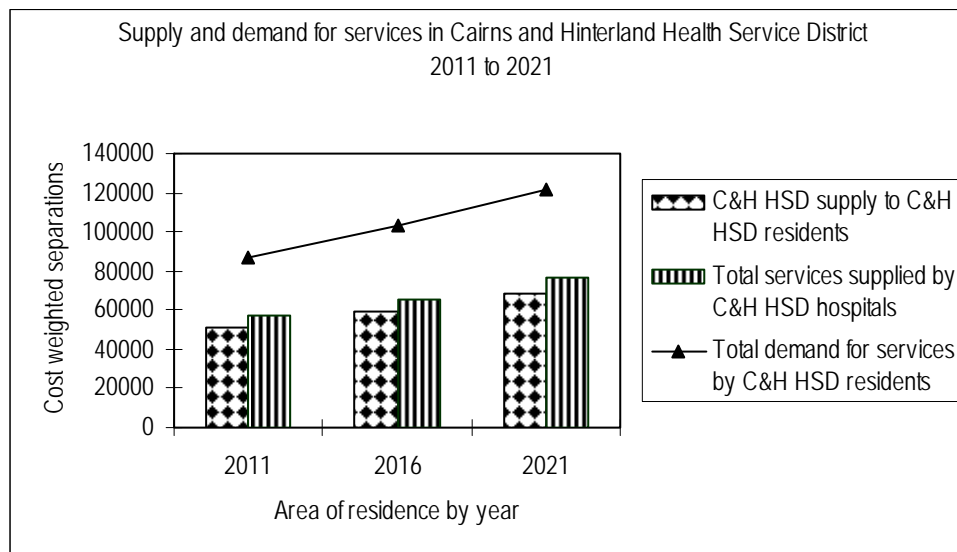
Cost Weight as per HBPM03

Source: QHAPDC

The services provided at Innisfail have fluctuated in various areas over the past year as part of hospital redevelopment and the temporary closure of beds, theatres and clinics.

Figure 6 below graphically represents three projections in cost weighted separations modelled on current activity levels within the District. The columns in the graph below represent the supply of services, firstly to Cairns and Hinterland residents and secondly those services supplied by Cairns and Hinterland Health Service District hospitals. In all instances the supply of services by hospitals exceeds that of the services supplied to the catchment residents. The difference represents services required by non-catchment residents (*patient inflows*).

Figure 7: Supply and demand for services in Cairns and Hinterland Health Service District 2011 to 2021



Source: aIM 2008

Secondly, the line illustrates the demand or requirements for all acute services by residents of the Cairns and Hinterland Health Service District. The gap between the demand line and supply column depicts the requirements for acute services supplied to residents outside of the region (*patient outflows*). These are a mixture of tertiary, high cost services not available in this area, plus choices made by patients to access private services and general services outside of the region. This illustrates the differences between demand and supply methodology and is further clarified throughout this document. Table 7 shows the data for the graph above.

Table 7: Supply and demand for services in Cairns and Hinterland Health Service District 2011 to 2021

	2 011	2 016	2 021
District supply to District residents	50 699	59 074	68 858
Total services supplied by District hospitals	56 802	65 814	76 397
Total demand for services by District residents	87 221	103 223	121 954

Source: aIM 2008

Flows analysis

- With regards to hospital activity, the Far North Queensland Cluster is 85 percent self sufficient for public surgical separations and 89 percent self sufficient for public medical.
- The major outflows from Far North Queensland are for cardiology, orthopaedics and non subspecialty surgery and medicine, respiratory medicine, immunology and infections and obstetrics. These separations are flowing predominantly to Townsville and Brisbane.
- The region has a high level of self sufficiency at 93 percent for public hospital activity
- The majority of obstetrics and acute medical separations are provided by public hospitals.

The following table shows the Cairns and Hinterland Health Service District residents separations that flow out to public hospitals external to the District hospitals.

Table 8: Outflows of C&H HSD Residents 2006-07

Service related group (SRG)	Cape York HSD	Mackay HSD	Mount Isa HSD	Torres & NPA HSD	Townsville HSD			Brisbane Tertiary	Other HSD	Interstate Public
					Ingham	Townsville	Other			
Cardiology	<5	7	6		6	38	5	35	20	6
Interventional Cardiology						124		57	<5	5
Dermatology	<5		<5		<5	77		<5	<5	5
Endocrinology	<5	<5		<5	<5	<5		24	<5	<5
Gastroenterology	5	<5	9	<5	5	7	<5	13	14	18
Diagnostic GI Endoscopy			<5		23	16		43	<5	15
Haematology					<5	38	<5	29	<5	<5
Immunology & Infections	<5	<5	6	<5	<5	12	<5	40	8	7
Medical Oncology		<5				45		115	<5	<5
Chemotherapy & Radiotherapy		5				5		79		6
Neurology	5		<5	<5	<5	37		39	9	12
Renal Medicine	<5	<5				<5	<5	23		<5
Renal Dialysis		<5				26		<5		
Respiratory Medicine	<5	5	7	<5	14	15	5	55	16	12
Rheumatology	<5				<5	64	<5	6	<5	5
Non Subspecialty Medicine	7		<5	<5	5	195	<5	60	24	15
Breast Surgery		<5				<5		<5		<5
Cardiothoracic Surgery						117		30		<5
Colorectal Surgery		<5			<5	4		11		<5
Upper GIT Surgery	<5	<5			<5	9	<5	26	<5	<5
Head & Neck Surgery						5		8	<5	<5
Neurosurgery	<5	<5	<5	<5		75	<5	7	<5	6
Dentistry	<5	<5			<5	78		6	<5	<5
Ear, Nose & Throat	<5					80		37	<5	<5
Orthopaedics	7	12	<5	<5	<5	95	<5	41	22	33
Ophthalmology	<5					30		83	<5	8
Plastic & Reconstructive Surgery	0	<5			6	19		21	<5	6
Urology	<5		<5		<5	42		148	5	18
Vascular Surgery						22		6		5
Non Subspecialty Surgery	16	10	<5	<5	11	106	<5	57	20	21
Transplantation								5		<5
Extensive Burns	<5				<5	<5		13		
Tracheostomy						17		17	<5	<5
Gynaecology	<5		<5			35		29	<5	22
Obstetrics	<5	<5	<5		6	69		25	5	<5
Qualified Neonate						37		21		<5
Drug & Alcohol	<5	6	<5			8	<5	<5	<5	5
Psychiatry - Acute		<5	<5		<5	<5	<5	9	27	8
Unallocated						<5		6		
Non-acute				<5		24		18		19
Grand Total	76	61	55	17	100	1 592	29	1 253	201	289

Source: QHAPDC 2006/07

General issues and challenges

Broad clinical service strategies

The planning assumptions underpinning the recommendations and strategy development in this Plan are:

- Cairns Base Hospital will continue to be the major referral hospital in Far North Queensland.
- Rural hospitals within the District will maintain current service provision and be enhanced in the future to increase service and diagnostic capacity.
- Rural hospitals within the District will be networked with surgical services at Cairns Base Hospital to enable an increasing focus on day only elective surgery.
- A review of community based services will occur consistent with population growth, pre and post acute care, chronic disease management and hospital avoidance strategies.
- Patients will be placed in wards specific to their conditions to ensure specialised care and appropriately resourced services.
- The volume of services projected in this Plan is based on maintaining the activity currently occurring at private facilities.
- The projected requirements for emergency department bays are based on the continuation of the 24/7 bulk billing medical clinic.
- Capital facilities will be developed to address future needs.
- Palliative care bed requirements have remained relatively static at Cairns Base Hospital however; this is assuming that Gordonvale Palliative Care Hospital will remain as the designated service.

Broad clinical strategies

The broad clinical strategies underpinning this Plan are:

- support services will be enhanced to allow the appropriate level of services to be delivered.

Issues in the development of health services

Clinical Services Capability Framework

The Clinical Services Capability Framework (CSCF) for public and licensed private health facilities serves two major purposes:

- to provide a standard set of capability requirements for most acute and sub-acute health facility services provided in Queensland by public and private facilities;
- to provide a consistent language for health care providers and planners to use when describing health services and planning service developments.

The CSCF is part of a suite of tools that address patient safety. When applied across an organisation, these underlying standards and requirements for similar services will safeguard patient safety and progress clinical risk management.

CSCF levels are used within this Plan to describe current levels of service capability and to predict future capability levels to meet service demands.

Current services

Cairns and Hinterland Health Services District provides services over the health care continuum from health promotion, prevention and protection, primary health care to ambulatory care, acute care, rehabilitation and aged care. These services are provided from acute service facilities, multipurpose and community health services.

General medical services

General medical services are provided through the Medical Superintendent using the Rights to Private Practice model, and by resident and visiting medical officers for Innisfail, Atherton, Mareeba, Douglas, Babinda and Tully services.

Specialist medical services

Specialist medical services are largely provided at Cairns Base Hospital and include cardiology, interventional cardiology (limited), clinical haematology, dermatology, endocrinology, gastroenterology, diagnostic gastrointestinal endoscopy, infectious diseases, medical oncology, neurology, palliative care, rehabilitation medicine, renal medicine, rheumatology, sleep medicine and thoracic medicine. Information about medical oncology, haematology and chemotherapy can be found under Cancer headings in the Plan.

Cairns Base Hospital is a large general hospital and is the referral centre for the District and for the Cape York and Torres Strait and Northern Peninsula Area populations, providing services to a Level 3 according to the CSCF although clinical support services are predominantly at a Level 2. The Intensive Care Unit (ICU), Coronary Care Unit (CCU) and Neonatal Unit provide services at a Level 2.

The larger rural hospitals in the District are Atherton, Mareeba and Innisfail provide services predominantly at a Level 2. These facilities provide acute inpatient services including general surgery. Some specialist surgery is provided at Innisfail and Atherton Hospitals, and both provide Level 1 endoscopy services. Visiting specialist services include gynaecology, orthopaedics, thoracic medicine, and paediatrics. All provide a low risk obstetric service under slightly different models of care and have Level 1 nurseries. Mareeba and Atherton Hospital are located only 30 minutes drive away from each other and there is some duplication of services.

Babinda, Tully and Mossman are smaller rural hospitals and provide services at a Level 1, although Babinda & Tully provide a Primary level service for surgical services. Mossman provides some endoscopy services. Mossman hospital operates as a Multi Purpose Health Service (MPHS) with joint state and federal funding for the provision of aged care services. Babinda Hospital provides some aged care services through state funded services.

Gordonvale and Herberton are smaller rural hospitals but have principally non-acute roles. Herberton provides primary level services and aged care as well as palliative and respite services. Gordonvale Memorial Hospital is a palliative care and respite facility, and will introduce sub acute services in July 2008 with the addition of 12 beds.

Primary and community health

Chillagoe, Croydon, Dimbulah, Forsyth and Georgetown are remote primary health services.

Cairns Sexual Health Service is located on the Esplanade at Cairns Base Hospital and is integrated into the community health services of Cairns and Hinterland Health Services District. The service is multidisciplinary and comprises male and female doctors, nurses, Indigenous health workers, administration officers, project officers and psychologists. The service provides programs on HIV/AIDS, sexual health, hepatitis C, and needle and syringe exchange for the District and surrounding areas.

The target populations of the service are youth, Aboriginal and Torres Strait Islander peoples, men who have sex with men (MSM), people who inject drugs, people who have hepatitis C, sex workers, culturally and linguistically diverse clients (CALD) and any other populations at risk of sexually transmitted infections (STIs).

A number of Primary Health Care Centres (PHCC), provide first response emergency care, primary health care and general outpatient services through visiting general and other medical practitioner services including the Royal Flying Doctors Service (RFDS) and the Far North Queensland Division of General Practice (FNQDGP). The PHCCs act as a base for community health and domiciliary services and reflects a focus on the needs of people in rural and more remote areas. These facilities are located at Malanda, Millaa Millaa, Mount Garnet, Ravenshoe, Georgetown, Dimbulah, Forsyth, Croydon, Chillagoe and Yarrabah.

Community Health Centres are located throughout the District and are currently established at Atherton, Mareeba, Cardwell, Jumbun, Cairns City (Aplin Street), Cow Bay, Edmonton, Innisfail, Mission Beach, Smithfield, Westcourt and Yarrabah.

Aboriginal Medical Services

There are five Aboriginal Medical Services (AMS) within the District, each delivering a range of health services, some in partnership with Queensland Health. Queensland Health also delivers some services on site at AMS services including Breastscreen and some mental health services. The AMS services located within the District are:

Name	Location
Mamu Aboriginal Medical Service	Innisfail
Gurriny Yealamucka Aboriginal Corporation	Yarrabah
Wuchopperen Aboriginal Medical Service	Manoora
Mookai Rosie Bi-Bayan	Earlville
Mulungu Aboriginal Medical Service	Mareeba

In partnership with Gurriny Yealamucka Health Service Aboriginal Corporation (GYHSAC), Queensland Health provides medical, nursing, health worker, administrative, allied health and operational staff at the Yarrabah Health Service. There is a 24 hour emergency service, and a range of community and primary health services on site. Complex health care delivery is via Queensland Health's visiting specialist teams, including general medicine, aged care, obstetrics and gynecology, adult, child and youth mental health, women's health cancer screening, sexual health and HACC allied health. GYHSAC delivers some primary health services in addition to

community development and education programs. GYHSAC has commenced work on a service plan to inform future service needs for the Yarrabah community.

Cape York Institute and Apunipima Cape York Health Council

Major health initiatives have been developed through partnerships with the Cape York Institute and Apunipima Cape York Health Council. These include Welfare Reform, the Improved Primary Health Care Initiative and the transition of Primary Health Services in Yarrabah and Cape York.

Clinical support services

Imaging services

Medical imaging operate at a Level 2 service, with services including a Computer Assisted Tomography (CT) Scanner, two general X-Ray machines, four ultrasound machines, bone density, and echocardiography. North West Queensland Radiology has been contracted to provide Medical staff (Radiologists), procedure and radiology interpretation and reporting services since 2006. This company also provides imaging services at Atherton and Innisfail. Queensland X-ray provides imaging services at Woree in Cairns City LGA.

Cairns Diagnostic Imaging (CDI) is a private provider operating at the private hospital in Cairns as well as operating services at Woree in Cairns City LGA, Atherton and Innisfail. A Magnetic Resonance Imaging (MRI) service is privately operated in Cairns by CDI off the hospital site and services are provided to public patients under contract, although there is no after hour on call roster. This service is unable to take critically ill or intubated patients off-site.

There is currently no on-site provision of nuclear medicine, interventional angiography and MRI at Cairns Base Hospital and these services are sourced from the private sector. Cairns Base Hospital does provide diagnostic cardiac angiography and a license for an MRI has been successfully achieved with planning work for space provision currently underway. The MRI service is expected to commence in 2009.

Interventional radiology is only provided as a limited service (Level 1) with weekday services partially covered. The service is provided on an after hours basis once per week. Atherton, Mareeba and Innisfail Hospitals all have a radiographer available locally and Tully and Babinda also provide a general X-Ray service. CDI are contracted for reporting at Atherton and Mareeba Hospitals, and provides ultrasound services at Mareeba Hospital.

Pathology services

Pathology Queensland is operated under the umbrella of Clinical and State-wide Services (CASS) by Queensland Health. CASS provides a group laboratory and there are on-site pathology services at Innisfail, Atherton and Thursday Island. Pathology services are provided as a Level 2 service (CSCF) at Cairns Base Hospital. The Cairns Base Hospital laboratory provides a daily courier service and same day reporting to other sites, and extends its services to Cape York and Torres Strait & Northern Peninsula Area sites.

Pharmacy services

Cairns Base Hospital operates a Level 3 (CSCF) service (although there is no aseptic preparation service) and a Level 2 aseptic dispensing service. There is currently no production of sterile medical products on-site. These products are obtained from the Central Pharmacy, another accredited Level 3 pharmacy or accredited pharmaceutical supplier as required. There is a pharmacy at both Atherton and Mareeba Hospitals.

