

Service Plan:

Karratha Health Campus, West Pilbara Health District

WA Country Health Service - Pilbara

A health service delivery strategy 2010 - 2020

Final

Endorsed 30th September 2010



Government of **Western Australia**
Department of **Health**
WA Country Health Service



ROYALTIES
FOR REGIONS

Version Control

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To be completed by the Regional Director		
WACHS	Originator:	Aurora Projects
<p>I certify that the <i>Service Plan</i> has been developed to my satisfaction, and that all project deliverables/requirements have been stated within the document.</p> <p>Endorsed by</p> <p>Regional Director: _____ Date: _____</p>		

To be completed by the Chief Executive Officer		
WACHS	Originator:	Aurora Projects
<p>I certify that the <i>Service Plan</i> has been developed to my satisfaction, and that all project deliverables/requirements have been stated within the document.</p> <p>Endorsed by</p> <p>Chief Executive Officer: _____ Date: _____</p>		

<p>Corporate Details</p> <p>Project Leader</p> <p>David Naughton</p> <p>Principal Author/s</p> <p>Leeann Murphy</p> <p>Marnie Butson</p>	 <p>AURORA PROJECTS PTY LTD ABN 81 003 870 719 www.auroraprojects.com.au</p> <p>PERTH Level 1, 317 Rokeby Road Subiaco WA 6008</p>
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Acronyms

ACAT	Aged Care Assessment Team
ALOS	Average Length of Stay
BMW	Building Management & Works (formerly DHW)
CAP	Care Awaiting Placement
CNM	Clinical Nurse Manager
CSSD	Central Sterilising Supply Department
DMO	District Medical Officer
DOH	Department of Health
ED	Emergency Department
FTE	Full Time Equivalents
GP	General Practitioner
GROH	Government Regional Officer's Housing
HACC	Home and Community Care
ICT	Information Communication Technology
ICU	Intensive Care Unit
KHC	Karratha Health Campus
PATS	Patient Assisted Travel Scheme
PMHDS	Pilbara Mental Health and Drug Service
RFDS	Royal Flying Doctor Service
SJA	St John Ambulance
SRG	Service Related Group
VMP	Visiting Medical Practitioner
WACHS	WA County Health Service
WAGPET	Western Australian General Practice Education and Training

Glossary

Term	Meaning
Admitted Patient	An admitted patient is a person who has been assessed by the treating clinician as meeting at least one of the minimum criteria for admission and who undergoes the hospital's formal or statistical admission process as either a same day, over night or multiday patient.
Ambulatory Care Services	Any activity that is a <i>planned</i> "walk-in/walk-out" in one day presentation to hospital. Examples include outpatients, day procedures, wound care, renal care and dental.
Authorised	Authorised under the <i>Western Australia Mental Health Act, 1996</i> to accept involuntary admission to a Mental Health Unit. Unauthorised facilities cannot accept involuntary admissions.
Bed-day	A hospital bed occupied for all or part of a day.
Catchment Area	Catchment area refers to the geographical area that a health service will primarily provide services to. It is usually bounded by one or more local government areas.
Clinical Support Services	Includes services to support the operations of clinical services. Includes Pharmacy, Medical Imaging and Pathology.
Concept Master Plan	The Concept Master Plan will document a range of Master Plan options that will best meet the future models of care delivered from the identified health campus or site. The options contained in the Concept Master Plan are not definitive Plans and will be subject to further analysis in Business Case development.
Concept master planning	Concept master planning for WACHS is a process to develop options for redeveloping an identified site or health campus. The master planning process begins with Service Planning, and an assessment of the existing health facilities and site infrastructure pertinent to the identified health campus. Concept master planning will determine and illustrate the degree of redevelopment required for a site. The key deliverable of concept master planning will be Concept Master Plan.
Corporate and Support Services	Includes corporate support, Information and Communication Technology (ICT), Supply Department, site maintenance, kitchen services and laundry services.
Culturally secure	Services or facilities that are culturally appropriate and meet local cultural needs.
Functional Model of Care	Service facility/operational ideas and concepts identified during the service planning process that relate directly to the planned model of clinical care. Functional models of care assist to guide the facility design team during later stages of the planning process.
Health consumer	A terms utilised throughout to refer to individuals who are likely to or are currently accessing WACHS West Pilbara services. Includes inpatients and clients.
Length of stay	The number of days spent in hospital by a patient for a single admission. Calculated as date of separation minus date of admission.
Master Plan	A master plan is a document or blueprint for an identified site or health campus. A Master Plan in the WACHS context will show the ultimate lay-out of a health campus including the location of buildings, access roads, landscaping and other infrastructure or facilities such as plant rooms. The Master Plan is design to guide development for the site over the next 10 – 20 years and highlight possibilities for future development. A Master Plan is largely informed by the Service Plan.

Term	Meaning
Model of Care	A model of care is a framework that establishes how particular health care services will be delivered. The model of care stipulates the key features of a service such as the key aim/focus of care provided; type of specialist and general services provided; the preferred strategy for patient management and flow; and the relationships required with other stakeholders to deliver care. One of the key features of the Service Plan is the future model of care. The model of care forms the foundation for workforce and master planning.
Multi-day Stay Patient	A patient is deemed to have been overnight or multi-day stay patient if in retrospect, it can be seen that the patient was admitted to, and separated from, the hospital on different dates. Therefore, a booked same day patient who is subsequently required to stay in hospital for one night or more is an overnight patient; a patient who dies, is transferred to another hospital or leaves of their own accord on their first day in the hospital is a same day patient even if the intention at admission was that they remain in hospital at least overnight.
Role delineation	Indicates the level of service provided by a hospital, as outlined in the <i>Clinical Services Framework 2010 -2020</i> .
Same day patient	A same day patient is a patient who is admitted and separated on the same day. May be either a booked or an emergency patient. A patient cannot be both a same day patient and an overnight or multi-day stay patient at the one hospital. Thus emergency treatment provided to a patient who is subsequently classified as an overnight or multi-day stay patient in the same hospital shall be regarded as part of the overnight or multi-day stay patient episode of care. The category of same day is determined retrospectively; that is, it is not based on the intention to admit and separate on the same date. Rather, a patient is deemed to have been a same day patient, if in retrospect, it can be seen that the patient was admitted to, and separated from, the hospital on the same date. Therefore patients who die, transfer to another hospital or leave of their own accord on their first day on the hospital are included, and booked same day patients who are subsequently required to stay in hospital for one night or more are included. Examples of same day activity include renal dialysis, colonoscopy and chemotherapy.
Separation	<i>Separation</i> is the most commonly used measure to determine the utilisation of hospital services. A separation equates to a patient leaving a healthcare facility because of discharge, sign-out against medical advice, transfer to another facility/service or death. Separations, rather than admissions, are used because hospital data for inpatient care are based on information gathered at the time of discharge.
Service Planning	<p>Service planning is a process of:</p> <ol style="list-style-type: none"> 1. Documenting the demographics and health status of a health service's catchment area; 2. Recording the current status and projected future demands for the health service. 3. Evaluating the adequacy of the existing health service to meet the future demands. <p>The process involves analysis of current and future population and service data and consultation with a range of internal and external stakeholders to develop the future model of care for the services delivered from the identified health campus or site.</p> <p>The key deliverable or outcome of service planning is a Service Plan.</p>
Service Plan	A Service Plan will outline the current and preferred future profile for services operating from an identified health campus or site. It will include the context for service delivery including the population profile, future demand, existing policies and strategies and the preferred future model of care.
Site Services	Includes hydraulic, electrical and mechanical services and associated infrastructure for an identified site.
West Pilbara Health District	Includes the towns and communities within the boundaries of the Shire of Ashburton and Shire of Roebourne.

1. Executive Summary

The purpose of this Service Plan is to establish the health service delivery strategy for the Karratha Health Campus (the site of the Nickol Bay Hospital) and surrounding services in the West Pilbara Health District. The Plan also forms the first step in the process to fulfil the State Government's \$150M Royalties for Region commitment to the Pilbara region to redevelop health services.

Planning Context

The mineral and energy resources boom in the West Pilbara and the anticipated growth in population have triggered the need to assess the current capacity of WACHS West Pilbara services and facilities to meet the future needs of the community. The significant changes facing the region are reflected in the State Government's *Pilbara Cities* initiative, which aims to transform the region by creating modern, high density cities. The anticipated growth in local infrastructure, industry and population will significantly impact on the delivery of healthcare services in the region. An ongoing proactive approach to service planning is therefore essential to ensure healthcare services are responsive to the rapidly changing needs of the region.

Strategic Directions for Service Delivery

In addition to the regional planning context, a number of national and state-wide strategic frameworks have guided the planning process for the development of this plan including the establishment of the following strategic directions for service delivery in the West Pilbara:

1. Continuum of care
2. Demand management
3. Focus on non-inpatient care
4. Delivering care closer to home
5. Aboriginal Health
6. Workforce
7. Partnerships with primary care
8. Private sector partnerships
9. ICT

Key Features of the Catchment Area influencing Delivery of Services

The West Pilbara Health District, incorporating the shires of Roebourne and Ashburton, had an estimated resident population of 22,500 at the time of the 2006 Census¹, with approximately 12,000 residents in Karratha. A number of datasets exist to predict the anticipated population growth for the West Pilbara, including the ABS and Heuris Partners projections. All projections forecast significant growth in the population, however there is a range in estimates due to the varying underlying assumptions around the future of the mining and energy industries.

¹ ABS, 2008b & 2008c. Excludes fly in / fly out workforce.

A review of the demography and epidemiology of the District reveals the following key considerations in planning for healthcare services:

- The West Pilbara has a higher proportion of people aged 25-44 years and 0-14 years, and lower proportion of people aged 45 years and over, when compared to WA.
- There are more than 31 Aboriginal cultural or language groups in the Pilbara with approximately 13% and 11% of the population of Roebourne and Ashburton shires, respectively, identifying as being Aboriginal².
- The varying levels of socioeconomic disadvantage across the District suggests that there are pockets of the community that may have difficulty accessing mainstream services, either due to living in remote areas, lack of transport or financial difficulties.
- The level of remoteness reinforces the need to ensure that health services are appropriately resourced and configured to provide adequate and timely responses to the health needs of the communities.
- Whilst transport routes and infrastructure are well developed to support the mineral and energy sector, infrastructure is lacking for the general public to travel within the region.
- The growth in population in the West Pilbara Health District has exceeded housing availability in key population centres like Karratha. This has been detrimental to workforce availability and consequently the ability to sustain services and investment in the District.

Current Service Profile

Healthcare Services within the West Pilbara Health District include Karratha Health Campus (KHC); small hospitals at Onslow, Tom Price, Roebourne and Paraburdoo, Wickham Health Centre; a range of community based services, including population health and mental health services; and a number of 'health partners'.

KHC is regarded as an Integrated District Health Service and provides support to the smaller hospitals within the region. For more specialised care, patients are referred to the Pilbara Regional Resource Centre in Port Hedland or to metropolitan tertiary hospitals.

Nickol Bay Hospital (NBH) has the capacity to operate 31 beds on-site, and manages the majority of demand for inpatient services within the District (74% in 2008/09). The average occupancy rate of NBH in 2008/09 was 51% with demand for healthcare services steadily increasing in recent years. Each of the small hospitals manages 10% or less of the inpatient activity within the region, with 8 beds at Tom Price and Roebourne, 6 at Onslow and 2 at Paraburdoo, however access to beds is dependent on available workforce. Average occupancy rates at these small hospitals are low, typically between 20 and 30%. The number of presentations to all emergency departments across the West Pilbara region has increased.

² ABS, 2008b & 2008c

Proposed Directions for Service Delivery

An analysis of the healthcare services provided across the District has led to the development of proposed models of care for each service area. The following overarching priorities have been developed:

- Establish collaborative models of care to support the collocation of services including acute care, ambulatory care, GP services, community mental health and population health.
- Develop a West Pilbara Primary Health Service and Training Centre on the KHC to strengthen the continuum of care and increase access to primary care.
- Introduce models of care that improve access to services for groups who have difficulties accessing acute and primary health care services (e.g. rural and remote communities; elderly; young mothers; Aboriginal communities and those living with a disability).
- Enhance Aboriginal health initiatives consistent with 'Closing the Gap' and other local priorities and build the capacity of Aboriginal health initiatives by attracting and retaining positions and leadership roles for Aboriginal people.
- Establish the process for emergency response across the West Pilbara to ensure appropriate and timely access to medical care.
- Establish the process for patient care coordination between facilities within the West Pilbara region, other WACHS regions and tertiary metropolitan facilities.
- Encourage and develop opportunities for other health care providers (such as private service providers).
- Continue to encourage and develop partnerships with external stakeholders to address determinants of health and broader community infrastructure issues such as increasing the availability of housing and improving public transport infrastructure.

The strategic directions for service delivery outlined in this Service Plan will enable the West Pilbara Health District to better manage demand for services, improve efficiencies in patient care, meet the needs of the local catchment area and ensure alignment with existing policies and strategies.

The Plan will also assist in informing the development of future business cases for the potential redevelopment of services. Ongoing planning processes will need to address the current and forecast rate of population growth across the region and explore opportunities for public, private and non-government partnerships. In addition, it is recommended that a 'community engagement' model is adopted as the project processes to ensure the development of culturally secure services for all West Pilbara residents.

2. Introduction

2.1. Purpose

The primary purpose of this Service Plan is to provide the service delivery strategy for the delivery of health services to the catchment area of the West Pilbara Health District, Pilbara Region, WA Country Health Service (WACHS).

The Service Plan is a guide for service development until 2020. The Plan should be regularly monitored and reviewed to ensure services are responsive to the rapidly changing demographics and needs of the West Pilbara District's catchment area, policy developments, medical advancements and available recurrent funding.

The Service Plan is the initial step to develop an optimal strategy and master plan to potentially redevelop West Pilbara Health Services, including the Karratha Health Campus (KHC). The ultimate goal in any future service development will be to provide optimal services and facilities that support and enable the future model of care for health services as described in this Service Plan.

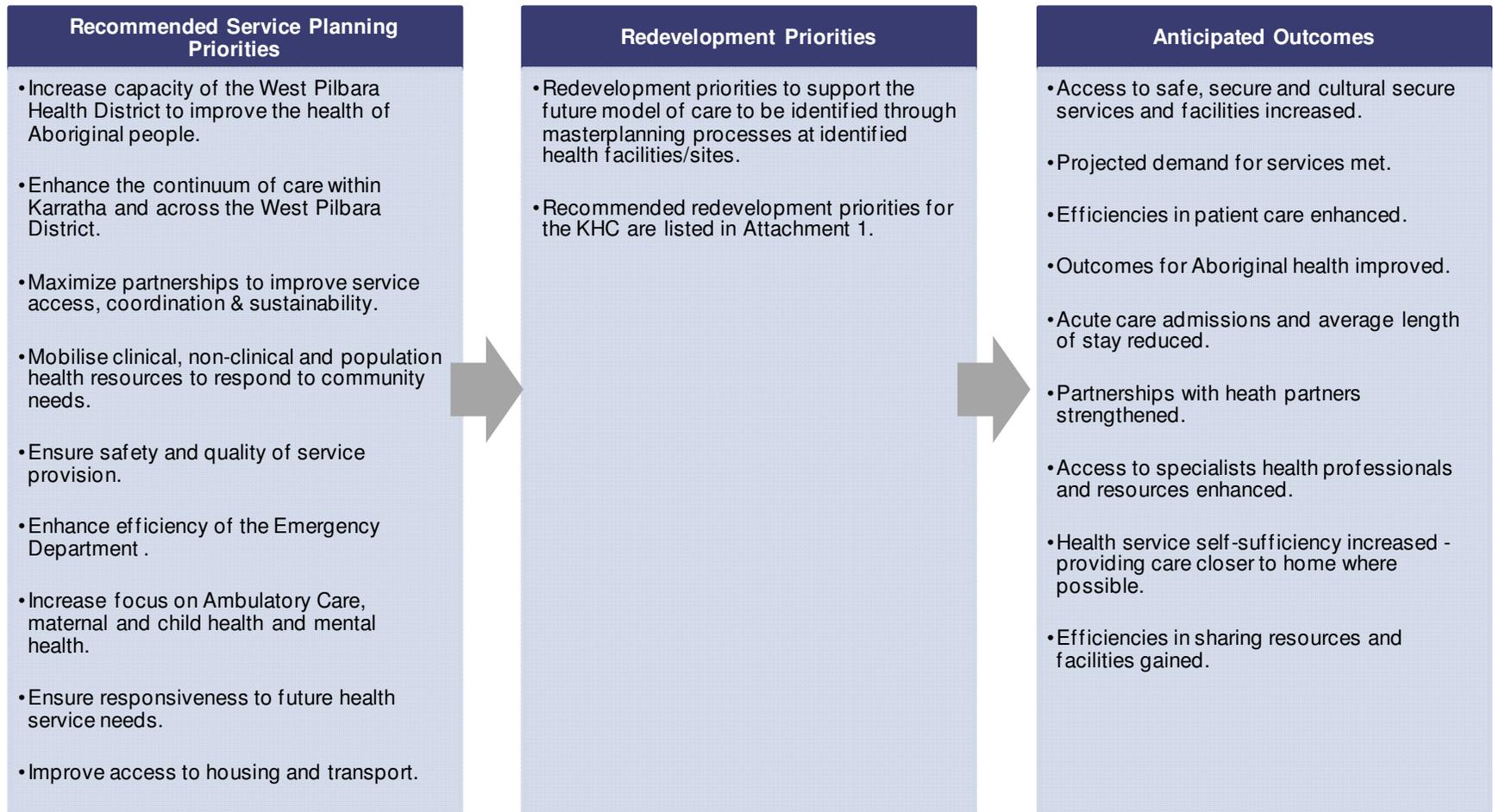
The priorities for service planning and the anticipated outcomes of enhancing services in the health district are highlighted in Figure 1. The figure acknowledges that while efficiencies in service delivery, patient care and access will be gained through consolidating the future models of care, optimal gains can only be achieved once facilities are redeveloped or reconfigured to best support service delivery.

2.2. Objectives

The objectives of the Service Plan are to:

- Outline the planning context for the development of this Service Plan and the strategic directions for service planning within the West Pilbara Health District;
- Provide an overview of the catchment population including the demography and epidemiology of the District;
- Outline the current scope of health care services in the West Pilbara Health District including the external services that work in partnership with WACHS;
- Outline the current and projected demand for healthcare services across the District and establish the key directions for future health care delivery in each service area; and
- Identify functional operational requirements that underpin the future service models of care.

Figure 1: Anticipated outcomes of service planning (with site redevelopment completed)



2.3. Consultation in the Development of this Service Plan

The consultation process undertaken in the development of this service plan involved the following key activities:

1. **22nd June 2009. Site visit, site tour and initial consultant briefings provided by the WACHS - Pilbara Executive and Karratha Health Campus staff.**

The agreed next steps following this visit were:

- the preparation of a document summarising the key health issues for the West Pilbara;
- analysis of the changing demographics for the district and the implications for future health service delivery;
- a high level review of community and stakeholder expectations;
- identification of issues/problems and proposed innovative ideas for service planning; and
- a high level review of private/public partnership opportunities.

(Summary of Master Planning Visit to the West Pilbara, Monday 22nd and Tuesday 23rd June 2009, version 2.2)

This provided key information for the October 2009 internal stakeholder workshop.

2. **27th October 2009. Internal stakeholder ‘kick off’ one day workshop attended by approximately 40 invited district and regional health service staff.**

The workshop was facilitated by the planning consultants and included a presentation by the Regional Director, the WACHS Area Clinical Planners and the Service Planning consultants. The aim of the workshop was to inform internal stakeholders of the project, explain the process for service and facility planning, set the strategic directions for future planning processes and workshop with the participants to obtain their views on service and facility needs. The following focus areas for service planning were agreed:

- increase capacity of the West Pilbara Health District to improve the health of Aboriginal people;
- enhance the continuum of care within Karratha and across the West Pilbara District;
- mobilise clinical, non-clinical and population health resources to respond to community needs;
- enhance efficiency of the Emergency Department; and
- ensure responsiveness to future health service needs.

(Karratha Health campus master Planning Project, Outcomes of the Internal Stakeholder Briefing – 27th October 2009, Report to the Project Control Group, Version 1.0)

3. 9th, 10 and 11th December 2009. Service planning consultants facilitated Service Planning User Group Workshops for internal staff

Staff from clinical, clinical support, patient support, administration and facility management areas were invited to participate in structured user group workshops facilitated by the service planning consultants. A standard format was used for each group with set questions that elicited responses relating to how services could be improved. This information provided the bulk of internal stakeholder source information and also identified a number of functional relationship opportunities (facility solutions) that could be considered by facility planners into the future. This information has been captured in Appendix 4. These workshops also provided an opportunity to raise staff awareness of the service planning process and the project givens and constraints.

4. 3rd and 4th February 2010. Service planning consultants facilitated External Health Partners workshops.

External Health Partners, representing the Aboriginal Medical Service, Fire and Emergency Services, Royal Flying Doctor Service, St John Ambulance Service, Police, the General Practice Networks and General Practitioners were invited to structured workshops where the service and facility planning process was described and their input sought.

Whilst the service planning consultant was available, an additional internal stakeholder/staff workshop was run specifically for salaried medical staff.

5. March – July 2010. Community Consultation

WACHS Pilbara led a consultation process with the West Pilbara communities of Karratha, Dampier, Roebourne, Wickham, Point Samson, Onslow, Tom Price and Paraburdoo between March and July 2010. The community consultation involved asking the community to share their stories, experiences and issues along with recommendations for improvements for the current health services.

Key issues raised during the consultation process included:

- continuing poor Aboriginal health outcomes and lack of culturally appropriate services;
- lack of access to GPs, pharmaceutical, dental and allied health services;
- the need for improved/enhanced maternal and child health services;
- the need for improved community mental health services;
- lack of access to responsive emergency services;
- the identified gap in aged care and dialysis services in Roebourne; and
- the lack of appropriate accommodation and transport options, particularly between Tom Price/Paraburdoo and Karratha.

The consultation process has been a useful conduit between the WACHS Pilbara planning process, stakeholders and the general community. Community consultation will continue as planning progresses for the redevelopment of West Pilbara health services.

3. Background: Planning Context and Strategic Directions

3.1. State and Commonwealth Health Reform Policy

Planning for the West Pilbara Health District has been guided by a range of National, State and Local Government policies, including:

- *WACHS Revitalising Country Health Service 2009-2012*;
- *WA Health Clinical Service Framework 2010-2020*;
- WA Health Networks;
- *Primary Health Reform in Country WA 2010-2012*;
- Four Hour Rule; and
- *National Health and Hospitals Reform Commission Report* and emerging frameworks arising from the Prime Minister's more recent announcements.

These reform policies acknowledge that meeting future demand is not purely about increasing the capacity of facilities. Meeting demand is more so reliant on reconfiguring service delivery to ensure patients are managed more efficiently and safely.

3.1.1 WACHS Revitalising Country Health Service 2009-2012

Service planning and the proposed redevelopment of the WACHS West Pilbara health facilities should align with the recently endorsed *Revitalising Country Health Service 2009-2012* Strategic Plan. This Strategic Plan builds on the directions and objectives developed in the earlier *Foundations for Country Health Service 2007 – 2010* (2007); *Reid Report* (2004) and *Country Health Service Review* (2003).

The Strategic Plan outlines four revitalising directions that will underpin how WACHS will seek to improve the health of country Western Australians over the next three years. The revitalising directions include:

1. **A fair share for country health.** Securing a fair share of resources and being accountable for their use.
2. **Service delivery according to need.** Improving service access based on need and improving health outcomes.
3. **'Closing the Gap' to improve Aboriginal health.** Improving the health of Aboriginal people.
4. **Workforce Stability and Excellence.** Building a skilled workforce and a safe and supportive workplace.

The initiatives proposed in this Service Plan align with these proposed these four directions. The strategic plan can be viewed at: <http://http://www.wacountry.health.wa.gov.au/default.asp?documentid=837>

3.1.2 WA Clinical Services Framework 2010-2020

Service and facility planning should also align with the new *WA Clinical Services Framework 2010 -2020* (2009) which provides a guide for planning health care services throughout WA. The framework:

- describes the role delineation for metropolitan and WACHS hospitals (excluding WACHS small hospitals);
- defines the projected bed numbers for metropolitan and WACHS hospitals to 2021 (excluding WACHS small hospitals); and
- outlines additional National, State and bi-lateral policies pertinent for service and facility planning in WA.

The Framework clearly defines the types of services to be delivered at each site. Nickol Bay Hospital will remain at a level three or four.³ The level of service delivery is anticipated to increase for a selection of services as follows:

- Surgical services including general surgical services, orthopaedic surgery and neurosurgery to increase from level 3 to level 4 by 2014/15.
- Child, adult and older adult mental health services to increase from level 3 to level 4.
- Disaster preparedness to increase from level 3 to level 4 by 2014/15.
- Training and research to increase from level 3 to level 4 by 2014/15.

The level of service delivery is detailed in *Appendix 2* of the Framework.

The level of service provision by 2014/15 at Nickol Bay Hospital will be generally higher than most integrated district health services for the services highlighted in Table 1.

³ As a comparator, tertiary hospital service provision is generally level 5-6, regional resource centres are generally level 4-5.

Table 1: Level of service delivery comparison: Nickol Bay Hospital and other Integrated District Health Services (2007/08 and 2014/15)

Service	Level of service provision by 2014/15			
	Nickol Bay Hospital		Other IDHS	
	2007/08	2014/15	2007/08	2014/15
Emergency Department	4	4	3	3
Medical oncology	3	3	2	2
Infectious disease services	3	3	NIL	NIL
Obstetrics	3/4	3/4	3	3
Burns	4	4	2-3	2-3
General surgery	3	4	3	3
Orthopaedics	3	4	3	3
Vascular surgery	3	3	NIL	NIL
Neurosurgery	3	4	NIL	NIL
Training and research	3	4	3	3

This increased service provision is generally due to the local context and the planned increased availability of specialist services at Nickol Bay Hospital.

The following services will not be provided at Nickol Bay Hospital: radiation oncology; dedicated after hours GP clinics; child and adolescent authorised mental health inpatient services; Intensive Care Unit (ICU) / High Dependency Unit (HDU); Paediatric ICU; and a Critical Care Unit (CCU). These services are provided through Perth metropolitan healthcare facilities, with the exception of the planned development of an acute mental health inpatient service in Broome for residents of the Kimberley and Pilbara health regions.

There is also no intention to develop a WACHS-operated residential aged care facility in the West Pilbara Health District. It is anticipated this service will be provided by a private operator.

Demand modelling undertaken during the development of the Clinical Services Framework (2009) recommends Nickol Bay Hospital be a 40-bed Hospital in the future. This includes 32 multiday beds and 8 same-day beds. The future bed numbers of small hospitals are not considered in the Clinical Services Framework (2009).

