policy, planning & asset services

**Part B (4)**

# Service Profile for Emerald Hospital

## Infrastructure Renewal Planning Project for Rural and Remote Areas

**July 2010**

# Contents

# 1 Executive summary

The Infrastructure Renewal Planning Project for Rural and Remote Areas has been identified by the Deputy Premier as a priority project aimed at providing a comprehensive and prioritised health infrastructure program for rural Queensland. The need to address health inequities and access to hospitals in remote areas has also been identified by the Commonwealth Government's National Health and Hospital Network Agreement 2010.

This Service Profile for Emerald Hospital is one of 12 profiles developed for each of the Queensland prioritised rural sites. The profile identifies that the current level (draft CSCF v3.0 Level 3) and mix of clinical services provided at each site with a focus on the core services of surgical and procedural, maternity, Emergency Department and general medical.

Table 1 details the current and projected bed requirements for Emerald Hospital. To improve the efficiency of current service delivery, infrastructure upgrades are required for the Emergency Department and maternity services area. In addition, an Outpatients Department is needed so that these services can be relocated from the Emergency Department.

Emerald Hospital Emergency Department requires additional space, particularly for consultation rooms, and would benefit from being better integrated with associated ambulatory care services. The layout of the maternity services area needs closer integration between maternity beds and delivery suites. Specific maternity consultation rooms and a child-friendly waiting area are also required. Infrastructure improvement to these two services would enable growing levels of emergency activity to be safely accommodated and provide an enhanced environment for women to access maternity care close to where they live.

Rural hospitals rely on visiting clinicians to provide a range of specialist services. Dysfunctional layouts and insufficient treatment spaces make it difficult to attract specialists to the hospital to provide these services. Without the services provided by visiting specialists rural communities will continue to experience health inequities.

Rural hospitals typically have difficulty recruiting staff, and the age and condition of accommodation provided is a major barrier to attracting and retaining a skilled workforce. If staff cannot be recruited and retained, patient access to safe and sustainable services will be compromised.

*Table 1: Summary of current and future bed requirements for Emerald Hospital*

| Bed and treatment spaces | Current number | Number required by 2021/22 |
|---|---|---|
| Overnight beds | 36 | 24 |
| Same day beds | 0 | 7 |
| Bed alternatives | 5 | 10 minimum |
| Emergency Department treatment spaces | 9 | 24 |
| Multipurpose consultation rooms (for outpatients) | 0 | 8 + 3 maternity consultation rooms |

# 2 Service Profile for Emerald Hospital

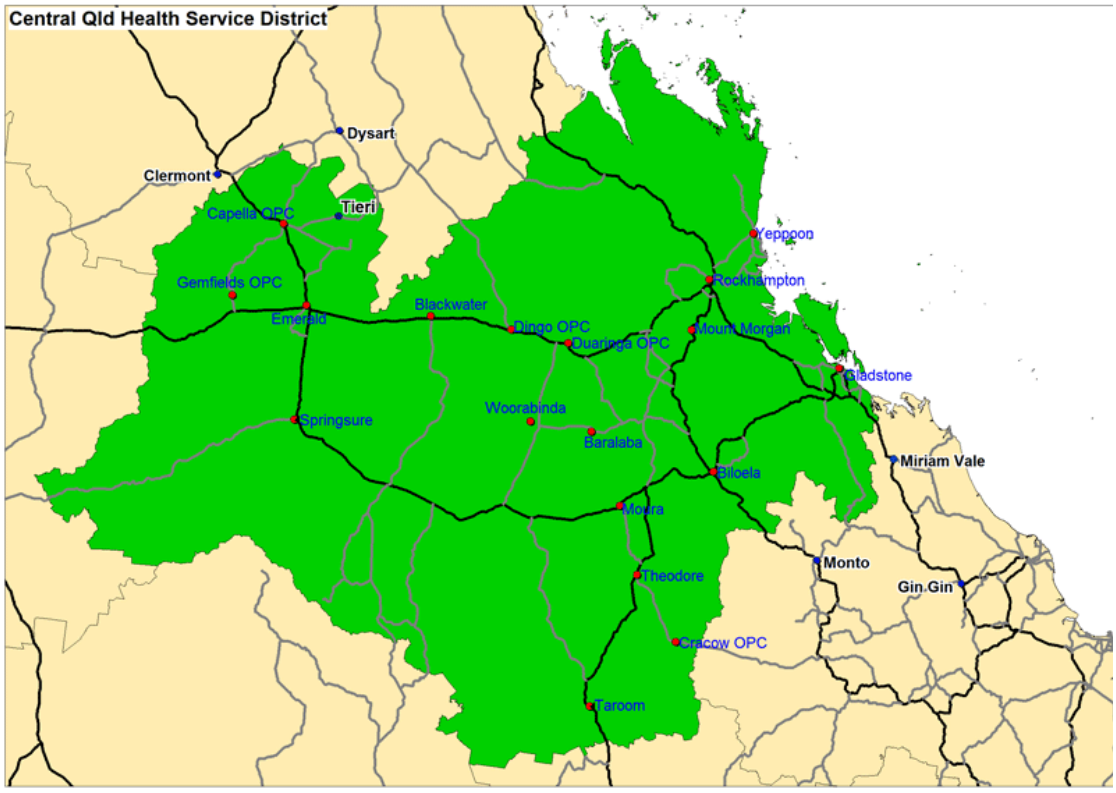
## 2.1 Geographic profile

Emerald Hospital is located in the Central Queensland Health Service District (the District) which extends from the Central Queensland Coast in the west to the Central West Health Service District between Emerald and Alpha. Emerald is the main town in the Central Highlands area and is located 270 kilometres west of Rockhampton.

The Central Highland area includes the Statistical Local Areas (SLAs) of Bauhinia, Duaringa, Emerald and Peak Downs. The area is rural with a number of smaller towns within the District, including Blackwater and Springsure.

