دائـــــرة الـصـــحـــة
DEPARTMENT OF HEALTH

Healthcare Capacity Master Plan

Department of Health
A healthier Abu Dhabi

Published: June 2018

Sections

Section A – Background and Context

Executive Summary

The Department of Health (DoH), in line with it's vision: A Healthier Abu Dhabi, has significantly developed the healthcare capacity management system. This Healthcare Capacity Master Plan (HCMP), its methodology and the tools and initiatives contained within it, provide both the framework and the future plans that underpin the sustainable development of the Abu Dhabi healthcare system in a way that supports DoH Mission[1].

DoH 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 distils 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

Notes: [1]DoH Mission: DoH 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 CMP provides a comprehensive analysis of capacity and demand of the healthcare system. The CMP, identifies and prioritises issues, and articulates solutions and implementation plans, many of which are already underway.

Care type	Summary
Primary Care	Development of a new standard and license category in 2017, however major shortcomings and emirate-wide shortfall in supply of primary healthcare services.
Emergency Care	Development of a new standard and license category in 2017. Adequately supplied for urgent care until 2035, however there is a shortfall in the provision of complex emergency care (Triage levels 3) and trauma care in Abu Dhabi and Al Ain.
Specialist Outpatient Care	Generally well covered but some gaps in some services i.e. paediatrics, orthopaedics and immunology with uneven regional coverage.
Acute Overnight Care	Abu Dhabi is on target to have sufficient supply of beds, without the need for any additional beds, until 2025. However there is need for investment in acute overnight care for specific specialties in all regions and some tertiary care services, including specialist children's hospital.
Acute Same Day Care	Shortfall in Al Ain and Al Dhafra of certain specialties: i.e. orthopaedics, cardiology medicine, neurology, rheumatology, respiratory medicine and general Emirate-wide shortfall.
Intensive Care	Appears undersupplied, however review of the model of care is required.
Non-Acute & Long Term Care	A current undersupply of non-acute beds in Al Ain and Al Dhafra regions, particularly in relation to disability and rehabilitation beds. A new model of care is under development in 2018.
Mental Health Care	Undersupplied across the Emirate. A new model of care under development in 2018.
Women's Health Care	Undersupplied in Al Ain region, however review of the model of care is required.
Diagnostic Care	A current undersupply in Al Ain and Al Dhafra for the majority of diagnostic machines, with ultrasound displaying the greatest requirement.
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: family medicine, emergency medicine and psychiatry. A general undersupply of nurses and midwives.

Executive Summary

POPULATION

The population is concentrated on or nearby Abu Dhabi island. Areas of growth in the short to medium terms have been identified as Zayed City, Al Reem Island, Jabel Hafeet and Al Shamkha.

At the end of 2016 there were 0.58 million National Thiqa members, 1.41 million Basic members and 1.13 million Enhanced members residing in Abu Dhabi Emirate. The Compound Annual Population Growth Rate (CAGR) from 2011 to 2016 was 4.6%.

DEMAND

Significant growth in demand is expected for Primary Care and services linked to lifestyle-related disease, e.g. diabetes and cardiovascular disease and cancer with larger volume increases in outpatient settings.

SUPPLY

Since the end of 2010 there has been 17% compound annual growth in the number of licensed clinicians and 12% growth in the number of licensed facilities. It is estimated that by 2025 up to 1,789 additional doctors and 16,158 nurses will be required. DoH demand projections also indicate that in 2025 demand for inpatient services may require over 1,231 additional acute hospital beds (based on current occupancy rate). However, there are currently 10 hospitals under construction that are more than 50% complete, which should provide up to 1,501 acute hospital beds. This will ensure there is sufficient acute bed supply to meet the future demand.

PROVIDER MARKET

Government-owned SEHA hospitals provided care in 50% of all inpatient Episodes and 28% of all hospital outpatients. The largest independent groups are VPS, NMC, Mediclinic and UEMedical. A number of notable international providers have come to Abu Dhabi. These include Cleveland Clinic Abu Dhabi, Imperial College Diabetes Centre, Kings College Hospital, Parkway Health and Moorfields Eye Hospital.

An **Episode** is an inpatient Encounter or a set of outpatient Encounters of the same patient with the same principal diagnosis that starts with a consultation and includes Encounters linked to the orders of the clinician responsible for the consultation. Each consultation starts a new Episode. The Episode is a calculated data element used for analysis, it is not part of the data exchanged in electronic transactions.

Project Overview

The overarching purpose of Department of Health (DoH) Demand Model and Healthcare Capacity Planning Development and Improvement Project is to improve and develop the current scientific method for undertaking service planning. This is achieved in Abu Dhabi by increased functionality and automation of tools. The development and refinement of a series of service planning tools for DoH will ensure a more responsive and accurate analysis of the current and future demand and supply for the Abu Dhabi healthcare system.

Collectively, these tools will also ensure evidence based service planning spans a broader profile of services.

This CMP provides analyses, solutions and implantation plans to address the capacity issues identified for a range of service types including:

- Primary Care
- Emergency Care
- Specialist Outpatient Care
- Acute Overnight Care
- Acute Same Day Care
- Intensive Care
- Non-Acute & Long Term Care
- Mental Healthcare
- Women's Healthcare
- Diagnostic Care
- Clinical Workforce

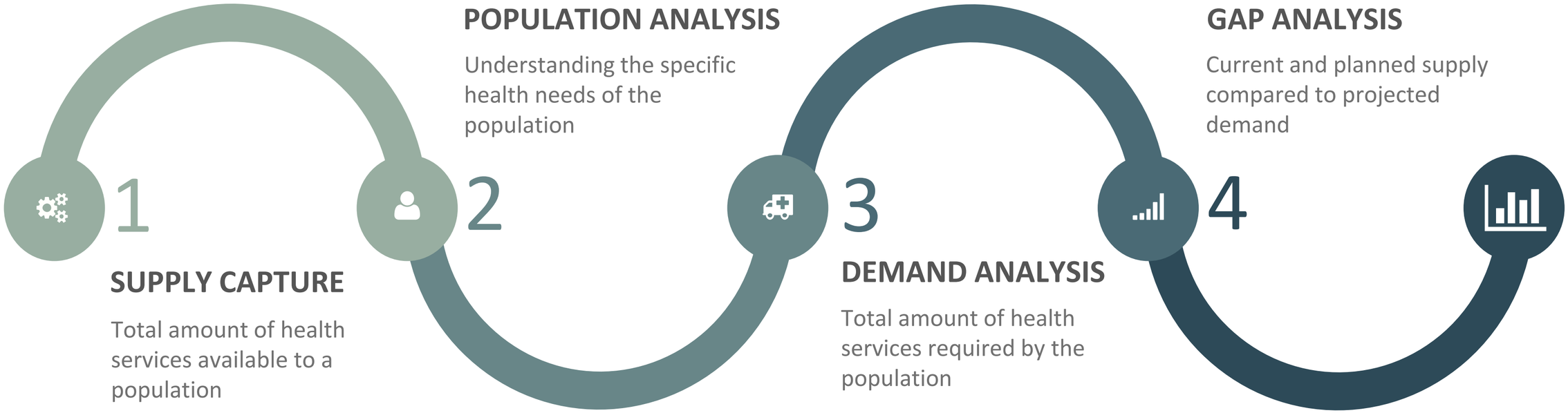
For each service type, supply and demand is analysed in order to identify the current and future requirements. This analysis supports future capacity planning and are described by Key Planning Units (KPUs), which are defined as:

- Acute overnight beds
- Acute same day places
- Outpatient consultation rooms
- Emergency bays
- Workforce full-time equivalents (FTE)

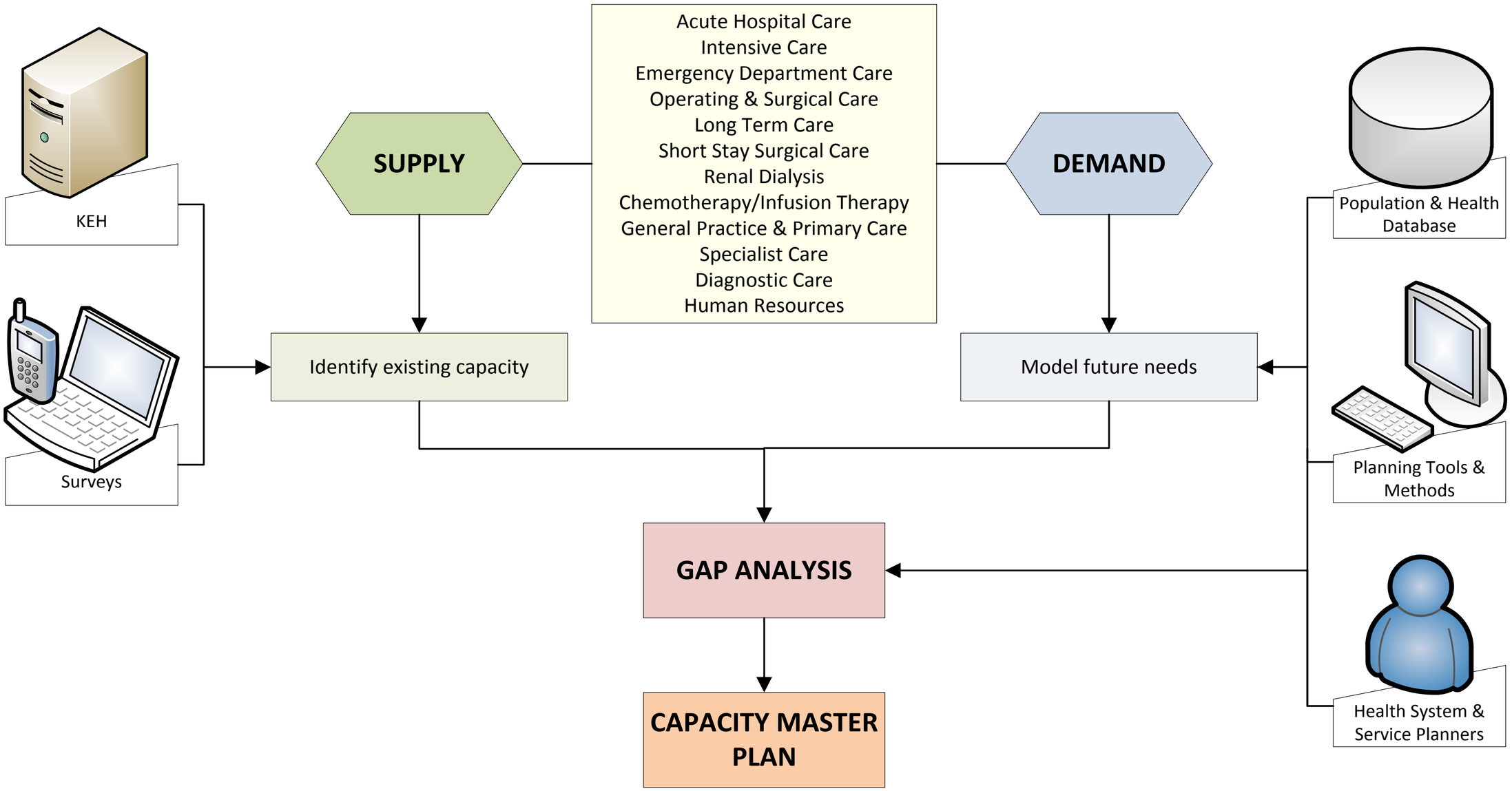
DoH Capacity Planning Process

DoH, 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 of future resources



Process Overview



Capacity Planning Tools

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

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.

1

SUPPLY CAPTURE

Surveys existing and proposed health facilities that supplement and extend existing DoH health supply data collections for accurate supply modelling at all service levels.

2

DEMAND MODULE

Projects 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.

3

SUPPLY PLANNING MODULE

Planning 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.

4

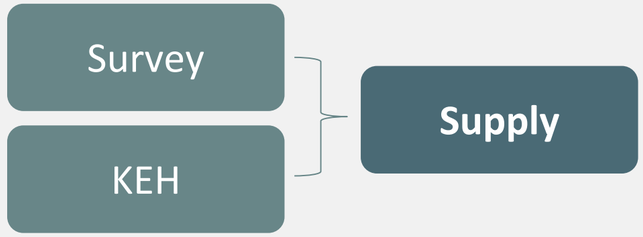
MAP MODULE

Provides detailed interactive electronic mapping of the sites of current and planned facilities, including contact, supply and facility information, workforce profiles and available Government land for future health asset developments.

DoH Healthcare Planning Definitions

SUPPLY IS THE TOTAL AMOUNT OF HEALTH SERVICES AVAILABLE TO A POPULATION

- Data are captured via the Healthcare Facility Survey, 2016 which is validated by the Knowledge Engine for Health (KEH) data.
- It is adjusted for non-responders, sampling error and self-paying patients wherever required.
- Reported activity provides 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), e.g. beds, outpatient consultation rooms, etc.



DEMAND IS THE TOTAL AMOUNT OF HEALTH SERVICES REQUIRED BY THE POPULATION

- Health service utilisation data is obtained from reference populations, where relative equilibrium exists between supply and demand (e.g. Australia, USA, Canada, UK and OECD countries).
- Projections for Abu Dhabi are derived from reference rates applied to Abu Dhabi population and burden of disease specific to West Asia and UAE.

The demand analysis process involves:

- Identifying catchments and populations.
- Projecting case mix, age and sex specific demand requirements for each catchment.
- Estimating demand capacity by year.

Factors affecting demand include: Population size, Burden of disease, Age and Gender, Health insurance and other policy factors, Geographical location, Availability of healthcare professionals and facilities, Accessibility and Cost.

FUTURE REQUIREMENTS ARE CURRENT AND PLANNED SUPPLY COMPARED TO DEMAND

- Requirements quantify potential gaps in health services as KPUs to deliver best-practice healthcare to Abu Dhabi.
- It covers all service types from current year and future years to 2030 and is broken down by specialty.

Definitions & Concepts

Health Service Demand

Health service demand is the service activity that a population would generate if no constraints existed to access. It can be estimated from the incidence and prevalence of diseases, surveys of the population's expectations for services, or selecting a reference population where a relative equilibrium exists between supply and demand (i.e. there is no gap between supply and demand).

The method used to model demand for Abu Dhabi is the application of projected per capita rates from a reference population adjusted for local demand and supply factors and applied to Abu Dhabi's current and future serviceable population.

Health Service Supply

Supply is the total amount of health services available to a population. Supply data can be collected in different ways:

- Standard government reporting databases of health service utilization and capacity.
- Asset capacity surveys conducted as part of the planning exercise.
- Provider and managerial reports gather during planning consultations.

Ideally a combination of these measurement methods should be used to gain the most comprehensive picture of "real supply" within a health system.

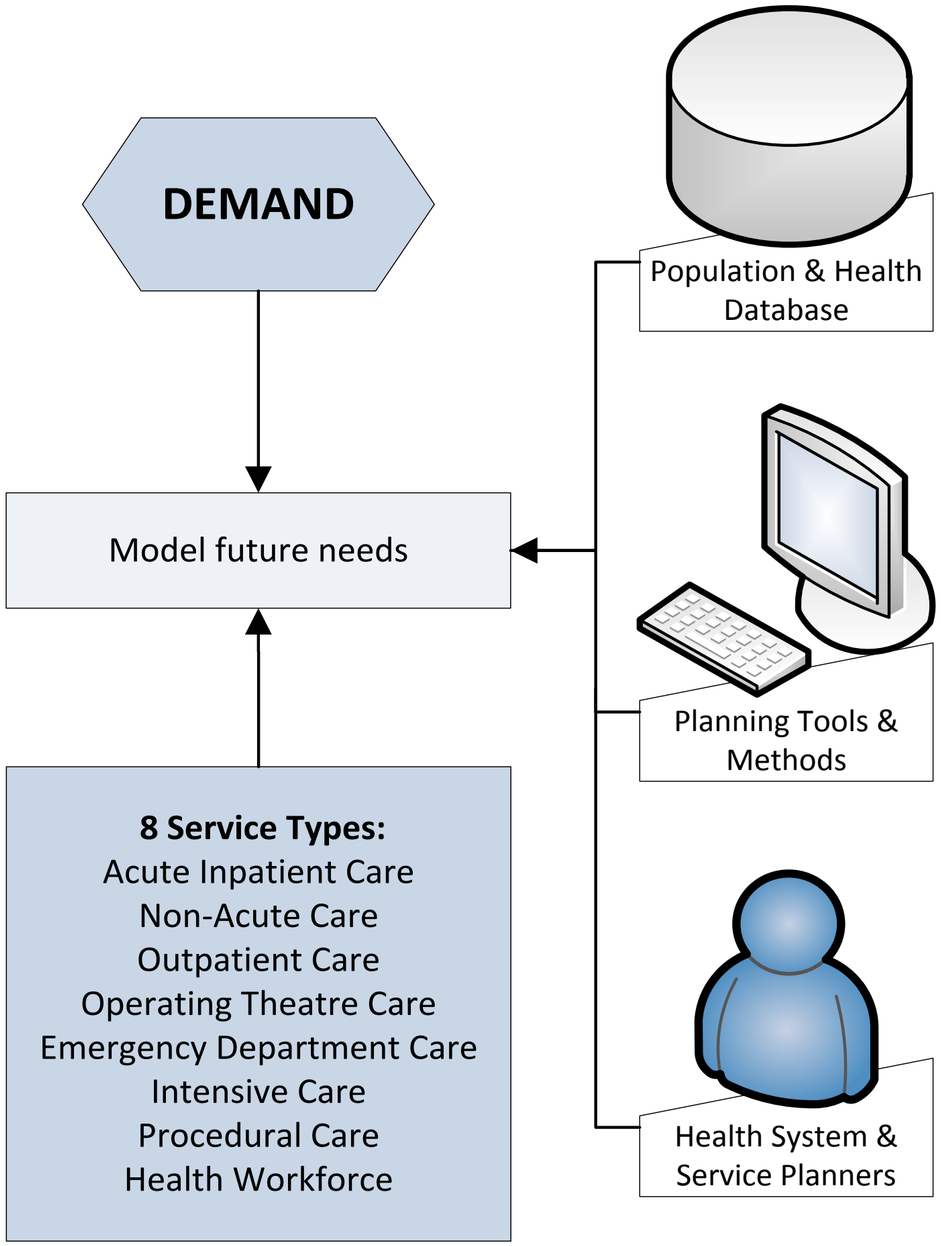
Future Requirements

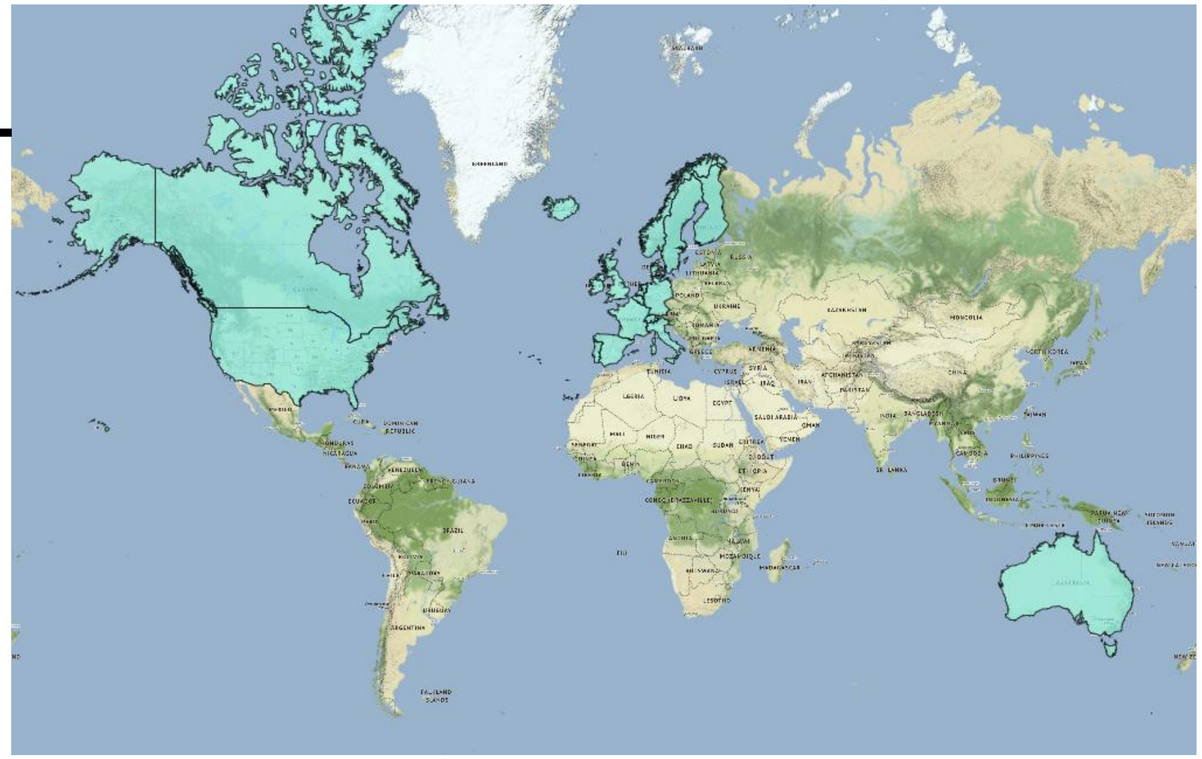
The difference between demand and supply which is calculated for any time point by subtracting demand from supply for the same time point. Where the difference is negative, this indicates a **requirement** or undersupply of services to satisfy demand. Where the difference remains positive, this indicates a sufficient or oversupply of services to meet the modelled demand.

Definitions & Concepts

Demand

International reference populations and countries health service utilisation data used to inform the reference files are characteristically from well-developed health systems, with more than a five-year time series available of health service data, usually between 1998 to 2014/15. Reference population are populations of a state, country or a group of countries that is representative of comprehensive and efficient utilisation of health services.





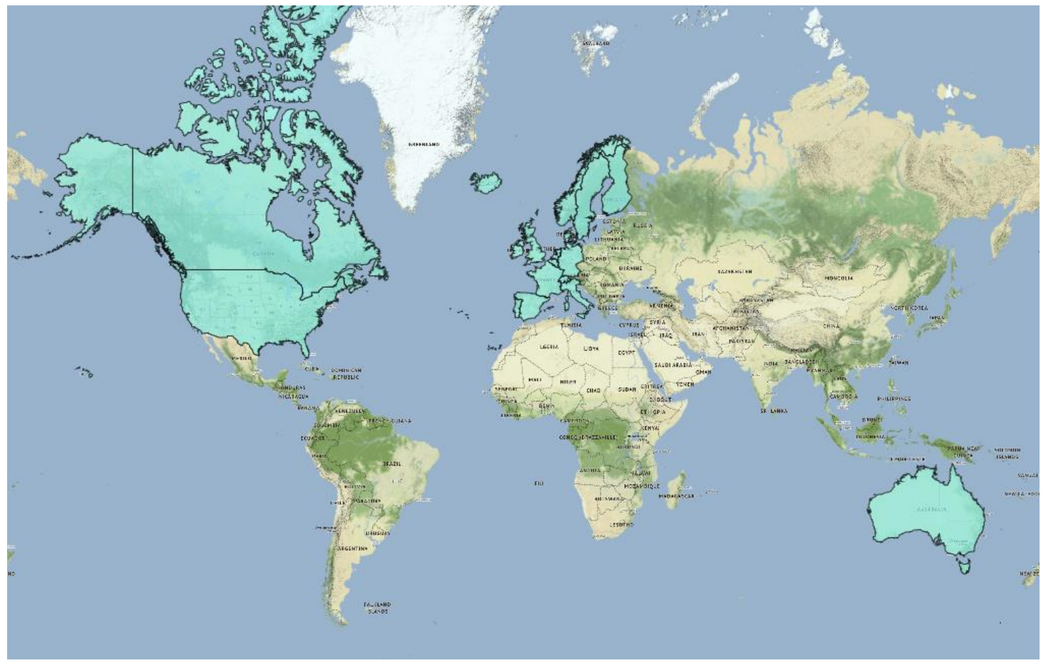
Definitions & Concepts

Demand

Reference populations meet the following criteria:

- Very good health status as measured by low mortality and disability; and high socioeconomic status
- Comprehensive and contemporary health service provision for all types of care
- Optimal use of health care resources as measured by adequate supply of clinical assets and health human resources
- Affordable and broadly accessible healthcare within their catchments
- Standard coding and classification of health statistics that can be aligned to and compared against supply statistics in a study population
- Readily available and comprehensive health service statistics for a sufficient time period to enable reliable trend estimates and statistical projections.

Historical and current health service utilisation data from these reference populations are then used to calculate per capita rates for the classifications of 2 gender groups (Male and Female), 18 age groups (0 to 4, 5 to 9 through to 80 to 84, 85+), 2 nationality groups (Nationals and Non-Nationals)



Definitions & Concepts

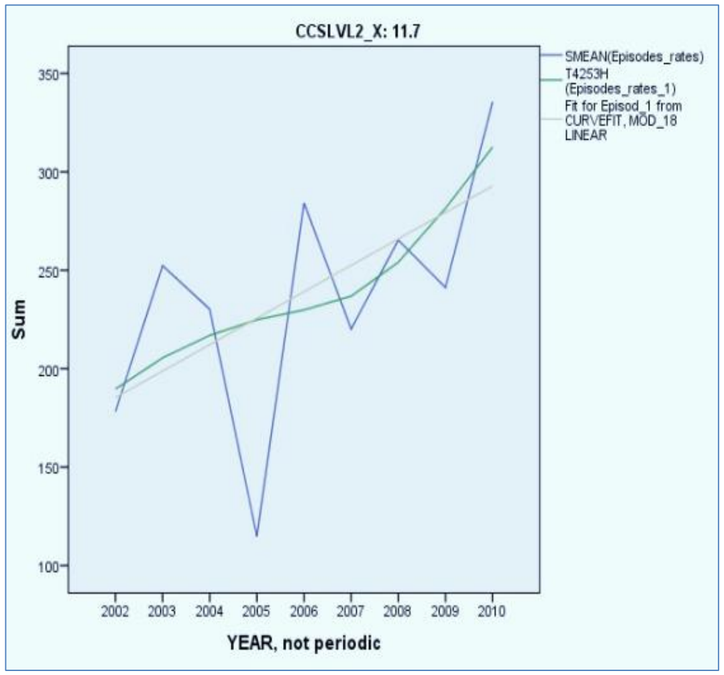
Demand

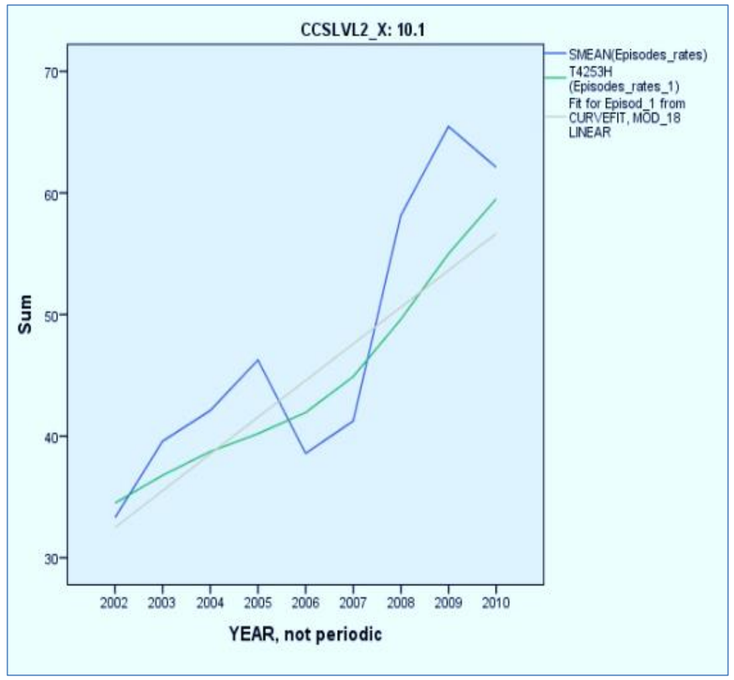
Data libraries across various geographies and jurisdictions are mapped back to DoH IR-DRGs.

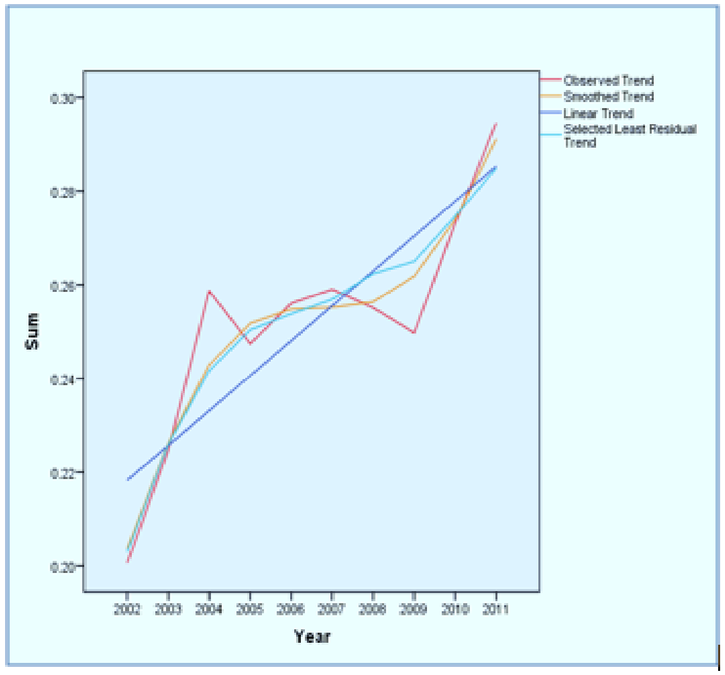
A minimum of five years of time series data is used to estimate trends.

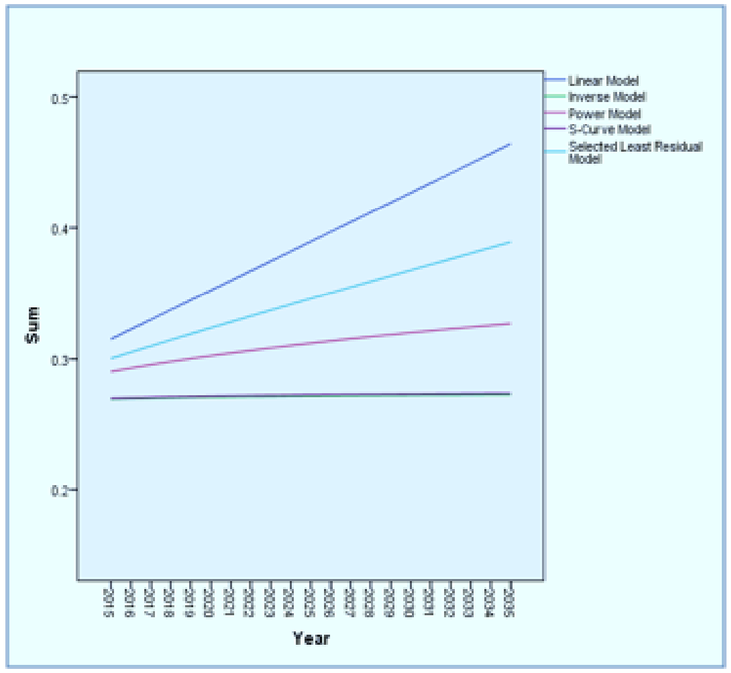
Trends are smoothed by exponential and centred-moving average technique to reduce residual effects of irregular trend variance.

A best fit equation for projections is determined through statistical methods.







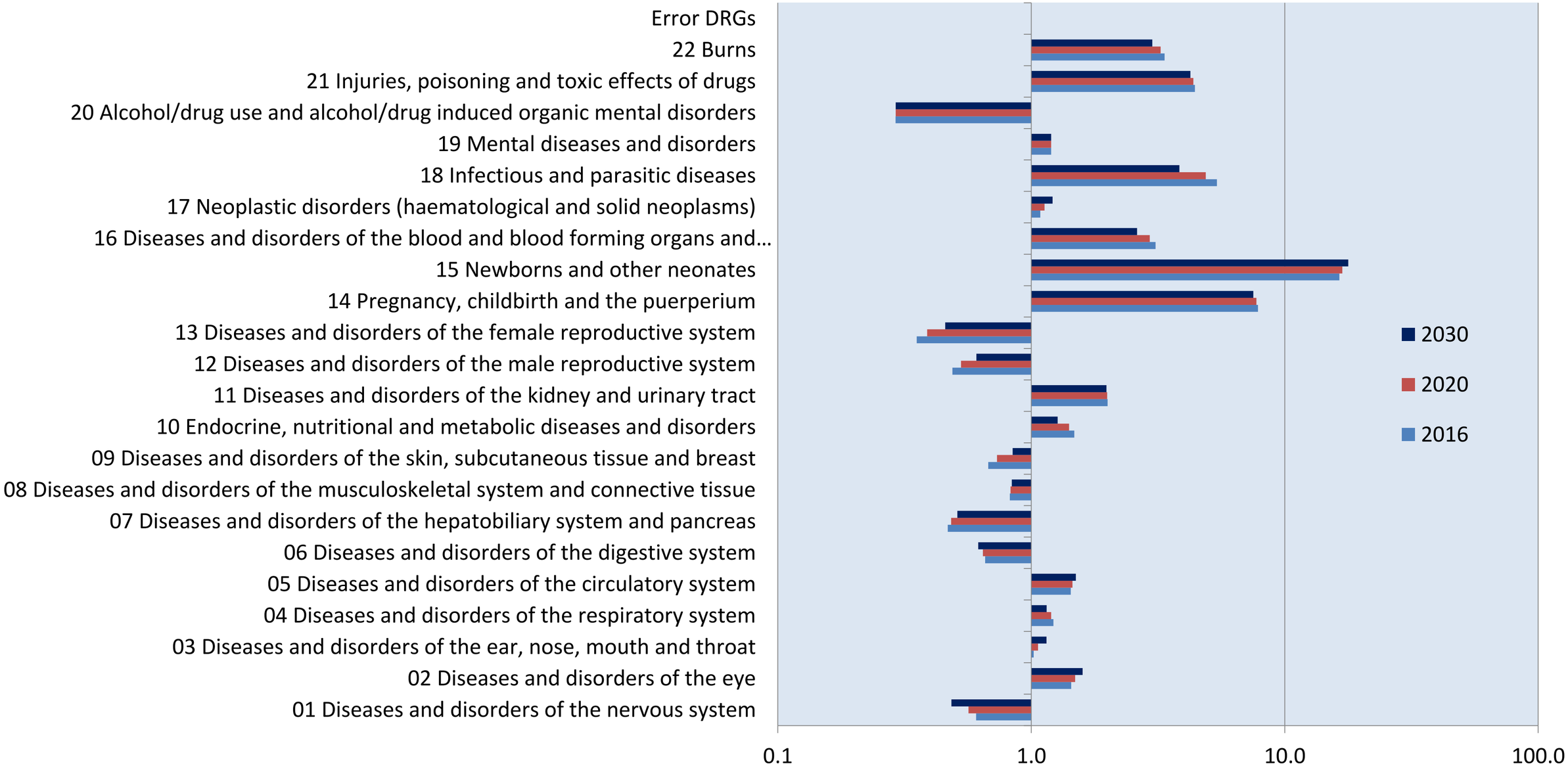


Graphs above are examples for illustration propose only

Definitions & Concepts

Demand Adjustment

Adjustment for local health status and burden of disease factors to account for impact of health issues between reference population and Abu Dhabi's population from WHO Global Burden of Disease (GBD) study for West Asia Region (includes UAE) disease profile based on DALY ratios.



Source: World Health Organization, 2012, Projections of mortality and causes of death, 2015 and 2030

Definitions & Concepts

Demand

Demand results as activity-based measures and converted to KPUs

Service Type	Activity-based Measure	Key Planning Unit Measure
Primary & Specialist Outpatient Care	Occasion Stay Period (minutes)	Consultation Rooms
Emergency Care	Occasion Stay Period (minutes)	Emergency Bays
Acute Overnight & Same Day Care	Overnight Episodes Same Day Episodes Overnight Stay Periods (days)	Overnight Beds Same Day Places
Intensive Care	Episodes Stay Periods	Intensive Care Beds
Non-Acute & Long Term Care	Overnight Episodes Same Day Episodes Overnight Stay Periods (days)	Overnight Beds Same Day Places
Diagnostic Care	Occasions Stay Period (minutes)	Procedural Care Units
Clinical Workforce	Full Time Equivalent	Full Time Equivalents

Definitions & Concepts

Key Planning Unit Assumptions & Calculations

Outpatient Consultation Room

The number of clinical rooms required for a projected volume of outpatient visits. The following formula is used for outpatient rooms;

$$\frac{\sum \text{visits} \times \text{standard consultation time}/60/8/248}{0.7}$$

where standard consultation times are the time taken for an outpatient visit measured in minutes, 60 the number of minutes in an hour, 8 the number of operating hours in a day, 248 the number of operating days in a year (with allowance for 12 weekday holidays) and 70% the room occupancy rate.

Emergency Department Bed

The number of cubicles required for a projected volume of emergency attendances. The formula is;

$$\frac{\sum \text{stay period minutes}/60/24/365}{0.7}$$

where stay period minutes are the sum of emergency stay minutes, 60 the number of minutes in a hour, 24 the number of hours in day for a year, 365 the number of days in the year and 70% the occupancy rate – a conventional rate which allows for the greater demand variation of emergency departments.

Overnight Bed

The number of beds required for a projected volume of overnight episodes. The formula is;

$$\frac{\sum \text{stay period days}/365}{0.7}$$

where stay period days is the sum of overnight patient stay period days for a year, 365 the number of days in the year and 70% the occupancy rate.

It was agreed that in the Abu Dhabi context, 70% occupancy represents an acceptable occupancy provision.

Same Day Place

The number of places which can be beds or chairs required for a projected volume of sameday episodes. The formula is:

$$\frac{\sum \text{stay period days}/248}{1.5}$$

where stay period days is the sum of the patient same day stay periods, 248 the number of working day each year (allowing 9 public holidays a year), allowing for 1.5 patient stay per KPU per day.

Intensive Care Bed

The number of beds required for a projected volume of intensive care episodes. The formula is;

$$\frac{\sum \text{stay period days}/365}{0.7}$$

where stay period days are the sum of the intensive care stay days, 365 the number of days in the year and 70% the occupancy rate – a conventional rate which allows for the greater demand variation of intensive care units.

Procedural Unit

The number of equipment units required for a projected volume of procedural occurrences. The following formula is used for procedural rooms;

$$\frac{\sum \text{occurences} \times \text{standard procedure time}/60/8/248}{0.7}$$

where standard procedure times are the time taken for a procedural occurrence measured in minutes, 60 the number of minutes in an hour, 8 the number of operating hours in a day, 248 the number of operating days in a year (with allowance for 12 weekday holidays) and 70% the room/place occupancy rate.

Full Time Equivalent (FTE)

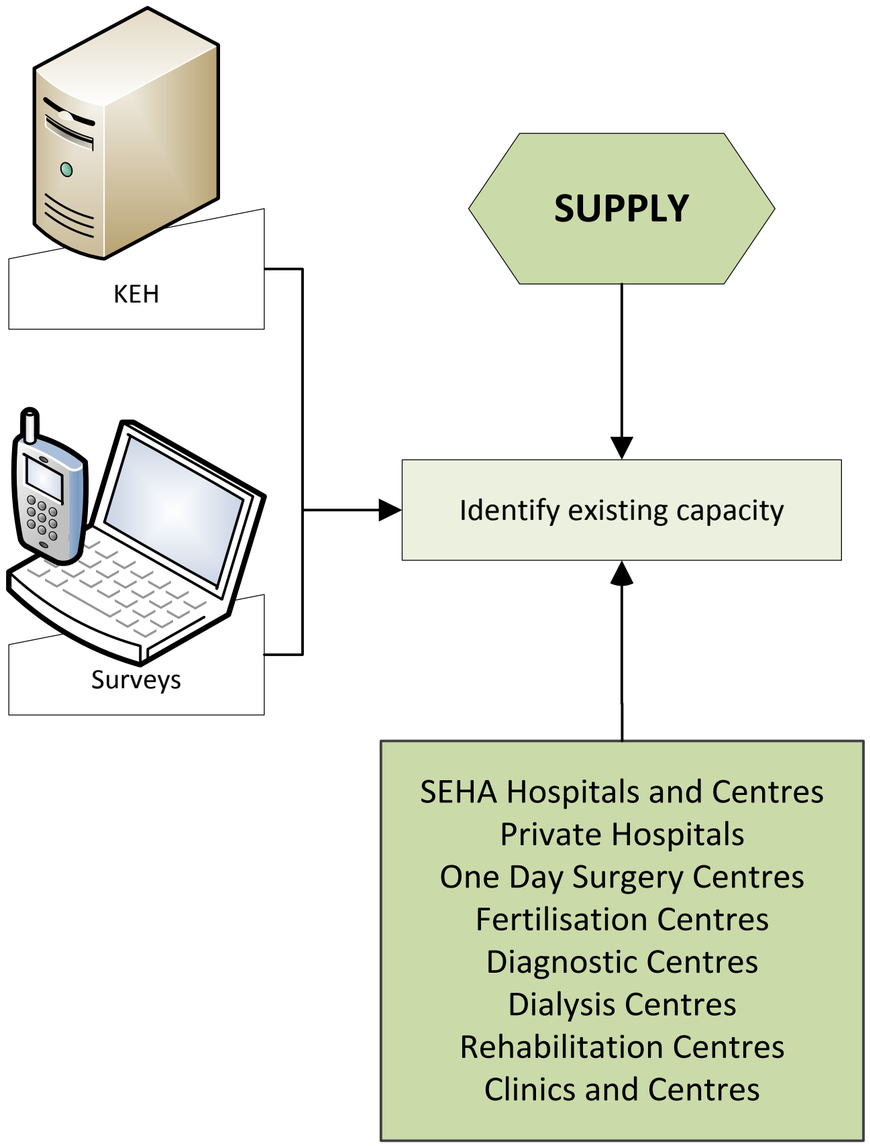
The number of FTE in health care required for a study population. The following formula is used for FTE;

$$FTE\_r \times popcnt\_s$$

where FTE_r is demand reference rate for FTE and popcnt_s is the study population.