The *WA Clinical Services Framework 2010–2020* can be viewed at: <http://www.health.wa.gov.au/HRIT/csf/index.cfm>

3.1.3 WA Health Networks

The WA Health Network is an initiative developed to enhance the evidence base for health care in WA, both across the health continuum and within systems to address major health conditions. The key focus of the Network is to recommend models of care for health disciplines with a focus on supporting health disciplines to move toward prevention of illness and injury and maintenance of health.

WACHS has committed to implementing the following four models of care developed by the WA Health Networks, within available resources in the future:

- i. Maternal and child health
- ii. Chronic kidney disease
- iii. Palliative care
- iv. Chronic disease

The models of care have the potential to bring about improvements in the support available to clinicians and specialists and in the coordination of patient treatment across the State and within regional areas. The full inventory of models of care recommended by the WA Health Networks can be accessed from <http://www.healthnetworks.health.wa.gov.au/>

3.1.4 Primary Health Reform in Country WA 2010-2012

This paper outlines a proposal to the Australian Government to reform the way in which primary health care services are funded and delivered in rural and remote WA.

A six-point Country Primary Health Plan covering the following areas is proposed:

- Two different regional funding models for the north west-east and south of the State.
- A strong governance and engagement framework.
- Workforce development and reform.
- Integrated service models.
- Better use of technology and E-health.
- 6 key health priorities addressed through primary health care.

The six-point Plan is consistent with the intentions outlined in the *National Health and Hospital Reform Commission* (refer to Section 3.1.5).

Current models of funding and delivering primary health care services are failing rural and remote communities, leading to poorer health outcomes, extensive service inefficiency and fragmentation, ineffective use of public hospitals and inadequate funding for primary health care.

New approaches are required that address the barriers of multiple funders and providers and increase primary health care resources in communities where they are most needed. The six-point Primary Health Plan is based on joint funding, evidence based regional planning, multi-disciplinary teams providing coordinated services across the care continuum and improved community to hospital linkage and care.

The paper will be released in 2010 and should be considered in ongoing service planning for WACHS West Pilbara.

3.1.5 National Health and Hospitals Reform Commission Report

The National Health and Hospitals Reform Commission Report (The Bennett Report) was released in June 2009. The report outlines a National plan for health reform for governments of Australia which includes the following three reform goals:

- Tackle major access and equity issues that affect health outcomes for people now.
- Redesign our health system so that it is better positioned to respond to emerging challenges.
- Create an agile and self-improving health system for long-term sustainability.

A comprehensive range of recommendations for Commonwealth, State and local governments were made to meet these goals including:

- Create integrated multidisciplinary primary health care services, with the Commonwealth Government responsible for the policy and government funding of primary health care services.
- Support a shared management model of care for patients with complex and chronic health needs to better utilise specialist services.
- Establish smarter use of data, information and communication such as person-controlled electronic health records.
- Establish comprehensive primary health care centres and services.
- Flexible funding arrangements to facilitate locally designed and flexible models of care in remote and small rural communities.
- Expansion of telehealth.

The full list of recommendations can be viewed at

http://www.nhhrc.org.au/internet/nh_hrc/publishing.nsf/Content/nhhrc-report

Recommendations from the Report are currently being ratified, with several recommendations having significant implications for the delivery and governance of health care across Australia if supported.

The implications of the recommendations at a regional and local level will need to be monitored, with services and governance adjusted accordingly.

Recently, WACHS, the Pilbara Health Network, Rural Health West and WAGPET have worked to develop a collaborative and sustainable model to deliver comprehensive primary health care services and programs in the West Pilbara Health District.

A proposal has been developed and promoted to Commonwealth and State Governments to establish a 'West Pilbara Primary Health Service and Training Centre' on the KHC site to implement the recommendations of the Bennett Report, strengthen the continuum of care across the West Pilbara Health District and close the gap for community members who are currently experiencing difficulties in accessing primary health care in Karratha and surrounding West Pilbara towns. The development of this innovative cross agency health service delivery model involves collaboration between the Pilbara Health Network, Rural Health West, Western Australian General Practice Education Training and WACHS, Population Health.

The Centre would be the hub for primary health care in the West Pilbara and include the following:

- Increased provision and better access to general practice primary care.
- Chronic disease management including prevention, early intervention and ongoing management.
- Antenatal and post natal care.
- Family wellbeing and child development programs.
- Primary mental health and drug and alcohol services.
- Health promotion and prevention including sexual health and healthy lifestyles.

Furthermore, the Centre would provide an opportunity to enhance training and development opportunities for registrars and resident doctors in Karratha, providing a purpose built setting to support composite training opportunities.

The level of service integration with the WACHS West Pilbara services on the future KHC will need to be determined. However, it is felt that the Primary Health Service and Training Centre could be collocated with the proposed 'Ambulatory Care Centre' which would accommodate complementary services including Population Health, PMHDS, outpatients and other same-day activity.

Funding is yet to be obtained to establish the proposed Centre on the KHC site. The full proposal can be obtained from the Pilbara Health Network or WACHS Population Health Service.

3.1.6 Disaster Preparedness and Redundancy Guidelines

The Department of Health's *Disaster Preparedness and Redundancy Guidelines* (2007) classify Nickol Bay Hospital as a 'Group 2' facility. These Guidelines will require the KHC services and facilities to keep staff, patients and visitors safe and the essential services functioning in the event of an emergency or disaster. The guidelines recommend a number of initiatives including enhanced security (facility lock-down capabilities) and emergency power back up (amongst other requirements).

The Guidelines also recommends Tom Price and Roebourne hospitals be a Group 4 facility; and Onslow and Paraburdoo be a Group 5 facility for emergency preparedness and redundancy. The Guidelines are available at: <http://www.public.health.wa.gov.au/cproot/2540/2/Redudancy%20and%20Disaster%20Planning.pdf>

Health Reform Policy

Recommendations:

- Align service planning and facility planning with the four directions of the WACHS *Revitalising Country Health Service (2009 – 2012)* Strategic Plan (2009).
- Determine the models of care for clinical services anticipated to increase in service delivery as described in the *WA Clinical Services Framework (2009)*.
- Align culturally appropriate models of care with the WA Health Networks in determining the future models of care.
- Establish collaborative models of care to support the collocation of services including acute care, ambulatory care, GP services, community mental health and population health
- Develop the West Pilbara Primary Health Service and Training Centre with Nickol Bay Hospital (at KHC) to strengthen the continuum of care and increase access to primary care.
- Encourage and develop opportunity for other health care providers (such as private service providers).
- It is acknowledged that while the policy documents may accurately reflect the environment at the timing of writing (mostly 2009), current projections supersede this planning and will need to be taken into account for any future planning processes for the region.

3.2. Existing State Government commitments

Service planning and master planning for WACHS West Pilbara facilities will need to implement or consider the following National, State and local Government commitments.

3.2.1 State Government *Royalties for Regions Scheme*

The State Government has committed significant funding from the *Royalties for Regions Scheme* to the Pilbara Health Region including \$300M for the implementation of the *Pilbara Revitalisation Plan* announced in June 2009.

This commitment would allow work to start on projects identified in community development schemes such as *Karratha 2020 Vision*; *Newman Tomorrow*; *Hedland's Future Today*; the *Shire of Ashburton Strategic Plan*; and the Pilbara Area Consultative Committee's *Pilbara Plan*. There are elements within these plans that impact on WACHS Pilbara.

Pilbara Cities

The Revitalisation Plan links into the *Pilbara Cities* initiative, announced in November 2009, which aims to transform the region by creating modern higher density centres, supported by all the services and facilities enjoyed in other Australian cities⁴. Under the Pilbara Cities vision Karratha and Port Hedland would become major cities of the future.

The Pilbara Cities initiative includes \$150million for a new Nickol Bay Hospital in Karratha, as well as \$310million to partner with the Federal Government and private sector on major infrastructure projects such as power and water supply. In addition to this, the initiative focusses on new schools and TAFEs; leisure and entertainment facilities; shopping and retail precincts; employment and indigenous enterprise opportunities; large-scale land releases; and affordable living initiatives.

The proposed major development of towns within the West Pilbara will significantly impact on the delivery of healthcare services in the region. In particular, the forecast massive growth in population, will require close monitoring so that a proactive approach to service delivery and service reconfiguration to meet the changing needs of the region can be achieved. Future planning processes for the redevelopment of services across the region will need to consider the rapidly changing environment and ensure the development of flexible and adaptable healthcare facilities.

⁴ <http://www.mediastatements.wa.gov.au/Pages/Results.aspx?ItemID=132847>

3.2.2 State Government capital works projects

There are two major capital works projects that will impact on service delivery for WACHS West Pilbara. The projects include the new Hedland Health Campus and the new Broome Mental Health Unit.

Hedland Health Campus

The existing Port Hedland Hospital will be replaced with the new regional resource centre at South Hedland, due to be completed in late 2010.

Several regional services will be based in Karratha to complement the services offered at the new Hedland Health Campus. The level of service delivery at Hedland Health Campus and Nickol Bay Hospital is described in the *WA Clinical Services Framework (2010–2020)*.

Broome Mental Health Unit

There is no intention to establish an authorised mental health unit in the West Pilbara Health District due to a new 14-bed authorised acute Mental Health Unit being constructed in Broome to provide acute mental health inpatient care for residents of the Kimberley and Pilbara health regions. The Unit is due to be completed in 2011. The patient care pathway between the new Mental Health Unit and WACHS West Pilbara are yet to be determined. There are, however, concerns in regards to the capacity and transport from Pilbara to the facility.

Implementation of State Government Commitments

Recommendations

- Determine the models of care and complementary workforce for all WACHS West Pilbara services across the continuum of care.
- Establish the process for emergency response across the West Pilbara to ensure appropriate and timely management of patients requiring urgent attention.
- Establish the process for patient care coordination between facilities within the West Pilbara region, other WACHS regions and tertiary metropolitan facilities.
- Ensure population changes within the region are closely monitored so that a proactive approach to service delivery and service reconfiguration can be achieved to meet the changing needs of the region.

3.3. WACHS West Pilbara Governance

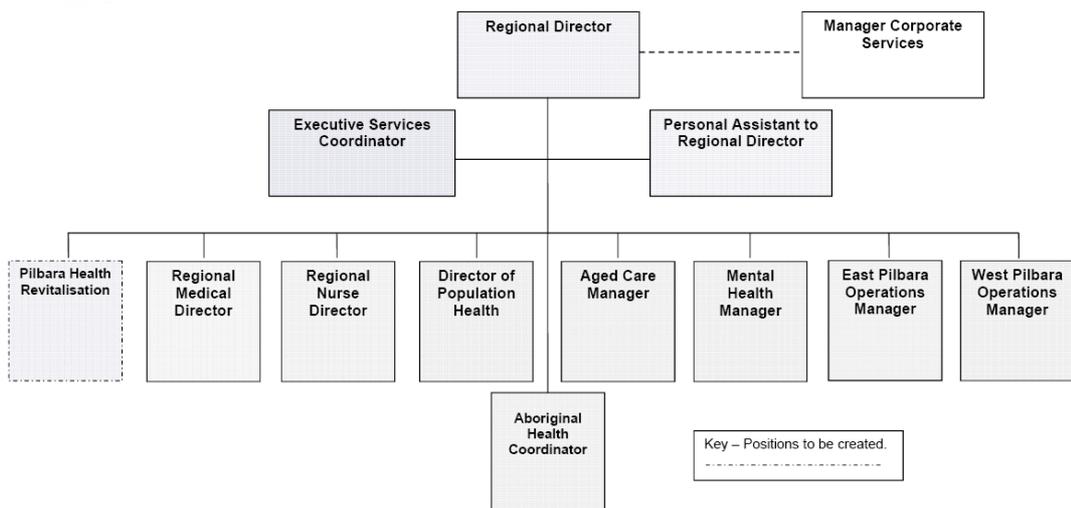
The existing WACHS Pilbara governance structure is presented in Figure 2. The structure shows there are a number of regional and district level services that report directly to the Regional Director.

The Corporate Services Manager, Director of Population Health, Aged Care Manager, Mental Health Manager, Medical Director, Nursing Director and Aboriginal Health Coordinator have regional management responsibilities across the Pilbara Health Region.

The East and West Operation Managers are generally responsible for hospital-based services within their respective health districts.

The Pilbara Health Revitalisation role has regional responsibilities for ensuring the *Royalties for Regions* commitments are fulfilled.

Figure 2: WACHS Pilbara Executive Structure



Source: WACHS West Pilbara

3.4. Strategic Directions for Service Delivery

The catchment population, current and projected activity data, and other qualitative information have been analysed, with consideration of the planning context outlined above, to identify the following key drivers for developing future models of care for WACHS West Pilbara:

- Lack of services to meet current community needs;
- Pilbara Cities agenda;
- Industry development and expectation;
- 'Closing the Gap';
- Responding to the demographics and local context of the West Pilbara;
- Meeting the existing and future health needs of the catchment; and
- Overcoming identified constraints for service delivery.

These drivers have informed the development of a number of key service delivery strategies for the West Pilbara:

- Continuum of care
- Demand management
- Focus on non-inpatient care
- Delivering care closer to home
- Aboriginal Health
- Workforce
- Partnerships with primary care
- Private sector partnerships
- ICT

3.4.1 Continuum of Care

The delivery of healthcare services must have a strong focus on the patient/client across the continuum of care which encompasses the coordination/provision of health promotion, early intervention, diagnosis, treatment, rehabilitation and palliation. The delivery of services is based on the multi disciplinary model of health care with a continuum of integrated services, through nursing, medical, allied health and community providers working collaboratively to meet the patient's needs.

The WA Health Networks are developing models of care which, when implemented, will transform the WA public health system. These models refocus WA Health across the broad spectrum of health, with an emphasis on supporting the population to stay healthy as well as making their journey through the health system as efficient and effective as possible.

WACHS West Pilbara services are working with external agencies (known as 'Health Partners') to provide a continuum of care that offers a range of health services for all ages in the community. The continuum of care aims to enable health consumers to access appropriate services in an appropriate setting that are responsive to their age, ethnicity and health needs.

Figure 3: WACHS West Pilbara: Continuum of Care (Conceptual)

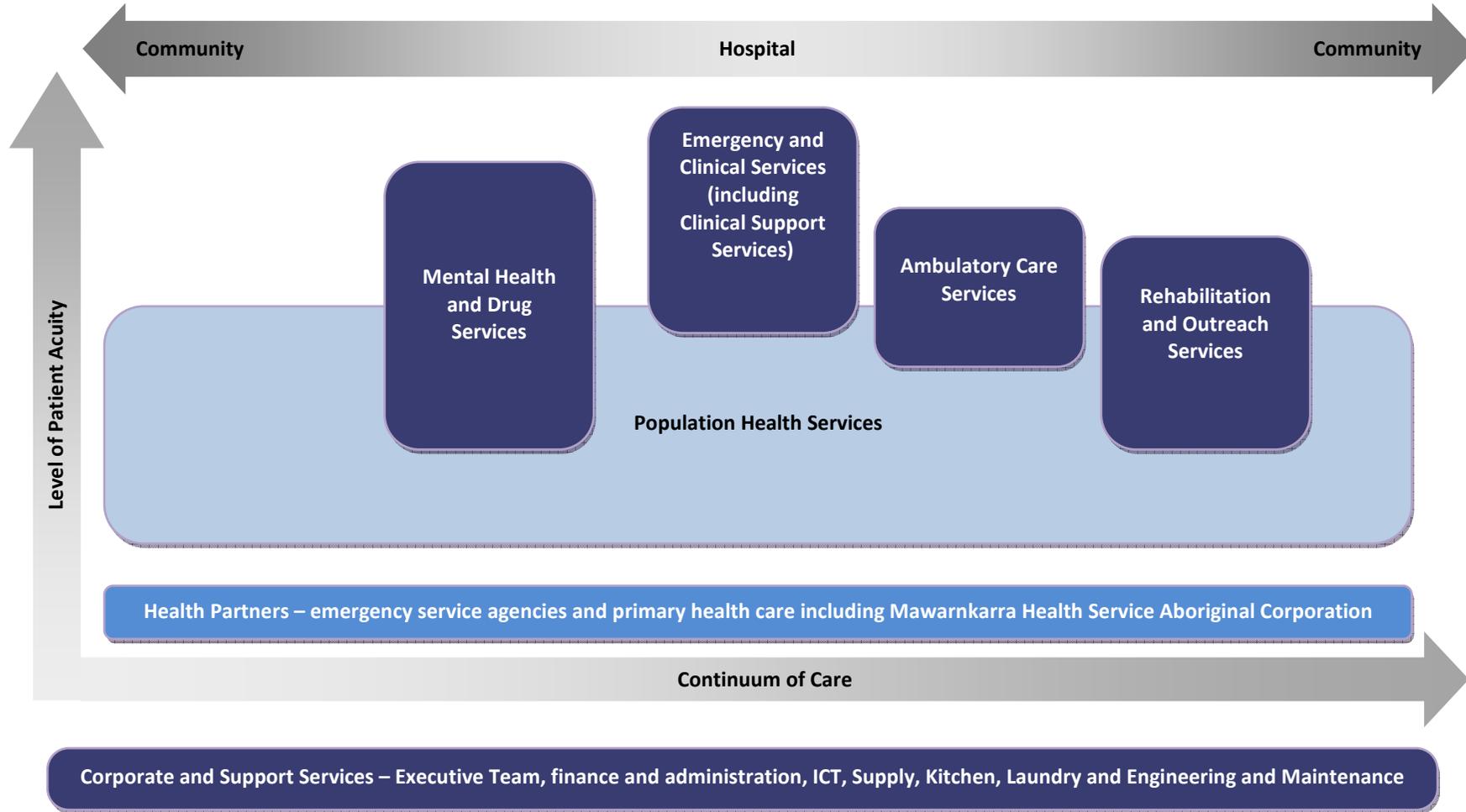


Figure 5 maps out the range of healthcare services delivered along the continuum of care. The Health Partners who directly assist in service provision are also highlighted and described further in Section 6. This includes emergency service agencies and primary health care agencies, including general practitioners and the Mawarnkarra Health Service Aboriginal Corporation.⁵

3.4.2 Demand Management

A key focus of the reform agenda is the appropriate management of health system demand through the provision of effective, high quality, sustainable and coordinated patient-focussed services. This system wide demand management will be achieved through the implementation of strategies that:

- Reduce demand, slow the rate of demand, increase and better manage variations in demand; and
- Enhance the capacity of services to meet demand.

Key demand strategies that are currently being implemented across the Pilbara and will continue to be enhanced throughout the region include the following:

Strategies that Reduce Demand
<ul style="list-style-type: none"> • Early Intervention in management of chronic disease through enhancement of CDM programs; • Strengthening and expanding Hospital in the Home (HITH) services; Rehabilitation in the Home (RITH) and Hospital in the Nursing Home (HITNH) • Strengthening partnerships with primary care providers; • Utilisation of short-stay ED beds. • Reduce ALOS by improving admission and discharge processes and inpatient ward efficiency; • Delivery of safe, high quality, evidence-based health care in the community that includes health promotion and early intervention.
Strategies to Enhance the Capacity of Hospitals to Meet Demand
<ul style="list-style-type: none"> • Re-design of processes to ensure patient flow is maximally efficient; • Increased use of outpatient strategies such as “hot” clinics and “fast track” ED streams to facilitate the rapid assessment and management of common conditions. • Streaming of patients as soon as possible after admission; • Implementation of new and more efficient technologies and systems; • Examine and adjust models of service delivery to shift elective treatments towards same-day; • Investigate other models of inpatient care such as medi-hotels; • Development of models of care that incorporate common care pathways and criteria for treatment and management on a region wide basis.

⁵ The Aboriginal Medical Service, based in Roebourne.

3.4.3 Focus on Non Inpatient Care

Further development of Ambulatory Care Services and new outpatient models of care will be explored to reduce the pressure on hospital beds and the number of triage category four and five ED presentations. Where clinically appropriate, care will be provided on a same day, ambulatory and diagnostic and treatment basis in suitably designed facilities.

In addition to this, programs are being established where acute/post acute care can be delivered to suitable, consenting patients in their home as an alternative to inpatient (hospital) care. The essential focus of services is to provide the most appropriate care setting, avoid hospital admissions or reduce patient length of stay through the immediate provision of multidisciplinary care. In a shared care model the GP and the multidisciplinary team work closely together to manage the patient in the community.

3.4.4 Delivering Care Closer to Home

Improving access to healthcare services for regional residents is a key service planning principle for WACHS. Healthcare services need to be planned to enable delivery of services as close to patients' homes as possible, while preserving the safety, quality and sustainability of services.

Access to healthcare services within the Pilbara region will be enhanced through strengthening the Regional Resource Centre role at Hedland, along with the proposal to manage a greater volume of activity in Karratha through reversal of patient flows from Port Hedland to NBH (see Appendix 3).

The range of services to be delivered at local, regional and Statewide levels will be informed by the role delineation described in the WA Clinical Services Framework 2010-2020.

3.4.5 Aboriginal Health

Achieving improvement in Aboriginal health status remains one of the most complex and challenging tasks faced by the Western Australian Government. Contributing to the complexity of achieving significant improvement in health outcomes is the fact that provision of better health services must happen alongside improvements in other key areas such as housing, education, employment and economic development.

There is a significantly higher proportion of Indigenous persons residing in the West Pilbara region in comparison to the state average. The burden of disease incurred in the Indigenous community remains significantly higher than for the non-Indigenous community which suggests that access to health services and health programs by Indigenous people requires attention, and that the efficacy of these services and programs can be improved.

One of the key directions for improving the health status of the Aboriginal community is to promote Indigenous focused early intervention and preventative community and outreach services as culturally sensitive alternatives to hospital based care.

The need to develop and support Indigenous health workers and Indigenous health staff is another key direction for the delivery of healthcare services in WA. Improving general workforce retention is also a means of improving Indigenous health services, as longer serving staff gain credibility with their target population which in turn improves access and service efficacy. Essential within this approach will be engagement with the Indigenous community and other service providers delivering primary health care services. This will enable the development of feedback loops between service providers and service recipients and will facilitate the design of culturally appropriate services.

The WACHS Strategic Plan, Revitalising Country Health Service 2009-2012, identifies as a key action the need to 'improve services to Aboriginal communities and boost Aboriginal employment opportunities'. The WA Country Health Service aims to deliver on this action through a range of workforce and program strategies including implementing the National Partnership Agreements as follows:

- Implement the Indigenous Early Childhood Development National Partnership Agreement for WA through developing and implementing a suite of maternal and child health strategies through the Aboriginal health planning forums.
- Implement the Closing the Gap on Indigenous Health National Partnership Agreement for WA through developing and implementing a suite of strategies to meet the 5 outcomes areas:
 - Tackling smoking
 - Primary health care that can deliver
 - Fixing the gaps in patient journey
 - Making Indigenous health everyone's business
 - Transition to adulthood.

3.4.6 Workforce

It is acknowledged that the fundamental issue in sustaining service delivery in the West Pilbara region is the ability to attract and retain staff and visiting specialists.

Workforce planning for the area is part of the overall WACHS Pilbara workforce planning process that has its foundation in the WA Health Healthy Workforce Strategic Framework.

The Pilbara region experiences extreme difficulty attracting and retaining skilled staff including specialist medical staff (even on a visiting basis). Key factors, highlighted by staff and health partners that adversely impact on workforce attraction, retention and service sustainability are:

- Remoteness of West Pilbara towns;
- Availability and affordability of local housing;

- Shared accommodation arrangements;
- Availability of private and public transport options;
- Housing proximity to the workplace (in the absence of transport);
- Attractiveness of salaries offered in the health sector when compared to the local mining and energy sector; and
- Available funding for housing for medical and nursing staff under the Government Regional Officer's Housing (GROH) initiative

These issues and concerns for staff retention impact all areas of service delivery and were highlighted in all consultation workshops. Specific strategies identified to address these critical workforce issues include the following:

Strategies Addressing Workforce Issues
<ul style="list-style-type: none"> • Improve short and long term housing options for staff. • Build the capacity of Aboriginal health initiatives in the West Pilbara Health District by attracting and retaining positions and leadership roles for Aboriginal people. • Modify governance structures where possible to support collocation models and regional service integration with the new Hedland Health Campus. • Establish the West Pilbara Primary Health Service and Training Centre and provide access to workforce education and training that is relevant and responsive to service needs. • Develop employment arrangements that support the introduction of flexible service models such as mobile clinical teams; • Extend the use of Telehealth to increase remote access to specialist services for staff support and education. • A commitment to redesign workflows and change skill mix as needed to better align available staff skills with patient needs. • Develop a workforce culture and environment that supports innovation and continuous improvement.

Many of these proposed strategies are designed as an interim step to stabilise the Pilbara health workforce while medium to long term whole of Government and WACHS wide solutions are developed and implemented.

3.4.7 Partnerships with Primary Care

It is proposed that WACHS services within the West Pilbara Health District will work to develop partnerships with primary healthcare providers in the area. These partnerships will promote integrated care by providing an environment in which the hospitals, health professionals and community based services work together in a seamless and coordinated manner. Greater integration between hospitals and the primary health providers will support the demand management strategies outlined above through improved discharge processes and avoiding unnecessary admissions.

The development of a West Pilbara Primary Health Service and Training Centre is an initiative that aims to close the gap and increase access to primary health care services in Karratha and surrounding areas. The Primary Centre would provide opportunities for a bulk billing GP services (among other initiatives) which would make health services more accessible to the community and strengthen the continuum of care across the West Pilbara Health District.

3.4.8 Private Sector Partnerships

There is an identified shortage of private health care facilities in the West Pilbara. Patients wishing to access private health facilities travel to Perth for health care.

Opportunities have been identified for the provision of private health facilities for services, particularly maternity and obstetric care, surgical services and specialist clinics. The potential for the private sector to work collaboratively with WACHS in delivering healthcare services in the region requires further exploration to ensure the most effective and efficient delivery of services.

3.4.9 Information Communication Technology (ICT)

More and more, ICT is being recognised for its importance in underpinning health reform and particularly innovative models of care.

Improvements in ICT will be guided by the technology division of WA Health. The aim of this division is to promote health reform through the appropriate use of ICT. The focus for the future is the use of "technology enablers" that can deliver improvements in health care via electronic patient records; clinical decision support; imaging; internet enabled applications; and e-business. The use of these enablers assumes the following future directions for healthcare delivery:

- Demand for high resolution images, video streaming and bandwidth intensive applications will increase in the future.
- Future bedside patient services will include video streaming and internet access, therefore any cabling and communications infrastructure needs to cater for this type of service.
- Voice over IP (VoIP) will be adopted as the appropriate communications infrastructure within new or refurbished hospitals. Wireless communications that support mobile workers, as well as cater for mobile phones, will operate seamlessly within the wireless networks within the building.