The catchment for the District incorporates four distinct areas: Rockhampton, Gladstone, Banana (Biloela) and Central Highlands (Emerald). There are also some flows from the Central West Health Service District for higher level services (Figure 1)

*Figure 1: Map of Central West Health Service District*




Source: http://www.health.qld.gov.au/maps/mapto/centralQld.asp

There are four hub hospitals that provide services for local areas of the District and some support smaller facilities within their area. These are Rockhampton Base Hospital (the main referral hospital for the District and to some extent the Central West Health Service District), Gladstone, Emerald and Biloela Hospitals.

The hub hospitals and smaller hospitals/Outpatient Clinics included in the catchment are as follows:

- Rockhampton Base Hospital and Yeppoon, Mount Morgan, Woorabinda, and Duaringa Outpatient Clinics
- Gladstone Hospital
- Emerald Hospital and Blackwater, Springsure, Capella, Gemfields and Tieri Outpatient Clinics, community and primary health service
- Biloela Hospital and Baralaba, Moura, Theodore, Taroom and Cracow Outpatient Clinics.

According to the Australian Statistical and Geographical Categories, Emerald is classified as 'outer regional' with a remote area score of RA3. The rest of the South West Health Service District is categorised as 'remote' or 'very remote' with categories of RA4 and RA5.[1]

## 2.2 Demographic profile

### 2.2.1 Catchment population

In 2006, approximately 56 per cent of the District population resided in the Rockhampton Base Hospital primary catchment area, 24 per cent in Gladstone, 12 per cent in Emerald and eight per cent in Biloela.

Current and projected resident population by SLA is shown in Table 2. Based on the 2001 census projections for SLAs the populations of Gladstone and Emerald are expected to increase most sharply over the next 20 years (62 and 55 per cent respectively, 2006–2026), with a 35 per cent increase for the Rockhampton Base Hospital catchment population and only eight per cent for the Biloela Hospital catchment. It should be noted that due to the economic down-turn and impact in the mining industry, growth may not be as significant as projected. Resident population by SLA is detailed in Table 2.

*Table 2: Estimated Population in Central Queensland District by SLAs (2006) and Percentage Projected Change 2006–2026*

| SLA | 2006^ | % Change 2006–2016^^ | % Change 2006–2026^^ |
|---|---|---|---|
| Banana | 14,224 | 2 | 5 |
| Bauhinia | 2,324 | 9 | 18 |
| Calliope | 17,538 | 34 | 73 |
| Duaringa | 7,187 | 20 | 38 |
| Emerald | 15,364 | 34 | 68 |
| Fitzroy* | 11,213 | 34 | 60 |
| Gladstone | 31,028 | 29 | 55 |
| Livingstone | 30,637 | 30 | 61 |
| Mount Morgan | 3,170 | 10 | 15 |
| Peak Downs | 3,401 | 18 | 37 |
| Rockhampton | 62,610 | 11 | 18 |
| Taroom – CQ Part | 1,399 | N/A | N/A |
| Woorabinda | 928 | N/A | N/A |
| **Total** | **201,023** | **21** | **41** |

Source: Medium Series Population Projections, based on 2006 Census, Dept of Infrastructure & Planning (PIFU)
^ PIFU 2006 Edition, Area Grouping Created by Queensland Health
^^ PIFU, 2008 Edition, LGA boundaries.
* Excludes Balance of Fitzroy SD (c) – 918 people (2006).

However, its secondary catchment area covers the whole of the District and includes some flows from the Central West Health Service District. The proportion of District activity provided by hub sites is listed in Table 3. These proportions are a better indication of demand for services by site and for assessing distribution of resources.

*Table 3: Proportion of inpatient activity provided in the District by hub hospitals 2006/07*

| Hub Hospital | % Inpatient Separations |
|---|---|
| Rockhampton and Yeppoon | 60 |
| Gladstone | 19 |
| Emerald | 8 |
| Biloela | 3 |
| Other Central Queensland Health Service District Hospitals | 10 |
| **Total** | **100** |

Source: Hardes Associates, May 2008
Note: Excludes Chemotherapy and Renal Dialysis

In 2006, five per cent of the District population identified as Aboriginal and Torres Strait Islander. It is a very young population, with 86 per cent of Aboriginal and Torres Strait Islander people being under 44 years and 40 per cent under 14 years. Only 2.5 per cent were over 65 years (Table 4).

*Table 4: Estimated Aboriginal and Torres Strait Islander population in the District 2006 Census*

| Age Group in Years | 2006 | % Aboriginal and Torres Strait Islander Population |
|---|---|---|
| 0–14 | 4153 | 40.1 |
| 15–44 | 4718 | 45.6 |
| 45–64 | 1218 | 11.8 |
| 65+ | 261 | 2.5 |
| **Total** | **10,350** | **100** |

Source: Office of Economic and Statistical Research (March 2008)
Note: Aboriginal and Torres Strait Islander splits have been synthetically estimated and should be used with caution.

Nearly 40 per cent of Aboriginal and Torres Strait Islander people live in the immediate Rockhampton area, with 20 per cent living in the surrounding areas of Fitzroy, Livingstone and Mount Morgan. The second highest population is in the Gladstone area (16%).

Woorabinda has nearly nine per cent of the total Aboriginal and Torres Strait Islander population, Banana has five per cent and Emerald less than five per cent (4.9%). However, the District advises that local Aboriginal and Torres Strait Islander agencies state that these numbers are an underestimation of the actual population.

The majority of residents in the District were born in Australia, with residents born in other countries mostly originating from New Zealand or United Kingdom. Approximately ninety-seven per cent of residents speak English at home, reflecting the predominantly Australian and English-speaking population.

### 2.2.2 Services in the secondary catchment

In 2006, the District was self-sufficient in only a few of the special Enhanced Service Related Groups services (ESRGs), including only some same day services (Attachment B). Outflow primarily goes to Metro North Health Service District and some to Metro South Health Service District.

