Capacity Master Plan

Health Authority Abu Dhabi
A Healthier Abu Dhabi

www.haad.ae/statistics
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## Contents

### Section A
Background and Context
- Executive Summary
- Introduction — Report Format
- Context
- Health Sector Strategy Overview
- HAAD Healthcare Capacity Planning Overview
- HAAD Capacity Planning Tools
- Abu Dhabi Model of Care
- Population Trends and Projections
- Health Care Planning Definitions
- Emirate Level Supply
- Planned Supply to 2020

### Section B
Supply, Demand and Gap Analysis & Implementation Plans
- General Practice & Primary Care
- Emergency Care
- Specialist Outpatient Care
- Acute Overnight Care
- Acute Same Day Care
- Non Acute and Long Term Care
- Clinical Workforce
- Capacity Planning for Thiqa Programme

### Section C
Supply, Demand and Gap Analysis & Implementation Plans:
Specialty and Support Services Level.
- Outpatient Procedural Care
- Hospital Procedural Care
- Mental Health Care
- Obstetric Care Services
- Investing in Healthcare: Regulation, Insurance & Resources
- Professional and Production Team

Page Numbers:
- Executive Summary: page 2
- Introduction — Report Format: page 5
- Context: page 6
- Health Sector Strategy Overview: page 9
- HAAD Healthcare Capacity Planning Overview: page 10
- HAAD Capacity Planning Tools: page 12
- Abu Dhabi Model of Care: page 14
- Population Trends and Projections: page 15
- Health Care Planning Definitions: page 17
- Emirate Level Supply: page 18
- Planned Supply to 2020: page 20
- General Practice & Primary Care: page 22
- Emergency Care: page 32
- Specialist Outpatient Care: page 42
- Acute Overnight Care: page 51
- Acute Same Day Care: page 62
- Non Acute and Long Term Care: page 70
- Clinical Workforce: page 77
- Capacity Planning for Thiqa Programme: page 84
- Outpatient Procedural Care: page 100
- Hospital Procedural Care: page 105
- Mental Health Care: page 113
- Obstetric Care Services: page 121
- Investing in Healthcare: Regulation, Insurance & Resources: page 126
- Professional and Production Team: page 141
HAAD, in line with its vision: A Healthier Abu Dhabi, has significantly developed the healthcare capacity management system. This Capacity Master Plan (CMP), its methodology and the tools and initiatives contained within it, provides both the framework and the future plans that underpin the sustainable development of the Abu Dhabi healthcare system in a way that supports HAAD Mission.

- **HAAD CMP** is designed to help Abu Dhabi respond to its current and future healthcare demands, establish a healthcare planning culture and introduce guiding principles and specific plans for healthcare capacity and provision.

- **Work on the CMP involved:**
  
  - Development of an advanced healthcare capacity planning system including new tools that are at the forefront of healthcare planning technology.
  
  - Major analyses to understand the demand for healthcare now and in the future at Emirate, Regional and Precinct level and to interpret this demand by service type and specialty.
  
  - A comprehensive audit of existing and planned healthcare facilities.

- **The CMP** is a conceptual document that distills all analyses, themes, methodologies and regulatory requirements relating to healthcare supply into a single cohesive review of Abu Dhabi healthcare requirements.

- It articulates the conclusions as a clear plan for sustainable future healthcare in Abu Dhabi and provides implementation plans to address the major issues identified.

- The healthcare demand projections articulated throughout the CMP take full account of the projected population rises, population ageing and expected changes in burden of disease and efficiency of the delivery of healthcare.

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Notes: 1 HAAD Mission: HAAD aims to regulate and develop the healthcare sector and to protect the health of individuals by ensuring better access to services, continually improving quality of care, and sustainability of resources.
Executive Summary

The main body of the CMP provides a comprehensive Supply, Demand and Gap analyses at Emirate, Region, and service type level. Key findings include:

The private sector has been responsible for the majority of recent growth in the health sector. Notably 67% of outpatient care consulting rooms, 73% of non acute care beds and 53% of same day care beds are now provided by the private sector as this sector has focused its strategies on successfully addressing previously identified capacity gaps in these areas. Over the last few years there has been significant growth in many specialties. There has significant growth in orthopaedics, medical oncology and obstetric services that were previously in severe shortage.

The public sector has, by contrast, focused on growing acute overnight care beds and provides 63% of these services and a larger proportion of those planned for the future.

- The CMP identifies that there are already plans for 29% growth in acute overnight care beds and that this is more than sufficient to meet the emirates needs until 2025 and beyond.
- There is a planned 43% growth in non-acute overnight beds. This planned growth is insufficient to meet both current and projected future Thiq demand. As most of this planned growth and the majority of the current supply is provided by the private sector.
- Similarly there is currently 6% planned, mostly private sector growth, for outpatient services. Whilst this level of growth is sufficient, at an emirate level, to meet the increasing demand for healthcare services, it is important that the growth is targeted to the specialty and geographical areas of need across the emirate.
- The CMP identifies both key growth precincts and areas of specialty need and addresses these within the implementation plans for each service type.
Executive Summary

The CMP provides a comprehensive analyses of major elements of the healthcare system. The CMP, identifies and prioritises issues, and articulates the solutions and implementation plans, many of which are already underway:

- **Primary Care** - major shortcomings and emirate-wide shortfall in supply primary healthcare services.
- **Emergency Care** - adequately supplied for urgent care until 2035, however major shortfall in the provision of complex emergency care (Triage levels 3) and trauma care.
- **Specialist Outpatient Care** – generally well covered but significant gaps in some services i.e. obstetrics, orthopaedics and uneven regional coverage.
- **Acute Overnight Care** - Abu Dhabi and Al Ain regions are on target to have sufficient supply of beds, *without the need for any more additional beds*, until 2025. However there is need for investment in acute overnight care for specific specialties in all regions. There is a need for a dedicated specialist children's hospital.
- **Acute Same Day Care** - general shortfall in Al Ain and Al Gharbia and Emirate-wide shortfall of certain specialties: i.e. orthopaedics, cardiology medicine, neurology, rheumatology, respiratory medicine.
- **Non-Acute & Long Term Care** - a current and worsening undersupply of non-acute beds and homecare
- **Clinical Workforce** – a general undersupply of consultants and specialists which is somewhat balanced by an oversupply of lower qualified medical practitioners. Particular shortages of specialists and consultants in a number of areas including: primary care, emergency medicine, psychiatry. A general undersupply of nurses and midwives.
- **Mental Health Care** - undersupplied across the emirate.
- **Intensive care and obstetrics care** – appears undersupplied, however review of the model of care is required.
Introduction - Report Format

The CMP provides analyses, solutions and implementation plans to address the capacity issues identified for a range of service type including:

- General Practice & Primary Care
- Emergency Care
- Specialist Outpatient Care
- Acute Overnight Care
- Procedural Care
- Acute Same Day Care
- Operating Theatre Care
- Intensive Care
- Non Acute & Long Term Care
- Mental Health Care
- Clinical Workforce

For each service type supply and demand is analysed in order to identify the current and future requirements. This analysis supports future capacity planning.

- Key Planning Units (KPUs) are defined i.e. beds, outpatient rooms, emergency bays, whole time equivalents etc.
- The analysis identifies the requirements in KPUs at regional and precinct level.

Notes: All sources within the CMP are HAAD Capacity Planning Tools and HAAD Capacity Management Team analysis unless otherwise stated.
Healthcare in Abu Dhabi faces growing demand for services arising from an expanding population.

- The current population is young and has a rate of chronic diseases that is set to increase as it ages. The current population is expected to grow from its current level of 2.9 million to over 4.5 million by 2035.

- Abu Dhabi has suffered from a relatively limited supply of healthcare services, particularly hospital beds and primary healthcare, which has led to some relatively unstructured investment in infrastructure. Patients have had undirected access to services and specialty care which has led to inappropriate use and over-supply of some services. Specialty care has not been equally distributed across the 3 regions of Abu Dhabi Emirate. The plan identifies services requiring further development.

- Before embarking on further projects which affect Abu Dhabi’s healthcare services, it is important for all stakeholders to be clear on the capacity gaps and priorities at specialty, geographical and service type level. Achieving world-class quality care, however, is about much more than new buildings. Clarity is also required as to the types of healthcare appropriate for the evolving communities and population. This plan provides that clarity.

- HAAD has further developed its comprehensive capacity planning process, including the publication of the CMP to address these issues. The CMP, based on robust scientific methodology includes international and emirate level demand, supply and gap analysis. This provides a structured approach to identifying, prioritizing and resolving geographical, specialty and service type shortages.

- The CMP was developed as a key initiative and enabler to the Abu Dhabi Health Sector Strategy. It sets out a blueprint for how Abu Dhabi healthcare capacity should evolve and is predicated on a model of care that provides a renewed focus on improving clinical outcomes.
Abu Dhabi residents should be supported by an adequate supply of, locally available and well developed, consultant led, family based (primary) care.

- This must be backed up by a comprehensive supply of specialist and hospital based care along with well developed non-acute care. This approach should reduce inappropriate reliance on hospital care. In order to promote the use of primary healthcare HAAD has developed a new primary care model and standard. This approach has been shown, internationally to improve quality and access to care.

- The CMP further focuses on ensuring improved access to and availability of appropriate planned specialist and emergency care. The CMP seeks to streamline and optimise access to this care from the patient’s perspective through an emphasis on local or nearby availability of an appropriate level of care by specialty and service type (e.g. hospital bed, outpatient consulting room, emergency bays etc.).

- Making such ambitious changes to Abu Dhabi healthcare system requires many decisions on what to do and what not to do. The CMP takes account of ongoing healthcare reforms, embodied within the Abu Dhabi Health Sector Strategy. (HSS). The HSS, developed with consensus from major health stakeholders, helps clarify priorities in the delivery of health services.

- With regard to healthcare facilities provision. achieving the community facility planning standards for healthcare that are laid down by the Abu Dhabi Urban Planning Council (UPC): The delivery of these national community planning standards, for the benefit all of Abu Dhabi’s residents, underpins the CMP.
The CMP provides healthcare supply, demand and gap analyses for use by all healthcare stakeholders.

- It articulates priorities and implementation plans/recommendations for those parties who play a key role in ensuring appropriate, quality healthcare services are available to the population in a timely manner.

- Urban planners and master developers should ensure full compliance with the Abu Dhabi UPC Community Facility Planning Standards: [http://www.upc.gov.ae/template/upc/pdf/CFPS-EN.pdf](http://www.upc.gov.ae/template/upc/pdf/CFPS-EN.pdf). These standards, jointly developed with HAAD, underpin the CMP and define the required health facility requirements for current and anticipated populations at a regional and precinct level. Their purpose is to ensure that appropriate provision is made for facilities at the planning and development phase.

- Healthcare providers, operators and investors – should take full account of the analysis, information, plans and recommendations contained within this plan when planning their investments or developing their services. HAAD is committed to supporting providers and investors with information regarding health service use, supply and demand and to meet HAAD regulatory requirements (available at www.haad.ae).

- Healthcare providers, operators and investors – need to be engaged with HAAD at a strategic level before developments or investments are approved to ensure that new facilities provide the population with timely access to facilities and services that are appropriate and based on the needs of the emirate. This strategic approval extends to the allocation of land for healthcare use as well as the strategic level approval of certain types of healthcare facility developments.
The following 7 major priorities have been identified:

1. Integrated continuum of care for individuals
2. Drive quality and safety as well as enhance patient experience
3. Attract/retain/train workforce
4. Emergency preparedness
5. Wellness and prevention—public Health approach
6. Ensure value for money + Sustainability of healthcare spend
7. Integrated Health Informatics and eHealth

Governance as a key enabler of the reform effort

HAAD Healthcare Capacity Planning Overview

HAAD, through its Health Sector Strategy, has developed a comprehensive process that:

- Appraises overall health needs.
- Defines health needs by geographic area, specialty and service type.
- Determines how these health needs will be met.
- Assists in Allocation of existing or future resources.

Notes: The Methodology used in developing the plan is well proven and used extensively in developed healthcare systems; HSS Initiative 1.2.
HAAD Healthcare Capacity Planning Process

The new process offers a methodical and scientifically proven methodology that support strategic level healthcare planning and capacity management.
HAAD Capacity Planning Tools

HAAD, through its Health Sector Strategy, has developed a set of world class healthcare planning tools:

- **Supply Capture Module**: to survey existing and proposed health facilities that supplements and extends existing HAAD health supply data collections for accurate supply modelling at all service levels.

- **Demand Module**: to project health demand for all service types and lines to 2035, with refinements to increase its functionality, scope, accuracy and validity, particularly in the areas of Emergency Services, Intensive Care, Extended Care and Outpatients/Ambulatory Care.

- **Supply Planning Module**: from the upload of supply data from the Supply Capture Module and demand projections from the Demand Module outputs to perform gap analyses and supply projections.

- **Mapping Module**: to provide detailed interactive electronic mapping of the sites of current and planned facilities, including contact information, supply information, facility information, facility images and workforce profiles; and available Government land for future health asset developments.

These tools have been extensively developed in partnership with Total Alliance Health Partners International (TAHPI) as part of HSS Initiative 1.2. Whilst the science behind them is in mainstream usage the technology is the most advanced in the world and places Abu Dhabi in the forefront of strategic health planning.
HAAD and Abu Dhabi UPC Requirements for Community Facility Standards.