These enablers will impact upon clinical workflow and business practices including how and where healthcare is delivered. They will provide for an improved interface between hospitals, general practice and other health practitioners (including private and non-government sectors). This is particularly relevant within rural areas where large geographical distances often exist between service providers. The provision for the development of advanced networking capabilities, wireless messaging and system integration for rural areas will thus enable point of service data capture regardless of the venue

and the ready availability of a consolidated data source.

In addition to providing an essential support to the innovative services, the ICT strategy is viewed as a method of attracting and retaining staff to a safe and appealing work environment.

It is important to acknowledge that, over time, technological advances and increases in the availability of specialists to operate the technology will influence service delivery and patient flow for WACHS West Pilbara. For example, new testing equipment (i.e. Beta HCG) could be installed at Nickol Bay Hospital to undertake pregnancy testing if an Obstetrician were permanently based at the Hospital. Currently testing is conducted in Port Hedland.

4. Demographics & Epidemiology

The future models of care for WACHS West Pilbara services will need to be responsive to the needs of the local catchment area and the political, social and economic context from which services operate. The following section provides an overview of the West Pilbara Health District catchment area, along with a description of the demographics and other factors that influence the health status of the local residents.

4.1. Catchment area

The West Pilbara Health District, illustrated in Figure 4, is the catchment area for WACHS West Pilbara services. The District is one of two districts which make up the WACHS Pilbara Health Region.

The West Pilbara Health District is defined by the shires of Roebourne and Ashburton.

The population of the West Pilbara Health District at the time of the 2006 Census⁶ was 22,501, with 73% of these residing in the Shire of Roebourne.

The town of Karratha, located in the Shire of Roebourne, is the major hub for the West Pilbara Health District with a population of almost 12,000.⁷ Karratha is located approximately 1,500kms (or a two hour flight) from the Perth metropolitan area.

Figure 4: Pilbara Health Region



The smaller townsites in the West Pilbara Health District include:

- Roebourne and Wickham (in the Shire of Roebourne); and
- Onslow, Tom Price, and Paraburdoo (in the Shire of Ashburton).

The locations of these towns are highlighted in Figure 5.

⁶ ABS, 2008b & 2008c. Excludes fly in / fly out workforce.

⁷ Place of usual residence. ABS, 2007.

Figure 5: WACHS Pilbara: Location of townsites

Source: WACHS Website

The District is noted for the quantity and value of its mineral and energy resources. The continental Hamersley, Canning and Pilbara block formations provide economically viable deposits of iron, gold, uranium and other metals. Offshore are the extensive gas fields of the Dampier archipelago and Barrow Island province.

Karratha's economic base includes the iron ore mining, sea-salt mining, ammonia export operations and the North West Shelf Natural Gas Project - Australia's largest natural resource development. In 2004/05, the Pilbara Region produced iron ore valued at \$8 billion - comprising over 96% of Australia's iron ore exports. The region's oil and gas production also accounts for 96% of Western Australia's (WA) production for 2004/05. The majority of the exports are to manufacturers based in Asia.

The demand for the region's minerals and energy resources has resulted in an economic and population boom. This has brought a degree of wealth to the District and a transient population due to the fly-in/fly out workforce.

The existing health services established in the West Pilbara Health District will be unable to meet the anticipated growth in the mineral and energy sectors unless health services and facilities are modified (where needed) to meet growing demands..

4.2. Demographics

The demographics of the WACHS West Pilbara catchment area will influence the type services and the models of care delivered at health campuses across the District.

This section highlights the population growth, gender / age distribution and cultural diversity that are unique to the District that will need to be considered in determining the future WACHS West Pilbara models of care.

4.2.1 Population growth

The population of the West Pilbara Health District grew by 13% from 2002 to 2006. This growth is higher than the Pilbara Health Region (10% increase) and Western Australia.

Recent announcements to expand the local energy and mineral industry in the District is anticipated to increase the permanent population and fly in/fly out (FIFO) workforce, placing greater demands on local infrastructure, goods and services.

A number of datasets exist to predict the anticipated growth in the West Pilbara Health District. The datasets all project the future population from the 2006 Census data but have varying underlying assumptions to estimate growth. The ABS Series B+ data set is currently used by WACHS for calculating anticipated growth in clinical activity. However the ABS projections exclude the FIFO workforce which, along with projected infrastructure development generating construction employment, has a significant impact on the Pilbara's population. Therefore activity forecasts for the WACHS Pilbara region are based on recent population projections undertaken by Heuris Partners⁸ which includes FIFO and construction workers.

The resident population projections, according to the ABS Series B+ and Heuris Partners datasets, are presented in Table 2.

Table 2: Resident Population projections, by dataset (2010 – 2020)

Dataset	Projected Resident Population Growth			% Growth
	2010	2015	2020	
Series B+ - West Pilbara	23,345	25,568	27,801	19%
Series B+ - Pilbara	46,486	49,828	52,973	14%
Heuris Base - Pilbara	48,960	57,161	58,255	17%
Heuris High - Pilbara	50,087	60,106	61,529	23%

⁸ 'Planning for resources growth in the Pilbara: revised employment and population projections to 2020' (for the Pilbara Industry's Community Council), Heuris Partners, March 2010

The Heuris Partners high end dataset was adopted as the basis for projecting future demand for healthcare services in the West Pilbara (see Section 7). The FIFO and construction workforce projections were included in the ED activity modelling, whereas inpatient projections were based on resident population forecasts only.

Table 3: Heuris Partners (high end) population projections, including FIFO and construction workforce

Population Component	2010	2015	2020
Projected Resident Population	50,087	60,106	61,529
FIFO	14,584	26,644	32,805
Construction	22,329	9,202	2,100
Total	87,000	95,952	96,434

Government and industry collectively agree that there is a need to expand the function and availability of local services and infrastructure in line with the expansion of the population. For WACHS West Pilbara, the expansion will be felt in all areas of service delivery and facility development across the continuum of care. As part of the *Pilbara Cities* vision, Karratha will be transformed into a major regional city with a population of approximately 50,000. This will involve significantly greater growth across the District than that assumed in the Heuris Partners projections. Therefore an ongoing, proactive approach to service planning, including regular monitoring of population growth, is essential to ensure that healthcare services are responsive to the rapidly changing needs of the District.

4.2.2 Gender

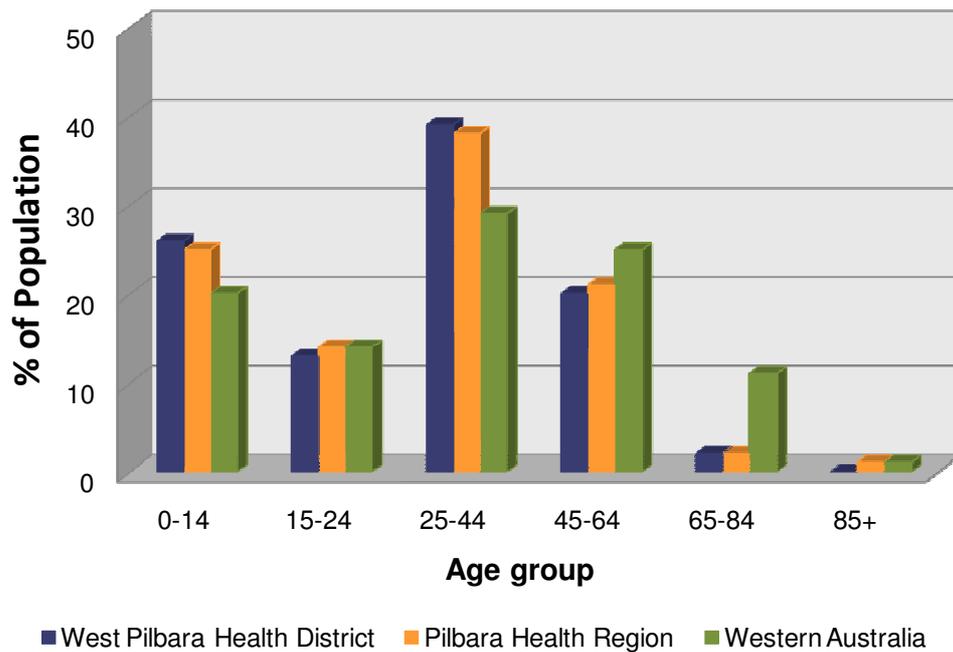
The 2006 Census showed that the majority of the West Pilbara population are males (approximately 55%). However, this figure is likely to be an underestimate as it excludes the significant fly in/fly out workforce which is predominantly male. Anecdotal feedback suggests there is currently a lack of social support services for males. WACHS staff recommended providing appropriate private and public health resources and crisis support services for males given the transient and often isolated nature of their work (away from family support). This was also supported by DMOs who highlighted that the majority of mental health and alcohol and other drug-related presentations to emergency departments involved males.

4.2.3 Age distribution

The age distribution across the West Pilbara shown in Figure 8 shows that the West Pilbara and Pilbara have a higher proportion of people aged 25-44 years and 0-14 years; and lower proportion of people aged 45 years and over when compared to WA.

This feature of the catchment area highlights the need to focus services across all age groups with a particular focus on meeting the needs of adults and young families. This could involve considering the need for centralised and dedicated health facilities and services that create social support for mothers, babies, toddlers and young families. The scope of services and facilities would need to be assessed on a site by site basis.

Figure 6: Comparative age distributions: West Pilbara, Pilbara and WA



Source: Australian Bureau of Statistics, 2006 Census (ABS, 2008, 2008a, 2008b, 2008c)

4.2.4 Cultural diversity

Aboriginal people

There are more than 31 Aboriginal cultural or language groups in the Pilbara⁹ with approximately 13% and 11% of the population of Roebourne and Ashburton shires, respectively, identifying as being Aboriginal (ABS, 2008b & 2008c). This is higher than the proportion for WA whereby 3% of the population identify as being Aboriginal (ABS 2008).

⁹ Source: Wangka Maya Pilbara Aboriginal Language Centre.

Although the proportion of indigenous people residing in Karratha (6.3%) is significantly lower than that in Roebourne (61%)¹⁰, the actual number of indigenous persons in Karratha was higher than that in Roebourne at the time of the 2006 Census. This is supported by anecdotal feedback from WACHS West Pilbara staff and will require consideration when planning for the location of future Aboriginal Health services. Mawarnkarra Health Service Aboriginal Corporation, the AMS covering the West Pilbara region, is based in Roebourne and therefore the lack of public transport services and infrastructure between the two towns is potentially limiting access to health services for Aboriginal people residing in Karratha and other areas within the district.

Ethnicity

The 2006 Census highlighted that approximately 17% of the West Pilbara Health District population were born overseas in countries including England, New Zealand, South Africa, Philippines and Scotland (ABS, 2008b & 2008c). Whilst this proportion is lower than the proportion of people born overseas for the WA population (ABS, 2008), the figures do not adequately reflect the nationality of fly in/fly out workers or short terms contractors.

WACHS West Pilbara staff have highlighted the increasing number people presenting to health services with 457 visas¹¹ place demands on local health services (public health nursing and medical services).

4.3. Factors Influencing Health Status

The following Section describes the current health status of the community and summarises the factors (or determinants of health) that will influence the health status of residents and visitors now and into the future. These influences include:

- Level of disadvantage experienced in the community (according to the Socio-Economic Indexes for Areas)
- Level of remoteness experienced by the catchment area
- Climate
- Access to housing and transport
- Lifestyle behaviours

The factors highlighted influence the demand for health services and should be considered when designing the future models of care.

¹⁰ ABS: 2006 Census Quickstats

¹¹ The 457 visa permits Australian or overseas employers to sponsor skilled overseas workers to work in Australia temporarily

4.3.1 SEIFA

The ABS produces the Socio-Economic Indexes for Areas (SEIFA) which measures the level of social and economic well-being of Australian geographical areas. According to the SEIFA Index of Relative Socio-Economic Disadvantage,¹² the West Pilbara Health District¹³ has a higher socio-economic status when compare to WA. This would be largely influenced by the incomes of residents derived from the local mining and energy sector.

A high SEIFA score would indicate fewer households with low incomes, fewer people with no qualifications or in low skilled occupations. However, WACHS staff have indicated that despite the level wealth in the community there are pockets of disadvantage whereby residents have limited resources and access to suitable health and human services. This includes Aboriginal communities, the elderly and those living with a disability.

4.3.2 Accessibility/Remoteness Index of Australia

According to the Accessibility/Remoteness Index of Australia (ARIA), the two shires within the West Pilbara Health District are categorised as *very remote* with very little access to goods and services and opportunities for social interaction.¹⁴

The distances (kilometres) and approximate vehicle travel time between Perth and major Pilbara towns are highlighted below.

Hours : Minutes				
Kilometers	Perth	19:00	18:00	17:00
	1,636	Port Hedland	3:00	5:00
	1,538	241	Karratha	5:00
	1,458	408	336	Tom Price

Source: <http://www.westernaustralia.com>

¹² Includes the variables of low-income, low educational attainment, high unemployment, and people with low skilled occupations. The baseline for the Index of Disadvantage is 1,000. A score above 1,000 indicates an area of socio-economic advantage, and a score below 1,000 indicates an area of disadvantage. The further the deviation away from 1,000, the greater the level of advantage or disadvantage.

¹³ Statistical Local Areas of Ashburton and Roebourne both have a SEIFA score of 1033 and a State ranking of 9.

¹⁴ ARIA is a continuous varying index with values ranging from 0 (high accessibility) to 15 (high remoteness). The value is derived from measures of road distance between populated localities and service centres. The road distance measures are then used to generate a remoteness score for any location in Australia.

This ARIA Index and table above reinforces the level of isolation and remoteness experienced by services and residents of the West Pilbara Health District. Therefore, one of the underlying aims for the future will be to ensure services continue to be integrated within an efficient integrated 'hub and spoke' model that provide adequate coverage within the resources provided. Furthermore, to meet the needs of the community, services need to be supported by modern ICT and other support services which enable staff and services to operate in a range of settings across the District.

4.3.3 Availability to transport

Transport is both a key economic attribute of the Pilbara, and a significant deficiency. Whilst transport routes and infrastructure are well developed to support the mineral and energy sector - infrastructure for the general public to travel within the region are lacking.

The limited infrastructure within the remote area can impact of health service delivery by WACHS and resident's access to health services. For example, the road between Tom Price and Karratha is currently unsealed and only accessible with permission of the owner of the road. Therefore patients are often transferred to Perth (via flights) rather than transferred to a hospital in the Pilbara Health Region. This is due to the convenience and efficiency of flights to Perth for patient transfers. The inclusion of a new helipad at Karratha Health Campus will resolve some of the issues surrounding patient transfers (refer to Section 3.2.1)

More broadly, the distance to travel between towns (via road) is significant, with motorist driving through highly remote areas, often at high speeds, sometimes in extreme weather conditions and in settings that have a mixture of heavy and light vehicles and sealed and unsealed roads.

These conditions present a number of risks for local emergency services to mitigate. Health partners including Fire and Emergency Services and St John highlighted the increasing demands on services brought on by road trauma as well as the difficulties faced in responding to road trauma in remote settings.

These concerns highlight the need to continue government and non-government partnerships across to ensure a continuum of care to respond to and manage emergencies such as road trauma.

A number of issues were also highlighted in staff and health partner consultation due to the lack of public transport in Karratha and surrounding areas. The issues highlighted included:

- Health consumers without access to vehicles will not access health services. Staff have reported this is a pertinent issue for some Aboriginal people, young mothers, elderly and those living with a disability who are often isolated and unable to access transport readily.

- The existing community bus service does not generally support consumers to access health services as it operates twice daily on Saturday and Sunday.
- The lack of public transport options greatly contribute to the significant staff turnover issues for WACHS West Pilbara).

4.3.4 Climate

Health service delivery and the health status of the West Pilbara Health District are affected by the local climate. Temperatures across the District can be extreme in both the dry season (August to December) and the wet season (January to July). The average daytime temperatures range from 28°C to 36°C and can peak to mid 40 °C. These extreme conditions can cause health issues including heat stress and dehydration.

Furthermore, the Bureau of Meteorology (2009) has estimated that the Pilbara region experiences at least one cyclone every two years which can impact on health service delivery, supply routes, and the health of the community. The potential health impacts of cyclonic events include:

- major trauma from the impact of debris and collapse of infrastructure;
- impaired capacity to respond to health needs as health services themselves are subject to power failures, flooding, structural damage or isolation; and
- risk of post-cyclone disease outbreaks as a result of contaminated water supply and impaired sewerage/drainage systems, or vector borne diseases due to stagnating water post flooding.

Strategies to manage and respond to these potential climate risks need to be adequately resourced to ensure community safety during extreme weather conditions.

4.3.5 Housing availability

The growth in population in the West Pilbara Health District has exceeded housing availability in key population centres like Karratha. For State Government agencies and industry, this has been detrimental to workforce availability and consequently the ability to sustain services and investment in the District.

Some services reported that the lack of staff housing/accommodation had directly resulted in the reduction or closure of service provision in Karratha.

4.3.6 Health status and health service needs

Lifestyle behaviours

The WA Health and Wellbeing Surveillance System surveys around 6,000 West Australians regularly. The System examines health and wellbeing indicators including health risk behaviours, prevalence of chronic diseases, health service utilisation and the level of psychological distress.

The results of the 2007 analysis for the West Pilbara Health District are highlighted in Figure 7.

The Figure shows that when compared to WA males and females in the West Pilbara are more likely to smoke and drink at risk/high risk levels; males are more likely to be obese and females are more likely to be injured.

Residents of the West Pilbara were less likely to access primary health care services, dental services and were more likely to access hospital-based services when compared to WA.

Figure 7: West Pilbara Health District population profile, adults aged 16 years and over, Health and Wellbeing Surveillance System, Jan 2005 to Sept 2007

	West Pilbara				Western Australia			Significant differences from Western Australia		
	Prevalence Estimate (%)			Estimated Pop'n (no.)	Prevalence Estimate (%)			Female	Male	Persons
	Female	Male	Persons	Persons^	Female	Male	Persons			
Health Enhancing Behaviours - adults 16 years and over										
Currently smokes	23.3	27.1	25.5	4477	15.6	18.3	16.9	Higher	Higher	Higher
Does not eat two or more serves of fruit daily	51.1	57.3	54.6	9601	43.9	53.1	48.5	Higher	-	Higher
Does not eat five or more serves of vegetables daily	85.6	87.1	86.4	15201	81.0	84.5	82.8	-	-	Higher
Drinks at risky/high risk levels for long-term harm (a)	10.9	12.7	11.9	2101	5.8	7.6	6.8	Higher	Higher	Higher
Drinks at risky/high risk levels for short-term harm (b)	22.9	25.0	24.1	4247	13.4	14.2	13.8	Higher	Higher	Higher
Insufficient physical activity (c) (16 to 64 years)	48.4	56.9	53.1	9109	53.8	51.3	52.5	-	-	-
Risk Factors - adults 16 years and over										
Current high blood pressure (25 years and over)	9.8	17.4	14.2	2087	18.6	18.4	18.5	Lower	-	Lower
Current high cholesterol (25 years and over)	13.0	13.4	13.3	1955	18.0	20.2	19.1	-	Lower	Lower
Overweight	27.0	48.4	39.1	6881	26.1	43.1	34.7	-	-	-
Obese	15.7	24.1	20.5	3599	17.4	16.6	17.0	-	Higher	-
High or very high psychological distress	11.2	3.9	7.1	1253	9.7	6.7	8.2	-	-	-
Lack of control over life in general (d)	4.5	2.6	3.4	600	4.2	3.6	3.9	-	-	-
Prevalence of National Health Priority Area Health Conditions and Injury										
Diabetes (16 years and over)	3.5	3.4	3.4	603	5.7	5.6	5.7	-	-	Lower
Heart disease (25 years and over)	1.8	3.4	2.7	401	5.6	8.8	7.2	Lower	Lower	Lower
Cancer (25 years and over)	3.5	2.5	3.0	438	7.1	6.0	6.6	Lower	Lower	Lower
Current Asthma (16 years and over)	10.6	7.3	8.8	1540	12.1	8.0	10.1	-	-	-
Current respiratory problem (e) (16 years and over)	1.4	1.5	1.5	255	1.8	2.4	2.1	-	-	-
Stroke (25 years and over)	0.8	1.8	1.4	203	1.7	2.4	2.1	-	-	-
Arthritis (25 years and over)	16.1	14.3	15.1	2226	28.5	21.0	24.8	Lower	Lower	Lower
Osteoporosis (25 years and over)	6.1	1.4	3.4	496	8.5	2.7	5.6	-	-	Lower
Injury (f) (16 years and over)	22.7	33.4	28.7	5055	17.7	27.7	22.7	Higher	-	Higher
Current mental health problem (g) (16 years and over)	16.9	4.2	9.8	1717	14.8	8.0	11.4	-	Lower	-

	West Pilbara				Western Australia			Significant differences from Western Australia		
	Prevalence Estimate (%)			Estimated Pop'n (no.)	Prevalence Estimate (%)					
	Female	Male	Persons	Persons [^]	Female	Male	Persons	Female	Male	Persons
Health Service Utilisation in the last 12 months - adults 16 years and over										
Used a primary health care service (h)	88.7	81.2	84.5	14865	91.4	85.6	88.5	-	-	Lower
Used a dental health care service	46.5	39.4	42.5	7477	53.0	47.6	50.3	Lower	Lower	Lower
Used a mental health care service (i)	8.2	4.3	6.0	1054	6.6	3.9	5.2	-	-	-
Used an allied health care service (j)	49.9	47.9	48.8	8577	51.7	44.5	48.1	-	-	-
Used a hospital based health care service (k)	31.1	29.3	30.1	5292	26.1	24.4	25.2	-	-	Higher
Used an alternative health care service (l)	10.1	6.0	7.8	1375	12.3	6.5	9.4	-	-	-
Mean visits to primary health care service (h)	4.9	3.0	3.8	N/A	5.3	3.7	4.5	-	Lower	Lower
Mean visits to dental health care service	1.0	0.8	0.9	N/A	1.1	0.9	1.0	-	-	Lower
Mean visits to mental health care service (i)	0.5	0.3	0.4	N/A	0.4	0.2	0.3	-	-	-
Mean visits to allied health care service (j)	2.2	2.2	2.2	N/A	3.3	2.1	2.7	Lower	-	-
Mean visits to hospital based health care service (k)	0.7	0.7	0.7	N/A	0.5	0.5	0.5	-	-	-
Mean visits to alternative health care service (l)	0.5	0.2	0.4	N/A	0.7	0.4	0.5	-	-	-

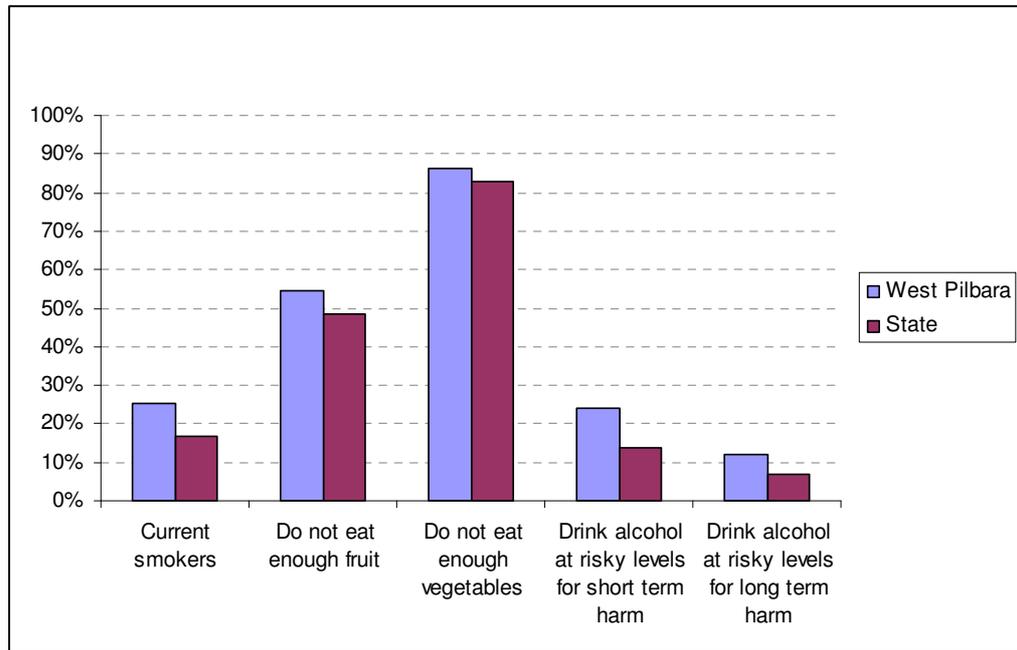
[^] Estimated population refers to the estimated number of people with the particular risk factor/condition. It is derived by multiplying the Estimated Resident Population by the persons prevalence estimate.

- (a) As a proportion of respondents who reported drinking alcohol. Drinks more than 4 standard drinks per day for males (29 or more per week) and more than 2 standard drinks per day for females (15 or more per week).
- (b) As a proportion of respondents who reported drinking alcohol. Drinks 7 or more standard drinks per day for males and 5 or more standard drinks per day for females.
- (c) Did not do 150 minutes or more of moderate activity over five or more sessions.
- (d) Often or always feels a lack of control over life in general.
- (e) Respiratory problem other than asthma that has lasted 6 months or more.
- (f) Injury in the last 12 months requiring treatment from a health professional.
- (g) Diagnosed with depression, anxiety, stress-related or other mental health problem in the past 12 months.
- (h) e.g. medical specialist, general practitioner, community health centre, community or district nurses.
- (i) e.g. psychiatrist, psychologist or counsellor.
- (j) e.g. optician, physiotherapist, chiropractor, podiatrist, dietitian, nutritionist, occupational therapist, diabetes/other health educator.
- (k) e.g. overnight stay, accident and emergency department or outpatients.
- (l) e.g. acupuncturist, naturopath, homeopath or any other alternative health service.

Source: Epidemiology Branch and WACHS (2008, p. 7-8).

The figure below summarises the key risk factors for the West Pilbara district.