SECTION THREE

PROJECTED INPATIENT DEMAND

The acute Inpatient Modelling (aIM) program is endorsed by Queensland Health to provide projections for inpatient activity. The model takes into account the population growth, age and sex trends in the population, separation rates for extended service related groups (ESRGs), overnight and day only separations, bed days and trends in medical and surgical activity.

aIM is based on current activity trends projected into the future (base case scenario) and is therefore reflective of current practice and models of care. Where these assumptions have been changed to reflect new models of care, the assumptions are noted in the next section.

The table below shows the projected demand for inpatient services for residents of the catchments. The following section *Projected supply and future role for Cairns Base Hospital* describes the services that will be required at the hospital to 2021.

The inpatient separations for Far North Queensland indicates an overall increase of 58 percent over the next 14 years to 2021-22. This demand reflects the use of hospitals by residents of Far North Queensland both within and outside of the catchment area. This is a substantial increase in demand when assessing against the expected overall population growth of 20 percent for the same period.

The primary reason for the greater growth in demand is the aging of the population. As noted in Section 1, people over the age of 70 years are the greatest users of health services.

By considering the age adjusted separation rate for the various service related groups, the projections show the growth in rates for interventions such as joint replacements and increases in aged related illness in chronic and complex conditions such as cardiovascular disease, stroke, renal failure, chronic obstructive pulmonary disease (COPD) and diabetes.

Table 9: Projected service related group demand 2006-2021

Service related group	2006-07	2011-12	2016-17	2021-22	change 2006 to 2021
Cardiology	3 525	4 049	4 909	5 855	66%
Interventional Cardiology	1 158	1 429	1 869	2 425	109%
Dermatology	420	432	472	516	23%
Endocrinology	1 004	1 195	1 451	1 753	75%
Gastroenterology	1 822	1 999	2 358	2 775	52%
Diagnostic GI Endoscopy	5 122	5 975	6 945	7 949	55%
Haematology	1 519	1 887	2 375	2 993	97%
Immunology & Infections	2 037	2 116	2 426	2 796	37%
Medical Oncology	990	1 253	1 633	2 084	111%
Chemotherapy & Radiotherapy	4 511	4 920	5 559	6 267	39%
Neurology	1 994	2 193	2 579	3 011	51%
Renal Medicine	603	711	906	1 151	91%
Renal Dialysis	17 589	21 161	26 164	32 959	87%
Respiratory Medicine	3 451	3 950	4 496	5 144	49%
Rheumatology	694	781	909	1 052	52%

Service related group	2006-07	2011-12	2016-17	2021-22	change 2006 to 2021
Non Subspecialty Medicine	5 324	5 887	6 990	8 301	56%
Breast Surgery	532	620	741	865	63%
Cardiothoracic Surgery	295	312	329	348	18%
Colorectal Surgery	648	691	793	904	39%
Upper GIT Surgery	1 168	1 226	1 353	1 477	26%
Head & Neck Surgery	435	481	555	637	46%
Neurosurgery	670	722	804	908	35%
Dentistry	1 692	1 866	2 133	2 428	43%
Ear, Nose & Throat	1 875	1 909	1 979	2 054	10%
Orthopaedics	6 368	7 189	8 578	10 166	60%
Ophthalmology	2 741	3 524	4 782	6 422	134%
Plastic & Reconstructive Surgery	2 105	2 493	2 911	3 385	61%
Urology	1 862	2 262	2 851	3 535	90%
Vascular Surgery	522	589	640	678	30%
Non Subspecialty Surgery	5 116	5 286	5 759	6 312	23%
Transplantation	7	6	7	7	0%
Extensive Burns	88	76	72	68	-23%
Tracheostomy	129	149	172	198	54%
Gynaecology	3 676	4 131	4 716	5 324	45%
Obstetrics	7 697	7 715	8 181	8 642	12%
Qualified Neonate	1 088	1 109	1 215	1 365	25%
Drug & Alcohol	1 407	1 430	1 471	1 483	5%
Psychiatry - Acute	1 407	1 810	2 106	2 523	79%
Unallocated	65	67	65	62	-5%
Non-acute	1 849	2 360	3 020	3 913	112%
Grand Total	95 205	107 960	127 276	150 732	58%

Source: *AIM 2008*

Excludes unqualified neonates

As shown in Table 9, the greatest increase in the proportion of separations is Ophthalmology (134 percent), Non-acute (112 percent), Medical Oncology (111 percent), Interventional cardiology (109 percent), and Haematology (97 percent). The high increase in the proportion of separations represents aging population, coronary disease, cancer incidence and survival and cataract procedures.

Projected supply and future role for Cairns Base Hospital

The future activity levels at Cairns Base Hospital has been developed using the projected demand for inpatient separations where appropriate. The previous section projected hospital demand for residents of the catchment irrelevant of where they may be treated. This showed that 30 percent of separations are provided by private hospitals and 40 percent of public demand is provided by another hospital in the District and cluster. These are predominantly for lower acuity services. 7 percent of public separations were provided outside of the cluster and these are primarily for more complex services.

In line with clinical service planning, future activity levels at Cairns Base Hospital are based on current referral patterns and patient flow trends at a similar level as is currently provided. The planning process has indicated that the hospital will be maintaining a similar role in the delivery of medical, surgical, and paediatric services but several adjustments have been made to account for the specific situation experienced by the catchment. The base case scenario assumes that the

current proportions of residents receiving services at facilities outside the catchment and non resident inflows will be maintained. The base case scenario projections are provided below in the following table. The projections for Cairns Base Hospital using the planning assumptions are contained in each section and are summarised into notional bed / places in the executive summary.

Changes in surgical flows within the District may occur to increase efficiencies. For example, lower acuity day only procedures may be reversed to smaller rural hospitals, primarily Innisfail, Mareeba and Atherton. However, rather than decreasing surgical flows to Cairns Base Hospital, this will increase capacity for Cairns Base Hospital to undertake more complex surgery and increase throughput of overnight elective surgery.

Assumptions used in the projection modelling

Benchmarking has been used to determine bed numbers, occupancy rates, theatre, intensive care unit beds, emergency department bays, and several other supply requirements. The benchmarks used are recommended by Queensland Health:

- Non acute separations are based on a 90 percent occupancy rate.
- Obstetrics and paediatrics are based on a 70 percent occupancy rate to account for the seasonal nature of spikes and peaks.
- All adult medical and surgical overnight beds are based on 85 percent occupancy.
- The scenarios presented in each section do not account for any increases in elective surgery. This needs to be explored in the proposed networking of surgical services across the District.
- The 2006-07 average length of stay for residents of the Torres Strait and Northern Peninsula Area and Cape York Health Service Districts admitted to Cairns Base Hospital has been maintained with the exception of where it is projected to increase. This is in acknowledgement that these patients on average have longer lengths of stay due to limited post acute services located close to their homes.
- From 2011, 100 percent of public angioplasty and cardiac catheter separations have been reversed from Townsville to Cairns Base Hospital. Although it is acknowledged that there may be a private / public partnership in future years delivering cardiac catheter and angioplasty services, the assumption to reverse to Cairns Base Hospital has been made to ensure that the requirements can be met. The additional bed numbers are minimal.
- Cancer projections are based on aIM in conjunction with the methodology contained in the Queensland Cancer Treatment Services Plan 2008.
- Rehabilitation is based on 29 beds per 100,000 catchment population (Cairns).
- Mental health beds are calculated at the planning benchmark as per the Queensland Statewide Mental Health Plan of 40 acute and extended care mental health beds per 100,000 adult catchment population (Far North Queensland).

- NICU is based on 1.5 cots per 1,000 births as per state-wide neonatal intensive care services project report at 70% occupancy rate.
- Special care nursery calculations use aIM at 70% occupancy. The resulting projections are above the recommendations of the state-wide neonatal intensive care services project report of 5.4 cots per 1,000 births.
- ICU is based at 10% of acute beds but reduced by 30% as per state-wide benchmark due to rurality and less complex services provided compared to metropolitan super specialty services.
- Renal dialysis calculations use aIM with 156 treatments per annum for each patient.
- Theatres based at 1 theatre per 10 surgical beds including paediatric surgery and gynaecology surgery.
- Births suites based at 300 vaginal births per year at 70% capacity.
- ED places are based on the Victorian guidelines of 1 bay for each 1300 presentations (including 1/15,000 for Resuscitation Areas, 1/10,000 Isolation Rooms, 1/6,000 Emergency Short Stay Beds) and with 18% for Paediatric cubicles.
- Medical Assessment and Planning Unit (MAPU) beds based one third of ED admissions staying less than 2 days.

Table 10: Current and projected supply of inpatient activity for Cairns Base Hospital

Service related group	2006 Separations	Bed days	Beds*	2011 Separations	Bed days	Beds*	2016 Separations	Bed days	Beds*	2021 Separations	Bed days	Beds*
Cardiology	1 339	4 710	15	1 534	5 138	17	1 882	5 753	19	2 261	6 369	21
Interventional Cardiology	158	779	3	378	1 397	5	499	1 754	6	644	2 177	7
Dermatology	84	255	1	88	292	1	105	326	1	123	354	1
Endocrinology	317	1 705	6	383	1 927	6	484	2 284	7	604	2 701	9
Gastroenterology	505	1 577	5	564	1 786	6	695	2 189	7	843	2 630	9
Diagnostic GI Endoscopy	1 413	2 691	9	1 629	2 882	9	1 890	3 392	11	2 163	3 945	13
Haematology	855	1 609	5	1 032	2 269	7	1 277	2 899	9	1 595	3 699	12
Immunology & Infections	786	3 331	11	843	3 496	12	1 008	4 136	14	1 204	4 912	16
Medical Oncology	376	1 859	6	480	2 196	7	624	2 649	9	790	3 151	10
Chemotherapy & Radiotherapy	2 367	2 367	6	2 547	2 547	6	2 845	2 845	7	3 171	3 171	7
Neurology	862	5 301	17	961	5 521	18	1 148	6 107	20	1 359	6 715	22
Renal Medicine	243	1 103	4	280	1 120	4	348	1 332	4	439	1 598	5
Renal Dialysis	12 078	12 078	28	14 643	14 643	34	18 122	18 122	43	22 868	22 868	54
Respiratory Medicine	1 102	6 255	21	1 249	6 945	23	1 396	7 676	26	1 575	8 555	29
Rheumatology	308	733	2	353	813	3	414	933	3	481	1 068	3
Non Subspecialty Medicine	1 964	4 940	17	2 200	5 369	18	2 666	6 153	21	3 224	7 155	24
Breast Surgery	113	201	1	131	214	1	157	235	1	181	257	1
Cardiothoracic Surgery	26	244	1	30	279	1	34	328	1	41	395	1
Colorectal Surgery	275	2 087	7	294	2 120	7	335	2 268	7	380	2 481	8
Upper GIT Surgery	406	1 522	5	425	1 671	5	466	1 820	6	504	1 970	6
Head & Neck Surgery	85	189	1	91	219	1	107	247	1	124	283	1
Neurosurgery	170	689	2	187	815	3	213	1 014	3	245	1 281	4
Dentistry	192	269	1	207	291	1	228	333	1	250	376	1
Ear, Nose & Throat	486	609	2	491	618	2	514	657	2	537	701	2
Orthopaedics	2 447	9 448	31	2 752	10 850	36	3 272	12 893	42	3 873	15 246	50

Service related group	2006 Separations	Bed days	Beds*	2011 Separations	Bed days	Beds*	2016 Separations	Bed days	Beds*	2021 Separations	Bed days	Beds*
Ophthalmology	621	932	3	786	1 018	3	1 054	1 287	4	1 408	1 636	5
Plastic & Reconstructive Surgery	572	2 015	7	658	2 455	8	764	2 975	10	880	3 578	12
Urology	304	761	2	371	955	3	472	1 174	4	595	1 433	5
Vascular Surgery	258	2 194	7	307	2 305	7	344	2 538	8	377	2 722	9
Non Subspecialty Surgery	1 709	6 438	21	1 792	6 452	21	2 000	6 960	23	2 232	7 560	25
Extensive Burns	29	212	1	26	224	1	25	239	1	25	253	1
Tracheostomy	90	3 089	10	105	3 701	12	121	4 385	14	140	5 181	17
Gynaecology	1 315	2 174	7	1 366	2 140	7	1 434	2 113	7	1 496	2 099	7
Obstetrics	5 344	10 676	42	5 439	10 786	40	5 847	11 599	40	6 275	12 453	41
Qualified Neonate	859	6 706	26	881	7 134	28	963	7 645	30	1 079	8 401	33
Drug & Alcohol	900	1 769	6	925	1 861	6	987	2 022	7	1 023	2 120	7
Psychiatry - Acute	944	12 826	41	1 223	15 748	51	1 458	17 522	57	1 785	19 439	63
Unallocated	25	315	1	26	344	1	25	360	1	23	361	1
Non-acute	543	14 018	45	678	15 898	48	881	19 856	60	1 153	24 854	76
TOTAL	42 470	130 676	425	48 358	146 440	468	57 102	169 020	536	67 969	196 151	617

*Notional beds are calculated on 85% occupancy with 70% for maternity and paediatrics and 90% for non-acute

Source: aIM 2008

Between 2006 and 2021 the population of the catchments is expected to increase by 20 percent and the projected separations in aIM show a 60 percent increase in services that will be required at Cairns Base Hospital.

Acute medical services

Current services

Current services at Cairns Base Hospital medical ward areas are as follows:

- Medical ward 6 providing for 17 renal medicine beds and 4 stroke beds collocated next to the inpatient haemodialysis unit and the peritoneal dialysis area.
- Medical ward 5 provides 22 general medical beds and is the inpatient area for respiratory care. There is also a 2 room sleep laboratory on this level.
- Medical ward 4 provides a 23 bed medical inpatient unit and has a collocated 7 bed endoscopy unit.
- Medical ward 3 provides for 14 inpatient beds for cardiac care alongside an 8 bed Coronary Care Unit and the day oncology area. There is a cardiac rehabilitation gym collocated on this level also.
- Ground Floor houses the funded 25 bed rehabilitation ward and a large gym.

Cardiology services are provided at Cairns Base Hospital by a full time cardiologist. The hospital has a Level 2 eight bed Coronary Care Unit (CCU) (95 percent occupancy). There are eight telemetry units which can be used within the CCU or the Medical Ward 3 with 14 beds used predominantly for cardiology and oncology patients (98 percent occupancy - Level 3 CSCF). There is a rapid turn-around chest pain service for patients with atypical chest pain. The hospital provides diagnostic cardiac angiography services on site.

Interventional cardiology comprising coronary, vascular and renal angiography services are currently performed at Cairns Base Hospital but this service is limited. Public patients needing permanent pacemaker insertions and angioplasties are currently required to travel to Townsville. The Cardiac Catheter Laboratory is currently located in the Radiology Department. A new catheter laboratory has been purchased, and the District is currently planning the development of this service in association with upgrading the oncology service facilities. Stress echocardiograms, transoesophageal echocardiogram, transthoracic echocardiogram, holter monitoring and angiography recovery is provided at Cairns Base Hospital. There is a fully functioning cardiac catheter laboratory at the Cairns Private Hospital with the capability on-site to undertake permanent pacemaker insertions and angioplasty. The public and private cardiology services are interested in coordinating one interventional service for the District and the wider catchment.

Public diagnostic endoscopy services (Level 3 CSCF) are delivered largely at the Cairns Base Hospital (2 procedure rooms), and Atherton Hospital. Outreach services are provided to Weipa, Thursday Island, Innisfail and Mossman hospitals. The Cairns Private Hospital also provides general medical and specialist medical services including a diagnostic endoscopy service. The Cairns Day Surgery centre provides diagnostic endoscopy services. There are no formal linkages between these services and Cairns Base Hospital. An initiative recently commenced in the catchment is the bowel cancer screening program that is likely to have a significant impact on the demand for endoscopy services and surgical beds. This will need to be monitored over time for increased service requirements.