These requirements for primary care and hospital provision have been established in partnership with Abu Dhabi Urban Planning Council (UPC) and comprise the healthcare element of the UPC Community Facility Planning Standards. This Capacity Masterplan takes full account of these standards in developing the Abu Dhabi Service Configuration.

For new and existing residential developments healthcare facilities, and land allocations for healthcare are to be provided as per the following:

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Population (000’s people)</th>
<th>Land provision options (m² 000’s)</th>
<th>Car parking (spaces)</th>
<th>Minimum service requirement</th>
<th>Estimated Resources per facility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transient¹</td>
<td>Urban</td>
<td>Suburban</td>
<td>Rural</td>
<td>Minimum Land area</td>
</tr>
<tr>
<td>Clinic² (Village)</td>
<td>NA</td>
<td>NA</td>
<td>4-6</td>
<td>12-15</td>
<td>NA</td>
</tr>
<tr>
<td>Clinic (Small)</td>
<td>6-10</td>
<td>6-10</td>
<td>6-10</td>
<td>24-36</td>
<td>5</td>
</tr>
<tr>
<td>Clinic (Medium)</td>
<td>12-29</td>
<td>12-29</td>
<td>12-29</td>
<td>36-90</td>
<td>7</td>
</tr>
<tr>
<td>Clinic (Large)</td>
<td>30-40</td>
<td>30-40</td>
<td>30-40</td>
<td>90-120</td>
<td>10</td>
</tr>
<tr>
<td>Hospitals⁴</td>
<td>60-90</td>
<td>180-240</td>
<td>40</td>
<td>NA</td>
<td>40</td>
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<td>90-110</td>
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</tbody>
</table>

Notes:
¹Transient population includes staff and other non-residential visitors.
²Clinics collectively refers to Clinics, Centres and Polyclinics.
³Clinics may be co-located with other facilities including Mosques, Neighbourhood Commercial Centres, Sport Facilities, Community/Cultural Centres, Pharmacies, Schools and Post Offices.
Where facilities are co-located, adequate transport options and shared parking must be made available.
⁴Evaluation of the need for provision of a healthcare facility will be carried out on a case by case basis which considers the accessibility of existing and planned facilities close to the new development.
⁵Optimal hospital size is 200-600 beds
⁶GFA Ground Floor Area.

Sources: HAAD Capacity Management Team analysis, UPC Community Facility Planning Standards.
HAAD has developed an Abu Dhabi model of care that is based on international best practice:

**Primary and Community Care / Prevention**
- Home Healthcare
- Telemedicine
- Remote support
- Disease management
- Vaccination and public health programmes

**Consultant led Family based Care**
- Check-up
- Screening

**Secondary level Acute care**

**Tertiary/Quaternary level Acute Care**
- Centralized Emergency specialist services e.g., Trauma Centre, Stroke and Cardiac

**Outpatient**
- Inpatient

**Non-acute care**

**Outpatient**
- Triage
- ER
- Urgent Care Centre

**Ambulance**
Population Trends / Projections

- Ongoing greater birth rates in national population relative to Non-Nationals\(^2\)
- Increasing life expectancy\(^2\)
- Average annual population growth rate of 3.5\(^\circ\)^\(^2\)
- Projected to grow to 4.5 million by 2035\(^2\)
- Non-Nationals make up a large portion of total population\(^2\)

### Key Growth Precincts

- Al Reem & Inner Islands, Al Shamkha, Saadiyat Island, Zayed City
- Al Falah, Jebel Hafeet, KIZAD, Yas Island

\(^2\)Statistical Center Abu Dhabi (SCAD) & Urban Planning Council (UPC)
Notes: Projections are based on information from Statistical Center Abu Dhabi (SCAD) & Urban Planning Council (UPC).
Healthcare Planning Definitions

- **Supply is the total amount of health services available to a population**
  - Data captured via:
    - Healthcare facility survey, 2014
    - Knowledge Engine for Health (KEH) for survey data verification
  - Adjusted for: non-responders, sampling error and self paying patients
  - Reported activity provided capacity estimates for service specialties
  - Resource utilisation allocated to nationality based on health insurance activity in KEH
  - Supply is presented as Key Planning Units (KPUs) i.e. beds, outpatient consulting rooms etc.

\[
\text{SURVEY} + \text{KEH} = \text{CAPACITY}
\]

- **Demand is the total amount of health services required by a population**
  - Health utilisation data is obtained from reference population; where relative equilibrium exists between supply and demand
    - Australia, USA, Canada
    - UK, OECD countries
  - Abu Dhabi Demand projections are derived from reference population but adjusted for Abu Dhabi Population profile and Burden of Disease specific to West Asia and UAE

\[
\text{REFERENCE} \times \text{POPULATION} = \text{DEMAND}
\]

- **Future Requirements are the current and planned supply of health services compared against the demand. They quantify potential gaps and the key planning units needing to be added to accommodate the health needs of Abu Dhabi’s population.**
  - Covers all service types – current and future years to 2035
  - Broken down by specialty

\[
\text{CAPACITY} - \text{DEMAND} = \text{GAP}
\]

- **Demand Analysis Process:**
  - Identify catchments and populations
  - Project case mix, age and sex specific demand requirements for each catchment group
  - Estimate demand capacity by year

- **Factors affecting demand:**
  - Population size
  - Health status/burden of disease
  - Age and gender
  - Health insurance and other policy factors
  - Geographical location
  - Availability of healthcare professionals
  - Available of healthcare facilities
  - Accessibility and cost
Notes: 2014 data; sector classification by provider type, other include Mubadala facilities.
Planned Supply to 2020

Notes: Only planned facilities at a stage of >50% construction status at September 2015 was included in the analysis.
## Contents

### Section A
**Background and Context**
- Executive Summary
- Introduction — Report Format
- Context
- Health Sector Strategy Overview
- HAAD Healthcare Capacity Planning Overview
- HAAD Capacity Planning Tools
- Abu Dhabi Model of Care
- Population Trends and Projections
- Health Care Planning Definitions
- Emirate Level Supply
- Planned Supply to 2020

### Section B
**Supply, Demand and Gap Analysis & Implementation Plans**
- General Practice & Primary Care
- Emergency Care
- Specialist Outpatient Care
- Acute Overnight Care
- Acute Same Day Care
- Non Acute and Long Term Care
- Clinical Workforce
- Capacity Planning for Thiqa Programme

### Section C
**Supply, Demand and Gap Analysis & Implementation Plans: Specialty and Support Services Level.**
- Outpatient Procedural Care
- Hospital Procedural Care
- Mental Health Care
- Obstetric Care Services
- Investing in Healthcare: Regulation, Insurance & Resources
- Professional and Production Team

Page numbers:
- Executive Summary: page 2
- Introduction — Report Format: page 5
- Context: page 6
- Health Sector Strategy Overview: page 9
- HAAD Healthcare Capacity Planning Overview: page 10
- HAAD Capacity Planning Tools: page 12
- Abu Dhabi Model of Care: page 14
- Population Trends and Projections: page 15
- Health Care Planning Definitions: page 17
- Emirate Level Supply: page 18
- Planned Supply to 2020: page 20
- General Practice & Primary Care: page 22
- Emergency Care: page 32
- Specialist Outpatient Care: page 42
- Acute Overnight Care: page 51
- Acute Same Day Care: page 62
- Non Acute and Long Term Care: page 70
- Clinical Workforce: page 77
- Capacity Planning for Thiqa Programme: page 84
- Outpatient Procedural Care: page 100
- Hospital Procedural Care: page 105
- Mental Health Care: page 113
- Obstetric Care Services: page 121
- Investing in Healthcare: Regulation, Insurance & Resources: page 126
- Professional and Production Team: page 141
Consultations in a hospital or clinic setting with a qualified medical practitioner for delivering primary care, treatment for acute or chronic illness and provision of preventative care and health education
Primary Care Outpatient Supply

- In 2014, 694 health facilities provided outpatient care services
- Care provided from 4,685 consultation rooms
  - 9% of which reported to provide general practice & primary care
- All outpatient consultation rooms by region and setting:
  - Hospital
  - Clinic & Centre
  - 1,982
  - 1,362

- Defined here as care provided close to home, for a relatively common condition or complaint for which there is a relatively simply and systemised treatment available
- In 2014, Primary Care provided from 331 consultation rooms
  - 98% of which provided in Clinics & Centres
  - Primary care outpatient consultation rooms by region and setting:
    - Hospital
    - Clinic & Centre
    - 4
    - 213

- Planned Primary Care Outpatient Supply
  - HAAD Licensing Process does not enable identification of Primary Care or Planned supply in outpatient consultation rooms does not currently identify primary care as distinct from other outpatient care

217 Consultation Rooms
1,021,507 Outpatient Visits

27 Consultation Rooms
226,090 Outpatient Visits

87 Consultation Rooms
219,371 Outpatient Visits

Additional ? outpatient consultation rooms

Additional ? outpatient consultation rooms

Notes: Outpatient supply in both clinic and centres and hospitals. Includes all specialties as per reference population primary care specification. Estimates exclude Dentistry, Allied Health, Alternative Medicine, Renal Dialysis, Pathology and Medical Imaging Service Lines.
Primary Care Outpatient Demand

- Fastest growing demand of all healthcare service types.
- There is a large body of international evidence that well organised primary care achieves better health outcomes and better care.
- Well organised primary care reduces overall costs and spending by reducing inpatient visits, hospital admissions and readmissions, emergency department use and other factors.
- Such services can be provided either in the private and public sector or both.

- Demand for primary care outpatient consultation rooms

  Annual growth of 7.3%, or 67 rooms per year
  Total 20-year growth of 1,327 rooms

- Workforce Implications - Future requirements in FTEs for General Practitioners practising in all service settings

  Gap of 2,593 FTEs
  Gap of 425 FTEs
Primary Care Requirements & Planned Supply

Future requirements in primary care outpatient consultation rooms

<table>
<thead>
<tr>
<th>Year</th>
<th>Supply</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>335</td>
<td>78</td>
</tr>
<tr>
<td>2025</td>
<td>670</td>
<td>156</td>
</tr>
<tr>
<td>2035</td>
<td>1,164</td>
<td>272</td>
</tr>
</tbody>
</table>

Twelve precincts that are critically underserved for Primary Care

Note: 9 facilities are required for the 12 districts as a single facility will serve the closely located populations of Abu Krayah, Al Dhahra & Al Araad. Similarly a single facility will serve Al Saad & Abu Samrah.

Current Emirate-wide shortfall in supply of primary care outpatient consultation rooms, partially being met by over supply of general medicine consultation rooms

<table>
<thead>
<tr>
<th>Year</th>
<th>Supply</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>218</td>
<td>26</td>
</tr>
<tr>
<td>2014</td>
<td>518</td>
<td>101</td>
</tr>
</tbody>
</table>

Planned supply in outpatient consultation rooms, does not currently identify primary care as distinct from other outpatient care due to the lack of regulatory delineation

Note: * Planned by SEHA but not started

Additional ? outpatient consultation rooms

Additional ? outpatient consultation rooms

Additional ? outpatient consultation rooms

Notes: includes both Hospital and Clinic & Centre consultation rooms for all specialties, estimates exclude 221 planned consultation rooms that have not been yet allocated to specific specialty by the facilities.
Primary Care Outpatient Priorities

Abu Dhabi Region requirements in primary care outpatient consultation rooms by Precincts up to 2035

- Musaffah, CBD
- Abu Dhabi Island, Al Reem & Inner Islands, Al Shamkha, Saadiyat Island, Zayed City, Shakhbout City, Desert Villages (Al Wathba)
- Outer/Central/ North/South

<table>
<thead>
<tr>
<th>Region</th>
<th>Precinct</th>
<th>2015 Gap Primary Care consulting rooms</th>
<th>2035 Gap Primary Care consulting rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abu Dhabi</td>
<td>Musaffah</td>
<td>50</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>Central Business District</td>
<td>44</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Abu Dhabi Island</td>
<td>32</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Al Reem &amp; Inner Islands</td>
<td>22</td>
<td>89</td>
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<tr>
<td></td>
<td>Outer Central/North/South</td>
<td>16</td>
<td>50</td>
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<td></td>
<td>Al Shamkha</td>
<td>15</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>Saadiyat Island</td>
<td>13</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Zayed City</td>
<td>0</td>
<td>95</td>
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<tr>
<td>Al Ain</td>
<td>Al Yaher</td>
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<td>29</td>
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<td>Hili</td>
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<td></td>
<td>Jebel Hafeet</td>
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<td>Central District</td>
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<td>Al Gharbia</td>
<td>Ruwais</td>
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<td>Madinet Zayed</td>
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<td></td>
<td>Liwa</td>
<td>9</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Mirfa</td>
<td>9</td>
<td>36</td>
</tr>
</tbody>
</table>

Al Gharbia Region requirements in primary care outpatient consultation rooms by Precincts up to 2035

- Ruwais
- Madinet Zayed
- Liwa
- Mirfa

Priority Now:
- Al Salamat
- Umm Ghaffa
- Al Dhahra
- Al Araad
- Abu Karayyah
- Abu Samarah
- Al Saad

Emerging Priority:
- Al Yaher
- Hili
- Al Mutaredh
- Sanaiya
- Al Jimi
- Jebel Hafeet
- Central District

Notes: The above analysis identifies a number of key precincts requiring primary care expansion, however, it is neither exclusive nor exhaustive.
Primary Care Outpatient Priorities

- **Current and existing gap:**
  - All Regions.
  - Rural and underserved precincts.
  - All settings: Hospitals and Clinics & Centres.
  - Current and planned supply is inadequate to meet growing demand.
  - Workforce.