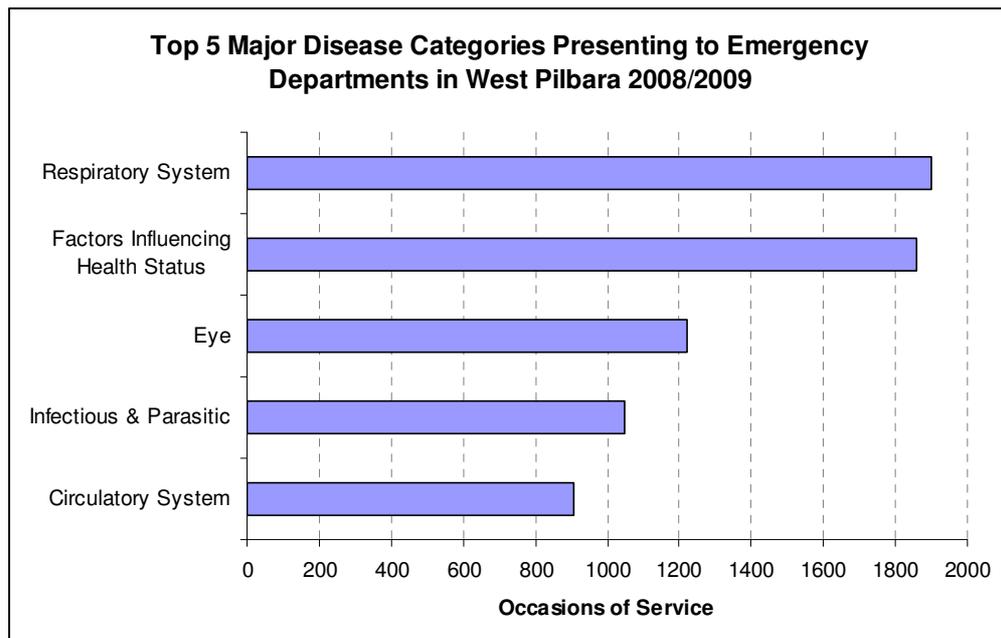
Figure 8: Prevalence of risk factors in the West Pilbara

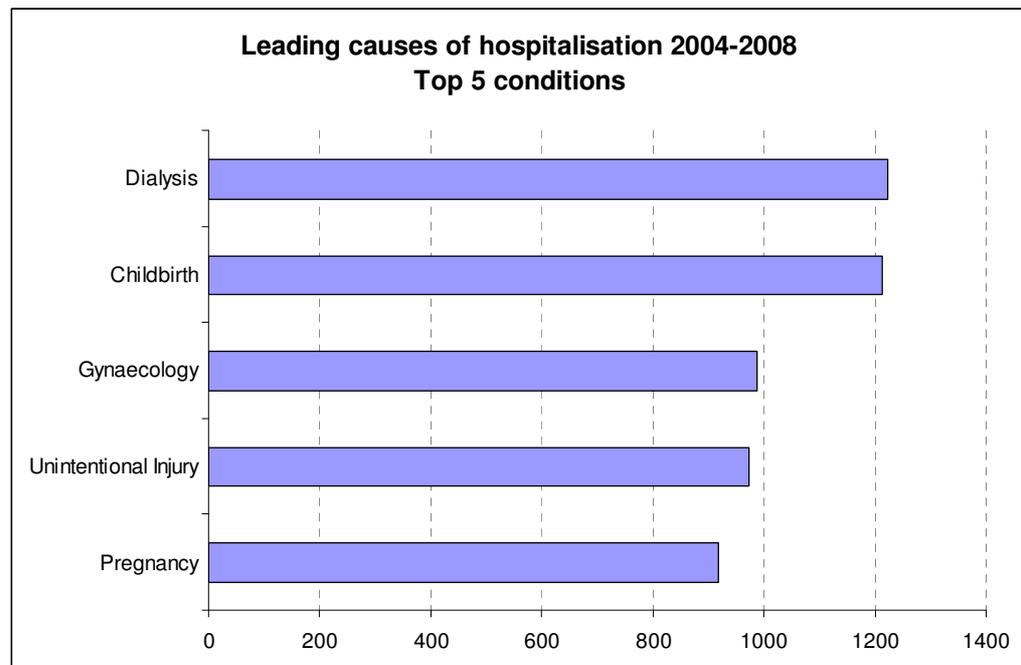
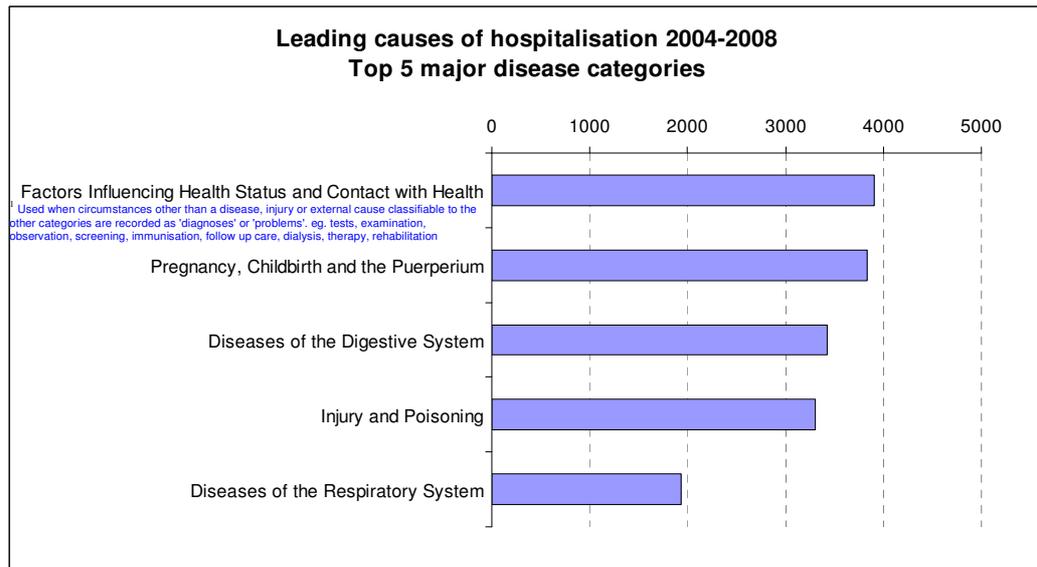


Leading Causes of Hospitalisation

The following graphs summarise the major disease categories and conditions for presentation to Emergency Departments and admission to hospitals within the West Pilbara region.

Figure 9: Leading causes of Hospitalisation – West Pilbara





Public Health Indicators

Public health indicators for the residents of the Pilbara Health Region, Metropolitan area and the State are presented in the *Pilbara Clinical Services Plan*. The indicators show that:

- Notifiable diseases, particularly sexually transmissible infections in the Pilbara were higher when compared to the State and metropolitan area.
- Age specific-birth rate (per 1,000 women aged 15-44 years) was higher in the Pilbara when compared to State and metropolitan area.
- Teenage pregnancy values are higher than the State average.

- Youth suicide rates in males aged 15-24 years are higher than the State average.
- Participation in cervical cancer screening programs was lower than the State.
- Hospitalisation for accidental falls (per 1,000 person) amongst the elderly in the Pilbara was less than the State and metropolitan area.
- Childhood immunisations, accidental falls and cancer incidence rates were similar to metropolitan and State-wide rates.

The data does not differentiate between Aboriginal and non-Aboriginal residents of the Region. Data describing the health status of Aboriginal people in the Pilbara Region is presented in Section 4.3.7.

4.3.7 Health needs of the Aboriginal community

The *2009 Aboriginal Health Profile* for the Pilbara Health Region highlighted the following trends:

- From 1998 to 2007, mortality rates for diabetes, cardiovascular disease, respiratory disease, injury and poisoning, mental health conditions, kidney disease, alcohol-related conditions and tobacco-related conditions were all significantly higher in the Pilbara Aboriginal population than the combined (Aboriginal and non-Aboriginal) State population.
- Mortality rates for cancer for both Aboriginal males and females were similar to the combined State population.
- Over the period 1997 to 2006, the leading causes of mortality among Aboriginal people from the Pilbara Health Region were cancer and ischemic heart disease, followed by diabetes.
- From 2004 to 2008, the hospitalisation rate for diabetes, cardiovascular disease, respiratory disease, injury and poisonings, kidney disease and alcohol-related conditions and tobacco-related conditions were significantly higher in the Aboriginal Pilbara population compared with the State Aboriginal population, while the hospitalisation rate was significantly lower for other-drug-related conditions.
- Between 2004 and 2008, the separation rate for mental health, injury and poisoning and kidney disease in the Pilbara Health Region among Aboriginal people significantly increased.
- Of all presentations to Pilbara emergency departments involving Aboriginal people the most common Major Disease Category (MDC) that people presented with was injury, poisoning and toxic drug effect followed by, skin, subcutaneous tissue and breast conditions in 2007/08.

The Profile highlights the significant health issues of the Aboriginal population of the Pilbara Health Region and justify the need to enhance service delivery and access to culturally secure health services for Aboriginal people.

Meeting the Health Needs of the West Pilbara

Key considerations

- There are more than 31 Aboriginal cultural or language groups in the Pilbara with approximately 13% and 11% of the population of Roebourne and Ashburton shires, respectively, identifying as being Aboriginal .
- The varying levels of socioeconomic disadvantage across the District suggests that there are pockets of the community that may have difficulty accessing mainstream services, either due to living in remote areas, lack of transport or financial difficulties.
- The level of remoteness reinforces the need to ensure that health services are appropriately resourced and configured to provide adequate and timely responses to the health needs of the communities.
- The growth in population in the West Pilbara Health District has exceeded housing availability in key population centres like Karratha. This has been detrimental to workforce availability and consequently the ability to sustain services and investment in the District.

Recommendations

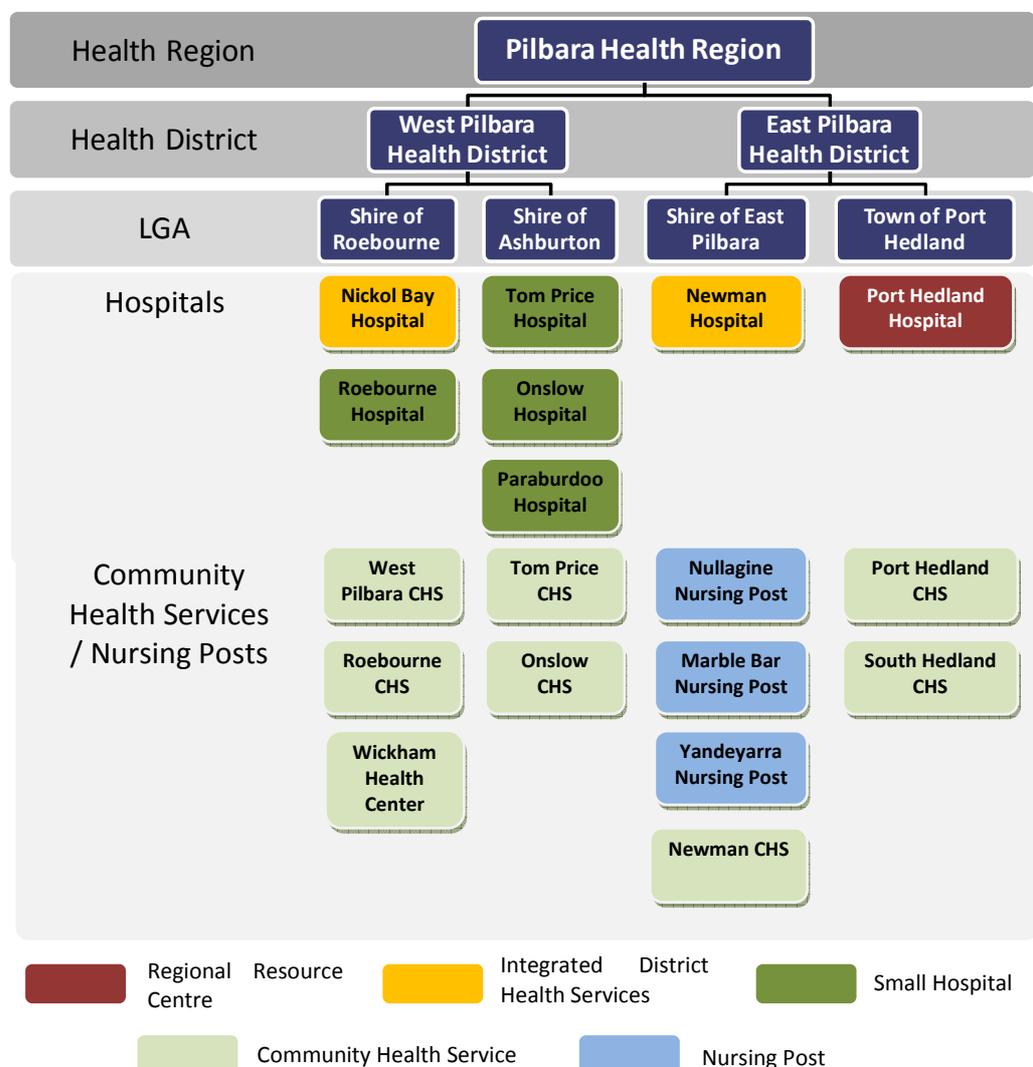
- An ongoing proactive approach to service planning is essential to ensure healthcare services are continually developed or reconfigured to meet the rapidly changing needs of the region, including forecast population growth and changes in the demographic makeup of the catchment area. The development of culturally appropriate sustainable services that are adaptable to change is essential.
- Introduce models of care that improve access to services for groups who have difficulties accessing acute and primary health care services (e.g. rural and remote communities; elderly; young mothers; Aboriginal communities and those living with a disability).
- Utilise the Department of Health Redundancy and Disaster Planning Guidelines (2008) for facility and service planning to ensure local climate issues are appropriately addressed.
- Continue to encourage and develop partnerships with external stakeholders to address determinants of health and broader community infrastructure issues such as:
 - Increasing the availability of housing
 - Improve public transport infrastructure (e.g. road between Tom Price and Karratha)
- Enhance health promotion, primary health, oral health, mental health and public health services to address local priorities.
- Enhance Aboriginal health initiatives consistent with 'Closing the Gap' and other local priorities
- Develop sustainable workforce models.

5. Current Service Scope

The network of health services in the WACHS Pilbara Health Region and the delineation of services into West and East Pilbara Health Districts, is summarised in Figure 10

There are currently five WACHS West Pilbara hospitals that deliver clinical services to the local catchment area. These services are supported by community health centres in their relevant areas. A public hospital did exist in Wickham, however the facility is now a health centre for the local community, with emergency care provided from Roebourne or Nickol Bay hospitals.

Figure 10: WACHS Pilbara: Location of clinical services, by district and LGA



Healthcare services are also provided by non-government agencies, community organisations and private providers as outlined in Section 6.

A summary of the five hospitals in the West Pilbara region is provided in Table 4.

Table 4: Key public hospitals providing services for West Pilbara residents

Facility	Role Delineation	Bed Numbers	Total Seps (2008/09)	Average Occupancy Rate (2008/09)
Nickol Bay / Karratha	Integrated District Health Service	31	3,229	51%
Tom Price	Small Hospital	8	451	28%
Roebourne	Small Hospital	8	270	20%
Onslow	Small Hospital	6	269	23%
Paraburdoo	Small Hospital	2	128	20%

The *WA Clinical Services Framework 2010 – 2020* defines Nickol Bay Hospital in Karratha as the largest, specialised hospital in the West Pilbara Health District. Under this framework, Nickol Bay Hospital is an Integrated District Health Service (IDHS) or the ‘hub’ for hospitals in the West Pilbara Health District. A range of regional and district services are coordinated from Nickol Bay Hospital to support the smaller hospitals in Roebourne, Tom Price, Onslow and Paraburdoo. These regional and district services provide visiting health personnel, corporate and support services.

When required patients requiring more specialised treatment are transferred to the current Port Hedland Hospital¹⁵ or a tertiary hospital in the metropolitan area.

This level of integration enables WACHS - Pilbara to:

- provide appropriate and safe care in suitably equipped and appropriately resourced facilities, according to the acuity of the patient; and
- provide care closer to home where possible – reducing the need to travel to Perth for treatment.

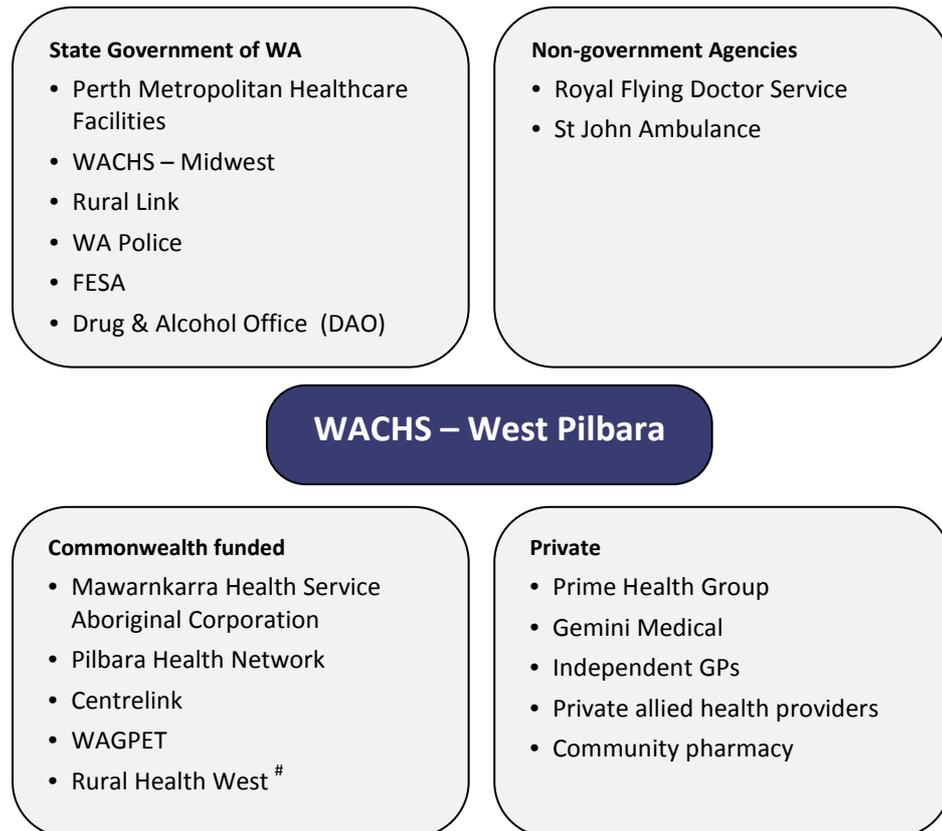
A summary of the clinical services delivered at each hospital is provided in Appendix 1.

¹⁵ Regarded as a Regional Resource Centre in the *WA Clinical Services Framework 2010 – 2020*

6. Health Partners

The health partners for WACHS West Pilbara are highlighted below. These services have partnerships with WACHS West Pilbara in providing direct care, support or health programs for health consumers. Their role is highlighted below.

Figure 11: WACHS West Pilbara health partners



Rural Health West is also part funded by the State Government of WA.

Description of health partners

- WACHS Pilbara has a number of linkages with **metropolitan healthcare services** and will continue to explore and further develop these links for the benefit of Pilbara clients and staff.
- **WA Police** and **Fire and Emergency Services (FESA)** work together with WACHS West Pilbara, **Royal Flying Doctors Service (RFDS)** and **St John Ambulance** to coordinate emergency management responses for the West Pilbara Health District. This is largely coordinated through the Local Emergency Management Committee.
- **Rural Link** provide a specialist after-hours mental health telephone service for the rural communities and health services of WA.

- **Mawarnkarra Health Service Aboriginal Corporation** is a primary health care service. Based in Roebourne, the service provides culturally secure health care in partnership with WACHS Pilbara to the local community. This includes: GP services, nursing services, non-emergency health care services and programs including women's health, men's health, antenatal initiatives. Allied health services are provided by visiting WACHS West Pilbara staff.
- **Pilbara Health Network** (formerly the Pilbara Division of GP) has a number of partnerships with WACHS West Pilbara to complement the work of local GPs. Pilbara Health Network provides access to allied health services, chronic disease management programs and community health initiatives. The Pilbara Health Network and WACHS West Pilbara jointly fund the Dietitian role for the West Pilbara. The main office is located in Karratha. More information about the Pilbara Health Network can be found at <http://www.pdgp.com.au/>
- The WACHS, **Pilbara Health Network, Western Australian General Practice Education and Training (WAGPET)** and **Rural Health West** have formed a consortium and developed a collaborative service and training model to deliver comprehensive primary health care and training in the West Pilbara (refer to Section 3.1.4).
- **Centrelink** employs a Social Worker and is a referral point for WACHS West Pilbara Population Health and PMHDS.
- Independent General Practitioners (GP) and GPs provided by two main corporate agencies – **Prime Health Group** and **Gemini Medical** – service the West Pilbara Health District. As of February 2010 there are 18.9 GPs who are permanently based in the West Pilbara Health District. The locations of these GPs are shown below.

Table 5: Number of General Practitioners in the West Pilbara

Town	Number of GPs
Karratha	10.3
Tom Price	2.6
Pannawonica	1.0
Onslow	0.6
Roebourne	2.0
Paraburdoo	1.4
Wickham / Port Samson	1.0
Total West Pilbara	18.9

Source: WACHS West Pilbara

7. Current & Future Service Delivery Profile

The following section details the current and projected demand for services in the West Pilbara Health District. Future models of care are proposed to manage demand for services, improve efficiencies in patient care, meet the needs of the local catchment area and ensure alignment with existing policies and strategies. The information will provide guidance for services in the District as they work towards consolidating improved models of care and will assist in informing the development of future business cases for the potential redevelopment of services.

Sections 7.1 and 7.2 provide an overview of current activity for District and a description of patient flows both within the region and outflows to other regional and metropolitan healthcare facilities.

The remaining sections outline each service area under the following:

Current and Projected Service Profile:

The services available at each facility across the West Pilbara are outlined. Current activity data is included where available, along with forecast demand projections.

Service Delivery Plan:

Recommended actions required to consolidate the future models of care for each service area are described. The recommendations have been prioritised in terms of when they should be actioned/investigated: High (within 6 months), Medium (6 - 12 months); Low (12+ months or ongoing).

It is important to acknowledge that implementing the recommendations will be dependent on the availability of funding and the degree to which the staff and specialists can be attracted and retained to deliver the services.

7.1. Overview of Activity for the West Pilbara District

Table 6 highlights that there were 4,347 separations from WACHS West Pilbara hospitals in 2008/09. Eighty-seven percent (87%) of these separations involved residents of the District. The majority of separations were from the Nickol Bay Hospital (74%). Of the 3,229 separations at Nickol Bay Hospital, 87% involved residents of the West Pilbara Health District.

Tom Price Hospital had the second highest number of separations (10%), followed by Roebourne and Onslow Hospitals (6%). Paraburdoo Hospital had the lowest number and proportion of separations.

Table 6: WACHS West Pilbara supply of services (2008/09)

Hospital	Separations, by Resident Grouping				% of Total Separations
	West Pilbara residents	East Pilbara residents	Pilbara non resident	Total	
Nickol Bay	2,825	38	366	3,229	74%
Tom Price	356	13	82	451	10%
Roebourne	256	1	13	270	6%
Onslow	238	3	28	269	6%
Paraburdoo	97	2	29	128	3%
Total	3,772	57	518	4,347	100%

Source: HCARE & TOPAS via Data Warehouse (via ATS online pivot and ATS detail online pivot as at end of April 2010). Provided by WACHS Area Office.

The data in the Section 7.4 and 7.5 reveal the following trends since 2005/06:

- The number of presentations to all emergency departments in the West Pilbara has increased, with Tom Price Hospital experiencing the greatest growth.
- The acuity of patients presenting to emergency departments at Nickol Bay, Tom Price, Roebourne and Paraburdoo hospitals has increased.
- The total number of separations from Nickol Bay, Tom Price and Onslow hospitals has increased.
- The average length of stay (ALOS) has generally been between 1 – 3 days at Nickol Bay, Tom Price, Paraburdoo and Onslow hospitals since 2005/06.
- The ALOS at Roebourne Hospital has been variable, ranging from 2.4 to 8.5 days since 2005/06.
- Occupancy rate at all WACHS West Pilbara facilities is below 50%.

7.2. Patient Flow

7.2.1 Demand for health services by residents of West Pilbara Health District

In 2007/08, approximately 7,319 separations from all WA private and public hospitals involved residents of the West Pilbara Health District. Of these separations:

- 43% were from WACHS West Pilbara hospitals;
- 13% were from the WACHS East Pilbara hospitals;
- 22% were from metropolitan hospitals; and
- 21% were from private health facilities.

The data is presented in the next Table.

7.2.2 Self Sufficiency of WACHS West Pilbara hospitals

'Self sufficiency' is a calculation used to identify the proportion of resident separations that are managed by a WACHS West Pilbara hospital.

The overall self-sufficiency of WACHS West Pilbara hospitals in 2007/08 was 55% (excluding private facilities). This indicates that 55% of West Pilbara Health District residents (public patients) received care from a WACHS West Pilbara facility.

Due to the level of remoteness and availability of onsite specialists, a country health service will not achieve 100% self sufficiency. Highly acute patients will continue to be transferred to Perth where tertiary or highly specialised services and medical equipment are located.

Table 7: West Pilbara resident total separations, by health facility (2007/08)

Area	Hospital	Residents' Total Separations 2007/08	% of Total Public & Private Separations
West Pilbara Health District	Nickol Bay	2,253	31%
	Roebourne	285	4%
	Tom Price	285	4%
	Onslow	219	3%
	Paraburdoo	95	1%
Sub-total (West Pilbara)		3,142	43%
East Pilbara Health District	Port Hedland	920	12%
	Newman	8	<1%
Other WACHS Regions	Other	92	1%
Sub-total (other WACHS)		1,020	13%
South Metropolitan Health Service	All	795	11%
North Metropolitan Health Service	All	792	11%
Sub-total (metro)		1,587	22%
Total Public Patients		5,749	78%
Private Facilities	All	1,570	22%
Total (Private and Public)		7,319	100%

Source: HARDS 2007/08

7.2.3 Assumptions for future patient flows

The modelling undertaken by the WACHS Planning Team to project inpatient activity for the West Pilbara region is based on the following assumptions:

- Workforce Reform - it is anticipated that WACHS will be able to increase its retention rate of general specialists at all Regional Resource Centres and Integrated District Health Services within the Kimberley and Pilbara regions. This translates to an assumption that by 2016/17 WACHS West Pilbara will retain 85% of admissions relating to SRGs for general medicine, general surgery, and obstetrics and gynaecology.
- Development of the Broome Mental Health Unit – it is assumed that with the development of this Unit, 80% of the flows from the Kimberley and Pilbara to Perth/Graylands for admissions relating to drug and alcohol and psychiatry SRGs will reverse to Broome.

- Increase WACHS self sufficiency for renal dialysis services - it is assumed that by 2011/2012 there will be 85% retention of renal dialysis patients for the Kimberley and Pilbara regions, therefore fewer WACHS patients will need to relocate to Perth. The satellite dialysis service will continue to operate at Port Hedland Hospital, with satellite outreach services proposed for Roebourne and Newman.
- Intra-regional flow changes – 90% flow reversals from Port Hedland to Nickol Bay Hospital for West Pilbara residents are assumed for a number of ESRGs (as attached at Appendix 3).