The Cairns Diabetes Clinic runs a comprehensive diabetes and foot clinic (including Level 3 CSCF Endocrinologist service and paediatric diabetes clinics) and outreach programs. The Diabetes Educator and Endocrinologist perform outreach service visits to Cape York and Torres Strait Island communities. A partnership arrangement with Royal Flying Doctor Service (RFDS) and Far North Queensland Division of General Practice (FNQRDGP) through the

Improved Primary Health Care Initiative (IPHCI) employs a multi-disciplinary team approach to care, which will enable improved diabetes outreach.

The public sector Thoracic Medicine and Tuberculosis Services Far North Queensland (Level 3 CSCF) Unit primarily provides services for bronchitis and asthma, Chronic Obstructive Pulmonary Disease (COPD), tuberculosis (TB) services, respiratory infections / inflammation, lung cancer and other respiratory medicine, while the private sector primarily provides services for sleep apnoea. There is a full sleep service including a two room Sleep Medicine (Level 3 CSCF) clinic located in Cairns Base Hospital. Outreach programs (medical and nursing clinics) are provided to 21 different areas in Far North Queensland. Intensive work on TB including multi-drug resistant tuberculosis (MDR), detection and treatment is undertaken at the border areas with Papua New Guinea (PNG) by the outreach service. The unit is a registered prescribing facility for patients with pulmonary hypertension and actively participates in national and international respiratory drug trials.

In Far North Queensland, TB is escalating particularly in the Indigenous population and the Torres Strait Islands. This is a direct result of the poor services within the PNG health system in conjunction with the movements of PNG Nationals and Torres Strait Islanders in the treaty zone. The added burden of multi-drug resistant TB and HIV co-infections is further increasing the need for comprehensive public health interventions and services including surveillance, control, treatment and prevention of TB. It must be noted that many of the clinics and programs run by the unit are not captured by HBCIS so therefore, it is estimated by the unit that approximately 9% of the activities are not recorded. From data collected by the unit, activity from July 2007 to March 2008 indicates a total of 1,079 occasions of service for nursing, 622 occasions by the respiratory scientist and 379 occasions by medical officers. Other sessions for the same period not including outpatients totalled 58.

Projected supply for acute medical separations

In 2006-07, the supply of acute medical services including interventional cardiology at Cairns Base Hospital (excluding paediatrics, chemotherapy, renal dialysis, obstetrics, gynaecology and non acute) comprised 10,548 separations (4,432 day only) with an average length of stay for overnight separations of 5.8 days for a total of 39,962 bed days. This translates to an average of 109 beds per day or 129 beds if ran on 85 percent occupancy.

For 2011-12, the total acute adult separations is projected to be 12,300 (5,299 day only) with a total bed day sum of 45,390 being an overnight average length of stay of 5.7 days.

The total projected acute medical inpatient separations in 2016 are 14,875 (6,763 day only) with an overnight average length of stay of 5.7 days and a total of 52,904 bed days. This equates to a daily average of 145 beds or 171 beds based on 85 percent occupancy.

In 2021, the projected acute medical separations are 17,842 (8,466 day only) with a total of 61,464 bed days and an overnight average length of stay of 5.7 days. This is a daily average of 168 beds or 198 based on 85 percent occupancy. This is an increase of 69 beds over the period from 2006 to 2021.

Critical care beds are included in the acute medical bed projections as these are not separated out in the activity data.

Intensive care beds are based on the benchmark of 10 percent open acute beds with a 30 percent reduction for being a regional hospital. Using the projections, this translates as a

requirement for 18 Intensive Care Unit (ICU) beds in 2011, 20 beds in 2016 and a total of 23 beds in 2021 at 75% occupancy.

High dependency beds are based on the Queensland recommended benchmark of 2.5 percent of acute medical inpatient beds. This equates to 5 high dependency beds by 2021 at 75% occupancy.

Obstetric and gynaecology beds are excluded in the above and specific requirements are noted through an alternative modeling and included in the relevant section.

Key issues

The current high bed occupancy rates at Cairns Base Hospital results in major pressures on the demand for inpatient services. This includes ramping, access block, elective surgery cancellation and mixed gender bays.

There are no angioplasty services. Recruitment of a second cardiologist is ongoing and engagement of two cardiac scientists has been successful. An upgraded cardiac catheter lab is currently in planning. Both the private and public clinicians have indicated the possibility of a shared model of service.

Border health issues with Papua New Guinea, including the risk of TB and HIV will require significant and sustainable service strategies linking with the specialist services at Cairns Base Hospital.

Diabetes projections in the catchment area will demand a high level of partnership strategies and programs to increase prevention, early detection and community based management.

Projected demand for the Bowel cancer screening program will place large demands on current endoscopy services and facilities.

Inappropriate admissions to the ICU are occurring due to the unavailability of a high dependency unit.

Strategies

- Analyse long stay patient separations to develop alternative models of care where hospital admissions may be avoided or directed to more appropriate services.
- Increase overall bed numbers for acute medical services to meet the projected demand and reduce occupancy rates at Cairns Base Hospital.
- Implementation of a Medical assessment and Planning Unit at Cairns Base Hospital managed by generalist and specialist physicians under roster arrangements. To be linked with Extended Stay Services Unit (ESSU) services within the emergency department.
- Undertake a flows analysis within the District to more effectively manage demand. This will establish medical services across the District as a networked suite of services.
- Establish stress testing facilities with echocardiography in outlying hospitals and provide training to medical residents in using the facilities prior to transferring patients to Cairns Base Hospital.
- Undertake a feasibility study into a possible public / private partnership of a cardiac catheter lab.

- Investigate collaborative models of care for future development of high care services (ICU, Coronary Care Unit, Neonatal Intensive Care Unit (NICU), where staff and resources have cross service roles and increased flexibility.
- Establish a network of isolation room accommodation across the broader catchment area for patients presenting with non acute infectious diseases that are traditionally low care and long stay.
- Where viable, implement Nurse Practitioner models to broaden the specialist services capacity. This could include positions targeting frequently admitted type patients, including Cardiac, Diabetes, and Inflammatory Bowel.
- A service network approach for Cardiac and Diabetes is required to collaboratively implement initiatives across the continuum and the broader catchment areas. Partner shared information systems, positions and joint patient pathway planning should be introduced.
- An examination of patient flow within the District Plan should be used to inform future development of the endoscopy service. Capacity at District hospitals and catchment hospitals to undertake screening should be examined, and initiatives to involve the private sector should also be included. Expansion of the current endoscopy space at Cairns Base Hospital should be undertaken to include an additional suite, to improve turn over times and patient flow.
- Establish a medical high dependency unit in combination with a non invasive ventilation unit.

Surgical services

Current services

In 2006-07 Cairns Base Hospital provided 6,035 surgical separations including diagnostic gastro intestinal endoscopy but excluding paediatrics, obstetrics and gynaecology. This is a total of 23,423 bed days. 2,839 surgical separations (47 percent) were for day only. The average length of stay for overnight surgical separations was 6.4 days. 67 percent of surgical separations were for elective surgery.

Surgical services across the District are delivered in five of the main hospital facilities. Cairns Base Hospital delivers most specialty and general surgical services and general surgical services are delivered by Mossman MPHS, Innisfail, Mareeba and Atherton.

Anaesthetic services at Cairns Base Hospital are provided at Level 3 (CSCF). Services to the rural facilities are provided via outreach or by visiting medical officers (local GPs with low risk anaesthetics training), or Senior Medical Officers. For some time now, outreach anaesthetic services have been limited as are anaesthetic services for Cairns Base Hospital, contributing to the under utilisation of theatre capacity at these sites and at Cairns Base Hospital. Atherton Hospital currently has reliable local anaesthetic cover.

Specialist surgical services delivered at Cairns Base Hospital include dentistry, breast surgery (Level 3 CSCF) colorectal surgery (Level 3 CSCF), orthopaedics (Level 3 CSCF), vascular surgery (Level 3 CSCF), head and neck surgery (Level 1 CSCF), ear nose and throat surgery, ophthalmology (Level 2 CSCF), urology (visiting service from Mater Brisbane), plastic and reconstructive surgery (Level 3 CSCF), gynaecology (Level 3 CSCF), oncology and upper gastro intestinal surgery (Level 3 CSCF).

Currently surgical services in the District operate independently of each other and theatre capacity is considered on a site-by-site basis. This has been identified as an issue requiring further investigation within the context of the new District structure. Cairns Base Hospital has 8 operating theatres with 7 theatres operational. Innisfail has 2 redeveloped theatres with a 2 stage recovery area, Atherton has 1 theatre and a second suite for endoscopy and emergency cases, and Mareeba and Mossman have 1 theatre each.

Surgical outpatient clinics are currently provided in a combined surgical and orthopaedic outpatient area within Cairns Base Hospital. Clinics are available for all surgical specialties including neurosurgery, ear nose and throat, cardiac surgery and renal transplant services.

Surgical outreach services from Cairns Base Hospital within the District and to the Cape York and Torres Strait & Northern Peninsula Area Districts include general surgery, ear nose and throat and orthopaedic surgery. This is consistent with current outreach surgical services.

The Cairns Private Hospital also provides both general and specialty surgical services and includes an endoscopy service. The Cairns Day Surgery centre provides day procedures including endoscopy services.

Elective neurosurgery and cardiothoracic surgical procedures are performed at The Townsville Hospital. Specialised paediatric surgery, extensive burns and organ transplantation occurs on a state-wide basis at specialised hospitals in Brisbane.

Projected surgical inpatient activity

With current flow patterns continuing into the future, a total of 6,913 adult surgical separations are projected in 2011 with a total of 25,997 bed days and 49 percent for day only surgery.

8,234 surgical separations are projected for 2016 and a total of 30,122 bed days. 4,142 (50 percent) are for day only. For overnight surgical separations, the average overnight length of stay is 6.3 days.

In 2021, the projected surgical separations are 9,734 with a total of 34,856 bed days. A total of 5,037 or 52 percent are for day only separations. The average length of stay for overnight surgical separations is 6.3 days.

In the scenario whereby the current ratios of inflows and outflows are maintained into the future, the 4,697 overnight separations will utilise 29,818 bed days requiring 82 surgical beds in 2021 at 100% occupancy or 96 beds at 85% occupancy. Based on 250 days per year at 120 percent occupancy, same day surgical bed requirements to 2021 are 17 beds.

Table 11 shows the projected surgical separations and bed days by service related group not including surgical obstetrics and gynaecology.

Table 11: Projected supply of surgical activity for Cairns Base Hospital under base case scenario 2021

Service related group	Day Only		Overnight+	
	Separations	Bed days	Separations	Bed days
Diagnostic GI Endoscopy	1 793	1 793	352	2 105
Breast Surgery	101	101	80	156
Cardiothoracic Surgery	0	0	*41	*395
Colorectal Surgery	100	100	273	2 366
Upper GIT Surgery	6	6	241	887
Head & Neck Surgery	9	9	106	255
Neurosurgery	26	26	24	365
Dentistry	50	50	10	25
Ear, Nose & Throat	43	43	121	157
Orthopaedics	607	607	2 101	10 809
Ophthalmology	1 250	1 250	35	117
Plastic & Reconstructive Surgery	496	496	348	2 947
Urology	232	232	108	490
Vascular Surgery	35	35	112	681
Non Subspecialty Surgery	284	284	596	2 794
Extensive Burns	6	6	15	229
Tracheostomy	0	0	134	5 041
Total	5 037	5 037	4 967	29 818

Source: aIM. 0-14 year olds not included

* aIM has grouped major chest procedures under cardiothoracic surgery

Using the Queensland recommended benchmark for theatres; the overnight surgical activity will require 9 theatres by 2021. Day only surgical procedures and endoscopies will require 3

theatres / procedure rooms by this time based on 7 patients per 8 hour shift, 5 days per week for 48 weeks per year for surgery and 2,448 inpatient / outpatient endoscopies per annum per procedure room.

Key issues

- Anaesthetic service provision across the District is a contributing factor to under utilisation of theatre capacity. Rural facilities rely on outreach anaesthetic services or resident or visiting medical officers who undertake low risk cases (ASA Class 1).
- There are surgeon shortages for ophthalmology, urology, neurosurgery, orthopaedics, vascular surgery, plastics and general surgery. In rural areas there are willing surgeons for general surgery but no anaesthetists and there is potential for additional targeted visiting surgical outreach services.
- Waiting lists for outpatient appointments are very long and new referrals are nearly 50 per month. As at 1 October 2007 there were 31.5 percent of the 1,616 patients on the waiting list at Cairns Base Hospital who were categorised as "long wait". This was the eighth highest number of patients of all hospitals in Queensland, and the second highest in the Northern Area Health Service after The Townsville Hospital.
- Clinic space is tight between orthopaedic clinics and surgical specialty clinics at Cairns Base Hospital. There currently is no space allocated for pre-admission services such as 'fit for care/ surgery clinics', ophthalmology clinics and multidisciplinary outpatient models are currently not possible due to space issues. Additionally general x-ray facilities are needed to support efficient orthopaedic outpatient care.
- Surgical sessions at Cairns Base Hospital are scheduled around current shifts (mainly medical including anaesthetics and nursing) and there is extra capacity in twilight sessions. There is limited space and staff for a fully functional Day Surgery Unit to operate within a 23 hour model (currently 7.00am to 9.00pm) and Central Sterilising Department requires additional equipment and space. There is no dedicated imaging theatre with C arm.
- Due to insufficient theatre time and unavailability of specialist staff, elective cases are frequently cancelled. Additionally, patients who need preparation for theatre currently have no area within which to do this. Therefore preparation is done in 'corridors' and patient bed areas are 'mixed' due to a limited capacity to accommodate genders separately.
- Ward capacity is running at 100 percent for surgical and orthopaedic care centres in Cairns Base Hospital and step down units are required to address this issues. Rural facilities are functioning at 50 – 70 percent occupancy and have spare capacity to receive patients requiring post operative care.

Urology Services

There is currently a shortage of Australasian Urologists or trainees to support the demand or urology services needed in both Australia and New Zealand, with only 18.3 percent of Australian Urologists in the Queensland Workforce and 1.3 percent Urologists per 1,000 Queensland population.¹¹.

¹¹ Royal Australasian College of Surgeons (Urologist Statistics at 31 December 2006)

Urology Services at Cairns Base Hospital are currently provided through a formalised arrangement with Brisbane's Mater Public Hospital.

The urology team, comprising specialist urologist and urology registrar visit from Brisbane 5 times per year, for a two day period. They provide flexible cystoscopies, mainly for bladder cancer surveillance and perform minor urological procedures. The service predominantly operates through nurse coordinators located in both Cairns Base and Brisbane Mater Public Hospitals. Referrals are undertaken to specialist urologists at the Mater and subsequent communication occurs with patients' general practitioners leading to treatment plan decisions. Should a patient require surgery, arrangements are made for transfer to the Mater Public Hospital.

Due to difficulties in recruiting urology staff, it is recommended that the current service be maintained and that strategies aimed at attracting specialist staff be developed for future service establishment. The provision of a Level 3 urology service requires the following support services to address the following gaps as per the current CSCF criteria:

Diagnostic imaging:

Requirement: Level 2
Current: Level 2G
Gaps: MRI, Nuclear Medicine, BMD

Pharmacy:

Requirement: Level 3
Current: Level 3G
Gaps: aseptic preparation service (currently a level 2 aseptic dispensing service only)

Interventional radiology:

Requirement: Level 1
Current: Level 1G
Gaps: does not provide all cardiac and vascular diagnostic and interventional procedures - no cardiac angioplasties
Requires: specialist with nuclear medicine credentials, 24/7 interventional radiology, formal link for patient referral and transfer
A Urologist, equipment and procedure rooms would be required.

Cardio-thoracic surgery

The resident demand for cardiothoracic surgery separations is projected to increase by 18 percent from 2006-07 to 2021-22 from 295 cases to 348 cases (includes the Cairns and Hinterland, Cape York and Torres Strait and Northern Peninsula Area Health Service Districts).