- Current Emirate-wide shortfall in supply of primary care outpatient consultation rooms and workforce is partially being met by over supply of general medicine consultation rooms and general medicine workforce.

- Primary care in Abu Dhabi is disorganised, fragmented and poorly defined\(^3\).

- The lack of a clear delineation of primary care within the regulatory framework is exacerbating this fragmentation and disorganisation and it’s continued under supply.

- Abu Dhabi needs to obtain the benefits of implementing a model of care that is based on international best practice, patient centered, primary care. Policy makers, providers, payers and investors need to become focused on the delivery of the healthcare benefits and financial savings that are achievable through the delivery of a strong primary care system.

---

Implementation Plan Primary Care (1 of 2)

HAAD, as part of its HSS is currently reviewing primary care provision through a multi stakeholder task force. The work of this task force will result in:

- Clear definitions and regulatory delineation of primary care via the introduction of a new health centre sub-licence category for primary care.

- Development of national standards for primary care services. Existing providers will be encouraged to meet the standards so as not to increase the gap further.

- A strategy to address the existing gap of primary care physicians and other clinical staff shortages impacting primary care. This will include, in line with international best practice, a requirement for primary care to be consultant led.

- Development of quality metrics and a measurement process specific to primary care.

- Alignment of public and private delivery models and primary care incentivisation.

- Detailed mapping of primary care supply and demand at precinct level.

- The Primary Care Task Force has consulted on the proposals and will agree a gradual implementation phasing.
HAAD will continue to work closely with investors to encourage investment in regions and precincts identified within this plan that are affected by capacity gaps in the provision of primary care.

Specifically HAAD will regulate to align planned supply with demand, and to control over/under supply of primary care at both a geographic and specialty level, through the below regulatory requirements:

- HAAD recommendations for the future allocation of HAAD land for primary care facilities will be based on the priorities identified within this plan.
- HAAD may institute, to address specific precinct or regional level primary care gaps, a Call for Licence Process which will involve issuing and evaluating market responses, to a specific Request for Proposals (RFP) to address the identified service gap. HAAD is in the process of tendering for primary care clinics in underserved precincts across the Emirate that include provision of new clinics in the following precincts:

<table>
<thead>
<tr>
<th>Eastern Region</th>
<th>Umm Ghaffa</th>
<th>Al Dhahra</th>
<th>Al Araad</th>
<th>Abu Karayyah</th>
<th>Abu Samarah</th>
<th>Al Saad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abu Dhabi Region</td>
<td>Desert Villages</td>
<td>Shakhbou City</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- HAAD and Daman will actively develop methodology that links reimbursement with the local service need. This in order to incentivise provision of shortage facilities/specialties. Such methodology will be based on the information and existing and emerging priorities identified within this plan.

HAAD further takes full account of the comments and suggestions arising from residents, as part of the Multaqa Programme, in developing service configuration.

Draft recommendations relating to the future provision of primary care facilities in Al Ain and Al Gharbia regions have already been developed and are detailed on pages 30 & 31.
Draft Al Ain Regional Healthcare Plan

This plan provides a conceptual level overview of the future healthcare configuration with regard to hospital and primary care.
Al Gharbia Regional Healthcare Plan

Draft Al Gharbia Regional Healthcare Plan

This plan provides a conceptual level overview of the future healthcare configuration with regard to hospital and primary care.

Source: Draft long term plan developed by HAAD and UPC that is based on full compliance with UPC community Facility Planning Standards and based on Abu Dhabi 2030 population projections.
Emergency Care

Emergency Departments provide integrated care to patients in urgent need of attention for a health condition that may require an immediate medical or surgical intervention.
Current Emergency Care Supply

In 2014, 118 health facilities provided emergency department care, only 42 reported dedicated physical capacity as emergency bays.

577 emergency department bays, made up of:
- Isolation rooms in the Emergency Department.
- Dedicated monitored beds.
- Resuscitation bays.
- Observation beds and bays.
- Fast-track, urgent bays.

In 2014, 1,186,283 emergency care occasions were provided to the population of Abu Dhabi.
Historically in Abu Dhabi there has been little differentiation, in terms of standards and minimum regulatory requirements to differentiate, very basic, less urgent care, triage class 5 for which demand is declining, and the delivery of a high standard of complex emergency care (triage classes 1 to 3). This has led to a proliferation of the former and a relative shortage of the latter.

Relatively few Emergency departments offer a high level of competency in treating triage level 1 to 3 patients, which is delivered well by a relative few providers, and for which the demand is increasing most rapidly. Similarly unlike many advanced health systems there has been no delineation or designation of trauma or major trauma services.

In response there is a need to develop national standards for emergency care services in order to ensure a “fit for purpose” supply of appropriate emergency care services.

Notes: includes all acute care specialties.
Emergency Care Demand & Planned Supply

- Demand by emergency care bays
  - 2015: 351
  - 2025: 485
  - 2035: 639

- Future requirements in FTEs for Emergency Physicians
  - Supply: 196
  - Demand: 196

- Demand by Emergency Care Bays allocated by Triage Classes
  - 4% annual growth rate; 24 emergency bays per year
  - Triage Class 1 Immediate Life Threat
  - Triage Class 2 Imminent Life Threat
  - Triage Class 3 Potential Life Threat
  - Triage Class 4 Serious
  - Triage Class 5 Less Urgent

- Planned Emergency Care Supply:
  - 6 additional hospitals by 2020 providing capacity in emergency care
  - Supplying 53 additional emergency care bays

- Notes: planned service and facility analysis only includes those with a status of >50% construction complete.
Emergency Care Demand – Major Trauma

Demand for major trauma acute overnight episodes of care by region:

<table>
<thead>
<tr>
<th>Region</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abu Dhabi</td>
<td>1,132</td>
<td>1,391</td>
<td>1,669</td>
<td>1,992</td>
<td>2,454</td>
</tr>
<tr>
<td>Abu Dhabi Island</td>
<td>465</td>
<td>548</td>
<td>639</td>
<td>757</td>
<td>928</td>
</tr>
<tr>
<td>Abu Dhabi Middle</td>
<td>667</td>
<td>843</td>
<td>1,030</td>
<td>1,235</td>
<td>1,526</td>
</tr>
<tr>
<td>Al Ain</td>
<td>493</td>
<td>608</td>
<td>716</td>
<td>854</td>
<td>1,044</td>
</tr>
<tr>
<td>Al Gharbia</td>
<td>244</td>
<td>302</td>
<td>368</td>
<td>443</td>
<td>526</td>
</tr>
<tr>
<td>Emirate</td>
<td>3,001</td>
<td>3,692</td>
<td>4,422</td>
<td>5,281</td>
<td>6,478</td>
</tr>
<tr>
<td>Rate per 1,000/population</td>
<td>0.69</td>
<td>0.74</td>
<td>0.77</td>
<td>0.80</td>
<td>0.88</td>
</tr>
</tbody>
</table>

Demand analysis for major trauma:

- The UK and Australian systems in relation to major trauma networks are arranged similarly and classify their patients in the same way (Injury severity score of >15 as major trauma). There is data available from both on an episode per population basis.
- The episodes per population for Abu Dhabi can be calculated in the same way.
- The analysis shows that the projected demand for major trauma is double that of major trauma rates in the UK and Australia and the rate per population is projected to rise.
- Demand for major trauma, measured as either capacity and episode, is significantly influenced by characteristics of the population (young adult males), infrastructure characteristics and staffing components.

Reference Sources:

In 2013, 17,238 major trauma cases were admitted in the UK for the 64.1 million population.

<table>
<thead>
<tr>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.27 episodes/1,000 population</td>
</tr>
</tbody>
</table>

Between 2003 and 2007, on average, 2,200 major trauma cases were admitted in New South Wales, Australia for the population of 6.9 million.

<table>
<thead>
<tr>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.32 episodes/1,000 population</td>
</tr>
</tbody>
</table>

Between 2010 and 2012, 20,435 major trauma cases were admitted in Australian hospitals, an average of 6,812 cases per year for the population of 22.3 million.

<table>
<thead>
<tr>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.30 episodes/1,000 population</td>
</tr>
</tbody>
</table>

Notes: 4 Major trauma DRGs include: Head Trauma with MCC; Injuries to Unspecified or Multiple Sites with MCC; Major Chest Trauma with MCC; Trauma to Skin-Subcutaneous Tissue and Breast with MCC; Intracranial Vascular Procedures with MCC; Craniotomy with MCC.
Emergency Care Priorities

Future requirements in FTEs for Emergency Physicians

- Supply
- Demand

Future requirements in emergency care bays by triage classes in Abu Dhabi Region

Future requirements in emergency care bays by triage classes in Al Ain Region

Future requirements in emergency care bays by triage classes in Al Gharbia Region

Notes: Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occurs for patients to receive care.
Emergency Care Priorities

- **Adequately supplied for Urgent Care (triage classes 4 & 5) until 2035.**

- **Workforce in Emergency Medicine requires immediate investment.**
  - There is an existing gap of 77 WTE emergency physicians that will rise, unless there is further investment above and beyond the existing plans, to 167 by 2020.

- **Current and existing priorities:**
  - Historically in Abu Dhabi there has been little differentiation, in terms of standards and minimum regulatory requirements to differentiate, very basic, less urgent care (triage class 5), and for which demand is declining, and the delivery of a high standard of complex emergency care (triage classes 1 to 3). This has led to a proliferation of the former and a relative shortage of the latter.
  - Investment in Complex Emergency Care (triage classes 1, 2 & 3) in Abu Dhabi and Al Ain Regions is needed now. There is a gap in the provision of Emergency bays in Abu Dhabi Region that, unless there is further investment above and beyond the existing plans, will increase from 73 now to 119 by 2020. In Al Ain Region the gap will increase from 60 to 89 bays by 2020.
  - Relatively few Emergency departments offer a high level of competency in treating triage level 1 to 3 patients, which is delivered well by a relative few providers, and for which the demand is increasing most rapidly. Similarly unlike many advanced health systems there has been no delineation or designation of trauma or major trauma services.
  - In response there is a need to develop national standards for emergency care services in order to ensure a “fit for purpose” supply of appropriate emergency care services.
  - In order to support, facilitate and underpin, such investment there is need to develop national standards and operating protocols that differentiate those services capable of the delivery of Complex Emergency Care (Triage classes 1 to 3), as against those only capable or equipped to deliver Urgent Emergency Care (triage classes 4 & 5).

- **Emerging priorities:**
  - Complex Emergency Care (triage classes 1, 2 & 3) in Al Gharbia in 2025.
HAAD is currently reviewing emergency care provision through a multi stakeholder task force. The work of this task force will result in:

- Clear definitions and national standards for emergency care services.
- A strategy, including new regulations, to address the existing gap for emergency physicians and other clinical staff shortages impacting emergency care.
- Co-ordination of the appropriate transfer of the most seriously ill patients to centres of excellence. i.e. Stroke patients, Heart attack victims, Complex Trauma. Burn care etc.
- Development of quality metrics and a measurement process specific to emergency care.
- Alignment of public and private delivery models.

HAAD will continue to work closely with Investors to encourage investment in regions and precincts identified within this plan that are affected by capacity gaps in the provision of emergency care.

HAAD will work with public sector providers to ensure that their future plans align directly with this plan.
Trauma is the leading cause of death worldwide in children and adults under the age of 40 years\(^4\). In order to ensure that all communities are safely served in case of accidents and injuries an Abu Dhabi trauma system, with designated Major Trauma centres located at strategically appropriate locations, is proposed.

- Major trauma centres provide specialist care for patients with multiple serious injuries that could result in death or serious disability, including head injuries, life-threatening wounds and multiple fractures. They are hubs that work closely with a series of local trauma units.

- Major trauma centres operate 24 hours a day, seven days a week. They are staffed by consultant-led specialist teams with access to the best diagnostic and treatment facilities, including orthopaedics, neurosurgery and radiology teams.

- International evidence shows that the odds of a major trauma patient survival can be improved by 63% through the strategic provision of major trauma centres in or close to major centres of population. International best practice\(^5,6\) advises that, to achieve optimal clinical outcomes such centres should admit at least 1,200 trauma patients including a minimum of 240 admissions with an ISS\(^5,6\) higher than 15.

- Most International health systems that have implemented trauma systems recommend that a mapping process should be performed to pre-define geographical areas requiring trauma centre services. Evidence advises that patients should be able to access the service within 45 minutes by ambulance or air ambulance.

- HAAD has undertaken such mapping in accordance with the geographic layout, population profile, current hospital configuration and the volumes of severely injured patients being treated. The most appropriate configuration of major trauma centres for Abu Dhabi is laid out on page 41.

- Such centres will be supported by a network of organised pre-hospital and inter-hospital transfers, acute care and surgery, ongoing care & reconstruction and rehabilitation. In addition there should be a lead centre responsible for trauma system network organisation (incl. governance).