Definitions & Concepts

Supply



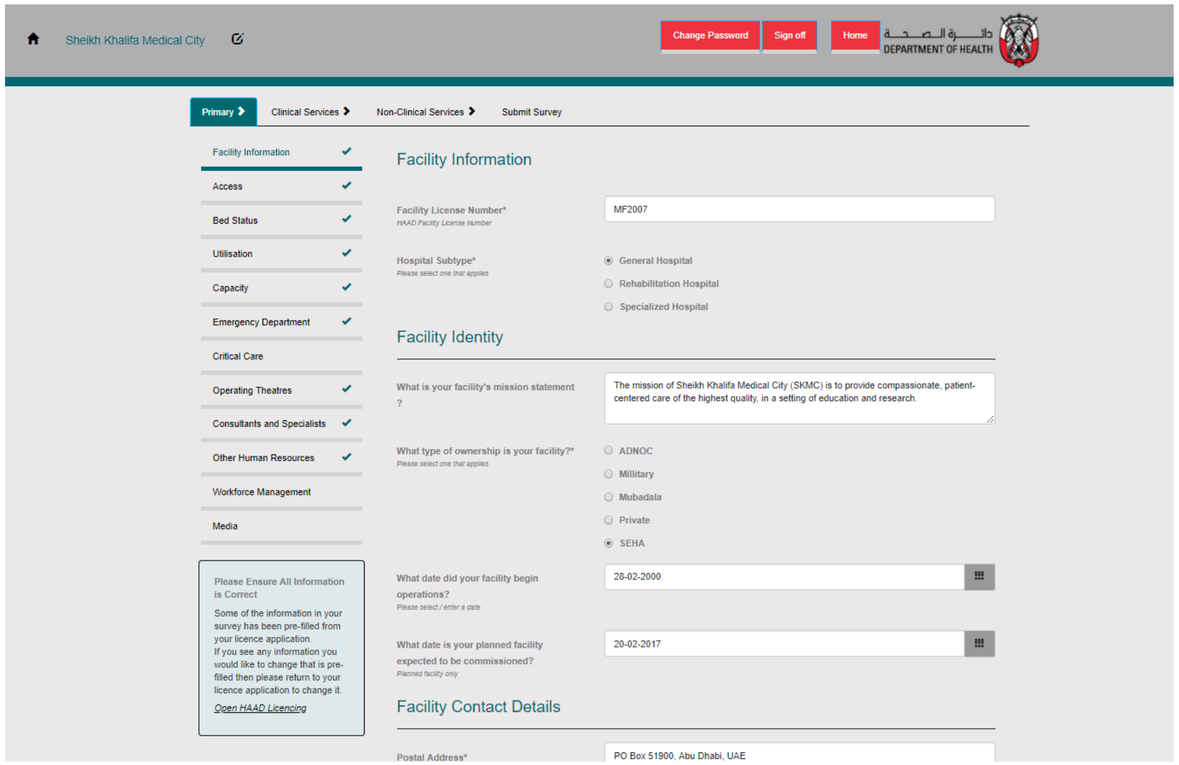
Supply of health services by:

1. Activity
   - Admissions/episodes
   - Visits/consultations

2. Capacity
   - Beds
   - Consultation rooms
   - Radiology machines
   - Doctors, nurses and other workforce

By healthcare facilities from:

1. KEH
2. Healthcare Facility Survey



Definitions & Concepts

Supply Adjustment

Relative Utilisation

Relative Utilisation for services in a study population is an indicator of the service distribution and utilisation preferences of a population group compared to the reference population.

Relative Utilisation for the base year =
(Supply/Demand*100)

Average Length/Period of Stay

The time taken to deliver an episode of care is a general measure of the efficiency of service delivery. Strong evidence exists for aggregate declining stay periods in contemporary hospitals. The trend, however, is not consistent across all service line and modes and is influenced by policy and cultural factors prevailing with different countries

Average Length of Stay (ALOS) =
Total Length of Stay/Episodes

Occupancy Rate

The rate of occupancy of service type KPUs can be adjusted to accommodate local policy and cultural requirement by default the following values are applied to each service type KPU.

Percentage Same Day

A strong international trend show that a greater proportion of hospital procedures and care episodes are being delivered on a same day basis where the patient is admitted and discharge from hospital on the same day.

Percentage Same Day Episodes =
(Same Day Episode/(Same Day Episode + Overnight Episodes))*100

Same Day Turnover

Another factor contributing to the relative operational efficiency of a health service is the number of patients occupying a KPU each day.

Same Day Turnover =
Number of patients occupying a KPU each day

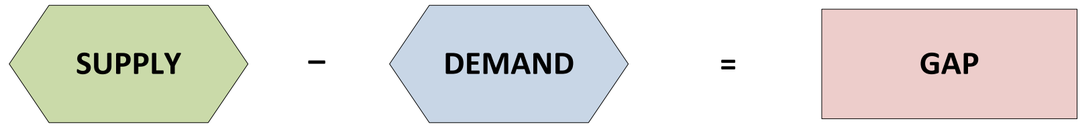
Definitions & Concepts

Gap Analysis and Results

Gap Analysis

Negative Gap = Undersupply, quantified and labelled as "**Requirements**" in CMP

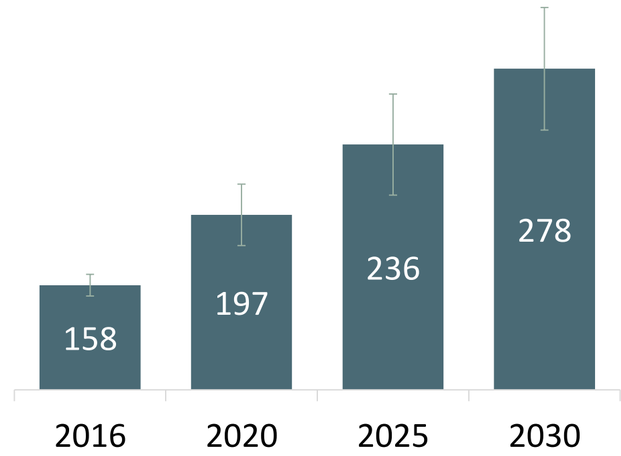
Positive Gap = Adequate Supply or Oversupply



Degree of Uncertainty

The future state has some level of uncertainty this can be measured by statistical standard error at 95% to 99% confidence interval. In simple terms, a range of demand is estimated considering demand estimate is 95-99% certain

- The range of demand is calculated using the formula:
  Adjusted Demand = Demand ± Degree of Uncertainty



Results of the Analyses

The future is uncertain and the art & science of health planning continues to evolve, therefore:

- The authors strive to improve accuracy and quality of reported results
- Results between previous years' reports are not directly comparable
- Supply estimates and collections are improved through survey mechanisms and analysis of KEH Claims data
- Demand modelling and projections is advanced as more data becomes available
- Mathematical and statistical techniques increase reliability of current and future estimates in gap and service requirements

DoH and Department of Urban Planning & Municipality (DUPM) Requirements for Community Facility Standards

These requirements for primary care and hospital provision have been established in partnership with the Department of Urban Planning and Municipality (DUPM) and comprise the healthcare element of the DUPM Community Facility Planning Standards. This Healthcare Capacity Master plan 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:

Facility Type	Population (000's people)				Land provision options (m^2 000's)						Car parking (spaces)	Minimum service requirement	Estimated Resources per facility
	Residential			Transient[1]	Urban		Suburban		Rural				
	Urban	Suburban	Rural		Minimum Land area	Minimum Including if Co-located GFA[3,6]	Minimum Land area	Minimum Including if Co-located GFA[3,6]	Minimum Land area	Minimum Including if Co-located GFA[3,6]			
Clinic[2] (Village)	NA	NA	4-6	12-15	NA	NA	NA	NA	4	5	25	•Primary care •Pharmacy services (on-site or within 10 min walk) •Laboratory service	2 Physicians
Clinic (Small)	6-10	6-10	6-10	24-36	5	3	5	3	5	3	30		4-6 Physicians
Clinic (Medium)	12-29	12-29	12-29	36-90	7	3	7	3	7	3	35		7-14 Physicians
Clinic (Large)	30-40	30-40	30-40	90-120	10	4	10	4	10	4	45		15-20 Physicians
Hospitals[4]	60-90			180-240	40	NA	40	NA	80	NA	3/bed	•Emergency services •Radiology services •Laboratory services •Stand-alone building	180-270 Beds[5]
	90-110		NA	270-330	50	NA	80	NA	NA	NA	3/bed		270-330 Beds[5]

Notes:
1 Transient population includes staff and other non-residential visitors.
2 Clinics collectively refers to Clinics, Centres and Polyclinics.
3 Clinics 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.
4 Evaluation 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.
5 Optimal hospital size is 200-600 beds.
6 GFA Ground Floor Area.

Sources: DoH Capacity Management Team analysis, DUPM Community Facility Planning Standards

New in this edition

Several iterations have been made to improve both the quality and accuracy of the reported results in 2016 edition. These improvements were implemented to increase the reliability of both supply and demand estimates for capacity planning and have resulted from a more comprehensive supply analysis and increased sensitivity in demand analysis. As such, the results are not directly comparable to previous years' reports.
The data and methodological advancements in the current version of the CMP are outlined below.

Changes in Supply

Adjustments have been made in the supply of service types that are explained in further detail within the relevant sections of the document, due to the number of newly commissioned facilities and the improved capture of a broader range of facility types by the Healthcare Facility Survey. As expected, the additional facilities found to be commissioned increase supply, but also reduce planned supply and capacity for the years 2016 to 2020.
The changes in supply, and planned supply, have directly affected the supply estimates and therefore the reported requirements.

Variances in Claims Data

There is significant variance in DRG claims data reported by KEH in 2016 compared to 2015, which may be attributable to improved coding practices. This has had a material impact on the service line distribution between the years.

Updated Reference Files

To improve the sensitivity of the demand modelling down to a case mix level, an updated acute care reference file was implemented. This refinement allowed a higher quality assessment of historical trends and patterns, and therefore more accurate projections for future years.

Updated Population Projections

A new series of population projections was developed in response to the greater than expected population growth that occurred across Abu Dhabi between 2015 and 2016. As a result, as the demand modelling is produced directly from the population projections, the health service demand results were adjusted to accommodate the growth in population the health system expected to serve.

Workforce

This CMP now considers all licensed workforce headcounts regardless of place of practice whereas last year was based off hospitals, and clinics and centres, excluding home healthcare services, school clinics, laboratories and other health-based businesses. This year the survey has been used in conjunction with Shafafiya to also include those employed in all health facility types, giving a whole of system perspective.

New in this edition

Changes in Reporting

The latest version of the CMP allows for a clearer overview of the current and emerging state of each Service presented. Graphs and tables have been condensed or expanded to best illustrate the key issues of each service type in each region.

The inclusion or exclusion of some service lines have changed from the previous version of the CMP. These adjustments will affect the reported aggregate results of related sections when comparing different versions of the CMP. The adjusted Services include:

- Gynaecology, Obstetrics and Obstetrics Delivery service lines have been removed from all sections and displayed separately in the section “Women’s Healthcare”
- Psychiatry and Alcohol and Other Drugs service lines have been removed and displayed separately in the section “Mental Healthcare”. In addition to this, mental health capacity has been separated into acute and non-acute beds, a method not adopted in the previous version.
- The Intensive Care service line has been separated from acute overnight care and displayed separately in the section “Intensive Care”.

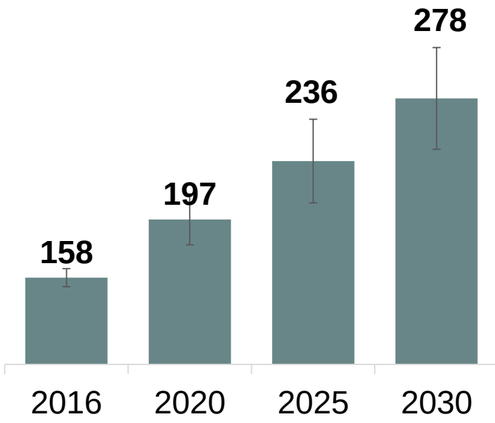
Uncertainty Estimates

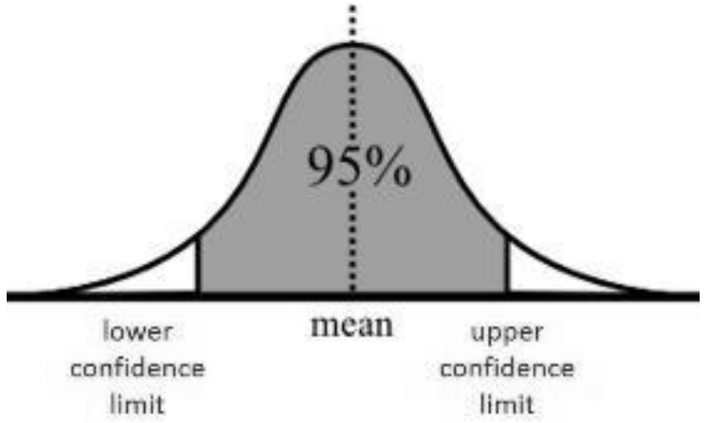
To accommodate the inherent uncertainty associated with population growth and demand modelling, this CMP includes uncertainty estimates which are represented by confidence bars on reported demand and requirement results. They provide a range in which the demand and requirements are most likely to fall; the uncertainty range is generally greater the further out from the current year the results are reported for.

Relative Utilisation

Relative utilisation across all service types has been implemented to better align the health service demand modelling to the supply profile of the base year, 2015. This aligns demand results with supply in the base year and regresses demand results to a contemporary standard by 2035.

Relative utilisation is calculated from place of treatment and current practices in supply of health services, and is applied to the health service demand modelling results for place of residence for the Emirate and its Regions.





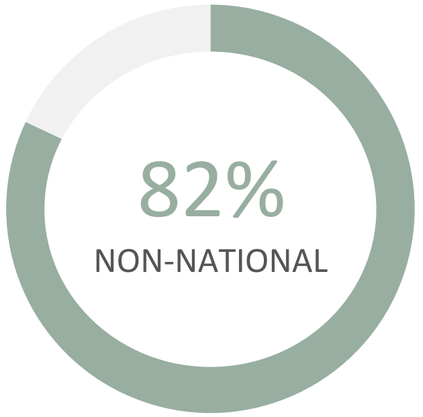
Abu Dhabi’s Population

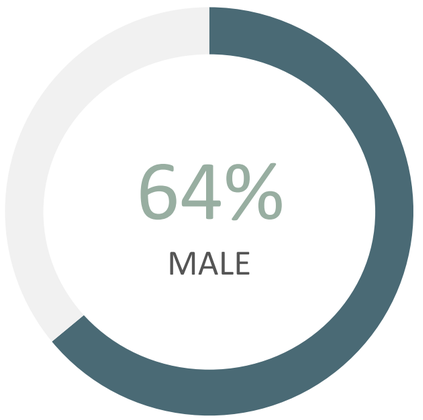
In mid-2016 the population of the Emirate was estimated to be **3,037,937 persons.**

Of the total Abu Dhabi Emirate population, 551,535 (18.1%) are Emirati citizens. Of these citizens, 293,805 (53.3%) live in Abu Dhabi Region, 225,793 (41.0%) in Al Ain Region, and 31,484 (5.7%) in Al Dhafra Region.

The non-national population comprise 81.9% of the total resident population, of which 1,597,084 (64.2%) live in Abu Dhabi Region.

More than 64.0% of the population of Abu Dhabi Emirate are males, due to an influx of male migrant workers.



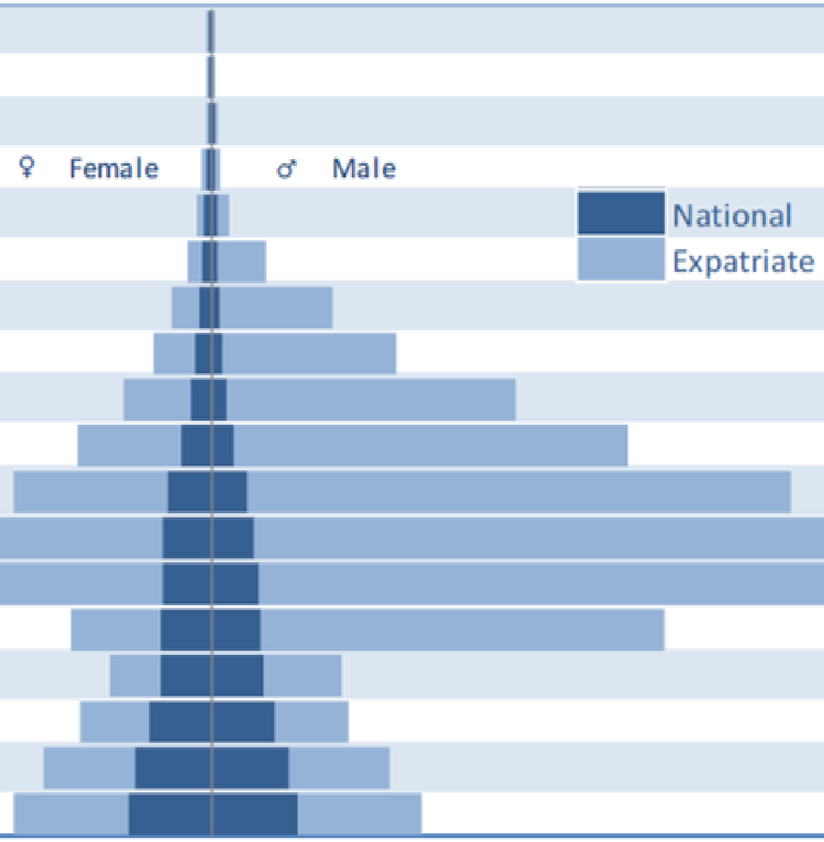


Total	National	Non-National	Male	Female
1,890,900	293,800	1,597,100	1,308,200	582,700
796,500	225,800	570,700	524,800	271,700
350,000	31,500	318,500	294,800	55,100

Abu Dhabi’s Population

Nationals exhibit an expansive-type pyramid, with a young population demonstrated through a wide base and less elderly narrowing at the top.

Non-Nationals exhibit a skewed pyramid, with significant number of males in the working age population groups.



Age band	All	National			Expatriate		
		Male	Female	Total	Male	Female	Total
85+	2'767	1'062	1'186	2'248	217	302	519
80-84	2'859	'973	'906	1'879	424	557	980
75-79	5'441	1'781	1'694	3'475	928	1'038	1'966
70-74	8'820	2'372	2'183	4'555	2'209	2'055	4'264
65-69	16'114	3'072	3'301	6'372	6'239	3'502	9'742
60-64	38'305	3'825	5'081	8'906	22'986	6'413	29'399
55-59	78'918	4'346	6'209	10'555	55'501	12'862	68'363
50-54	120'480	5'918	7'849	13'767	85'870	20'843	106'713
45-49	193'114	7'887	10'247	18'134	142'720	32'260	174'980
40-44	270'555	11'766	14'850	26'616	193'642	50'297	243'939
35-39	382'308	17'475	21'193	38'669	268'188	75'451	343'639
30-34	513'235	21'217	24'268	45'486	364'296	103'454	467'750
25-29	494'948	23'410	24'071	47'481	341'971	105'496	447'467
20-24	292'629	24'674	24'837	49'511	198'655	44'462	243'117
15-19	114'243	26'321	25'014	51'335	37'699	25'208	62'908
10-14	132'051	31'782	30'917	62'699	35'888	33'464	69'352
05-09	170'416	38'303	36'981	75'284	49'337	45'795	95'132
0-4	200'736	43'352	41'211	84'563	60'233	55'939	116'172
Total	**3'037'937**	**269'536**	**281'999**	**551'535**	**1'867'004**	**619'398**	**2'486'402**

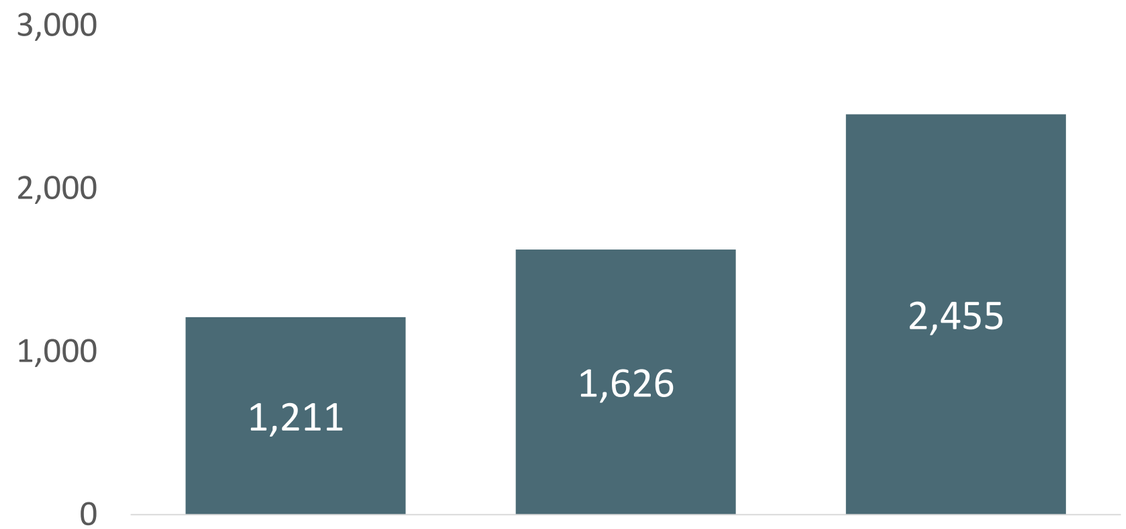
Abu Dhabi Health Statistics Report 2016

Number of Facilities

Facility Type	Total	Abu Dhabi	Al Ain	Al Dhafra	% SEHA
Total	**2,455**	**1,662**	**634**	**159**	**7%**
Hospitals	56	34	15	7	23%
Centres	875	592	225	58	9%
Clinic	449	284	126	39	1%
Pharmacy	750	516	188	46	10%
Store	79	69	9	1	10%
Other	246	167	71	8	1%

Note: Differences in total numbers licensed and those surveyed are due to certain facility subtypes being excluded from the survey, such as Optical centres from Centres and School Clinics from Clinics.

Number of Total Facilities, 2010 to 2016

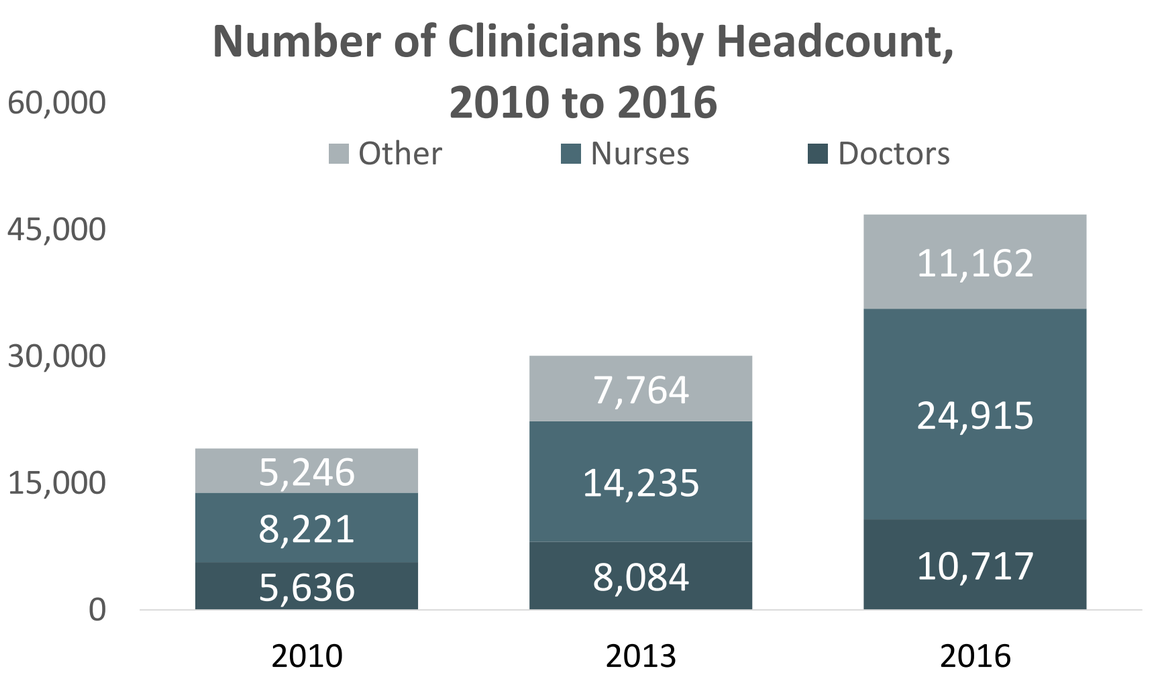


Number of Clinicians, by Headcount

Region	Total	Abu Dhabi	Al Ain	Al Dhafra
Physicians	8,983	6,325	2,227	431
Dentists	1,734	1,214	472	48
Nurses & Midwifes	24,915	17,663	6,156	1,096
Allied Health	7,767	5,855	1,604	308
Pharmacists	3,348	2,367	828	153

Note: The number of clinicians by headcount has increased from previous the CMP due to the inclusion of licensed clinicians in non-surveyed facilities and cross-referencing with Shafafiya

Number of Clinicians by Headcount, 2010 to 2016



Note: Excludes Military Hospitals, Definitions of categories as per Health Facilities Licensing criteria, see www.haad.ae
Source: www.haad.ae/statistics2016 and Facility Licensing Database

Healthcare Facility Survey 2016

Health service supply data is captured via the Healthcare Facility Survey, 2016 which is validated against the Knowledge Engine for Health (KEH) data.

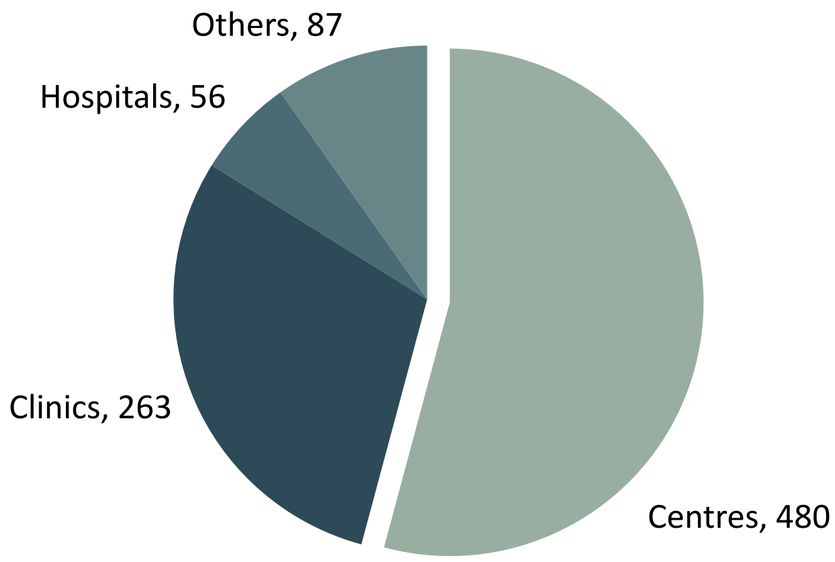
The supply used in the gap analysis is adjusted for non-responders, sampling error and self-paying patients wherever required.

The data presented on this page display the data of current surveyed facilities and provide a snapshot of distribution health service supply.

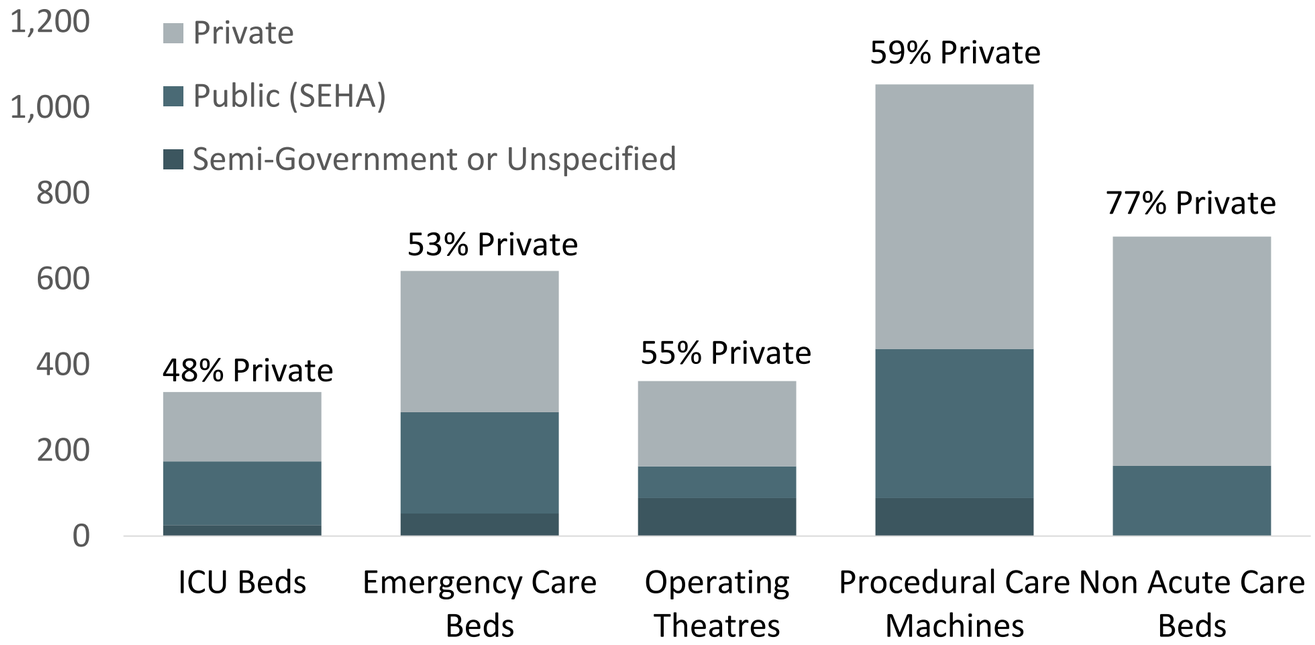
There was a high survey response rate:

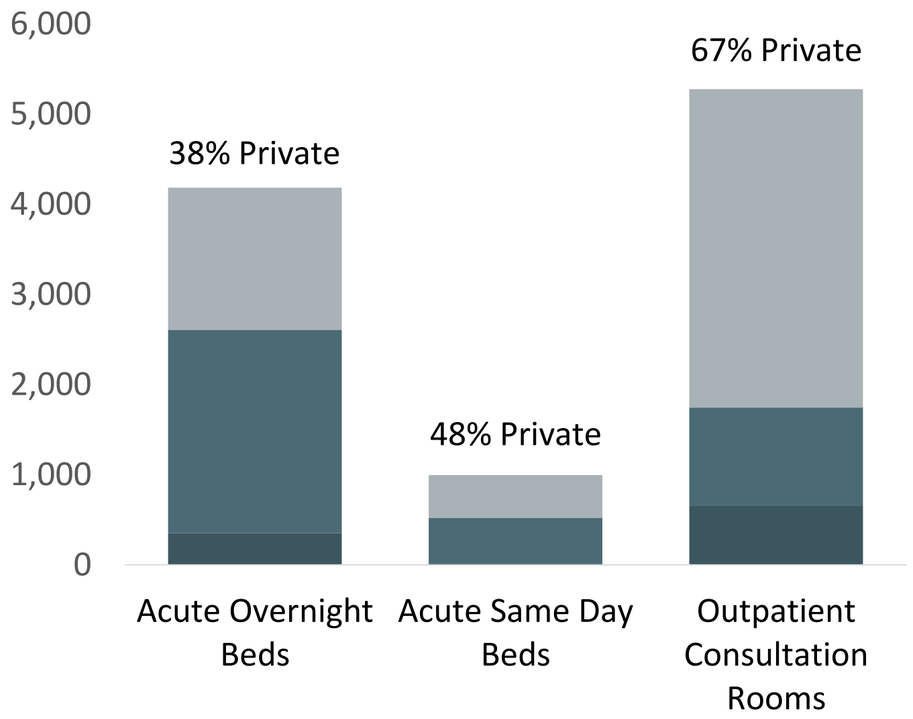
- **100%** of Hospitals responded
- **>75%** of Clinics and Centres responded

Number of current surveyed facilities, 2016



Healthcare Facility Survey 2016 results by KPU type

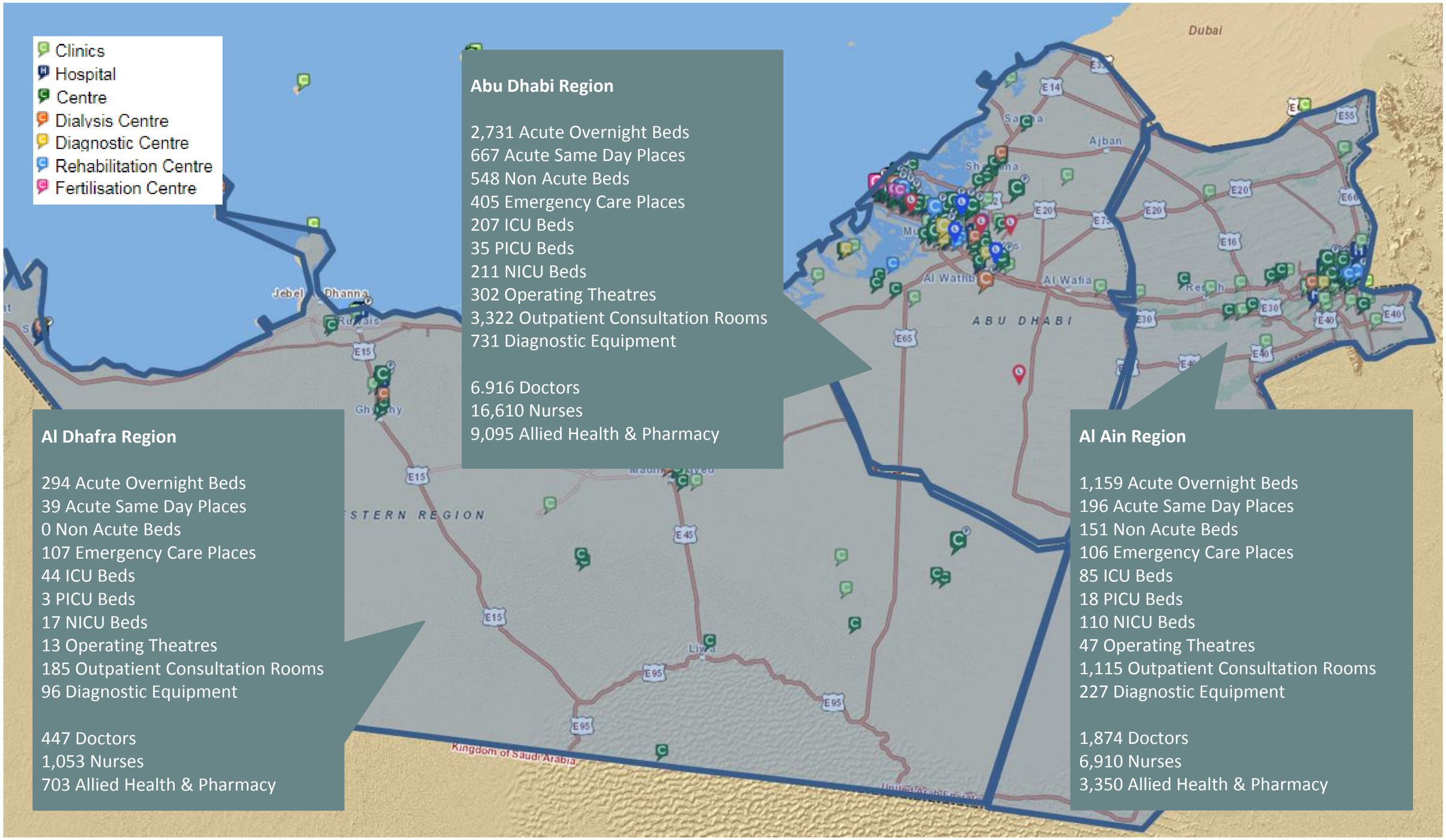




Supply numbers have been obtained from surveyed facilities and therefore exclude licensed non-surveyed facilities
Excluded facilities include: Pharmacies, Audiometric, Dental Centre/Laboratory/Services, First Aid Post, Medical Laboratory, Optical Shop, School Clinic
'Others' include Rehabilitation centres, Day Care surgeries, Diagnostic centres, Dialysis centres, Fertilisation centres

Healthcare Facility Survey 2016

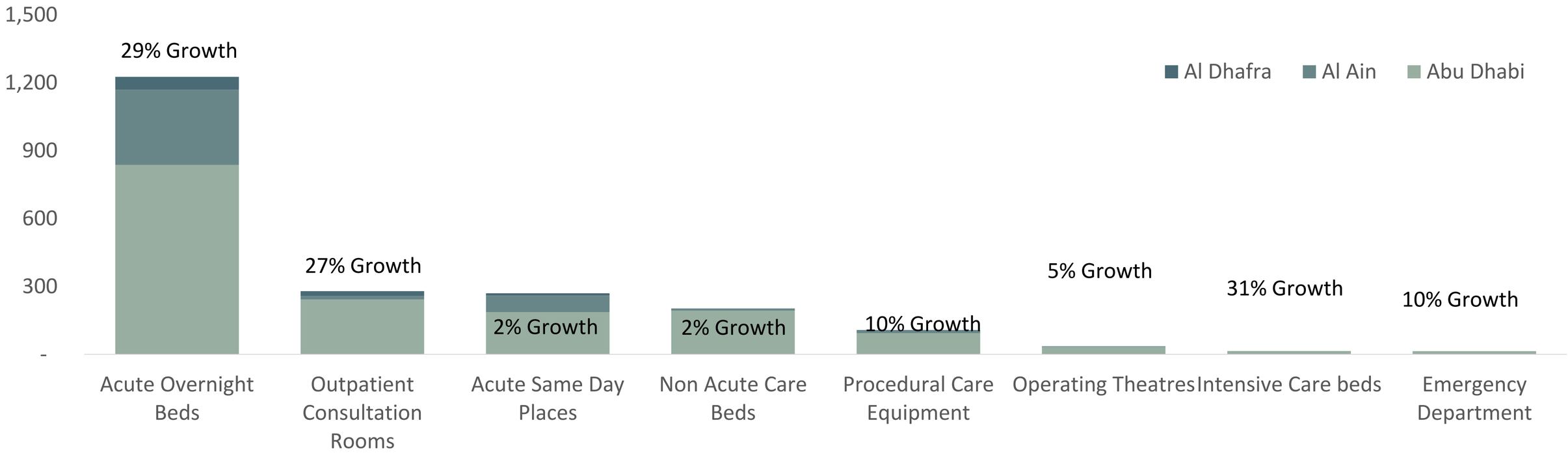
Health service supply data is captured via the Healthcare Facility Survey, 2016 which is validated against the Knowledge Engine for Health (KEH) data.
The supply used in the gap analysis is adjusted for non-responders, sampling error and self-paying patients wherever required.



Due to exclusion of certain facility subtypes (such as School Clinics and Optic Centres) in the Healthcare Facility Survey, facility profile KPUs (e.g. Consultation rooms) will be lower than the total licensed

Planned Supply to 2020

Planned supply represents the additional supply that will become available by the year 2020 as indicated by the Healthcare Facility Survey, 2016.
The percentage growth figure indicates the percentage of total supply that will be added to the current supply by 2020.



Section B – The Emirate

Supply, Demand and Gap Analysis for the Abu Dhabi Emirate and Emirate-wide implementation plans

Section B – The Emirate

Primary Care

Primary Care

About

Definition

Consultations in a hospital or clinic setting with a qualified Family Medicine Consultant, or the Consultant led team, for delivering primary care, treatment for acute or chronic illness and provision of preventative care and health education.

What's new in 2016

- The new DoH Standard for Primary Care in Emirate of Abu Dhabi is being implemented to identify clinics, centres and hospitals from primary care teams led by a Family Medicine Consultant. This Standard is currently being phased in.
- The Emirate is providing a greater number of outpatient consultation rooms for care and a greater number for the specialty of Primary Care.
- Projected demand for Primary Care Services is consistent though greater than last year's figures due to the greater than expected population growth. This has resulted in an increase in requirements for both consultation rooms and workforce.

Note - This iteration of the CMP does not take account of the newly licensed Primary Care Facilities and is based on the provider survey. Future iterations of the CMP will base the supply on licensed facilities and not self reporting. This is likely to result in a greater requirement than shown within this plan.