Based on these assumptions, it is anticipated that the self-sufficiency of WACHS West Pilbara Hospitals will significantly increase from the rate of 55% being achieved in 2007/08. However, rather than aiming for an overall proposed level of self-sufficiency, the focus will be for the West Pilbara to achieve a target level of retaining 85% of admissions relating to the several core specialty areas outlined above.

7.3. Community Based Services

7.3.1 Ambulatory Care

Current Service Profile

An Ambulatory Care Service is provided 30 hours a week at Nickol Bay Hospital by a Clinical Nurse. The Service works with local GPs and clinical services to provide sub-acute care including wound care, palliative care, renal care and administration of antibiotics. Visiting medical practitioners (VMPs), including dermatology and paediatric services, and allied health staff provide outpatient services.

There is no such service defined as 'ambulatory care' at the remaining hospitals, however outpatient services through VMPs are provided at Roebourne, Tom Price and Onslow. Service sustainability relies on available workforce.

Identified Issues and Challenges

Consultation with staff indicates that there is a number of ambulatory care or planned same day (walk-in/walk-out) admissions to inpatient areas of Nickol Bay Hospital. This includes cases that require wound care or intravenous antibiotics for dental infections and cellulitis. With a dedicated space to expand Ambulatory Care Services, these cases could be seen in an ambulatory care setting, reducing admissions to the inpatient area.

Space for visiting specialists to provide outpatient services are currently limited at KHC. Specialist services are competing with the space required to accommodate corporate and support services. These space constraints are currently impacting on WACHS West Pilbara's ability to sustain specialist services at KHC.

Feedback from staff and health partners has indicated that sections of the community have difficulty in accessing primary health care services because of competing demands from local industry, lack of transport and limited affordable primary health care services. Stakeholders have indicated that there is a gap in providing accessible primary health care services to the elderly, those living with a disability, Aboriginal people and young families.

The proposed West Pilbara Primary Health Service and Training Centre is an initiative that aims to close the gap and increase access to primary health care services in Karratha and surrounding areas. The Primary Health Service and Training Centre would provide a bulk billing GP services (among other initiatives) which would make health services more accessible to the community and strengthen the continuum of care across the West Pilbara Health District. Planning for the Centre will need to include a strong focus on engaging with the local Aboriginal people with the aim of developing services that are culturally appropriate for all consumers irrespective of race.

Service Delivery Plan

Ambulatory Care Services	
Recommendations	Priority
Establish an ‘Ambulatory Care Centre’ at KHC to accommodate and collocate all planned, same-day, walk-in/walk-out activity including: <ul style="list-style-type: none"> • West Pilbara Primary Health Service and Training Centre <ul style="list-style-type: none"> - General Practitioners (opportunity for bulk billing) & AMS Services - Private Allied Health - WACHS Population Health Services - Pilbara Mental Health & Drug Service (PMHDS) - Training and Development facilities • Consult space for visiting specialists and outpatient clinics • Day Surgical Unit • Ambulatory Care Service • Public dental health services • Cancer support services & dialysis support services • Potential for the future provision of renal dialysis services depending on the identified clinical need. 	HIGH
Provide staff assisted renal dialysis in Roebourne through a four chair satellite outreach service (WACHS Renal Dialysis Plan 210-2021). Planning for this service will need to consider the potential requirement for future expansion. The service in Roebourne would be supported by the Port Hedland satellite service and Royal Perth Hospital, with dialysis sessions linked by videoconference for remote monitoring.	HIGH
Introduce initiatives to increase resident’s access to dental health services and primary health care services.	MEDIUM
Determine feasibility of utilising space within Wickham Health Centre for private practitioner consult/treatment.	LOW

7.3.2 Population Health Service

Current Service Profile

WACHS - Population Health Service is an essential element of the continuum of care for the West Pilbara Health District. Population Health aims to prevent illness and injury by providing health and wellbeing programs and services to the community. Services include:

- Early years/early childhood, adolescent and parenting initiatives mainly through child health, school health and community health generalist nursing services;
- Child development and disability services;
- Communicable disease control including immunisation;
- Allied health including primary health, rehabilitation and outreach services;
- Health enhancement including health promotion, health screening for early detection and management of acute and chronic disease; and
- Injury prevention and other risk mitigation initiatives (such as smoking prevention/cessation, mental health promotion).

Population Health Services in the West Pilbara Health District are based at:

- West Pilbara Community Health Service (Karratha – Warambie Centre)
- Roebourne Community Health Service (Roebourne)
- Ashburton Community Health Service (at Tom Price Hospital)
- Onslow Community Health Service (Onslow)
- In Karratha child health nursing services are provided from child health facilities maintained by the Shire of Roebourne.
- School health nurses though employed by WACHS generally provide their nursing services directly within schools.

Population health staff (which includes community nurses, allied health staff, child health nurses, health promotion officers and an Aboriginal Health Worker, public health medicine sexual health and environmental health) provide services and programs in a range of settings across the West Pilbara Health District including the WACHS West Pilbara community health centres, child health clinics, hospitals, homes, schools and the Mawarnkarra Health Service Aboriginal Corporation in Roebourne.

Population health services in Karratha are delivered from the Warambie Centre which is located closer to the town centre and some distance from the KHC. The Warambie Centre accommodates a range of visiting specialists. For example, the Centre has an audiology room including a sound booth for a visiting Audiologist and provides space for a visiting Podiatrist. A Paediatric Endocrinologist also visits the Centre quarterly.

Service Delivery Plan

Population Health Services	
Recommendations	Priority
Collocate Population Health Services (currently at Warambie Centre) with Karratha Health Campus to create a 'one stop shop for health consumers. This would allow sharing of resources, improve partnerships and continuum of care and remove the need to travel between two sites to provide care.	MEDIUM
Continue to formulate partnerships with external stakeholders to address determinants of health and broader community infrastructure issues such as: <ul style="list-style-type: none"> Increasing the availability of housing Improving the road infrastructure between towns (eg. Tom Price to Karratha) Improving public transport options in Karratha 	MEDIUM
Establish partnerships between health, human and social services to ensure appropriate crisis care / service provision to adult males.	MEDIUM
Introduce models of care that mobilise services to increase access to health services for groups who have difficulties accessing acute and primary health care services (e.g. rural and remote communities; elderly; young mothers; Aboriginal communities and those living with a disability).	MEDIUM
Provide comprehensive sexual health programs to reduce prevalence of sexually transmissible infections.	MEDIUM
Enhance health promotion initiatives to quit smoking and reduce alcohol intake.	MEDIUM
Enhance health promotion initiatives to increase access and intake of fruit and vegetables by the community.	MEDIUM
Develop care pathways for fly in / fly out workers, particularly 457 visa holders.	LOW

7.3.3 Aboriginal health

The Mawarnkarra Health Service Indigenous Corporation is an Aboriginal Medical Service (AMS) based in Roebourne but covers the entire West Pilbara region. Basic GP and nursing services are provided as a primary health care service (i.e. non emergency care) including a mixture of women's health, men's health, antenatal, wellbeing and other programs.

Identified Issues & Challenges

The need to enhance Aboriginal health was highlighted in most workshops and interviews. Staff indicated there was a need to build the capacity for Aboriginal health in the West Pilbara Health District.

There is a strong need to enhance antenatal and postnatal initiatives for Aboriginal women in the West Pilbara Health District. Hades 2007/08 data shows that 25% of births by Aboriginal women in the West Pilbara involved women under 20 years of age (16 of 62 births). In comparison, 2% of births by non-Aboriginal women in the West Pilbara involved women under the age of 20.

WACHS West Pilbara midwives have also indicated that many Aboriginal women present to health services later in their pregnancy without an antenatal assessment. These women are often transferred to Port Hedland to give birth away from family support.

The existing midwife at the Mawarnkarra Health Service Aboriginal Corporation is currently stretched in providing antenatal classes and assessment to Aboriginal women. With an enhanced Aboriginal workforce and culturally secure initiatives, staff felt that the challenges in providing care to Aboriginal women could be largely overcome.

Service Delivery Plan

One of the key directions for assisting in improving the health status of the Aboriginal community is to promote Indigenous focused early intervention and preventative community and outreach services as culturally sensitive alternatives to hospital based care. Key elements of the approach to managing Aboriginal peoples' needs include respect, recognition of the need to value the local sense of place, appropriate staff training (orientation and ongoing), appropriate range of health workers (male and female) creating a welcoming environment, and the provision of appropriate, cultural signage and way finding.

Service delivery strategies will need to be developed in line with the COAG funded initiatives for Aboriginal people under the 'National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes'.

Aboriginal Health Services	
Recommendations	Priority
Develop an integrated service delivery model of care for Aboriginal Health Services for Roebourne, Wickham, Tom Price, Paraburdoo and Onslow.	HIGH
Ensure service planning processes include a focus on engaging with the Aboriginal population to encourage positive 'buy in' from the local Aboriginal people and to facilitate the development of culturally secure services.	HIGH
Increase the number of positions and leadership roles for Aboriginal people across the continuum of care.	HIGH
Scope opportunities to enhance health initiatives for Aboriginal people, particularly: <ul style="list-style-type: none"> • ante-natal and post-natal initiatives; • chronic disease management; • injury prevention; • mental health promotion; and • alcohol and other drug harm minimisation initiatives. 	HIGH
Continue and where possible increase outreach services and partnerships with the Mawarnkarra Health Service Aboriginal Corporation.	HIGH
Explore opportunity to collocate Roebourne WACHS health services with the Mawarnkarra Health Service Aboriginal Corporation, creating an integrated health site in Roebourne.	MEDIUM

7.3.4 Aged Care Service

Current Service Profile

Pilbara Community Aged Care Service (PCACS) is responsible for the promotion of wellbeing, independence, and quality of life for older people, those with disabilities, and their carers who live in the Pilbara.

PCACS manages a number of Commonwealth and State funded community care programs throughout the region and ensures that responsive and accessible services are provided across the continuum of care.

PCACS programs in the West Pilbara Health District are coordinated within a Regional model from Port Hedland. PCACS include:

- The Aged Care Assessment Teams (ACAT) based in Karratha and Port Hedland.
- Community Aged Care Packages (CACP) across the Pilbara (6 specific to Onslow).
- Home and Community Care Program (HACC)
- Commonwealth Carer Respite and Carelink Centre (CRC) coordinated from Karratha.

- Older Patients Initiative (OPI) – a risk screening program of non-Aboriginal people aged over 65 years and Aboriginal people over 45+ years over presenting to EDs.

Identified Issues and Challenges

- The GP to population ratio is low and this results in access issues for aged clients who can resort to emergency departments.
- Transport to and from communities and inland towns are infrequent and aged clients do not have family members with vehicles and bus transport is not optimal with buses arriving in communities late at night.
- Poor level of discharge planning occurs from regional, integrated and metropolitan hospitals.
- Little notice or consultation of client discharge, often at inappropriate times or when services are not operating (weekends), results in poor outcomes and readmission of aged client.
- Remote communities have difficulty getting home modifications carried out. This problem is compounded by the lack of trades people.
- Equipment such as hoists and beds are difficult to obtain for community care.

Service Delivery Plan

Aged Care Services	
Recommendations	Priority
Collocation of Population Health Services (currently at Warambie Centre) with the KHC will provide access for elderly clients to a range of services on one health campus. This will be further strengthened by the collocation of GP services on the site as part of the proposed Primary Health Service and Training Centre.	HIGH
Develop models of care for patients transferring out of the region for medical management to ensure discharge planning and community follow up are timely and appropriate.	HIGH
WACHS Pilbara to work collaboratively with transport providers to develop the region-wide hospital patient transport system.	MEDIUM

7.3.5 Pilbara Mental Health and Drug Service

Current Service Profile

PMHDS operates a regional service delivery model which combines resources of the Pilbara Community Mental Health Team, the Pilbara Community Drug Service Team (CDST) and Pilbara Aboriginal Drug and Alcohol Service (PADAP).

PMHDS is an ambulatory / community based service that delivers services to people suffering with moderate to severe mental illness and drug and alcohol issues. The Service is located within the Karratha Health Campus.

Services are offered in a range of settings and across a continuum of care. These settings include home visits, hospitals, health clinics, schools and prisons. Services include:

- Adult mental health programs (aged 18–65 years) - assessment, counselling, inter-agency referral, case management and education.
- Child and adolescent mental health programs (0–18 years) – family therapy, assessment, counselling, inter-agency referral, case management and education.
- Psychiatric services – currently provided by visiting Psychiatrist.
- Aboriginal program (0-65 years) – cultural awareness, liaison, education, co-case management and assessment.
- Youth mental health program (13-25 years) - health promotion, counselling, education and group programs.
- Drug and alcohol program – education to health consumers and external stakeholders and counselling.

PMHDS provides an advocacy consultant role to emergency departments and inpatient areas within WACHS West Pilbara hospitals, student placements and weekly client reviews.

Currently there are two distinct PMHDS teams in the East and West Pilbara health districts. In the West Pilbara, the majority of staff are based in Karratha and provide services to Nickol Bay Hospital and the community of Karratha, Roebourne and Wickham.

A Permanent clinician role is also allocated to Newman which provides a service to Tom Price and Paraburdoo on alternating weeks. Mental health services in Onslow are covered, through a memorandum of understanding, by WACHS Midwest, The Psychiatric cover is provided by the Psychiatrist from the Pilbara and Case Management by a Community Mental Health Practitioner from the Midwest

The Service delivers face to face contacts with clients, by an experienced multi-disciplinary team.

Remoteness and Isolation lends the Service to provide, a certain proportion of the service delivery via videoconferencing/telehealth facilities. Videoconferencing provides the opportunity for:

- Psychiatric consultations across West Pilbara,
- Staff education and meetings
- Family and carer contacts with clients who have been transferred out of their own environment to Perth facilities (especially Aboriginal clients from remote communities who do not have relatives in Perth).

The service currently has approximately 100 adult and 60 child and adolescent active clients with approximately 50% of clients being of Aboriginal and Torres Strait Islander descent.

PMHDS operates Monday to Friday, 8.00 to 16.30 hrs, the current service does not have the capacity for an after-hours service. After-hours mental health service support is therefore provided by local hospitals in the Region and Rural Link.

Service Delivery Plan

Pilbara Mental Health & Drug Service	
Recommendations	Priority
The West Pilbara PMHDS to continue operating out of the KHC and supporting all areas across the region.	n/a
Extend the use of Telehealth to increase remote access to specialist services for staff support and education.	HIGH

7.3.6 Public Dental Care

Current Service Profile

A lack of public dental health services in the West Pilbara Health District has been raised by staff and health partners. Staff at Nickol Bay Hospital have reported a noticeable number of admissions for intravenous antibiotics to treat tooth abscess. As highlighted in Section 4.3.6 residents are currently less likely access dental services when compared to WA.

Service Delivery Plan

Public Dental Service	
Recommendations	Priority
Explore the benefit of establishing public dental health services at KHC to improve dental health in the District and reduce demands on the Emergency Department and clinical services.	MEDIUM

7.4. Acute Inpatient Services

7.4.1 Overview of Current Service Profile

Nickol Bay Hospital

Table 7 includes the recent historical inpatient activity for the 31 bed Nickol Bay Hospital, along with the projected demand to 2020/21.

From 2006/07 to 2008/09, NBH experienced a 25% increase in multiday separations and 49% increase in same-day separations. The ALOS for multiday stays has remained relatively constant at 2.3-2.4 days, with the occupancy rate remaining between 40% and 50%.

The projected activity for NBH is also included in Table 8. The overall growth in activity is reflective of the forecast population growth, along with the assumed increase in regional self sufficiency and intraregional flows from Port Hedland Hospital.

The projected increase in activity between 2008/09 and 2011 is minimal. This is due to the modelling being based on historical activity to 2007/08. In 2007/08 there were a number of service limitations at NBH, which resulted in a significant reduction in activity, particularly for obstetrics services, as outlined in Section 7.4.5. Therefore the activity projections are anticipated to be somewhat understated and are to be used as a guide only.

Table 8: Nickol Bay Hospital: historical and projected activity

Activity	Historical Activity			Projected Activity		
	2006/07	2007/08	2008/09	2,011	2,016	2,021
Multiday Separations	1,542	1,589	1,934	1,779	1,664	1,723
Same-day Separations	869	994	1,295	1,498	1,774	2,048
Total Separations	2,411	2,583	3,229	3,277	3,438	3,772
% Same-day	36%	38%	40%	46%	52%	54%
No. of Bed-days (multiday only)	3,758	3,878	4,527	4,979	4,632	4,817
Total Beddays	4,627	4,872	5,822	6,477	6,407	6,486
Average LOS (multiday)	2.4	2.4	2.3	2.8	2.8	2.8
Occupancy Rate	41%	43%	51%	-	-	-

Source (Historical Activity): HCARE & TOPAS via Data Warehouse (via ATS online pivot and ATS detail online pivot as at end of April 2010). Provided by WACHS Area Office.

Source (Projected Activity): WACHS Inpatient Demand Modelling Pivot. Projections based on ABS Series B+ and Heuris High population projections

The following tables outline the historical activity for each of the West Pilbara small hospitals. Detailed activity projections for these sites, based on the Heuris Partners population forecasts, have not been undertaken, however a summary of earlier projections modelled using ABS Series C is included in Section 7.4.2.

Roebourne Hospital

Table 9 shows there has been a 14% decrease in total separations at the 8-bed Roebourne Hospital between 2005/06 and 2008/09. The total number of beddays has been variable over the time period as indicated by the significant variation in average length of stay.

Table 9: Roebourne Hospital: Clinical activity (2005/06 – 2008/09)

Activity	2005/06	2006/07	2007/08	2008/09
Multiday Separations	258	196	261	229
Same-day Separations	56	30	41	41
Total Separations	314	226	302	270
% Same-day	18%	13%	14%	15%
No. of Bed-days (multiday only)	2,205	604	1,416	552
Total Beddays	2,261	634	1,457	593
Average LOS (multiday)	8.5	3.1	5.4	2.4
Occupancy Rate	77%	22%	50%	20%

Source: HCARE & TOPAS via Data Warehouse (via ATS online pivot and ATS detail online pivot as at end of April 2010). Provided by WACHS Area Office.

Tom Price Hospital

The number of multiday and sameday separations at the 8-bed Tom Price Hospital increased by 20% and 7% respectively since 2005/06. The total number of bed-days has reduced by 5%, resulting in a decreasing average length of stay over time.

Table 10: Tom Price Hospital: Clinical activity (2005/06 – 2008/09)

Activity	2005/06	2006/07	2007/08	2008/09
Multiday Separations	285	248	297	342
Same-day Separations	102	66	67	109
Total Separations	387	314	364	451
% Same-day	26%	21%	18%	24%
No. of Bed-days (multiday only)	760	620	718	720
Total Beddays	862	686	785	829
Average LOS (multiday)	2.7	2.5	2.4	2.1
Occupancy Rate	30%	23%	27%	28%

Source: HCARE & TOPAS via Data Warehouse (via ATS online pivot and ATS detail online pivot as at end of April 2010). Provided by WACHS Area Office.

Onslow Hospital

Total separations from Onslow Hospital have increased by 23% between 2005/06 and 2008/09. This includes a 15% and 45% increase in multiday and same-day separations, respectively. Bed-days have also increased by 24%.

Table 11: Onslow Hospital: Clinical activity (2005/06 – 2008/09)

Activity	2005/06	2006/07	2007/08	2008/09
Multiday Separations	158	170	190	182
Same-day Separations	60	43	64	87
Total Separations	218	213	254	269
% Same-day	28%	20%	25%	32%
No. of Bed-days (multiday only)	350	353	494	423
Total Beddays	410	396	558	510
Average LOS (multiday)	2.2	2.1	2.6	2.3
Occupancy Rate	19%	18%	25%	23%

Source: HCARE & TOPAS via Data Warehouse (via ATS online pivot and ATS detail online pivot as at end of April 2010). Provided by WACHS Area Office.

Paraburdoo Hospital

The percentage of same day separations at Paraburdoo Hospital increased from 39% to 52% between 2005/06 and 2008/09. The ALOS is low, at just over one-day. Table 12 outlines the activity for Paraburdoo Hospital.

Table 12: Paraburdoo Hospital: Clinical activity (2005/06 – 2008/09)

Activity	2005/06	2006/07	2007/08	2008/09
Multiday Separations	82	55	48	61
Same-day Separations	53	58	56	67
Total Separations	135	113	104	128
% Same-day	39%	51%	54%	52%
No. of Bed-days (multiday only)	109	74	57	78
Total Beddays	162	132	113	145
Average LOS (multiday)	1.3	1.3	1.2	1.3
Occupancy Rate	22%	18%	15%	20%

Source: HCARE & TOPAS via Data Warehouse (via ATS online pivot and ATS detail online pivot as at end of April 2010). Provided by WACHS Area Office.

7.4.2 Summary of Projected Service Profile

The projected demand for inpatient services at NBH are based on the March 2010 Heuris Partners population forecasts. Detailed projections for the West Pilbara small hospitals, based on the Heuris Partners modelling, have not been undertaken. However, an estimation of future activity can be sourced from the AIM (Hardes) 2007/08 modelling tool, which was based on ABS Series C.

The small hospital projections represent a status quo model, i.e. they reflect forecast population growth and demographic trends in the absence of strategies to change the existing referral patterns and/or service mix.

Table 13: Projected demand: Inpatient services WACHS West Pilbara (2011/12–2020/21)

Hospital	2011/12		2016/17		2020/21	
	Seps.	Beds	Seps.	Beds	Seps.	Beds
Nickol Bay	3277	22	3438	22	3772	23
Roebourne	291	6	316	6	345	7
Tom Price	355	4	379	4	405	4
Onslow	255	3	293	3	358	4
Paraburdoo	106	1	122	1	142	1
Total	4,534	39	4,781	37	5,248	40

Source (NBH): WACHS Area Office. Inpatient Demand Modelling Pivot (Nickol Bay) – based on ABS Series B+ and Heuris High population projections;

Source (all other sites): AIM (Hardes) 2007/08 modelling tool – to be used as a guide only

The data shows that the existing inpatient bed capacity at all West Pilbara hospitals, including NBH, is likely to meet demand for inpatient services if various service delivery reform initiatives are implemented, the inpatient occupancy rate is increased (assume 75% for NBH) and the population growth aligns with the Heuris Partners population projections (refer to Section 4.2.1).

The WA Health Clinical Services Framework 2010-2020 proposes that NBH maintains its existing physical capacity of 40 beds to meet future demand for inpatient care to 2021.

The specific inpatient service areas are analysed in greater detail in the following sections.

7.4.3 Surgical Services

Current Service Profile

Surgical services for the West Pilbara are based at Nickol Bay Hospital. Elective, emergency and same day surgical services provided by DMO and visiting specialists including a General Surgeon, Gynaecologist, Gastroenterologist, Orthopaedic Surgeon, Ophthalmologist, Urologist, ENT and Plastic Surgeon. The majority of ophthalmology and renal surgical cases are referred to Port Hedland.

Other key elements of the Nickol Bay Hospital surgical service include:

- Paediatric surgical services available for children over the age of two.
- Day Surgery Unit including dental surgery available.
- Anaesthetist services provided by DMOs.
- Visiting specialists also provide outpatient services on-site.

The multiday and same-day surgical activity for WACHS West Pilbara from 2006/07 to 2008/09 is outlined below. The data shows that over 90% of surgical activity for the West Pilbara occurs at Nickol Bay Hospital. Multiday surgical activity has increased by 6% across the West Pilbara Health District and same-day surgical activity has increased by 33% across the West Pilbara Health District.

WACHS staff have indicated that more surgical patients could be referred to Nickol Bay Hospital in the future with the new CT Scanner on-site. Previously most surgical cases were transferred to Port Hedland or a Perth hospital with a CT Scanner. Nickol Bay Hospital has performed 298 or approximately 150 scans per month since the commencement of CT scanning services in late November 2009.¹⁶ This has significant benefits for patient care and transfers, reducing the need for patients to be transferred to another facility for CT scanning.

Table 14: Surgical Services multi-day activity, by WACHS West Pilbara hospital (2006/07 – 2008/09)

Hospital	Number of multi-day separations		
	2006/07	2007/08	2008/09
Nickol Bay	175	150	190
Roebourne	1	2	2
Tom Price	7	10	5
Onslow	3	4	2
Paraburdoo	1	1	
Total	187	167	199

Source: WACHS Separations online pivot 2005/06 – 2009/10 YTD. Data source: HCARE and TOPAS via Data Warehouse. Accessed 7 01 2010. Excludes non acute ESRGs 122 – 134

¹⁶ As of February 4 2010.

Table 15: Surgical Services same-day activity, by WACHS West Pilbara hospital (2006/07 – 2008/09)

Hospital	Number of same-day separations		
	2006/07	2007/08	2008/09
Nickol Bay	356	363	475
Roebourne	1		
Tom Price	1		1
Onslow		4	
Paraburdoo	1		2
Total	359	367	478

Source: WACHS Separations online pivot 2005/06 – 2009/10 YTD. Data source: HCARe and TOPAS via Data Warehouse. Accessed 7 01 2010. Excludes non acute ESRGs 122 – 134.

Projected Service Profile

It is proposed that the number of same-day surgical admissions at NBH will increase by 36% between 2008/09 and 2020/21. Multi-day surgical admissions will remain relatively stable.

Table 16: Projected surgical activity for NBH (2011/12 – 2020/21)

Nickol Bay Hospital	Number of separations		
	2011/12	2016/17	2020/21
Multi-day surgical activity	223	206	219
Same-day surgical activity	531	598	644
Total surgical activity	754	803	863

Source: WACHS Inpatient Demand Modelling Pivot. Projections based on ABS Series B+ and Heuris High population projections

7.4.4 Medical Services

Current Service Profile

Inpatient medical services are provided by DMOs at all West Pilbara sites. There have been limited inpatient services at Paraburdoo since 2003 with day and overnight admission for observation only managed as staffing allows. Visiting specialists to Nickol Bay Hospital include a Rheumatologist, Respiratory Physician, Paediatric Cardiologist and Rural Paediatrician.

There is a dedicated palliative care inpatient room available in the ward area at Nickol Bay Hospital which is supported by the Ambulatory Care Service. A visiting service is provided by a Palliative Care Physician.

Chemotherapy services are not delivered in the region with all patient requiring chemotherapy referred to Perth metropolitan facilities.

The activity for medical services, by WACHS West Pilbara hospital is outlined in the table below. The data shows that there has been a 33% increase in medical service activity across the West Pilbara Health District since 2006/07, with Tom Price and Nickol Bay hospital experiencing the greatest growth.