\(^4\)https://www.tarn.ac.uk/Content.aspx?c=3477; \(^5\)http://www.bj360.boneandjoint.org.uk/content/3/2/2; \(^6\)http://www.uhs.nhs.uk/Media/SUHTInternet/Services/Emergencymedicine/Regionalnetworksformajortrauma.pdf
The demand figures are for major trauma cases only and each centre will also provide care for a significant level of non major trauma. The international norm for minimum volumes for a major trauma centre is >240 admissions with an Injury Severity Score (ISS) of more than 15. Patients should be able to access the service within 45 minutes.
Specialist Outpatient Care

Consultations in a hospital or clinic setting with a qualified & specialised medical practitioner for determining appropriate treatment that a patient may require for a specific health condition.
In 2014, 694 health facilities provided outpatient care services
• Care provided from 4,685 consultation rooms
  • 91% of which provide specialist outpatient care
• Outpatient consultation rooms by region and setting:
  - Hospital: 1,982
  - Clinic & Centre: 1,362

In 2014, Specialist Care provided from 3,443 consultation rooms
• 49% of which was in the Hospital setting
• Specialist outpatient consultation rooms by region and setting:
  - Hospital: 1,302
  - Clinic & Centre: 1,220

Notes: Specialist Outpatient supply includes all specialties; outpatient supply in both clinic and centres and hospitals, Estimates exclude General Practice & Primary Care, Dentistry, Allied Health, Alternative Medicine, Renal Dialysis, Pathology and Medical Imaging Service Lines.
Specialist Outpatient Care Demand

- 6% annual growth; 149 consultation rooms per year
  - Hospital: 5% annual growth rate; 25 consultation rooms per year
  - Clinic & Centre: 6% annual growth rate; 124 consultation rooms per year

- Clinic & Centre Consultation Room
- Hospital Consultation Room

- Demand by specialist outpatient consultation rooms by service mode,
  - 2015: 1,972 (44%), 2,461 (53%), 3,040 (64%), 3,687 (77%), 4,461 (93%)
  - 2020: 2,461 (53%), 3,040 (64%), 3,687 (77%), 4,461 (93%)
  - 2025: 3,040 (64%), 3,687 (77%), 4,461 (93%)
  - 2030: 3,687 (77%), 4,461 (93%)
  - 2035: 4,461 (93%)

- Demand by specialist outpatient consultation rooms
  - 2015: 1,490, 2025: 2,253, 2035: 3,297
  - 2015: 1,07, 2025: 6, 2035: 4

- Top demand for specialty outpatient Service Lines by specialist outpatient rooms
  - 2015: Obstetrics (530, 22%), Orthopaedics (1,490, 64%), Gastroenterology & Hepatology (693, 13%)
  - 2025: Obstetrics (1,07, 6%), Orthopaedics (354, 27%), Gastroenterology & Hepatology (231, 13%)
  - 2035: Obstetrics (1,58, 4%), Orthopaedics (517, 27%), Gastroenterology & Hepatology (340, 13%)

Notes: includes all specialties except General Practice & Primary Care, Dentistry, Allied Health, Alternative Medicine, Renal Dialysis, Pathology and Medical Imaging Service Lines.
Oversupply in Abu Dhabi Region masks undersupply in some specialties.

Current shortfall in supply of specialist outpatient consultation rooms in Al Gharbia only.

Gap of 107 outpatient consultation rooms.

Top Service Lines with highest requirements in capacity of specialist outpatient consultation rooms:

1. Obstetrics 504
2. Orthopaedics 343
3. Immunology & Infectious Diseases 342
4. ENT 312
5. Gastroenterology 215
6. Endocrinology 179
7. General Surgery 172
8. Cardiothoracic Surgery 149
9. Trauma & Injury 142
10. Nephrology 124

Planned Specialist Outpatient Supply:

- 8 additional health facilities by 2020
- Supplying 273 additional outpatient consultation rooms

Annual growth of 6.2%, or 149 rooms per year.
Total 20-year growth of 2,978 rooms.

Additional 215 outpatient consultation rooms
Additional 34 outpatient consultation rooms
Additional 24 outpatient consultation rooms

Notes: includes all specialties except General Practice & Primary Care, Dentistry, Allied Health, Alternative Medicine, Renal Dialysis, Pathology and Medical Imaging Service Lines. Estimates exclude 221 planned consultation rooms that have not been yet allocated to specific specialty by the facilities. Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occur for patients to receive care.
**Specialist Outpatient Requirements**

- Future requirements in specialist outpatient consultation rooms

- Abu Dhabi requirements by region and specialty

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Abu Dhabi Gap</th>
<th>Al Ain Gap</th>
<th>Al Gharbia Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015</td>
<td>2035</td>
<td>2015</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>95</td>
<td>313</td>
<td>28</td>
</tr>
<tr>
<td>ENT</td>
<td>57</td>
<td>175</td>
<td>42</td>
</tr>
<tr>
<td>Immunology &amp; Infectious Diseases</td>
<td>29</td>
<td>208</td>
<td>13</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>57</td>
<td>86</td>
<td>-</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>11</td>
<td>184</td>
<td>31</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>-</td>
<td>-</td>
<td>9</td>
</tr>
</tbody>
</table>

**Notes:** Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occurs for patients to receive care.
Specialist Outpatient Requirements

Al Ain Region requirements in specialist consultation rooms by Service Lines and Precincts
- Al Yaher, Jebel Hafeet
- Hilli, Al Khabisi, Al Sarooj, Al Muwaiji

Future requirements in specialist outpatient consultation rooms in Al Ain Region by Service Mode
- Obstetrics & Gynaecology
- Paediatric
- Adult

Al Gharbia Region requirements in specialist consultation rooms by Service Lines and Precincts
- Ruwais
- Liwa, Madinat Zayed, Mirfa, Sila’a, Ghayathi, Delma

Future requirements in specialist outpatient consultation rooms in Al Gharbia Region by Service Mode
- Obstetrics & Gynaecology
- Paediatric
- Adult

Notes: Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occurs for patients to receive care.
The Table below shows the 2015 over/undersupply of specialist outpatient consulting rooms as a percentage of the required demand:

<table>
<thead>
<tr>
<th>Service Line</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma and Injury</td>
<td>7%</td>
</tr>
<tr>
<td>Alcohol &amp; Other Drugs</td>
<td>8%</td>
</tr>
<tr>
<td>Medical Oncology</td>
<td>11%</td>
</tr>
<tr>
<td>Vascular Surgery</td>
<td>13%</td>
</tr>
<tr>
<td>Nephrology</td>
<td>14%</td>
</tr>
<tr>
<td>Immunology &amp; Infectious Diseases</td>
<td>14%</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>31%</td>
</tr>
<tr>
<td>Neonatology</td>
<td>41%</td>
</tr>
<tr>
<td>ENT Surgery</td>
<td>50%</td>
</tr>
<tr>
<td>Neurology</td>
<td>53%</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>54%</td>
</tr>
<tr>
<td>Cardiology</td>
<td>54%</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>59%</td>
</tr>
<tr>
<td>Neurological Surgery</td>
<td>60%</td>
</tr>
<tr>
<td>General Surgery</td>
<td>71%</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>72%</td>
</tr>
<tr>
<td>Plastic Surgery</td>
<td>88%</td>
</tr>
<tr>
<td>Dermatology</td>
<td>91%</td>
</tr>
<tr>
<td>Haematology</td>
<td>94%</td>
</tr>
<tr>
<td>Urology</td>
<td>95%</td>
</tr>
<tr>
<td>Gastroenterology &amp; Hepatology</td>
<td>108%</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>134%</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>&gt;150%</td>
</tr>
<tr>
<td>Chemotherapy</td>
<td>&gt;150%</td>
</tr>
<tr>
<td>Respiratory Medicine</td>
<td>&gt;150%</td>
</tr>
<tr>
<td>Gynaecology</td>
<td>&gt;150%</td>
</tr>
<tr>
<td>General Medicine</td>
<td>&gt;150%</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>&gt;150%</td>
</tr>
</tbody>
</table>

This table identifies the emirate level percentage gap between supply and demand, however when considering the volume of required specialty outpatient rooms and regional gaps please refer to pages 46 and 47.

**Legend**

- Severe undersupply: 0 - 69%
- Undersupply: 70 - 89%
- Slight undersupply: 90 - 104%
- Optimum coverage: 105 - 114%
- Moderate oversupply: 115 - 129%
- Oversupply: >130%
Specialist Outpatient Care Priorities

- **Current and existing priorities:**
  - All Regions.
  - In some specialties in Hospitals: Trauma & Injury, Dermatology.
  - In some specialties in Clinics & Centres: ENT, Orthopaedics, Immunology & Infectious Diseases, General Surgery, Trauma & Injury, Obstetrics.
  - In AL Ain & Al Gharbia: Gastroenterology, Endocrinology.

- **Emerging priorities:**
  - By 2020, in All regions.
In order to address existing and emerging Emirate-wide shortages in specialist outpatient care, HAAD will continue to work closely with all healthcare stakeholders and investors to address the identified gaps.

Specifically, HAAD will regulate to align planned supply with demand, and to control over/under supply of specialist outpatient care at both a geographic and specialty level, through the below regulatory requirements:

- HAAD recommendations for the future allocation of HAAD land for specialised outpatient facilities will be based on the priorities identified within this plan.

- HAAD may institute, to address specific precinct or regional level specialist outpatient gaps, a Call for Licence Process which will involve issuing and evaluating market responses, to a specific Request for Proposals (RFP) to address the identified service gap.

- HAAD and Daman will actively develop methodology that links reimbursement and the provision of facility/specialty coverage together in order to incentivise provision of shortage facilities/specialties. Such methodology will be based on the information and existing and emerging priorities identified within this plan.
Acute overnight care is the treatment provided to a patient in hospital with a serious short term illness requiring a medical or surgical intervention and an overnight or longer stay in hospital.
In 2014, 39 Abu Dhabi hospitals provided acute inpatient services
- 3,942 functional overnight beds
  - 2,805 adult overnight beds
  - 1,137 paediatric overnight beds
  - 466 non-functional overnight beds

Public, private and other sector split of functional overnight beds:
- Public (SEHA) 61%
- Private 37%
- Other 2%

In 2014, 247,349 acute overnight episodes were provided to the population of Abu Dhabi

### Acute Overnight Beds

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Respiratory Medicine</td>
<td>465</td>
</tr>
<tr>
<td>2. Obstetrics - Delivery</td>
<td>446</td>
</tr>
<tr>
<td>3. Neonatology*</td>
<td>411</td>
</tr>
<tr>
<td>4. Orthopaedics</td>
<td>307</td>
</tr>
<tr>
<td>5. Gastroenterology</td>
<td>244</td>
</tr>
<tr>
<td>6. Immunology &amp; Infectious Diseases</td>
<td>230</td>
</tr>
<tr>
<td>7. Psychiatry</td>
<td>214</td>
</tr>
<tr>
<td>8. Neurology</td>
<td>194</td>
</tr>
<tr>
<td>9. Cardiology Medicine</td>
<td>167</td>
</tr>
<tr>
<td>10. General Surgery</td>
<td>132</td>
</tr>
</tbody>
</table>

**Notes:** includes all acute care specialties.
Acute Overnight Demand

By Beds & Episodes

In 2014: Demand of 3,593 acute overnight beds and 248,504 acute overnight episodes.

By 2035: Demand of 6,737 acute overnight beds and 425,544 acute overnight episodes.

Acute Overnight Beds

- Annual growth of 3.8%, or 144 beds per year
- Total 20-year growth of 2,889 beds

By Service Line

Top 10 Demand for acute overnight beds by Service Lines:

1. Psychiatry
2. Neonatology*
3. Obstetrics - Delivery
4. Orthopaedics
5. Respiratory Medicine
6. Gastroenterology
7. Immunology & Infectious...
8. General Medicine
9. General Surgery
10. Neurology

By IPC Referral

Source: IPC chart: HAAD IPC Division.
Acute Overnight Care Demand, Planned Supply & Requirements

By Region

- 10 additional health facilities by 2020
- Supplying 1,501 additional acute overnight beds

Planned Supply

- Additional 1,026 beds
- Additional 23 beds
- Additional 452 beds

Future Requirements by Region

Notes: planned service and facility analysis only includes those with a status of >50% construction complete.
**Acute Overnight Priorities**

- **Top 10 Service Lines experiencing the greatest shortfalls in capacity**
  1. Psychiatry
  2. Neonatology*
  3. Orthopaedics
  4. Obstetrics - Delivery
  5. Respiratory Medicine
  6. Gastroenterology
  7. Alcohol & Other Drugs
  8. Immunology & Infectious Disease
  9. Plastic Surgery
  10. Neurosurgery

- **Future requirements for Abu Dhabi Region in acute overnight beds by Service Lines and Precincts up to 2035**
  - Mohammed Bin Zayed City, Baniyas, Al Shamkha
  - Mafraq, Khalifa City, Saadiyat Island, Al Falah
  - Outer Central/ North/South

- **Future requirements for Al Ain Region in acute overnight beds by Service Lines and Precincts up to 2035**
  - Central District, Al Yaher, Hili, Jebel Hafeet
  - Al Muwaiji, Sanaiya, Al Sarooj

- **Future requirements for Al Gharbia Region in acute overnight beds by Service Lines and Precincts up to 2035**
  - Ruwais
  - Liwa, Mirfa, Madinat Zayed, Ghayathi

- **Neonatology**
  - Psychiatry
  - Orthopaedics
  - Obstetrics-Delivery
  - Trauma & Injury

*Neonatology is the care of a sick new born (<1 month old) in all service settings, including, but not limited to NICUs.