Volume and Quality Issues

The Australasian Society of Cardiac and Thoracic Surgeons (ASCTS) have set standards relating to surgical volume.¹²

¹² AMWAC, The Cardiothoracic Surgery Workforce in Australia, 2001

- A hospital should reach a caseload of 400 cases per year within two years of commencing cardiac surgery.
- For an individual cardiothoracic surgeon, the ASCTS recommends a minimum caseload of 200 cardiac surgery cases per surgeon per year.
- The ASCTS recommends that cardiothoracic surgery units have a minimum of two fully trained cardiothoracic surgeons, and one of these surgeons must be available at all times.
- The population catchment required for a sustainable cardiothoracic unit (2 surgeons) performing 400 cases is approximately 300,000 to 400,000.

Therefore the projected volumes do not support the delivery of cardio-thoracic surgery in the District within the next ten years.

Neurosurgery

An acceptable specialist service in neurosurgery should cover head injuries (with on-site intensive care unit), cerebrovascular disorders (e.g. aneurysms and arteriovenous malformations), intracranial and spinal tumours, spinal degenerative disease and early management of spinal trauma. More specialised services should also be available in major units. This would include complex cerebrovascular surgery, interventional neuroradiology, movement disorder surgery, complex spinal surgery, and epilepsy surgery.¹³

For a Level 3 Neurology Service, the following gaps would need to be addressed:

Diagnostic Imaging:

Requirement: Level 2
Current: Level 2G
Gaps: MRI, Nuclear Medicine, BMD

Pharmacy:

Requirement: Level 3
Current: Level 3G
Gaps: aseptic preparation service (currently a level 2 aseptic dispensing service only)

Interventional radiology:

Requirement: Level 2
Current: 1G
Gaps: Does not provide all cardiac and vascular diagnostic and interventional procedures - no cardiac angioplasties
Requires: Specialist with nuclear medicine credentials, 24/7 interventional radiology, formal link for patient referral and transfer

Volume and Quality Issues

The population catchment required for a viable sustainable service in neurosurgery in urban areas is 250,000. It is also recommended that each department of neurosurgery have a

¹³ AMWAC, Sustainable Specialist Services: A Compendium of Requirements, 2004
Cairns Base Hospital and associated services Clinical Services Plan Oct 2008

minimum of two consultant neurosurgeons.¹⁴ The projected population for the District is 271,516 persons by 2021 with the additional population demand from the other two Health Service Districts in the secondary catchment of 24,866 persons by 2021.

Therefore the projected volume supports a comprehensive neurosurgical service in the longer term. However the large proportion of head injuries managed at Cairns Base Hospital account for a significant proportion of these cases. The policy for the management of trauma patients is to incorporate retrieval, stabilising and treatment of head injuries at Cairns Base Hospital to a level which is clinically safe and can be sustained at that hospital. The capacity to provide complex elective neurosurgery at Cairns Base Hospital would need to be determined based on the ability to deliver a sustainable service both at The Townsville Hospital and Cairns Base Hospital.

Strategies

- Support services to be enhanced to meet the requirements of recommended service developments in urology and neurosurgery as contained in the CSCF.
- Complete a comprehensive analysis of acute medical and surgical networking across the District.
- Explore a coordinated service model for cardiac catheterisation services in conjunction with Cairns Private Hospital.
- Establish a 23 hour day surgery unit. This will require expanded staffing and CSSD for increased instrumentation needs.
- Installation of a C-arm in one theatre to enable vascular surgery.

¹⁴ AMWAC, Sustainable Specialist Services: A Compendium of Requirements, 2004
Cairns Base Hospital and associated services Clinical Services Plan Oct 2008

Emergency services

Current services

Emergency Department (ED) presentations at the Cairns Base Hospital (Level 3 CSCF) increased 16.9 percent between 2004-05 and 2006-07. The number of emergency department presentations increased across all the age groups 0-14 through to 70-84 between 2004-05 and 2006-07, with a decline in the 85+ age group by 16.5 percent. The highest growth was within the age group 15-44 years.

Table 12: Emergency Dept presentations by age, Cairns Base Hospital, 2004-05 to 2006-07

Patient Age	2004-05	2005-06	2006-07	% Change 2004-05 to 2006-07	% presentations by Age Group 2006-07
0-14	5321	6 190	6 877	29.2	18.6
15-44	14 672	16 086	17 248	17.6	46.6
45-69	7 590	8 607	8 873	16.9	24.0
70-84	2 904	2 869	3 036	4.5	8.2
85+	1 174	951	980	-16.5	2.6
Grand Total	31 661	34 703	37 014	16.9	

Source: CBH EDIS 2004-05 to 2006-07 (HIC)

There has been an increase in emergency department presentations between 2004-05 and 2006-07 by 16.9 percent.

Paediatric presentations make up 18.6 percent of total presentations for 2006-07 and 10.8 percent of all presentations are over 70 years old.

Table 13: Emergency Dept presentations by triage category, Cairns Base Hospital, 2004-05 to 2006-07

Triage Cat	2004-05	2005-06	2006-07	% Change 2004-05 to 2006-07
1	247	245	343	38.9
2	3 521	3 661	4 341	23.3
3	10 889	11 704	13 952	28.1
4	15 659	17 378	16 846	7.6
5	1 345	1 715	1 532	13.9
Total	31 661	34 703	37 014	16.9

Source: CBH EDIS 2004-05 to 2006-07 (HIC)

Between 2004-05 and 2006-07 there was an increase in all triage categories with significant increases occurring in categories 1, 2 and 3, as shown in Table 13.

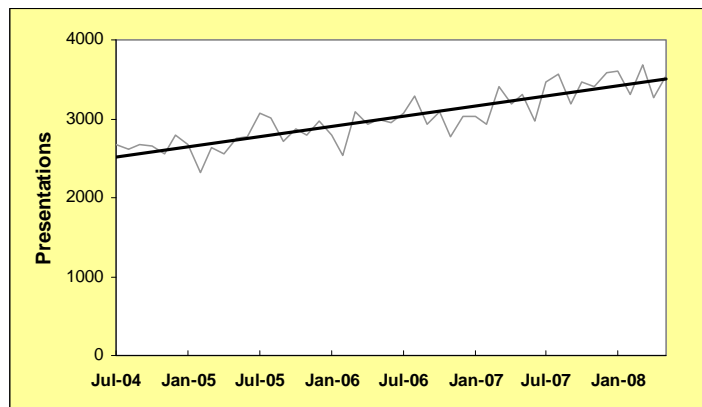
Table 14: Emergency Dept presentations, Cairns Base Hospital, 2004-05 to 2006-07

Patient Indigenous Status	2004-05	2005-06	2006-07	% Change 04/05-06/07
Aboriginal	3 502	3 973	4 341	24.0
TSI	1 293	1 436	1 408	8.9
ATSI	337	416	487	44.5
Total Indigenous	5 132	5 825	6 236	21.5
Not Indigenous	26 068	28 391	30 135	15.6
Not Stated / Unknown	461	487	643	39.5
Grand Total	31 661	34 703	37 014	16.9
% Indigenous	16.2	16.8	16.8	

Source: CBH EDIS 2004-05 to 2006-07 (HIC)

The proportion of Emergency Department presentations for Indigenous people increased from 16.2 percent in 2005-05 to 16.8 percent in 2006-07.

Figure 8: Historic Emergency Dept presentations, Cairns Base Hospital, Jul 2004 to May 2008



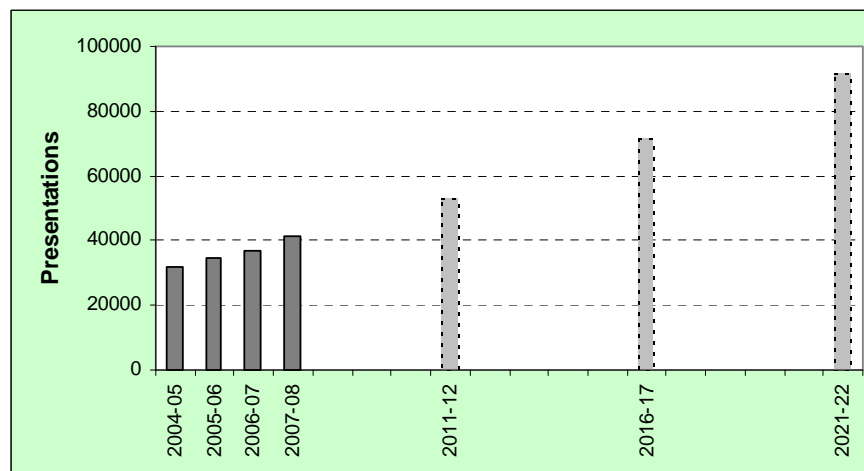
Source: CBH EDIS

Historically, ED presentations have been increasing on a linear trend by an average of 10.4 percent per annum from July 04 to May 08.

Projected emergency services activity

The endorsed projection method is based on a linear extrapolation of historic data, 5 years or more if available.

Figure 9: Projected Emergency Dept presentations, Cairns Base Hospital, 2006-07 to 2021-22



Source: Linear projections calculated from EDIS figures

Figure 8 shows the projected ED presentations to 2021-22 from a linear projection least squares method using 47 months of historic data. Based on results of the projections there will be 71,267 presentations in 2016 and projected to grow to 91,401 by 2021.

To assist in management of demand growth, strategies addressing the following are required:

- Innovative models of care implemented within the ED to manage increasing demand
- Opportunities to reduce the number of ED presentations including linkages with GP super clinics

The projected number of ED treatment and associated spaces are based on the Queensland Health endorsed benchmark of 1 treatment space per 1,300 presentations. This equates to the requirement for 55 places by 2016 and 70 in 2021. The need for paediatric cubicles has been based on historical trends where 18 percent of all ED attendances are by children <14 years. This results in 6 of the 31 general ED places dedicated to paediatrics in 2016 and increasing to 7 by 2021.

Table 15: Projected Emergency Department places to 2021-22

	2011-12	2016-17	2021-22
Resuscitation Areas	4	5	6
Isolation Rooms	5	7	8
Paediatric cubicles	4	6	7
Short Stay beds	9	12	15
General ED spaces	19	26	33
Total	41	55	70

Source: Calculated from current CBH accommodation

Other benchmarks used:

- 1 Resuscitation Area per 15,000 presentations – from Australasian College of Emergency Medicine Guidelines - QH endorsed;
- 1 Isolation Room per 10,000 presentations (minimum 2 rooms)– from Australasian College of Emergency Medicine Guidelines - QH endorsed;
- 1 Short Stay bed per 6,000 presentations from Australasian College of Emergency Medicine Guidelines.

The re-introduction of a short stay unit will support improved efficiency within the hospital and the emergency department and will be supported by nurse practitioners in the department. A separate Concept Brief has been prepared for the District which outlines the treatment spaces and associated facility requirements in more detail.

Key issues

The Emergency Department at Cairns Base Hospital is currently being redeveloped. The new service will accommodate new models of care and more streamlined patient management. These are described in detail within the Concept Plan.

Strategies

Further development of streaming model with increased admission stream bays as per projected demand and expanded discharge area, provision of a paediatric area within the ED with specialist nursing staff.

Implementation of new models of care including an ESSU service within the Emergency Department of Cairns Base Hospital, as well as a Fast Track area, and improved management of mental health, drug & alcohol and paediatric patients.

Continuation of models such as the Community and Hospital Interface Program (CHIP) to prevent presentation and admission of elderly patients to Emergency Department that provides for a comprehensive geriatric assessment to be undertaken on all elderly patients presenting to the Emergency Services prior to discharge. Studies conducted at Prince of Wales Hospital in Sydney have demonstrated that appropriate assessment and follow-up by the CHIP service can help to reduce unnecessary re-presentations to ED, avoid inappropriate admissions to hospital and reduce length of

stay through early identification of co-morbidities such as pressure wounds, delirium and high falls risk.¹⁵

Improved integration with community services through avoidable admission programs in partnership with the chronic disease management team and through the establishment of a training GP clinic in association with James Cook University.

Development of nurse practitioner roles within ED and support for paramedic training with placements offered to JCU within the ED and in the GP clinic.

Support for Remote Isolated Practice Endorsed Registered Nurse training and nurse practitioners for rural facilities that are offering Level 1 and Primary Health Care emergency service.

Utilisation of service models to improve demand management within the department and associated inpatient areas. This can include increased levels of allied clinical staff including pharmacists and physiotherapists and targeted through specific models of care.

Development of a District Emergency service through a service network with Cairns Base Hospital as the service hub providing professional support and training, staff rotation, consultant advice and client assessment through technology, including telehealth. This would include development of standardised protocols for retrieval and ambulance and air transfers.

¹⁵ A/Prof Gideon Caplan, A/Director, Geriatric Medicine Prince of Wales Hospital, Sydney

¹⁷ The Health of Queenslanders 2006. Report of the Chief Health Officer, Queensland. ISBN 1921021322. Queensland Health, 2006.

Women and children's services

Current services

Cairns Base Hospital is responsible for the provision of maternity and specialist obstetrics and gynaecology services to the women of Far North Queensland. The service (Level 3 CSCF) provides support to the regional maternity units within the District and to the Cape York and Torres Strait and Northern Peninsula Area Health Service Districts.

Currently approximately 88 percent of birthing women at Cairns Base Hospital are cared for under a midwifery led model of care with obstetric support if required. Of these women, 52 percent are cared for entirely by midwives for antenatal, birth and postnatal care, and a further 36 percent share care antenatally with GP and cared for by midwives for birth and postnatal. Some 12 percent are identified as high risk and receive primary specialist obstetric supervision of care (antenatal clinic statistics).

There were a total of 2,364 births at Cairns Base Hospital in 2006-07. Approximately 13 percent of the women birthing are from the secondary catchments of Cape York and Torres Strait. Approximately 30 percent of birthing women at Cairns Base Hospital identify as Indigenous Australians.

The Far North Regional Obstetrics and Gynaecology Service (FROGS) provide a specialist outreach obstetric and gynaecology service. This consists of a specialist Obstetrician/Gynaecologist and a training registrar from Cairns Base Hospital. The service visits Innisfail, Tully, Atherton, Mareeba, Mossman, Yarrabah, Thursday Island, Weipa, Cooktown, Aurukun, Kowanyama, Lockhart River, Pormpuraaw and Napranum between 4 to 10 times per year. In 2006, the service treated 1,344 patients compared with 1,217 in 2005, a growth of 10 percent. In March 2006 an outreach midwifery team was introduced. A midwife accompanies the FROGS team to Kowanyama, Lockhart River, Aurukun, Pormpuraaw and Cooktown (Hopevale and Wujal Wujal).

The Cairns Private Hospital also provides a birthing service. There were 732 private sector births for residents of the District in 2005-06.

Atherton Hospital has about 230 births per year. Antenatal services are provided through GPs, or hospital Senior Medical Officers. Birthing services are supported by GP obstetricians and hospital Senior Medical Officers. Atherton provides a Level 2 maternity facility under the CSCF and has capacity for both elective and emergency caesarean section. High risk women are referred to Cairns Base Hospital

Mareeba has approximately 180 births a year and offers a low risk midwifery model of care (Level 1 CSCF). Midwives provide antenatal and postnatal care for an additional 100-150 women a year that do not meet the criteria for low risk birth at Mareeba. Cairns Base Hospital obstetricians provide obstetric support and local GPs provide some antenatal share care, perform elective caesarean sections and are available on an informal basis for emergencies.

Innisfail maternity unit has about 230 births a year and provides a Level 2 service (CSCF). High risk women are also referred to Cairns Base Hospital. The inpatient facility is an integrated ward with both maternity and medical/surgical beds. Tully provides a low risk midwifery-based birthing service for about 30 women a year. Antenatal and postnatal services for low risk women are also provided.

The Douglas Shire Multipurpose Health Service provides antenatal care by midwives but has no planned birthing service. Women are referred to Cairns Base Hospital for birth. Minimal postnatal care is provided due to the lack of midwives.

Neonatology services are provided by Cairns Base Hospital through a Level 2A CSCF nursery service. The nursery has a 22 cot capacity and can care for ventilated infants on a short term basis. Neonates requiring a Level 3 service are transferred to Townsville in the first instance and some requiring further specialised care are referred to the Royal Brisbane Women's Hospital, Mater or Royal Children's Hospital in Brisbane.