The District was self-sufficient in most of the non-special ESRG services, with the highest ESRG outflows in volume for same day other non-subspecialty medicine and combined overnight and same day qualified neonates. Most of the inflow into the District was for adults, with very little for children. Adult inflow came from all of the surrounding Health Service Districts for a variety of reasons.

While the District was self-sufficient in most of the non-special ESRG services in 2006, there was significant outflow for medical oncology (79 separations) and vascular surgery procedures (77 separations). These outflows are likely to be due to specific diagnosis/procedures. Most of the outflows were to Metro North and Metro South Health Service Districts, though there was a significant flow to Townsville Health Service District for some same day services.

For children, there were significant outflows for qualified neonates (115 separations for both overnight and same day, even though the District was 79% self-sufficient in overnight separations) and paediatric neurology outflows (other neurology and seizures totalling 48 separations). Most of the child outflows were to Metro North Health Service District, with some to Metro South Health Service District.

## 2.3 Emerald Hospital

Emerald Hospital is a 36 bed facility that provides a range of general medical, low risk surgical procedures and birthing services. Medical services are provided by eight resident Senior Medical Officers/Public Health Officers. Three of these officers provide obstetric services (two public, one private) with two or three officers providing anaesthetic services, depending on need.

Ambulatory services at the Hospital include:

- oncology treatment (currently no chemotherapy)
- outpatient and private practice clinics
- oral health
- a range of other allied health and community health services.

Pathology and x-ray services are provided on site, with a private computerised tomography (CT) scan service located in town. Pharmacy services are provided by a full time pharmacist and nurses are located on site.

The basis for identifying gaps in service capability against the core service profile is to secure and consolidate services provided at Emerald Hospital, identified as the primary hub service in the District. This may involve the enhancement of existing service roles and staffing levels to support its role in the District.

The current level of service capability at Emerald Hospital is outlined below. Services provided should align with the draft CSCF v3.0 Level 3 service or lower. Gaps are identified against this level of service in Table 5.

Providing the minimum suite of core services aims to ensure the provision of surgical and procedural, maternity, Emergency Department and general medical services at Emerald Hospital.

*Table 5: Draft CSCF v3.0 service gap analysis*

| Core services | Draft CSCF v3.0 Level | Current services | Current CSCF level | Gaps |
|---|---|---|---|---|
| Emergency Services | 3 | Emergency Services | 3 | No gaps identified by the District |
| Medical Services | 3 | Medical Services | 3 | |
| Surgical Services | 3 | Surgical Services | 3 | |
| Peri-operative Services | 3 | Peri-operative Services | 3 | |
| Anaesthetics Services | 3 | Anaesthetics Services | 3 | |
| Maternity Services | 3 | Maternity Services | 3 | |
| Neonatal Services | 3 | Neonatal Services | 3 | |
| Mental health Services | 2 | Mental health Services | 2 | |
| Rehabilitation Services | 3 | Rehabilitation Services | 3 | |
| Palliative care Services | 2 | Palliative care Services | 2 | |
| Pathology Services | 3 | Pathology Services | 3 | |
| Medical imaging Services | 3 | Medical imaging Services | 3 | |
| Pharmacy Services | 3 | Pharmacy Services | 3 | |

Source: Queensland Health, February 2010

### 2.3.1 Hospital inpatient activity

#### Current activity

Patients at Emerald Hospital are residents of many health service districts across Queensland, with the vast majority of beddays (87.2%) from residents of the District.

*Table 6: All age activity at Emerald Hospital by district of residence 2008/09*

| District of Residence | Separations | % of Total Separations* | Beddays |
|---|---|---|---|
| Central Queensland | 2463 | 87.2 | 5544 |
| Mackay | 114 | 4.0 | 216 |
| Other States and Overseas | 75 | 2.6 | 151 |
| Central West | 67 | 2.4 | 192 |
| Sunshine Coast–Wide Bay | 37 | 1.3 | 49 |
| Darling Downs–West Moreton | 18 | 0.6 | 40 |
| Gold Coast | 11 | 0.4 | 22 |
| Metro North | 14 | 0.5 | 27 |
| Metro South | 7 | 0.2 | 13 |
| Townsville | 7 | 0.2 | 22 |
| South West | 5 | 0.2 | 11 |
| Cairns and Hinterland | 4 | 0.2 | 7 |
| Mt Isa | 1 | 0.1 | 2 |
| **Total** | **2823** | **100** | **6296** |

Source: Queensland Health Admitted Patient Data Collection, April 2010
*Rounded to nearest 0.1 per cent

The acute ward at Emerald Hospital is a 36 bed unit that provides care for acute/medical conditions, paediatrics, maternity, some limited high acuity care, aged care, palliative and respite care, as well as rehabilitation of post-operative patients within the parameters of draft CSCF v3.0 Level 3 services. Higher level services can be accessed in Rockhampton and Brisbane Hospitals.

Table 7 and Table 8 summarise the trend in activity and beddays at Emerald Hospital 2004/5 to 2008/09. There has been an increase in both total separations (23%) and beddays (12%) during this time.

*Table 7: Five year trend for separations for combined medical surgical and procedural all age activity at Emerald Hospital 2004/05–2008/09*

| | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | % Change Over 5 Years |
|---|---|---|---|---|---|---|
| Emerald Hospital | 2294 | 2209 | 2265 | 2559 | 2823 | 23 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010
Note: Includes Chemotherapy, Renal Dialysis and unqualified neonates

*Table 8: Five year trend in bed utilisation (beddays) at Emerald Hospital 2004/05–2008/09*

| | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | % Change Over 5 Years |
|---|---|---|---|---|---|---|
| Emerald Hospital | 5611 | 5237 | 5692 | 5682 | 6296 | 12 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010
Note: Includes Chemotherapy, Renal Dialysis and unqualified neonates

For 2008/09, same day activity endoscopies, non-subspecialty surgery and cardiology made up the majority of separations for adults (excluding 0–14 year olds). Obstetrics, non-subspecialty surgery and cardiology made up the majority of overnight separations for adults.