Notes: Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occurs for patients to receive care.
Abu Dhabi has reasonably good acute care specialty coverage. Over the last few years there has been significant growth in many specialties where capacity gaps exist. There has significant growth in orthopaedics, medical oncology and obstetric services that were previously in severe shortage.

In each case additional facilities have opened providing the required specialty services, with the private sector being responsible for all the recent growth.

Neurosurgery, general, plastic and vascular, surgical specialties are currently undersupplied as is psychiatry. Further specialised capacity is scheduled to be opened from 2017 onwards.

CCAD opened in 2015 and will become the Emirate wide transplant centre addressing this capacity gap.

<table>
<thead>
<tr>
<th>Service Line</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transplant Surgery</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>83%</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>85%</td>
</tr>
<tr>
<td>Plastic Surgery</td>
<td>86%</td>
</tr>
<tr>
<td>Vascular Surgery</td>
<td>89%</td>
</tr>
<tr>
<td>General Surgery</td>
<td>94%</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>101%</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>103%</td>
</tr>
<tr>
<td>Dermatology</td>
<td>104%</td>
</tr>
<tr>
<td>General Medicine</td>
<td>106%</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>106%</td>
</tr>
<tr>
<td>Obstetrics - Delivery</td>
<td>107%</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>108%</td>
</tr>
<tr>
<td>Urology</td>
<td>108%</td>
</tr>
<tr>
<td>Dentistry</td>
<td>109%</td>
</tr>
<tr>
<td>Medical Oncology</td>
<td>109%</td>
</tr>
<tr>
<td>Burns</td>
<td>110%</td>
</tr>
<tr>
<td>Cardiology Invasive</td>
<td>110%</td>
</tr>
<tr>
<td>Haematology</td>
<td>110%</td>
</tr>
<tr>
<td>Neonatology</td>
<td>111%</td>
</tr>
<tr>
<td>Respiratory Medicine</td>
<td>111%</td>
</tr>
<tr>
<td>Nephrology</td>
<td>112%</td>
</tr>
<tr>
<td>Neurology</td>
<td>115%</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>115%</td>
</tr>
<tr>
<td>Trauma and Injury</td>
<td>116%</td>
</tr>
<tr>
<td>Gynaecology</td>
<td>120%</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>121%</td>
</tr>
<tr>
<td>Immunology &amp; Infectious Disease</td>
<td>121%</td>
</tr>
<tr>
<td>Cardiology Medicine</td>
<td>125%</td>
</tr>
<tr>
<td>ENT</td>
<td>136%</td>
</tr>
</tbody>
</table>

Legend

- **Severe undersupply**: 0 - 69%
- **Undersupply**: 70 - 89%
- **Slight undersupply**: 90 - 104%
- **Optimum coverage**: 105 - 114%
- **Moderate oversupply**: 115 - 129%
- **Oversupply**: >130%
Overview:
- By 2025 there is sufficient projected demand for an additional 1226 Acute Overnight beds.
- Already there are more than 1,500 beds planned, mostly in Abu Dhabi Region. Hence, at a simple bed supply level Abu Dhabi and Al Ain regions are on target to have sufficient supply of acute care beds, without the need for any more additional beds, until 2025. However there is need for investment in acute overnight care for specific specialties and in specific precincts.

Current and existing priorities:
- Al Gharbia Region has insufficient current and planned beds to meet the healthcare needs of residents and hence is an urgent investment priority.

Emerging priorities:
- By 2025, Emirate-wide, in addition to the above, for specialties: Obstetrics-Delivery, Respiratory Medicine, Immunology & Infectious Diseases, Medical Oncology, Nephrology.
- By 2035, Emirate-wide for specialties: Rheumatology, Burns, Haematology, Urology.

Sufficiency of current plans:
- On the basis of known plans the Emirate will have sufficient coverage, through to 2030, in some specialties: General Medicine, Neurology, Cardiology Invasive, Cardiology Medicine, Cardiothoracic Surgery, Endocrinology. ENT-Surgery, Ophthalmology.

Current oversupplied specialties:
- Cardiology, Endocrinology, Gynecology, Immunology and infections diseases.
In order to address existing and emerging Emirate-wide specialty and precinct level shortages and the potential over supply identified within this report HAAD will continue to work closely with healthcare stakeholders. Specifically HAAD will regulate to align planned supply with demand, and to control over/under supply of acute overnight beds at both a geographic and specialty level, through the below 5 regulatory requirements:

- New Facilities that are planning to provide acute overnight beds, or existing facilities planning to add beds, will require HAAD strategic level pre-approval prior to issuance of a preliminary licence. The rationale for such approval or disapproval will be based on the existing and emerging priorities identified within this plan and will be obtained via HAAD Capacity Management Division as part of the HAAD Facility Licence Application Process.

- Similarly HAAD recommendations for the future allocation of HAAD land for planned acute overnight facilities will be based on the priorities identified within this plan.

- For future residential developments land and approval for all healthcare facilities is to be allocated only via the UPC and only in accordance with the UPC Community Facility Standards.

- Pre-approval for highly specialised services (identified by HAAD as centralised services at a DRG level) and regionally required hospital based services be obtained via HAAD Capacity Management Division prior to issuance of preliminary licence for hospitals.

- HAAD may institute, to address specific precinct or regional level service gaps, a ‘Call for Licence’ process which will involve issuing and evaluating market responses, to a specific Request for Proposals (RFP) to address the identified service gap.

The rationale for the future service configuration of Abu Dhabi acute overnight care will be based on the existing and emerging priorities identified within this plan. Draft recommendations relating to the future provision of primary care facilities in Al Ain and Al Gharbia regions have already been developed and are detailed on pages 30 & 31.
Implementation Plan - Acute Overnight Care

With regard to the provision of complex, (tertiary or specialised) acute inpatient paediatrics, the supply and demand analysis shows an emirate wide undersupply. In addition, historically, 40% of the patients sent abroad under the IPC programme are for tertiary/quaternary level paediatric acute inpatient care. Typically such care is highly complex and is characterized by low volumes at a sub-specialty level.

The analysis also reveals that such care is largely fragmented across Abu Dhabi but with SKMC hospital providing the largest proportion of such care and is where most services have been centralized. i.e. paediatric cardiovascular surgery.

There are many examples of international best practice, in advanced healthcare systems, where specialised paediatric services are centralised7.

- In some countries, for example Sweden, inpatient paediatrics is highly centralised with very little activity (and no surgical activity) taking place outside of specialist children’s hospital and major designated centres, and even paediatric A&E is generally routed to a specialist centre within this model. Whilst delivery models for inpatient paediatrics internationally vary in the extent to which they are centralised, similar models exist in Canada, Germany, Australia, UK and parts of the US. From the above examples best practice bed provision for appropriately centralised specialised paediatric provision is estimated at a level of 1 bed per 12,000 population.

- Further international evidence shows that one of the main factors supporting such centralization of specialised paediatric services is that there is an undoubted correlation between volumes of complex service provision and clinician and institutional competency and clinical outcomes.

- The international best practice evidence and the analyses provided by the CMP support the need for a dedicated specialist children’s hospital to be established in Abu Dhabi. It further suggests, on the basis of Abu Dhabi population, that the size of such should be approximately 250 beds now growing to approximate 300 beds by 2025 and 375 by 2035. In line with the above evidence regarding volume based competency and clinical outcomes such specialised capacity should not be ring-fenced by nationality.

There are several options for providing this. It could be provided through an expansion and redevelopment of the existing SKMC facility, or alternatively it could be commissioned from a prominent, world class, overseas provider as was the case for specialized adult services at Cleveland Clinic Abu Dhabi. Such options require careful consideration and are further explored on pages 89 to 92.

Implementation Plan – Acute Overnight Care
Regulation of Clinical Service Lines

<table>
<thead>
<tr>
<th>Description</th>
<th>Examples</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralised</td>
<td>• Burn Care • Open Heart Surgery • Oncology Surgery</td>
<td>Centralised services may only be provided by providers designated by HAAD to do so.</td>
</tr>
<tr>
<td>Regional</td>
<td>• Cardiac Catheterisation • Specialist Diabetes Care</td>
<td>Regional services may only be offered by Providers designated by HAAD to do so.</td>
</tr>
<tr>
<td>Standard</td>
<td>• Basic Diabetes Care • Family Medicine • Preventive Services • General Surgery</td>
<td>Standard services may be offered by all HAAD Licensed Providers.</td>
</tr>
</tbody>
</table>

1 HAAD will restrict provision of these services, at the DRG level to a few facilities to preserve volume based competency.
2 HAAD will issue licenses for these services on the basis of 1 per 250,000 population.

Source: Categories maintained by HAAD with input from Providers, Payers, and other appropriate stakeholders.

Notes: Emergency cases presenting to any HAAD Licensed Facilities should be treated (in accordance with HAAD Regulations). In case the DRG falls under Centralised or Regional service line, the case should be transferred to Providers Licensed for those service lines when clinically appropriate.
Implementation Plan – Acute Overnight Care

For Planning and Licensing purposes HAAD will designate Centralised, Regional and Standard services for both adult and paediatric acute overnight services at Diagnostic Resource Group level (DRG) level within the following clinical service lines:

- **Centralised services** – For some clinical services centralisation of patient volumes results in better quality and/or cost-efficiency; such services are typically complex, with low volume. HAAD will limit the provision of such services to a few providers as determined by the HAAD demand, supply and capacity cap analysis.

- **Regional services** – For certain moderately complex and time-dependent clinical services it is required that these are provided within each Abu Dhabi region. HAAD will limit licenses for such Regional services as detailed on page 60.

- **Standard services** - The majority of clinical services may be offered by any suitable facility in line with HAAD competency framework (set out in the Abu Dhabi Healthcare Regulations).

<table>
<thead>
<tr>
<th>Cardiothoracic surgery</th>
<th>Medical oncology</th>
<th>Psychiatry &amp; mental health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemotherapy</td>
<td>Neonatology</td>
<td>Rehabilitation</td>
</tr>
<tr>
<td>Dentistry</td>
<td>Nephrology</td>
<td>Renal dialysis</td>
</tr>
<tr>
<td>Dermatology</td>
<td>Neurology</td>
<td>Reproductive medicine &amp; IVF</td>
</tr>
<tr>
<td>Emergency Department</td>
<td>Neurosurgery</td>
<td>Respiratory medicine</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>Nuclear medicine</td>
<td>Rheumatology</td>
</tr>
<tr>
<td>ENT</td>
<td>Obstetrics</td>
<td>Transplant surgery</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>Obstetric - delivery</td>
<td>Trauma</td>
</tr>
<tr>
<td>General medicine</td>
<td>Ophthalmology</td>
<td>Urology</td>
</tr>
<tr>
<td>General surgery</td>
<td>Palliative care</td>
<td>Vascular surgery</td>
</tr>
<tr>
<td>Intensive care</td>
<td>Plastic surgery</td>
<td></td>
</tr>
</tbody>
</table>

Notes: As the service lines are derived from IR-DRGs, which apply to all ages, the same classification applies to both adult and paediatric service lines but is differentiated by age. Paediatric service lines are differentiated from adult as those applicable to services planned or provided for ages from birth and up to 18 years old. Paediatric service lines exclude DRGs that are not applicable to paediatric categories. All stated services line encompass all patient setting except Long Term Care (LTC).
Acute Same Day Care

Specialised care provided to a patient with a severe health condition that requires a progressive short term medical or surgical treatment
In 2014, 39 hospitals, 11 dialysis centres and 12 one day surgery centres provided acute same day services.

Same day places include:
- Beds
- Treatment chairs
- Trolleys
- Rooms for same day care

853 functional same day places:
- 697 adult same day places
- 156 paediatric same day places

36 non-functional same day places

Top 10 Service Lines Supplied

<table>
<thead>
<tr>
<th>Service Line</th>
<th>Places</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Renal Dialysis</td>
<td>204</td>
</tr>
<tr>
<td>2. Gastroenterology</td>
<td>117</td>
</tr>
<tr>
<td>3. Ophthalmology</td>
<td>69</td>
</tr>
<tr>
<td>4. Gynaecology</td>
<td>64</td>
</tr>
<tr>
<td>5. ENT</td>
<td>59</td>
</tr>
<tr>
<td>6. General Medicine</td>
<td>50</td>
</tr>
<tr>
<td>7. Urology</td>
<td>41</td>
</tr>
<tr>
<td>8. General Surgery</td>
<td>31</td>
</tr>
<tr>
<td>9. Chemotherapy</td>
<td>30</td>
</tr>
<tr>
<td>10. Nephrology</td>
<td>27</td>
</tr>
</tbody>
</table>

Public: private sector split of functional same day places:
- Public (SEHA) 42%
- Private 53%
- Other 5%

In 2014, 242,513 acute same day episodes were provided to the population of Abu Dhabi.