Table 17: Medical services activity, by WACHS West Pilbara hospital (2006/07 – 2008/09)

Hospital	Number of separations			% change
	2006/07	2007/08	2008/09	
Nickol Bay	1,757	1,965	2,375	35%
Roebourne	224	299	265	18%
Tom Price	313	355	447	43%
Onslow	212	249	267	26%
Paraburdoo	112	104	126	12%
Total	2,618	2,972	3,480	33%

Source: WACHS Separations online pivot 2005/06 – 2009/10 YTD. Data source: HCARE and TOPAS via Data Warehouse. Accessed 7 01 2010. Excludes non acute ESRGs 122 – 134 (unqualified neonates, boarders and non acute SRGs).

Projected Service Profile

The number of medical admissions to NBH is anticipated to grow steadily in future years as outlined in Table 18.

Table 18: Projected medical activity for NBH (2011/12 – 2020/21)

Nickol Bay Hospital	Number of separations		
	2011/12	2016/17	2020/21
Medical Activity	2357	2436	2657

Source: WACHS Inpatient Demand Modelling Pivot. Projections based on ABS Series B+ and Heuris High population projections

As described above, the small reduction in activity between the actual number of medical separations in 2008/09 and the projected demand for 2011/12 is due to the activity projections being based on 2007/08 activity, which was significantly lower than 2008/09 due to a number of service limitations

Identified Issues and Challenges

There is an identified shortage of private health care facilities in the West Pilbara. Patients wishing to access private health facilities travel to Perth for health care.

With the wealth in the local area, opportunities exist to provide private health facilities for services, particularly maternity and obstetric care, surgical services and specialist clinics.

Service Delivery Plan

Medical & Surgical Services	
Recommendations	Priority
Review the patient care pathway for medical and surgical services WACHS West Pilbara given the inclusion of the CT Scanner at KHC.	HIGH
Assess feasibility of establishing a Surgicentre at KHC.	MEDIUM
Improve flow in the existing Nickol Bay Hospital CSSD	LOW
Explore feasibility of establishing mobile theatre/surgical teams, medical teams and community acute care teams across the region.	MEDIUM
Assess feasibility of establishing private health care initiatives and facilities to meet local needs,	MEDIUM
Ensure service planning processes include a focus on engaging with the local Aboriginal people to facilitate the development of culturally secure services where Aboriginal people feel welcomed and comfortable accessing local healthcare facilities.	HIGH

7.4.5 Obstetrics & Maternity Services

Current Service Profile

Low risk obstetrics and gynaecology services, including emergency caesareans are provided at Nickol Bay Hospital. Planned high risk births are transferred to Perth and Port Hedland hospitals. A Visiting Obstetric Consultant works with midwives to provide a 'booking interview' to all women at 12-14 weeks of pregnancy to determine level of risk and model of care preferred. A review interview is held at 24 weeks. VMPs also visit the Mawarnkarra Health Service Aboriginal Corporation (based in Roebourne) as part of an Aboriginal mother's clinic held once a month.

Table 19 shows a reduction in obstetric services in 2007/08. The reduction is directly related to the reduced availability of the specialist services for obstetric care in 2007 which resulted in up to 50% of women travelling to a metropolitan hospital to give birth.

Table 19: Obstetric Services activity, by WACHS West Pilbara hospital (2006/07 – 2008/09)

Hospital	Number of separations		
	2006/07	2007/08	2008/09
Nickol Bay	314	225	324
Roebourne	1	3	4
Tom Price	24	22	25
Onslow	2	6	5
Paraburdoo	10	16	7
Total	351	272	365

Source: WACHS Separations online pivot 2005/06 – 2009/10 YTD. Data source: HCARE and TOPAS via Data Warehouse. Accessed 7 01 2010. Includes SRG 35 only – Obstetrics which includes ESRGs of 111: ante-natal admission, 112: vaginal delivery, 113: caesarean delivery and 114: post natal admission.

In response to the reduction in specialist services, health care was subsidised by WACHS Pilbara in 2007/08 to enable West Pilbara residents to deliver at Port Hedland Hospital or at a metropolitan hospital.

The number of deliveries at WACHS West Pilbara hospitals from 2006/07 – 2008/09 is presented in Table 20.

Over 90% of births at WACHS West Pilbara hospitals occurred at Nickol Bay Hospital. Deliveries via caesarean occurred only at Nickol Bay Hospital. Approximately 25% of all births at Nickol Bay Hospital each year were recorded as a caesarean delivery.

Table 20: Deliveries by WACHS West Pilbara hospital (2006/07 – 2008/09)

Hospital	Number of deliveries		
	2006/07	2007/08	2008/09
Nickol Bay (total)	208	117	181
<i>Vaginal delivery</i>	147	87	134
<i>Caesarean delivery</i>	61	30	47
Roebourne		1	1
Tom Price	7	7	2
Total	215	125	184

Source: WACHS Separations online pivot 2005/06 – 2009/10 YTD. Data source: HCARE and TOPAS via Data Warehouse. Accessed 7 01 2010. Includes ESRG 112 and 113 (vaginal delivery and caesarean delivery respectively).

Projected Service Profile

The projected obstetrics activity for NBH is outlined below. The growth in activity is reflective of the proposal for 90% of obstetrics activity relating to West Pilbara residents attending Port Hedland Hospital being reversed to Nickol Bay Hospital (See Appendix 3).

Table 21: Projected obstetrics activity for NBH (2011/12 – 2020/21)

Nickol Bay Hospital	Number of separations		
	2011/12	2016/17	2020/21
Total Obstetrics Activity	384	393	418
Deliveries - Vaginal	158	152	157
Deliveries - Caesarean	63	63	66

Source: WACHS Inpatient Demand Modelling Pivot. Projections based on ABS Series B+ and Heuris High population projections

Identified Issues and Challenges

Anecdotal feedback from midwives at Nickol Bay Hospital indicated that a large number of women from the West Pilbara Health District currently travel to Perth to give birth at private health facilities due to the lack of private health facilities at Nickol Bay Hospital.

In 2007/08, of the 412 births recorded for women residing in the West Pilbara Health District:

- 34% of gave birth at a metropolitan private health facility;
- 20% gave birth at King Edward Memorial Hospital;
- 28% gave birth at Nickol Bay Hospital; and
- 14% gave birth at Port Hedland.

Feedback from staff suggests that local confidence in obstetric services should be restored with the appointment of an Obstetrician to Nickol Bay Hospital in 2010. There is an expectation that the number of births at Nickol Bay Hospital will increase in the future however, a public relations project is required to promote the obstetric services available to families at Nickol Bay Hospital to ensure care is provided closer to home.

Service Delivery Plan

Obstetrics Services	
Recommendations	Priority
Determine the obstetric model of care for WACHS West Pilbara given the appointment of an Obstetrician. Include assessment of implications for WACHS Population Health Service.	HIGH
Work to sustain the new Obstetrician role to increase the number of births at NBH (e.g. public relations campaign).	HIGH
Provide services and facilities for private health care.	MEDIUM
Centralise the obstetric and maternity services at KHC and establish new services for mothers and young families which could include: <ul style="list-style-type: none"> • a new mother's group; • a dedicated contemporary Birthing Unit; • lactation consulting services; • a newborn hearing screening program; • a Mothering Unit for mothers aged 15 – 20 years; • a post-natal depression initiatives; and • the 0 to 5 program. 	MEDIUM
Collocate mother and children's services on identified health sites in the future – creating a 'one stop shop' for families. This could include appropriate space to centralise obstetric assessments, antenatal classes, post-natal assessments, birthing and the suggested initiatives above.	LOW
Explore feasibility of providing a crèche or child care facilities on health sites for staff and visitors (to support obstetric services).	LOW

7.4.6 Paediatrics Services

Current Service Profile

Visiting paediatric services, including a Paediatric Cardiologist and Rural Paediatrician, are provided at Nickol Bay Hospital. Paediatric emergency, inpatient and outpatient services are also available, with highly acute cases stabilised and transferred to Perth or Port Hedland. As with obstetrics services, VMPs attend the Mawarnkarra Health Service in Roebourne. Child Health Nursing services are provided at other sites within the West Pilbara with visiting paediatricians.

Paediatric service activity across the West Pilbara has increased by 12% since 2006/07. Nickol Bay Hospital managed approximately 70% - 75% of paediatric activity for WACHS West Pilbara.

Table 22: Paediatric Services activity, by WACHS West Pilbara hospital (2006/07 2008/09)

Hospital	Number of separations		
	2006/07	2007/08	2008/09
Nickol Bay	235	263	314
Roebourne	15	20	28
Tom Price	42	50	40
Onslow	29	38	33
Paraburdoo	16	12	11
Total	337	383	426

Source: WACHS Separations pivot 2004/05 – 2008/09. Data source: HCARE and TOPAS via Data Warehouse. Includes ages 0 – 14 inclusive. Data excludes unqualified neonates and boarders.

Projected Service Profile

Paediatrics activity at NBH is projected to remain around 300 separations per annum. Paediatrics activity will be dependent on the growth in population relating to young families and will require monitoring as planning processes continue.

Table 23: Projected paediatrics activity for NBH (2011/12 – 2020/21)

Nickol Bay Hospital	Separations		
	2011/12	2016/17	2020/21
Paediatrics	333	310	296

Source: WACHS Inpatient Demand Modelling Pivot. Projections based on ABS Series B+ and Heuris High population projections. Includes ages 0 – 14 inclusive. Data excludes unqualified neonates and boarders.

Service Delivery Plan

Paediatrics Services	
Recommendations	Priority
Paediatric inpatient care to continue being managed by Hedland and Perth metropolitan facilities.	n/a
Collocate community/outpatient services for mothers and children on identified health sites in the future – creating a 'one stop shop' for families.	LOW

7.4.7 Mental Health Services

Current Service Profile

As outlined above, the Pilbara Mental Health and Drug Service (PMHDS) provides an Advocacy Consulting role to Nickol Bay Hospital, Monday to Friday. Rural Link is utilised for after hours and weekend patient support. This role is extended to all other facilities across the West Pilbara via telehealth. There are no authorised inpatient mental health beds within the West Pilbara region. People requiring authorised (involuntary) or unauthorised (voluntary) admission for acute mental health and substance abuse issues may be admitted to local hospital wards or ED for stabilisation prior to transfer to Perth for admission.

The WACHS Midwest Mental Health Nurse provides outreach support to Onslow Hospital.

The mental health inpatient separations from WACHS West Pilbara hospitals are presented in the Table below. The Table shows there has been a 25% increase in the number of separations involving patients with a mental health condition across the West Pilbara region.

Table 24: Mental Health Inpatient activity, by WACHS West Pilbara hospital (2006/07 – 2008/09)

Hospital	Number of separations		
	2006/07	2007/08	2008/09
Nickol Bay	84	57	94
Roebourne	7	6	4
Tom Price	8	17	22
Onslow	11	7	2
Paraburdoo	2	5	2
Total	112	92	124

Source: WACHS Separations online pivot 2005/06 – 2009/10 YTD. Data source: HCARE and TOPAS via Data Warehouse. Accessed 7 01 2010. Includes DRGs - B63: Dementia and other chronic disturbances of cerebral function and B64: Delirium. Includes SRG 39 : Psychiatry – acute. This includes ESRGs of 117: Schizophrenia, 118: Major Affective Disorders and 119: Other Psychiatry.

Projected Service Profile

The projected activity for Mental Health is outlined below. The projections are based on historical activity to 2007/08 during which there was a significantly lower number of separations than occurred in 2008/09.

The development of the Broome Mental Health Unit is unlikely to influence the projected mental health activity at NBH. However, a large proportion of West Pilbara residents who would have previously transferred to Perth for management of their psychiatric admission will be managed in Broome.

Table 25: Projected mental health activity for NBH (2011/12 – 2020/21)

Nickol Bay Hospital	Separations		
	2011/12	2016/17	2020/21
Mental Health	71	72	78

Source: WACHS Inpatient Demand Modelling Pivot. Projections based on ABS Series B+ and Heuris High population projections

Identified Issues and Challenges

The management or stabilisation of acute mental health patients at Nickol Bay Hospital in ward areas currently causes concern for staff, patient and visitor safety.

The emergency department and inpatient area is not adequately equipped for observation and have limited security and egress for staff. Whilst these concerns can be largely overcome with facility and egress upgrades, staff have highlighted the need for significant improvements in the provision of Mental Health care for residents in the West Pilbara region. A team of people are currently working on improving mental health care at Nickol Bay Hospital. The review should further consider the future care pathway for patients requiring transfer to the new Broome Mental Health Unit.

Service Delivery Plan

Mental Health Services	
Recommendations	Priority
Review the model of care for accommodating, sedating, treating and/or transferring acute mental health patients.	HIGH
Provide trained security personnel on staff.	HIGH
Improve access to the mental health records and Rural Link	HIGH
Provide additional training and development in managing acute mental health patients.	MEDIUM
Establish a mental health liaison role in the Emergency Department at NBH.	MEDIUM
Establish a Short stay Unit adjacent to the Emergency Department at NBH to observe and treat acute mental health patients prior to transfer to the ward or authorised facility.	MEDIUM
Explore opportunities to introduce health promotion and preventative initiatives, to reduce the number of mental health presentations to WACHS West Pilbara facilities.	MEDIUM

7.4.8 Alcohol and other Drug Inpatient Services

Current Service Profile

The Table below also shows there has been a 25% increase in the number of separations involving alcohol and other drugs at all WACHS West Pilbara hospitals. Staff reported a noticeable increase in the drug use, particularly amphetamine use amongst males.

Table 26: Drug & Alcohol inpatient activity, by WACHS West Pilbara hospital (2006/07– 2008/09)

Hospital	Number of separations		
	2006/07	2007/08	2008/09
Nickol Bay	40	53	56
Roebourne	4	5	9
Tom Price	15	14	10
Onslow	4	3	9
Paraburdoo	6	3	4
Total	69	78	88

Source: WACHS Separations online pivot 2005/06 – 2009/10 YTD. Data source: HCARE and TOPAS via Data Warehouse. Accessed 7 01 2010. Includes SRG 38 and ESRG 116: Drug and Alcohol.

Projected Service Profile

The projected number of separations relating to alcohol and other drugs is provided in Table 27 below.

Table 27: Projected drug & alcohol activity for NBH (2011/12 – 2020/21)

Nickol Bay Hospital	Separations		
	2011/12	2016/17	2020/21
Mental Health	66	64	64

Source: WACHS Inpatient Demand Modelling Pivot. Projections based on ABS Series B+ and Heuris High population projections

Service Delivery Plan

Drug & Alcohol Services	
Recommendations	Priority
Explore opportunities to introduce health promotion and preventative initiatives, to reduce the number of alcohol and other drug presentations to WACHS West Pilbara facilities.	MEDIUM

7.5. Emergency Services

Current and Projected Service Profile

Nickol Bay Hospital Emergency Department has onsite District Medical Officers (DMOs) available 8am to 1am and a nurse led service from 1am to 8am (with oncall DMOs).

Table 22 outlines the historical and projected number of presentations to Nickol Bay Hospital's Emergency Department. In recent years, the number of presentations and acuity of people presenting to the NBH Emergency Department has been increasing. Significant ongoing growth is forecast based on the population forecast for the District, along with the FIFO workforce that is anticipated to create increased demand for emergency services.

Table 28: Nickol Bay Hospital: current and projected ED activity, by triage category.

Triage	Historical presentations			Projected Activity		
	2006/07	2007/08	2008/09	2,011	2,016	2,021
Triage 1	15	30	37	59	72	93
Triage 2	263	597	750	1,354	1,671	2,260
Triage 3	1,240	1,924	2,457	4,136	4,463	5,240
Triage 4	5,725	6,062	6,790	11,895	13,586	16,775
Triage 5	3,569	3,474	2,938	3,972	2,904	2,325
Total	10,815	12,087	12,972	21,416	22,697	26,693

Source: WACHS online ED pivot accessed 06/01/2010

There is a nurse triage emergency service at Roebourne Hospital with on call support from local GPs engaged as VMPs. Afterhours emergency responses are managed with DMOs based at Nickol Bay Hospital who provide telephone support. Wickham no longer provides emergency care and so patients are referred to Roebourne Hospital.

The acuity of people presenting to Roebourne Hospital's Emergency Department and the total presentations are expected to continue to grow.

Table 29: Roebourne Hospital: current and projected ED activity, by triage category.

Triage	Historical presentations			Projected Activity		
	2006/07	2007/08	2008/09	2,011	2,016	2,021
Triage 1	6	10	5	6	8	11
Triage 2	45	72	105	119	151	188
Triage 3	166	196	266	362	414	494
Triage 4	414	603	669	1085	1248	1539
Triage 5	1,279	1,597	1,323	1615	1235	993
Total	1,910	2,478	2,368	3,187	3,056	3,225

Source: WACHS online ED pivot accessed 06/01/2010

Tom Price Hospital's Emergency Services involves a nurse triage with on call support from GPs engaged as VMPs.

Tom Price has experienced the greatest growth in the number of Emergency Department presentations, particularly during the tourist seasons. The acuity of people presenting to Tom Price's Emergency Department is also increasing.

Table 30: Tom Price Hospital: current and projected ED activity, by triage category.

Triage	Historical presentations			Projected Activity		
	2006/07	2007/08	2008/09	2,011	2,016	2,021
Triage 1	6	8	3	3	4	4
Triage 2	67	133	240	293	408	543
Triage 3	364	552	732	938	1113	1306
Triage 4	1,303	1,780	1,952	2774	3375	4156
Triage 5	1,144	1,103	952	1029	809	645
Total	2,887	3,576	3,879	5,037	5,708	6,653

Source: WACHS online ED pivot accessed 06/01/2010

A nurse triage 24 hour emergency service is provided at Onslow Hospital with telephone back up from DMOs at Nickol Bay Hospital. The number of Emergency Department presentations has increased at the Onslow Hospital, with the greatest growth in Triage 3 and 4. There has been a reduction in Triage 5 cases since 2006/07.

Table 31: Onslow Hospital: current and projected ED activity, by triage category.

Triage	Historical presentations			Projected Activity		
	2006/07	2007/08	2008/09	2,011	2,016	2,021
Triage 1	9	6	5	6	7	9
Triage 2	70	69	82	101	142	196
Triage 3	185	217	288	403	485	610
Triage 4	680	1,097	1,644	2615	3180	4033
Triage 5	1,283	833	470	582	449	351
Total	2,227	2,222	2,489	3,707	4,262	5,198

Source: WACHS online ED pivot accessed 06/01/2010

Paraburdoo has a nurse triage emergency service with on call support from local GPs engaged as DMOs. The acuity of people presenting to Paraburdoo Hospital's Emergency Department and the total presentations is increasing. Forecast growth in presentations reflects the slower population growth forecast for Paraburdoo in comparison with other West Pilbara towns.

Table 32: Paraburdoo Hospital: current and projected ED activity, by triage category.

Triage	Historical presentations			Projected Activity		
	2006/07	2007/08	2008/09	2,011	2,016	2,021
Triage 1	2	3	5	6	7	9
Triage 2	41	67	75	92	129	174
Triage 3	280	286	268	342	402	465
Triage 4	639	731	633	893	1077	1316
Triage 5	836	787	1,037	1132	889	712
Total	1,798	1,874	2,018	2,464	2,505	2,676

Source: WACHS online ED pivot accessed 06/01/2010

Summary of Projected Service Profile

Demand modelling by WACHS Area Office shows that the number of treatment spaces at the majority of WACHS West Pilbara hospitals is anticipated to remain the same.

Nickol Bay Hospital's Emergency Department is projected to require an increase from five to 14 treatment spaces by 2020/21 to meet demand, as outlined in Table 33. This would include 2 resuscitation rooms in the future. The calculations undertaken to determine the projected ED bay requirements are included at Appendix 5.

Roebourne Hospital's Emergency Department treatment space is projected to increase by one to meet demand.

The projected demand and treatment space requirements for all WACHS West Pilbara hospital are highlighted in the Table on the following page.

Table 33: Projected demand: Emergency Department Services, WACHS West Pilbara (2011/12 - 2020/21)

Hospital	2011/12		2016/17		2020/21	
	Present.	bays	Present.	bays	Present.	bays
Nickol Bay	21,416	11	22,697	12	25,883	14
Roebourne	3,187	1	3,056	1	3,191	2
Tom Price	5,037	3	5,708	3	6,466	3
Onslow	3,707	2	4,262	2	5,011	2
Paraburdoo	2,464	1	2,505	1	2,676	1
Total	35,811	18	38,228	19	43,227	22

Source: WACHS Area Office. ED CSF 2009 Demand Modelling Pivot.

Emergency Response Partners & Recent Initiatives

In August 2009 the State Government announced a joint funding partnership with the Pilbara Industry Community Council (PICC), known as the 'Pilbara Health Initiative', for a range of new health enhancement initiatives. One of these initiatives includes funding for two salaried community paramedics through the St John Ambulance Association (SJAA) for the West Pilbara and Karratha in particular. Historically, all road ambulance services have been provided by volunteers. It is acknowledged that SJAA will potentially require a new ambulance base and facilities and the Karratha Health Campus development may provide an opportunity for co-location.

As well as SJAA, RFDS is acknowledged as a key WACHS partner in providing emergency response services. A third RFDS aircraft has recently been stationed at Port Hedland giving RFDS increased capacity to respond to primary evacuations and inter-hospital transfers within the appropriate timeframe.

In addition to funding two community paramedics, the 'Pilbara Health Initiative' also provides funding for the following emergency services related elements:

- three additional medical specialists (FACEM, Surgeon and Paediatrician);
- construction of a CASA compliant Heli-pad (KHC site); and
- ED monitoring and telehealth equipment across selected West Pilbara sites.

This new capacity, when fully installed, will complement existing emergency services and response capability, including care coordination of the critically ill. The initiatives will also provide the District Medical Officers and specialists at KHC with greater capacity to provide clinical support and advice to smaller hospitals within the district.

7.5.1 Identified Issues & Challenges

Emergency Department staff at Nickol Bay Hospital highlighted service constraints which impeded of the patient wait-times, patient flow and privacy. The constraints identified were:

- Inadequate number of Emergency Department treatment spaces to cope with future demand.
- With additional demands, the one resuscitation bays is unlikely to be sufficient.
- The confidentiality and privacy of patients presenting to the Emergency Department is limited with the triage area located directly adjacent to the waiting area.
- The level of trauma is likely to increase with the establishment of a helipad. The impact of this on service delivery and staff training across the campus will be assessed.

These constraints will be largely overcome with facility upgrades, staff training and introducing a 'see and treat' ('fast-track') model of care.

GPs have expressed an interest in supporting a 'see and treat' system at Karratha Health Campus with the inclusion of the proposed West Pilbara Primary Health Service and Training Centre on-site. The feasibility of this partnership, model of care and governance arrangements would need to be explored further.

Service Delivery Plan

Emergency Services	
Recommendations	Priority
Review the patient care pathway for specialists services given the changes in population, demand, technology, industry development and infrastructure development.	HIGH
Determine the emergency retrieval and evacuation procedures for trauma across the West Pilbara region (including consideration of the proposed establishment of a helipad at KHC).	HIGH
The District Medical Officers and specialists at KHC to have increased capacity to provide clinical support and advice to smaller hospitals within the district in regard to the management of acute patients (in line with the framework 'WACHS Revitalising Country Health Service 2009-2012').	MEDIUM
Reconfigure / redevelop Emergency Departments to meet future models of care, emergency response and community needs, e.g. strategies such as "see and treat" and fast track.	HIGH
Assess need for a Short Stay Unit for Nickol Bay Hospital.	MEDIUM
Continue to work in partnership with emergency services to prepare and manage emergencies and disasters.	LOW
Ensure WACHS West Pilbara health facilities align with the Department of Health's Redundancy and Disaster Planning Guidelines (2008) ¹⁷ for facility and service planning: <ul style="list-style-type: none"> • Nickol Bay Hospital be equipped as a 'Group 2' facility; • Tom Price and Roebourne hospitals be a 'Group 4' facility; • Onslow and Paraburdoo hospitals be a 'Group 5' facility. 	HIGH
Ensure service planning processes include a focus on engaging with the local Aboriginal people to facilitate the development of culturally secure services where Aboriginal people feel welcomed and comfortable accessing local healthcare facilities.	HIGH

¹⁷ Includes guidelines for improving security of the campus, redundancy, decontamination etc. Guidelines can be viewed at <http://www.public.health.wa.gov.au/cproot/2540/2/Redudancy%20and%20Disaster%20Planning.pdf>

7.6. Clinical Support Services

7.6.1 Pathology

PathWest are contracted to provide all pathology services for WACHS.

PathWest laboratories are on-site at Nickol Bay Hospital and Port Hedland Hospital and operate on a 24-hour on-call basis. These laboratories provide facilities and equipment to fulfil the basic testing requirements in regional areas including basic microbiology, haematology, biochemistry, cross matching for transfusions and coagulation studies. Specimens requiring more specialised testing are transferred to Perth or laboratories in the Eastern States.

Specimens collected at Nickol Bay, Onslow and Roebourne hospitals are generally sent to the Nickol Bay Hospital laboratory for testing.

Specimens collected at Tom Price and Paraburdoo are sent to Perth laboratories under the coordination of PathWest in Port Hedland. This referral arrangement is due to the availability and efficiency of transportation (via air, daily), when compared to the transportation options between Tom Price/Paraburdoo and the PathWest laboratories in the West Pilbara Health District.

PathWest also provide some point of care testing equipment and training to staff to operate the equipment. The equipment includes blood gas analysers and cardiac readers.

Service Plan

Pathology Services	
Recommendations	Priority
Confirm governance arrangements for the maintaining and controlling all point of care equipment.	HIGH
Provide training and development, where needed to ensure staff are appropriately trained in operating the point of care equipment.	HIGH
Expand PathWest services to meet local demand in the future, including changing referral arrangements with Port Hedland for specimen testing if equipment and/or specialists become permanently available at Nickol Bay Hospital.	MEDIUM
Monitor the impact of technological advancements in pathology on patient flow and service delivery at WACHS West Pilbara facilities.	LOW

7.6.2 Medical Imaging

Nickol Bay Hospital is the major centre or the ‘hub’ for medical imaging services in the West Pilbara. The medical imaging modalities offered across the West Pilbara are highlighted below. There is opportunity to explore how future imaging services can be best provided.

Table 34: West Pilbara Health District: Current medical imaging modalities

Hospital	CT	X-ray	Ultrasound	Mammography	MRI/ PET
Nickol Bay	✓	✓	✓	Available in Perth**	Available in Perth only
Roebourne	x	x	x		
Tom Price	x	✓	✓		
Onslow	x	✓*	x		
Paraburdoo	x	✓	x		

*Limited to single views as performed by nursing staff.

**Breast Screen van visits every 2 years.

Radiological reporting for all sites in the Pilbara is provided under contract with Imaging the South (ITS). The contract with ITS provides remote access to a Radiologist who will interpret and report on images on a 24-hour on-call basis.

Radiographers or medical imaging technologists are employed at Nickol Bay and Tom Price hospitals and x-ray operators provide x-ray services at Onslow and Paraburdoo hospitals within the scope of their qualifications.