*Table 9: Current top 10 adult Service Related Groups (SRGs) at Emerald Hospital for 2008/09*

| SRG Same Day | Same Day Seps | SRG Overnight | Overnight Seps | Overnight Beddays |
|---|---|---|---|---|
| Diagnostic GI Endoscopy | 112 | Obstetrics | 395 | 1065 |
| Non-subspecialty Surgery | 69 | Non-subspecialty Surgery | 172 | 386 |
| Cardiology | 62 | Cardiology | 147 | 240 |
| Gynaecology | 52 | Respiratory Medicine | 139 | 695 |
| Urology | 52 | Non-subspecialty Medicine | 132 | 425 |
| Orthopaedics | 49 | Orthopaedics | 96 | 323 |
| Non-subspecialty Medicine | 48 | Neurology | 72 | 162 |
| Non-acute | 44 | Gastroenterology | 63 | 108 |
| Plastic and Reconstructive Surgery | 42 | Psychiatry - Acute | 51 | 122 |
| Obstetrics | 37 | Immunology and Infections | 50 | 159 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010

For paediatrics (0–14 year olds), non-subspecialty surgery, dentistry and non-subspecialty medicine made up the majority of same day separations. Non-subspecialty medicine, respiratory medicine and non-subspecialty surgery made up the majority of overnight separations for paediatrics.

*Table 10: Current top 10 paediatrics Service Related Groups (SRGs) at Emerald Hospital for 2008/09*

| SRG Same Day | Same Day Separations | SRG Overnight | Overnight Separations | Overnight Beddays |
|---|---|---|---|---|
| Non-subspecialty Surgery | 21 | Non-subspecialty Medicine | 72 | 117 |
| Dentistry | 18 | Respiratory Medicine | 52 | 104 |
| Non-subspecialty Medicine | 18 | Non-subspecialty Surgery | 29 | 42 |
| Respiratory Medicine | 11 | Qualified Neonate | 25 | 63 |
| Orthopaedics | 9 | Orthopaedics | 16 | 20 |
| Drug and Alcohol | 4 | Immunology and Infections | 13 | 25 |
| Neurology | 4 | Gastroenterology | 8 | 10 |
| Ophthalmology | 4 | Drug and Alcohol | 7 | 8 |
| Dermatology | 3 | Neurology | 4 | 4 |
| Immunology and Infections | 3 | Ophthalmology | 4 | 4 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010

### 2.3.2 Projected activity

In rural hospitals providing a draft CSCF v3.0 Level 3 service, beds are not designated into specific bed type categories, as there are no specialist clinical units. This provides flexibility at the local District/facility level to use beds as needed, dependent on local activity. The profile of projected activity in rural hospitals is not expected to change, however, with improved infrastructure, including modernised layouts or refurbishment of buildings, current services would be enhanced. Maternity, emergency services, surgical and outpatient services could continue to grow and provide more efficient provision of services.

The bed types and treatment spaces set out in Table 22 and Table 23 reflect the categories from the *More Beds for Hospitals Strategy.*[2] It should be noted that many of the categories outlined in the *More Beds for Hospitals Strategy*[2] are not applicable for rural hospitals. The projections have been calculated using aIM data and data templates developed by the Planning and Coordination Branch Statewide (Data) Team. The benchmarks and methodology used for calculating the projected bed categories are described in the Methodology Section of the Statewide Implications for Rural Service Provision.

Emerald Hospital currently has 36 overnight beds, which are sufficient to meet activity requirements until 2021/22. Projections indicate that by 2021/22, 23 overnight beds will be required (applying an 85% occupancy rate) and 28 overnight beds (applying a 70% occupancy rate).

Based on the current volume of scheduled day surgery, the number of Stage 2 recovery chairs needs to increase to 10 chairs by 2011 in order to meet scheduled day surgery activity. No further increase will be required to 2021/22. If additional visiting specialists are persuaded to visit, additional chairs may be required to meet scheduled day activity. The number of these chairs should not be double counted with same day surgical bed numbers as these usually serve the same purpose in rural hospitals. Currently there are no same day beds, but it is projected that seven will be required by 2021/22.

The number of Emergency Department treatment spaces will need to increase from nine to 24 by 2021/22. These treatment spaces will need to include a mix of acute treatment trolley spaces (including a resuscitation cubicle), consultation rooms and specific treatment rooms (e.g. plaster, procedure and isolation rooms). In addition, eight consultation rooms will be required for outpatient activity.

Using the Victorian Normative Benchmarks, Emerald Hospital currently has a major and minor theatre with sufficient Stage 1 recovery bays.

Emerald Hospital has six maternity beds/rooms to meet current demand. These beds, together with the two delivery suites and a bath room, are sufficient to meet projected demand to 2021/22. However, additional consultation rooms, a multipurpose/staff/education room and a child-friendly waiting area are required.

Table 11 details total projected births for the District and Emerald Hospital to 2021/22. It is estimated that Central Queensland will account for 5.3 to 5.5 per cent of total births (4387) in Queensland during the period 2005/06 to 2021/22. Using aIM data (Medium Series projections), the number of births at Emerald Hospital is expected to increase by 35 per cent by 2021/22 (366 births).

The primary catchment area for Emerald Hospital is made up of Bauhinia, Duaringa, Emerald and Peak Downs Statistical Local Areas (SLAs). Birth projections for the four SLAs combined are expected to be 784 births in 2021/22. This is double the number of births expected to take place at Emerald Hospital in the same year. Based on this, it is likely that the projected births at Emerald Hospital will be much higher than the 366 predicted for 2021/22, using the Medium Series projections.

Using the High Series birth projections, there is expected to be a 58 per cent increase in births at Emerald between 2006/07 and 2021/22, with the majority of growth for this period occurring between the years 2006/07 and 2011/12.