Notes: includes functional same day places only; includes same day care places in all service settings.
Acute Same Day Demand

- In 2015
  - Demand of 721 acute same day places
- By 2035
  - Demand of 1,652 acute same day places

**Same Day Places**

Annual growth of 6.5% or 47 acute same day places per year
Total 20-year growth of 931 acute same day places

- 2015: 721
- 2020: 908
- 2025: 1,119
- 2030: 1,359
- 2035: 1,652

**Top demand for acute same day places by Service Lines**

1. Renal Dialysis
2. ENT
3. Gynaecology
4. Orthopaedics
5. Gastroenterology
6. Cardiology Medicine
7. General Medicine
8. Chemotherapy
9. General Surgery
10. Ophthalmology

- 2015
- 2025
- 2035

**Demand by acute same day care places by service mode, 2015**

- Medical: 272, 38%
- Surgical: 371, 52%
- Women’s Health: 75, 10%
- Mental Health: 2, 0%

- Of the 272 medical places, 17% is paediatric demand
- Of the 371 surgical places, 9% is paediatric demand

**Demand by acute same day care places by service mode, 2035**

- Medical: 640, 39%
- Surgical: 821, 50%
- Women’s Health: 176, 10%
- Mental Health: 15, 1%

- Of the 640 medical places, 17% is paediatric demand
- Of the 821 surgical places, 10% is paediatric demand

Notes: includes same day care places and episodes in all service settings.
Acute Same Day Demand & Planned Supply

- Adult Same Day Places
- Paediatric Same Day Places

**Annual growth of 6.4%, or 41 places per year**
Total 20-year growth of 812 places

**Annual growth of 7.2%, or 6 places per year**
Total 20-year growth of 119 places

Demand of acute same day care places by service modes:
- Other
- Surgical
- Medical

**Planned Acute Same Day Supply**
- Additional 4 places
- Additional 0 places

Notes: includes same day care places and episodes in all service settings.
Acute Same Day Priorities

- Planned facilities and non functional capacity coming online in 2015 and 2020 will be insufficient to provide for demand from 2020
  - Supply
  - Demand

```
<table>
<thead>
<tr>
<th>Year</th>
<th>Supply</th>
<th>Demand</th>
<th>Gap of 759 same day places</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>864</td>
<td>721</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>893</td>
<td>908</td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td>893</td>
<td>1,119</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>893</td>
<td>1,359</td>
<td></td>
</tr>
<tr>
<td>2035</td>
<td>893</td>
<td>1,652</td>
<td></td>
</tr>
</tbody>
</table>
```

- Service Lines with the highest requirements in capacity of acute same day places
  1. Renal Dialysis
  2. ENT
  3. Orthopaedics
  4. Cardiology Medicine
  5. Gynaecology
  6. Neurology
  7. Rheumatology
  8. Respiratory Medicine
  9. Chemotherapy
  10. Obstetrics

```
<table>
<thead>
<tr>
<th>Service Line</th>
<th>2015</th>
<th>2025</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renal Dialysis</td>
<td>188</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENT</td>
<td></td>
<td>128</td>
<td></td>
</tr>
<tr>
<td>Orthopaedics</td>
<td></td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Cardiology Medicine</td>
<td></td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>Gynaecology</td>
<td></td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Neurology</td>
<td></td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Rheumatology</td>
<td></td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Respiratory Medicine</td>
<td></td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Chemotherapy</td>
<td></td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Obstetrics</td>
<td></td>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>
```