Ultrasound services at Nickol Bay and Tom Price hospitals are provided by visiting sonographers. Tom Price and Paraburdoo residents may also access ultrasound services at Newman Hospital or in Perth.

A sessional radiologist visits Nickol Bay Hospital once per month.

Health consumers in the West Pilbara Health District are referred to:

- Nickol Bay Hospital for CT and ultrasound scans;
- Perth medical imaging clinics for MRI or PET scans; and
- the mobile BreastScreen WA service or Perth medical imaging services for mammograms.

Line management for medical imaging services is site specific with the Clinical Nurse Manager (CNM) in Tom Price line managing Tom Price and Paraburdoo Hospital services; the CNM at Onslow Hospital line managing Onslow services; and the Senior Medical Imaging Technologist line managing Nickol Bay services. Line management is accountable to the WACHS West Pilbara Operations Manager. The WACHS Medical Imaging Consultant based in Perth provides technical advice to all WACHS regions.

Service Plan

Imaging Services	
Recommendations	Priority
Sustain existing medical imaging modalities offered at NBH.	HIGH
Establish a second ultrasound room to meet demand at NBH	MEDIUM
Explore feasibility of introducing digital imaging equipment at NBH	LOW
Introduce mammography services in the near future to the KHC.	LOW
Explore opportunities for the provision of future imaging	MEDIUM
Monitor the impact of technological advancements in medical imaging on patient flow and service delivery at WACHS West Pilbara facilities.	LOW

7.6.3 Pharmacy Services

Pharmacy Services in the West Pilbara Health District are coordinated under a regional model with two regional pharmacists based in Port Hedland.

WACHS West Pilbara services receive pharmaceutical supplies direct from Port Hedland.

Nickol Bay Hospital has a 0.8 FTE Pharmacy Assistant to oversee stock control and supplies. Supplies at other WACHS West Pilbara facilities are managed by a nurse on-site. A Regional Pharmacist provides a visiting service to Nickol Bay Hospital fortnightly.

In 2006 the Federal Government introduced various reforms to the PBS Scheme. These reforms were designed to improve the continuum of care for patients moving between the hospital and community setting and to improve the way patients access their medication by making it easier and more convenient for patient to receive adequate medication. To implement the reforms hospitals will need to have increased capacity to dispense medication on discharge

Service Plan

Pharmacy Services	
Recommendations	Priority
Explore options for improved clinical pharmacy reviews at NBH. Explore potential options for a pharmacy on site. The volume of patient activity and implications for the pharmacy service will be monitored to assess the need for a pharmacist to be based at KHC rather than the visiting service that is currently in operation.	LOW
Future planning processes will need to consult with Regional pharmacy services to confirm the local implications of the PBS reform, including the number of regional pharmacists required and the size of hospital dispensaries.	MEDIUM

7.7. Non-Clinical Services

7.7.1 Corporate services

Corporate services including human resources, finance, ICT, supply, engineering and maintenance are coordinated within a regional model from Port Hedland. The WACHS Pilbara Corporate Service Manager has ultimate responsibility for these services which are described below.

Finance

The Regional Finance Manager and Senior Finance Officer (positions currently being advertised) are based in Port Hedland, covering the management accounting, audit, assets, training and compliance functions.

The Financial Accounting Section, including accounts payable and accounts receivable, balance sheet and bank functions, operate from Bunbury, reporting directly to WACHS Area Office in Perth.

Learning and Development

The Regional Learning and Development Coordinator and team (who sit under the Human Resource Department) are based in Port Hedland and have specific resources in Karratha.

The Regional Nursing Staff Development Coordinator is also based in Port Hedland with specific resources in Karratha that report to the WACHS West Pilbara District Director of Nursing.

Nursing staff involved in staff development for the West Pilbara region deliver or coordinate the external provision of learning and development initiatives including in-service sessions, essential skills training and OSH training. Online training packages are also provided to staff.

Whilst a dedicated staff development nursing role exists at Karratha Health Campus, a nurse is nominated by the clinical nurse managers at Onslow, Tom Price, Roebourne and Paraburdoo hospitals to deliver and coordinate learning and development initiatives (staff development portfolio holders).

There is also an Occupational Safety and Health Coordinator based in Port Hedland (under the Human Resources Department). This position provides an advisory/support type role to WACHS West Pilbara OSH staff who deliver localised OSH training.

Information and Communication Technology

There are currently no ICT positions based in Karratha. However WACHS West Pilbara facilities are serviced by staff based in Port Hedland. A WACHS State-wide helpdesk service operates from Bunbury.

Engineering and maintenance

A Regional Facilities Manager has the overall responsibility for managing engineering and maintenance services for WACHS - Pilbara. However, this position has been vacant for an extended period of time. A Facilities Manager within the East and West Pilbara health districts therefore currently have the responsibility of managing mechanical, hydraulic and electrical sites services at facilities within their respective districts.

Where required, engineering and maintenance works are fulfilled by short-term contractors.

WACHS Midwest also provide support to the engineering and maintenance needs of Onslow Hospital.

Supply

WACHS coordinates a “one warehouse per health region” model. The warehouse for WACHS Pilbara is located in Port Hedland. However, a smaller sub-warehouse has been established at Karratha Health Campus due to the level of remoteness in the Pilbara and the increasing demand for supplies at Nickol Bay Hospital.

Service Plan

Corporate Services	
Recommendations	Priority
Improve external and internal access road configuration to Nickol Bay Hospital, particularly for emergency vehicle access.	
Establish Information & Communication Technologies (ICT) positions at KHC to provide basic ICT service and infrastructure support to WACHS West Pilbara facilities.	MEDIUM
Determine governance arrangements for the maintenance and monitoring of ICT and medical equipment.	LOW

7.7.2 Non-clinical Support Services

There are various support services for WACHS – West Pilbara. These services are ultimately managed by the WACHS West Pilbara Operations Manager and include:

- housing and transport coordination and accounts management which are the direct responsibility of a Business Manager; and
- administration, medical records and hotel services that are the direct responsibility of a Support Services Manager.

Both of these positions are based at Karratha Health Campus. The services are described below.

Housing and transport

The coordination of housing and transport for staff and visiting specialists is a significant task for WACHS Pilbara due to the population growth, local housing shortage and limited transport options (as highlighted in Sections 4.3.4 and 4.3.3.).

WACHS West Pilbara has a Housing and Transport Officer who coordinates the housing and transport needs of incoming and outgoing staff. This position reports to the Pilbara Housing Committee which is responsible for the coordination of housing allocations for new staff. Nominated administration staff at WACHS West Pilbara facilities will assist with flight bookings and monitor the availability of local housing and short-term accommodation.

Administration

Administration staff are located in each WACHS West Pilbara facility and provide support to management, nursing and medical functions at each site.

Medical records

The management of medical records for WACHS West Pilbara is overseen by a Regional Health Information Manager who is based in Port Hedland. This position has no line management responsibilities but provides an advisory role to ensure the management of medical records complies with the WA Health Medical Records Policy.

WACHS West Pilbara medical records staff are line managed by the West Pilbara Operations Manager.

Each site stores and manages their medical records.

Archived medical records are stored in Perth.

Kitchen

Fresh cook kitchens operate at Nickol Bay and Tom Price hospitals. Meals are often cooked, frozen and reheated when required.

Due to the occupancy rate at Paraburdoo Hospital, frozen meals are provided by Tom Price Hospital or purchased locally.

Nickol Bay Hospital also provides frozen meals for Onslow Hospital, Roebourne Hospital and the Meals-on-Wheels program.

Laundry Services

There are three laundries managed by WACHS West Pilbara:

The Karratha Health Campus laundry supply linen to Nickol Bay and Roebourne hospitals and the Wickham Health Centre.

Tom Price and Onslow hospitals operate laundry services in-house, with Tom Price supplying linen to Paraburdoo Hospital.

Cleaning and garden

Cleaning services are provided by WACHS West Pilbara at all sites.

Gardening services are contracted out at some sites.

Service Plan

Non-clinical Support Services	
Recommendations	Priority
Explore options for future models of service provision.	MEDIUM
Planning to consider the future roll out of a shared electronic medical records system across the Pilbara region.	MEDIUM

7.8. Patient accommodation

Currently, patients from rural and remote areas who seek medical or surgical services are often referred to Nickol Bay Hospital for care. However, there is limited affordable short-term accommodation in Karratha. Patients without accommodation are often admitted as boarders to the inpatient area because of this issue.

To improve access to care and reduce demands on inpatient beds, there is a need to provide short-term ‘motel style’ accommodation on-site for patients and their carers, particularly for those from surrounding communities with limited transport and income to afford hotel accommodation.

Service Plan

Patient Accommodation	
Recommendations	Priority
Explore feasibility of establishing a medi-hotel or short-term patient accommodation.	MEDIUM

7.9. Staff Accommodation

Short, medium and long term staff accommodation is a key enabler to ensure sustainable health services. Currently there is inadequate access to suitable staff accommodation on the campus site.

High quality resort style staff accommodation is required on campus for 'fly in fly out' health workers, locum health staff, students, nursing staff and visiting specialists.

Staff Accommodation	
Recommendations	Priority
Develop high quality resort style staff accommodation on the KHC Campus site.	High

7.10. Education & Training

The *Clinical Services Framework 2010-2020* acknowledges that the level of training and development provided at the KHC will increase in the future.

Consultation has identified that space for training and development at Karratha Health Campus is limited. There is no library/resource centre and limited access to computers for registrars and residents on the KHC to access online training and information.

Staff reported increasing competing demands for training space. St John highlighted that their current substation in Karratha will soon outgrow capacity for administration and training functions with the appointment of community paramedics who will provide additional training and development to St John and partners including WACHS. Current telehealth facilities are also unlikely to meet future demand.

Service Plan

Education & Training	
Recommendations	Priority
Provide additional training and development in managing acute mental health patients to medical and nursing staff.	HIGH
Provide training to Emergency Department staff in retrieval and evacuation procedures for trauma care (including around the proposed establishment of a helipad at KHC).	HIGH
Increase the telehealth capacity of WACHS West Pilbara facilities.	MEDIUM
Explore feasibility of collocating St John Subcentre on the KHC site to strengthen trauma management and training development.	LOW

7.11. Telehealth & e-health technology

Demand for telehealth technology is increasing due to the remoteness of the hospitals in the region and the availability of specialists on site. In addition to staff training, telehealth technology will be increasingly used in the future to connect to specialists based in Port Hedland or Perth to provide patients assessment and assist in the development of care plans.

Telehealth facilities are available at all facilities within the West Pilbara. The Pilbara Mental Health and Drug Service (PMHDS) provides an Advocacy Consulting role via Telehealth to Paraburdoo Hospital.

Service Plan

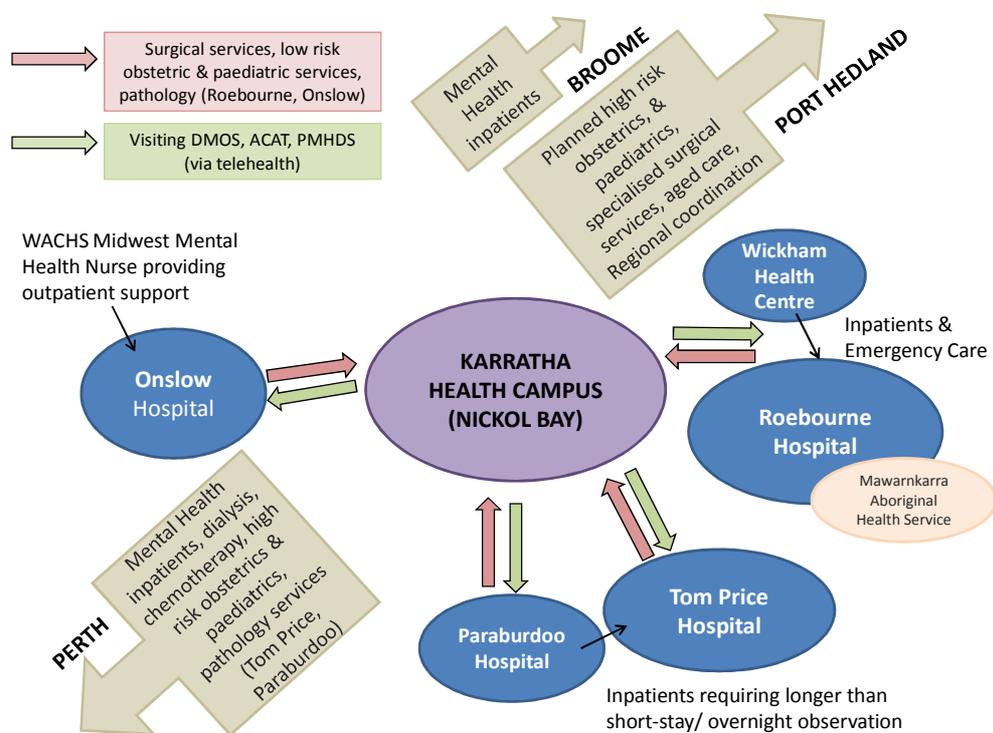
Telehealth & e-technology	
Recommendations	Priority
Ongoing service planning, as well as site service, facility and ICT upgrades will need to ensure staff and visiting specialists have appropriate and timely access to telehealth facilities at all facilities across the District. Providing an effective system connecting all West Pilbara sites to Perth, Port Hedland and other regions will support training and development of staff and enable specialists to provide advice and direct patient assessment – improving efficiencies in patient care.	MEDIUM
The roll-out of an shared electronic medical records system is anticipated to occur over the next five to 10 years. This should be a shared system to enable acute, ED, ambulatory care (including population health and primary care) to share patient records and improve care. The implications of this technology for service delivery, workforce, facilities and site services will need to be addressed. Site service, facility and ICT upgrades will be required to accommodate this.	LOW

8. Proposed Functional Models of Care

The following section provides a visual representation of the functional models of care for each of the WACHS sites across the West Pilbara region.

In developing functional models for each site, it has been essential to consider the range of services to be provided across the region, including intraregional patient flows and outflows to other regions. Figure 12 provides an overview of the clinical services available at each site and the interrelationships between facilities within the West Pilbara, the greater Pilbara region, external WACHS regions and Perth.

Figure 12: Intraregional and interregional clinical service relationships for the West Pilbara District Health Service

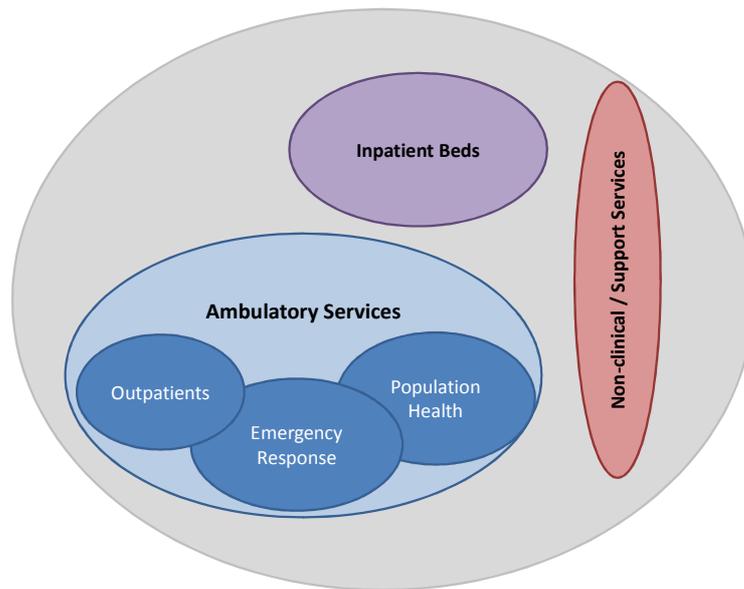


The functional models of care for each site are provided below. These include the proposed services and groups of services to be provided and the key relationships between areas, including clinical and non-clinical services.

8.1. Roebourne, Tom Price, Onslow & Paraburdoo Hospitals

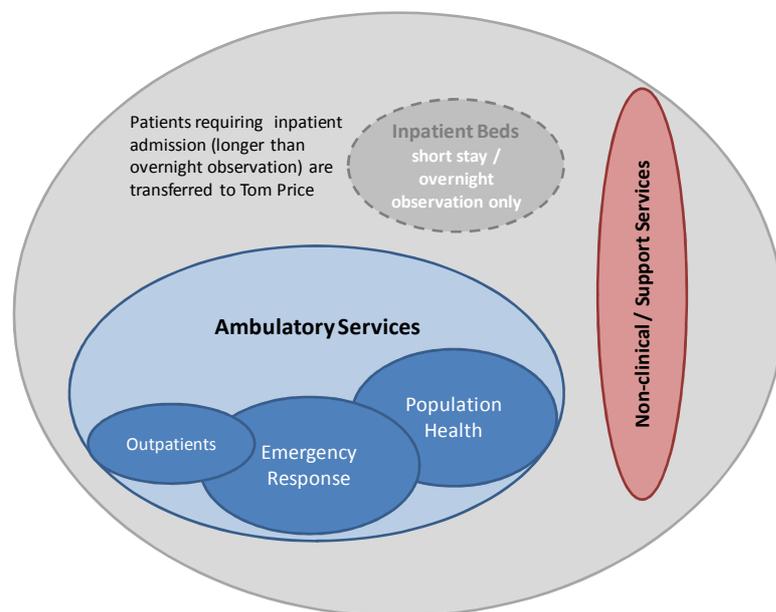
Acute inpatient activity at the small hospitals within the West Pilbara is low. The focus for these facilities will increasingly be on the provision of ambulatory care services including outpatient and primary health services. Emergency care will continue to be nurse-led with on-call support from GPs / DMOs. There is a strong need to develop collaborative models with GPs, Aboriginal Medical services and other NGOs.

Figure 13: Proposed functional models of care: Roebourne, Tom Price & Onslow



Inpatient services at Paraburdoo are limited. Patients requiring longer than a short stay or overnight admission for observation are transferred to Tom Price hospital. The focus of Paraburdoo hospital is the provision of an emergency response service and Community Health services.

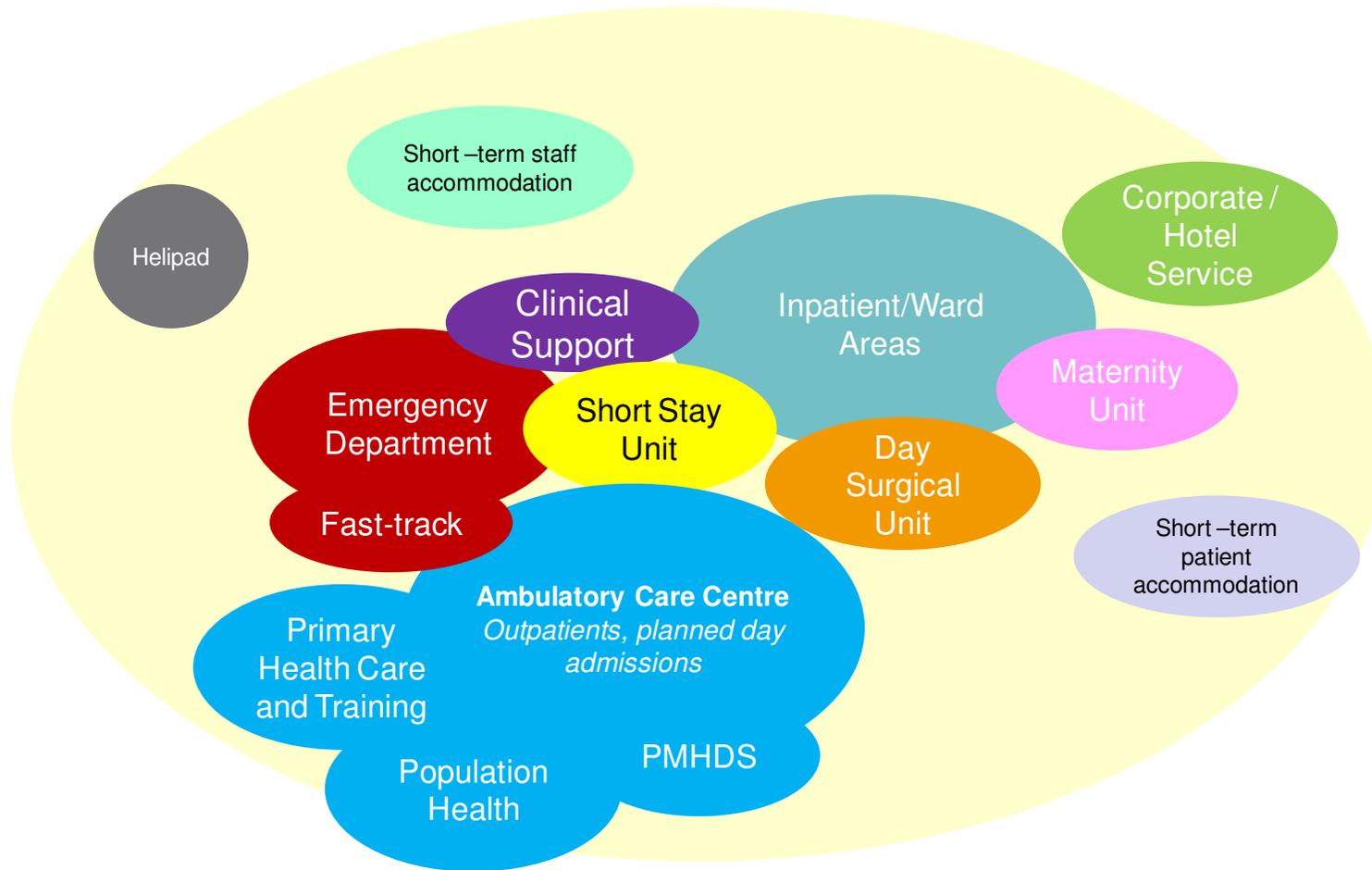
Figure 14: Proposed functional models of care: Paraburdoo



8.2. Karratha Health Campus

The primary goal for WACHS - Pilbara around the town of Karratha will be to improve service efficiencies and effectiveness by enhancing opportunities for health services to collocate in Karratha. This will potentially create a 'one-stop shop' for health care for the community and will allow sharing of resources, improved partnerships and continuum of care and minimise travelling between sites.

Figure 15: Proposed future functional model of care: KHC



9. Conclusion

This Service Plan has set the strategic direction for service delivery across the West Pilbara Health District to 2020.

The data and contents of this Plan should be used a guide to consolidate the models of care for the future and determine future workforce requirements and recurrent costs.

It is essential that this plan is reviewed as facility planning continues, National/State policies are introduced and the needs of the community change. This is particularly important given the mineral and energy resources boom in the West Pilbara, the anticipated major development of the region under the Pilbara Cities initiative and the forecast growth in population. An ongoing proactive approach to service planning will ensure that healthcare services remain responsive to the rapidly changing community, new policy developments and advances in medical care and technology.

10. Recommendations

The following recommendations should be undertaken over the next six to 12 months as planning progresses to Business Case development and beyond.

It is recommended that WACHS – Pilbara form working groups to undertake the following:

- Consolidate the future functional models of care with a focus on collaborative models in the smaller sites;
- Determine workforce and recurrent cost implications (workforce model to include a focus on education and training for GPs, medical, nursing and allied health staff);
- Confirm the clinical governance for changes to the models of care;
- Determine the private and inter-governmental partnerships to be formed to enable the future models of care to be established; and
- Explore opportunities for the private sector to be engaged in the redevelopment and future service delivery on-site.

It is also recommended that an Implementation Plan is developed to identify the key operational and facility initiatives arising from the service delivery strategies outlined in this document. This will assist in ensuring all key issues arising from the Service Plan are considered during facility planning processes for the potential redevelopment of West Pilbara Health Services. Facility planning will initially include the development of a master plan and business case to establish the optimal redevelopment strategy for the Karratha Health Campus

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Appendices

Appendix 1: Summary of Services Delivered by Site

Nickol Bay Hospital

<i>31-bed IDHS located at Millstream Road, Karratha</i>	
Emergency Services	<p>Emergency Department available 24 hours a day, seven days a week.</p> <p>Onsite District Medical Officers¹⁸ (DMOs) 8am – 1am, with on-call service 1am to 8am. Nurse triage service from 1am to 8am.</p> <p>Hospital Response Team on-site.</p>
Medical Services	<p>Acute inpatient services provided by DMOs and visiting specialists. Visiting specialist include a General Physician, Rheumatologist, Respiratory Physician, Dermatologist, Sexual Health physician, Nephrologist, Gastro-enterologist, Paediatric Cardiologist and Rural Paediatrician.</p>
Surgical Services	<p>Elective, emergency and same day surgical services provided by DMO and visiting specialists including a General Surgeon, Gynaecologist, Orthopaedic Surgeon, Ophthalmologist, Urologist, ENT and Plastic Surgeon. Majority of ophthalmology and urological surgical cases are referred to Port Hedland or Perth. Visiting specialists also provide outpatient services on-site.</p> <p>Paediatric surgical services available for children over the age of two.</p> <p>Day Surgery Unit including dental surgery available.</p> <p>Anaesthetist services provided by DMOs.</p> <p>Currently operate seven lists a fortnight.</p>
Obstetric Services	<p>Low risk obstetrics and gynaecology services including emergency caesareans provided on-site. Planned high risk births transferred to Perth and Port Hedland hospitals.</p> <p>A range of models of care provided. Midwifery led unit. Visiting Obstetric Consultant works with midwives to provide a 'booking interview' to all women at 12-14 weeks of pregnancy to determine level of risk and preferred model of care Review held at 24 wks.</p> <p>Midwifery led clinics run 5 days/week, antenatal classes held monthly – coordinated with WACHS Population Health Service community midwives. Aboriginal mother's clinic held once a month in partnership with the Mawarnkarra Health Service Aboriginal Corporation (based in Roebourne).</p>

¹⁸ District medical officers have varying roles within WACHS West Pilbara depending on their credentials and specialties.

Nickol Bay Hospital continued	
Paediatric Services	Visiting paediatric services as outlined under Surgical Services above. Paediatric emergency, inpatient and outpatients services available. Highly acute paediatric cases are stabilised and transferred to Perth or Port Hedland.
Ambulatory Care	An Ambulatory Care Service is provided 30 hours a week by a Clinical Nurse. The Service works with local GPs and clinical services to provide sub-acute care including wound care, palliative care, renal care and administration of antibiotics. Home visiting also provided (approximately 5% of total time).
Mental Health/Drug and Alcohol Emergency and Inpatient Services	<p>Pilbara Mental Health and Drug Service (PMHDS) provides an Advocacy Consulting role to Nickol Bay Hospital, Monday to Friday (refer to Section 7.3.5). Rural Link is utilised for after hours and weekend patient support.</p> <p>Authorised inpatient mental health beds are not available on-site.</p> <p>People requiring authorised (involuntary) or unauthorised (or voluntary) admission for acute mental health and substance abuse issues may be admitted to the ward area for stabilisation or stabilised in ED. Patient assessed to require an authorised bed are transferred to Perth for admission to an authorised facility.</p>
Chemotherapy	Unavailable. All patients are referred to Perth metropolitan facilities for chemotherapy services.
Palliative Care	<p>Dedicated palliative care inpatient room available in ward area, supported by the Ambulatory Care Service.</p> <p>Visiting service provided by a Palliative Care Physician.</p>
Aged Care (inpatient)	No Nursing Home Type Beds on-site.
Outpatients	Visiting medical practitioners (VMPs) and allied health staff provide outpatient services. Also includes dermatology and paediatric services.
Telehealth¹⁹	Two facilities available.