*Table 11: Current and projected births for the District and Emerald Hospital 2007/08–2021/22*

| | 2007/08 | 2011/12 | 2016/17 | 2021/22 | % Change 2007/08–2021/22 |
|---|---|---|---|---|---|
| Total births for Central Queensland Health service District as a district of residence | 2127 | 3650 | 4080 | 4387 | 106 |
| Emerald Hospital* | 271 | 306 | 337 | 366 | 35 |
| Emerald (including SLAs Bauhinia, Duaringa, Emerald, Peak Downs)^ | 497 (2006/07) | 629 | 690 | 784 | 58 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010
*using aIM data–Medium Series projections
^Projections developed by Office of Economic and Statistical Research (OESR) using Perinatal Data Collection and SLA using High Series birth projections

## 2.4 Core services

Outlined below is a description of the core services provided at Emerald Hospital, including surgical and procedural, maternity, Emergency Department and general medical.

### Surgical and procedural

Emerald Hospital provides surgical and procedural services at a draft CSCF v3.0 Level 3. Emerald Hospital provides around 450 procedures per year, with 70–80 per cent being provided by visiting specialists. Visiting specialties include:

- general surgery
- obstetrics and gynaecology
- dental
- gastroenterology (private service only).

Emerald Hospital's Operating Theatres are accessible 24 hours a day, seven days a week. The Operating Theatres are upstairs in the older part of the Hospital and there is insufficient space for a day surgery suite including Stage 2 recovery chairs. There are five Stage 2 recovery chairs located in the ward.

Multiple visiting specialists often arrive at the same time. Rural hospitals must have adequate bed numbers to accommodate scheduling and the case numbers on the theatre lists on these days. As most surgery is done on a weekly and/or monthly basis by visiting specialists this can place pressure on the availability of beds and bed alternatives. There are currently only five Stage 2 recovery chairs available at Emerald Hospital, this may be insufficient if surgical activity was to increase.

The level of surgical activity has decreased since 2006, as several visiting specialists have either retired or ceased to visit Emerald Hospital. Orthopaedics ceased in 2006 and paediatric general surgery in 2007. There is now only one private visiting surgical specialist (gastroenterology) who visits every few months. The Flying Surgeon visits once a week, with additional surgery being done on other days by general practitioners. The Flying Obstetrician and Gynaecologist also visits fortnightly and the Obstetrics SRG is the highest surgical SRG at Emerald Hospital. Gynaecology has the highest number of same day activity.

*Table 12: Top 10 all age surgical Service Related Groups same day and overnight for Emerald Hospital 2008/09*

| SRG | Same Day Separations | Overnight Separations | Overnight Beddays |
|---|---|---|---|
| Obstetrics | - | 63 | 262 |
| Gynaecology | 35 | 12 | 31 |
| Non-subspecialty Surgery | 4 | 11 | 22 |
| Plastic and Reconstructive Surgery | 44 | 8 | 15 |
| Colorectal Surgery | 4 | 6 | 16 |
| Upper GIT Surgery | - | 6 | 11 |
| Orthopaedics | 1 | 4 | 6 |
| Urology | 43 | 4 | 4 |
| Breast Surgery | 2 | 3 | 6 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010

## Maternity

As a primary rural hub for maternity services in the District, Emerald Hospital provides a booking-in clinic, antenatal clinic and classes, birthing and postnatal care. The Hospital provides low risk maternity services with planned deliveries of ≥37 completed weeks gestation. There is some ability to manage unplanned deliveries of 35–37 weeks gestation, elective and emergency vaginal and assisted deliveries, and selected low risk elective caesarean sections. Midwives, general practitioners and the Flying Obstetrician Gynaecologist all provide maternity services at Emerald Hospital.

In the District, 98 per cent of births occur at Rockhampton, Gladstone, Emerald or Biloela, with 80 per cent being at Rockhampton or Gladstone Hospitals. The Maternity Unit at Rockhampton Base Hospital is the main regional hub for obstetrics in the District, supporting lower level services at Gladstone, Emerald and Biloela (maternity services are provided at Rockhampton Base Hospital for low, medium and high risk pregnancies, and deliveries for 32 weeks gestation or later).

In conjunction with maternity services at Emerald Hospital, draft CSCF v3.0 Level 3 neonatal services are required to provide routine care for unqualified babies and qualified neonates. Qualified neonates include those who require resuscitation and management while awaiting transfer out, and back transferred babies. Additionally, neonates who require low risk care may be managed in this level of facility, either after being born there, or as a back transfer from a higher level service (Attachment A); Emerald Hospital has limited nursery space to provide this service.

Table 13 outlines maternity separations at Emerald Hospital over the past five years.

*Table 13: Maternity separations at Emerald Hospital 2004/05–2008/09*

| | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | % Change Over 5 Years |
|---|---|---|---|---|---|---|
| Vaginal | 211 | 206 | 171 | 224 | 242 | 15 |
| Caesarean | 43 | 48 | 60 | 47 | 63 | 47 |
| **Total** | 254 | 254 | 231 | 271 | 305 | 20 fluctuation |

Source: Queensland Hospital Admitted Patient Data Collection (April 2010)

## Paediatrics

Monthly outreach clinics are conducted at Emerald Hospital, supplemented by a telehealth consultancy advice.

As shown in Table 14 and Table 15, non-subspecialty medicine and non-subspecialty surgery are in the highest three SRGs for paediatrics for both same day and overnight separations. For paediatric same day activity, respiratory medicine is the second highest SRG.