Primary Care

New DoH Standard for Primary Care

DoH Standard for Primary Care in Emirate of Abu Dhabi (DoH/PHC/SD/0.9), 2016

Principles of delivery:

- Patient-centred: A partnership among practitioners, patients, and their families ensures that decisions respect patients' wants, needs, and preferences, and that patients have the education and support the need to make decisions and participate in their own care, effectively and collaboratively.
- Comprehensive: A team of care providers that is wholly accountable for a patient's physical and mental health care needs, including prevention and wellness, acute care, and chronic care.
- Coordinated: Care that is organised across all elements of the broader health care system, including specialty care, hospitals, long term and home health care and broader community services.
- Accessible: Patients have access to services with shorter waiting time for urgent needs, extended hours of clinic availability, tele health or electronic access to members of the care team, with innovative communication and appointments that reflect the needs of the patient population.
- Committed to quality and safety: Clinicians and staff commit to provide the highest quality of preventive and curative care to their patients and the wider community they serve in a culturally fit manner. This is through striving to continuously measure and improve quality, using collaborative, open to learning and high reliability approach. While deploying the latest tools that will achieve this e.g. health IT and other tools.
- Evidence-based: Assessment, treatment and interventions must be evidence based and in line with agreed and culturally acceptable best practice.
- Integrated: The provider should play leading active and effective role in the provision of integrated healthcare across the wider system. Advocating for the patient to ensure that they get the full benefits of integrated care.

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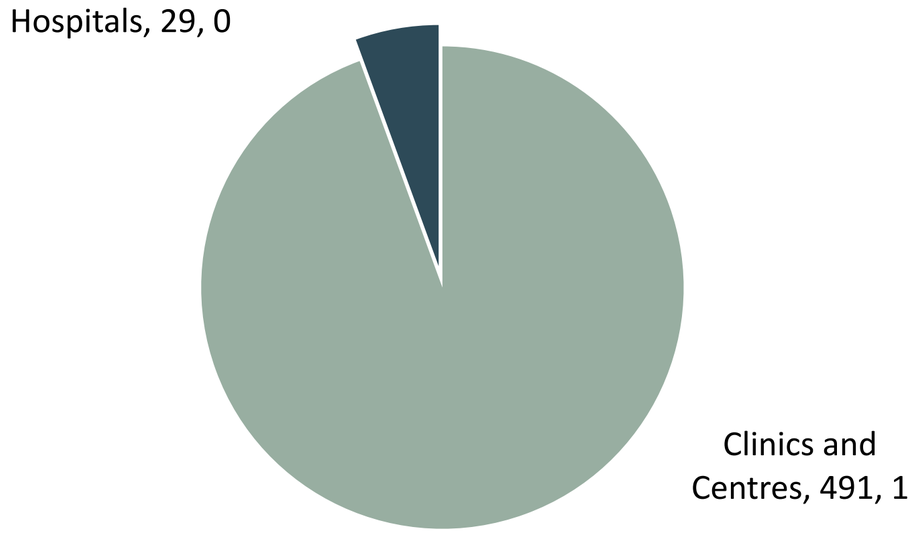
Primary Care

Current Supply

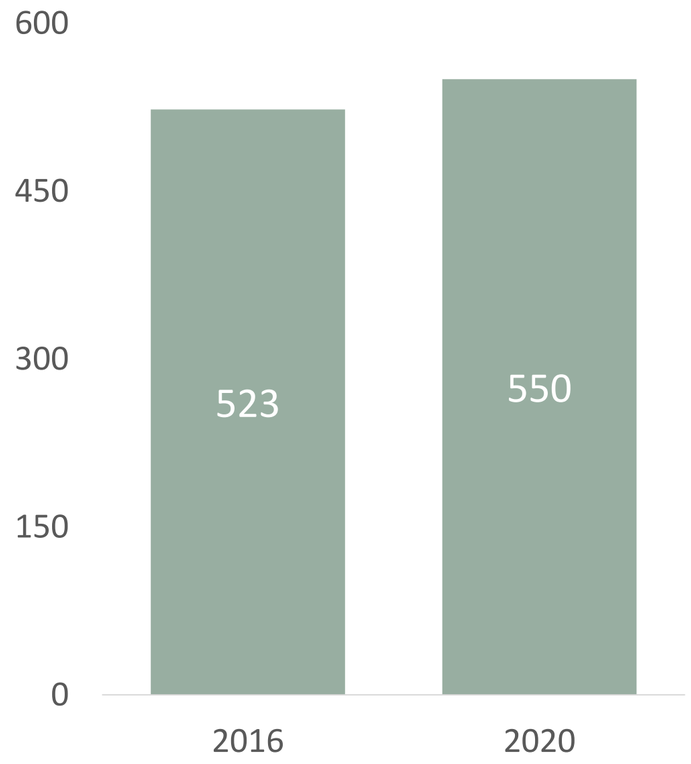
In 2016, outpatient care was provided from 5,275 outpatient consultation rooms, 9.9% (520) of which reported to provide primary care.

The majority of this care was provided from the clinic and centre setting, with the remainder from hospital, nursing and allied health settings.

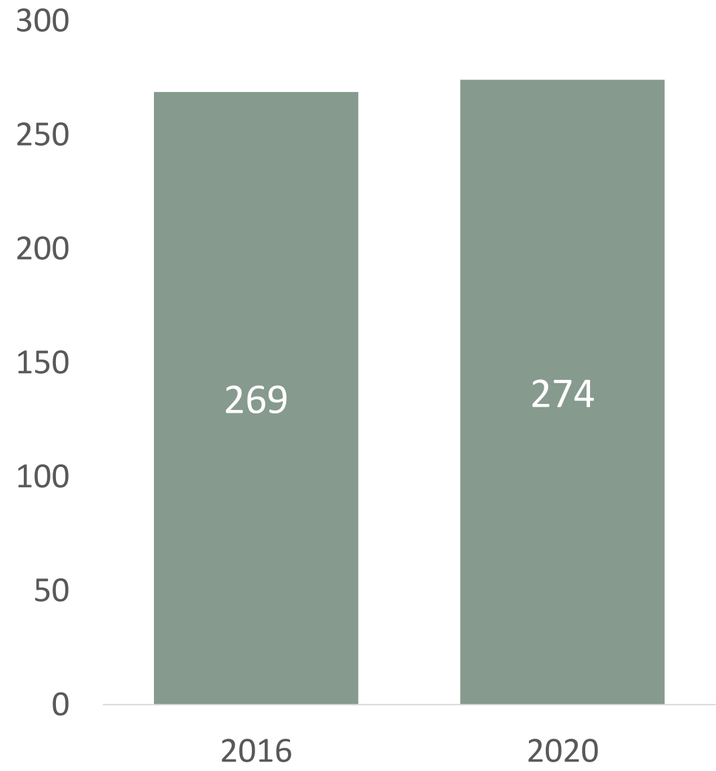
Distribution of Primary Care Consultation Rooms



Supply of Primary Care Consultation Rooms



Supply of Family Medicine Physicians (FTE)



Supply of primary care health facilities has been obtained from survey data – a process that has been refined and improved from previous years. Allied Health and Nursing outpatient rooms. 307 Outpatient Consultation Rooms for Allied Health and 345 Outpatient Consultation Rooms for Nursing

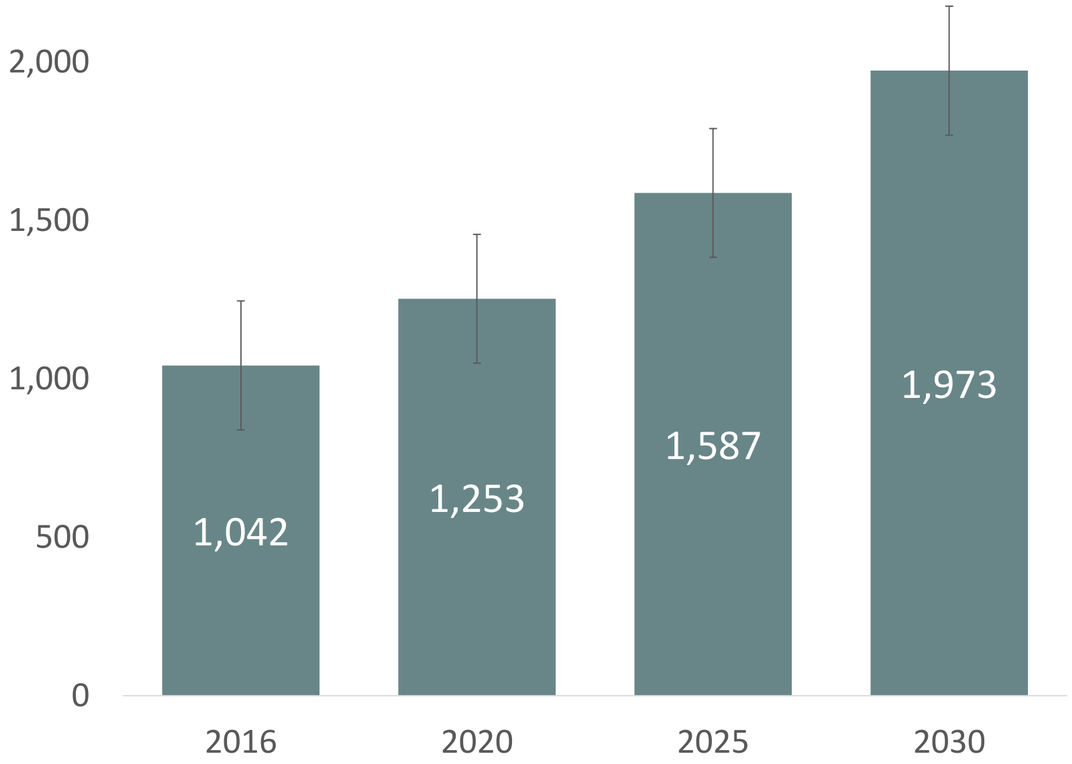
Primary Care

Demand

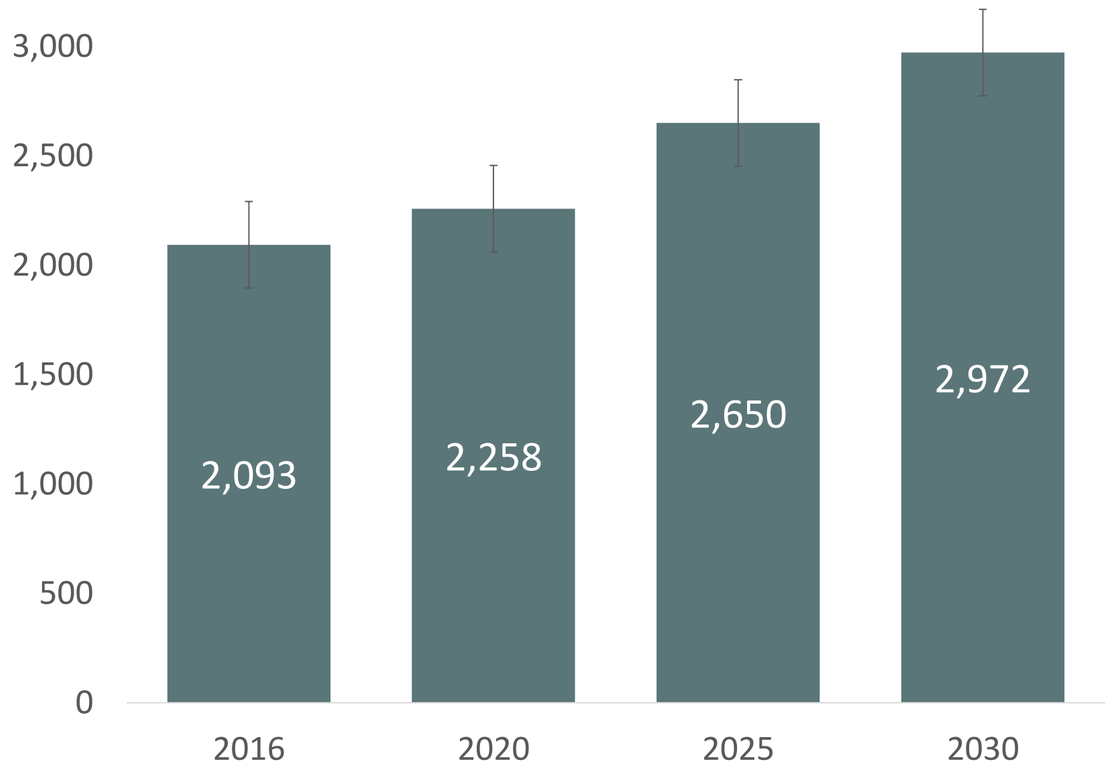
A well organised primary care service reduces overall costs and spending by reducing inpatient visits, hospital admission and readmissions, emergency department use and other factors.

This continues to demonstrate a significantly growing demand of all health service types. The demand modelling for the medical workforce result in a rate of 66.5 Family Medicine Physicians per 100,000 population for Abu Dhabi, and comparable to general practitioner rates per 100,000 population in Australia (104.2 in 2017), United States (87.6 family medicine and primary care physicians in 2012), and the United Kingdom (63.7 in 2016).

Demand for Primary Care Consultation Rooms



Demand for Family Medicine Physicians (FTE)



Requirements are based on survey and do not include the new implementation of licensed primary care providers following the policy change introduced by “DoH Standard for Primary Care in Emirate of Abu Dhabi”. This will be included in the next CMP. This analysis excludes specialist primary care, introduces place of residence demand and relative utilisation

Primary Care

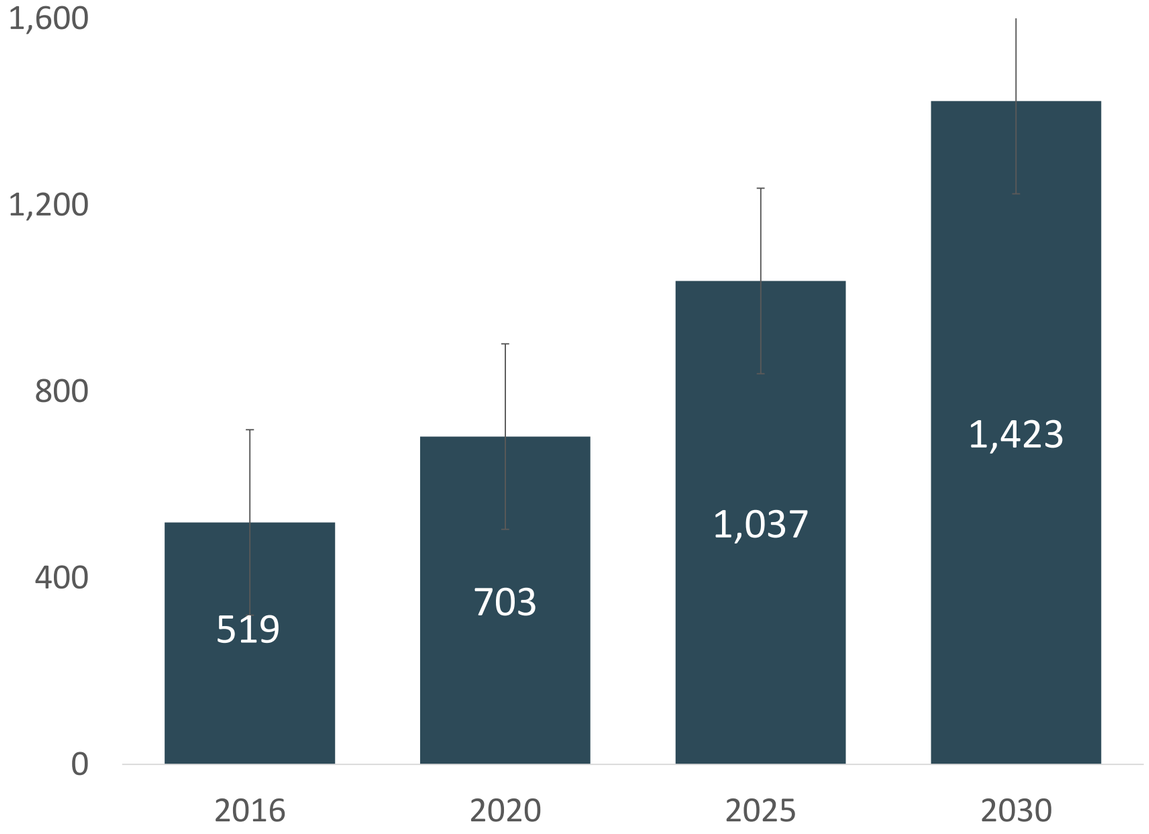
Requirements

Current and Emerging priorities

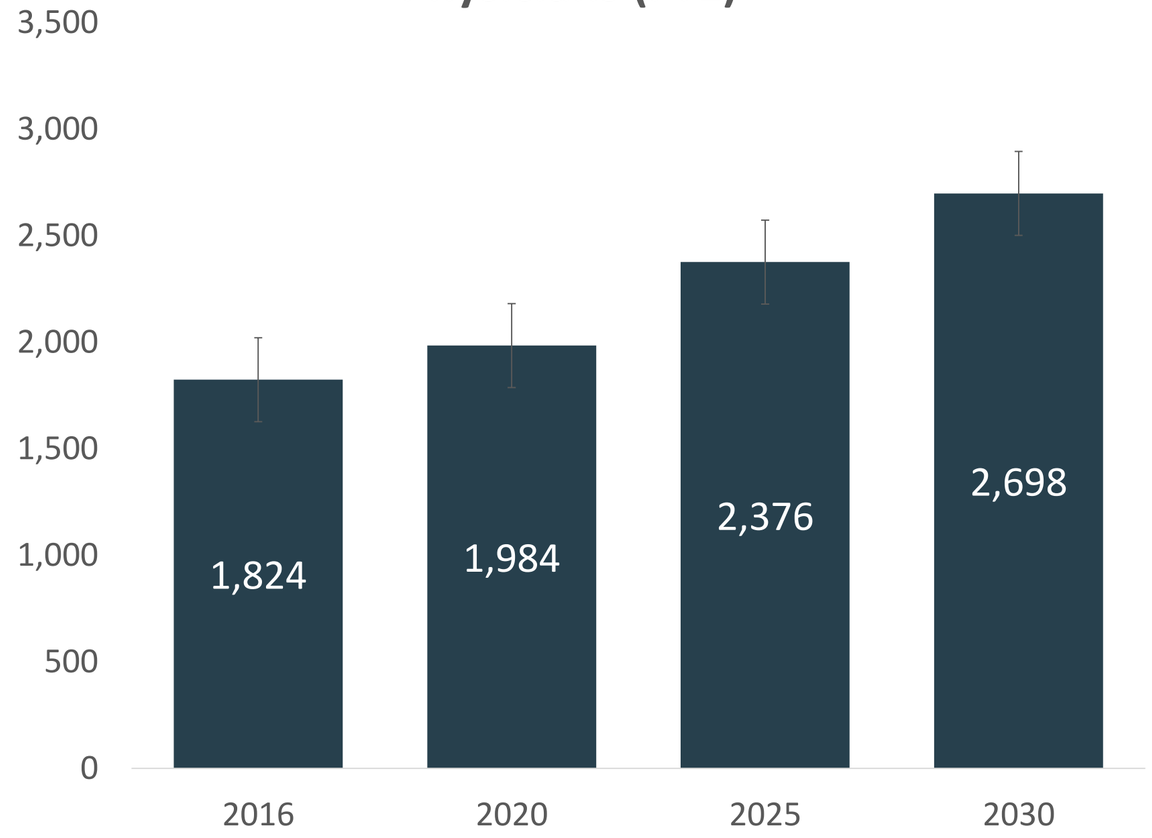
- Current and planned primary care consultation room supply is inadequate to meet growing demand.
- Current and ongoing significant requirements for Family Medicine physicians.
- Ongoing oversupply in unspecialised medical workforce, also known as Medical Practitioners.

The current Emirate-wide shortfall in supply of primary care outpatient consultation rooms and workforce is partially being met by significant numbers of medical practitioners practising in both hospital and community (clinic and centre) settings.

Requirements for Primary Care Consultation Rooms



Requirements for Family Medicine Physicians (FTE)



Requirements are based on survey and do not include the new implementation of licensed primary care providers following the policy change introduced by “DoH Standard for Primary Care in Emirate of Abu Dhabi”. This will be included in the next CMP.

Primary Care

Implementation Plan – Primary Care

DoH, as part of its Health Sector Strategy has been reviewing primary care provision through a multi stakeholder task force. The Task Force has produced:

- 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 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.

DoH 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 DoH 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:

- DoH recommendations for the future allocation of DoH land for primary care facilities will be based on the priorities identified within this plan.
- DoH 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. DoH did this to identify a private provider to delivery primary care clinics in the underserved precincts identified in the table to the right.
- DoH 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.

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

Underserved Precincts

Abu Dhabi Region	Al Ain Region
• Desert villages • Shakhbout City	• Umm Ghaffa • Al Dhahra • Al Araad • Abu Karayyah • Abu Samarah • Al Saad

Emergency Care

Emergency Care

About

Definition

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.

Triage classes are defined as, in order from more life threatening to least:

- Class 1 – Immediate Life Threat
- Class 2 – Imminent Life Threat
- Class 3 – Potential Life Threat
- Class 4 – Serious
- Class 5 – Less Urgent

What's new in 2016

- This year's version of the CMP demonstrates similar levels of supply and demand for emergency care services, with a reduction in planned future supply with the commissioning of new hospital facilities.
- The overall requirements for Emergency Department bays remain comparable to last year's Plan, with slight reductions in Abu Dhabi region and slight increases in Al Ain region due to improvements in modelling from relative utilisation adjustments and its application to the place of residence demand.

Emergency Care

New DoH Standard for Emergency Care

DoH Standard for Emergency Care in the Emirate of Abu Dhabi 2017

Purpose

The Standard defines the service specifications and requirements for Emergency Departments in the Emirate of Abu Dhabi. It aims to improve patient access, appropriate to their needs, to quality and safe emergency treatment. It sets the minimum requirements and specifications that Healthcare Providers are required to comply with in providing high quality emergency care. The Standard will be used to influence licensing decisions, specifically by:

- Defining Emergency Department types and levels recognized in Abu Dhabi;
- Setting out the minimum service specifications for each level; and
- Define accreditation in line with internationally accepted best practice.

Scope

The Standard applies to all Healthcare Providers, public and private, licensed by the DoH in the Emirate of Abu Dhabi that wish to provide and operate emergency department and urgent care services. Providers must comply with the standard as specified for the type of emergency service provision; Urgent Care Centre, Department, Emergency Department with Major Trauma Centre.

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Emergency Care

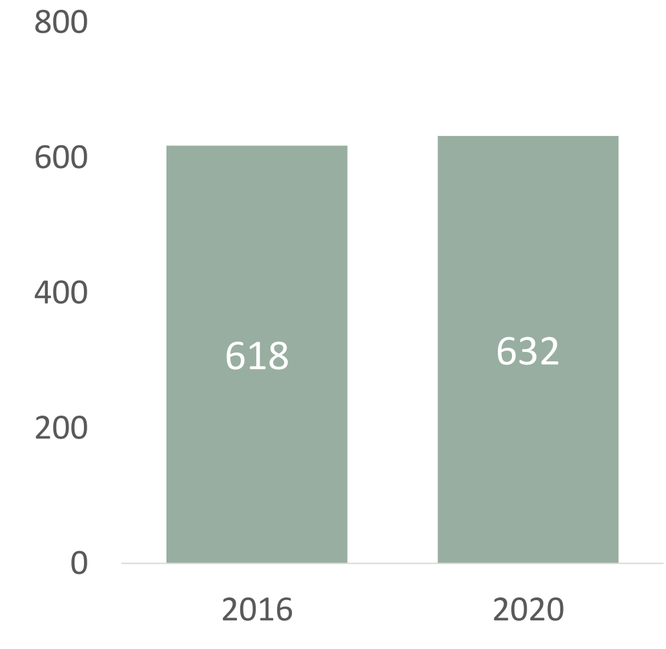
Current Supply

In 2016, 45 health facilities reported having dedicated physical capacity as emergency bays.

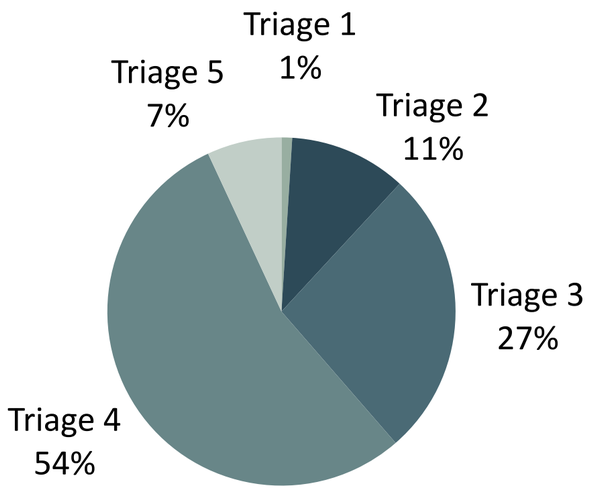
Current supply of 618 emergency department bays, made up of:

- Isolation rooms in the Emergency department
- Dedicated monitored beds
- Resuscitation bays
- Observation beds and bays
- Fast-track, urgent bays

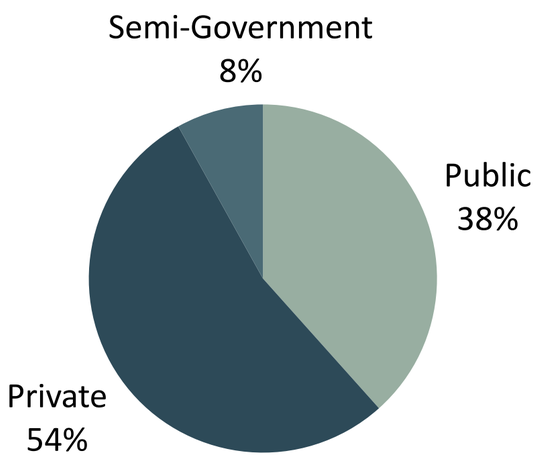
Supply of Emergency Care Bays



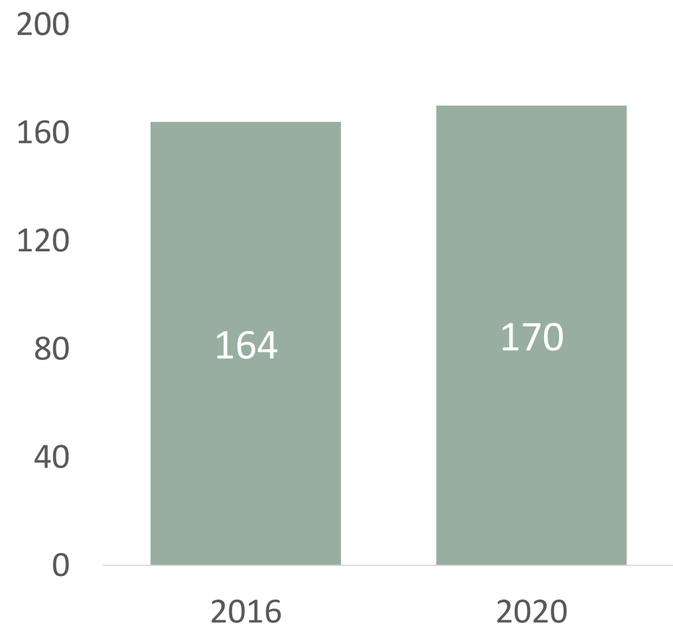
Supply by Triage Class



Supply by Provider



Supply of Emergency Physicians (FTE)



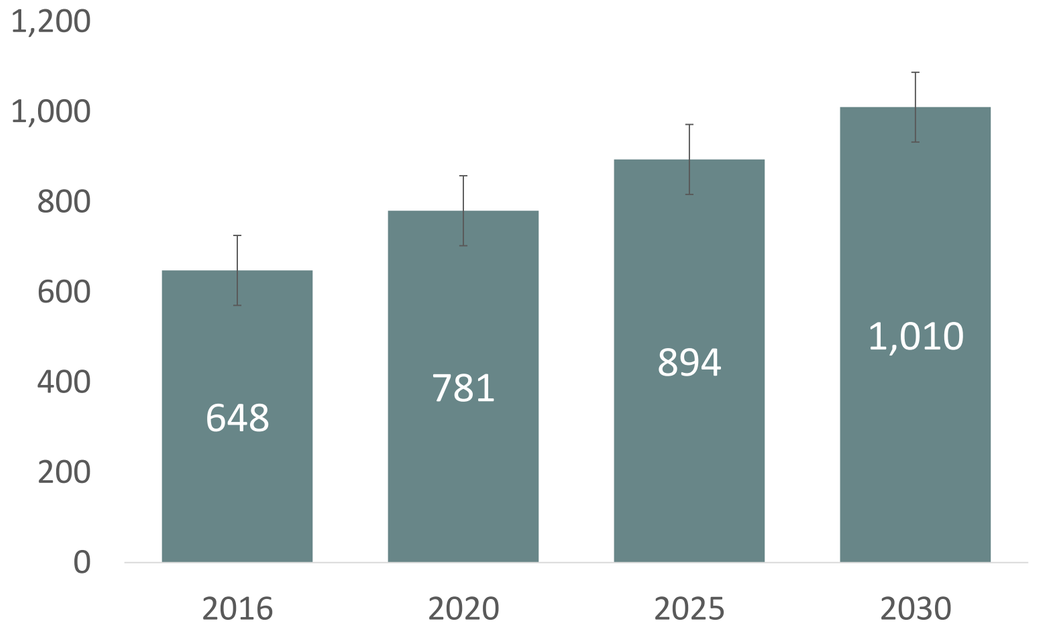
Emergency Care

Demand

Demand for Emergency care bays will increase from 648 bays in 2016 to 1,010 in 2030. The majority of this growth in demand will occur in Triage Classes 2 and 3.

Emergency Physician FTE demand will also see an increase, growing from 194 FTE in 2016 to 562 in 2030.

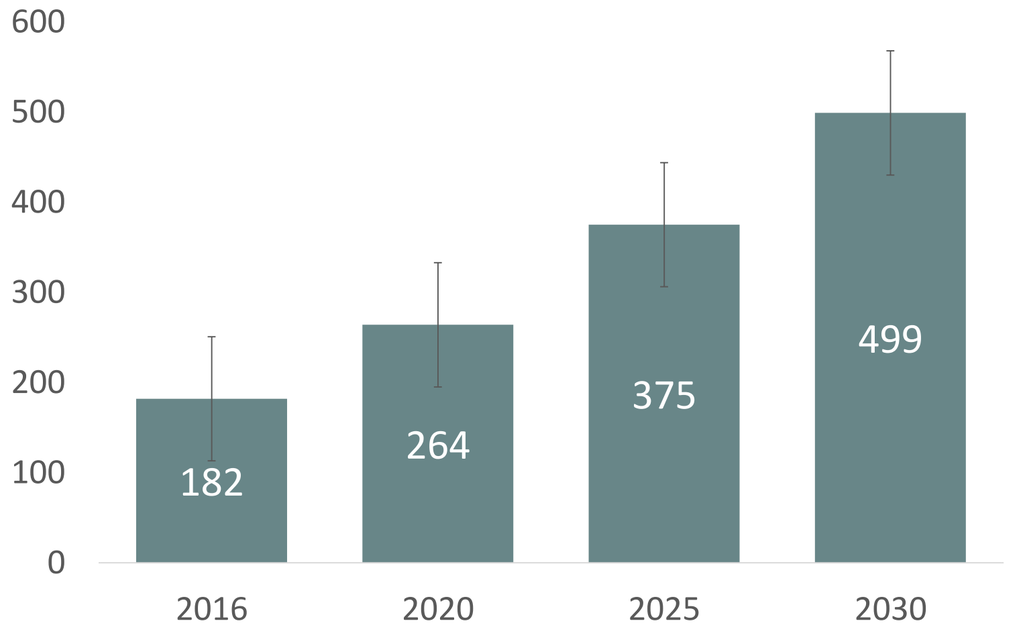
Demand for Emergency Care Bays



Demand for Emergency Care Bays by Triage Class

Triage Class	2016	2020	2025	2030
1 – Immediate Life Threat	4	5	6	8
2 – Imminent Life Threat	73	105	146	195
3 – Potential Life Threat	181	248	329	422
4 – Serious	349	382	379	362
5 – Less Urgent	41	40	34	24

Demand for Emergency Physicians (FTE)



Emergency Care

Requirements

Current priorities

- Emergency Care bays for Triage Class 2 (Imminent Life Threat), 3 (Potential Life Threat) and 4 (Serious).
- Emergency Physicians.

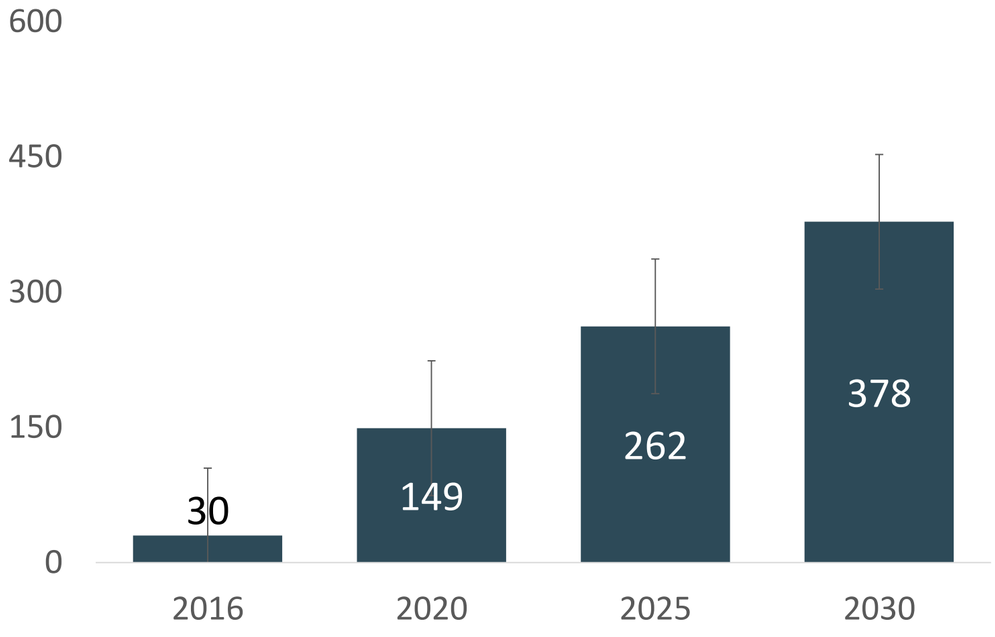
Emerging priorities

- Emergency Care bays for Triage Class 1 (Immediate Life Threat), 2 (Imminent Life Threat), 3 (Potential Life Threat) and 4 (Serious).
- Emergency Physicians.

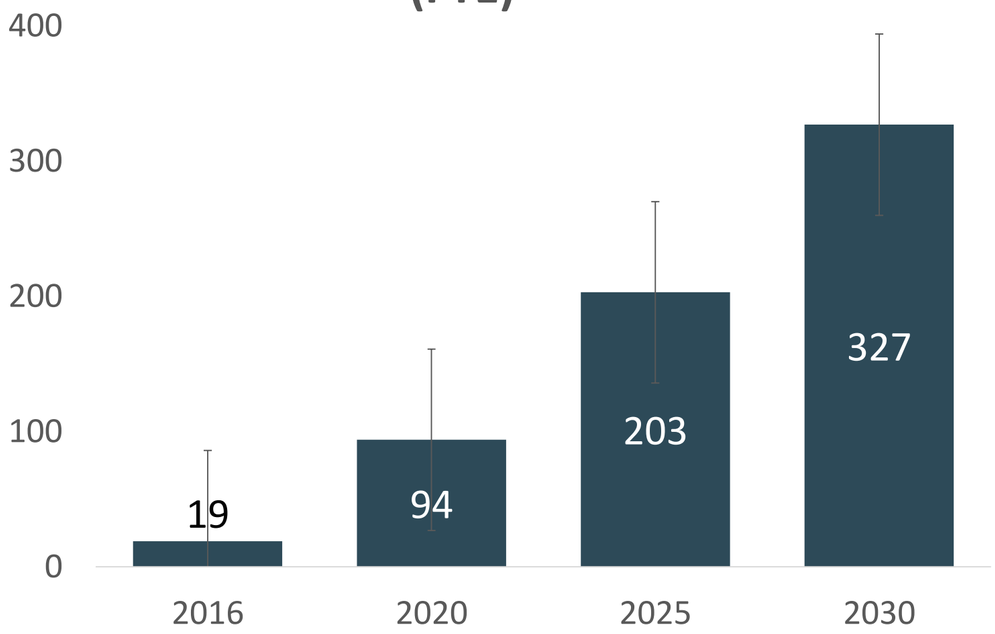
Requirements for Emergency Care bays by Triage Class

Triage Class	2016	2020	2025	2030
1 – Immediate Life Threat	-	1	3	4
2 – Imminent Life Threat	7	37	77	126
3 – Potential Life Threat	16	79	159	251
4 – Serious	7	33	31	15
5 – Less Urgent	-	-	-	-

Requirements for Emergency Care bays



Requirements for Emergency Physicians (FTE)



Emergency Care

Implementation Plan

DoH reviewed emergency care provision through a multi stakeholder task force. The work of this task force resulted in:

- Clear definitions and national standards for emergency care services.
- Development of quality metrics and a measurement process specific to emergency care.
- Alignment of public and private delivery models.
- 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.

DoH 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. DoH 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. 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. 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 Injury Severity Score (ISS) 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.
- DoH has undertaken such mapping in accordance with the geographic layout, population profile, current hospital configuration and the volumes of severely injured patients being treated.
- 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).

https://www.tarn.ac.uk/Content.aspx?c=3477; http://www.bj360.boneandjoint.org.uk/content/3/2/2;
http://www.uhs.nhs.uk/Media/SUHTInternet/Services/Emergencymedicine/Regionalnetworksformajortrauma.pdf

Emergency Care

Major Trauma Demand

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 4 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 or episode, is significantly influenced by characteristics of the population (young adult males), infrastructure characteristics and staffing components.

Demand for major trauma acute overnight episodes of care by region

Region	2015	2020	2025	2030	2035
Abu Dhabi	1,132	1,391	1,669	1,992	2,454
Abu Dhabi Island	465	548	639	757	928
Abu Dhabi Middle	667	843	1030	1235	1526
Al Ain	493	608	716	854	1,044
Al Gharbia	244	302	368	443	526
Emirate	3,001	3,692	4,422	5,281	6,478
Rate per 1000/population	0.69	0.74	0.77	0.80	0.88

Reference Sources:	Rate
In 2013, 17,238 major trauma cases were admitted in the UK for the 64.1 million population The changing face of major trauma in the UK; Kehoe A, et al. Emerg Med J 2015;32:911–915. doi:10.1136/emermed-2015-205265	0.27 episodes/1,000 population
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 (see: https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0003/244236/NSW_Trauma_Services_Plan_Dec_2009.pdf)	0.32 episodes/1,000 population
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 (see: http://ntri.org.au/img/aust-trauma-registry-inaugural-report.pdf)	0.30 episodes/1,000 population

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.

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Section B – The Emirate

Specialist Outpatient Care

Specialist Outpatient Care

About

Definition

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.

What's new in 2016

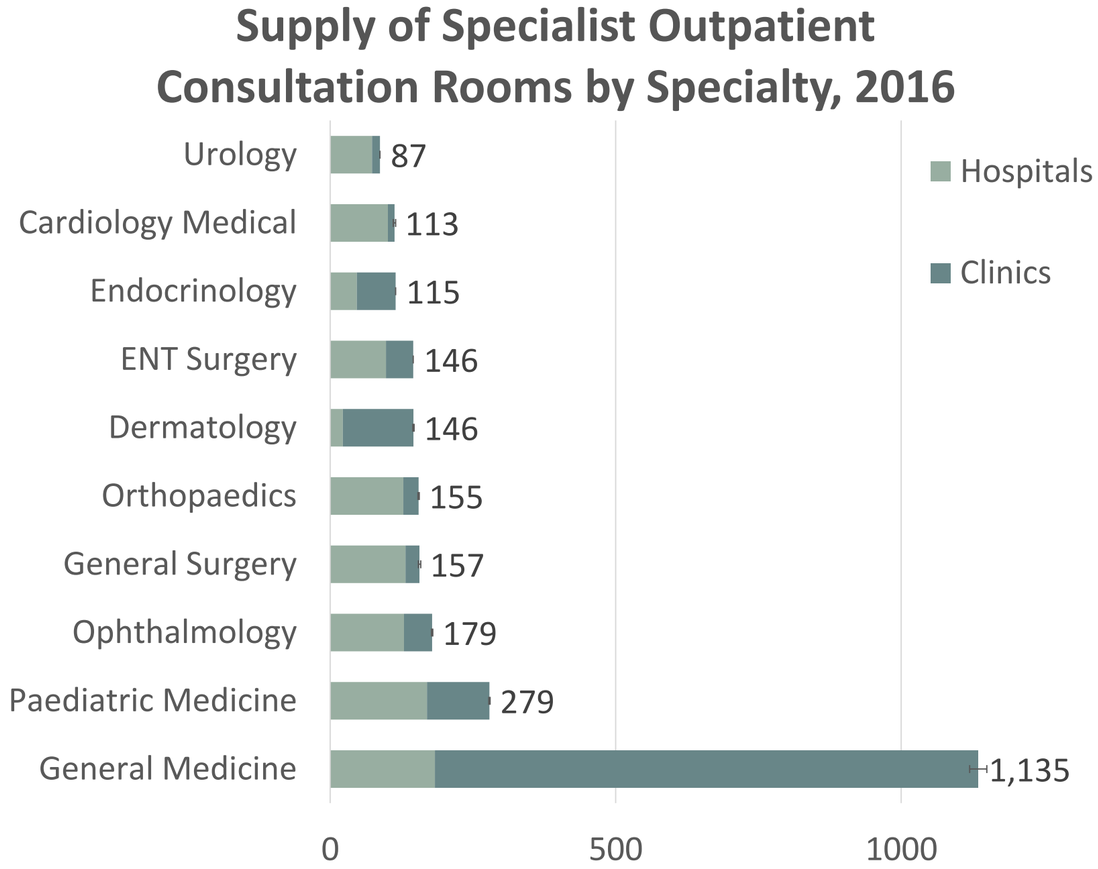
- The specialties of **Family Medicine, Psychiatry, Obstetrics, Gynaecology and Obstetrics Delivery** are presented and reported in other service-specific sections of this year's Plan.
- Changes in supply of specialist outpatient care has taken place due to the commissioning of planned supply and capacity.
- Larger than expected population growth and projections, coupled with modelling improvements for relative utilisation adjustments has resulted in greater demand projections for all regions across Abu Dhabi and for certain specialty types. This change in demand has resulted in an increase in outpatient room requirements, especially for paediatric services.