¹⁹ Telehealth facilities enable remote assessment of patients by specialists off-site or to provide assessment and support to patients and staff in other WACHS-West Pilbara facilities.

Roebourne Hospital

8-bed Small Hospital located 42-44 Hampton Street, Roebourne	
Emergency Services	Nurse triage emergency service at Roebourne with on call support from local GPs engaged as VMPs. Afterhours emergency responses are managed with DMOs based at Nickol Bay Hospital who provide telephone support. Wickham no longer provides emergency care – patients are referred to Roebourne Hospital.
Medical Services	Provided by visiting DMOs
Surgical Services	Unavailable. Planned day surgery referred to Nickol Bay or Port Hedland hospitals.
Paediatric Services	VMPs to nearby Mawarnkarra Health Service Aboriginal Corporation.
Obstetric Services	VMPs to nearby Mawarnkarra Health Service Aboriginal Corporation.
Ambulatory Care	Full time ambulatory nurse position is currently being recruited to. Position has been vacant for approximately two years due to attraction issues.
Mental Health/Drug and Alcohol Emergency and Inpatient Services	There are no authorised inpatient mental health beds on-site. People requiring authorised (involuntary) or unauthorised (or voluntary) admission for acute mental health and substance abuse issues may be admitted to the ward area for stabilisation or stabilised in ED. Patient assessed to require an authorised bed are transferred to NBH for assessment prior to RFDS transfer to Perth. PMHDS provides an Advocacy Consulting role via Telehealth to Roebourne Hospital, Monday to Friday (refer to Section 7.3.5). Rural Link is utilised for after hours and weekend patient support.
Chemotherapy	Unavailable. All patients are referred to Perth metropolitan facilities for chemotherapy services.
Palliative Care	Unavailable,
Aged Care	Specialist rehabilitation/aged care service provide by Aged Care Assessment Team.
Outpatients	VMPs provide outpatient services.
Telehealth	Available.

Tom Price Hospital

8-bed small hospital located on Mine Road, Tom Price	
Emergency Services	Nurse triage emergency services with on call support from local GPs engaged as VMPs.
Medical Services	Acute inpatient services. Provided by VMPs.
Surgical Services	Unavailable.
Paediatric Services	Antenatal and postnatal care with Child Health Nurse. Visiting Paediatrician 6 weekly.
Obstetric Services	Antenatal care provided by the local GP's. No booked births
Ambulatory Care	No ambulatory care nurse, however the Community Health Generalist can provide home visiting service.
Mental Health/Drug and Alcohol Emergency and Inpatient Services	<p>There are no authorised inpatient mental health beds on-site. People requiring authorised (involuntary) or unauthorised (or voluntary) admission for acute mental health and substance abuse issues may be admitted to the ward area for stabilisation or stabilised in ED. Patient assessed to require an authorised bed are transferred to Perth for admission.</p> <p>PMHDS provides an Advocacy Consulting role via Telehealth to Tom Price Hospital, Monday to Friday (refer to Section 7.3.5). Rural Link is utilised for after hours and weekend patient support.</p>
Chemotherapy	Unavailable. All patients are referred to Perth metropolitan facilities for chemotherapy services.
Palliative Care	Inpatient room available for palliative care. No dedicated/trained palliative care staff, however patients can be managed via the palliative care outreach service and visiting palliative care specialist.
Aged Care	No Nursing Home Type Beds on-site.
Outpatients	VMPs provide outpatient services.
Telehealth	Available.

Onslow Hospital

6-bed Small Hospital located on Second Avenue, Onslow	
Clinical Services	
Emergency Services	Nurse triage 24 hour emergency service with telephone back up from DMOs at Nickol Bay Hospital.
Medical Services	Receive DMO services three times a week from Nickol Bay Hospital.
Surgical Services	No theatres on-site. Onslow manages admissions and transfers to the surgical services at other facilities. Currently, patients transferred via RFDS go to Port Hedland or Perth due to availability of specialist and CT Scanner. Patients capable of transfer via vehicle are referred to Nickol Bay Hospital, when appropriate.
Paediatric Services	Acutely ill paediatric patients are stabilised at Onslow Hospital and transferred to Port Hedland or Perth.
Obstetric Services	No dedicated birthing facilities on-site. Women transferred to Nickol Bay Hospital, Port Hedland or Perth facilities for birthing. Visiting Obstetric GP provides assessment on-site to determine model of care and birthing options. Where necessary, women are also referred to Nickol Bay Hospital for obstetric assessment.
Ambulatory Care	Unavailable.
Mental Health/Drug and Alcohol Emergency and Inpatient Services	<p>There are no authorised inpatient mental health beds on-site. People requiring authorised (involuntary) or unauthorised (or voluntary) admission for acute mental health and substance abuse issues may be admitted to the ward area for stabilisation or stabilised in ED. Patient assessed to require an authorised bed are transferred to Perth for admission.</p> <p>WACHS Midwest Mental Health Nurse provides outpatient support to Onslow Hospital.</p> <p>Psychiatric assessment can be undertaken with Telehealth facility.</p> <p>Rural Link is utilised for after hours and weekend patient support.</p>
Chemotherapy	Unavailable. All patients are referred to Perth metropolitan facilities for chemotherapy services.
Palliative Care	Inpatient room available for palliative care. No dedicated/trained palliative care staff, however patients can be managed via the palliative care outreach service and visiting palliative care specialist.
Aged Care	No dedicated inpatient service for aged care. Community members are assessed by ACAT and referred to Port Hedland if inpatient care is required.

6-bed Small Hospital located on Second Avenue, Onslow	
Outpatients	<p>GP clinics three times a week. VMPs also provide outpatient care at various times throughout the year. Includes (but not limited to) visiting physician, palliative care physician, paediatrician, allied health professionals, optometrist, diabetes educator, mental health nurse and podiatrist.</p> <p>Patients requiring outpatient services that are not provided at Onslow Hospital are referred to Nickol Bay or Port Hedland hospitals.</p>
Telehealth	Available.

Paraburdoo Hospital

2-bed small hospital located on Rocklea Road, Paraburdoo	
Clinical Services	
Emergency Trauma Services	Nurse triage emergency services with on call support from local GPs engaged as DMOs.
Medical Services	Provided by VMPs Limited inpatient service since 2003 (day and overnight admission for observation, as staffing allows).
Surgical Services	Not available.
Paediatric Services	Antenatal and postnatal care with Child Health Nurse. Visiting Paediatrician 6 weekly.
Obstetric Services	Antenatal care provided by VMP. All women referred to Port Hedland, Nickol Bay hospital or Perth Metropolitan for delivery.
Mental Health/Drug and Alcohol	There is no dedicated acute inpatient or long-stay mental health facility in the Pilbara Health Region. While low acuity patients can be admitted to ward areas, highly acute patients requiring an authorised bed are held at Paraburdoo and transferred to an authorised facility in Perth. Pilbara Mental Health and Drug Service (PMHDS) provides an Advocacy Consulting role via Telehealth to Paraburdoo Hospital, Monday to Friday (refer to Section 7.3.5). Rural Link is utilised for after hours and weekend patient support.
Chemotherapy	Unavailable. All patients are referred to Perth metropolitan facilities for chemotherapy services.
Palliative Care	Not available. Patients referred to metropolitan health facilities.
Aged Care (inpatient)	No Nursing Home Type Beds on-site
Sterilising Services	Not available.
Telehealth	Available.

Appendix 2: Profile of WACHS West Pilbara Workforce

The distribution of WACHS West Pilbara workforce (2009/10) is presented in the following section. This excludes visiting specialists and the advisory and supporting regional roles based in Port Hedland.

Table 35: WACHS West Pilbara workforce based in Karratha (2009/10)

Position (Karratha)	Total FTE	Comments
Clinical Services (based at Karratha Health Campus)		
District Medical Officers	9.25	
Nursing - Management	4.50	
Nursing - General Ward	14.00	
Nursing - Maternity	9.50	
Nursing - Operating Theatre	4.90	
Nursing - Emergency Department	14.70	
Nursing - Ambulatory Care	1.00	
Nursing - Staff development	1.00	
Agency Nursing - General Ward	1.00	
Agency Nursing - Maternity	1.00	
Agency Nursing - Operating Theatre	1.00	
Sub-total	61.85	
Clinical Support Services (based at Karratha Health Campus)		
Medical Imaging (Radiographers)	3.00	
Pharmacy (Administration)	0.80	
CSSD (Nursing)	1.00	
Sub-total	4.80	
Corporate and Support Services (based at Karratha Health Campus)		
Finance and Administration	22.28	
Hotel Services	17.37	
Sub-total	39.65	

Position (Karratha)	Total FTE	Comments
Population Health Services (based at Warambie Centre)		
Physiotherapy	3.00	Services Roebourne/Wickham, Onslow, Pannawonnica and Mawarnkarra.
Speech Pathology	3.00	Services Roebourne, Wickham, Dampier, Point Sampson, Tom Price, Paraburdoo, Pannawonnica Onslow Wakathuni, Bellary Springs, Youngaleena.
Occupational Therapy	3.00	As per speech pathology above.
Social Work	1.00	As per speech pathology above.
Sexual assault counsellor	1.00	As per speech pathology above.
Dietetics	1.00	Shared appointment with Pilbara Health Network, based with the Division.
Community nurse (senior, community generalist, school & child health)	12.8	Roebourne/Wickham, Dampier
Aboriginal Health Worker	1.00	
Health promotion	2.00	Services Roebourne, Wickham, Dampier, Point Sampson, Tom Price, Paraburdoo, Pannawonnica, Onslow Wakathuni, Bellary Springs, Youngaleena.
Primary Health Manager	1.00	As per health promotion above.
Admin officers	1.50	
Therapy assistant	1.50	
Sub-total	31.80	
PMHDS (based at Karratha Health Campus and Warambie Centre)		
Community Mental Health Team	7.0	Team Leader, Clinical Nurse Specialists, Community Mental Health Professional, Child and Adolescent Mental Health Professional, Indigenous Mental Health Worker, Youth Counsellor, Mental Health Worker
Community Drug Service Team	2.0	Includes Counsellor Educators.
Aboriginal Drug and Alcohol Service	3.0	Includes Counsellor Educators.
Administration	1.0	Includes Clerical Officer.
Sub-total	13.00	
Total – Karratha- based	151.10	

Table 36: WACHS West Pilbara Workforce based in Roebourne (2009/10)

Position (Roebourne)	Total FTE	Comments
Clinical Services		
District Medical Officers	-	Medical and Surgical DMO Services provided from Nickol Bay Hospital, Port Hedland and Perth.
Nursing	14.75	Provides service to Wickham.
Sub-total	14.75	
Clinical Support Services		
Medical imaging	-	Services at provided Karratha.
Pharmacy	-	Supported by existing nursing staff on-site.
CSSD	-	
Corporate and Support Services		
Administration	1.15	Provides services to Wickham
Hotel Services	6.17	Provides services to Wickham
Sub-total	7.32	
Population Health Services		
Community nurse (senior, community generalist, school and child health)	3.0	Provides outreach to Wickham and Point Sampson
Aboriginal Health Worker	1.0	Provides outreach to Wickham
Therapy Assistant	1.0	Provides outreach to Wickham
Sub-total	4.0	
PMHDS		
Nil	-	Services provided from Karratha
Total – Roebourne based	26.07	

Table 37: WACHS West Pilbara Workforce based in Tom Price (2009/10)

Position (Tom Price)	Total FTE	Comments
Clinical Services		
District Medical Officers	-	Medical, Surgical and DMO Services provided from Nickol Bay Hospital, Port Hedland and Perth.
Nursing	9.96	
Sub-total	9.96	
Clinical Support Services		
Medical Imaging (Radiographers)	1.29	
Pharmacy	-	Supported by existing nursing staff on-site.
Sub-total	1.29	
Corporate and Support Services		
Administration	1.56	
Hotel Services	6.38	
Sub-total	7.94	
Population Health Services		
Physiotherapy	2.00	Visiting services to Paraburdoo, Youngaleena, Bellary Springs, Wakathuni.
Community nurse (senior, community generalist, school and child health)	3.00	Based at Tom Price or Paraburdoo. Visiting services to Bellary Springs, Wakathuni, Youngaleena.
Therapy assistant	1.00	Bellary Springs, Wakathuni, Youngaleena, Paraburdoo
Sub-total	6.00	
PMHDS		
Aboriginal Mental Health Workers	1.00	Visiting services also provided by CDST and PADAP Counsellor Educators from Newman.
Sub-total	1.00	
Total – Tom Price based	26.19	

Table 38: WACHS West Pilbara Workforce based in Onslow (2009/10)

Position	Total FTE	Comments
Clinical Services		
District Medical Officers	-	Visiting Medical, Surgical, GP Services provided from Nickol Bay Hospital, Port Hedland and Perth.
Nursing	9.74	
Sub-total	9.74	
Clinical Support Services		
Medical Imaging (Radiographers)	-	X-ray operators fulfilled by existing nursing staff on-site.
Corporate and Support Services		
Administration	2.02	
Hotel Services	5.05	
Sub-total	7.07	
Population Health Services		
Community nurse	1.00	Visiting service to Pannawonica
Health worker	1.00	
Sub-total	2.00	
PMHDS		
Nil	-	Mental Health services provided by WACHS – Midwest.
Total – Onslow based	18.81	

Table 39: WACHS West Pilbara Workforce based in Paraburdoo

Position	Total FTE	Comments
Clinical Services		
District Medical Officers	-	Visiting Medical, Surgical, GP Services provided from Nickol Bay Hospital, Port Hedland and Perth.
Nursing	6.59	
Sub-total	6.59	
Clinical Support Services		
Medical imaging	-	X-ray operators fulfilled by existing nursing staff on-site.
Pharmacy	-	Supported by existing nursing staff on-site.
Corporate and Support Services		
Administration	0.61	
Hotel Services	5.18	
Sub-total	5.79	
Population Health Services		
Community nurse	1.0	Supported from Tom Price.
PMHDS		
Nil	-	As per Tom Price - visiting services also provided by CDST and PADAP Counsellor Educators from Newman.
Total	13.38	

Appendix 3: Pilbara Flow Changes – Assumptions for activity modelling

Flow Changes from Port Hedland to Karratha (Nickol Bay) for West Pilbara residents.

90% flow reversals from Port Hedland to NBH for the following ESRGs:
093, Injuries - Non-surgical
094, Abdominal Pain
095, Appendicectomy
096, Digestive System Diagnoses incl GI Obstruction
097, Inguinal and Femoral Hernia Procedures Age>0
098, Post-operative Infections and Sequelae of Treatment
099, Abdominal, Umbilical & Other Hernia Procedures
100, Other Non-specialty Surgery
111, Ante-natal Admission
112, Vaginal Delivery
113, Caesarean Delivery
114, Post-natal Admission

Appendix 4: Functional Models of Care – KHC

Whilst some existing constraints for service delivery can be addressed through service reconfiguration, optimal efficiencies can only be achieved once redevelopment of the Karratha Health Campus has occurred to support the proposed future models of care.

The following section is designed to assist the concept masterplanning process for the redevelopment of the KHC. The section outlines the proposed functional models (identified to date) required to support the needs of the community and the proposed future models of care. The information supplements the overarching functional model presented in Section 8 of this Service Plan and provides suggested solutions for achieving the Service Delivery Plans outlined in Section 7.

The KHC Master Plan will be a blueprint for the redevelopment of the campus over the next 20 or more years. Therefore, the proposed functional models of care should be reviewed and confirmed throughout the subsequent Master Planning, Business Case and Design phases of the project to redevelop the KHC. Regular reviews of the data will ensure the facility meets the changing needs of the community and adequately meets demand once constructed.

Proposed functional models of care

The following Table (where possible) summarises the key elements of the proposed functional model for KHC. It is not a complete list of proposed requirements and as such, the specific details of the model will be determined through the Masterplanning process by the Architect.

The calculations for quantifying the facility solutions are attached following this table. With significant change predicted for the West Pilbara it is suggested that these quantities are regularly reviewed in Master Planning, Business Case and Design phases. This will ensure facilities meet the changing needs of the community and meet demand upon completion of the redevelopment project.

Functional area	Proposed key features to plan for in the Masterplan	Functional relationship
Ambulatory Care Centre		
Primary Health Care Centre	Consulting rooms to support GPs, a GP registrar, allied health/ specialist nurses, an Aboriginal Health Worker, Practice Nurse, visiting Medical Specialists, AMS staff and programs, a treatment area, and a dental chair. ²⁰ This needs to be a large facility that acts as a one stop shop.	Direct access to ED (for 'see and treat' support)
Training Centre	Rooms for training and clinical practice for GP, medical, nursing and allied health staff.	Located in Ambulatory Care Centre
Ambulatory Care Team	Consult space	Located in Ambulatory Care Centre
Population health	Office space Consult, therapy and assessment spaces	Located in Ambulatory Care Centre
PMHDS	Office space Consult space and group rooms	Located in Ambulatory Care Centre
Outpatients	Approx 12 visiting specialists consult spaces ²¹	Located in Ambulatory Care Centre
Day Surgical Unit	Sub-waiting	Direct link to reception for Ambulatory Care Centre Indirect link to Theatres
Cancer Services	2 consult space for Cancer Support Services and palliative Care Potential for further enhancements to cancer services depending on the identified clinical need and consideration of the safety and quality of service provision.	Located in Ambulatory Care Centre

²⁰ As recommended in the Business Case for the Primary Health Care and Training Centre.

²¹ Baseline data is not accurate to project requirements. Anecdotally 8 consult rooms would be required. Requirement would need to be confirmed.

Functional area	Proposed key features to plan for in the Masterplan	Functional relationship
Renal Dialysis Unit	Space / plumbing in design for renal services into future if demand in place.	Located in Ambulatory Care Centre
Clinical Services		
Emergency Department	Treatment spaces ²² including: <ul style="list-style-type: none"> • resuscitation bays • 'See and Treat' bays • treatment bays • paediatric treatment bay • isolation negative pressure room • multipurpose consult rooms • psychiatric treatment room • ear and eye Room Dedicated private triage area Decontamination showers Minor procedure room Disaster preparedness store	Direct link to Short Stay Unit, Ambulatory Care (to support for 'see and treat' system) and helipad
Short Stay Unit	8 x short stay beds (monitored beds) ^{23,24}	Direct link to Emergency Department

²² Refer to Note 1.

²³ *Service Planning and Facility Design for WACHS Emergency Departments* (2009, p.28) states that short-stay beds are deducted from inpatient bed numbers. Nickol Bay Hospital is planned to be a 32-bed multiple day, as per *WA Clinical Services Framework 2010-2020*.

²⁴ Refer to Note 2.

Functional area	Proposed key features to plan for in the Masterplan	Functional relationship
Inpatient Unit	<p>24 x multiday beds¹⁵</p> <p>8 x same-day bed capacity</p> <p>Plan for 60% single rooms</p> <p>1 four bed ward as per <i>Redundancy and Disaster Preparedness Guidelines</i> for Group 2 facility.</p> <p>Enhance security, duress and e-gress of inpatient areas, particularly for inpatient room(s) accommodating mental health inpatients.</p>	Indirect access to Emergency Department and Clinical Support Service Areas
Obstetric and Maternity Unit	<p>Centralise obstetric and maternity services (ie. ante-natal assessment and LDR suites)</p> <p>2 x LDR suites, each with an ensuite²⁵</p> <p>1 bathroom (with bath facility) for water births</p>	<p>Direct link to Inpatient Unit</p> <p>Close proximity to Ambulatory Care for obstetric outpatient, group rooms and training facilities</p> <p>Bathroom to be immediately adjacent to LDRs</p>
Palliative Care	Large Room and family room	
Mental Health	Two rooms and private lounge area	
Quiet Room	Room as prayer/quiet room	
Mortuary	large	
Theatres	<p>2 x theatres²⁶</p> <p>If existing is retained, upgrade the second theatre and CSSD</p>	Indirect link to Day Surgical Unit in Ambulatory Care Centre
Helipad	1 all weather at-grade helipad	Direct access to ED

²⁵ Refer to Note 3.

²⁶ Refer to Note 4.

Functional area	Proposed key features to plan for in the Masterplan	Functional relationship
Clinical Support Services		
Medical Imaging	1 x CT scanner 2 x general x-ray 2 x sonography rooms 1 x mammography Plan for digital imaging technology	Direct access to ED Indirect access to Ambulatory Care and Inpatient areas
Pathology	Features to be determined in Masterplanning and Business Case	Direct access to ED Indirect access to Ambulatory Care and Inpatient areas
Pharmacy	Features to be determined in Masterplanning and Business Case	Indirect access to Ambulatory Care. ED and Inpatient areas
CSSD	Upgrade required to improve flow	Direct access to Theatres Indirect access to Ambulatory Care. ED and Inpatient areas
Disaster Preparedness		
Emergency Operations Centre	Recommended a meeting rooms and/or Conference room be used. Area to be large enough to accommodate up to 10 work stations. ²⁷	Recommended a meeting room and/or conference room be used. However, must be two pre-designated locations in different geographical areas (ideally on separate power supply grids, and in different fire zones). EOC to have easy access to rest and refreshment area in the event of a protracted incident.
Perimeter security	Perimeter of hospital must be able to be secured electronically.	n/a

²⁷ Refer to DoH *Redundancy and Disaster Planning Guidelines (2008)* for ICT requirements

Functional area	Proposed key features to plan for in the Masterplan	Functional relationship
Appropriate access and Egress pathways	Must be one entry/exit other than the ED that is capable of managing large numbers of people and large vehicles (i.e. buses / ambulances etc)	n/a
Chemical contamination room in the Emergency Department	Suggest Negative Pressure Room in Emergency Department fulfil this requirement. Charcoal filters required.	Located in the Emergency Department
Other		
Site Access	Appropriate external and internal road reconfiguration to enable efficient access by emergency vehicles and the general public	n/a
Health Partners	Include special development zones in the Masterplan for health partners redevelopment (e.g. explore opportunities to build a new St John Substation on the KHC; Aboriginal Medical Service, Private Surgicentre).	n/a
Short-term motel-style patient accommodation	Explore the feasibility of establishing a medi-hotel or short-term patient accommodation on campus.	n/a
Short-term motel/hostel-style staff accommodation	For visiting specialists and short-term contractor	n/a

Appendix 5: Calculations to Determine Functional Unit Numbers

Note 1: Projecting the Number and Type of Emergency Department Treatment Spaces

1. The 2020/21 Occasions of Service (OOS), by triage category for Nickol Bay Hospital was identified from the WACHS Emergency Department Demand Pivot Table (Shown as Table A. Total Projected Bays' below)
2. To determine the breakdown of bays, it is assumed that 30% of Triage 4 OOS and 70% of Triage 5 OOS (as shown in Table A) will be transferred to a 'see and treat' bay (WACHS, 2009, p. 39). Table B shows the number of OOS transferred to a 'see and treat'.
3. To determine the breakdown of bays, WACHS ED Treatment Bay benchmarks (WACHS, 2009, p. 30) were then applied.

Triage Bay	Sum of OOS	Sum of bays
1	88	0
2	2132	2
3	5089	5
4	16137	5
5	2437	1
TOTAL BAYS	25883	14

Source: WACHS Emergency Department Demand Pivot

Triage Bay	Sum of OOS	Sum of bays
1	88	0
2	2132	2
3	5089	5
4	11296	4
5	731	0
SUB-TOTAL	19336	11
See and Treat 4	4841	2
See and Treat 5	1706	1
GRAND TOTAL	25883	14

Note 2: Projecting the Number of Short Stay Beds

The benchmarks outlined on page 32 of the WACHS *Service Planning and Facility Design for WA Country Health Service Emergency Department Paper* (November 2009) were applied to calculate the number of Short Stay Beds required for Nickol Bay Hospital. The calculations are shown below.

Benchmark Source	Benchmark	Projected Activity 2020/21	Benchmark	Projected Estimated no. short stay beds
<i>State Government of Victoria. Capital Development Guidelines. Functional Benchmarks</i>	<i>1 bed/548 separations per year</i>	<i>3,998 separations</i>	<i>548</i>	<i>7.30</i>
<i>British Association of Accident and Emergency Medicine, 1989, 'Recommendations for accident and emergency wards'.</i>	<i>1 bed per 3000 Emergency Department attendances</i>	<i>25,883 attendances</i>	<i>3000</i>	<i>8.63</i>
<i>Australasian College of Emergency Medicine. 2007. G15 – Emergency Department Design</i>	<i>1 bed per 4000 Emergency Department attendances</i>	<i>25,883 attendances</i>	<i>4000</i>	<i>6.47</i>

Source of activity data: WACHS activity and bed projections modelling pivot and WACHS ED Demand Pivot

Note 3: Projecting number of Labour Delivery – Recovery (LDR) Suites

The Functional Benchmarks from the State Government of Victoria's Capital Development Guidelines were utilised to project the number of LDR Suites required for Nickol Bay Hospital by 2020/21. The results are shown below.

Type	Benchmark	Projected Births by 2020/21	Benchmark	Projected Requirement by 2020/21	Comment
Labour Delivery Recovery (LDR) Suite	1 LDR per 250 births p.a.	223	250	0.89 LDRs	Recommend having 2 LDR Suites in the event of concurrent births.

Source of projected activity data: WACHS Activity and Bed Projections Modelling Pivot

Source: <http://www.capital.dhs.vic.gov.au/capdev/ProjectProposals/Benchmarking/FunctionalBenchmarks/>

Note 4: Projecting the Number of Theatres

The Functional Benchmarks from the State Government of Victoria's Capital Development Guidelines were utilised to project the number of theatres required for Nickol Bay Hospital by 2020/21. The results are shown below.

Theatre Type	Benchmark	Projected Activity 2020/21	Benchmark	Projected number of theatres required by 2020/21
Operating Theatres – same-day	1 theatre per 1900 surgical separations p.a.	1104	1900	0.58
Operating Theatres - multiday	1 theatre per 1500 surgical separations p.a.	1104	1500	0.74

Source of projected activity data: WACHS Activity and Bed Projections Modelling Pivot

Benchmarks available at: <http://www.capital.dhs.vic.gov.au/capdev/ProjectProposals/Benchmarking/FunctionalBenchmarks/>