Projections

The number of annual deliveries at Cairns Base Hospital is increasing. The proportion of deliveries in the aIM projections was found to exceed the ratio of deliveries per 1000 population of women at Cairns Base Hospital in 2006-07 when projected for the population of women of child bearing age by region. Accordingly, aIM delivery projections have been used.

Table 16: Deliveries by Health Service District 2006-07 at Cairns Base Hospital

	Vaginal delivery	Bed days	ALOS	Caesarean delivery	Bed days	ALOS
Cairns and Hinterland HSD	1 457	3 436	2.4	573	2 516	4.4
Cape York HSD	135	325	2.4	57	276	4.8
Torres Strait HSD	84	197	2.4	31	175	5.6
Other	22	56	2.5	10	37	3.7
TOTAL	1 698	4 014	2.4	671	3 004	4.5

Source: aIM 2008. ALOS – Average Length of Stay

The average length of stay (ALOS) projections in aIM shows a decreasing rate towards 2021-22. In acknowledgement that decreasing rates of stay are reflective of bed block issues rather than models of care, the ALOS based on the 2006/07 rates have been used in the following projections. All obstetrics are historically subject to peaks and troughs therefore are based on a lower average occupancy rate of 70 percent.

Table 17: 2011 projections for deliveries at Cairns Base Hospital

	Vaginal delivery	Bed days	Beds	Caesarean delivery	Bed days	Beds
Cairns and Hinterland and Other HSD	1 438	3 453	13.5	605	2 662	10.4
Cape York HSD	121	289	1.1	55	265	1.0
Torres Strait HSD	72	174	0.7	30	170	0.7
TOTAL	1 632	3 917	16	691	3 097	12

Source: aIM. ALOS – Average Length of Stay

Table 18: 2016 projections for deliveries at Cairns Base Hospital

	Vaginal delivery	Bed days	Beds	Caesarean delivery	Bed days	Beds
Cairns & Hinterland & Other HSD	1 502	3 605	14.1	700	3 079	12.1
Cape York HSD	115	276	1.1	59	285	1.1
Torres Strait HSD	68	162	0.6	33	186	0.7
TOTAL	1 684	4 042	16	792	3 550	14

Source: aIM. ALOS – Average Length of Stay

Table 19: 2021 projections for deliveries at Cairns Base Hospital

	Vaginal delivery	Bed days	Beds	Caesarean delivery	Bed days	Beds
Cairns & Hinterland & Other HSD	1 552	3 725	14.6	799	3 518	13.8
Cape York HSD	174	418	1.6	65	311	1.2
Torres Strait HSD	63	152	0.6	37	205	0.8
TOTAL	1 729	4 295	17	901	4 034	16

Source: aIM. ALOS – Average Length of Stay

The above modelling indicates that a total of 2,323 separations and 7,014 bed days in 2011 requiring a total of 28 beds. These are projected to increase to a total of 2,630 separations and 8,329 bed days in 2021 requiring a total of 33 beds.

Qualified neonate ICUs are benchmarked at 1.5 cots per 1,000 births at 70% occupancy. Using this ratio, there is currently a requirement for 6 cots and this is expected to continue to 2021.

Throughout the consultations for the Plan, discussion ensued with regards to developing a Level 3 NICU service at Cairns Base Hospital due to the number of high risk births within the catchments. Mothers and families currently travel to Townsville and Brisbane for these services. However, the Queensland NICU Plan recommends that the hospital remain at a Level 2 due to the lack of onsite support services including a neonatologist on staff. It is therefore proposed that in the short to medium term services develop as a Level 2 service with the longer term option of a Level 3 NICU. Accordingly, the ICU cots have been included in the 2021 service requirements for Cairns Base Hospital.

To become a Level 3 NICU service based on CSCF criteria, the following gaps need to be addressed:

Endoscopy:

Requirement: Super Speciality
 Current: Level 3
 Gaps: No laser, no endoscopic ultrasound

Diagnostic imaging (Level 2G):

Requirement: Level 2
 Current: Level 2G
 Gaps: No MRI. No Nuclear Medicine. No BMD

Pathology

Requirement: Level 3
 Current: Level 2

Pharmacy

Requirement: Level 3
 Current: Level 3G
 Gaps: No aseptic preparation service, Level 2 aseptic dispensing service only

Interventional radiology:

Requirement: Level 3

Current: Level 1G

Does not provide all cardiac and vascular diagnostic and interventional procedures - no cardiac angioplasties

No specialist with nuclear medicine credentials.

No 24/7 interventional radiology available.

No formal link for patient referral and transfer

Special care nursery cots based on 70 percent occupancy translates to a current requirement of 26 increasing to 33 in 2021.

Table 20 shows projected specialist obstetrics and gynaecology separations, bed days and beds based on 70 percent occupancy for obstetrics and 85 percent for gynaecology.

Table 20: Projected specialist obstetrics and gynaecology separation, bed days and beds 2006 – 2022

	Specialist obstetrics			Gynaecology		
	Separations	Bed days	Beds	Separations	Bed days	Beds
2006-07	2 971	3 652	14	1 300	2 141	7
2011-12	3 113	3 734	15	1 351	2 112	7
2016-17	3 368	3 961	16	1 419	2 085	7
2021-22	3 643	4 216	17	1 481	2 074	7

Source: *allM*

The total projected beds for women and children's services is summarised in Table 21 below:

Table 21: Projected bed requirements 2021

Service	Beds 2021
Obstetric deliveries	33
Specialist obstetrics and gynaecology	24
Special care nursery	33
Neonate ICU	6
Total	96

Source: *allM*

Key issues

The major issues associated with planning for women and children's services relates to the spike in separations in recent years. It is still not clear if this is a one-off adjustment for recent policy initiatives regarding the 'baby bonus' or whether women have delayed pregnancy until later ages and therefore the increased fertility will be an ongoing trend. It is imperative that delivery data be monitored for the next few years to ascertain the levels of increases and adjust the model accordingly.

Maternity beds are filled with long stay non-maternity patients if vacant. This doesn't allow for the peaks and troughs in maternity and effectively leaves a shortage of beds when unexpected maternity admissions occur.

Patients, particularly from the secondary catchment areas, have a higher separation ratio per 1,000 compared to Cairns and Hinterland residents. Increased support services within the outer catchments Districts will provide care to people pre and post natal, effectively reducing lengths of stay due to the lack of services close to where people live.

The number of high risk births at Cairns Base Hospital indicates the requirement of a NICU however this cannot be sustained in the short term due to the lack of onsite support services and recruitment difficulties.

Strategies

- Monitor delivery data for next five years to ascertain a reliable level of increase and adjust the projections models and service requirements according.
- Undertake analysis of long stay patients to determine if separations and length of stay are amenable to a reduction in bed days, transfer to a more suitable facility, hospital avoidance or ambulatory care if alternative services available. Develop demand management strategies to address.
- Service integration across the continuum with the promotion of a midwifery led model of care throughout the District and with outreach to the secondary catchments (where appropriate). This is to be provided through an extension of the Cairns Base Maternity Service and general practitioner involvement.
- Development of a Level 3 NICU service in 2021.
- Implement a midwifery skills update program that is sustainable and achievable for rural and remote area based staff.
- Continue work with other service providers, including GPs and RFDS to improve ante and post natal services, especially in rural and remote areas of the catchment areas.

Paediatric services

In 2006-07 Cairns Base Hospital had a total of 1,753 medical separations for children aged 0 to 14 years. This totalled 5,305 bed days. This is projected to decline in 2021 to 5,165 bed days. The projected separations in 2021 is 1,770 similar to 2006-07.

In 2006-07, 328 separations were for day only stays whilst 492 are projected for day only activity in 2021. For the remaining 1,425 separations in 2006-07, the average length of stay was 3.5 days representing a daily average of 21 beds at 70 percent occupancy. The projected bed days for 2021 are 5,165 with an average overnight length of stay of 3.7 days and a daily average bed requirement of 21 beds at 70 percent occupancy.

Table 22 shows the projected medical separations for children aged 0-14 years by service related groups.

Table 22: Projected medical bed requirements 2021 for children aged 0-14 years

SRG	2006-07			2016-17			2021-22		
	Separations	Bed days	Beds	Separations	Bed days	Beds	Separations	Bed days	Beds
Cardiology	14	45	0.2	16	76	0.3	18	93	0.4
Dermatology	29	60	0.2	30	72	0.3	33	79	0.3
Endocrinology	38	139	0.5	53	180	0.7	68	203	0.8
Gastroenterology	24	55	0.2	29	53	0.2	31	52	0.2
Haematology	19	30	0.1	17	38	0.1	18	38	0.1
Immunology & Infections	161	700	2.7	136	460	1.8	140	472	1.8
Medical Oncology	5	37	0.1	5	19	0.1	5	19	0.1
Neurology	113	408	1.6	121	426	1.7	136	462	1.8
Renal Medicine	31	144	0.6	28	139	0.5	26	135	0.5
Respiratory Medicine	257	1 373	5.4	256	1 399	5.5	248	1 406	5.5
Rheumatology	30	77	0.3	30	75	0.3	30	69	0.3
Non Subspecialty Medicine	530	1 124	4.4	509	999	3.9	526	993	3.9
Upper GIT Surgery	<5	4	0.0	3	19	0.1	3	20	0.1
Neurosurgery	35	44	0.2	33	44	0.2	34	43	0.2
Dentistry	17	31	0.1	22	30	0.1	24	34	0.1
Ear, Nose & Throat	40	57	0.2	50	67	0.3	55	74	0.3
Orthopaedics	182	351	1.4	157	295	1.2	148	287	1.1
Ophthalmology	16	35	0.1	18	31	0.1	20	31	0.1
Urology	6	11	0.0	6	10	0.0	7	11	0.0
Vascular Surgery	132	273	1.1	128	232	0.9	135	236	0.9
Non Subspecialty Surgery	8	20	0.1	7	9	0.0	7	9	0.0
Gynaecology	<5	6	0.0	2	7	0.0	2	6	0.0
Obstetrics	30	43	0.2	25	38	0.1	23	37	0.1
Drug & Alcohol	13	175	0.7	16	272	1.1	16	295	1.2
Psychiatry - Acute	<5	3	0.0	3	17	0.1	2	13	0.1
Non-acute	14	60	0.2	14	46	0.2	14	49	0.2
Grand Total	1 753	5 305	20.8	1 713	5 054	19.8	1 770	5 165	20.2

Source: aIM. Does not include neonates or chemotherapy.

Paediatric services are subject to seasonal peaks and troughs in demand therefore the 70 percent occupancy rate is used to account for this.

Table 23: Projected surgical bed requirements 2021 for children aged 0-14 years

	2006-07			2016-17			2021-22		
SRG	Separations	Bed days	Beds	Separations	Bed days	Beds	Separations	Bed days	Beds
Diagnostic GI Endoscopy	11	13	0.1	16	41	0.2	19	48	0.2
Colorectal Surgery	5	22	0.1	5	14	0.1	6	15	0.1
Head & Neck Surgery	8	14	0.1	8	15	0.1	9	18	0.1
Neurosurgery	<5	23	0.1	1	35	0.1	1	39	0.2
Dentistry	92	94	0.4	86	88	0.3	82	85	0.3
Ear, Nose & Throat	222	235	0.9	209	226	0.9	207	226	0.9
Orthopaedics	187	470	1.8	236	551	2.2	284	656	2.6
Ophthalmology	24	32	0.1	20	27	0.1	19	26	0.1
Plastic & Reconstructive Surgery	30	115	0.5	33	116	0.5	35	134	0.5
Urology	11	12	0.0	12	16	0.1	12	16	0.1
Non Subspecialty Surgery	122	261	1.0	136	293	1.1	149	318	1.2
Extensive Burns	6	10	0.0	3	18	0.1	3	18	0.1
Tracheostomy	<5	101	0.4	5	133	0.5	5	140	0.5
Gynaecology	7	13	0.1	9	18	0.1	9	16	0.1
Grand Total	730	1 415	5.5	778	1 591	6.2	842	1 755	6.9

Source: aIM. Does not include neonates

In 2006-07, there was a total of 730 surgical separations at Cairns Base Hospital (Paediatric Surgery service Level 2 CSCF) for children aged 0 to 14 years. These children had an average length of stay of 1.9 days. Separations are projected to increase by 15 percent by 2021 with a 24 percent increase in bed days. This equates to an average daily bed requirement of 6 in 2006 and increasing to 7 beds by 2021 at 70 percent occupancy.

Theatre requirements are based on the same benchmarks as adult surgical requirements at one theatre per 10 surgical beds. This provides one additional theatre.

The trend of decreasing overnight stays for children mirrors an increasing trend towards community care for children, and a concomitant increase in community paediatric / child / youth care facilities will be needed.

Key issues

There is insufficient community based child health services to work across the continuum.

Strategies

Ensure specific child health service needs are addressed in planning for primary and community health and those services are complementary to acute services.

- A paediatric service including the paediatric allied health team (CDU), development of a dedicated child health team with a 'School age program' including specialist child health nurses and allied health team, with a disability focus serving as an access point for Child & Youth Mental Health Services.
- Inclusion of Health Promotion and Prevention and Early Intervention coordination services for the District with linkages to the 'hospital in the home' type service. It would also link into Women's Health.

- Development of this service in partnership with other service providers to consider options for home visits, Allied Health service provision, Primary Health Care links back into GP services and supported through service coordinators and psychosocial care. This service should be a coordinated and integrated service centre providing simple and easy access for consumers for both urban and major rural centres. This model can be utilised in training for clinical and other clinical support staff through JCU supported programs particularly.
- Link satellite/ hub 'Family Wellness Service' centres at Yarrabah, Mossman, Atherton, Innisfail, Mareeba and Tully.
- Use the development of the Family Wellness Service to engage partners formally to include Family Planning Queensland, Department of Child Safety and the Department of Education and develop local paediatric 'teams' that operate on a 'shared' resource model.
- School age disability support including respite care accommodation that operates on a hospice type model for overnight care and also a day stay type care and accommodation that is culturally appropriate for birthing mothers who must relocate to Cairns for the last four weeks to await birth. These services can be operated by other service providers.

Renal Dialysis

Current services

Renal medicine services are provided for the District by Cairns Base Hospital via the inpatient renal medicine unit (Level 3 CSCF) that is collocated with the renal dialysis unit at the hospital and a further 12 chairs are contracted from the Cairns private Hospital for public patients. The Dialysis Unit provides a hub service through 13 chairs and 2 peritoneal dialysis beds and 3 home haemodialysis training beds. The Bamaga renal dialysis unit is a formal satellite service of the Cairns Base Hospital renal dialysis unit with Cooktown hospital and the Douglas Multipurpose Health Service in Mossman to provide services in the future as demand increases. Innisfail and Atherton provide renal dialysis through 8 chairs each. A home haemodialysis training unit is located on Lake Street opposite the diabetes clinic and the hospital.

Projections

There has been growth in resident demand for public renal dialysis services by 25.4 percent from 2002-03 to 2006-07 and 22.7 percent in the private sector. The Cairns and Hinterland Health Service District supplied 87 percent (14,364 separations) of public demand in 2006-07.

Table 24: Renal Dialysis resident demand, Cairns & Hinterland Health Service District, Indigenous status and place of treatment, 2002-03 to 2006-07

	Separations		% change	change in separations
Place of Treatment	2002-2003	2006-2007		
PUBLIC				
<u>Indigenous</u>				
Cairns	7 337	8 344	13.7	1 007
Other NAHS	24	<5	-83.3	<-24
Brisbane Tertiary	0	0	0	0
Other	7	0	-100.0	-7
TOTAL	7 368	8 348	13.3	980
<u>Non Indigenous</u>				
Cairns	5 090	5 931	16.5	841
Other NAHS	<5	23	2 200.0	<23
Brisbane Tertiary	<5	<5	-75.0	<5
Other	0	0	0	0
TOTAL	5 095	5 955	16.9	860
Not stated	682	2 187	220.7	1 505
GRAND TOTAL PUBLIC	13 145	16 490	25.4	3 345
% Indigenous Public	56.1	50.6		
PRIVATE				
Indigenous Private	20	<5	-95.0	<-20
Non indigenous Private	144	379	163.2	235
Not stated Private	220	91	-58.6	-129
TOTAL PRIVATE	384	471	22.7	87
% Indigenous Private	5.2	0.2		
PUBLIC & PRIVATE				
TOTAL INDIGENOUS	7 388	8 349	13.0	961
Total Non Indigenous	5 239	6 334	20.9	1 095
Total Not stated	902	2 278	152.5	1 376
TOTAL ALL SEPARATIONS	13 529	16 961	25.4	3 432
% All Indigenous	54.6	49.2		

Note: % Indigenous excludes not stated data

Public patients treated in the private facility have been included in the public statistics. (Source: QHAPDC)

Source: QHAPDC, QH

Table 24 indicates resident demand by Indigenous people and shows that the proportion of Indigenous patients residing in the District utilising renal dialysis services has decreased from 56.1 percent to 50.6 percent of total separations over the period. As it has been noted that the number of Indigenous dialysis patients has actually risen, it is assumed that this decrease can be accounted for through Indigenous status not stated.