*Table 14: Five year trend for paediatric activity by same day separations*

| Top 10 Same Day Separations | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 |
|---|---|---|---|---|---|
| Non-subspecialty Medicine | 53 | 48 | 62 | 73 | 72 |
| Respiratory Medicine | 12 | 15 | 24 | 41 | 52 |
| Non-subspecialty Surgery | 12 | 13 | 4 | 31 | 29 |
| Qualified Neonate | 14 | 23 | 37 | 22 | 25 |
| Orthopaedics | 9 | 4 | 9 | 11 | 16 |
| Immunology and Infections | 3 | 2 | 8 | 14 | 13 |
| Gastroenterology | 5 | 1 | 6 | 8 | 8 |
| Drug and Alcohol | 2 | 3 | 4 | 1 | 7 |
| Neurology | 2 | 4 | 9 | 3 | 4 |
| Ophthalmology | 1 | | | 1 | 4 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010

*Table 15: Five year trend for paediatric activity by overnight separations*

| Top 10 Overnight Separations | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 |
|---|---|---|---|---|---|
| Non-subspecialty Surgery | 18 | 14 | 17 | 11 | 21 |
| Non-subspecialty Medicine | 22 | 11 | 10 | 24 | 18 |
| Dentistry | 4 | 12 | 7 | 8 | 18 |
| Respiratory Medicine | 5 | 5 | 8 | 8 | 11 |
| Orthopaedics | 15 | 11 | 7 | 8 | 9 |
| Drug and Alcohol | - | - | 3 | 2 | 4 |
| Neurology | 1 | 1 | - | 1 | 4 |
| Ophthalmology | - | - | 1 | - | 4 |
| Dermatology | - | - | 2 | - | 3 |
| Immunology and Infections | 2 | 1 | 1 | 1 | 3 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010

### General medical

Medical services at Emerald Hospital are routinely provided by nursing, medical and allied health staff. In addition to the services provided by the eight resident Senior Medical Officers/Public Health Officers, there are visiting medical specialists who provide services on a regular basis, including a cardiologist, obstetrician and gynaecologist, gastroenterologist, psychiatrist, ear nose and throat specialist and paediatrician.

Between the years 2004/05 and 2008/09, utilisation of beds for non-acute activity decreased significantly for same day separations (-64%). Overnight separations remained relatively constant over the five year period. There was a peak in overnight beddays in 2006/07 (831 beddays).

*Table 16: Five year trend for non-acute activity at Emerald Hospital*

| Non-acute | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | % Change Over 5 Years |
|---|---|---|---|---|---|---|
| Same day separations | 122 | 94 | 61 | 32 | 44 | -64 |
| Overnight separations | 23 | 38 | 15 | 23 | 23 | 0 |
| Overnight beddays | 380 | 487 | 831 | 334 | 348 | -8 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010

### Emergency Department

Although the Emergency Department built in 2000 is relatively new and well situated in the Hospital, it does not have enough treatment spaces to manage the current number of presentations or the level of activity that is projected to occur up to 2021/22. There are insufficient consultation rooms to manage outpatient and emergency activity. Additional space is also required for storing medical records. The Emergency Department also needs to be better integrated with associated services such as the ambulance area.

The increase in the volume of Emergency Department activity at Emerald Hospital has occurred as the population has grown significantly due to expansion in the local mining industry. Overall, District emergency activity at Rockhampton, Gladstone, Emerald and Biloela Hospitals has increased by 11 per cent over the past five years. In the period 2004/05 to 2008/09, emergency activity at Emerald Hospital increased by 25 per cent (Table 17). The majority of this activity was for triage Category 4 and Category 5, and these patients were then discharged home. Activity for triage Category 1, 2 and 3 combined has remained relatively steady over the time at around 15 per cent.

*Table 17: Emergency Department presentations admitted/transferred at Emerald Hospital 2004/05–2008/09*

| Emerald Hospital | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | % Change Over 5 Years |
|---|---|---|---|---|---|---|
| Total number of presentations | 12,392 | 11,706 | 13,137 | 15,821 | 16,415 | 32.5 |
| Percentage of triage Category 1–3 | 15% | 13% | 13% | 16% | 15% | 0 |
| Percentage of triage Category 4–5 | 85% | 87% | 87% | 84% | 82% | 3 |
| Percentage of admitted transferred | 9% | 9% | 9% | 9% | 10% | 1 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010

Unlike inpatient activity, detailed projections are not available for Emergency Department activity. As a result, future emergency demand has been assessed using current activity data by facility, projected population growth and an application of historical trends in activity.

### Non-admitted occasions of services

Outpatient services at Emerald Hospital provide a range of visiting and routine non-admitted services. These services include general practice clinics (provided by hospital medical officers or visiting general practitioners), diabetes clinic, pacemaker clinic, minor operations clinic, fracture clinic, pre admission/anaesthetic clinic, dressing/wound management clinic and allied health clinics.

There is currently no Outpatient Department and the Emergency Department is used for this service. Emerald Hospital requires an Outpatient Department so that this activity does not disrupt Emergency Department services.

*Table 18: Specialist outpatient clinic attendances, Emerald Hospital 2004/05–2008/09*

| Specialty | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | % Change Over 5 Years |
|---|---|---|---|---|---|---|
| Cardiology | 236 | 152 | 211 | 27 | 37 | -84 |
| Diabetes | 89 | 141 | 411 | 321 | 179 | 10 |
| Ear, Nose and Throat | 12 | - | - | 37 | 29 | 141 |
| Gastroenterology | 108 | - | - | 36 | - | - |
| Paediatrics | - | 5 | - | 127 | 164 | 29 |
| General Surgery | 632 | 396 | 351 | 292 | 365 | -42 |
| Gynaecology | 472 | 440 | 598 | 218 | 158 | 207 |
| Internal Medicine | 148 | 91 | 130 | 152 | 150 | 1 |
| Maternity | 536 | 453 | 1684 | 2031 | 1648 | 67 |
| Orthopaedics | 249 | 284 | 272 | - | - | - |
| Paediatric Surgery | 166 | 46 | 19 | 32 | 45 | -73 |
| Pre-admission | 238 | 194 | 157 | 158 | 136 | 43 |
| Psychiatry | 222 | 328 | 276 | 293 | 198 | 11 |
| Wound Management | 1106 | 1268 | 1210 | 871 | 1071 | -3 |
| **Total** | **4214** | **3798** | **5319** | **4595** | **4180** | **1** |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010

As shown in Table 18, between 2004/05 and 2008/09, there has been a significant decrease in cardiology attendances (-84%), gynaecology (-67%) and general surgery (-42%) attendances. The District advises that the decrease in gynaecology clinic attendances is directly related to a reduction in Operating Theatre lists requested by the Flying Obstetrician and Gynaecologist. While paediatric surgery attendances decreased significantly in 2005/06, these then remained fairly constant to 2008/09.