- Future requirements in acute same day places by service modes in Abu Dhabi Region
  - Other
  - Surgical
  - Medical

```
<table>
<thead>
<tr>
<th>Year</th>
<th>Other</th>
<th>Surgical</th>
<th>Medical</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>61</td>
<td>9</td>
<td>26</td>
</tr>
<tr>
<td>2020</td>
<td>104</td>
<td>26</td>
<td>45</td>
</tr>
<tr>
<td>2025</td>
<td>153</td>
<td>45</td>
<td>211</td>
</tr>
<tr>
<td>2030</td>
<td>288</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>2035</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

- Notes: “Other” includes the service modes of women’s health and mental health. Numbers exclude 24 non functional places
Acute Same Day Priorities

Future requirements in acute same day places by service modes in Al Ain Region

Future requirements in acute same day places by service modes in Al Gharbia Region

No gap in same day services for Women’s Health and Mental Health until 2035

Al Ain Region shortfall in acute same day places by Service Lines and Precincts

Central District
Jebel Hafeet
Al Yaher
Hili
Al Khabisi

Future requirements in acute same day places by service modes in Al Ain Region

Other Surgical Medical

2015 2020 2025 2030 2035

5 72 47 151

14 93 118

3 29 58

52 93 118

2015 2020 2025 2030 2035

5 29 58

14 72 118

3 93 151

Future requirements in acute same day places by service modes in Al Gharbia Region

No gap in same day services for Women’s Health and Mental Health until 2035

Al Gharbia Region shortfall in acute same day places by Service Lines and Precincts

Madinat Zayed
Ruwais
Liwa
Mirfa
Ghayathi
Sila’a

2015 2020 2025 2030 2035

2 14 28 43 57

14 26 35 47 59

2 28 47 18

Notes: “Other” includes the service modes of women’s health and mental health. Numbers exclude 24 non functional places.
Acute Same Day Priorities

• **Adequately supplied through to 2035 in some specialties:** Rehabilitation, Psychiatry, Urology, Cardiology Invasive, Dentistry, Ophthalmology, Gastroenterology.

• **Current and existing priorities:**
  – Al Ain and Al Gharbia.
  – Emirate-wide for specialties:*Orthopaedics, Cardiology Medicine, Neurology, Rheumatology, Respiratory Medicine, Chemotherapy, Medical Oncology, Immunology & Infectious Disease, Neonatology, Endocrinology, Trauma and Injury, Dermatology, Vascular Surgery.

• **Emerging priorities:**
  – By 2035, Emirate-wide for specialties:*Nephrology.

Notes: *in descending order, only specialties with gap of greater than 10 beds are listed.
Implementation Plan – Acute Same Day Care

In order to address existing and emerging Emirate-wide specialty and precinct level shortages in same day care and the potential over supply identified within this report HAAD will continue to work closely with healthcare stakeholders. Specifically HAAD will regulate to align planned supply with demand, and to control over/under supply of same day care at both a geographic and specialty level, through the below 6 regulatory requirements:

- New Facilities that are planning to provide same day care, or existing facilities planning to provide same day care, will require HAAD strategic level pre-approval prior to issuance of a preliminary licence. The rationale for such approval or disapproval will be based on the existing and emerging priorities identified within this plan and will be obtained via HAAD Capacity Management Division as part of the Facility Licence application Process.

- Similarly HAAD recommendations for the future allocation of HAAD land for planned same day care facilities will be based on the priorities identified within this plan.

- For future residential developments land and approval for all healthcare facilities is to be allocated only via the UPC and only in accordance with the UPC Community Facility Standards.

- HAAD may institute, to address specific precinct or regional level service gaps, a ‘Call for Licence process’ which will involve issuing and evaluating market responses, to a specific Request for Proposals (RFP) to address the identified service gap.

- HAAD and Daman will actively develop methodology that links reimbursement and the provision of facility/specialty coverage together in order to incentivise provision of shortage facilities/specialties. Such methodology will be based on the information and existing and emerging priorities identified within this plan.

- HAAD will institute specific KPIs based on best international practice on the proportion of surgery delivered by individual providers as day surgery and in outpatient settings. This will involve mandatory monitoring and KPI compliance, for a selection of identified procedures, of day surgery and outpatient surgery rates. Providers will be accountable by the regulator for continued failure to meet, or improve towards meeting, expected international norms for day and outpatient surgery.
Non-Acute & Long Term Care

Non-acute and long term care is defined as a specialised care needed to optimise and enhance body functioning and quality of life of a patient with limited or disabled activity due to body impairment or a chronic health condition. Non-acute care can be provided on a same day basis or as an overnight service or as home healthcare.
Current Non-Acute Care Supply

- In 2014, 5 hospitals provided non-acute and long term care services
  - 339 functional beds
  - 55 non-functional beds
- In 2014, 2,044 non-acute overnight episodes were provided to the population of Abu Dhabi
- Abu Dhabi functional non-acute beds by service modes

3 Distinct Service Modes

- Disability Care
- Long Stay Care
- Rehabilitation

206 Non-Acute Beds
1,314 Non-Acute Episodes

0 Non-Acute Beds
0 Non-Acute Episodes

127 Non-Acute Beds
729 Non-Acute Episodes

- In 2014, Emirate-wide, 27% of non-acute, long term beds provided by public sector, remaining 73% provided by private sector

Episodes by Nationality, 2014

- National: 98%
- Non-National: 2%

Notes: analysis by service mode includes functional beds only; excludes acute rehabilitation services which has been analysed in acute hospital care; 6 beds were reported to be non functional in 2014 and have been excluded from the estimates displayed above; Bed allocation according to KEH Claims data.
Non-Acute Care Demand & Planned Supply

Service modes:

- **Disability Care**
  - Intellectual/Learning
  - Physical
  - Psychiatry
  - Sensory

- **Long Stay Care**
  - Palliative
  - Psychogeriatric
  - Older Person’s Maintenance

- **Rehabilitation Care**
  - Rehabilitation

Notes: demand projections include only National demand, on the assumption that current supply patterns will continue; Planned service and facility analysis only includes those with a status of >50% construction complete. SEHA and other providers have intentions to develop non-acute facilities.
Non-Acute Care Requirements

OECD data shows that on average 64.9% of long term Care is provided as home care. Abu Dhabi data shows a similar split.

- In 2015, 3285 persons received Home Care.
- Adjusted for age for comparison with OECD countries this represents 1.4% of the population of Nationals which is below the average of OECD countries.

Homecare demand is projected to grow by approximately 5% per annum. 2015 demand is based on OECD average provision of Homecare.

- 5% per annum projected growth is based on analysis of Abu Dhabi Population growth and burden of disease and compared to a reference population including OECD countries.
- Almost 100% of homecare provision is for nationals. Less than 20% of home healthcare services are provided by SEHA.

Source: Planning Analysis, OECD data and HAAD demand reference files
Non-Acute Care Requirements

Requirements for non-acute beds, Emirate-wide:

- Disability Care Beds
- Long Stay Care Beds
- Rehabilitation Beds

Future requirements in non-acute beds by service modes in Abu Dhabi Region

Future requirements in non-acute beds by service modes in Al Ain Region

Future requirements in non-acute beds by service modes in Al Gharbia Region

Notes: Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occur for patients to receive care.
Non-Acute Care Requirements

- Inadequate supply in Al Gharbia Region.

- Current existing and emerging priorities:
  - Abu Dhabi Region: Rehabilitation and Long Stay Care.
  - Al Gharbia Region: Rehabilitation, Long stay Care and Disability Care.
  - Emerging priority in Al Ain Region: Rehabilitation and Long Stay Care and Disability Care.

- Thiqa accounts for 98% of patients treated in non-acute care (NAC) facilities.

  - Private sector have added 85% of the current capacity during the last few years. (250+ additional LTC beds established by the Private sector since 2011). The only preliminary licenses (planned supply) issued for NAC are private sector.

  - HAAD demand projections indicate that for Abu Dhabi population for 2015 should require an additional 41 beds. However many acute SEHA beds in Abu Dhabi are continually blocked by an accumulation of un-insured non-nationals (165 beds at the time of this report) requiring long term care, that is not available outside of SEHA due to non-coverage of insurance. As these are mainly non–repatriated non-nationals accumulated over a long period they are not accounted for by the normal methodology for demand projections.

  - Hence the actual required additional NAC beds for 2015 is closer to 201 beds now and up to 857 by 2035. This analysis confirms that the LTC beds are currently, and likely to remain under-provided, without additional investment now.

  - SEHA capacity for NAC is only 90 beds now, 80 of which are in Abu Dhabi Region, with a Thiqa demand now of 416 beds.
Implementation Plan – Non-Acute Care

In order to address existing and worsening Emirate-wide and regional level shortages of non-acute care beds identified within this report HAAD will continue to work closely with healthcare stakeholders. Specifically HAAD will regulate to align planned supply with demand, and to address the under supply of non-acute overnight beds at both a geographic and specialty level, through the below 4 regulatory requirements:

- New Facilities that are planning to provide non-acute overnight beds, or existing facilities planning to add beds, will require HAAD strategic level pre-approval prior to issuance of a preliminary licence. The rationale for such approval or disapproval will be based on the existing and emerging priorities identified within this plan and will be obtained via HAAD Capacity Management Division as part of the HAAD Facility Licence Application Process.

- Similarly HAAD recommendations for the future allocation of HAAD land for planned acute overnight facilities will be based on the priorities identified within this plan.

- HAAD may institute, to address specific service gaps, a ‘Call for Licence’ process which will involve issuing and evaluating market responses, to a specific Request for Proposals (RFP) to address the identified service gap.

- HAAD and Daman will actively develop methodology that links reimbursement and the provision of facility/specialty coverage together in order to incentivise provision of shortage facilities/specialties. Such methodology will be based on the information and existing and emerging priorities identified within this plan.

There are outline plans to re-use, once the new building programs are completed, the Old Mafraq and Al Ain Hospitals for 280 NAC beds.

In addition HAAD, as part of its HSSp9, has proposed a strategic initiative to assess and optimize continuing care and rehabilitation care. Progression of this initiative during 2016/2017 is subject to funding and other approvals.
Clinical Workforce
Clinical Workforce Supply

Notes: Health workforce analysis include those practising in all service settings; Doctors includes all medical practitioners, specialists and dentists; Nurses include registered nurses, nurse midwives and nurse aides; Allied health workforce includes pharmacists, psychologists, social workers, clinical lab technologists, radiographers, physical therapists, occupational therapists, speech pathologists/audiologists, chiropractors, respiratory therapists, dietitians, radiotherapists, ophthalmic practitioners, podiatrists, nuclear medicine technologists.
Clinical Workforce Demand

Medical Workforce Demand by full time equivalent

Nursing Demand by full time equivalent

Allied Health Workforce Demand by full time equivalent

<table>
<thead>
<tr>
<th>Year</th>
<th>Social Workers</th>
<th>Psychologists</th>
<th>Physical Therapists</th>
<th>Occupational Therapists</th>
<th>Speech Pathologists/Audiologists</th>
<th>Respiratory Therapists</th>
<th>Dietitians</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2035</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Clinical Workforce Requirements

Future medical workforce requirements by full time equivalent

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2025</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>2,337</td>
<td>497</td>
<td>1,556</td>
</tr>
</tbody>
</table>

Future Nursing requirements by full time equivalent

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2025</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing</td>
<td>3,184</td>
<td>9,268</td>
<td>16,895</td>
</tr>
</tbody>
</table>

Future Allied Health Workforce requirements by full time equivalents

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2025</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietitians</td>
<td>319</td>
<td>553</td>
<td>565</td>
</tr>
<tr>
<td>Respiratory Therapists</td>
<td>0</td>
<td>500</td>
<td>1,000</td>
</tr>
<tr>
<td>Social Workers</td>
<td>1,350</td>
<td>1,288</td>
<td>924</td>
</tr>
<tr>
<td>Psychologists</td>
<td>1,350</td>
<td>1,288</td>
<td>924</td>
</tr>
<tr>
<td>Physical therapists</td>
<td>700</td>
<td>924</td>
<td>1,288</td>
</tr>
<tr>
<td>Occupational Therapists</td>
<td>565</td>
<td>700</td>
<td>924</td>
</tr>
<tr>
<td>Speech therapists</td>
<td>553</td>
<td>700</td>
<td>924</td>
</tr>
</tbody>
</table>

Notes: doctors includes all medical practitioners, specialists and dentists.
Medical Workforce Implications

- Current medical workforce supply and demand in FTEs, 2014
- Shortfalls in Specialists and Consultants in: Immunology & Infectious Diseases, Vascular Surgery, Emergency Medicine, Psychiatry, Anaesthesia and General Practice & Primary Care

1. Immunology & Infectious Disease
2. Vascular Surgery
3. Emergency Medicine
4. Psychiatry
5. Anaesthesia
6. Paediatric Medicine
7. ENT
8. Medical Imaging
9. Obstetrics & Gynaecology
10. Immunology & Infectious Disease

Current medical workforce supply and demand in FTEs, 2014

Top 10 specialist medical workforce requirements in FTEs

- General Practice & Primary Care: 2,593
- General Medicine: 675
- Emergency Medicine: 486
- Psychiatry: 432
- Anaesthesia: 246
- Paediatric Medicine: 183
- ENT: 171
- Medical Imaging: 159
- Obstetrics & Gynaecology: 129
- Immunology & Infectious Disease: 76

Notes: Workforce analysis include those practising in all service settings.
Clinical Workforce Priorities

- **Current and continuing priorities:**
  - Specialists and Consultants in: Immunology & Infectious Diseases, Vascular Surgery, Cardiology Medicine, Emergency Medicine, Psychiatry, Anaesthesia and General Practice & Primary Care.
  - There is a general undersupply of Consultants and Specialists which is somewhat balanced by an oversupply, compared to international norms, of lower qualified medical practitioners.
  - Maintain focus on provision of quality and accessible General Practice & Primary Care provided by suitably qualified healthcare professionals.
  - There is an emirate wide undersupply of nursing and allied health workforce that requires urgent attention.
  - Skills Escalation: Develop the potential for greater devolution as nurses and allied health workers become more skilled.
  - Improve workforce planning.
HAAD has proposed, as part of its Health Sector Strategy, a strategic initiative to attract and retain the clinical workforce. The work of this Initiative is to:

- Establish of workforce planning and delivery body.
- Development of a workforce planning study.
- Define initiatives to address workforce issues and an implementation plan.
- Develop a suite of initiatives to attract & retain Emiratis in the health care workforce.
- Strengthen educational and training programs.
- Develop Professional Qualification Requirements (PQR) with regards to Skills escalation.
- Strengthen residency program.

HAAD will continue to work closely with providers and investors to encourage investment in the services, regions and precincts identified within this plan that are affected by capacity gaps in the clinical workforce.
Capacity Planning for Thiqa Programme

Section Under Development
## Contents

### Section A
Background and Context
- Executive Summary
- Introduction – Report Format
- Context
- Health Sector Strategy Overview
- HAAD Healthcare Capacity Planning Overview
- HAAD Capacity Planning Tools
- Abu Dhabi Model of Care
- Population Trends and Projections
- Health Care Planning Definitions
- Emirate Level Supply
- Planned Supply to 2020

### Section B
Supply, Demand and Gap Analysis & Implementation Plans
- General Practice & Primary Care
- Emergency Care
- Specialist Outpatient Care
- Acute Overnight Care
- Acute Same Day Care
- Non Acute and Long Term Care
- Clinical Workforce
- Capacity Planning for Thiqa Programme

### Section C
Supply, Demand and Gap Analysis & Implementation Plans: Specialty and Support Services Level.
- Outpatient Procedural Care
- Hospital Procedural Care
- Mental Health Care
- Obstetric Care Services
- Investing in Healthcare: Regulation, Insurance & Resources
- Professional and Production Team
Outpatient Procedural Care

Procedural care is defined as a diagnostic health service provided to patients with health conditions that require clinical analysis through visual imaging of interior organs of the body to further assist in provision of appropriate medical treatment to the patients at an outpatient setting.
In 2014, 152 clinics and centres provided outpatient procedural care. 238 Procedural Care Equipment 308,837 Occasions.

Supply in machines for Abu Dhabi Region, 2014
- No angiography systems, gamma cameras and linacs

Supply in machines for Al Ain Region, 2014
- No gamma cameras, mammography units, CT scanners, linacs, lithotripters, angiography systems

Supply in machines for Al Gharbia Region, 2014
- No MRIs, bone densitometers, lithotripters, linacs, PET, mammography, gamma cameras, CT and angiography system

Notes: Procedural care equipment supply include those in diagnostic centre settings; Procedural care equipment includes 19 Lithotripters and 7 Bone Densitometers, however procedures do not include any procedures carried out by these equipment.
Outpatient Procedural Care Demand & Planned Supply

- **Demand by all machines**
  - 2015: 18, 2025: 30, 2035: 45
  - 2015: 52, 2025: 91, 2035: 14
  
- **Planned Outpatient Procedural Care Supply**
  - 13 additional clinics and centres by 2020 providing capacity in procedural care
  - Supplying 19 additional procedural care equipment

- **Current requirements by machine in a clinic and centre setting**
  - **Gap of 12 mammography**
  - **Gap of 3 MRI**
  - **Gap of 3 gamma cameras**
  - **Gap of 8 CT**
  - **Gap of 1 angiography**

Notes: Procedural care equipment projections include those in diagnostic centre settings; Demand is exclusive of Bone Densitometers. Planned service and facility analysis only includes those with a status of >50% construction complete.
Outpatient Procedural Care Requirements

Current and future requirements for radiologists, radiographers and radiotherapists in FTEs

<table>
<thead>
<tr>
<th></th>
<th>Radiologists</th>
<th>Radiotherapists</th>
<th>Radiographers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>28</td>
<td>115</td>
<td>2</td>
</tr>
<tr>
<td>2025</td>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>2035</td>
<td></td>
<td>101</td>
<td></td>
</tr>
</tbody>
</table>

Future requirements in machines for Abu Dhabi Region

Future requirements in machines for Al Ain Region

Future requirements in machines for Al Gharbia Region

Notes: Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occurs for patients to receive care; Health workforce analysis include those practising in all service settings.
Outpatient Procedural Care Requirements

- Well supplied in X ray machines and lithotripsy machines through to 2035.

- Current and existing priorities:
  - Emirate-wide: CT, MRI, Mammography, radiologists, radiographers and radiotherapists.
  - Abu Dhabi Region: Angiography, Gamma Cameras.
  - Al Ain Region: Gamma Cameras.
  - Need for investment in Accelerated Particle Radiation Therapy.

- Emerging priorities:
  - Emirate-wide: Ultrasound by 2025.
  - Abu Dhabi Region: PET by 2035.
  - Al Ain Region: Angiography by 2035.

- Implementation Plan:
The Implementation plan for Outpatient Procedural Care is combined with the plan for Hospital Procedural Care and is detailed on page 112.
Hospital Procedural Care