Table 25: Projected Resident Demand, Adult Renal Dialysis Services, Cairns & Hinterland Health Service District residents, by Sector & Stay Type, 2006-07 and 2021-22

	2006-07	2011-12	2016-17	2021-22	2006-07	2011-12	2016-17	2021-22
Place of Residence	Separations				% by place of residence			
Inland Sub Region	3 118	4 032	5 294	6 933	18.4%	19.8%	21.1%	22.0%
South Coast Sub Region	1 604	2 248	2 987	3 908	9.5%	11.1%	11.9%	12.4%
North Coast Sub Region	993	1 189	1 474	1 862	5.9%	5.8%	5.9%	5.9%
Cairns Sub Region	11 246	12 863	15 325	18 803	66.3%	63.3%	61.1%	59.7%
Total District residents	16 961	20 331	25 080	31 507	100.0%	100.0%	100.0%	100.0%
	No. of Patients				No. of Chairs			
Inland Sub Region	20	26	34	44	5.0	6.5	8.5	11.1
South Coast Sub Region	10	14	19	25	2.6	3.6	4.8	6.3
North Coast Sub Region	6	8	9	12	1.6	1.9	2.4	3.0
Cairns Sub Region	72	82	98	121	18.0	20.6	24.6	30.1
Total District residents	109	130	161	202	27.2	32.6	40.2	50.5
Adjust Cairns by 10% inflow								
Inland Sub Region	20	26	34	44	5.0	6.5	8.5	11.1
South Coast Sub Region	10	14	19	25	2.6	3.6	4.8	6.3
North Coast Sub Region	6	8	9	12	1.6	1.9	2.4	3.0
Cairns Sub Region	79	91	108	133	19.8	22.7	27.0	33.1
Total District residents	116	139	171	214	29.0	34.6	42.6	53.5

Note: No. of patients based on 156 treatments per year
 No. of chairs based on full utilisation, 2 shifts per day with two by three-day usage pattern per chair (i.e. 4 patients per chair)
 Excludes high dependency dialysis patients dialysed at CBH who are admitted under other specialty groupings.

Source: aIM

Table 25 indicates that there will be a major projected growth in resident demand based on estimated numbers of patients and chairs required. The table includes an adjustment for inflows of 10 percent to account for the inflow of residents from Cape York and the Torres Strait and Northern Peninsula Area HSDs. The data is presented by place of residence by sub-region so that location of services can be considered in the context of where residents are located.

Key issues

A key issue in the provision of renal services is to ensure that services are developed in line with the projected increase of patient demand.

Strategies

Develop an implementation plan for future renal services consistent with the State-wide Renal Services Plan.

Patients are treated across a number of modalities including acute short-term haemodialysis (HD); HD for chronic patients provided in hospitals, peritoneal dialysis (PD), a satellite unit or at home; and home based continuous ambulatory peritoneal dialysis (CAPD) or Automated PD (APD). A patient's medical and social and geographical circumstances play a large role in choice of dialysis modality. The range of treatment modalities available include:

- *Haemodialysis (HD)*. This technique uses an artificial kidney (dialyser) which contains a semi-permeable membrane to remove waste products, such as urea and creatinine, from the blood. This type of treatment can occur in a range of settings, including hospital inpatient units or outpatients.
- *Home haemodialysis (Home HD)*. Home dialysis is a variant of the first treatment modality. The patients manage their own dialysis in a home setting. This treatment modality generally requires active support from a carer to monitor the patient while treatment occurs. It needs one machine per person, training, technical support and back-up nursing.
- *Peritoneal dialysis (PD)*. Under this technique the human peritoneal membrane is used as the filtering membrane. This treatment modality is preferred where people are seeking to maintain their independence or they live some distance from a renal unit.

A growing collection of clinical research clearly demonstrates that the more frequent, more consistent dialysis associated with self-care provides patients with improved health outcomes such as improved mortality rates and reduced hospitalisations.

The following strategies were recommended in order to develop renal dialysis and renal medicine services within the District:

- Development of a Chronic Kidney Disease clinic to support earlier detection of the disease, and initiate more timely treatment for people at significant risk of End Stage Renal Failure.
- Develop the renal dialysis services at each of the larger rural hospital sites consistent with increasing resident demand, by extending hours of operation to accommodate increasing number of patients.
- Develop a self managed renal dialysis satellite service.
- Additional support for home dialysis services with the development of a new home Haemodialysis Training Unit.

This model would need to include the establishment of a multi-disciplinary Chronic Disease team to conduct clinics and outreach programs to outlying areas and also working with the satellite dialysis services.

Cancer

Burden of Disease

Cancer is a leading cause of burden of disease in Queensland, contributing to 18% of the overall burden in 2003.¹⁷ The Northern Area Health Service Plan 2007-2012 confirmed cancer care as a priority.

In the Far North Queensland Region comprising the Cairns and Hinterland, Cape York and Torres and Northern Peninsula Area Health Service Districts, the incidence of cancer is projected to increase by 39% over the ten years from 2006. By 2016, an estimated 29 people will be diagnosed with cancer each week, compared with 17 people each week in 2004.¹⁸

Table 26: Far North Queensland Cancer Incidence Projections, 2006 to 2016.

	2006	2011	2016
Breast Cancer	139	161	182
Colorectal Cancer	143	172	206
Lung Cancer	92	108	130
Melanoma	154	179	203
All Cancers	1 084	1 283	1 504

Source: Queensland Health Epidemiology Services Unit

The most commonly diagnosed cancers in the Cluster over the 3 years from 2002 to 2004 were melanoma (12.2%), prostate (12.1%), breast (11.1%), and lung (10%). In the Aboriginal and Torres Strait Islander populations of Queensland, cervical cancers in females and lung cancer in males are the most commonly diagnosed cancers. Death rates due to these cancers occur at ten and two times the rate respectively than in the non-Indigenous population of Queensland.¹⁹

Current services

Day treatment places: There are 8 day treatment places for chemotherapy and other therapies at Cairns Base Hospital, operating 5 days a week. Innisfail and Atherton Hospitals provide Level 2 (CSCF) cancer care services, with 5 day treatment places for chemotherapy at Innisfail operating 1 day a week (equating to 1 five-day equivalent place), and 10 day treatment places for chemotherapy at Atherton operating 1 day a week (equating to 2 five-day equivalent places). In total there are 11 (five-day equivalent) day treatment places in the Cairns and Hinterland Health Service District.

Inpatient care: Cairns Base Hospital provides a medical oncology Level 3 service (CSCF) and haematology inpatient care with allied health oncology support and outpatient medical oncology and haematology. There are 4 beds available (but not dedicated) to medical oncology at Cairns Base Hospital.

Radiation Oncology: Cairns and Hinterland Health Service District residents travel to the Townsville Cancer Centre for radiation oncology treatment. Radiation therapy is usually provided on a same day basis, with around 5% of patients requiring inpatient care. The Townsville Cancer Centre provides an outreach radiation oncology clinic at Cairns Base Hospital.

¹⁸ Queensland Health Epidemiology Services Unit, Health Information Centre.

¹⁹ Queensland Cancer Control Strategic Directions 2005-2010. ISBN 1921021314. Queensland Health 2006.

Palliative Care: There are 12 Level 1 (CSCF) sub acute palliative care beds located at Gordonvale Hospital attended by a Senior Medical Officer. The Gordonvale service provides a weekly in-reach palliative care service to Cairns Base Hospital. Palliative care specialists from Townsville Cancer Centre make fortnightly visits to Gordonvale Hospital.

Palliative Care specialists from Townsville Cancer Centre make fortnightly visits to Gordonvale Hospital and conduct fortnightly outpatient clinics at Cairns Base Hospital. Palliative care patients are also cared for at the Atherton, Herberton, Babinda and Mareeba Hospitals.

The Gordonvale Hospital also provides a home based palliative care service for Cairns residents from Aloomba in the south to Ellis Beach in the north. This service arranges palliative care for Mossman and Kuranda clients through Blue Care.

In the Cape York Health Service District community based palliative care services are provided by the Primary Health Care Centre staff at all sites as required. Home visiting is undertaken by Medical Officers and Nursing staff when people choose to remain in their communities to die. There are currently no cancer specific treatment services visiting the Cape York Health Service District.

Level 1 (CSCF) palliative care inpatient services are provided at both hospitals in the Torres Strait and Northern Peninsula Area Health Service District. Community based palliative care services are provided by the Primary Health Care Centre staff at all sites as required. Home visiting is undertaken by a Medical Officer and Nursing staff. The Post-Acute Rehabilitation and Aged Care Program provides a home care domiciliary nursing service on Thursday Island only. There are currently no cancer specific treatment services visiting the Torres Strait and Northern Peninsula Area Health Service District.

Current service utilisation

Day treatment services: The majority of services in the Medical Oncology Unit are delivered on a same day basis. In 2007 there were 4,181 day only occasions of service (source: Cairns Base Hospital Clinical Benchmarking), an equivalent of 10 chairs using the Queensland Statewide Cancer Treatment Services Plan²⁰ benchmark of 420 occasions of service a year per chair.

For the 2006/07 year chemotherapy services comprised 75% of all same day medical oncology separations from Cairns Base Hospital. Other same day services provided include immunotherapy, supportive therapies and maintenance therapies.

During 2006/07 Atherton Hospital admitted 278 patients for day only cancer care. This is an equivalent of 1 chair/place using the Statewide Cancer Treatment Services Plan benchmark of 420 occasions of service a year per chair. In the same period Innisfail Hospital admitted 105 patients for day only cancer care.

Some chemotherapy services are provided at Thursday Island Hospital in the Torres and Northern Peninsula Area Health Service District, but are limited to low level chemotherapy.

Radiation oncology services: There were 4,901 occasions of radiation therapy service at the Townsville Cancer Centre for residents of Cairns and Hinterland, Cape York and Torres Strait and Northern Peninsula Area Health Service Districts in 2007/08.

²⁰ Queensland Health 2008. Queensland Statewide Cancer Treatment Services Plan, 2008-2017.

Inpatient care: In 2006/07 the Cairns Base Hospital was estimated to have provided an equivalent of 8 overnight and multi-day stay beds (2,611 bed days) for medical oncology and haematology services (assuming 85 percent occupancy). There were 353 overnight bed days for medical oncology and haematology at Atherton Hospital; 281 bed days at Innisfail Hospital; and 172 bed days at Thursday Island Hospital.

Inpatient palliative care: Admissions to Cairns Base Hospital for the treatment of acute problems arising for patients receiving palliative care are difficult to quantify using existing data collections. Based on service provider reports, there are usually 4 palliative care patients acutely admitted at Cairns Base Hospital, with many of these patients initially admitted under other teams while their status is being determined. Around 60% of these admissions are likely to be cancer related, the remaining 40% of acute palliative care admissions are likely to be for conditions including stroke, respiratory and renal conditions.

There were 3,757 palliative care bed days at Gordonvale Hospital in 2006/07, 318 at Atherton Hospital; 188 at Innisfail Hospital; 378 beddays at Mareeba Hospital and 130 bed days at Thursday Island Hospital.

Outpatient clinics: Outpatient clinics are provided at Cairns Base Hospital for medical oncology, haematology, radiation oncology and palliative care services. Around 480 patients attend outpatient clinics each month. Breast cancer outpatient clinics are provided through surgical services, with on average 70 patient attending clinics each month. Outpatient clinic attendances increased by 130% between 2001 and 2006 (Source: Cairns Base Hospital Clinical Benchmarking). Outreach clinics are conducted 3 weekly in Atherton and Innisfail.

Townsville based specialists offer six bone marrow/stem cell transplant outreach clinics in Cairns each year.

Brisbane based specialist services offer the following outreach clinics in Cairns each year:

- 2 paediatric oncology clinics;
- 2 paediatric haematology clinics;
- 4 ortho-oncology outreach clinics.

Future Demand for Cancer Services

Projected demand for day treatment places

Future demand for day treatment places was estimated using the methodology in the Statewide Cancer Treatment Services Plan, assuming 4% annual growth plus 4% to account for unmet demand and the development of new technologies.

Cairns Base Hospital was estimated to have the equivalent of 10 day treatment places in 2007, assuming a benchmark throughput of 420 patients per each place. Based on the projection method described above, it is expected that 14 places will be required at Cairns Base Hospital in 2011, 18 in 2016 and 22 in 2021.

In Atherton and Innisfail 1 day treatment place should cater for the expected demand in 2011, 2016 and 2021.

Projected demand for radiation oncology

Radiation therapy is estimated to benefit 52% of cancer patients. Based on projections of cancer incidence in the Cluster, it is estimated that 667 patients will require radiation therapy in 2011 and 782 patients will require radiation therapy in 2016. Approximately 20% of these patients are likely to need to travel to the Townsville Cancer Centre for more complex care. The additional demand for inpatient services associated with radiation therapy has been included in the inpatient care projections.

Projected demand for inpatient medical oncology and haematology care

Future demand for overnight and multi-day stay inpatient services for medical oncology and haematology was projected using the acute inpatient model (aIM). aIM is used in most states in Australia for projecting future demand of inpatient separations and bed days. This model takes into account the previous seven years of service trends and regional levels of utilisation relative to Queensland as a whole. Where there is relatively lower utilisation of cancer services in the Cluster aIM projections assume a gradual trend towards the same level of utilisation seen in Queensland as a whole. With the data now available in aIM (2006/07 inpatient data with population projections released in Aug 2008) this is considered to provide the best estimate of future demand.

It is expected that 15 overnight and multi-day stay beds, at an 85% occupancy level, will be required at Cairns Base Hospital by 2011. Eighteen beds will be required by 2016. These projections take into account the development of a radiation oncology service in Cairns, and assume that 20% of patients requiring radiation therapy will continue to travel to Townsville for more complex care.

For combined Atherton and Mareeba Hospitals the projected demand at a 70% occupancy level is 4 overnight and multi-day stay beds by 2011, 5 beds by 2016 and 6 beds by 2021. For Innisfail Hospital, it is expected that 2 overnight and multi-day stay beds will be required by 2011 and 2016 and 3 beds by 2021. One bed will be required for Thursday Island Hospital in 2011, 2016 and 2021.

Projected demand for inpatient palliative care

Applying the Palliative Care Australia planning benchmark for inpatient care (6.7 beds per 100,000 population), the Cairns and Hinterland, Cape York and Torres Strait and Northern Peninsula Area Health Service Districts should currently have 17 designated palliative care beds. The majority of these beds will be located at the Gordonvale Hospital. Projections based on population growth indicate that 19 beds will meet inpatient demand in 2011, that 20 beds will be required by 2016. The following table reflects the allocation of some palliative care beds to Cairns Base Hospital.

Table 27: Projected Overnight Bed for Medical Oncology Haematology 2011-21.

	2011	2016	2021
Cairns Base*	16	21	25
Atherton and/or Mareeba	4	5	6
Innisfail	2	2	3
Thursday Island	1	1	1

Cairns Base bed occupancy 85%

*Rural Hospitals bed occupancy 70%, * CBH beds include palliative care*

Service Issues and Priorities

The Statewide Cancer Treatment Services Plan identified the following service strategies for the Cairns and Hinterland Health Service District:

Table 28: Key Service Strategy Table.