Significant decreases in attendances are probably due to the recent retirement of several visiting specialists. Information from the District indicates that these vacancies have not been filled.

Activity for non-admitted maternity services at Emerald Hospital has increased significantly during the period 2006/07 to 2008/09 (67%). Without this growth the hospital would have shown a decline in outpatient activity.

### Visiting specialist services

Services provided by visiting/external specialists at Emerald Hospital are outlined below. Visiting specialists are required to share limited consultation space within the designated emergency areas.

### Visiting public specialist services at Emerald

- general surgeon (visits weekly, treating public and private patients)
- paediatrician (visits monthly)
- ear nose and throat (visits nine times per year).

**Private specialist visiting services**

Hillcrest Private Health Services operates a specialist outpatient centre in Emerald, providing specialist consultation services in: gynaecology, orthopaedic surgery, general surgery and some allied health. Other private specialist services (not funded by the Medical Specialist Outreach Assistance Program) provided in the Emerald area includes:

- audiologist (visits monthly)
- cardiologist (visits monthly)
- colorectal and general surgeon (visits monthly)
- ear nose and throat (visits monthly)
- ophthalmologist (visits monthly)
- orthopaedic surgeon (visits fortnightly).

An additional ear nose and throat specialist and endocrinologist will commence visits in 2010/2011.

**Flying specialist services**

- the Flying Surgeon visits three times per month, treating public and private patients
- the Flying Obstetrician and Gynaecologist visit fortnightly, treating public and private patients.

**Medical Specialist Outreach Assistance Program**

- dermatologist (visits once every two months)
- gynaecologist (visits monthly)
- gynaecologist (visits monthly)
- gastroenterologist (visit schedule unavailable)
- psychiatrist (visits monthly)
- paediatrician (visit schedule unavailable).

### 2.4.1 Current support services

**Pathology**

Pathology services are provided on site at Emerald Hospital and have experienced a significant increase in pathology occasions of service over the five year period 2003/04 to 2007/08 (127%). However, the District advises that the significant increase over the last five years may be due to incorrect data recording or unnecessary testing by junior relieving doctors. The District estimates that there is generally a 10 per cent average increase in pathology occasions of service per year. The District is currently implementing a retest protocol to address unnecessary tests.

District outpatient pathology services have experienced an overall increase of 127 per cent over the period 2003/04 to 2007/08.

*Table 19: Pathology Occasions of Service, Emerald Hospital, 2003/04–2007/08*

| | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08# | % Change Over 5 Years |
|---|---|---|---|---|---|---|
| Emerald Hospital | 6870 | 6996 | 7312 | 10021 | 15583 | 127 |

Source: Monthly Activity Collection, Queensland Health (Extracted Oct 14, 2008)
# Preliminary data, subject to change

### Medical imaging

Medical imaging services are provided on site at Emerald Hospital. There is also a private medical imaging service located in town, which includes a Computerised Tomography (CT) scanner.

For 2008/09, there were 3,636 occasions of service for medical imaging services, which is a significant increase (73%) compared to 2,106 occasions of service in 2004/05.

*Table 20: Medical imaging and pharmacy Occasions of Service Emerald Hospital 2003/04–2007/08*

| Services | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | % Change Over 5 Years |
|---|---|---|---|---|---|---|
| Medical Imaging | 2106 | 1797 | 2745 | 3109 | 3636 | 73 |
| Pharmacy | 1266 | 1069 | 1282 | 1223 | 1653 | 31 |

Source: Queensland Hospital Admitted Patient Data Collection, April 2010

### Pharmacy

Pharmacy services are provided by a full time pharmacist and nurses are located on site. Pharmacy occasions of service have increased by 31 per cent over the last five years.

### Dental/oral health services

There is a public dentist based at Emerald. Specialised services are provided from Rockhampton.

### Allied health services

At Emerald Hospital, allied health services are provided both as inpatient and ambulatory care services. The Central Queensland Rural Division of General Practice supports six full time employed staff under the More Allied Health Services programme to provide a range of allied health therapy services. Allied health services provided at Emerald Hospital include:

- dietetics
- diabetic education
- drug and alcohol
- healthy lifestyles
- mental health
- occupational therapy
- physiotherapy (position was vacant for part of 2008/09)
- podiatry
- psychology
- speech pathology
- social work.

There are also private allied health services located in town. Orthopaedic outreach services were provided from Rockhampton Base Hospital to Emerald, but these services have been curtailed due to resource constraints.

*Table 21: Allied health Occasions of Service at Emerald Hospital 2004/05–2008/09*

| Services | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | % Change Over 5 Years |
|---|---|---|---|---|---|---|
| Nutrition | 36 | 27 | 113 | 80 | 287 | 87 |
| Occupational Therapy | - | - | - | 437 | 537 | - |
| Other Allied Health | 2873 | 3343 | - | - | - | - |
| Physiotherapy | - | 5 | 870 | 501 | 380^ | - |
| Podiatry | 193 | 143 | - | 109 | 115 | -40 |
| Psychology | 37 | - | - | - | - | - |
| Social Work | 4 | - | - | 34* | 197* | - |
| Speech Pathology | 1478 | 1731 | 1074 | 396 | 324 | -78 |
| Wound management | 1106 | 1268 | 1210 | 871 | 1071 | -3 |
| **Total** | **5727** | **6517** | **3267** | **2394** | **2714** | **-53** |
| **Total excluding Speech Pathology** | **4249** | **4786** | **2193** | **1998** | **2390** | **-44** |

Source: Queensland Health Admitted Patient Data Collection, April 2010
^Physiotherapy position was vacant for part of 2008/09
*Provided from the Central Queensland Health Service District

Emerald Hospital has experienced a significant decrease in allied health occasions of service in the last five years (-53%). However, the District advises that the considerable decrease in speech pathology occasions of service is directly related to errors in data recording from 2004/05 to 2006/07, where every 15 minute appointment was incorrectly recorded as an occasion of service.