Specialist Outpatient Care

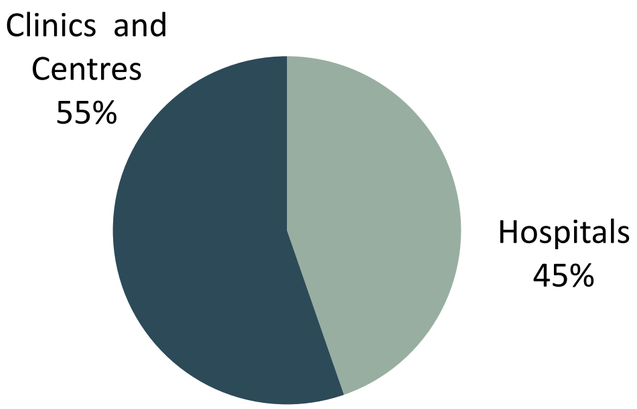
Current Supply

In 2016, outpatient care was provided from 5,275 consultation rooms, of which 66% (3,483) reported to provide specialist outpatient care.

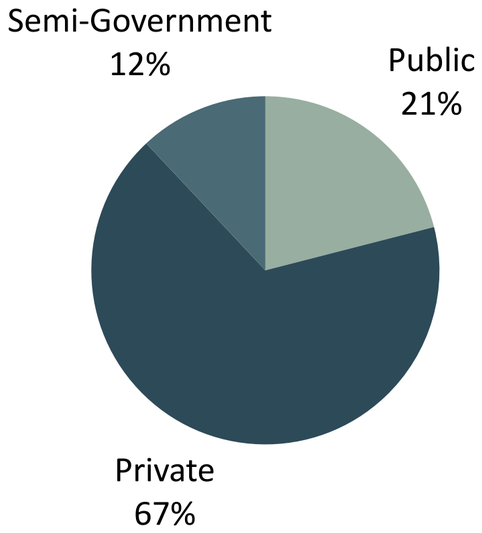
The majority of specialist outpatient consultation rooms are supplied in the Clinic and Centre settings (55%).



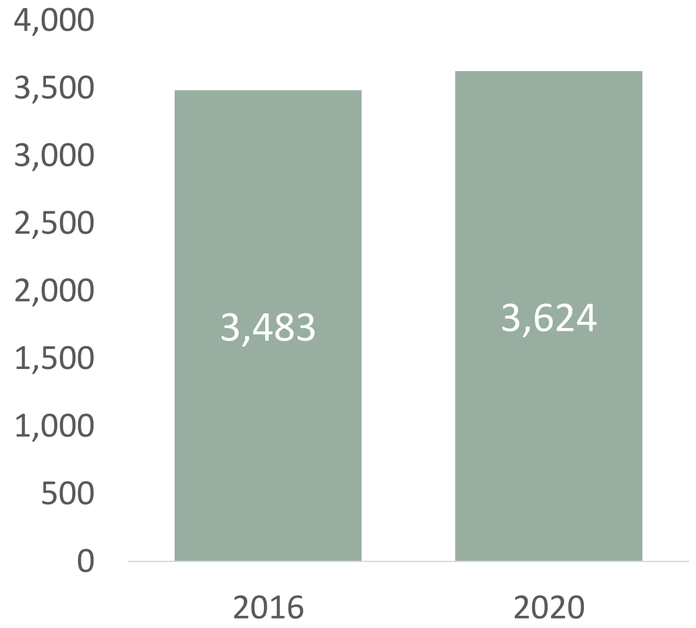
Supply by Setting



Supply by Provider



Supply of Specialist Outpatient Consultation Rooms



This analysis excludes Family Medicine & Primary Care, Mental Health, Obstetrics and Gynaecology, Allied Health and Nursing outpatient rooms. 307 Outpatient Consultation Rooms for Allied Health and 345 Outpatient Consultation Rooms for Nursing.

Specialist Outpatient Care

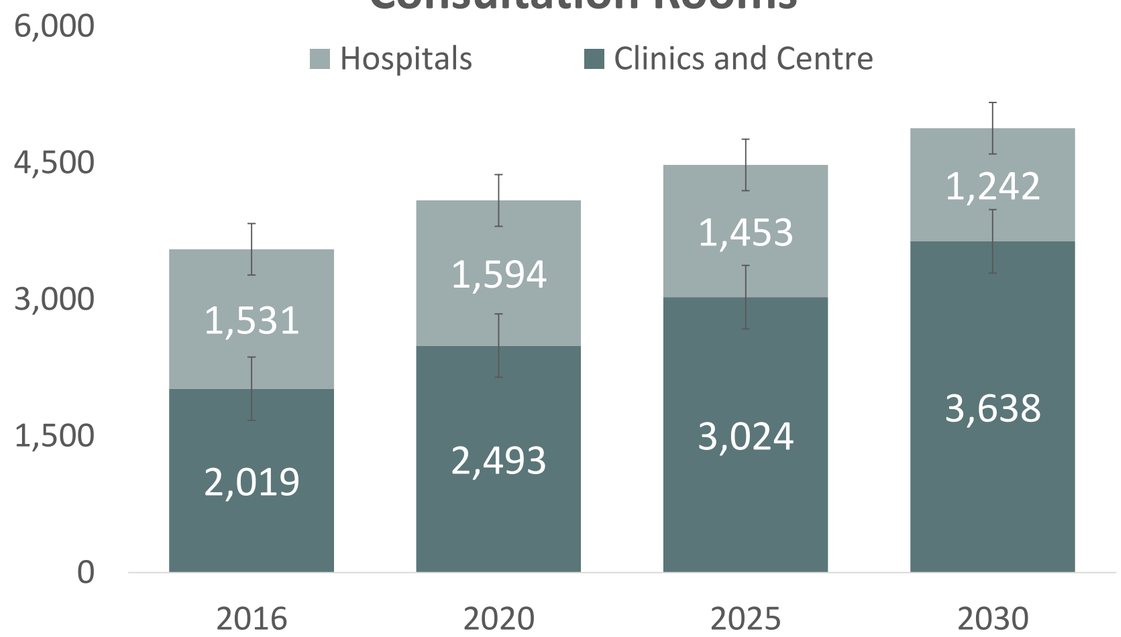
Demand

Demand for specialist outpatient consultation rooms in all settings (Hospitals, Clinics and Centres) will experience an average 2.7% annual growth between 2016 and 2035, which equates to 95 specialist outpatient consultation rooms per year.

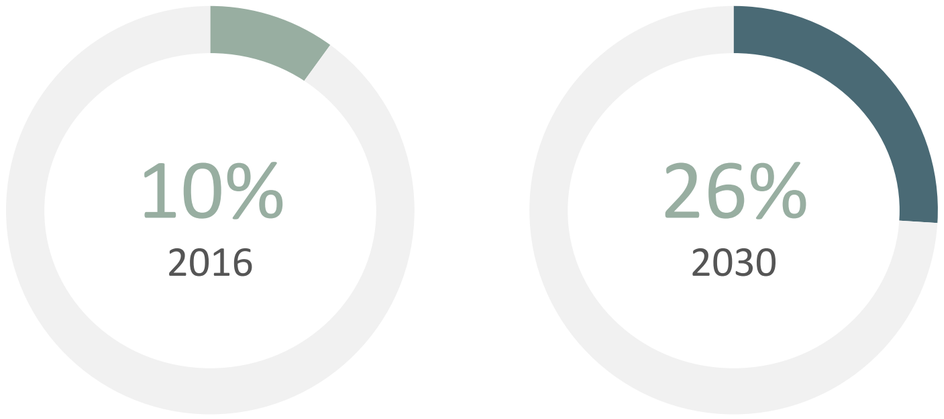
The growth in demand is due to the increase in demand for outpatient consultation rooms in the Clinic and Centre settings with an average 5.7% annual growth of 116 rooms per year, while demand for outpatient consultation rooms in the Hospital setting is projected to decline slightly at an annual rate of -1.3%, or 21 specialist outpatient consultation rooms per year.

Overall, the growth in demand will be greatest for Paediatric specialties, with the percentage of total demand for Paediatric care rising from 10% in 2016 to 26% in 2030.

Demand for Specialist Outpatient Consultation Rooms



Percentage of Specialist Outpatient Demand that is for Paediatric Services, 2016 and 2030



Demand for Specialist Outpatient Consultation Rooms by Speciality, ordered by Top 10 2030

Specialty	2030	2025	2020	2016
Paediatric Medicine	820	618	442	310
General Medicine	616	943	1,137	1,136
Paediatric Surgery	426	231	99	31
Orthopaedics	416	301	221	168
ENT Surgery	249	211	182	153
Immunology & Infectious Diseases	230	115	48	20
Gastroenterology & Hepatology	180	128	88	60
Endocrinology	180	166	148	121
Dermatology	173	175	170	149
Ophthalmology	147	170	188	184

Specialist Outpatient Care

Requirements

This table identifies the emirate level service line coverage as a percentage of available supply over demand to distinguish whether a service is under, optimally or oversupplied. 2016 shows a predominately undersupplied service coverage with 6 service lines in undersupply or significant undersupply.

Service Line	Coverage (2016)	Room requirement
Rheumatology	4%	1
Paediatric Surgery	49%	16
Trauma and Injury	51%	6
Immunology and Infectious Diseases	68%	7
Medical Oncology	79%	3
Haematology	83%	2
Nephrology	88%	4
Vascular Surgery	89%	2
Gastroenterology and Hepatology	90%	6
Paediatric Medicine	91%	27
Orthopaedics	93%	12
Cardiothoracic Surgery	93%	3
Plastic Surgery	95%	3
Neurology	96%	2
ENT Surgery	96%	6
Urology	96%	4
Endocrinology	96%	5
Neurological Surgery	97%	2
General Surgery	98%	3
Dermatology	99%	2
Respiratory Medicine	100%	-
Cardiology Medical	101%	-
Ophthalmology	101%	-
General Medicine	101%	-

Current priorities

Top 5 specialist outpatient room requirements

- Paediatric Medicine
- Paediatric Surgery
- Orthopaedics
- Immunology and Infectious Diseases
- Gastroenterology and Hepatology

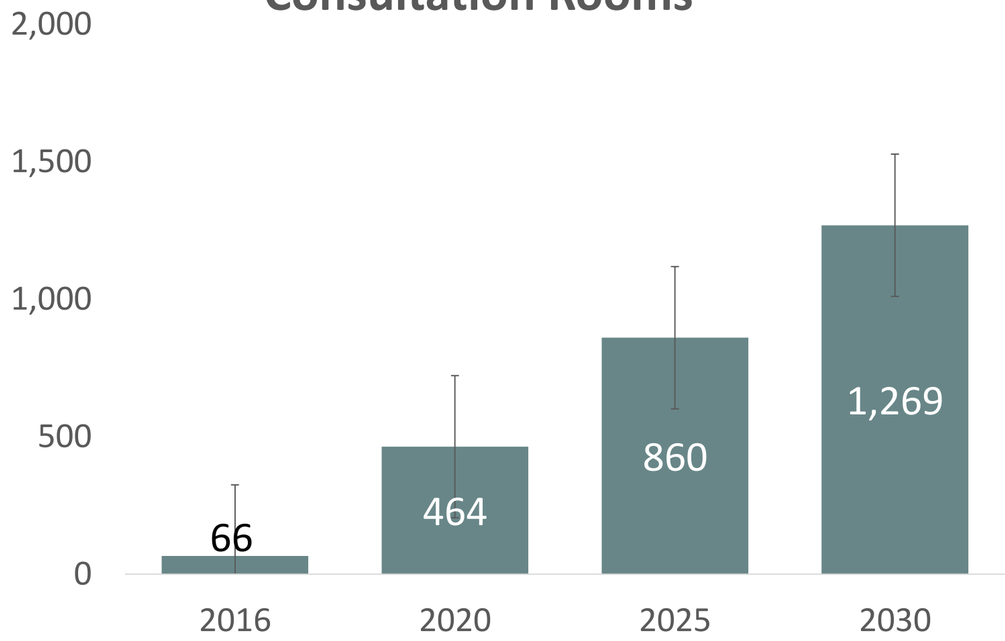
Emerging priorities

Top 5 specialist outpatient room requirements

- Paediatric Medicine
- Paediatric Surgery
- Orthopaedics
- Immunology and Infectious Diseases
- Gastroenterology and Hepatology

Legend	
Significant undersupply	<60%
Undersupply	60-84%
Slight undersupply	85-99%
Optimum coverage	100-120%
Oversupply	>120%

Requirements for Specialist Outpatient Consultation Rooms



Requirements for Specialist Outpatient Rooms by Speciality, ordered by Top 10 2030

Specialty	2030	2025	2020	2016
Paediatric Medicine	513	315	143	27
Paediatric Surgery	396	208	81	16
Orthopaedics	248	135	57	12
Immunology & Infectious Diseases	209	98	33	7
Gastroenterology & Hepatology	121	70	31	6
Trauma & Injury	108	68	32	6
ENT Surgery	95	57	29	6
Nephrology	79	46	20	4
Medical Oncology	60	34	15	3
Endocrinology	60	46	27	5

Specialist Outpatient Care

Implementation Plan

In order to address existing and emerging Emirate-wide shortages in specialist outpatient care DoH will continue to work closely with all healthcare stakeholders and investors to address the identified gaps.

Specifically DoH 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:

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

Section B – The Emirate

Acute Overnight Care

Acute Overnight Care

About

Definition

Acute overnight care is the treatment provided to a patient in hospital through formal admission with a serious short term illness requiring a medical or surgical intervention and an overnight or longer stay in hospital.

What's new in 2016

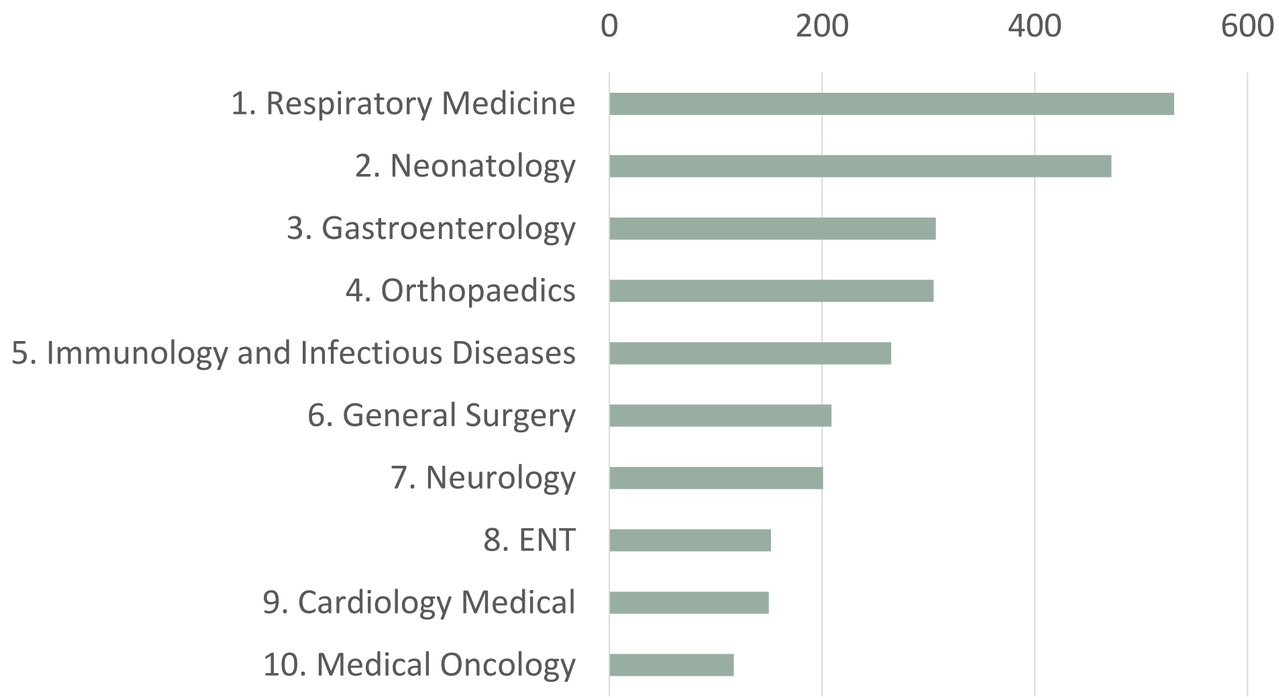
- The specialties of **Mental Health, Obstetrics, Gynaecology and Obstetrics Delivery** can be found in later section of this year's plan within service-specific sections.
- Commissioning of new hospitals across Abu Dhabi has changed supply and planned supply figures from last year's plan.
- Greater than expected population growth and projections, with modelling improvements from relative utilisation has resulted in a some differences in demand, however overall trends remain the same across Abu Dhabi.

Acute Overnight Care

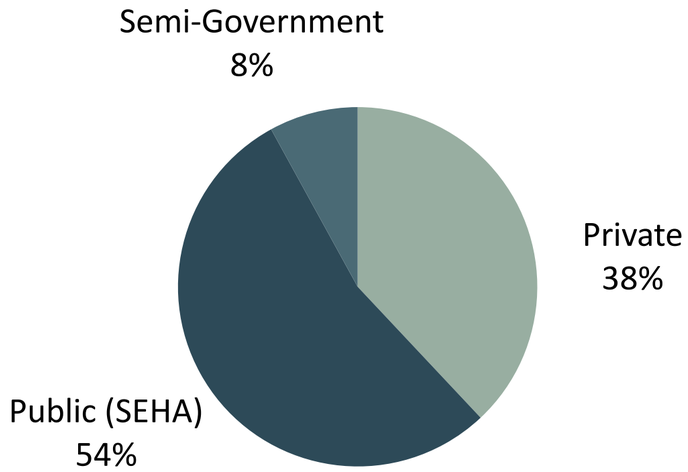
Current Supply

In 2016, 45 acute hospitals (excluding Zayed Military Hospital and non-acute hospitals) in Abu Dhabi provided acute overnight services. From these hospitals, there were 3,452 functional acute overnight beds (2,267 Adult, 1,186 Paediatric) with an additional 950 beds to be in operation by 2020.

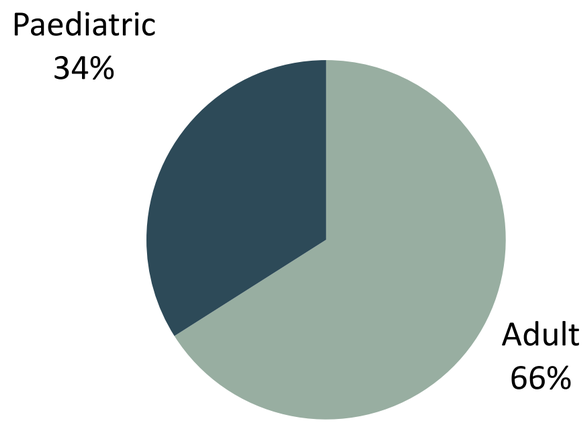
Supply of Acute Overnight Beds by Specialty, 2016



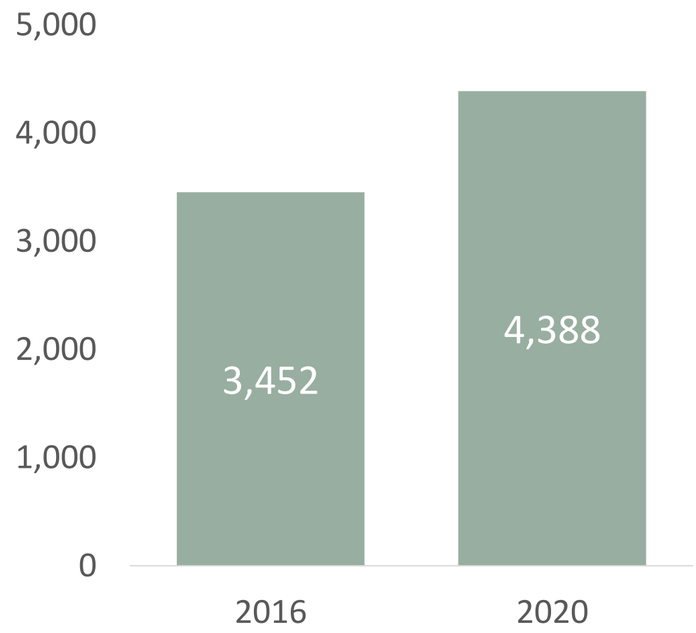
Supply by Provider



Supply by Adult or Paediatric



Supply of Acute Overnight Beds



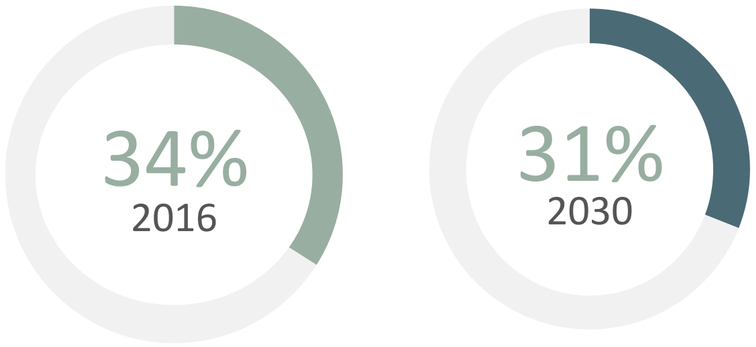
Acute Overnight Care

Demand

In 2016, there was a demand of 3,492 adult and paediatric acute overnight beds, projected to become 5,052 by 2030.

- A combined annual average growth of 3.2% or 111 beds per year.
- A combined total growth from 2016 to 2030 of 1,560 beds.

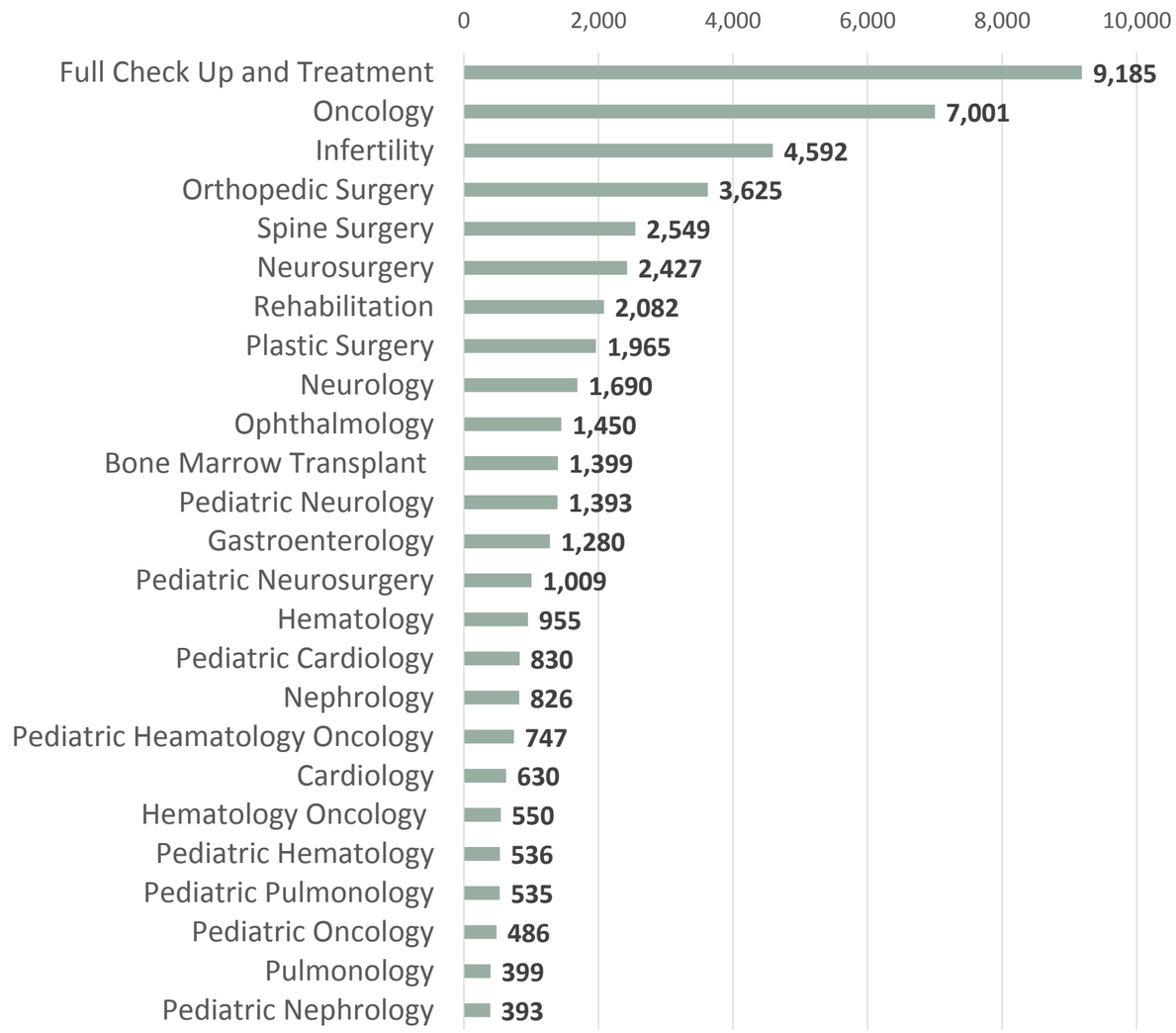
Percentage of Acute Overnight Demand that is for Paediatric Services, 2016 and 2030



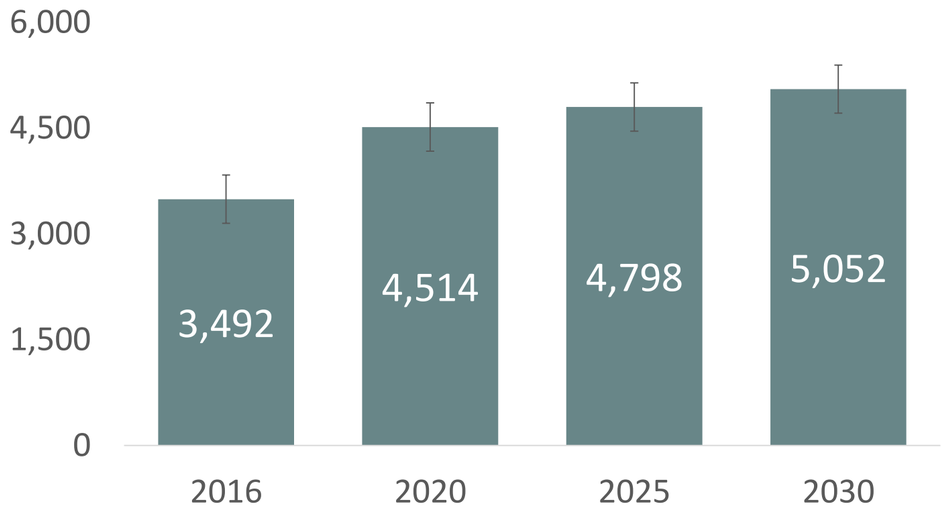
Demand for Acute Overnight Beds by Speciality, ordered by Top 10 in 2030

Specialty	2030	2025	2020	2016
Neonatology	885	717	563	502
Orthopaedics	725	608	496	345
Respiratory Medicine	594	647	678	574
Gastroenterology	356	374	380	330
Immunology and Infectious Diseases	315	333	342	286
General Medicine	301	238	179	116
General Surgery	240	247	256	224
Cardiology Medical	197	198	200	164
Neurology	185	210	237	214
Medical Oncology	174	163	150	126

Top 25 IPC* Specialties by number of cases**



Demand for Acute Overnight Beds



* IPC: International Patient Care

**The total number of IPC cases for all specialties in 2016 amounts to 74,475. These data includes medical board and special approvals

Acute Overnight Care

Requirements

This table identifies the emirate level service line coverage as a percentage of available supply over demand to distinguish whether a service is under, optimally or oversupplied. 2016 shows service coverage with only 1 significantly undersupplied/undersupplied service line.

Service Line	Coverage (2016)	Bed requirement
Transplant Surgery	3%	4
Vascular Surgery	86%	2
Neurological Surgery	87%	2
Burns	91%	2
General Medicine	91%	10
Trauma and Injury	93%	1
Orthopaedics	94%	18
Plastic Surgery	95%	2
Cardiothoracic Surgery	96%	1
Dentistry	96%	1
Dermatology	96%	1
Rheumatology	96%	1
Chemotherapy	97%	1
Urology	98%	1
Nephrology	98%	1
Haematology	99%	1
Cardiology Medical	99%	2
Endocrinology	99%	1
Ophthalmology	99%	1
Respiratory Medicine	99%	3
Immunology and Infectious Diseases	100%	-
Medical Oncology	100%	-
Gastroenterology	100%	-
Cardiology Invasive	100%	-
General Surgery	100%	-
Neonatology	101%	-
ENT	101%	-
Neurology	101%	-

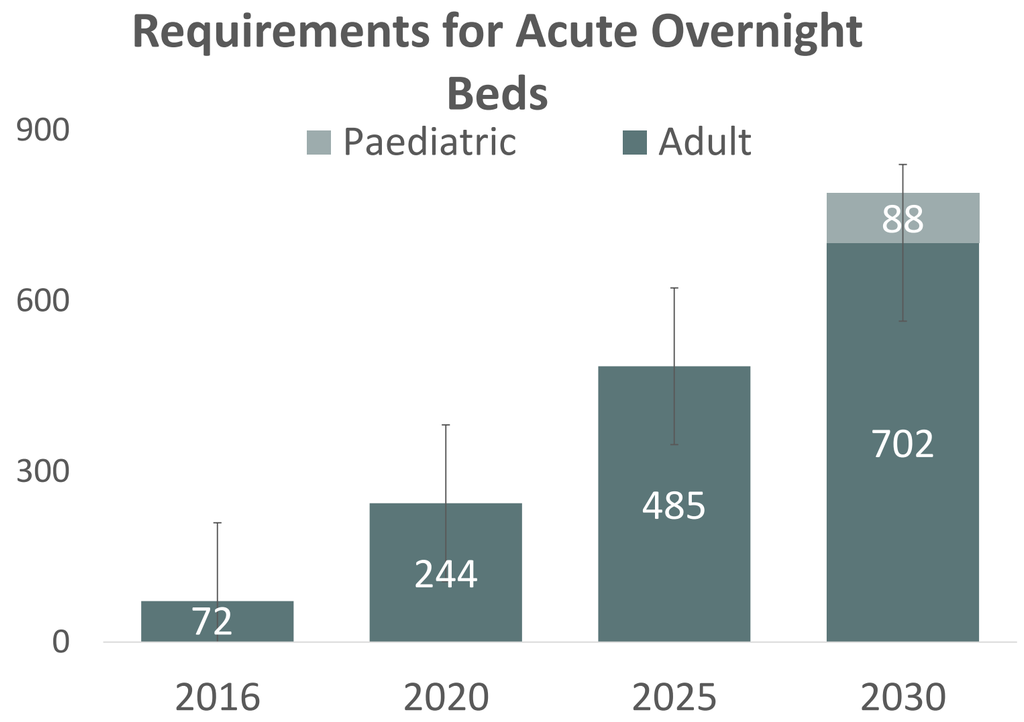
Current Priorities

- Orthopaedics
- General Medicine
- Transplant Surgery
- Respiratory Medicine
- Plastic Surgery

Emerging Priorities

- Orthopaedics
- Neonatology
- General Medicine
- Cardiothoracic Surgery
- Medical Oncology

Legend	
Significant undersupply	<60%
Undersupply	60-84%
Slight undersupply	85-99%
Optimum coverage	100-120%
Oversupply	>120%

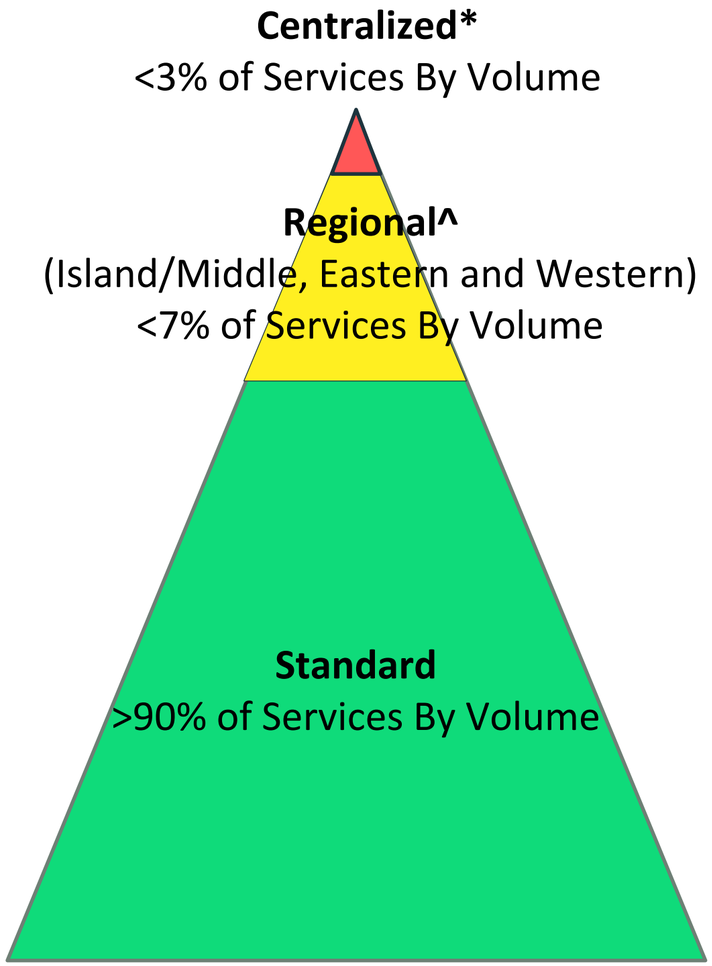


Requirements for Acute Overnight Beds by Speciality, ordered by Top 10 in 2030

Specialty	2030	2025	2020	2016
Orthopaedics	295	189	90	18
Neonatology	241	94	-	-
General Medicine	147	92	42	10
Cardiothoracic Surgery	36	20	6	1
Medical Oncology	36	24	11	-
Neurological Surgery	36	21	9	2
Plastic Surgery	33	21	10	2
Burns	30	18	8	2
Vascular Surgery	19	11	5	2
Cardiology Medical	15	11	7	2

Acute Overnight Care

Implementation Plan - Regulation of Clinical Service Lines (1/5)



Description	Examples	Regulation
• Highly Specialized • Strong volume-based Competency • Low volume • High cost	• Open Heart Surgery • Transplant Surgery • Burns Care	**Centralized** One for the Emirate designated by DoH as a Specialist Service Center of Excellence.
• Moderate complexity • Time dependency • Some volume-based Competency • Middle volume • Middle cost	• Cardiac catheterization • Chemotherapy • Specialist Diabetes Care	**Regional** These services may be provided in each of the 3 Regional Districts and will be designated by DoH to do so. One of the providers may be designated as the Centre for Excellence
• Non-complexity • High volume • Low cost	• Hypertension • Standard Diabetes Care • General Surgery	**Standard** Services may be offered by all DoH Licensed Providers.

* DoH will restrict provision of these services, at the DRG level to a few facilities to preserve volume based competency.
^ DoH will issue licenses for these services on the basis of 1 per 250,000 population
Source: Categories maintained by DoH with input from Providers, Payers and other appropriate stakeholders.

Notes: Emergency cases presenting to any DoH Licensed Facilities should be treated (in accordance with DoH Regulations). In case the DRG falls under centralized or Regional service line, the case should be transferred to Providers licensed for those service lines when clinically appropriate.

Acute Overnight Care

Implementation Plan - Regulation of Clinical Service Lines (2/5)

For Planning and Licensing purposes DoH 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:

Cardiothoracic surgery	Medical oncology	Psychiatry & mental health
Chemotherapy	Neonatology	Rehabilitation
Dentistry	Nephrology	Renal dialysis
Dermatology	Neurology	Reproductive medicine & IVF
Emergency Department	Neurosurgery	Respiratory medicine
Endocrinology	Nuclear medicine	Rheumatology
ENT	Obstetrics	Transplant surgery
Gastroenterology	Obstetric - delivery	Trauma
General medicine	Ophthalmology	Urology
General surgery	Palliative care	Vascular surgery
Intensive care	Plastic surgery	

- **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. DoH will limit the provision of such services to a few providers as determined by the DoH 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. DoH will limit licenses for such Regional services
- **Standard services** - The majority of clinical services may be offered by any suitable facility in line with DoH competency framework (set out in the Abu Dhabi Healthcare Regulations).

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).

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

Acute Overnight Care

Implementation Plan - Specialised or Tertiary Services (3/5)

Specialized Services

Specialized Services support people with a range of rare and complex conditions. They often involve treatments provided to patients with rare cancers, genetic disorders or complex medical or surgical conditions and account for less than 3% of all inpatient activities. They deliver cutting edge care and are a catalyst for innovation, supporting pioneering clinical practice. These services are often difficult to deliver resulting in a number of patients being sent abroad for treatment. They are also often difficult to fund, resulting in the need for funded mandates.

Centres of Excellence

Centres of Excellence (CoE) criteria will be develop for Specialized Services by the Department of Health (DoH). CoE will be expected to treat all patients locally, provide clinical leadership in the specialized field, along with research and education. A number of providers currently self-proclaim to be a CoE. Going forward the DoH will develop the standards that will be applied to the delivery of Specialized Services at CoE, mandate activity flows and develop criteria to identify which providers will be designated as CoE for each Specialized Service.

The ambition of the DoH is to help achieve excellence in the provision of specialized care and treatment through ensuring excellent service provision that:

- Improves overall quality and lower costs of health care services – Currently there is large variability in quality and performance. For a number of services there are too many providers, many with very small volumes, poor outcomes, greater rates of complications and higher costs. CoE could channel patient care into higher performing providers.
- Close Critical ‘gaps’ in provision of care - There are also a number of healthcare services that could potentially be developed in Abu Dhabi, to reduce International Patient Care (IPC) spend and encourage medical tourism. Creating CoE in these Specialized Services could help patients feel confident that they will get appropriate care in Abu Dhabi and reduce the demand for IPC. The CoE may also encourage medical tourism into Abu Dhabi.
- Accelerate Research and Innovation - CoE could promote international best practice, research and development of treatments tailored for Abu Dhabi market and create an environment of innovation in the healthcare system.

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Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/382848/Annex_6_Paediatrics1.pdf

Acute Overnight Care

Implementation Plan - Paediatric Specialised Care (4/5)

The analysis also reveals that Paediatric care is largely fragmented across Abu Dhabi. SKMC hospital provides 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 centralised.

- 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.

Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/382848/Annex_6_Paediatrics1.pdf

Acute Overnight Care

Implementation Plan (5/5)

In order to address existing and emerging Emirate-wide specialty and regional level shortages and the potential over supply identified within this report DoH will continue to work closely with healthcare stakeholders. Specifically DoH 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 DoH 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 DoH Capacity Management Division as part of the DoH Facility Licence Application Process.
- Similarly DoH recommendations for the future allocation of DoH 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 DoH as centralised services at a DRG level) and regionally required hospital based services be obtained via DoH Capacity Management Division prior to issuance of preliminary licence for hospitals.
- DoH may institute, to address specific speciality 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.

Section B – The Emirate

Acute Same Day Care

Acute Same Day Care

About

Definition

Health care delivered to a patient with a severe health condition that requires a progressive short term medical or surgical treatment, admitted and discharged from the hospital on the same day.

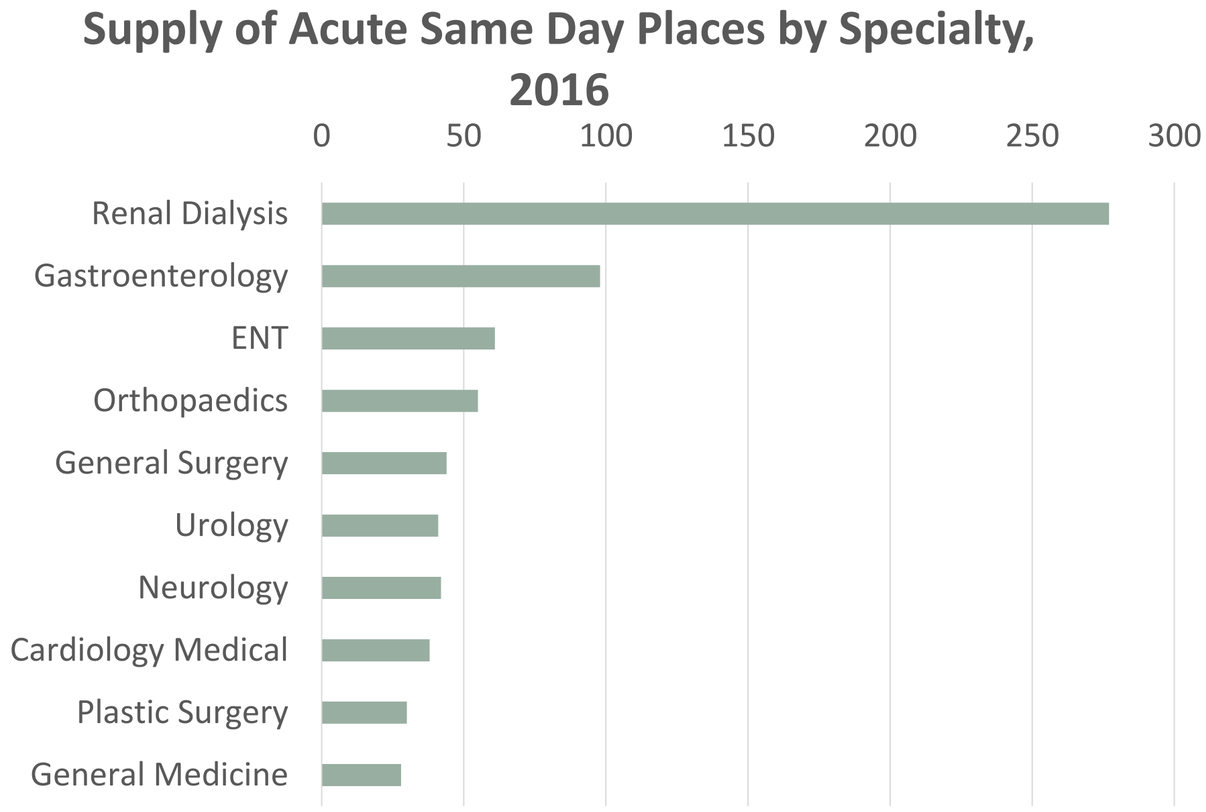
What's new in 2016

- The specialties of **Mental Health, Obstetrics, Gynaecology and Obstetrics Delivery** can be found in later section of this year's plan within service-specific sections.
- Commissioning of new hospitals across Abu Dhabi has changed supply and planned supply figures from last year's plan
- Greater than expected population growth and projections, with modelling improvements from relative utilisation has resulted in a some differences in demand, however overall trends remain the same across Abu Dhabi.