Objective	Strategy	Time frame
2.1	Develop Cairns as a Cancer Unit	5-10 years
3.1	Develop service capability of Cairns palliative care from Level 1 to Level 3	1-2 years
3.1	Develop service capability of Cairns Radiation Oncology from Consultative to Level 1	5-10 Years*
4.1	Develop inpatient capacity	1-5 years
4.2	Develop ambulatory treatment capacity	1-5 years
4.3	Construction of three bunkers and installation of two linacs and building of supporting infrastructure for new radiation oncology service to commence 2012	2-5 years*
4.4	Develop inpatient palliative care capacity	1-5 years
4.5	Increase capacity of clinical support services by installing a wide bore CT Scanner	1-2 years

* Note that subsequent to the release of the Statewide Cancer Treatment Services Plan, the development of the Cairns Radiation Oncology Service has been brought forward.

Palliative care issues and priorities

- The establishment of a palliative care specialist position is required for the expansion of palliative care services recommended in the Statewide Cancer Treatment Services Plan. The option of converting the medical officer position at Gordonvale to a palliative care specialist position should be considered.
- The provision of palliative care beds at Cairns Base Hospital as part of an integrated cancer care service will enhance the quality and continuity of care and will complement the palliative care service provided at Gordonvale Hospital.
- The development Nurse Practitioner positions to support the Cape York and Torres Strait and Northern Peninsula Area Districts will improve the coordination of equipment and provision of education for remote staff delivering palliative care.

Medical oncology issues and priorities

- The demand for day treatment services has placed considerable pressure on the existing facilities for the Oncology Unit at Cairns Base Hospital. A planned relocation and expansion of the service is a priority to address this.
- There is increasing demand for the delivery of medical oncology services in Innisfail and the Tablelands. The development of these services is a priority and is contingent on the successful recruitment to the two medical oncology vacancies and an expansion of the oncology services capacity to support outreach services.
- In the longer term oncology services to the northern area of the region should be developed, including Mossman and Cooktown. This service development would require ongoing support from the Cairns service given a high turnover of staff in remote areas.
- Tele-pharmacy services should be explored to support oncology services in remote areas.
- Participation in clinical trials would be facilitated by data management capacity within the oncology service, this may be supported through funding from the Cancer Council.

- There is currently no dedicated administrative support for the oncology and haematology services
- The redevelopment of Cairns Base Hospital offers an opportunity to enhance the coordination and continuity of cancer care through the integration of cancer care services.

Haematology issues and priorities

- Haematological services in Cairns are currently staffed at a 0.5FTE clinical capacity, providing no backfill for this position whilst on leave or undertaking professional development. Options to provide backfill for this position should be actively pursued.
- The establishment and recruitment to a laboratory position is required to support this service.
- There is currently no dedicated administrative support for the oncology and haematology services.

Radiation oncology issues and priorities

- The commissioning of a wide bore CT scanner (anticipated in approximately 18 months) will enable the delivery of radiation therapy planning services in Cairns. The delivery of this service will be subject to the capacity of the Townsville Cancer Centre Radiation Oncology staffing, which currently has 2.2FTE medical specialist vacancies.
- The KPMG Due Diligence Review of the proposal to establish a radiation oncology service in Cairns recommended that the service be co-located at Cairns Base Hospital to ensure the integration of oncology services in the District. Ongoing master planning for this service as part of the re-development of Cairns Base Hospital will be required and should be guided by a cancer services working group.
- The KPMG Review also recommended an open tender be conducted for a public private sector partnership for the delivery of the service. Ongoing planning work is required to ensure that the terms of the tender best meet the needs of oncology services in North Queensland and the Far North Queensland community.

Coordination of care

- The implementation of care coordinator positions will improve the patient's journey for those needing to travel to receive treatment, especially patients needing to travel from Cape York and Torres Strait and Northern Peninsula Area.
- This position will also facilitate the transfer of information between services.

²⁴ Changing patterns of psychiatric hospitalisation among residents of Far North Queensland 1999-00 to 2006-07: An Overview. Haswell-Elkins et al, North Queensland Health Equalities Promotion Unit).

Aged Care and Rehabilitation

Current services

The aged care service model for the catchment area varies within the different sub-regions. In the South Coast Sub-region (based at Innisfail) and the Inland Sub-region, aged care services are provided through an integrated assessment model along with transition care. The North Coast Sub-region (based as Mossman) has an integrated aged care program.

In the Cairns Sub-region, aged care services are provided through an Aged Care Assessment Team (ACAT) led model even though ACAT as a direct service is only a small proportion of total aged care service needs. This is also the outreach model for the Cape York and Torres Strait and Northern Peninsula Area District Health Services as this service is provided out of Cairns.

There are three geriatricians (2.6 full-time equivalent) supporting the aged care service in the District with clinics available at Cairns, Innisfail and Mareeba. Inpatient Aged Care services are provided through the Multi-purpose Health Service model at Mossman MPHS, through Herberton Health Service and at Babinda Hospital. Gordonvale Hospital will soon offer aged care beds. There is one full time rehabilitation specialist supporting the rehabilitation service.

The Herberton Hospital model of care provides for 2 acute and 2 palliative care beds, 8 dementia specific beds and 26 residential aged care beds. Herberton Hospital has a desire to move to a different model of care focusing on Health Maintenance, clients with complex care needs, end-of-life care and community and family health. This would alter the bed configuration to utilise flexible beds for short term respite care, slow stream rehabilitation, acute care and step down care, and some beds for clients with complex care needs and palliative care needs.

Patients who are admitted into the acute service under geriatric medicine are integrated into the general ward areas. At this time patients are discharged back to their local facility as there are limited sub-acute options for patients awaiting placement. A new 20 (as from 1 March 08) place transition care program has been established in Cairns (10 community based and 10 in a residential setting), with the Tablelands and Innisfail each having 4 community based transition care places also, but access to these places is subject to certain eligibility criteria and generally it is only available to patients over 70. Transition care has a restorative focus and goals must be reached within a 12 week period. Planning is currently in progress for the roll out of additional transition care places within the District.

There are currently 1,354 residential (low and high) Aged Care Commonwealth packages available within the District. Cairns needs 1,597 now or an additional 243 residential care packages to meet the Commonwealth planning ratio of 44 low care and 44 high care per 1,000 people aged 70 years and over and Aboriginal and Torres Strait islander peoples aged 50 to 69. The Commonwealth planning ratio has a 4 year implementation from the 2007-08 budget, therefore by 2011; 1,937 (or additional 583) residential care packages are required to meet the planning ratio. The number of Extended Aged Care at Home (EACH) and Community Aged Care Packages (CACP) packages is currently 59 places under the Commonwealth benchmarked requirement of 25 places per 1,000 people aged 70 years and over. An additional 155 packages are required by 2011.

The Cairns Base Hospital Rehabilitation Unit currently has 25 designated rehabilitation beds. Cairns Base Hospital is the sole service providing level 2/3 level rehabilitation services to the Far North Queensland Cluster. There is currently no level 2 Rehabilitation service, with Innisfail Hospital appearing to be best placed to establish a level 2 facility. It currently provides a Level

1 service. The capacity of the other facilities to deliver Level 1 rehabilitation services is very limited.

A priority for Queensland Health is to improve services designed to cater for people requiring rehabilitation medicine in a consistent way through formalised clinical and service networks at Cluster level and staffed by clinicians who are well skilled in rehabilitation and who operate within an interdisciplinary team. This then ensures that people receive the appropriate care in the appropriate setting (inpatient, outpatient, day hospital or community facility) and that their care is managed as effectively as possible.

Rehabilitation medicine is provided:

- in a hospital setting, such as an acute bed where rehabilitation is overseen by a rehabilitation medicine physician or geriatrician and/or an inpatient (overnight) bed in a rehabilitation unit, referred to as a 'designated' rehabilitation bed (one of several care types under the umbrella term of 'sub-acute')
- in an ambulatory setting, such as outpatient clinics, day hospitals or day treatment centres
- in the community.

As a sub-acute service, rehabilitation is distinct from, but complementary to, both acute and non-acute care.

The primary focus of the inpatient rehabilitation service (Level 3 CSCF) at Cairns Base Hospital is the management of newly acquired disability, with the major diagnostic groups including amputation, spinal injury, traumatic brain injury, acquired brain injury, stroke and chronic neurological disorders. Another significant group is patients with major functional impairment following critical illness or major injury. This service is supported by highly skilled and in some cases specialised allied health staff and staff work within a multidisciplinary team approach.

Projected demand for sub acute

The supply of rehabilitation services in District facilities is projected to increase 136 percent for separations and 132 percent for bed days. The majority of services will be delivered at Cairns Base Hospital, with significant volumes also projected for Innisfail, Mareeba and Atherton.

Table 29: C&HHSD, projected hospital supply, rehabilitation, public sector 2006-07 to 2021-22.

Place of treatment	Separations		Bed days		Change (no)		Change (%)	
	06-07	21-22	06-07	21-22	Separations	Bed days	Separations	Bed days
Atherton	30	72	681	1 533	42	852	141%	125%
Cairns	308	698	7 406	16 522	390	9 116	127%	123%
Herberton	<5	10	23	145	<10	122	421%	532%
Innisfail	38	95	936	2 274	57	1 338	150%	143%
Mareeba	24	69	553	1 607	45	1 054	188%	191%
Tully	18	45	389	1 046	27	657	151%	169%
Total	420	990	9 988	23 127	570	13 139	136%	132%

Note: Excludes 0-14 years

Source: aIM

Table 30: District, projected hospital supply, geriatric evaluation and management and health maintenance, public sector, 2006-07 to 2021-22

Place of treatment	Separations		Bed days		Change (no)		Change (%)	
	06-07	21-22	06-07	21-22	Separations	Bed days	Separations	Bed days
Atherton	31	65	1 469	1 540	34	71	109%	5%
Babinda	43	70	1 374	2 795	27	1 421	63%	103%
Cairns	194	388	6 202	7 789	194	1 587	100%	26%
Gordonvale	41	76	1 804	2 134	35	330	86%	18%
Herberton	61	140	5 771	12 146	79	6 375	129%	110%
Innisfail	17	60	344	973	43	629	252%	183%
Mareeba	33	86	1 586	2 748	53	1 162	161%	73%
Mossman	17	47	453	780	30	327	175%	72%
Tully	9	26	98	311	17	213	187%	218%
Yarrabah	<5	5	<5	5	<5	<5	151%	151%
Total	448	963	19 103	31 223	515	12 120	115%	63%

Note: Excludes 0-14 years

Source: aIM

The supply of geriatric evaluation and management services and health maintenance in the District facilities is projected to increase 115 percent for separations and 63 percent for bed days. The majority of services will be delivered at Cairns Base Hospital, with significant activity volumes also projected for Babinda, Herberton, Mareeba and Gordonvale.

Key issues

The aged care and rehabilitation services within the District need to develop further to the level of specialisation consistent with the population size of the District. At the same time, there is a need to develop an integrated District wide model across the health continuum including primary health care, early intervention, post acute care, home base care, long term care and social care for each of these services.

In addition, these services account for a significant projected growth in inpatient demand for services within the District which is sufficient to accommodate dedicated inpatient units for each service. There also needs to be recognition that the patient profile for rehabilitation patients is significantly different to the patient profile for aged care services, and that both of these services need separate staffing and service models.

There is currently no dedicated inpatient Geriatric Evaluation and Management service at Cairns Base Hospital. These patients have a different profile, principally represented by a higher turnover frail elderly population, predominantly those over the age of 65 referred by their GP because they have suffered, or are considered to be at high risk of developing, a geriatric syndrome (cognitive impairments, mobility problems and falls, incontinence or an ortho-geriatric problem).

Though there will be more aged people requiring hospital and community care into the future, they will on average be a little older at the onset of significant illness. The major challenge is that aged people who will be accessing hospitals will be 'older' as a group and will often have high levels of physical and social needs. The aged (70+) in hospital will be characterised by multiple conditions whilst the onset of degenerative conditions including neurodegenerative disease and dementia will be delayed. The demands of delivering care to this group will become increasingly complex and will require a continual focus on:

- the objectives of care;
- consideration of long-term patterns of care;
- management of risk rather than aiming for cure and;
- an emphasis on patient and carer quality of life and;
- an emphasis on optimising health and function.

Strategies

The following strategies are the result of the consultation process and are proposed for the development of aged care and rehabilitation services within the District:

- Separate but dedicated acute care areas within Cairns Base Hospital for Aged Care and for Rehabilitation Services with the development of a Geriatric Evaluation and Management Service (GEM) consistent with demand.
- Dedicated acute care areas within Cairns Base Hospital for Rehabilitation Services with the development of a tertiary level rehabilitation service in the 10 to 15 year time frame with an Acquired Brain Injury unit.
- Development of strategies to manage non-acute patients in the most appropriate setting so that hospitals can provide predominantly acute care services.
- Apply the Medical Assessment & Planning Unit model of assessment to enable improved management of older people through rapid access to specialist assessment and identification of those at risk and to enable strong community care links to GPs and other community based providers.
- Develop shared staff models with other services such as Mental Health. A shared service model could also provide coordination with a rapid response team for referrals by primary health and Chronic Disease management services for 'at risk' clients to employ support and specialist needs and also coordinated with targeted prevention programs.
- Community Health centres throughout the District would operate on a spoke service to their closest acute facility for this integrated approach with support linkages to each other and for each facility to have a spoke relationship to the Cairns Base Hospital for specialist support and coordination/ case management.
- Collocation and integration of aged care assessment teams (ACAT) with other Commonwealth funded programs for reduced duplication and single access point for referrals.
- Consideration of the development of a second rehabilitation service site, preferably in the Inland Sub-region due to demand growth.

- Development of a workforce strategy to support the recruitment and retention of allied health staff.
- Consideration could be given to establish a Level 2 rehabilitation service at one of the major rural facility sites, such as Innisfail or Atherton.
- The Cairns Base Hospital Rehabilitation Unit should remain on site because of the acuity of these patients, and the need for cross-disciplinary care (surgical review, orthopaedic review etc.) A significant proportion of patients who are medically stable could be triaged to the rural facility service once post acute.
- Consideration should be given to utilising sub acute beds at Gordonvale Hospital to accommodate non acute rehabilitation patients, taking pressure off Cairns Base Hospital beds. This would be particularly valuable for Transition care program clients

Mental health

Current services

The District provides an Integrated Mental Health Service for the residents of Cairns and Hinterland, Cape York, and Torres Strait and Northern Peninsula Area Health Service Districts for primary and secondary mental health services.

A *hub and spoke* multidisciplinary team approach is taken for mental health assessments, treatment and case management services. Outreach services are provided to the Cape York and Torres Strait communities and outpatient psychiatry clinics are provided to the wider catchment. The service supports community based care through:

- 12 step-up/step-down short stay places;
- 40 supported community housing packages;
- 34 bed acute unit (26 inpatient beds with 8 High Dependency Unit beds) located at Cairns Base Hospital.

Community Mental Health teams are located in:

- Cairns (north, city centre and south Cairns);
- Innisfail;
- Yarrabah (outreach from Edmonton);
- Mossman;
- Atherton;
- Mareeba.

Specific teams target services to different age groups in the community, such as Child and Youth Mental Health Service (CYMHS) and Cairns Old Age Psychiatry (COAPS). Other teams target a point along the disease continuum, such as acute care assessment and recovery. Mental Health Services are also provided to remote areas, for homeless people, for people with dual disability, for people with a dual diagnosis (co-occurring substance use and mental health problem) and for people requiring forensic mental health services.

Tertiary Mental Health services for North Queensland include:

- A medium security mental health unit collocated with the Townsville Hospital (currently operating below capacity due to operational and structural design issues)
- Acquired Brain Injury Unit (in Townsville at Kirwan Rehabilitation Unit)
- Extended Treatment and Rehabilitation Services (age 16 to 65) at Charters Towers.

The following service strategies are in place or are about to be implemented:

- Day to Day Living in the Community
- Personal Helpers and Mentors (PHaMs)
- Respite Care
- Improved services for people with drug and alcohol problems and mental illness
- Care Coordination
- Better Access – Medical Benefit Scheme items and placement of mental health nurses into GP practices
- Expanding suicide prevention programs.