Hospital procedural care is defined as an interventional procedure provided to patients with health conditions that require clinical investigation or treatment through scanning, illuminating or irradiating the interior structures of the body, at the hospital.
Notes: Procedural care equipment includes Lithotripters and Bone Densitometers, however procedures do not include any procedures carried out by these equipment.
In 2014, 40 hospitals provided procedural care.

- **526 Procedural Care Equipment**
  - 1,227,157 Occasions

- **61 Procedural Care Equipment**
  - 66,410 Occasions

- **179 Procedural Care Equipment**
  - 344,858 Occasions

Supply in machines for Abu Dhabi Region:

- **Ultrasounds**: 208
- **X-Rays**: 201
- **MRI**: 23
- **CT Scanners**: 22
- **Mammography**: 19
- **Lithotripsy**: 18
- **Bone Densitometers**: 15
- **Angiography**: 15
- **Gamma Cameras**: 5
- **Linacs**: 0
- **PET**: 0

Supply in machines for Al Ain Region:

- **X-Rays**: 72
- **Ultrasounds**: 55
- **CT**: 11
- **Mammography**: 10
- **Lithotripsy**: 9
- **MRI**: 7
- **Bone Densitometers**: 6
- **Angiography**: 5
- **Linacs**: 3
- **PET**: 0

Supply in machines for Al Gharbia Region:

- **X-Rays**: 107
- **Ultrasounds**:
- **CT**:
- **Mammography**:
- **Lithotripsy**:
- **MRI**:
- **Bone Densitometers**:
- **Angiography**:
- **Linacs**:
- **PET**:
- **Gamma Cameras**:
- **PET**:

Notes: Procedural care equipment includes Lithotripters and Bone Densitometers, however procedures do not include any procedures carried out by these equipment; Procedural care equipment supply includes those in hospital setting only.
Hospital Procedural Care Demand & Planned Supply

- Caveats to Procedural Care supply, demand and gap analysis:
  - Survey and analysis did not:
    - Include an assessment of condition of existing machines
    - Take into account the standard replacement lifecycle expected of each existing and planned machine type

### Demand by machines

<table>
<thead>
<tr>
<th>Machine</th>
<th>2015</th>
<th>2025</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultrasounds</td>
<td>14</td>
<td>55</td>
<td>647</td>
</tr>
<tr>
<td>X-Rays</td>
<td>155</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammography</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angiography</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gamma Cameras</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linacs</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PET</td>
<td></td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

### Planned Hospital Supply

- 6 additional hospitals by 2020 providing capacity in procedural care
- Supplying 76 additional procedural care equipment

**Notes:** Procedural care equipment projections include those in hospital settings. Demand is exclusive of Bone Densitometers.
Hospital Procedural Care Demand

Demand by machines

- Ultrasounds: 647
  - 2015: 14
  - 2025: 155
  - 2035: 488
- X-Rays: 155
  - 2015: 55
  - 2025: 100
  - 2035: 50
- CT: 55
  - 2015: 38
  - 2025: 17
  - 2035: 3
- MRI: 38
  - 2015: 29
  - 2025: 8
  - 2035: 3
- Mammography: 36
  - 2015: 20
  - 2025: 6
  - 2035: 0
- Angiography: 36
  - 2015: 14
  - 2025: 2
  - 2035: 0
- Gamma Cameras: 29
  - 2015: 10
  - 2025: 9
  - 2035: 0
- Linacs: 20
  - 2015: 4
  - 2025: 4
  - 2035: 0
- PET: 14
  - 2015: 0
  - 2025: 4
  - 2035: 0

Notes: Procedural care equipment projections include those in hospital settings. Demand is exclusive of Bone Densitometers.
Hospital Procedural Care Requirements

Current requirements by machine

- Supply
- Demand

Gap of 4 PET Machines
Gap of 9 Linacs
Gap of 11 Gamma Cameras

Future requirements in machines for Abu Dhabi Region

Future requirements in machines for Al Ain Region

Future requirements in machines for Al Gharbia Region

Notes: Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occurs for patients to receive care. Procedural care equipment projections include those in hospital settings.
Hospital Procedural Care Requirements

- Well supplied in X ray machines and lithotripsy machines through to 2035.

- Current gap:
  - Abu Dhabi Region: PET and Linacs.
  - Al Ain Region: PET and Ultrasound.
  - Al Gharbia Region: Linacs, Angiography, Ultrasound and Mammography.
  - Emirate-wide: Gamma Cameras, radiologists, radiographers and radiotherapists.

- Emerging gap:
  - Abu Dhabi Region: CT and Ultrasound by 2025, Angiography by 2035.
  - Al Ain Region: Angiography and Linacs by 2025, CT and MRI by 2035.
  - Al Gharbia Region: MRI by 2025, PET by 2035.
HAAD will continue to work closely with providers and Investors\textsuperscript{p126} to encourage investment in regions and precincts identified within this plan that are affected by capacity gaps in the provision of outpatient procedural care.

Specifically, HAAD will regulate to align planned supply with demand, and to control over/under supply of procedural care through the below regulatory requirements:

- Pre-approval and limitation of licenses for some highly specialised procedural care provision. I.e. Accelerated Particle Beam Therapy, PET scanners, etc. The rationale for such approval or disapproval will be based on the existing and emerging priorities identified within this plan and will be obtained via HAAD capacity management assessment as part of the HAAD Facility Licence Application Process.

- HAAD and Daman will actively develop methodology that links reimbursement and the provision of procedural care coverage together in order to incentivise provision of shortage facilities/specialties. Such methodology will be based on the information and existing and emerging priorities identified within this plan.
Mental Health Care

Mental health care is defined as specialised acute care provided in a clinical or non-clinical setting to prevent and treat a mental illness and associated disorders.
Current Mental Health Care Supply

- In 2014, 39 hospitals provided acute overnight services in 215 beds for mental health
- 3,486 acute overnight mental health episodes were provided to the population of Abu Dhabi
  - 89% was provided from SEHA hospitals
  - 10% was provided from Private hospitals
  - 1% was provided from Other hospitals
- Users of acute overnight mental health services were:
  - Males 59%
  - Females 41%

- In 2014, 28 consultation rooms provided specialist outpatient services for Mental Health
- 101,926 outpatient episodes were provided to the population of Abu Dhabi for Mental Health
  - 59% was provided from public facilities
  - 41% was provided from private facilities
- Users of outpatient services for Mental Health were:
  - Males 54%
  - Females 46%
- Provision of outpatient services occurred mainly from hospitals

Notes: Acute mental health care includes both overnight and same day care; Does not include mental health care provided in the primary care setting.
Mental Health Care Demand & Planned Supply

- Demand by acute overnight care beds for Mental Health
  - Growth rate of 15% per annum, or 41 beds per year
  - Total 20-year growth in demand of 817 beds

- Demand by outpatient consultation rooms for Mental Health

Planned Acute Mental Health Care Supply

- Additional 4 acute beds/places
- Additional 0 acute beds/places

Notes: Planned service and facility analysis only includes those with a status of >50% construction complete; many facilities have not reported the specialty for planned facilities.
Mental Health Care Requirements (1 of 2)

- Current significant Emirate-wide shortfall in supply of acute overnight beds Mental Health
  - **Gap of 38 acute beds**

- Increasingly, supply becomes insufficient to cater to demand
  - Supply
  - Demand
  - **Gap of 879 acute beds**

- Current significant Emirate-wide shortfall in supply of outpatient consultation rooms for Mental Health
  - **Gap of 65 outpatient consultation rooms**

- Increasingly, supply becomes insufficient to cater to demand
  - Supply
  - Demand
  - **Gap of 115 outpatient consultation rooms**

Notes: Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occur for patients to receive care.
Notes: Aggregated gaps by larger geographic areas (e.g., regions or whole of emirate) may not be equal to sum of all smaller regions due to oversupply, which assumes inflows and outflows occurs for patients to receive care; Medical workforce analysis include those practising in all service settings.
Mental Health Care Summary

Worldwide, the prevalence of mental illness is increasing. There has been many significant shifts in the management of mental illness in contemporary societies\(^\text{13}\), most of which serve to de-stigmatise mental health and increase known prevalence and demand for mental health care.

- The trend has been towards community based management of people with both acute and chronic mental illness and the mainstreaming of acute inpatient mental illness management to acute general hospitals.

- Frequently patients with chronic mental illness have a care pattern that is punctuated with episodic “acute on chronic” events that frequently result in an acute admission. The consequence of this worldwide is an increasing rate of acute overnight admissions and stay periods\(^\text{14}\) for psychiatry. In addition there are other local issues that are, and are increasingly, impacting Abu Dhabi demand:
  - The projected slow shift in the Abu Dhabi population toward older age groups that have an increased prevalence of mental illness.
  - A sustained “bias” in the Abu Dhabi population projections toward working age males who have a high (if not the highest) mental illness prevalence.

In common with many international healthcare systems there has been an historical lack of development and organisation of mental health care services in Abu Dhabi and there is an urgent and growing need for investment in mental health care services.

Notes: \(^{13}\)Inception of effective anxiolytics, antidepressants and antipsychotics have improved treatment of anxiety and depressive disorders; SSRI’s remain the second most commonly prescribed medication worldwide; Deinstitutionalization of care for patients with severe chronic mental illness. \(^{14}\)International ALOS for acute mental health care estimated at 16 days.
Mental Health Care Priorities

- Significant gaps in Mental Health services through to 2035.
- Existing and growing future priorities:
  - Abu Dhabi, Al Ain and Al Gharbia Regions.
  - Acute Overnight Care and Outpatient Care.
  - Psychiatrists.
- Abu Dhabi Mental health care delivery model is poorly defined\(^\text{15}\). The care is fragmented and not equally distributed.
- Further study into Mental Health provision in Abu Dhabi is needed and there is need to better define and modernise the model of care and to reflect local supply, demand and future plans.

Notes: \(^\text{15}\)Boston Consulting Group *Review of Healthcare System and Performance 2013*. 
HAAD has proposed, as part of its Health Sector Strategy\(^9\), a strategic initiative to assess and optimize mental health care. Progression of this initiative during 2016/2017 is subject to funding, recruitment and other approvals.

The work of this initiative will:

- Define Abu Dhabi model of care for mental health that defines levels, appropriate care settings and protocols for patients.
- Set clear national standards and operating protocols for mental healthcare services.
- Conduct research to baseline mental health services and define mental health strategy.
- Propose Improved mental health policy and legislation.
- Establish community based programs for mental health.
- Develop and implement of quality metrics and a measurement process specific to mental healthcare.
- Align public and private delivery models.

HAAD will continue to work closely with Investors (develop a section on HAAD services for investors) to encourage investment in regions and precincts identified within this plan that are affected by capacity gaps in the provision of mental healthcare.
Obstetric Care Services

Obstetric care is defined as the care and treatment of women in childbirth and during the period before and after delivery.
Current Obstetric Care Supply

95 Obstetric Clinic Rooms
1,715,947 Outpatient Visits

7 Obstetric Clinic Rooms
158,460 Outpatient Visits

62 Obstetric Clinic Rooms
816,541 Outpatient Visits

401 Obstetric Beds
23,799 Deliveries

51 Obstetric Beds
1,703 Deliveries

202 Obstetric Beds
12,603 Deliveries

318 Doctors

18 Doctors

123 Doctors

Including 121 Consultants and 274 Specialists

208 Midwives

38 Midwives

58 Midwives
Obstetric Care Demand

- **Expected demand for obstetric outpatient clinic rooms**

- **Medical Workforce Demand (WTE)**

- **Expected demand for obstetric beds**

- **Midwifery Demand (WTE)**
Current service provision:

- In 2014 there were just over 38,000 births in Abu Dhabi, delivered by 36 hospitals including both public and private providers. Just under 50% of births were delivered by private providers and 33% of all births were delivered by caesarian section.

- The Corniche hospital is the largest provider of maternity services in Abu Dhabi Emirate with just over 8,000 deliveries in 2014.

- There are 654 obstetric beds operating with an average length of stay of 2.7 days per patients.

- There are 164 dedicated obstetric clinic rooms supporting the delivery of 2.7 million obstetric outpatient visits per year.

- The maternity service is provided by a Medical workforce of 459 Doctors (including 80 Obstetric and Gynecology Consultants and 171 Specialist) and supported by 304 professional Midwives.

- In 2014 there were just under 5,000 IVF episodes delivered by 14 providers.
Obstetric Care Priorities

- **Current and existing gap:**
  - Midwives all regions are severely undersupplied.
  - Obstetric outpatient clinic rooms all regions.
  - Obstetric beds in Abu Dhabi and Al Gharbia Regions.

- **Emerging gap:**
  - Doctors in all regions by 2030.

- The current undersupply of midwifery services is being partially compensated by the oversupply of medical practitioners.

- The analysis shows that Abu Dhabi average length of stay is higher and the ratio of births to beds is lower than international levels. The Abu Dhabi Maternity model of care requires further detailed investigation to understand the reasons for this variance,

- Implementation plans for obstetric care will be developed once the above is further investigated.
Investing in Healthcare

Regulation, Insurance & Resources for Investors
Health Regulation Laws
HAAD Policy Manuals were published in December 2012 as a regulatory requirement and aims to improve overall performance and outcomes of healthcare delivery in the Emirate of Abu Dhabi. The HAAD Policy Manuals define the roles and responsibilities of the Regulator (HAAD), Providers (Public and Private), Professionals, and Payers (Insurance companies), and their interactions which in turn helps to establish targets and points of reference for the short, medium and long term. All healthcare Providers, Professionals and Payers are expected to understand, implement and be in full compliance with the requirements mandated by the four HAAD Policy Manuals.

Policy Manuals for Healthcare Sector

Healthcare Facility Licensing

Licensing is vital to ensuring the delivery of a high standard of healthcare facilities services. This section provides you with information on licensing requirements for different healthcare facilities.

Services

- Health Facility New License or Re-licensing
- Health Facility License Renewal
- Adding or Delete Healthcare Facility Owner
- Changing Type of Healthcare Facility
- Add Specialty/Number of beds/ Home Care Service to a Healthcare Facility
- Changing the plan of Health Care Facility Licensing
- Changing / Modifying Healthcare Facility Name
- Changing Healthcare Facility Location
- Extension of Preliminary Approval for Healthcare Facility
- Healthcare Facility Temporary Closing/Suspension of activity
- Extension of Temporary closing for Healthcare Facility or Suspension of the activity
- End of Temporary Closing for Healthcare Facility or suspension of the activity
- Health Facility License Cancellation
- Registration for Insurance of Healthcare Facility
- Cancellation Insurance for Healthcare Facility
Healthcare Professionals Licensing

Health Professionals Licensing

All Health Professionals are required to obtain their licensure prior to practicing in any healthcare facility within the Emirate of Abu Dhabi. The license must be current and valid at all time during the clinical practice of the health professional. Health professionals must ensure renewing their licensure 3 months prior to the expiry date. A Health Professional license is associated with the healthcare facility their working for.

All UAE National physicians working in the Emirate of Abu Dhabi may practice in both Public and Private Sector simultaneously. The physicians must obtain a no objection from their Hospital Medical Director or management.

Health Professional Categories:
- Physicians (Consultant / Specialist / Medical Practitioner)
- Dentistry (Consultant / Specialist / GP Dentist)
- Pharmacy
- Nursing / Midwifery
- Allied Health

Licensing

Licensing is vital to ensuring the delivery of a high standard of healthcare services. This section provides you with information.
Health Insurance

This section provides you with information on health insurance requirements and services, governing laws and regulations, circulars, health insurance auditing tools and information on Thiqah health insurance card and Weqaya program. In addition, it enables you to search for various registered Health Insurance Products.

Related Links

- Law and Regulations
- HAAD Policies
- Circulars
- Services & Requirements
- HAAD Standards
- JAWDA - Quality Metrics
- HAAD Guidelines
- Price List Update 2015 – for Consultation
# Health Reform in the Emirate of Abu Dhabi has produced successful Mandatory Health Insurance Model

In 2006, Abu Dhabi defined a vision to deliver “world-class” quality care in response to citizen's needs for young population. Non-communicable diseases are the leading causes of mortality.

It has since introduced tiered mandatory health insurance for all residents linked to a single standard payment system for both public and private providers.

- **Thiqa Program**: self funded scheme for nationals with coverage in both public and private facilities,
- **Basic insurance**: for limited income expats with premium funded by the employer,
- **Enhanced insurance**: for remaining expats with premium funded by the Employer.

The reform program has improved access, by giving all residents health cards. The approximate doubling of demand has been matched by flexible supply.

- Increase in demand corresponded to an increase in supply by private providers.
- Private are providing 60% of outpatient care. Public is still providing 60% of inpatient care.
Mandatory health insurance has been accompanied by the Data Standards and e-claims system

- Payers may not receive paper
- Providers must use clinical codes
- All prices must be linked with standard clinical codes
How does the e-claims work?

• Everyone uses Post Office for data exchange
• All files are submitted to Post Office
• Files can be submitted and received any time
Healthcare Information Standards

Shafafiya

Shafafiya contains the key standards that govern how healthcare information is exchanged and used in accordance with the Regulator Policy Manual, chapter VI Data Management. It includes the standard language used to exchange the information (codes, licenses, etc.) and it has the technical specifications for the implementation of the data exchange system.

There is much value in having a common language to talk about healthcare amongst different stakeholders. The common language should be easy to understand yet accurate. The common language within the healthcare delivery system of Abu Dhabi is defined in the data dictionary. All communications with HAAD need to use the common language defined in the data dictionary. Any electronic transactions between healthcare entities need to be structured in accordance with the rules described in the data dictionary.

Key concepts:

Healthcare systems help individual Persons obtain better health. A person can be a Patient who has an Encounter with a Provider. The Provider then claims some or all of the charges from the Payer. The payer in turn collects insurance premiums (financing) from its members, who are individual persons. The relationship between these key concepts is shown below.
HAAD Resources

HAAD Health Statistics & Capacity Master plan

- Available early 2016
- Online: http://www.haad.ae/statistics
HAAD Resources

HAAD Health Facility Guidelines

HAAD Health Facility Guidelines
HAAD Resources

Mapping Module
The geospatial mapping of supply, future capacity and available Government land for development of health services

Publically accessible web based interactive map to visualize:

- Current health facilities
- Planned facilities
- Government lands
- UPC precincts on an interactive map

See the video demonstration at: https://stem.haad.ae/publicmap/
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