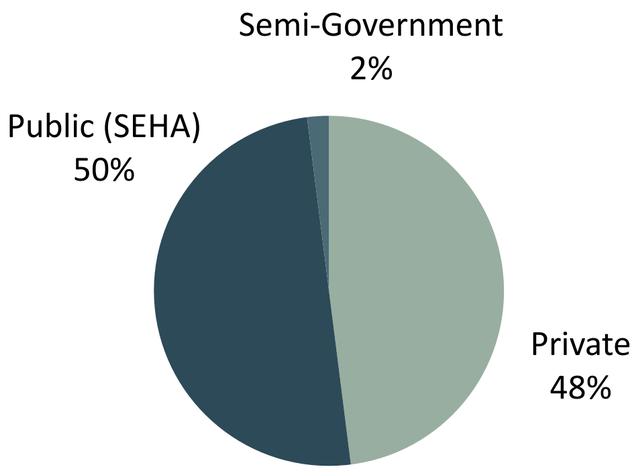
Acute Same Day Care

Current supply

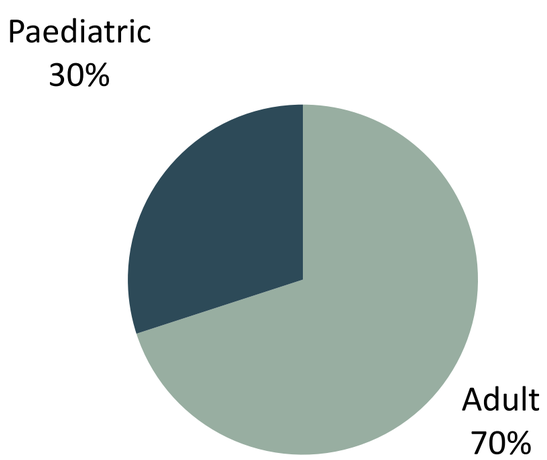
In 2016, 45 acute hospitals (excluding Zayed Military Hospital) 12 dialysis centres and 21 one-day surgery provided acute same day services in the Emirate. These hospitals provided 937 acute same day places (656 Adult, 281 Paediatric) with an additional 249 places to become operational by 2020.



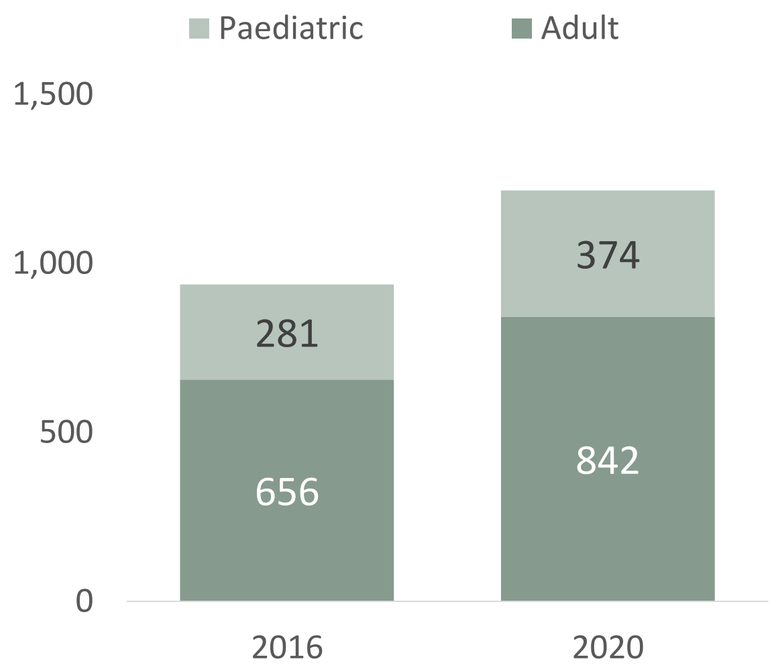
Supply by Provider



Supply by Adult or Paediatric



Supply of Acute Same Day Places



Lower supply of chemotherapy and ophthalmology same day places are based on latest KEH activity data that has been cross-referenced with other available data sources. Limitations in accuracy of same day episode reporting may impact base year supply numbers. Improved reporting of same day places results in the difference between provider distribution of places from 2015 CMP to this version.

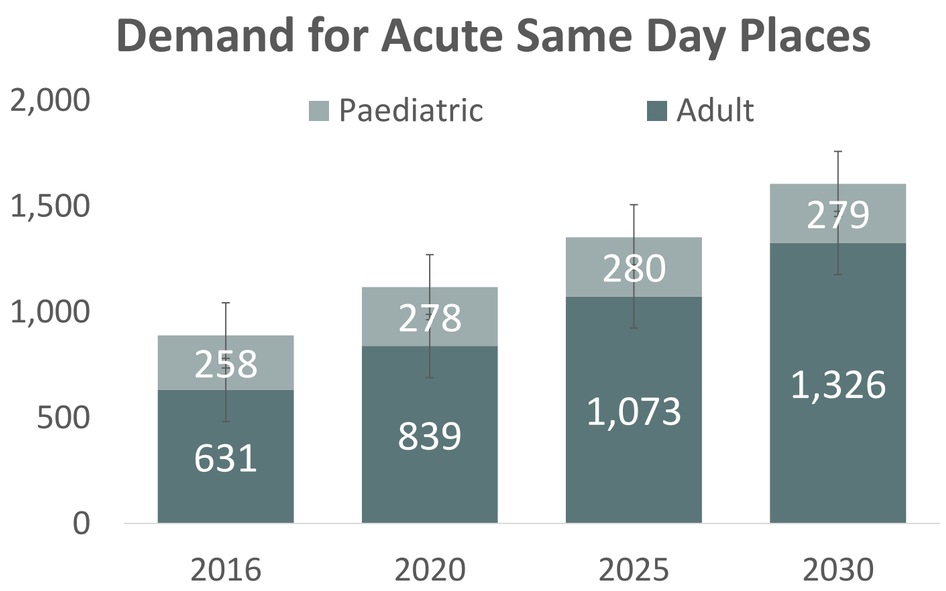
Acute Same Day Care

Demand

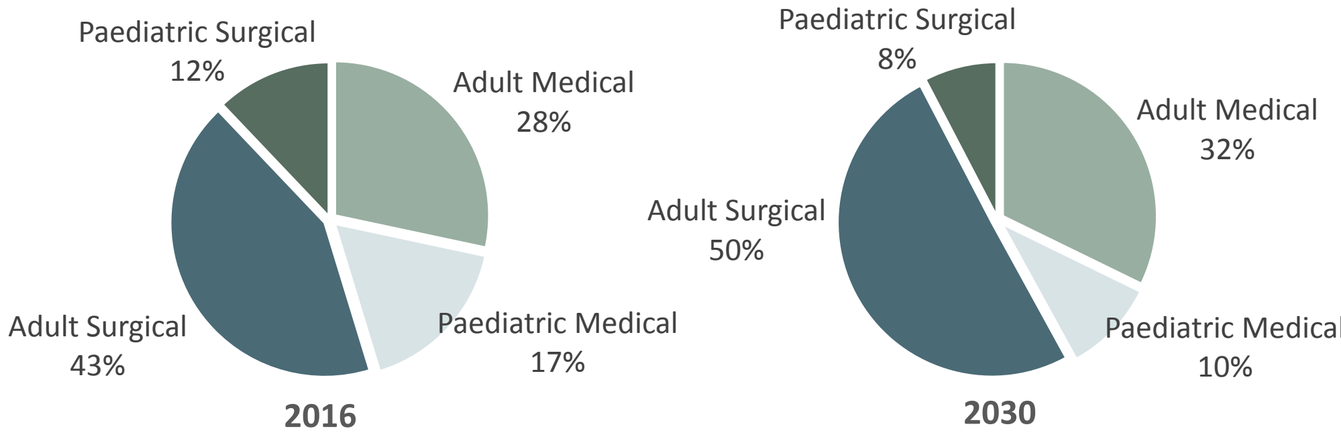
In 2016, there was a demand of 888 adult and paediatric same day places, projected to become 1,605 by 2030

Percentage of Acute Same Day Place Demand for Paediatric Services, 2016 and 2030

Demand for Acute Same Day Places



Percentage of Acute Same Day Place Demand by Service Mode, 2016 and 2030



Demand for Acute Same Day Places by Speciality, ordered by Top 10 in 2030

Specialty	2030	2025	2020	2016
Renal Dialysis	400	352	309	259
Urology	165	111	69	42
ENT	150	108	78	58
Orthopaedics	132	101	73	54
Gastroenterology	100	109	108	92
General Medicine	77	56	40	28
Cardiology Medical	69	59	46	36
General Surgery	63	66	59	43
Plastic Surgery	50	43	35	28
Chemotherapy	46	28	14	6

Lower demand of chemotherapy and ophthalmology same day places are based on relative utilisation on limited base supply data

Acute Same Day Care

Requirements

This table identifies the emirate level service line coverage as a percentage of available supply over demand to distinguish whether a service is under, optimally or oversupplied. 2016 shows a predominately optimal service coverage with only 2 service lines undersupplied.

Service Line	Coverage (2016)	Place requirement
Chemotherapy	96%	1
Urology	98%	1
Burns	102%	-
Medical Oncology	102%	-
General Medicine	103%	-
Rheumatology	103%	-
General Surgery	104%	-
Orthopaedics	104%	-
Ophthalmology	104%	-
Haematology	104%	-
ENT	104%	-
Nephrology	105%	-
Cardiology Medical	105%	-
Dermatology	105%	-
Plastic Surgery	106%	-
Dentistry	106%	-
Vascular Surgery	106%	-
Cardiothoracic Surgery	106%	-
Neonatology	106%	-
Trauma and Injury	106%	-
Renal Dialysis	106%	-
Neurological Surgery	106%	-
Respiratory Medicine	107%	-
Gastroenterology	107%	-
Neurology	107%	-
Endocrinology	107%	-
Immunology and Infectious Diseases	108%	-
Cardiology Invasive	109%	-

There is no requirement into the future for Paediatric acute same day places.

Adult acute same day places will present as a requirement by 2025 of 221 places, increasing to 446 places by 2030.

Current Priorities

Service lines currently experiencing the greatest shortfalls in Same Day Places:

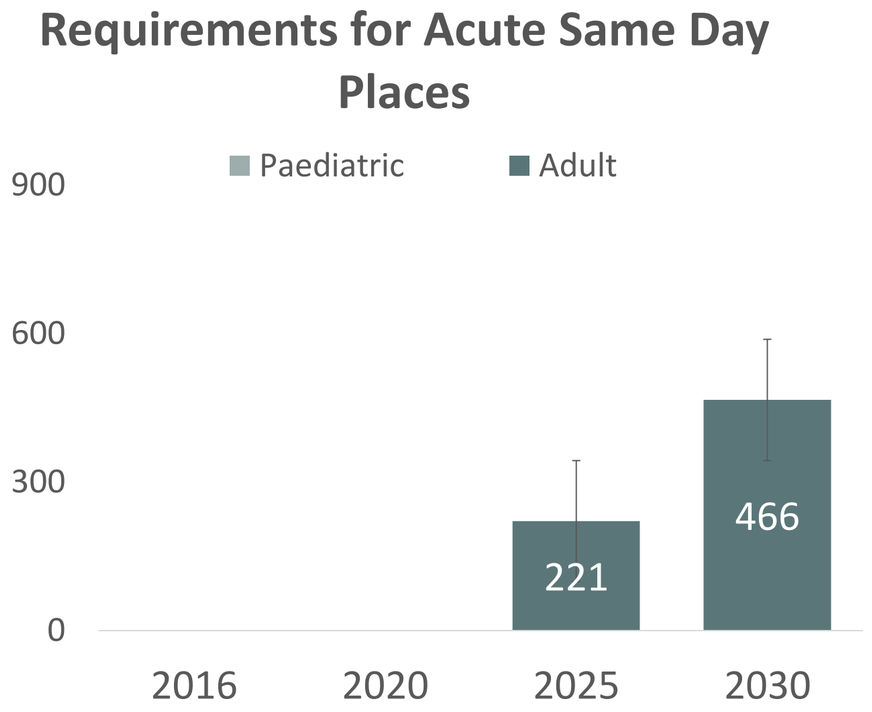
- Urology (1 place).
- Chemotherapy (1 place).

Emerging Priorities

Service lines projected to experience the greatest shortfalls in Same Day Places:

- Urology.
- Renal Dialysis.
- ENT .
- Orthopaedics.
- General Medicine.

Legend	
Significant undersupply	<60%
Undersupply	60-84%
Slight undersupply	85-99%
Optimum coverage	100-120%
Oversupply	>120%



Requirements for Acute Same Day Places by Speciality, ordered by Top 10 in 2030

Specialty	2030	2025	2020	2016
Urology	97	49	12	-
Renal Dialysis	66	15	-	-
ENT	65	26	-	-
Orthopaedics	56	27	1	-
General Medicine	36	17	2	-
Chemotherapy	33	17	6	-
Cardiology Medical	21	10	-	-
Ophthalmology	17	8	-	-
Plastic Surgery	13	5	-	-
Haematology	12	6	-	-

An increase in supply figures, such as in General Surgery, has resulted in better optimization of coverage in 2016. This optimization reduces up to 2030 as demand increases greater than supply in most service lines.

Acute Same Day Care

Implementation Plan

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 DoH will continue to work closely with healthcare stakeholders. Specifically DoH 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 same day care, will require DoH 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 DoH Capacity Management Division as part of the Facility Licence application Process.
- Similarly DoH recommendations for the future allocation of DoH 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.
- DoH 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.
- DoH 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.
- DoH 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.

Intensive Care

Intensive Care

About

Definition

Intensive care is the health treatment provided to a patient in hospital with current or potential life-threatening illnesses, injuries or complications requiring intensive medical treatment or observation.

What's new in 2016

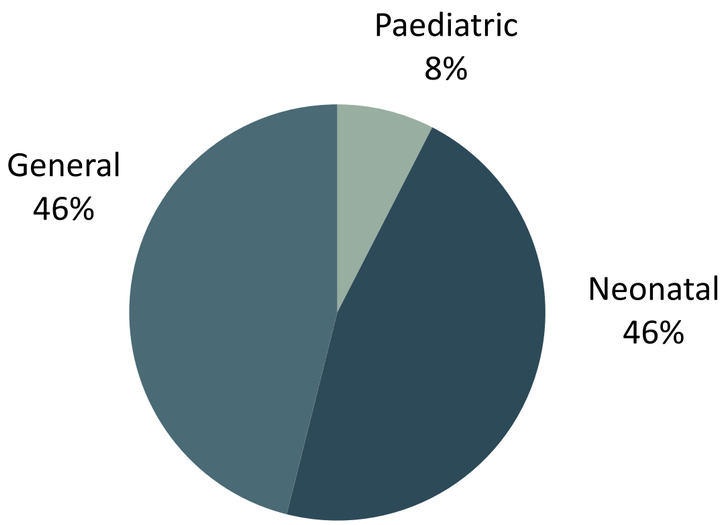
- The Intensive Care section is a new addition to this year's plan, with intensive care beds split up into 3 categories: General (Adult), Neonatology (NICU) and Paediatric (PICU) beds.

Intensive Care

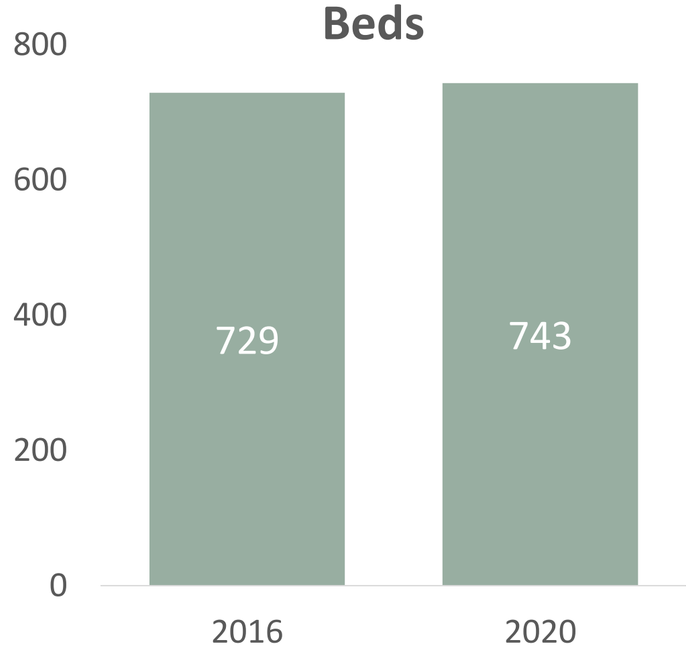
Current Supply

In 2016, Intensive care was provided from 729 Intensive care beds, of which 55 were Paediatric and 336 were General and 338 were Neonatal intensive care beds.

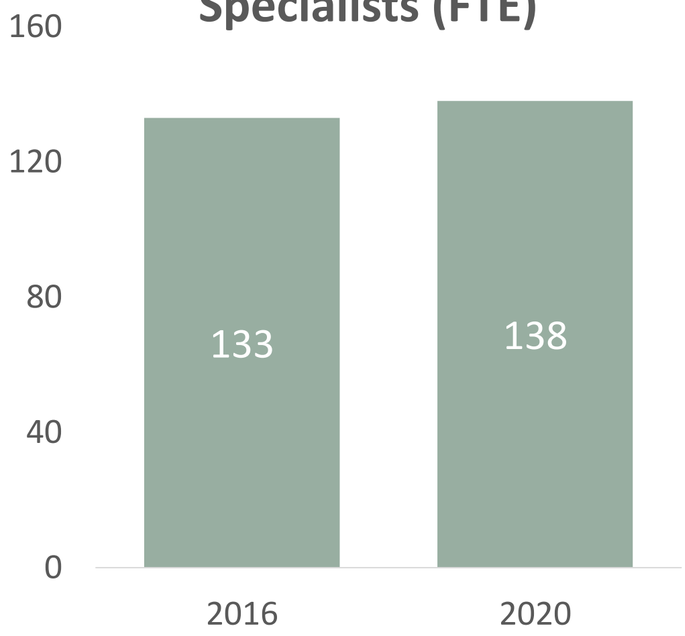
Supply by Intensive Bed Care Type



Supply of Intensive Care Beds



Supply of Intensive Care Specialists (FTE)



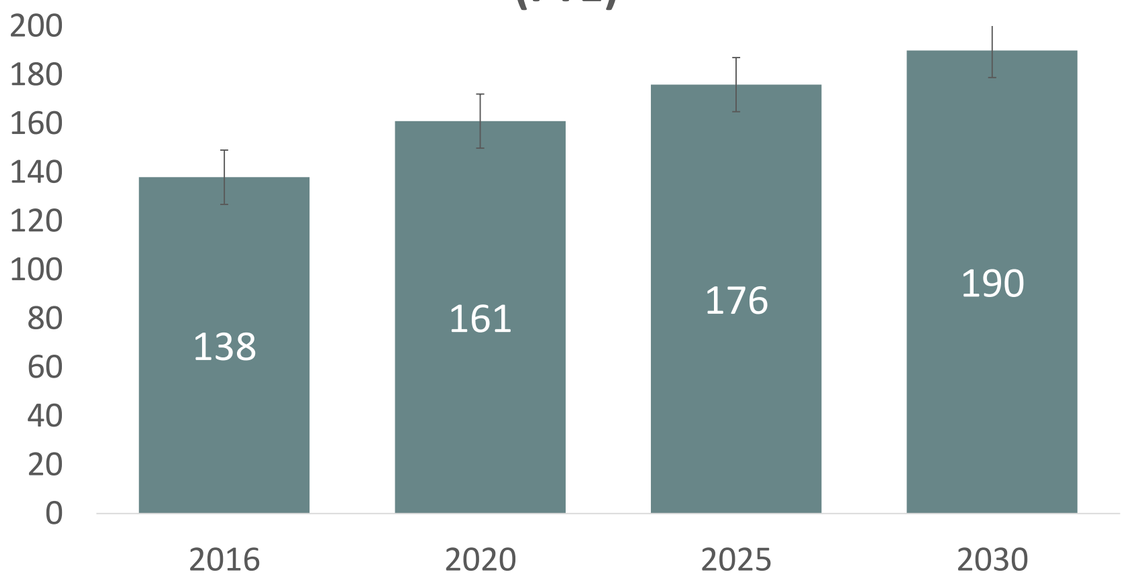
Intensive Care

Demand

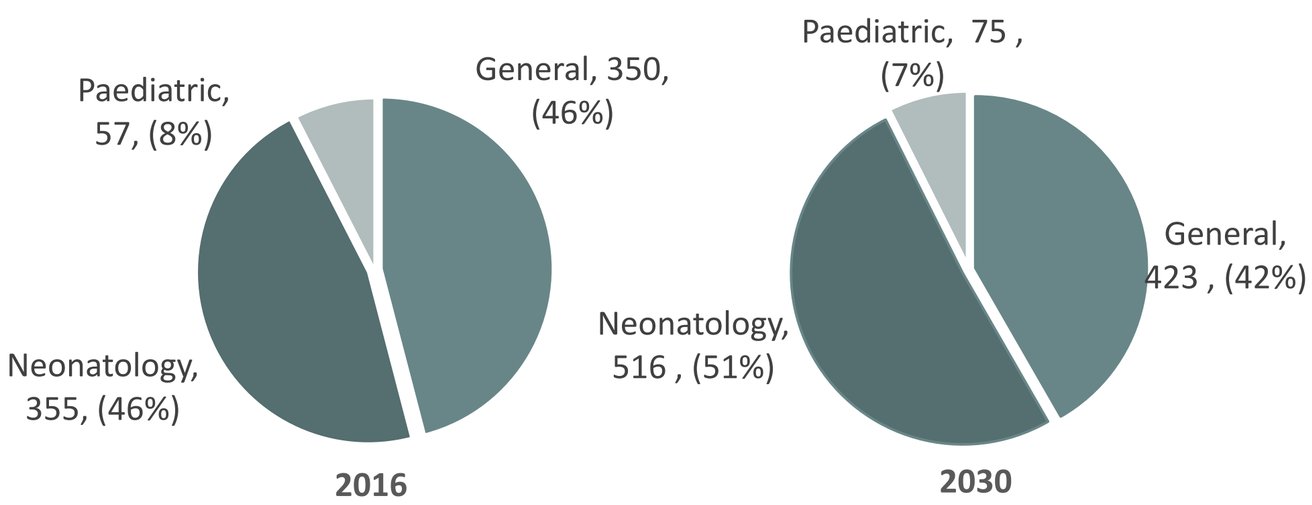
In 2016, there was a demand of 762 intensive care beds, projected to become 1,014 by 2030. This increase in demand equates to a growth of 4% or 42 beds per year.

In 2016, of the 762 intensive care beds, 355 are Neonatology demand (47%), which will increase in 2030 to 516 Neonatology beds (51%).

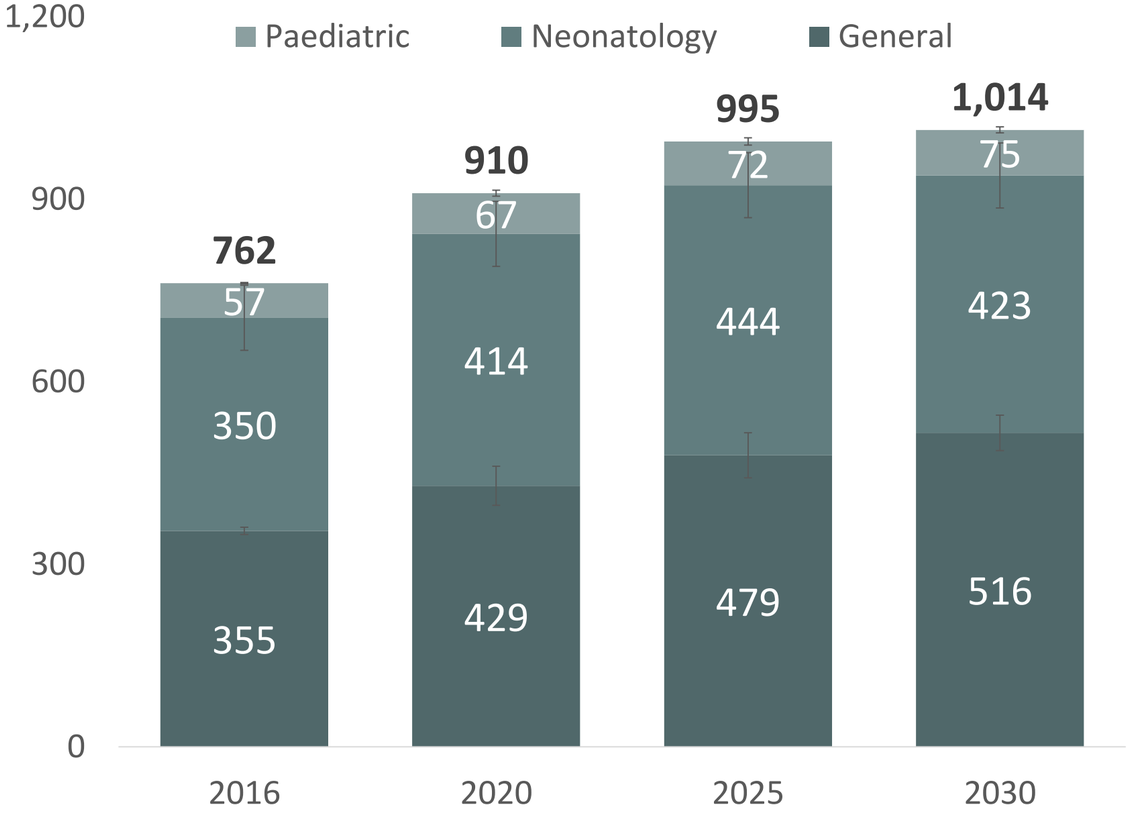
Demand for Intensive Care Specialists (FTE)



Percentage of Intensive Care Bed Demand by Type, 2016 and 2030



Demand for Intensive Care Beds by Type, 2016 to 2030



Intensive Care

Requirements

In 2016, there was a requirement of 34 intensive care beds, projected to become 271 by 2030, equating to a growth of 17 beds per year.

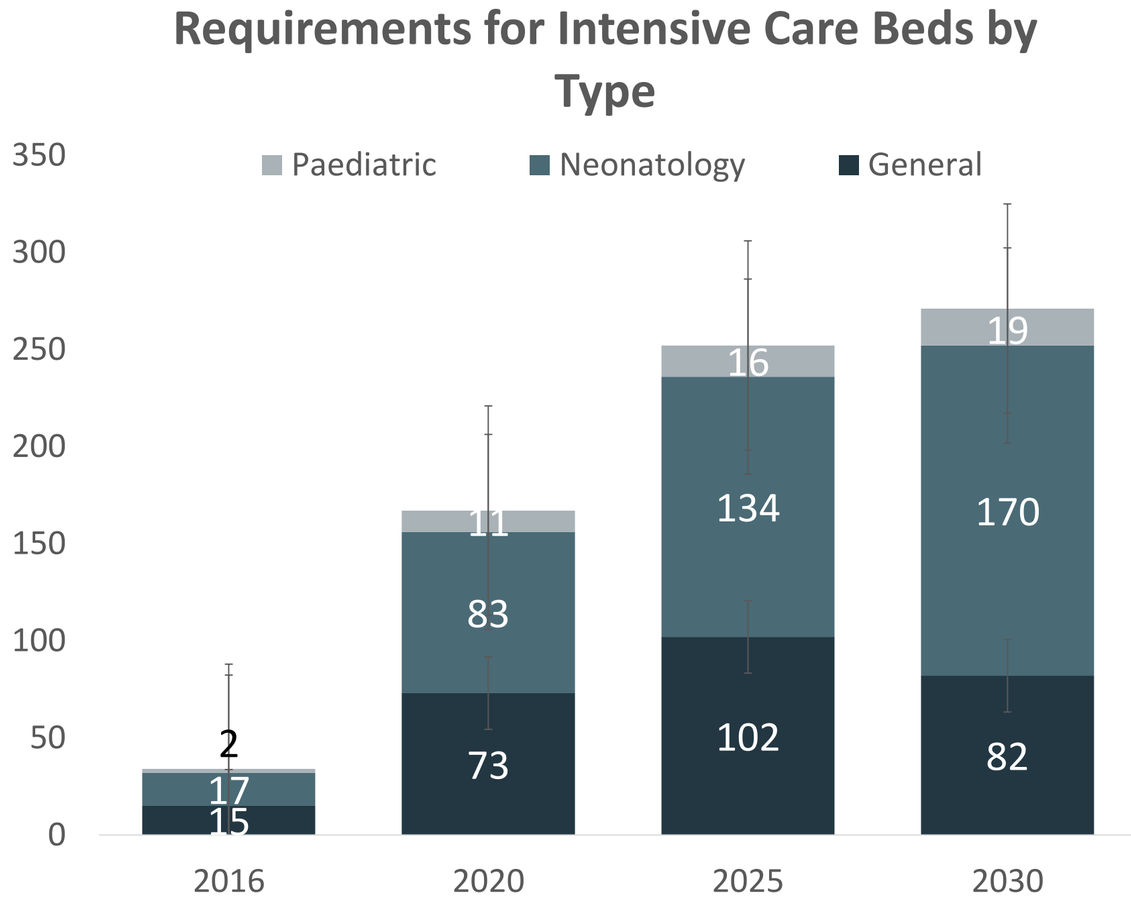
In 2016, of the 34 intensive care beds required, 17 are for Neonatology beds (50%), increasing to 170 Neonatology beds (63%) by 2030.

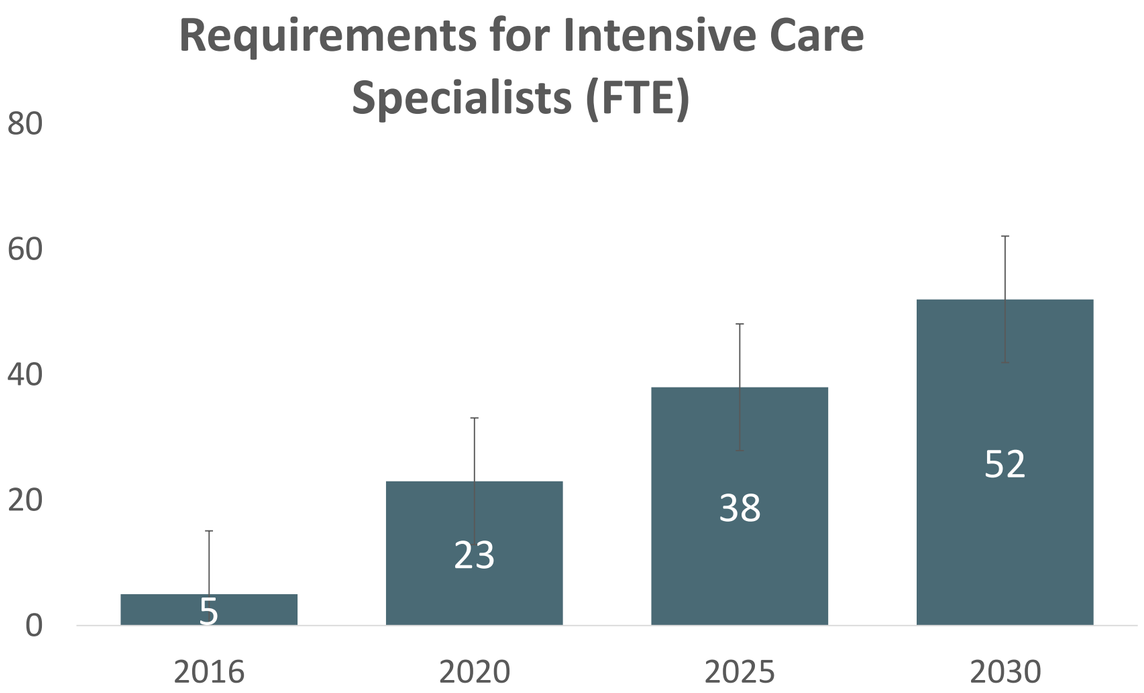
Current Priorities

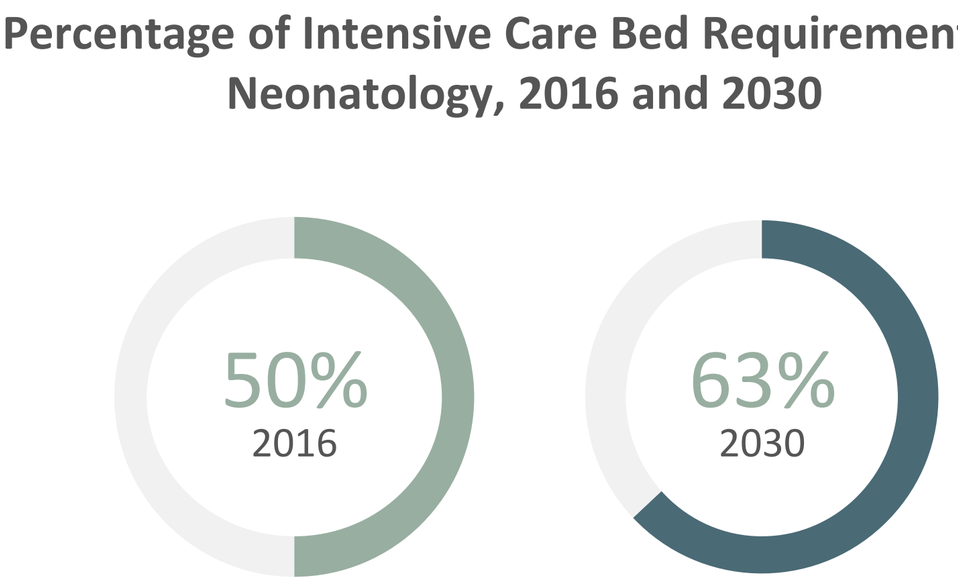
- General, Neonatology and Paediatric ICU beds.
- Intensive Care Specialists in all regions.

Emerging Priorities

- General, Neonatology and Paediatric ICU beds.
- Intensive Care Specialists in all regions.







Non-Acute Care & Long Term Care

Non-Acute Care & Long Term Care

About

Definition

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, as an overnight service or as home healthcare.

Non-Acute Care & Long Term Care

Current Supply

In 2016, 8 rehabilitation hospitals and 26 rehabilitation centres provided non-acute and long term care services from 699 functional beds.

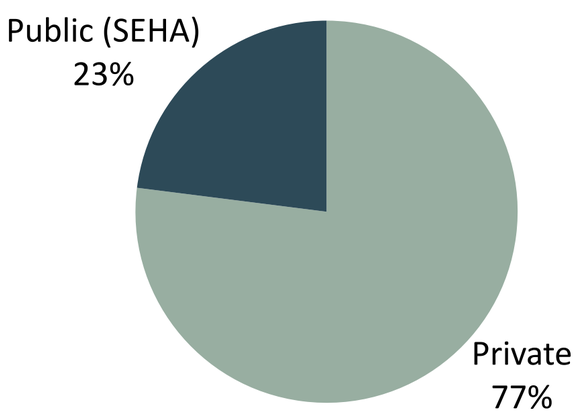
- 203 Disability care beds (29%).
- 265 Long Stay care beds (38%).
- 230 Rehabilitation beds (33%).

Between 2016 and 2020 there are a planned supply of 162 non-acute beds, with the majority (95%) occurring in Abu Dhabi.

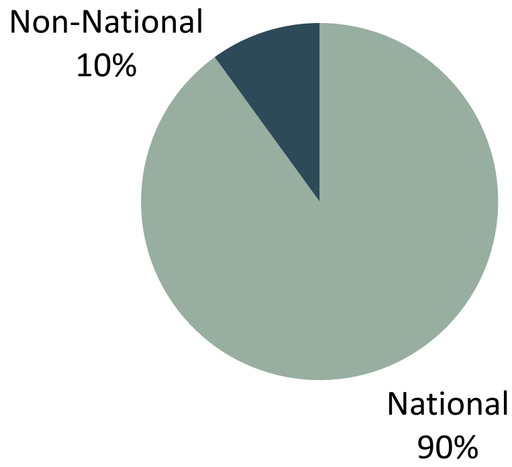
Non-Acute Service Modes include:

- Rehabilitation.
- Disability Care (Intellectual/Learning, Physical, Psychiatry and Sensory).
- Long Stay Care (Palliative, Psychogeriatric, Older Person's and Maintenance).

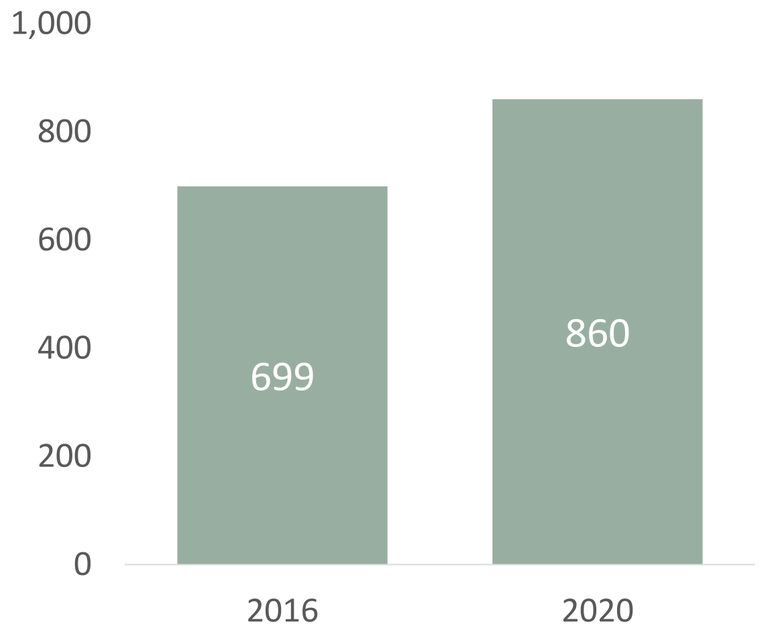
Supply by Provider



Utilisation of Non-Acute Care Beds by Nationality



Supply of Non-Acute Care Beds



Due to the lack of specificity of planned non-acute beds from the survey, the planned supply distribution of non-acute beds is based on the distribution displayed by future demand.

Non-Acute Care & Long Term Care

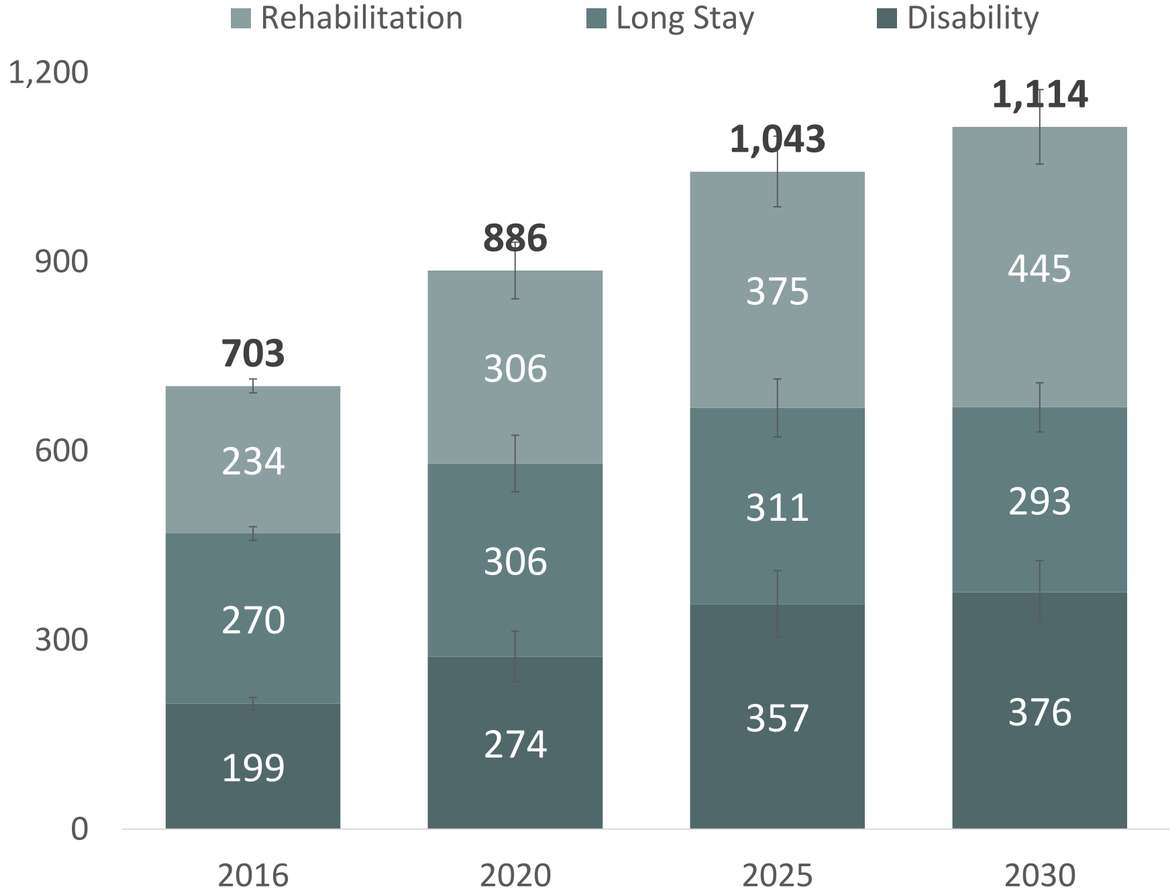
Demand

In 2016, there is a demand for 703 non-acute care beds, of which 234 is for Rehabilitation, 270 for Long Stay and 199 for Disability non-acute care beds.