Mental health service utilisation

Adult mental health inpatient services at Cairns Base Hospital in 2006-07 provided a total of 931 separations (328 or 35 percent on a same day basis) and 12,651 bed days. This represents an average overnight length of stay of 20.4 days over this period and assuming an occupancy rate of 85 percent, equates to a notional 41 beds.

The service is currently running at 110 percent + occupancy, with an average of 3-4 outliers in medical/surgical beds at any given time. It is likely that the bed occupancy rate up to 2011 will remain over 95 percent due to the extraordinary number of very long stay patients in the ward.

A review of eight years of psychiatric hospitalisations has found an increasing number of very long lengths of stay for patients with a primary diagnosis of schizophrenia, schizotypal and delusional disorders. Lengths of stay greater than 35 days are high due to the decreased capacity of the secure unit at The Townsville Hospital, difficulty in getting Indigenous patients back into their home communities or re-settled into Cairns, and the lack of suitable supported community accommodation. In the financial year 2005-06, 85 of these long stay admissions accounted for 50% of the Unit's bed days²⁴.

Indigenous demand: in 2006/07, 23 percent of overnight acute mental health separations were for Indigenous peoples requiring, on average, an additional 11 days length of stay (62 percent) above non-indigenous separations of 17.8 days average length of stay.

Future demand

The planning benchmark of 40 acute and extended care mental health beds per 100,000 population has been used as per the "Queensland Plan for Mental Health 2007-2017". The hospital's adult acute mental health inpatient unit is calculated at 17.5 beds per 100,000 catchment's population of Far North Queensland in line with the state benchmark. It is anticipated that at least 46 beds will be required in Far North Queensland by 2011. By 2021, 52 beds will be required to meet the demand for mental health services. The requirement for a high dependency unit comprising of at least 15 percent of total beds as per the QH Guidelines for Operation of Mental Health High Dependency Units in Queensland – December 2003 means that 8 or more of these beds will be needed in the high dependency unit by 2021.

Table 31: Projected catchment population and beds required for Mental Health Service 2011-21.

	2011	2016	2021
Projected catchment population	258 657	277 198	296 845
Total projected beds at 17.5/100,000	46	49	52
High dependency beds – 15%	7	8	8

Source: 2011, 2016 and 2021 population projections sourced from Population Information and Forecasting Unit medium series projections.

Key issues

- There is limited access to crisis accommodation for clients requiring increased support in the immediate to short term.
- There is growing support for mental health to undertake targeted health promotion and prevention, particularly for child and youth mental health services.
- There is a need to address recruitment, retention and training for mental health specialist positions.
- There is a need to improve the management of long term mental health patients and also management of child and youth inpatients.
- The forensic unit at Townsville is operating below capacity due to operational and structural issues. The impact of this on Cairns is significant, with delays in transferring patients to the Townsville unit increasing bed block within the Cairns mental health unit.
- There is a need to plan for the provision of emergency assessment and management across the District and particularly the location of services within emergency departments.
- In rural areas time spent on the road visiting patients in their homes requires a significant amount of clinician time in an environment where recruitment to rural mental health positions is extremely difficult.

Service strategies

- Strategic planning for the provision of an integrated mental health care service will be consistent with the "Queensland Plan for Mental Health 2007-2017".
- Enhancement and development of community based clinical services and suitably supported community accommodation for mental health consumers.
- Establishment of a 24/7 acute care service in the Cairns Base Hospital Emergency Department.
- Relocation of Alcohol, Tobacco and Other Drugs (ATODS) services at Cairns Base Hospital to a suitable off-site location to provide an increase in Mental Health bed capacity at Cairns Base Hospital.
- Expansion of current and development of new Indigenous specific clinical and accommodation/recovery services across Cairns and Hinterland Mental Health network.
- Establishment of a Community Care Unit model of service in the Cairns and Hinterland District.

Alcohol, tobacco and other drugs services

Current services

The Alcohol, Tobacco and Other Drugs Service provides a comprehensive service in the Cairns urban area. This is achieved through a multi-disciplinary approach that encompasses health promotion and intervention, home detoxification program, cannabis diversion program, drug court program, Indigenous alcohol diversion program, needle and syringe exchange, opiate treatment, hospital liaison, day detoxification and a dual diagnosis service.

Services are predominantly based in the ambulatory and community health settings across the District. The day detoxification service is located at Cairns Base Hospital.

Table 32 shows the ATODS activity at Cairns Base Hospital in 2006-07 and that projected to 2021-22.

Table 32: ATODS activity at Cairns Base Hospital in 2006-07 and projected for 2021-22.

	2006-07			2021-22		
	Separations	Bed days	Beds	Separations	Bed days	Beds
Day Only	675	675	2	803	803	3
Overnight	195	1 051	3	196	1 280	4
Total	870	1 726	6	999	2 084	7

Source: aIM

Strategies

It is recommended at this stage that the day detoxification service not be relocated from the Cairns Base Hospital due to the current service model requiring proximity to emergency medical services.

Outpatient occasions of service

Discussions with clinicians indicated that due to the nature of much of the outpatient work, that not all occasions of service have been captured therefore, reading of the following section must be done with caution. A separate process is currently underway to map the occasions of service of outpatients at Cairns Base Hospital and this will be used to inform further planning.

The trend in total ambulatory occasions of service (OOS) demonstrates an overall increase in service provision for the District. The increase was the greatest for Innisfail with an additional 4939 of OOS or an increase of 51 percent. Cairns Base Hospital delivers 54.4 percent of the total OOS for the District and has had an increasing trend in services supplied – there was a decrease in the 2004-05 year prior to a substantial increase in the following year to 2005-06. Atherton has had a decrease in services over the last year but overall there was a 9 percent increase in OOS. The decreases in service provision can be accounted for in counting issues associated with the ATODS service in 2005 to 2007.

The biggest increase in OOS for the outpatient clinics of Cairns Base Hospital were for drug and alcohol, plastics, ENT, orthopaedics <10 years old, cardiology, pre-admission clinic and transplants clinic.

Table 33: Outpatient occasions of service

Facility	2002-03	2003-04	2004-05	2005-06	2006-07
Atherton	15 464	17 435	18 066	17 647	18 994
Mareeba	15 230	16 125	15 577	16 507	16 090
Innisfail		11 941	13 901	15 237	
Tully		10 383	11 660	10 582	
Babinda		386	518	454	
Cairns	161 262	166 345	158 874	* 191 795	** 144 342
TOTAL	191 956	222 615	218 596	252 222	179 426

Source: 3X Reports by Facility, QH

* data recorded for CBH for 2005-06 period was incorrect for ATODS review patients (average numbers per financial year are 19,500. 2005/06 recorded as 59,717)

** data recorded for CBH for 2006-07 period was incorrect for ATODS repeat patients (average numbers per financial year are 19,500. 2006/07 recorded as 9,381)

Strategies

- Specialist outpatient clinics (some 35 to 40 interview and treatment rooms), pre-admission clinics and Allied Health services be relocated from inpatient units including dietetics, physiotherapy, occupational therapy, psychology, speech pathology, social work, podiatry, plaster clinic, hand clinic, and burns & lymphodema clinics.
- A transit lounge for accommodation of discharged patients awaiting medications and transport and patients with scheduled consultation and treatment appointments.

Allied health services

The allied health services are an essential component of the delivery of health services for the District and relevant service strategies are commented on in each of the Clinical Stream sections. However this section also provides an overview summary of the proposed service strategies for allied health services. Proposed service strategies include:

- Development of an allied health hub to compliment acute care services to include physiotherapy, speech, occupational therapy, psychology, social work, dietetics, nutrition and podiatry.
- Adult Day Therapy Unit to be colocated with inpatient rehabilitation services at Cairns Base Hospital.
- Allied health services associated with acute patient management located in Ambulatory Care service area (dietetics, psychology, audiology, occupational therapy, orthotics, prosthetics, physiotherapy, speech pathology, social work, podiatry, plaster clinic, hand clinic, and burns & lymphodema clinics) at Cairns Base Hospital.
- Development of Adult Day Therapy and Paediatric Day Therapy services in community health settings.
- Core allied health service at each of the rural hospital sites consistent with their current and proposed role under the CSCF. This includes provision of essential allied health services for the hospitals which will increase their surgical capacity and intake of subacute rehabilitation patients.
- Development of an outreach or travelling allied health team from Cairns Base Hospital to rural hospital and community health centre sites for more specialised allied health services. This team approach would be consistent with the model developed for the orthopaedic physiotherapy screening clinic and is applicable to specialised paediatric, oncology and neurological services.
- Establishment of physical collocation with specific inpatient units to ensure intensive, multidisciplinary treatment that enhances efficiencies and best practice – paediatrics, orthopaedics and rehabilitation.

Primary and community health

Recent key drivers for change in health care include the growing and ageing population, increasing demand for services, changing patterns of illness and disease, new ways of delivering care dependent on technology, shortages in workforce and increased emphasis on quality and safety. These trends have resulted in new models of service delivery. Nationally and internationally, there is a shift in the concept of health services delivery away from the traditional hospital model with outpatient clinics delivering ambulatory care, to the development of health service models where stand alone centres principally deliver up to 23 hour care in an ambulatory setting.

Community health necessarily requires models that are consistent with the changes in populations, requirements for chronic disease management, pre and post acute care and potential hospital avoidance strategies.

Teaching and research

An essential aspect of the Cairns Base Hospital for the wider District is the capacity to facilitate teaching and research. The Hospital is an identified teaching facility and this will assist in the delivery of high quality and safe services, performance monitoring, evidenced based practice and continuous quality improvement. Strategic directions identified for Medical Education Units include:

- clinical education and training is a core function of Queensland Health and is the foundation of a quality health system and clinical professional culture;
- quality teaching is linked with improved patient safety and is a central responsibility of all clinician's;
- clinical service delivery staff are to receive educational preparations to enable them to effectively and assess within clinical environments.

The Medical Education Unit has developed a comprehensive strategic plan to guide teaching services and collaborations with relevant teaching bodies. A requirement for the effective delivery is the provision of dedicated teaching facilities on site. This needs to be included in the master planning for the hospital to ensure adequate services can be provided.

Enabling strategies for a sustainable service

Enabling strategies

Participants in the planning process considered the importance of a series of enabling strategies required to support services sustainability, including:

- workforce;
- information Technology;
- clinical Governance;
- quality Improvement;
- management;
- transport.

Solutions identified included:

- partnerships, including collocation of services providers;
- collaborative interagency model for health education;
- clinical Networks which will address improving quality of care, safety of patients, more equitable access and patient outcomes, workforce issues and a more efficient health system;
- interagency capital solutions;
- introduction of workforce initiatives eg. Allied Health Assistants;
- integrated management structures relating to community service needs;
- strategies recognising the role for Indigenous health workers;
- system-wide approaches, including recognition of the need for services at Townsville to support the sustainability of services within the Cairns and Hinterland Health Service District;
- non emergency related transport;
- cross agency education and training capacity.

Workforce

The former Northern Area Health Service Workforce Plan 2008-2012 established strategic directions for the development of a sustainable workforce delivering quality, safe, and sustainable health services to meet patients' and consumers' needs. The Workforce Plan identified workforce shortages across all of the health professions, and that innovative solutions are required for recruitment and retention, development of new roles, redesign of existing roles and continual re-skilling of our workforce.

The Plan highlighted the need to address five focus areas of pre-recruitment, recruitment, retention, support and development and systems. Objectives for each of these focus areas are to:

- increase capacity to market Queensland Health (QH) as an employer of choice and offer improved career pathways into QH;
- improve the recruitment of health care professionals to meet the health service needs;
- develop and implement strategies and approaches to retain, recognise and reward our workforce for their contribution in delivering health services;

- ensure the provision of education, training and support is aligned with projected workforce requirements and health service needs;
- promote and improve workforce support systems and staff capability to manage a quality, safe workforce.

This Plan has major implications for the workforce needs over the next decade. The objective of resourcing and developing Cairns Base Hospital as the referral hospital for the District and the broader secondary catchment will require increasing workforce levels, an enhanced skill level for the workforce and an increasing level of specialisation, while retaining the generalist model for the clinical support required to sustain services in rural areas.

The District needs to develop District-wide workforce strategies which support a sustainable workforce at the service hub and allow for the spoke services to be supported and developed consistent with demand growth.

There also needs to be planning for adequate resources in terms of time, training, and staff capacity for the supervision of clinical students from James Cook University.

Infrastructure and Assets

Appropriate good quality, functional and well maintained infrastructure is essential to support the service delivery of the proposed health care models into the future. The status of the current asset infrastructure will be explored within the Master Plan for the Cairns Base Hospital.

The strategic objectives for infrastructure and assets as articulated in the Queensland State-wide Health Services Plan 2007-2012 will be incorporated into the development of the Master Plan for the District.

Service partnerships

The development of services consistent with this Services Plan will require the strengthening of existing relationships with service partners including primary care services (GP practices), the private sector, non government organisations and other government agencies. The proposed service strategies identify the specific service partnerships that will need to be developed.

The relationship between the District and the private hospital and other private providers includes the following arrangements and opportunities:

- contracting of services to the private hospital for additional surgical cases to reduce the waiting list – this could be an additional strategy to the strengthening of surgical services at Innisfail and Mareeba Hospitals;
- arrangements for the management of Intensive Care services between the public and private hospitals;
- arrangements for public and private imaging services.

Abbreviations

ALOS	Average length of stay
ASA	Australian Society of Anaesthetists
ATODS	Alcohol Tobacco and Other Drug Substances
CCU	Coronary Care Unit
CDU	Child Development Unit
COPD	Chronic Obstructive Pulmonary Disease
CSCF	Clinical Services Capability Framework; Public and licensed private health facilities Version 2.0, July 2005 (CSCF)
CDS	Cairns Day Surgery
CT scan	Computed Tomography Scan
DRG	Diagnostic Related Group
ENT	Ear Nose and Throat
ESRG	Enhanced Service Related Groups
ESSU	Emergency Short Stay Unit
FROGS	Far North Regional Obstetrics and Gynaecology Service
ICU	Intensive Care Unit
MAPU	Medical Assessment & Planning Unit
MBS	Medical Benefits Scheme
MRI	Magnetic Resonance Imaging
NGO	Non-Government Organisation
NICU	Neonatal Intensive Care Unit
OIMS	Oncology Information Management System
OOS	Outpatients Occasions of Service
PHC	Primary Health Care
PHCC	Primary Health Care Centre
PIFU	Planning Information and Forecasting Unit
SRG	Service Related Groups

Glossary

Acute services	Services for which a person is admitted to hospital and where the intent of the admission is to: manage labour; relieve or reduce symptoms of illness; perform surgery; protect against exacerbation or complication of injury which could threaten life or optimal function; perform diagnostic or therapeutic procedures.
Beddays	The number of days that an inpatient spends in hospital. Beddays comprise both same day episodes and overnight or multi-day stays and may be aggregated for a particular service in hospital to indicate levels of activity.
Admission	An admission to hospital that is the start of an inpatient episode of care.
Day only service	An episode of care in hospital for which the admission and discharge occur on the same day.
Discharge	Discharge from a hospital episode of care indicating the conclusion of that episode, also called a separation.
Elective admission	A planned admission to hospital.
Emergency admission	An unplanned admission to hospital.
Episode of care	Phases of inpatient care whilst in hospital, for example acute care and rehabilitation.
Average length of stay	An average of the Beddays spent in hospital, often for a particular type of care or a particular service within the hospital.
Separations	The conclusion of an inpatient stay in hospital that may have comprised several episodes of care. Separations are often aggregated to summarise levels of activity in hospitals.
Sub acute services	Hospital services that are non-acute including: rehabilitation; palliative care; geriatric evaluation and management and maintenance care.
Base Hospital	A regional hospital that supports the surrounding hospitals and health services.
Referral Hospital	A hospital that provides a range of tertiary and secondary services and provides general, specialist and sub-specialist services to smaller hospitals and primary health services in the region.