By omitting the speech pathology occasions of service from the total, there is still a significant decrease in allied health services between 2004/05 and 2008/09 (-43%). This overall decrease in allied health services could be due to workforce shortages, or people accessing allied health services privately, or at larger centres such as Rockhampton.

## 2.5 Primary health care and community health services

One of the major challenges of health services in the catchment is to effectively implement evidence-based interventions aimed at addressing preventable disease. The growth in the population, the travel required to access health services and the need to provide services to sparsely populated regions has created a need to reconsider current models of care and look for alternative service delivery models.

Implementation of alternative models of care such as Hospital in the Home, Hospital in the Nursing Home, integrated models of care across primary health care and acute services and nurse practitioner led clinics may achieve some efficiency in service delivery.

A key strategy in achieving these efficiencies will be expanding community-based resources for targeting, identifying and managing key chronic diseases and common conditions of ageing in collaboration with other local agencies.

Future community-based service requirements have been broadly considered in the context of the catchment and opportunities for enhancing community-based services. Detailed consideration of future community health services and capacity requirements will occur if the preliminary evaluation progresses to a business case.

A range of primary heath care and community health services are available in Emerald. Community health services provided include:

- Aboriginal and Torres Strait Islander–programs for all ages
- Aboriginal and Torres Strait Islander immunisation
- Alcohol, Tobacco and Other Drugs
- asthma education
- breast care
- cardiac rehabilitation
- child and family health
- chronic disease risk factor education
- chronic disease health assessments
- community health awareness at local agricultural shows and Ag–grow
- continence advice
- diabetes clinic–diabetes specialist and diabetes education
- discharge facilitation
- enhanced palliative care
- equipment loan bank
- Growing Strong: Feeding You and Your Baby
- immunisation (childhood immunisation, school based vaccination, influenza vaccination and other adult immunisation)
- Lighten Up to a Healthy Lifestyle
- Living Strong
- seniors exercise groups
- allied health–physiotherapy, occupational therapy, podiatry, speech pathology, social work, transition care (two community places), allied health assistant, child protection and dietician (refer section Allied health services).

### Integrated mental health services

A non-medical community mental health staff team is based in Emerald. This team provides the basic range of community mental health services for adults, older people, child and youth, Aboriginal and Torres Strait Islander health, and increasingly drug and alcohol dual diagnosis positions. Regular, fortnightly psychiatrist sessions are provided in Emerald.

# 3 Current and future bed requirements

## 3.1 Summary of projected bed requirements

Table 22 and Table 23 present a high-level summary of the projected bed and other treatment space requirements for the Emerald Hospital to 2021.

*Table 22: Current and projected bed requirements for Emerald Hospital*

| | Current numbers | Projections using 85% occupancy rates | | | Projections using 70% occupancy rates | | |
|---|---|---|---|---|---|---|---|
| **Beds/Alternatives** | **2010** | **2011** | **2016** | **2021** | **2011** | **2016** | **2021** |
| **Overnight Beds** | | | | | | | |
| Total multipurpose overnight beds | 36 | 19 | 21 | 24 | 22 | 25 | 28 |
| **Same day beds/bed alternatives** | | | | | | | |
| Same day beds | 0 | 5 | 6 | 7 | | | |
| Stage 2 recovery chairs | 5 | 10 | 10 | 10 | | | |
| Chemotherapy chairs | 0 | 0 | 0 | 0 | | | |
| Renal dialysis chairs (in centre) | 0 | 0 | 0 | 0 | | | |
| Other medical (inc. Discharge Lounge) | 0 | 0 | 0 | 0 | | | |
| **Total same day beds/ bed alternatives** | **5** | **15** | **16** | **17** | | | |

### *Other treatment spaces*

Projected requirements for recovery spaces, delivery suites, outpatient clinic rooms and Emergency Department spaces currently exceed the current built capacity at Emerald Hospital.

*Table 23: Current and projected other treatment space requirements for Emerald Hospital*

| | 2010 | 2011 | 2016 | 2021 |
|---|---|---|---|---|
| Operating Theatres | 2 | 2 | 2 | 2 |
| Procedure rooms | 0 | 0 | 0 | 0 |
| Stage 1 recovery spaces | 4 | 4 | 4 | 4 |
| Delivery Suites | 2 | 2 | 2 | 2 |
| Outpatient clinic rooms | 0 + 1 maternity | 7 + 3 maternity | 8 + 3 maternity | 8 + 3 maternity |
| ED treatment spaces | 9 | 15 | 21 | 24 |
| x-ray rooms, ultrasound, plain film x-ray | 1 x-ray room 1 ultrasound room | 1 x-ray room 1 ultrasound room | 1 x-ray room 1 ultrasound room (may require additional x-ray room) | 1 x-ray room 1 ultrasound room |
| CT scanner | 0 + | (CT scanner may be considered) | | |

# 4 References

1 Australian Bureau of Statistics. Australian Statistical and Geographical Categories. Australian Standard Geographical Classification (ASGC) 2009 (cat. no. 1216.0); Australian Standard Geographical Classification (ASGC) - Electronic Structures 2009 (cat. no. 1216.0.15.001) and Australian Standard Geographical Classification (ASGC) Correspondences 2009 (cat. no. 1216.0.15.002); 2009.

2 Queensland Government. More Beds for Hospitals Strategy. Queensland Health; 2006.

3 Australasian Health Infrastructure Alliance and University of New South Wales. Australasian Health Facilities Guidelines Revision v.3.0. Centre for Health Assets Australasia; 2009.

# 5 List of figures and tables