In 2030, demand will increase to 1,114 non-acute care beds, of which 445 is for Rehabilitation, 293 for Long Stay and 376 for Disability non-acute care beds.

Percentage of Non-Acute Care Bed Demand for Rehabilitation, 2016 and 2030

Demand for Non-Acute Care Beds by Type, 2016 to 2030

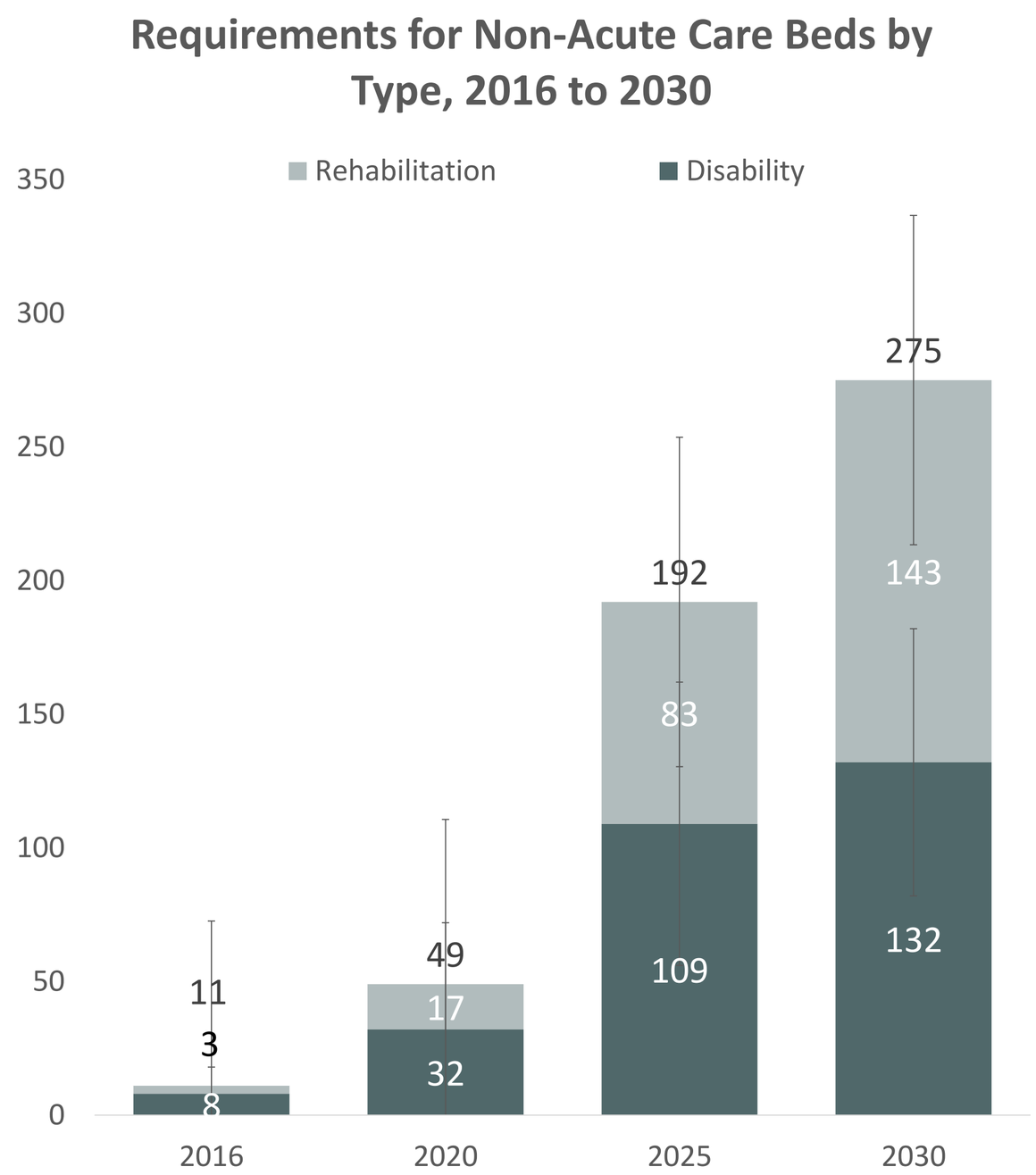


Non-Acute Care & Long Term Care

Requirements

There are no requirements for Long Stay Care beds throughout the Emirate however there is a growing requirement for both Disability and Rehabilitation non-acute care beds.

- Disability non-acute care bed requirement growing from 8 beds to 132 beds.
- Rehabilitation non-acute care bed requirement growing from 3 beds to 143 beds.



Non-Acute Care & Long Term Care

Requirements

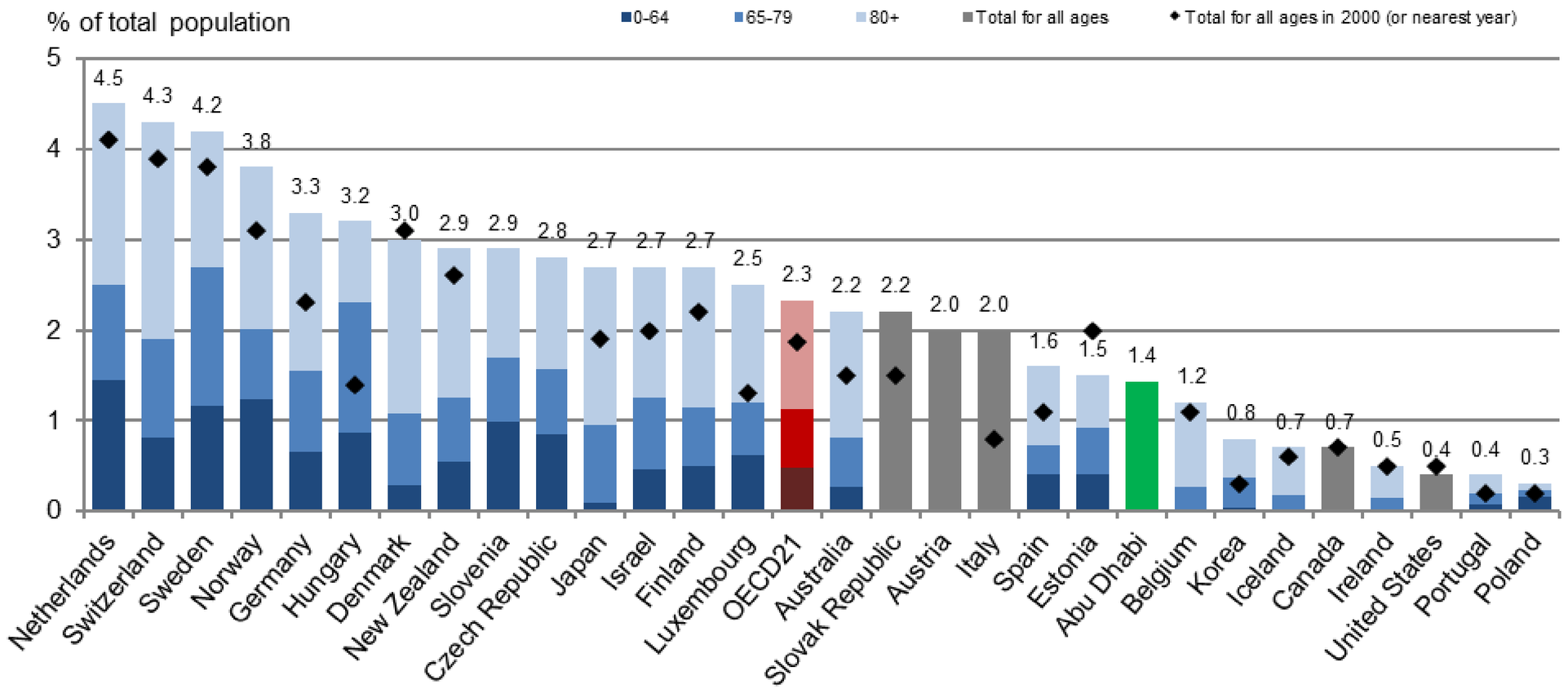
OECD data shows that on average 64.9% of long term Care is provided as home care. Abu Dhabi data shows a similar split.

- In 2015, 3,285 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 and less than 20% of home healthcare services are provided by SEHA.



Source: Planning Analysis, OECD data and DoH demand reference files

Non-Acute Care & Long Term Care

Requirements

In order to address existing Emirate-wide shortages of non-acute care beds identified within this report DoH will continue to work closely with healthcare stakeholders. Specifically DoH 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 DoH 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 DoH Capacity Management Division as part of the DoH Facility Licence Application Process.
- Similarly DoH recommendations for the future allocation of DoH land for planned non-acute overnight facilities will be based on the priorities identified within this plan.
- DoH 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.
- DoH 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.

In addition DoH, as part of its HSS, has initiated a strategic initiative to assess and optimize continuing care and rehabilitation care. This initiative will take place in 2018.

Mental Health Care

Mental Health Care

About

Definition

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.

What's new in 2016

- Improved modelling techniques for mental health care service delivery in acute and non-acute care settings has resulted in differences in supply of mental health beds supply in this version of the Plan.
- Commissioning of new hospitals and healthcare facilities updates supply and planned supply figures to more accurately reflect currently available and planned services.

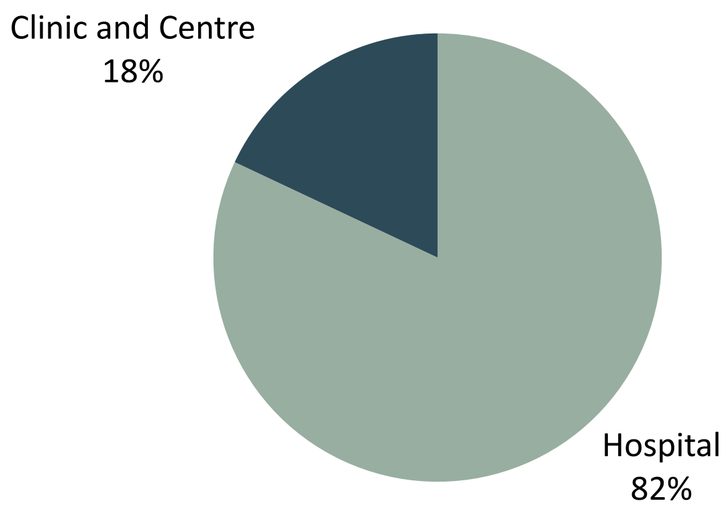
Mental Health Care

Current Supply

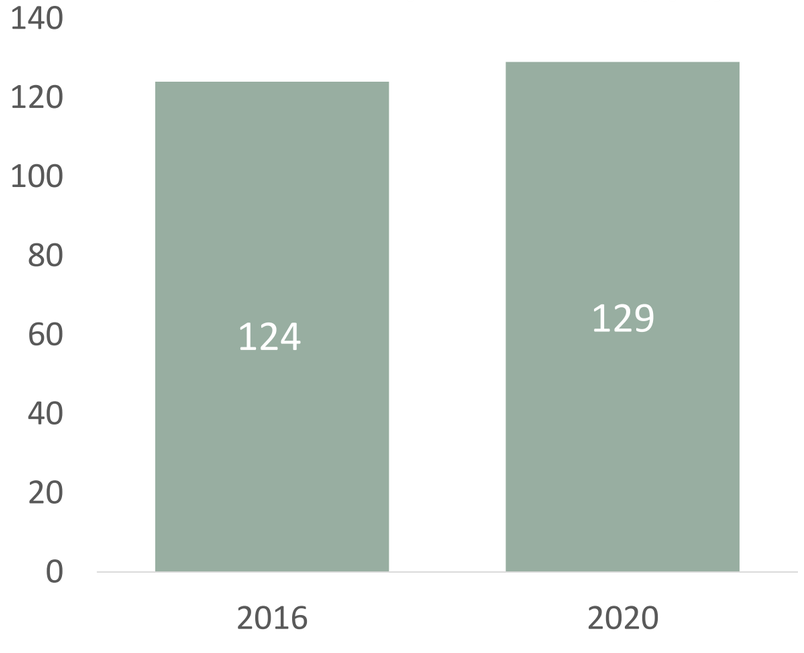
In 2016, mental health services were provided from 41* acute overnight beds.

In 2016, there was a supply of 62 Mental Health outpatient consultation rooms in the Abu Dhabi Emirate, of which 51 were in a hospital setting.

Supply of Mental Health Consultation Rooms by Setting, 2016



Supply for Psychiatrists by FTE, 2016 and 2020 planned supply



Supply of Mental Health Acute Beds and Outpatient Consultation Rooms, 2016 and 2020 planned supply

*This version of the CMP demonstrates a reduction in bed supply due to the updated method of separating mental health beds into acute and non-acute settings more in line with international health system planning and delivery practices.

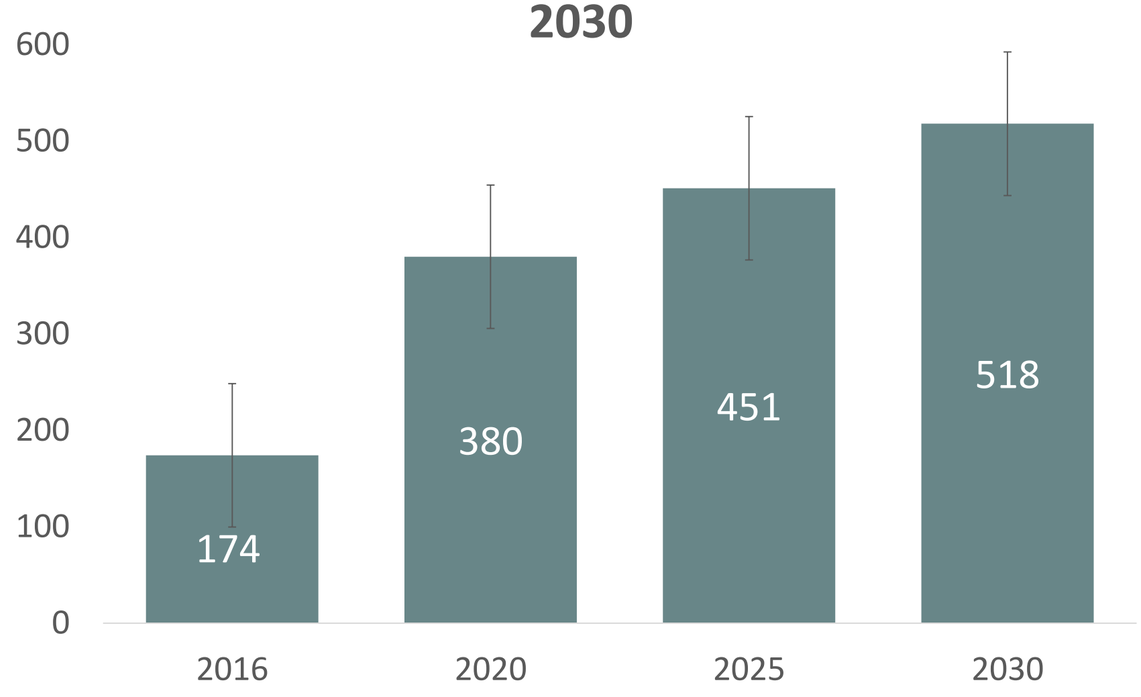
Mental Health Care

Demand

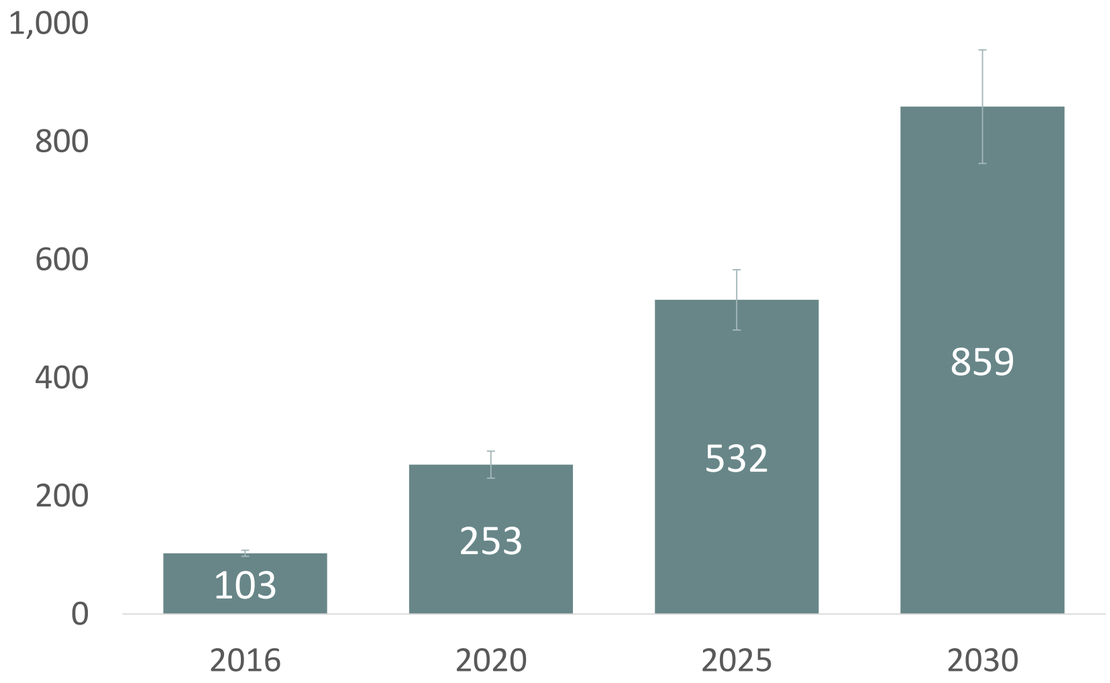
Demand for mental health acute overnight beds will increase from 103 beds in 2016 to 859 beds by 2030.

Mental health outpatient consultation rooms will also see growth in demand, with an increase from 71 rooms in 2016 to 243 rooms in 2030.

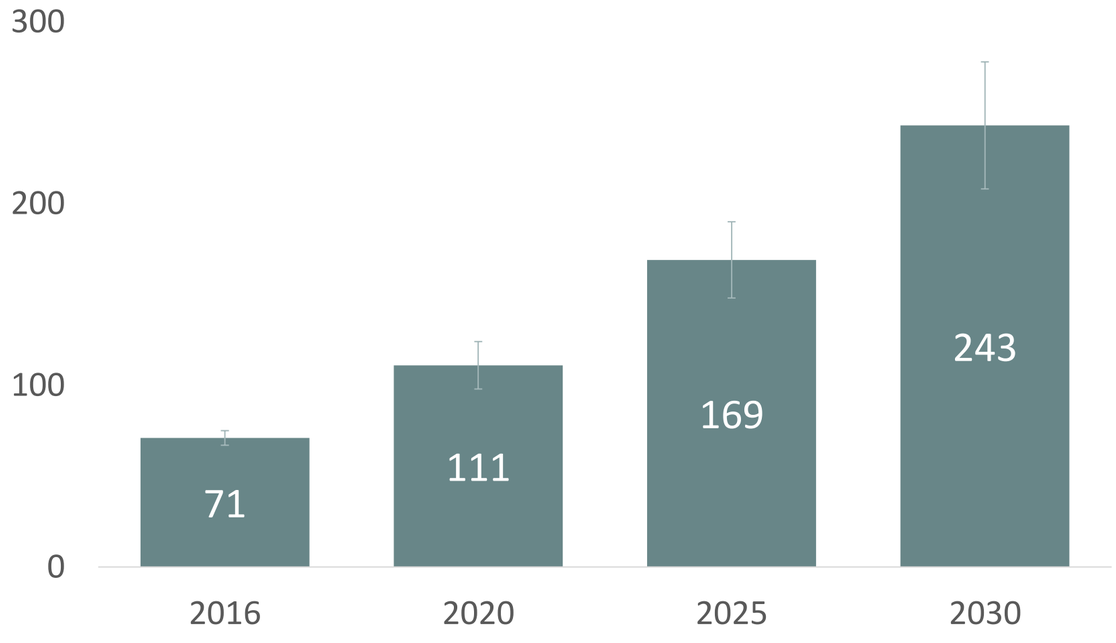
Demand for Psychiatrists by FTE, 2016 to 2030



Demand for Mental Health Acute Overnight Beds, 2016 to 2030



Demand for Mental Health Outpatient Consultation Rooms, 2016 to 2030



Mental Health Care

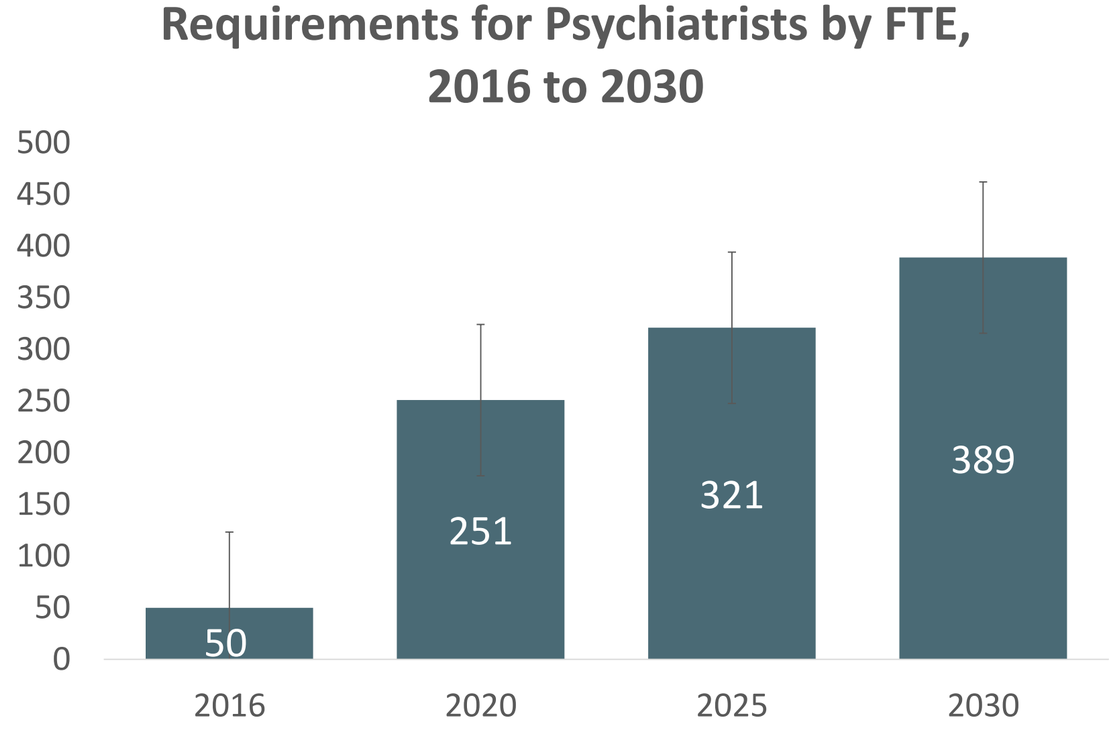
Requirements

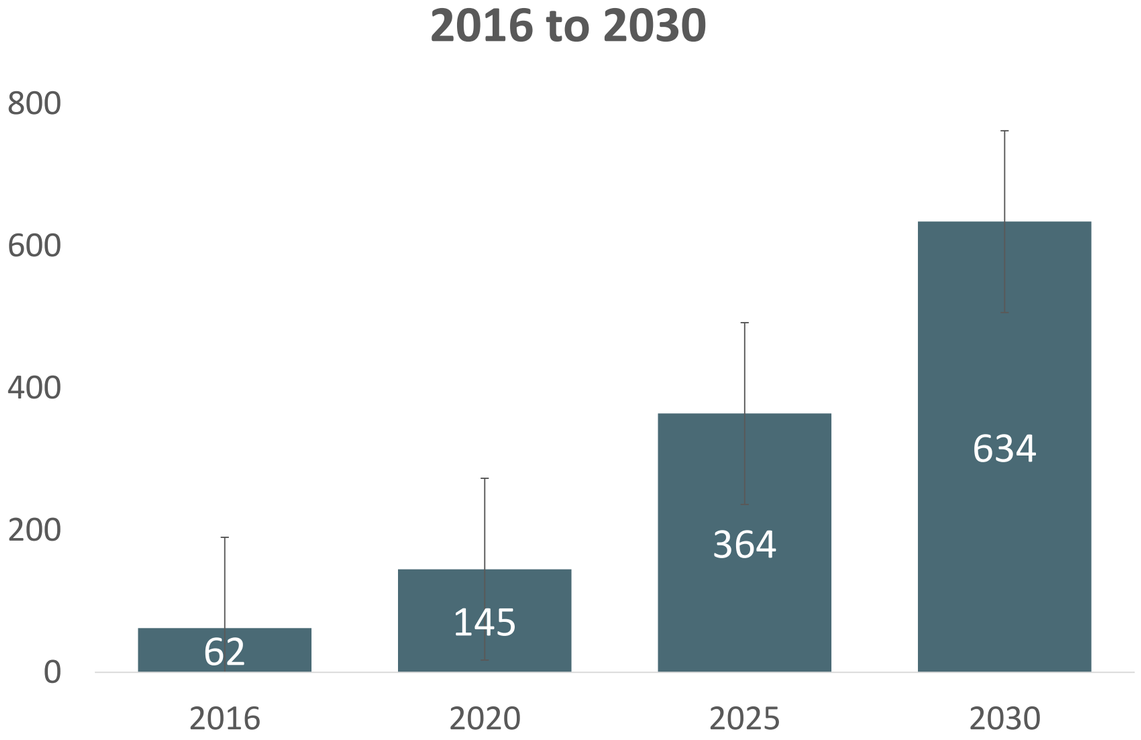
Current priorities

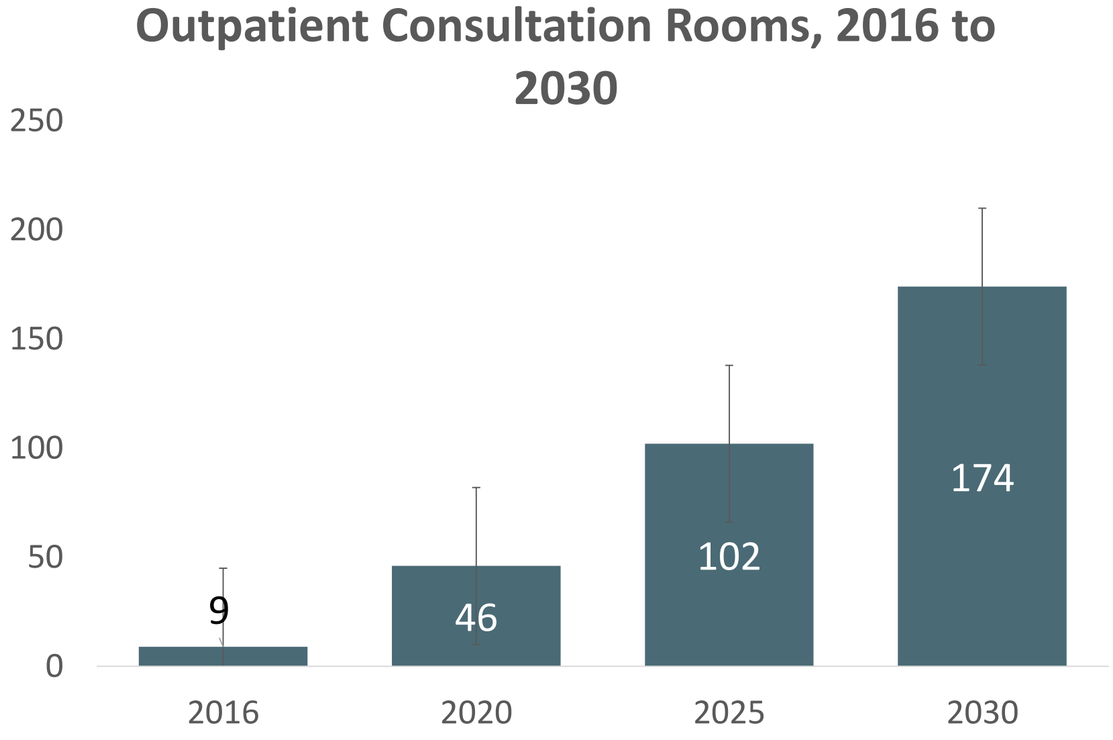
- Outpatient consultation rooms
- Mental health beds
- Psychiatrists

Emerging priorities

- Outpatient consultation rooms
- Mental health beds
- Psychiatrists







Mental Health Care

Summary and Implementation Plan

Summary

Worldwide, the prevalence of mental illness is increasing. There has been many significant shifts in the management of mental illness in contemporary societies 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 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.

Implementation Plan

DoH has proposed, as part of its Health Sector Strategy. 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.

DoH will continue to work closely with Investors (develop a section on DoH 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.

Notes: 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. International ALOS for acute mental health care estimated at 16 days.

Section B – Abu Dhabi Emirate

Women's Health Care

Women’s Health Care

About

Definition

Women’s Health is defined as the care and treatment of women in childbirth and during the period before and after delivery, involving both Obstetrics Non-Delivery (health care services associated with the pregnancy in the prenatal and antenatal periods) and Gynaecology (treatment in relation to the female reproductive system). Obstetrics Delivery acute overnight beds are for services associated with labour and delivery.

What’s new in 2016

- This version of the CMP separates Women’s Health services into three main specialties: Gynaecology, Obstetrics Non-Delivery and Obstetrics Delivery.

Women’s Health Care

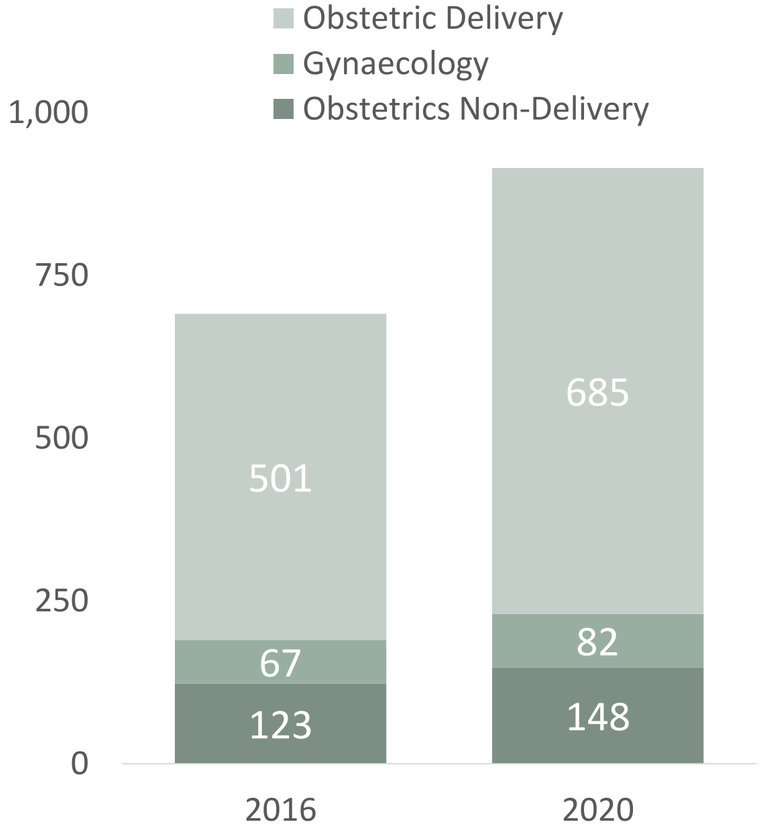
Current Supply

The supply of women’s health acute overnight beds will increase from 691 beds in 2016 to 918 beds in 2020.

The supply of women’s health outpatient consultation rooms will also increase, from 558 rooms in 2016 to 580 rooms in 2020.

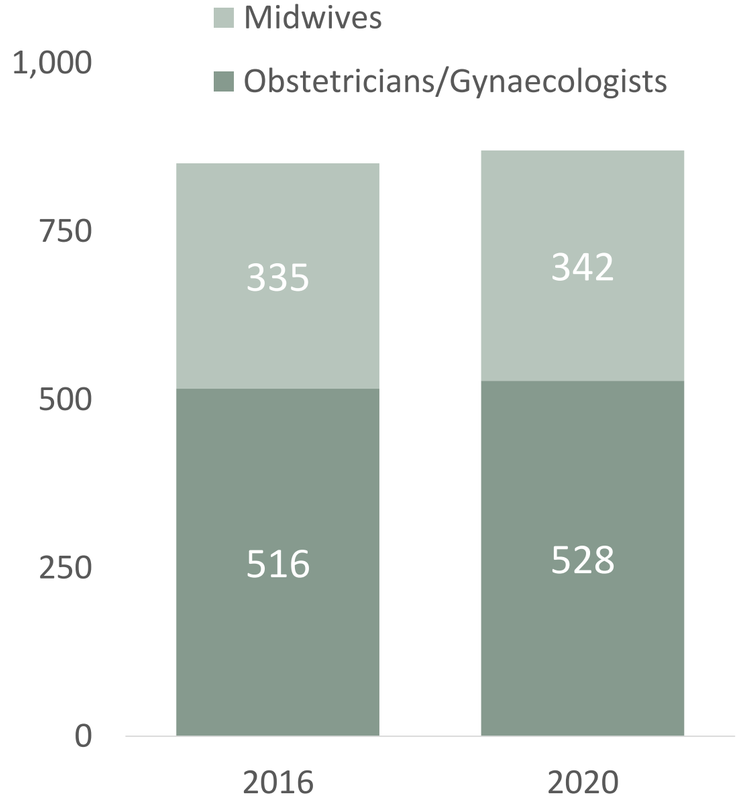
The supply of doctors and midwives in women’s health care is expected to increase from 877 FTE in 2016 to 888 FTE in 2020

Supply of Women’s Health Acute Overnight Beds, 2016 and 2020 planned supply



Supply of Women’s Health Outpatient Consultation Rooms, 2016 and 2020 planned supply

Supply of Doctors and Midwives, 2016 and 2020 planned supply



Women’s Health Care

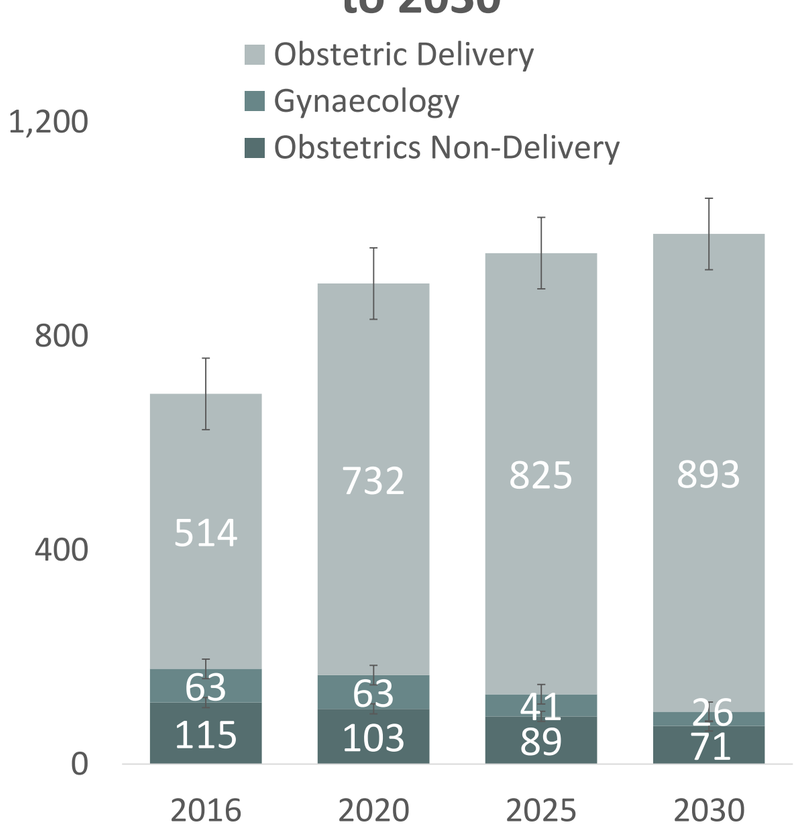
Demand

Acute overnight bed demand is growing from a total of 692 beds in 2016 to 990 beds in 2030.

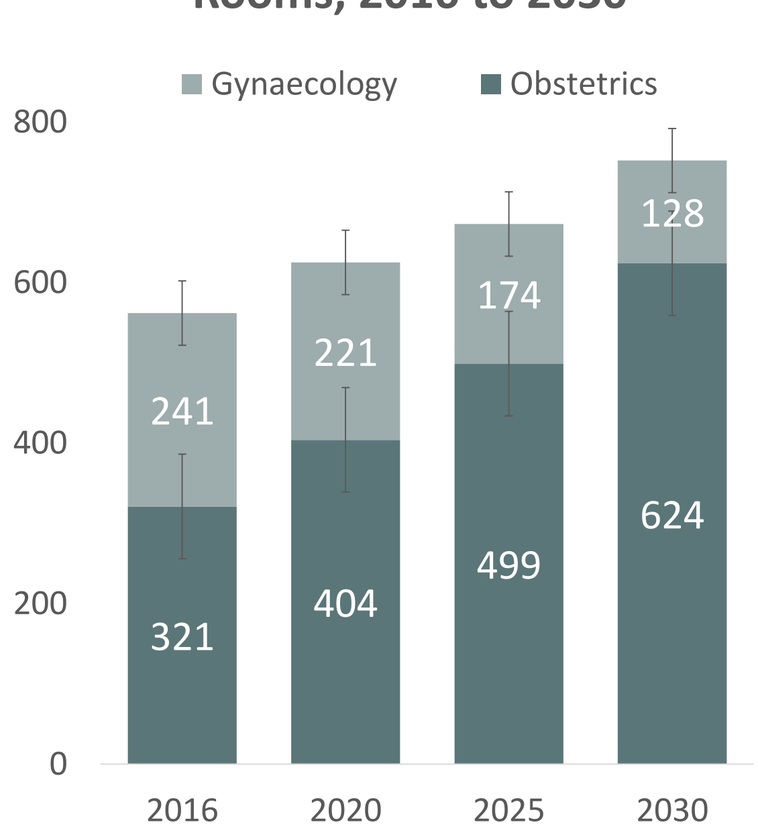
Outpatient consultation room demand is growing from 562 rooms in 2016 to 752 rooms in 2030.

Demand for doctors in Women’s Health care will grow from 562 FTE in 2016 to 769 in 2030. Demand for Midwives will grow rapidly from 552 FTE in 2016 to 5,898 FTE in 2030.

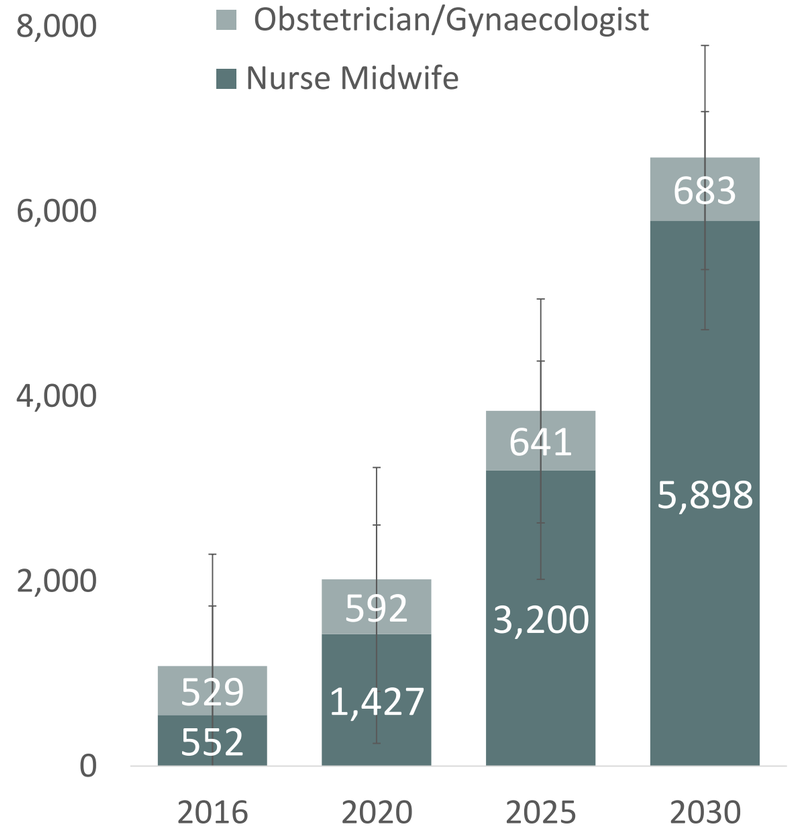
Demand for Women’s Health Acute Overnight Beds, 2016 to 2030



Demand for Women’s Health Outpatient Consultation Rooms, 2016 to 2030



Demand for Doctors and Midwives, 2016 to 2030



Women’s Health Care

Requirements

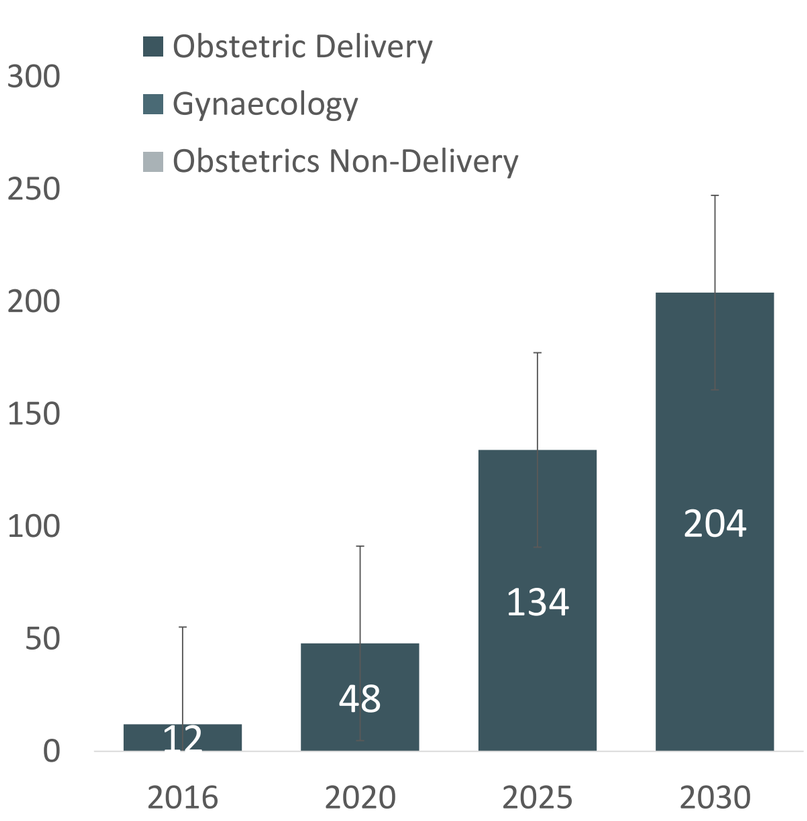
Current priorities

- Midwives.
- Doctors (Obstetricians and Gynaecologists).
- Obstetric Delivery acute overnight beds.
- Obstetrics outpatient consultation rooms.

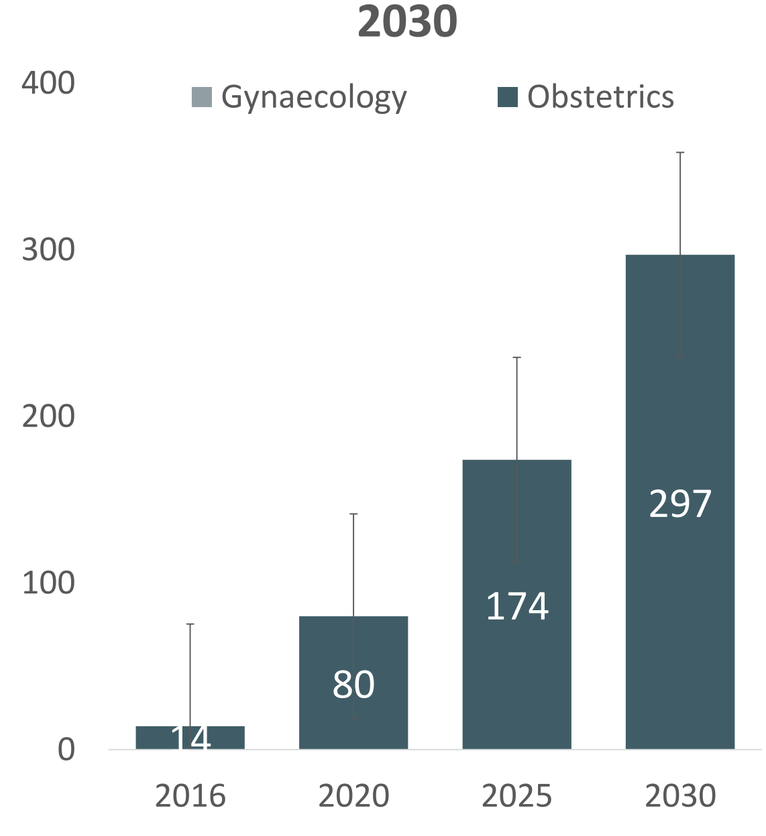
Emerging priorities

- Midwives.
- Doctors (Obstetricians and Gynaecologists).
- Obstetric Delivery acute overnight beds.
- Obstetrics outpatient consultation rooms.

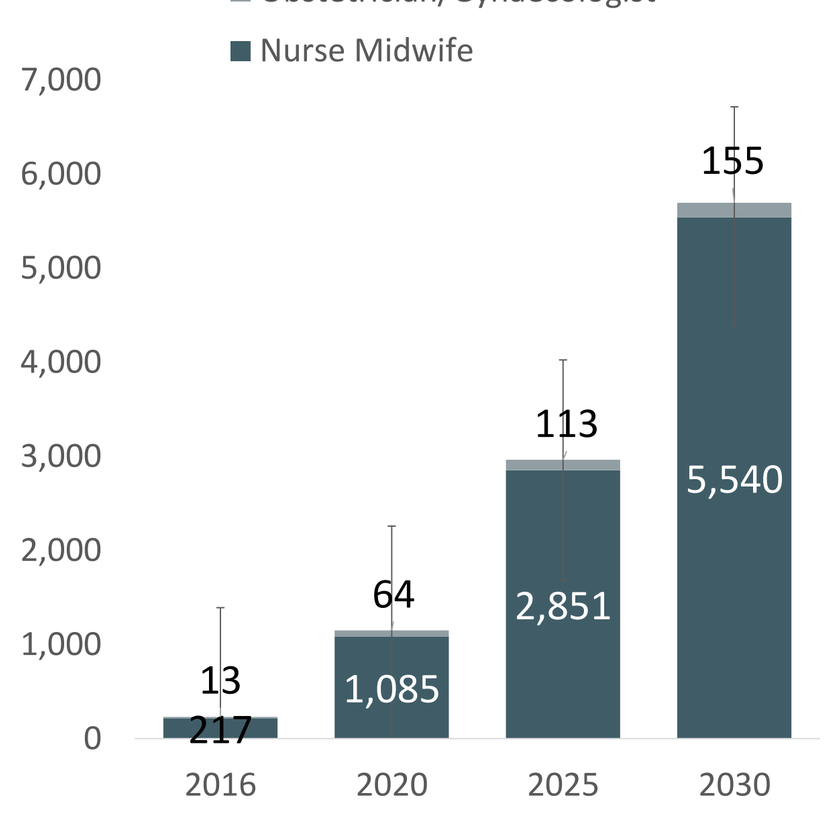
Requirements for Women’s Health Acute Overnight Beds, 2016 to 2030



Requirements for Women’s Health Outpatient Consultation Rooms, 2016 to 2030



Requirements for Doctors and Midwives, 2016 to 2030



Diagnostic Care

Diagnostic Care

About

Definition

Diagnostic 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. This treatment can be either provided in an outpatient or hospital setting.

What's new in 2016

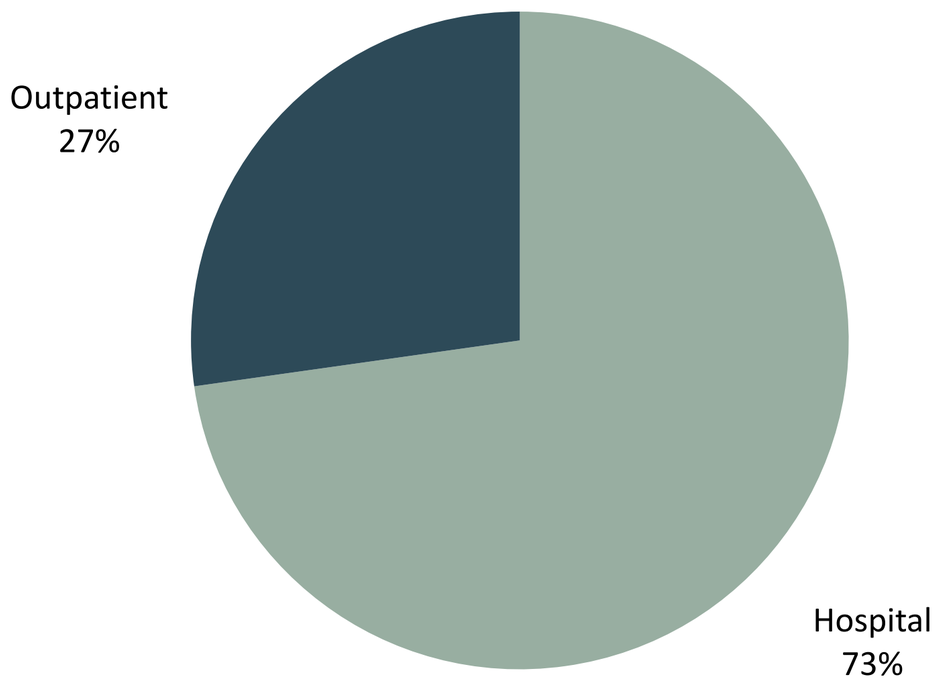
- Better surveying and information collection from facilities and service providers has resulted in more accurate supply figures in this version of the Plan, most notably in X-ray machines.
- Greater than expected population growth and projections, with modelling improvements from relative utilisation has resulted in an increase in demand for diagnostic care across Abu Dhabi.

Diagnostic Care

Current Supply

In 2016, a total of 1,054 diagnostic equipment were available within the Emirate, of which 288 were in an outpatient setting and 766 were in a hospital setting.

Supply of Diagnostic Machines by Setting, 2016



Supply of Diagnostic Machines, 2016 and planned supply

Diagnostic machine	2016	Planned
Ultrasound	411	47
X-Ray	390	35
Lithotripter	65	6
Computed Tomography	57	6
Magnetic Resonance	44	5
Mammography	41	4
Angiography	23	2
Gamma Camera	12	2
Positron Emission Tomography	5	1
Radiation Therapy	5	1
Grand Total	**1,054**	**108**

Bone Densitometers have not been included in this version of the gap analysis, which was shown as 5 in the Abu Dhabi Region in the previous year.

Linear Accelerators have been replaced by the term Radiation therapy

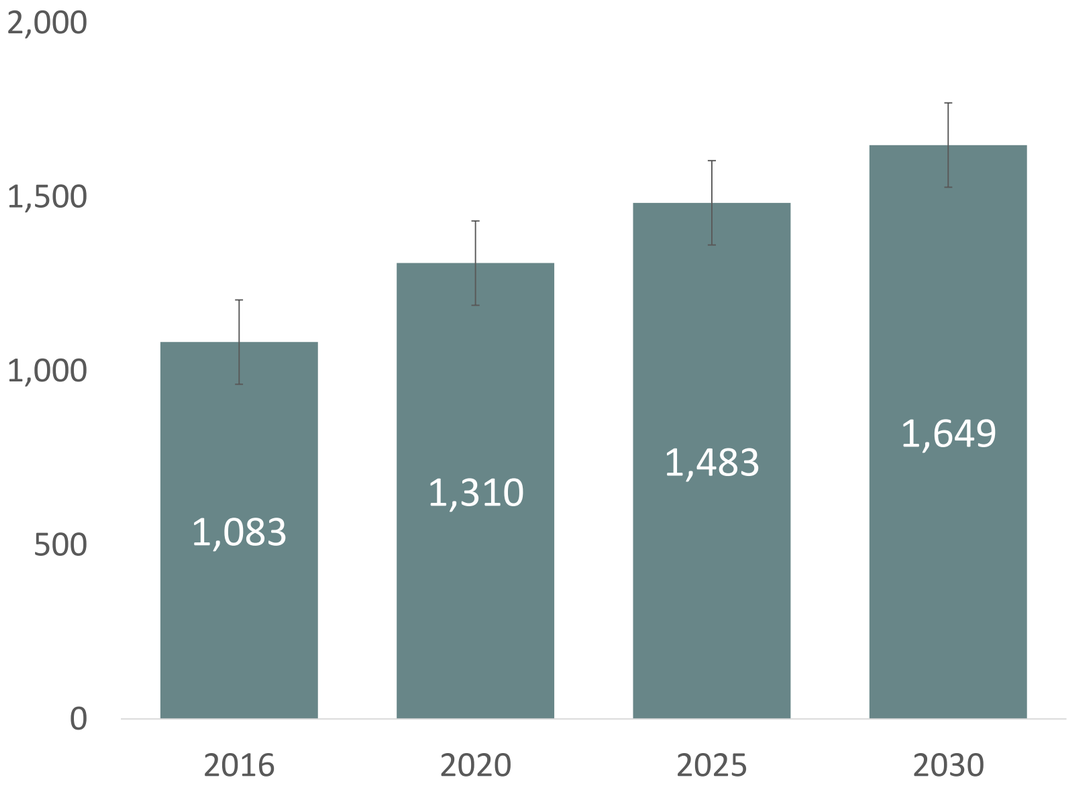
Diagnostic Care

Demand

In 2016, there was a demand for 1,083 diagnostic machines which will grow to 1,649 by 2030.

The greatest growth in demand will occur for Ultrasound machines with an increase of 443.

Demand for Diagnostic Machines, 2016 to 2030



Demand for Diagnostic Machines, ordered by largest in 2030

Diagnostic machine	2030	2025	2020	2016
Ultrasound	877	731	575	434
X-Ray	395	407	424	390
Lithotripter	81	74	68	58
Computed Tomography	67	61	55	46
Magnetic Resonance	64	71	73	65
Mammography	63	56	50	42
Angiography	39	34	29	23
Gamma Camera	32	25	19	13
Positron Emission Tomography	17	13	9	6
Radiation Therapy	14	11	8	6
Grand Total	**1,649**	**1,483**	**1,310**	**1,083**

Diagnostic Care

Requirements

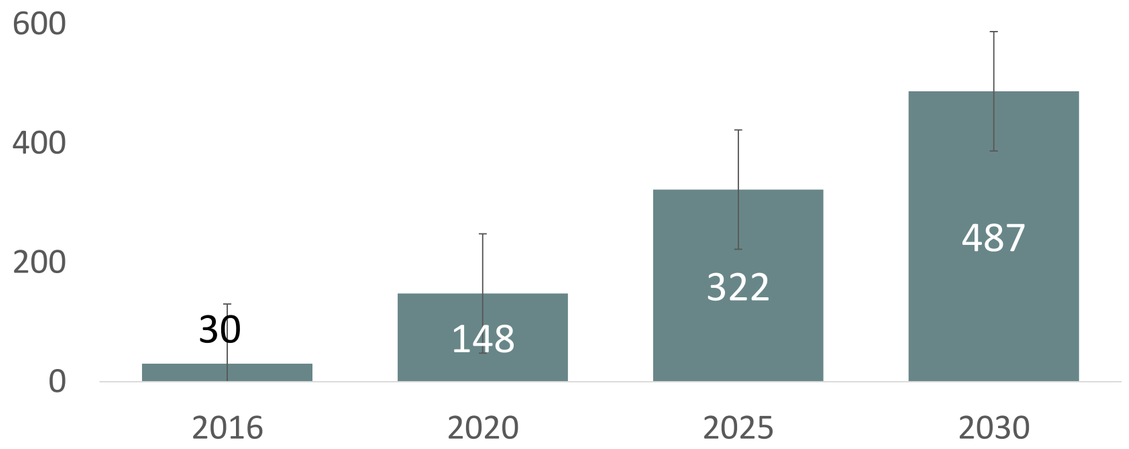
Current priorities

- Radiographers and Radiotherapists.
- All machines except for PET, Lithotripter and X-ray.

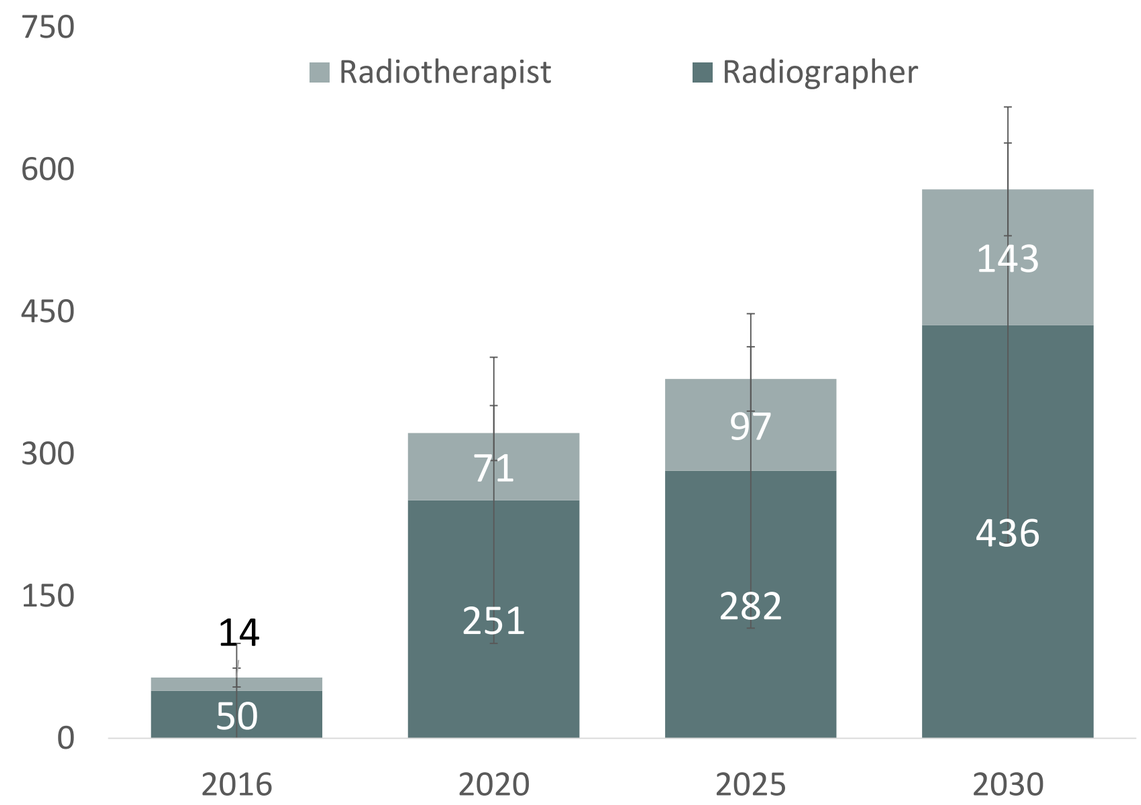
Emerging priorities

- Radiographers and Radiotherapists.
- All machines except for X-ray.

Requirements for Diagnostic Machines, 2016 to 2030



Requirements for Radiographers and Radiotherapists by FTE, 2016 to 2030



Requirements for Diagnostic Machines, ordered by largest in 2030

Diagnostic machine	2030	2025	2020	2016
Ultrasound	406	266	117	23
Computed Tomography	19	12	6	1
Magnetic Resonance	18	12	6	1
Mammography	18	11	4	1
Gamma Camera	17	11	5	1
Angiography	14	9	4	1
Radiation Therapy	10	6	3	1
Positron Emission Tomography	8	5	2	-
Lithotripter	1	1	2	-
X-Ray	-	-	-	-
Grand Total	**487**	**322**	**148**	**30**

Diagnostic Care

Requirements

DoH will continue to work closely with providers and Investors 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 DoH 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 DoH capacity management assessment as part of the DoH Facility Licence Application Process.
- DoH 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.

Clinical Workforce

Clinical Workforce

Current Supply

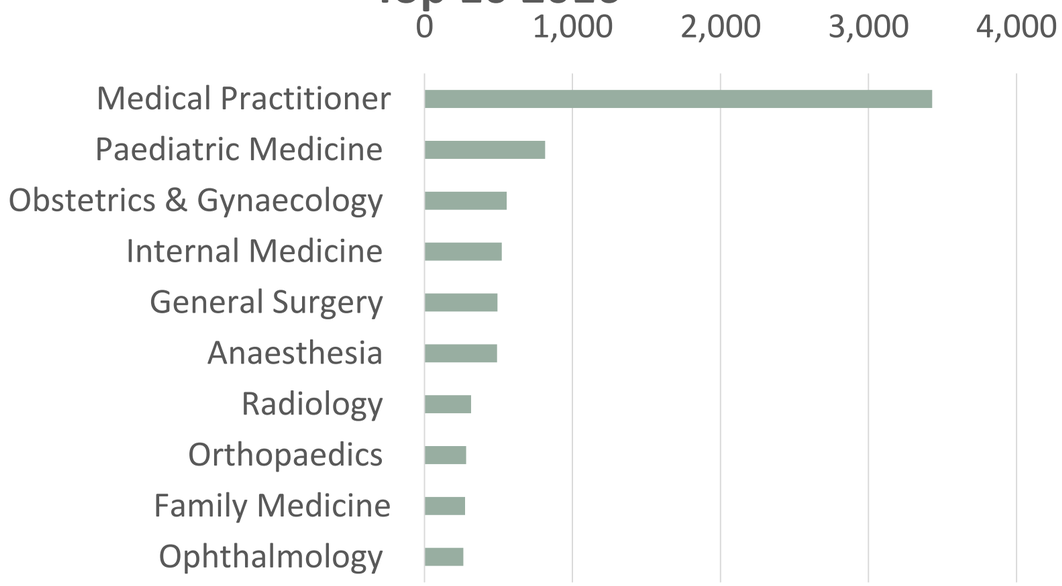
Clinical Workforce Service Modes include:

- Medical (Consultants, Specialists and Practitioners)
- Nursing
- Allied Health and Pharmacy
- Oral Health (Dentists, Dental Hygienist, Dental Assistant)

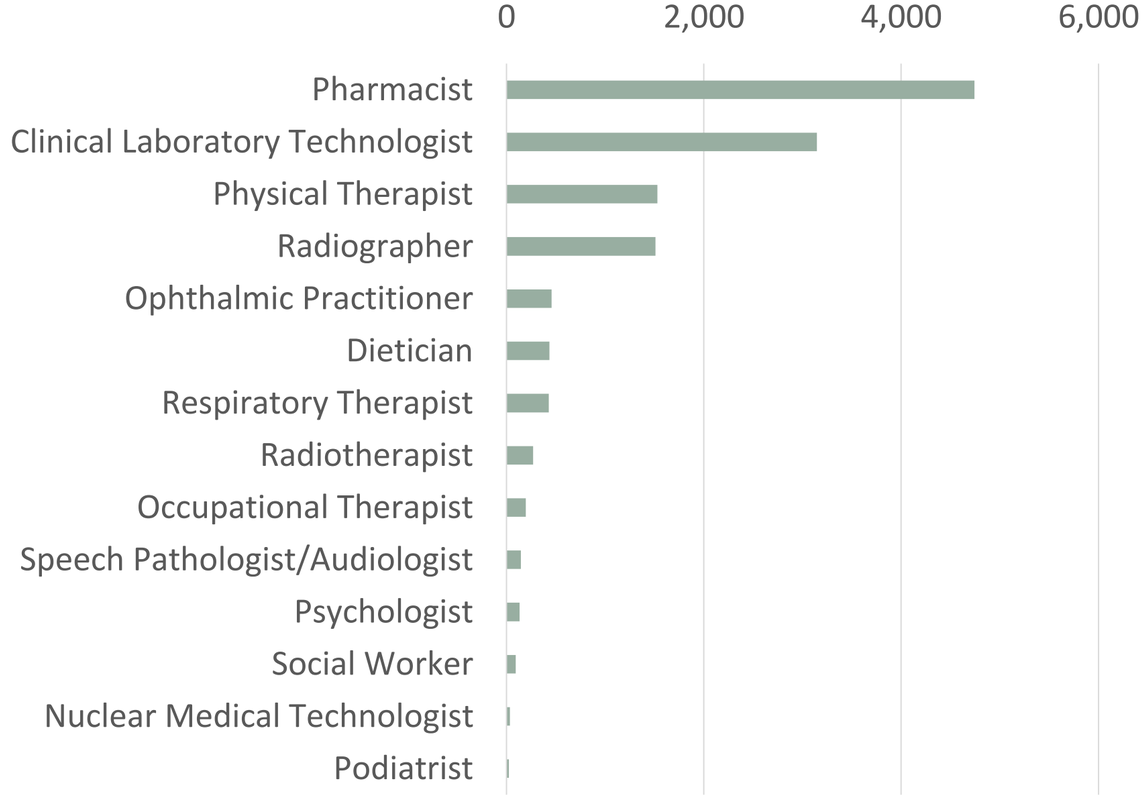
Supply of Clinical Workforce by Service Mode and FTE, 2016 and 2020

Emirate	2016	2020	Change
Medical	9,464	9,702	238
Nursing	24,573	24,736	163
Allied Health and Pharmacy	13,148	13,231	83
Oral Health	1,822	1,833	11
Total	**49,007**	**49,502**	**495**

Supply of Medical by Speciality and FTE, Top 10 2016



Supply of Allied Health and Pharmacy Workforce by FTE, 2016



Pharmacist supply has been included from the Shafafiya Licensing database. Small differences may be noted when comparing to Health Statistics 2016 as the CMP uses FTE (rather than head count) and source of information was both Shafafiya and Health Facility Survey.

Supply figures represent FTE, not head count. Therefore, small differences may be noted when comparing to Health Statistics 2016, which reports head count. Source: Licensing database, Facility Survey

Clinical Workforce

Demand

Demand for clinical workforce FTE in the Emirate increases from 50,459 in 2016 to 77,798 in 2030. The largest change occurs in the nursing workforce which will see an increase in demand of 16,885 FTE over the same period.

Additional Notes:

- FTE demand of human resource workforce is based on place of residence of workforce (based on the Reference dataset) adjusted by place of residence of patients using relative utilisation factor applied at geographical and workforce category level

Demand for Medical Workforce by FTE, ordered by Top 10 Specialties in 2030

Specialty	2030	2025	2020	2016
Family Medicine	2,972	2,650	2,258	2,093
Medical Practitioner	2,628	2,421	2,084	1,775
Paediatric Medicine	1,119	1,013	922	223
Internal Medicine	798	722	643	296
Anaesthesia	770	687	596	314
Obstetrics & Gynaecology	769	709	643	265
Emergency Medicine	562	415	287	93
General Surgery	529	529	529	271
Radiology	463	410	365	138
ENT Surgery	380	334	276	55

Demand for Clinical Workforce by Service Mode and FTE, 2016 and 2020

Year	Medical	Nursing	Allied Health and Pharmacy	Oral Health	Total
2016	9,917	25,881	13,574	1,839	**51,211**
2020	11,404	31,280	15,366	1,917	**59,967**
2025	12,929	36,552	16,824	2,025	**68,330**
2030	14,285	42,766	19,088	2,139	**78,278**

Demand for Allied Health & Pharmacy Workforce by FTE, ordered by Top 10 in 2030

Year	2030	2025	2020	2016
Pharmacist	4,769	4,770	4,738	4,744
Clinical Laboratory Technologist	3,161	3,162	3,142	3,146
Physical Therapist	1,539	1,539	1,527	1,530
Radiographer	1,519	1,519	1,507	1,510
Ophthalmic Practitioner	461	461	457	458
Dietician	438	438	435	436
Respiratory Therapist	431	431	427	428
Radiotherapist	272	272	270	271
Occupational Therapist	198	198	195	196
Speech Pathologist/Audiologist	149	149	146	147
Psychologist	138	135	131	132
Social Worker	97	95	92	93
Nuclear Medical Technologist	36	36	36	36
Podiatrist	25	24	24	24
Total Allied Health	**19,088**	**16,824**	**15,366**	**13,148**

Clinical Workforce

Requirements

Current priorities

- Medical, Allied Health, Oral Health and Nursing workforce
- Top Allied Health workforce requirements: Psychologist, Social Worker, Physical therapist
- Top Medical workforce requirements: Family Medicine, Psychiatry, Internal Medicine, Emergency Medicine

Emerging priorities

- Medical, Allied Health, Oral Health and Nursing workforce
- Top Allied Health workforce requirements: Psychologist, Social Worker, Occupational Therapist
- Top Medical workforce requirements: Family Medicine, Psychiatry, Emergency Medicine, Internal Medicine, Paediatric Medicine, Anaesthesia

Requirements for Medical Workforce by FTE, ordered by Top 10 Specialties largest in 2030

Specialty	2030	2025	2020	2016
Family Medicine	2,698	2,376	1,984	1,824
Emergency Medicine	380	234	107	23
Paediatric Medicine	303	197	106	26
Anaesthesia	280	197	106	25
Internal Medicine	276	200	121	27
Obstetrics & Gynaecology	213	153	86	20
ENT Surgery	165	119	61	14
Psychiatry	161	161	161	34
Radiology	148	95	50	12
Orthopaedics	96	68	36	9

Requirements for Clinical Workforce by Service Mode and FTE, 2016 and 2020

Year	Medical	Nursing	Allied Health and Pharmacy	Oral Health	Total
2016	453	1,309	426	17	**2,205**
2020	1,702	6,543	2,137	84	**10,466**
2025	3,266	11,809	3,592	192	**18,859**
2030	4,581	18,018	5,853	307	**28,759**

Requirements for Allied Health & Pharmacy Workforce by FTE, ordered by largest in 2030

Year	2030	2025	2020	2016
Psychologist	1,781	1,010	420	84
Social Worker	1,188	703	312	62
Occupational Therapist	526	238	221	44
Physical Therapist	458	281	288	58
Speech Pathologist/Audiologist	437	373	207	41
Radiographer	436	282	251	50
Pharmacist	407	350	236	46
Respiratory Therapist	222	123	118	24
Radiotherapist	143	97	71	14
Podiatrist	130	115	50	10
Dietician	129	97	78	16
Ophthalmic Practitioner	54	40	26	5
Nuclear Medical Technologist	3	2	2	-
Total Allied Health	**5,853**	**3,592**	**2,137**	**426**

Section B – The Emirate

Summary of Priorities

Summary

The Emirate

Top 5	Acute Overnight Bed		Acute Same Day Places		Outpatient Consultation Rooms	
	Current	**2030**	**Current**	**2030**	**Current**	**2030**
1st	Psychiatry (37)	Psychiatry (526)	Urology (1)	Urology (97)	Primary Care (519)	Primary Care (1,423)
2nd	Alcohol & Other Drugs (24)	Orthopaedics (295)	Chemotherapy (1)	Renal Dialysis (66)	Paediatric Medicine (27)	Paediatric Medicine (513)
3rd	Orthopaedics (18)	Neonatology (241)	-	ENT (65)	Paediatric Surgery (16)	Paediatric Surgery (396)
4th	Obstetrics Delivery (12)	Obstetric Delivery (204)	-	Orthopaedics (56)	Obstetrics (14)	Obstetrics (297)
5th	General Medicine (10)	General Medicine (147)	-	Gynaecology (41)	Orthopaedics (12)	Orthopaedics (248)

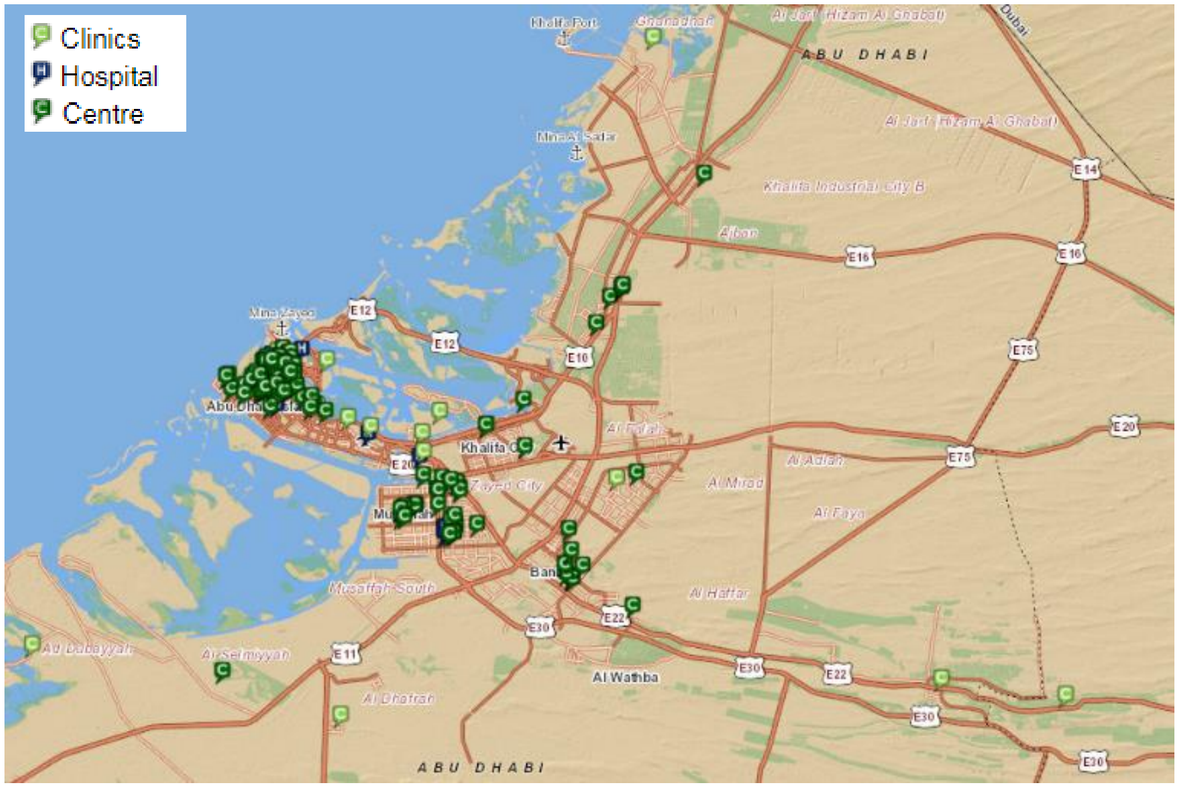
	Current	Emerging (2020-2030)
Emergency Care	Emergency Care bays (Triage Class 2, 3 & 4) Emergency Physicians	Emergency Care bays (Triage Class 1, 2, 3 & 4) Emergency Physicians
Diagnostic	Ultrasound, CT, MRI, Mammography, Gamma Camera, Angiography, Radiation Therapy	Ultrasound, CT, MRI, Mammography, Gamma Camera, Angiography, Radiation Therapy, PET, Lithotripter
Intensive Care	All ICU bed types Intensive Care Specialists	All ICU bed types Intensive Care Specialists
Non-Acute Care	Non-Acute care overnight bed types for Rehabilitation and Disability	Non-Acute care overnight bed types for Rehabilitation and Disability

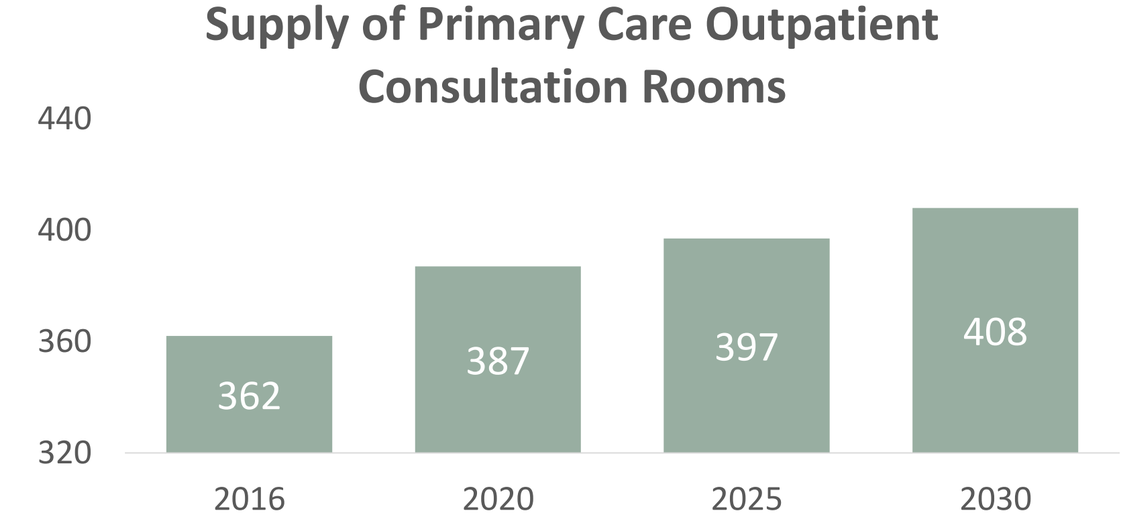
Section C – Abu Dhabi Region

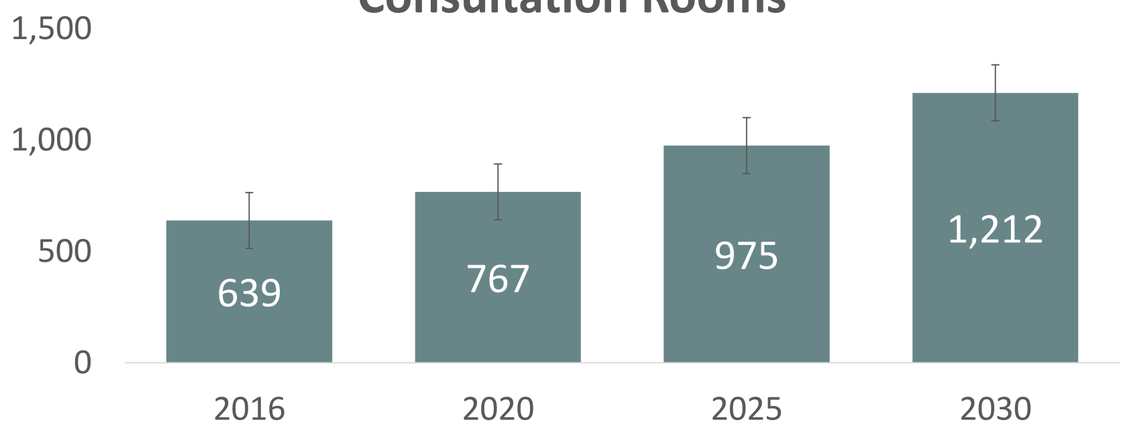
Supply, Demand and Gap Analysis for the Abu Dhabi Region

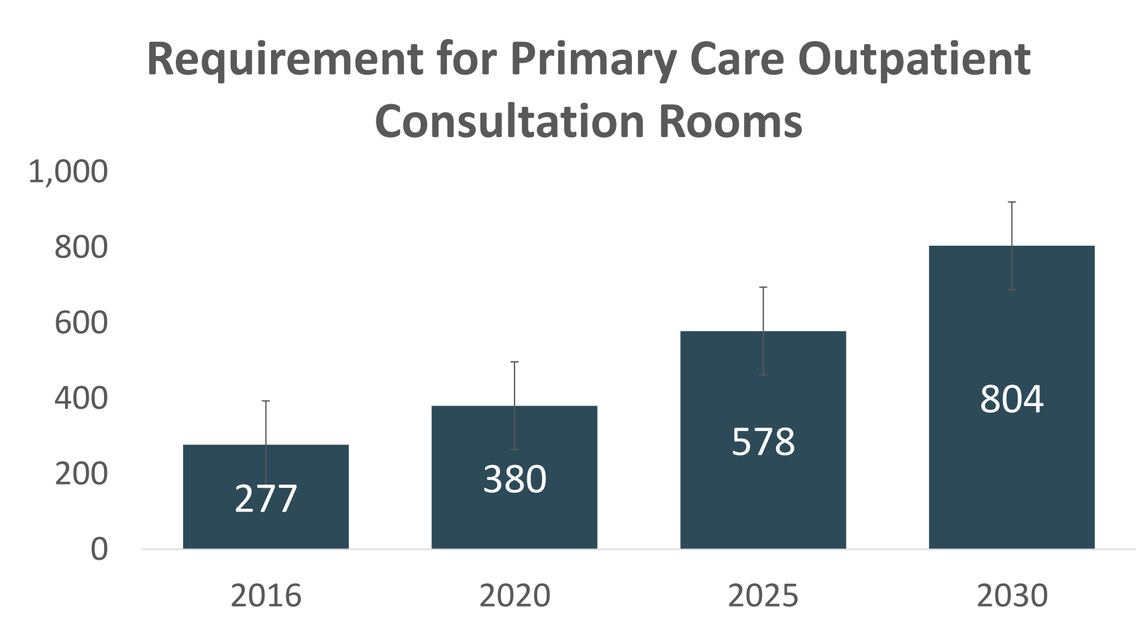
Primary Care

Abu Dhabi Region









Requirements are based on survey and do not include the new implementation of licensed primary care providers following the policy change introduced by “DoH Standard for Primary Care in Emirate of Abu Dhabi”. This will be included in the next CMP.

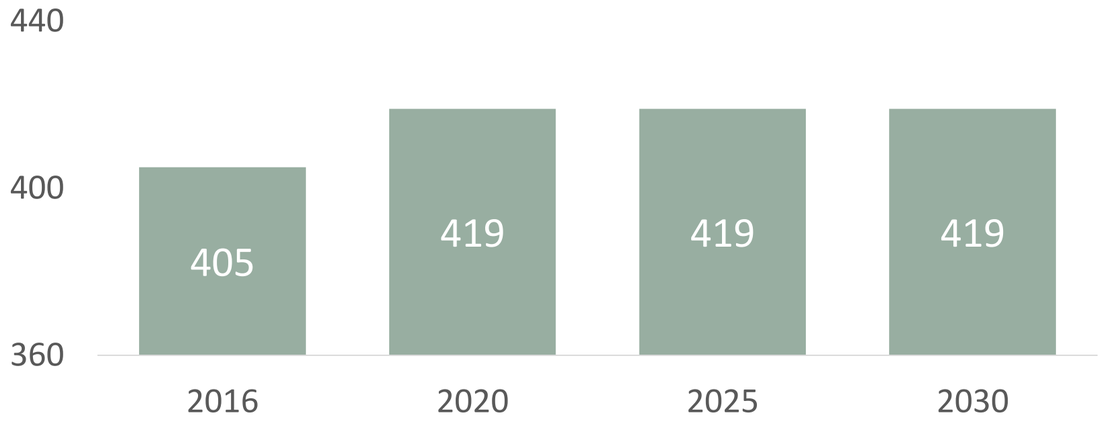
Emergency Care

Abu Dhabi Region

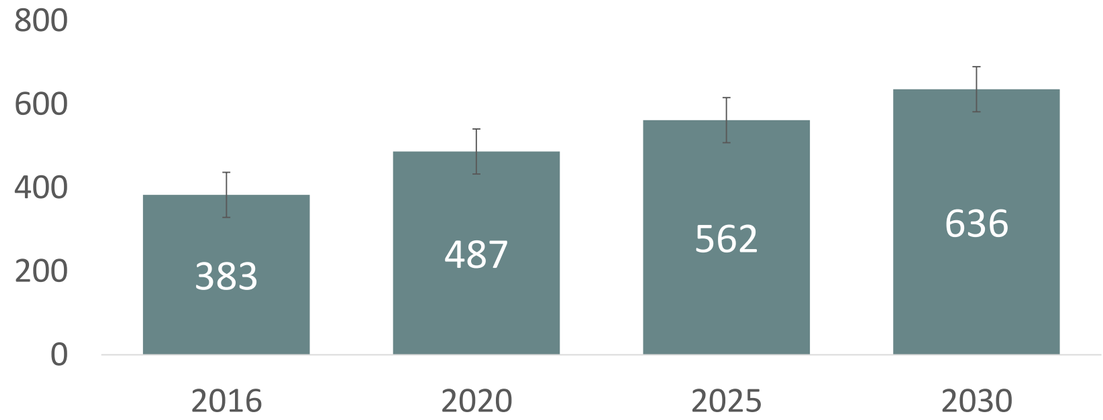
Requirements for Emergency Care bays by Triage Class

Triage Class	2016	2020	2025	2030
1 – Immediate Life Threat	-	1	2	3
2 – Imminent Life Threat	5	22	46	76
3 – Potential Life Threat	10	47	95	150
4 – Serious	-	-	-	-
5 – Less Urgent	-	-	-	-

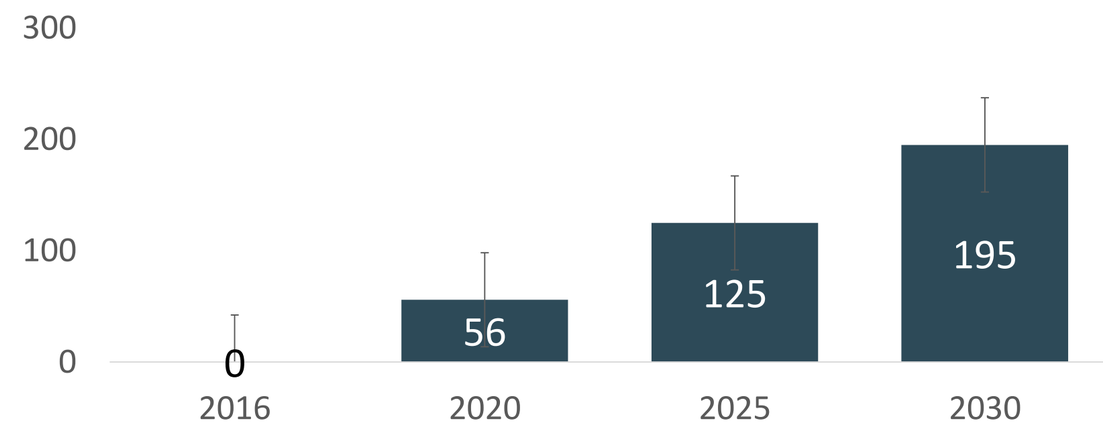
Supply of Emergency Care Bays



Demand for Emergency Care Bays



Requirement for Emergency Care Bays



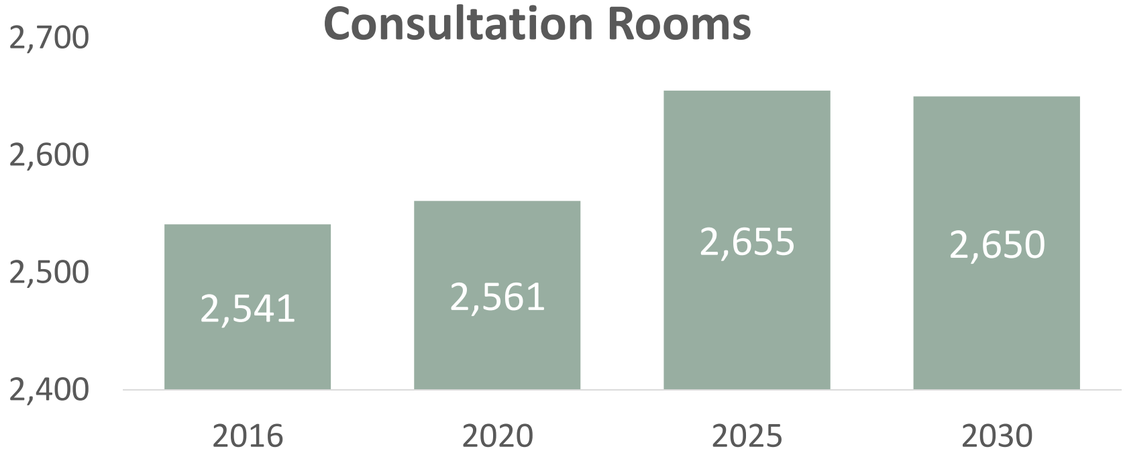
Specialist Outpatient Care

Abu Dhabi Region

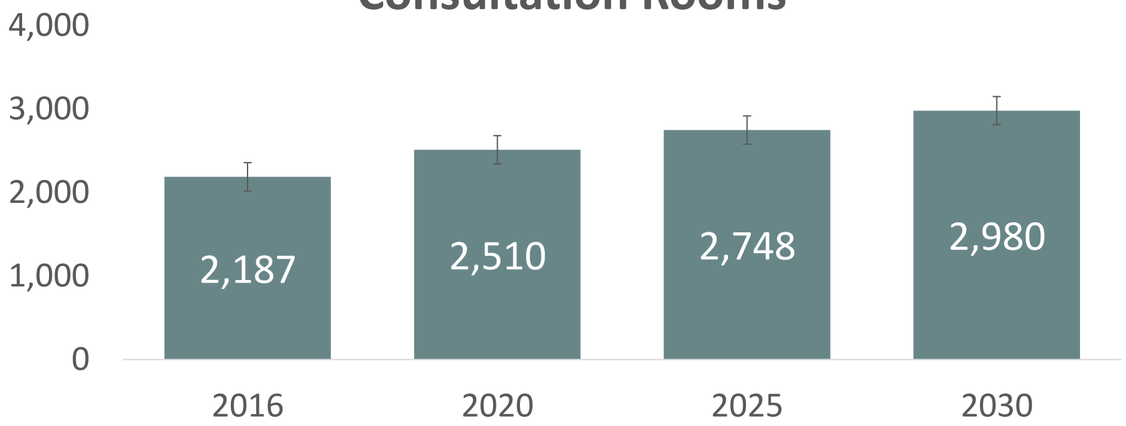
Top 10 Requirement for Specialist Outpatient Consultation Rooms, ordered by largest in 2030

Speciality	2030	2025	2020	2016
Paediatric Medicine	275	161	60	-
Paediatric Surgery	232	121	45	7
Orthopaedics	123	54	5	-
Immunology & Infectious Diseases	121	54	15	-
Trauma & Injury	69	44	23	8
Gastroenterology & Hepatology	58	27	4	-
ENT Surgery	51	28	10	-
Nephrology	39	19	4	-
Medical Oncology	33	17	5	-
Endocrinology	31	22	10	-

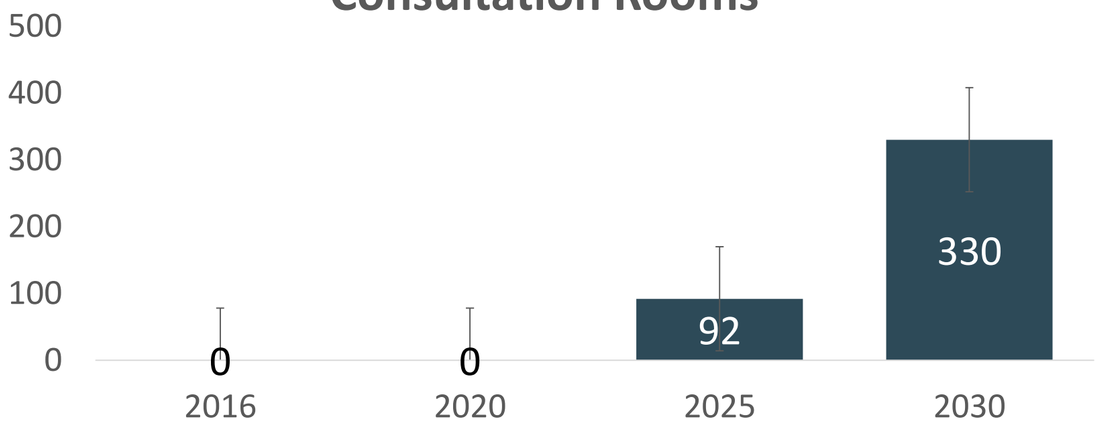
Supply of Specialist Outpatient Consultation Rooms



Demand for Specialist Outpatient Consultation Rooms



Requirement for Specialist Outpatient Consultation Rooms



Supply figures have been relatively adjusted to demand, which explains the slight drop in supply projections in 2030. Oversupply in some specialties may be masking region-wide results.

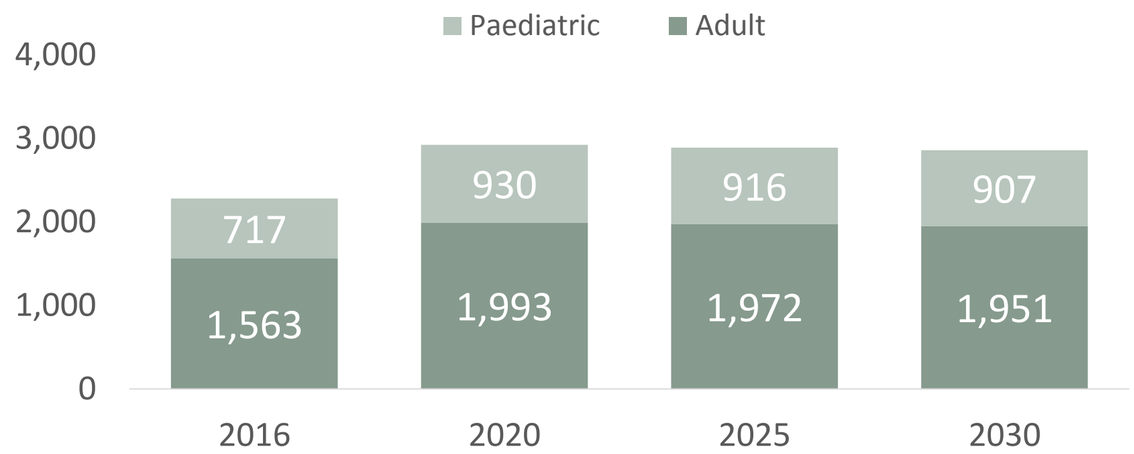
Acute Overnight Care

Abu Dhabi Region

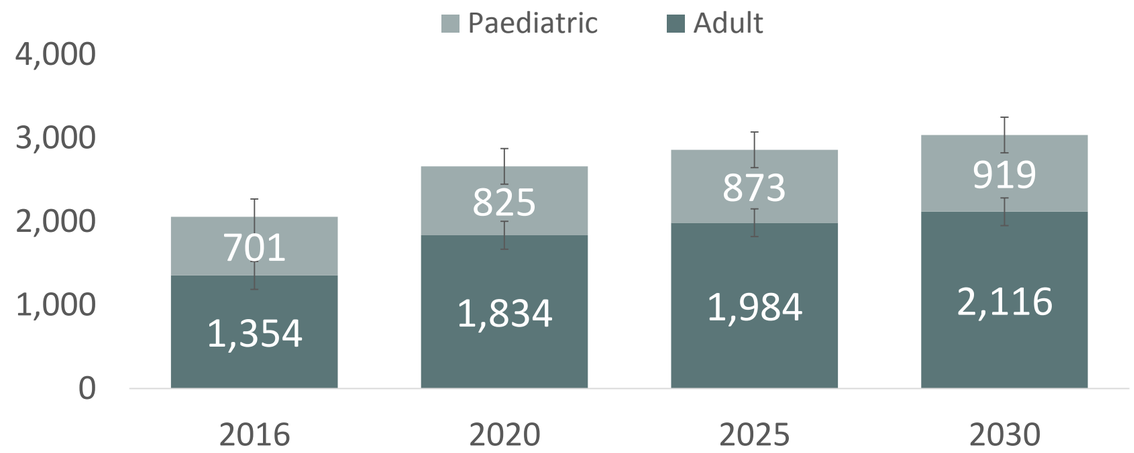
Top 10 Requirement for Acute Overnight Beds, ordered by largest in 2030

Speciality	2030	2025	2020	2016
Psychiatry	333	198	87	33
Orthopaedics	131	64	2	-
Neonatology	113	31	-	-
General Medicine	83	49	19	3
Medical Oncology	22	13	4	1
Neurological Surgery	22	13	5	1
Cardiothoracic Surgery	19	9	-	-
Burns	15	8	2	-
Plastic Surgery	13	5	-	-
Vascular Surgery	9	4	-	-

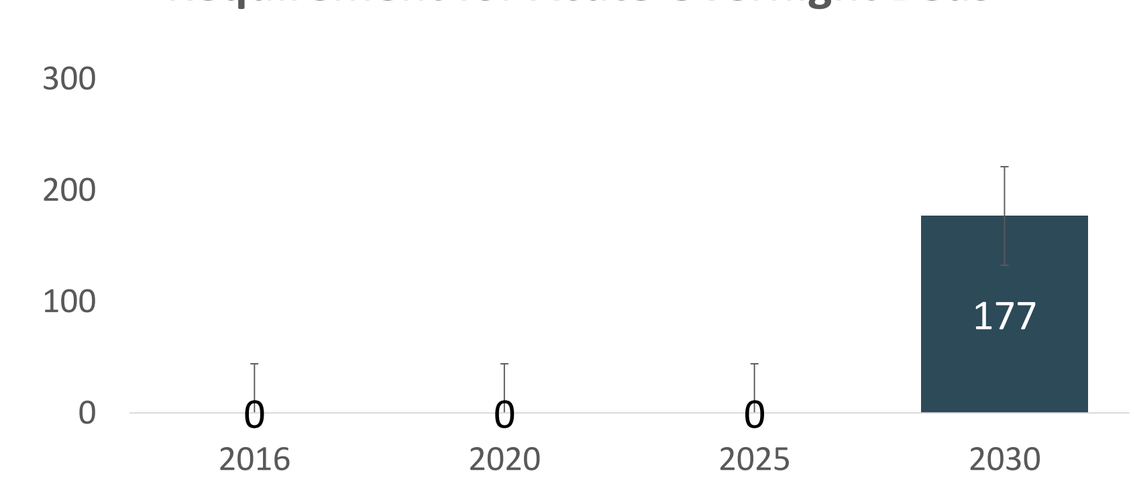
Supply of Acute Overnight Beds



Demand for Acute Overnight Beds



Requirement for Acute Overnight Beds



Supply figures have been relatively adjusted to demand, which explains the slight drop in supply projections in 2030
Requirement total is less than sum of top 10 specialties due to the large oversupply in other specialties. Oversupply in some specialties may be masking region-wide results.

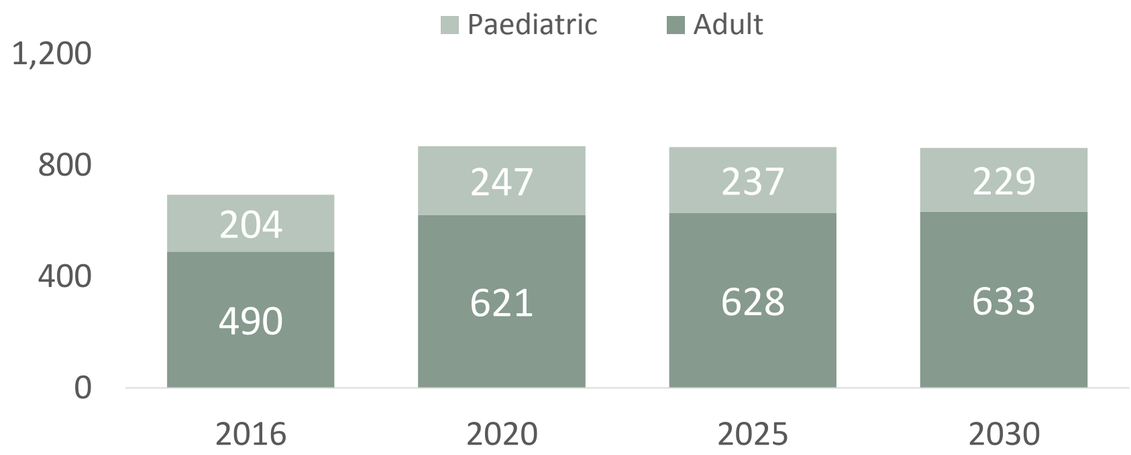
Acute Same Day Care

Abu Dhabi Region

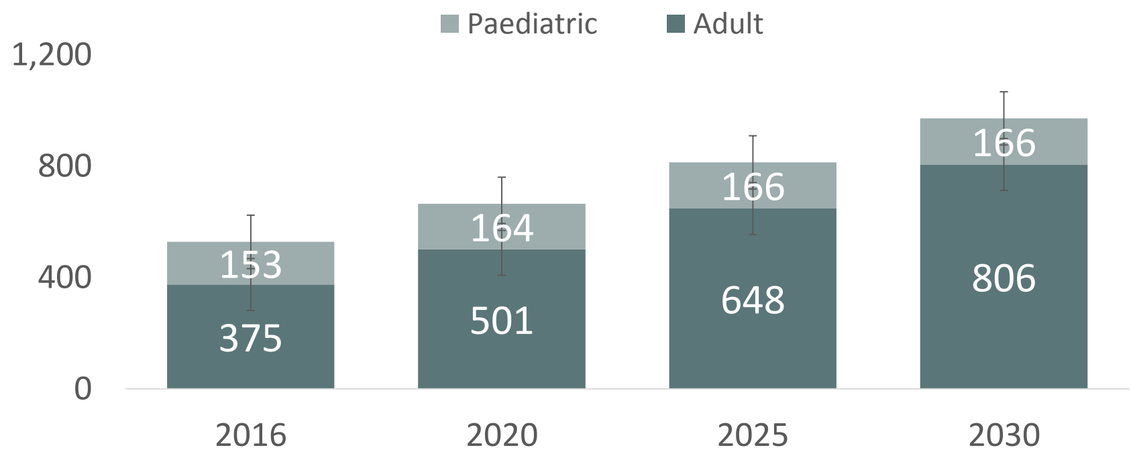
Top 10 Requirement for Acute Same Day Places, ordered by largest in 2030

Speciality	2030	2025	2020	2016
Urology	48	19	-	-
Renal Dialysis	26	-	-	-
ENT	24	1	-	-
Orthopaedics	22	4	-	-
Chemotherapy	19	9	2	-
General Medicine	17	5	-	-
Plastic Surgery	7	2	-	-
Cardiology Medical	6	-	-	-
Haematology	6	2	-	-
Ophthalmology	4	-	-	-

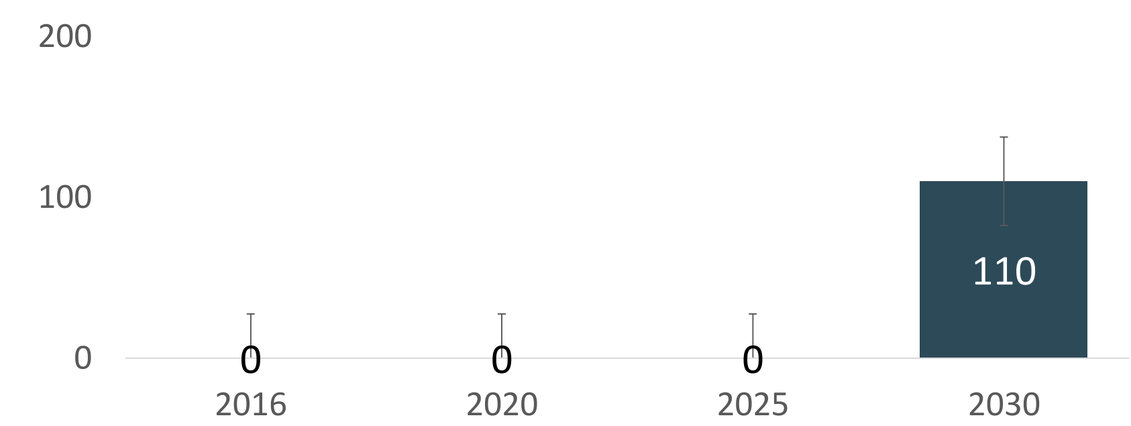
Supply of Acute Same Day Places



Demand for Acute Same Day Places



Requirement for Acute Same Day Places

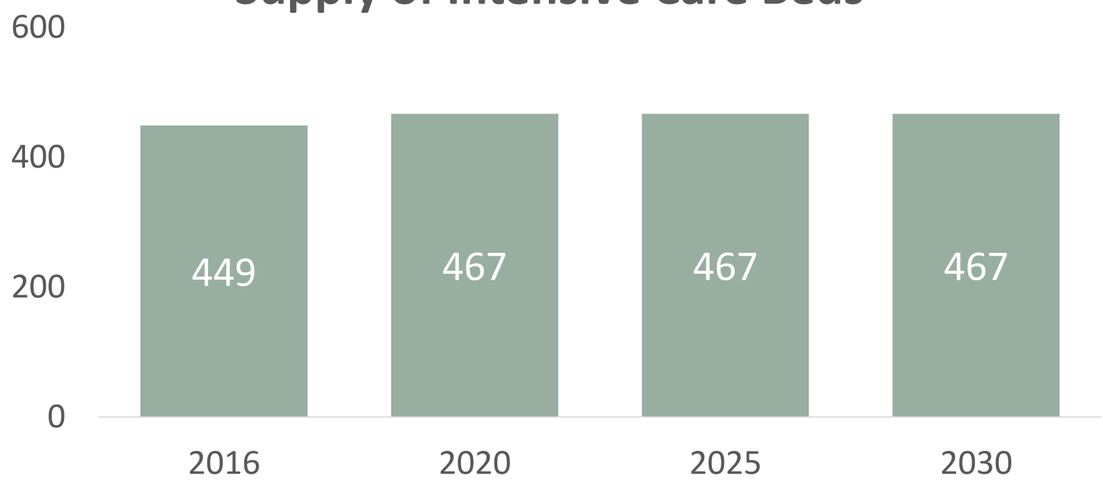


Supply figures have been relatively adjusted to demand, which explains the slight drop in supply projections in 2030
Requirement total is less than sum of top 10 specialties due to the large oversupply in other specialties

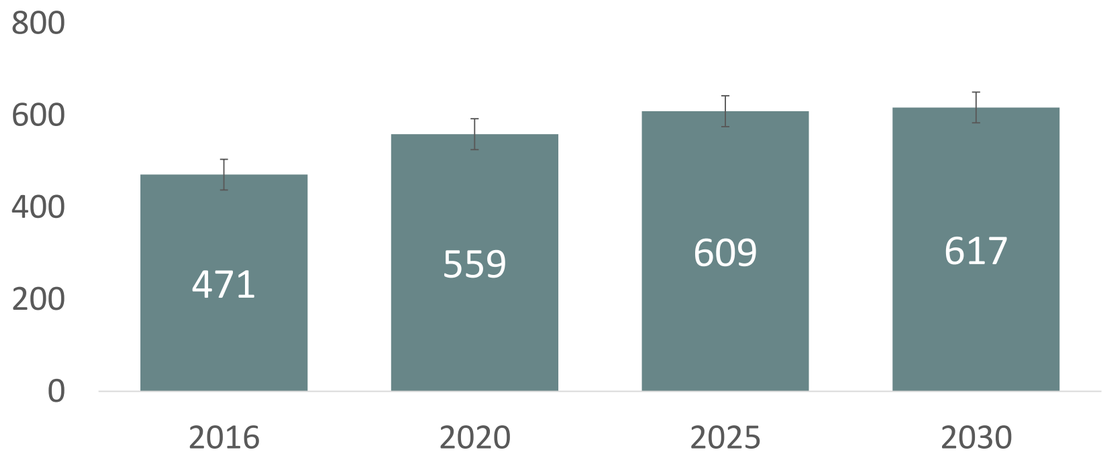
Intensive Care

Abu Dhabi Region

Supply of Intensive Care Beds



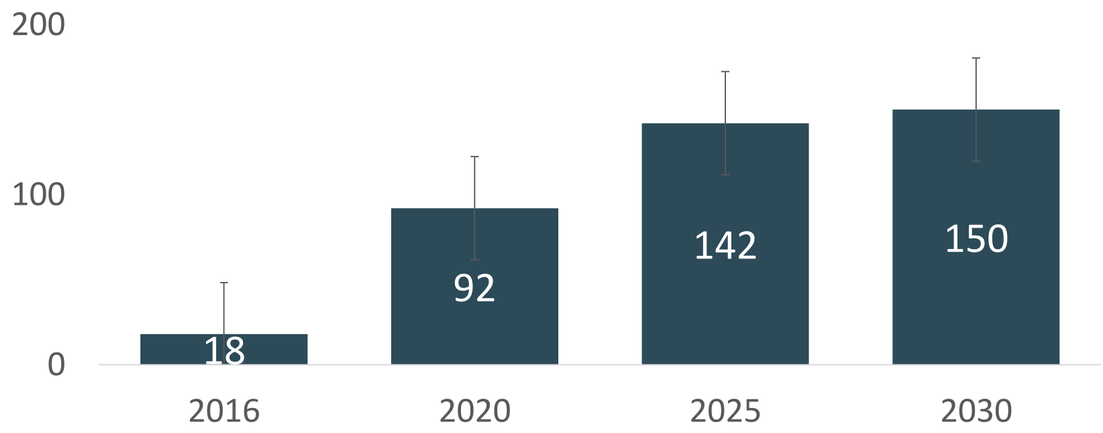
Demand for Intensive Care Beds



Requirement for Intensive Care Beds by Type, ordered by largest in 2030

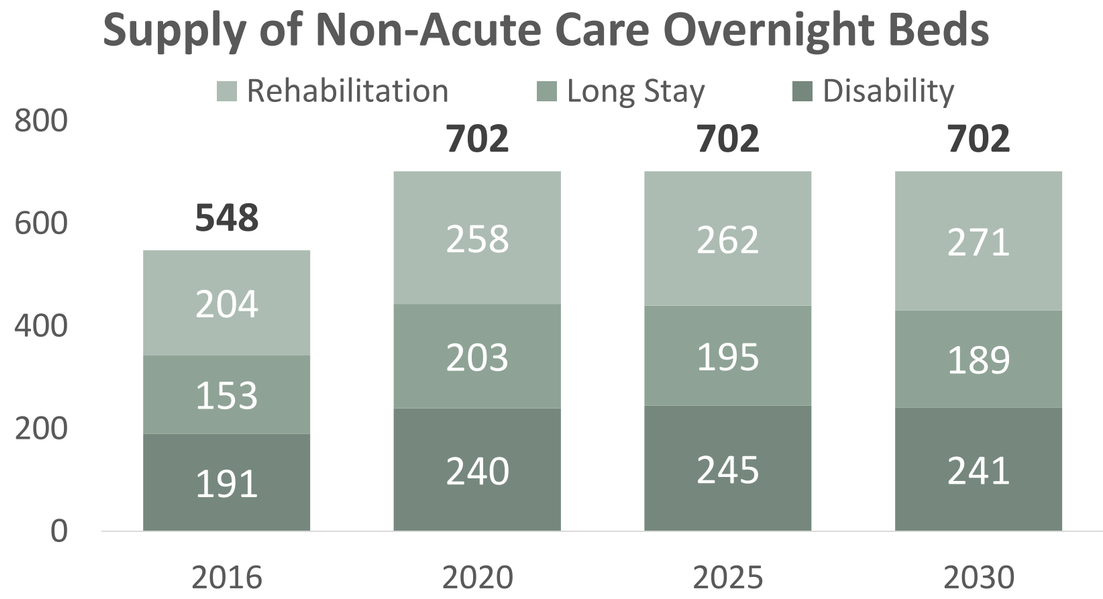
Intensive Care Bed Type	2030	2025	2020	2016
Neonatology	92	73	44	9
General	48	60	42	8
Paediatric	10	9	6	1

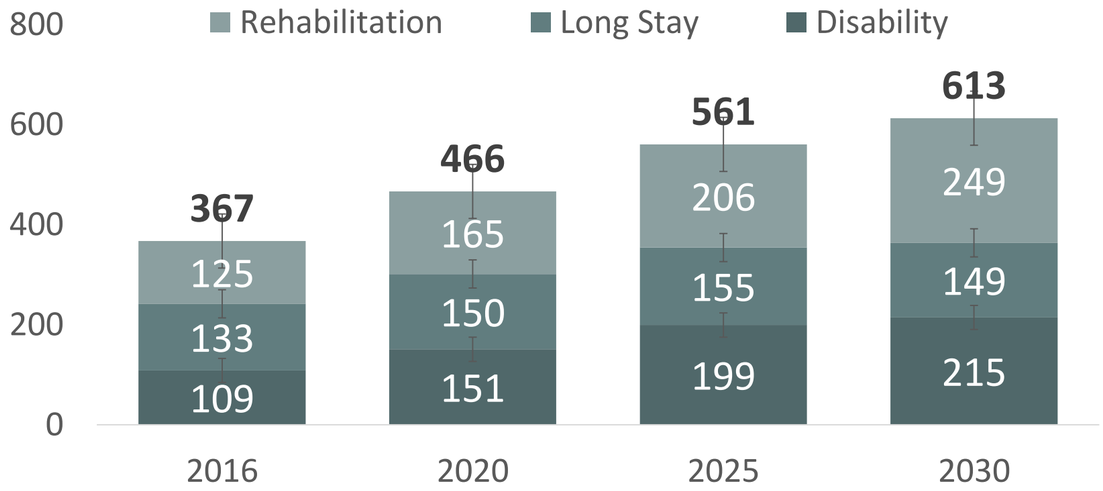
Requirement for Intensive Care Beds



Non-Acute Care & Long Term Care

Abu Dhabi Region



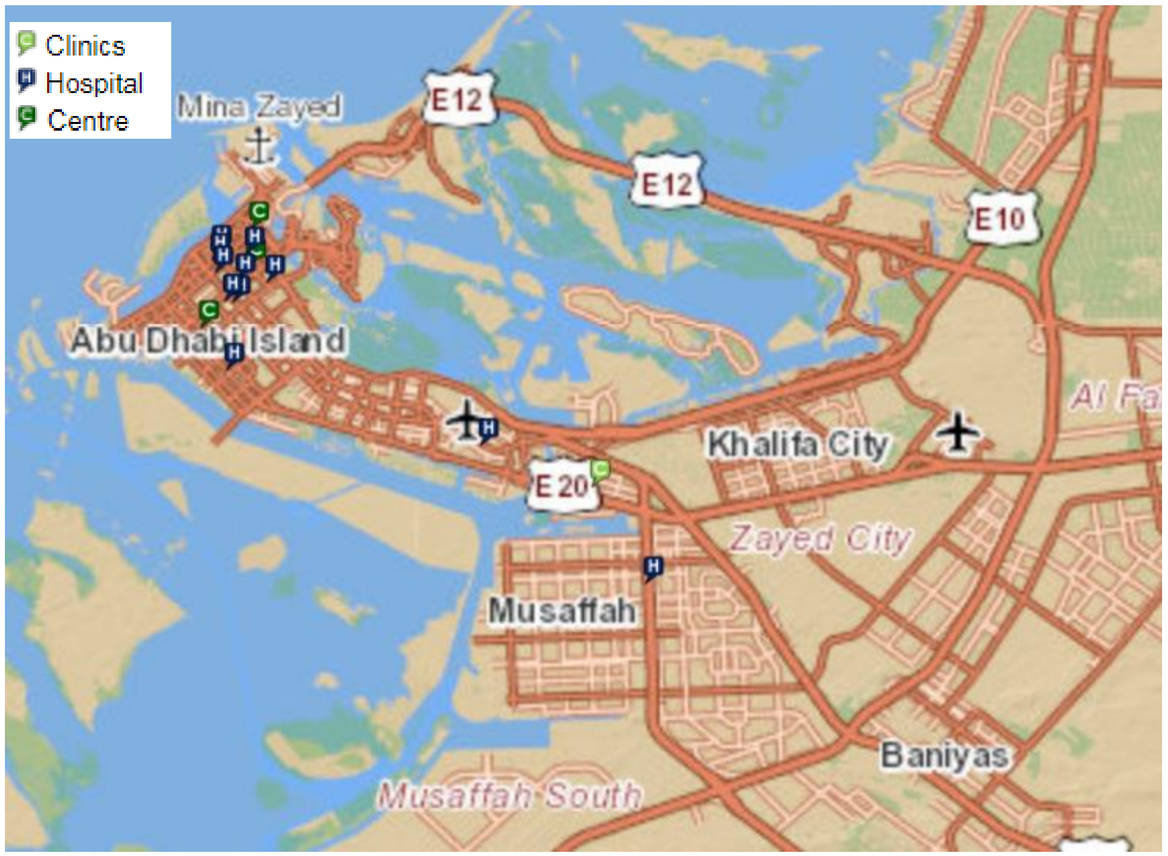


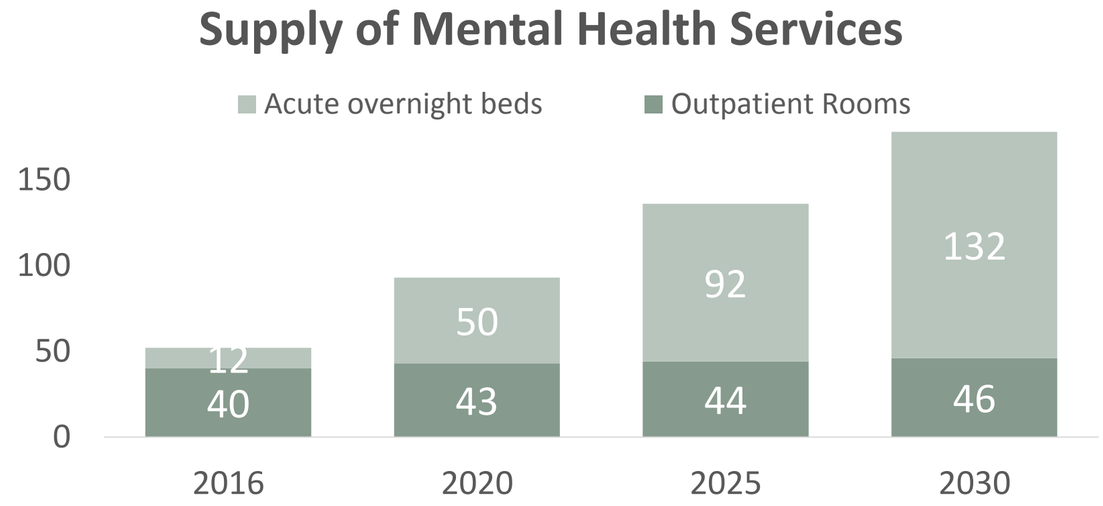
Requirement for Non-Acute Care Overnight Beds

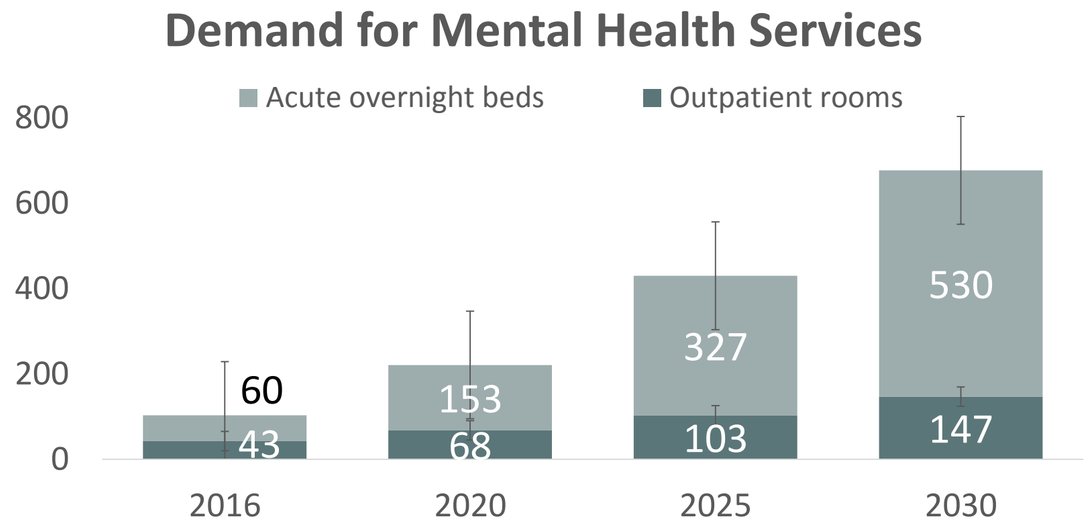
No current or future requirements in Abu Dhabi Region for non-acute care beds

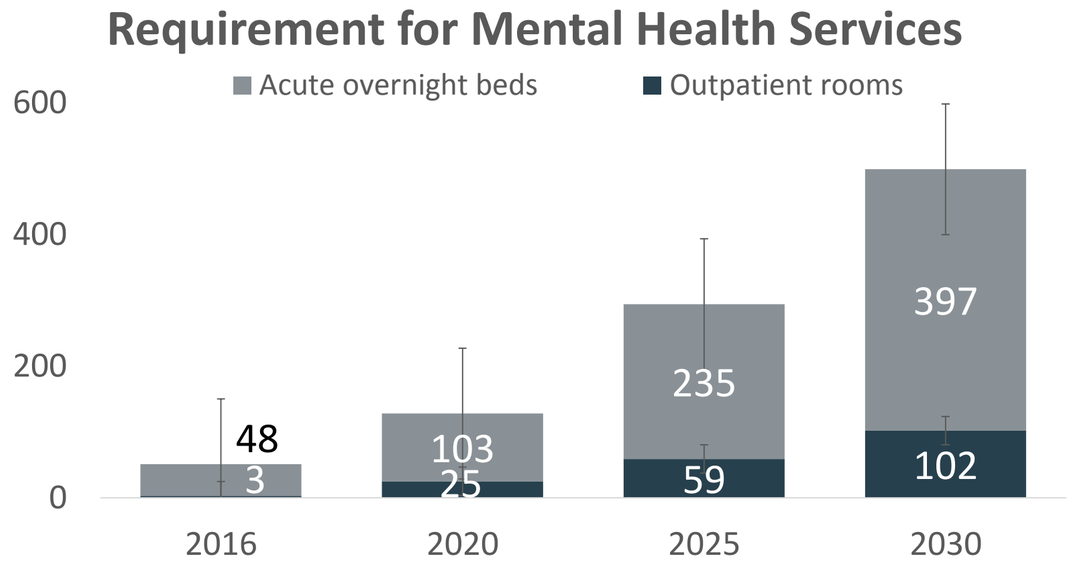
Mental Health Care

Abu Dhabi Region





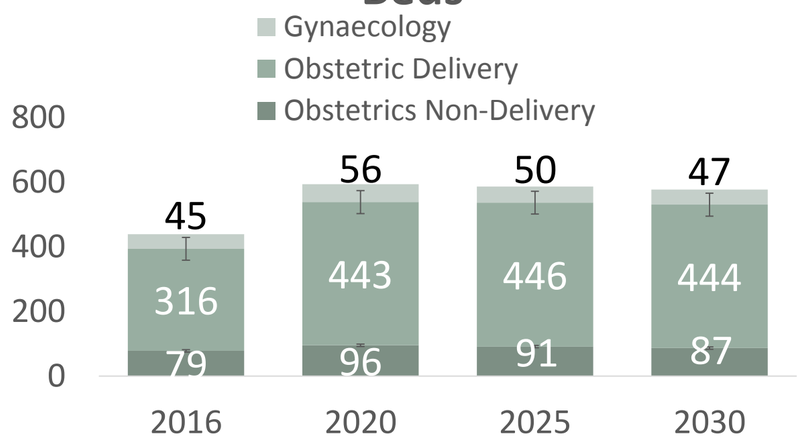




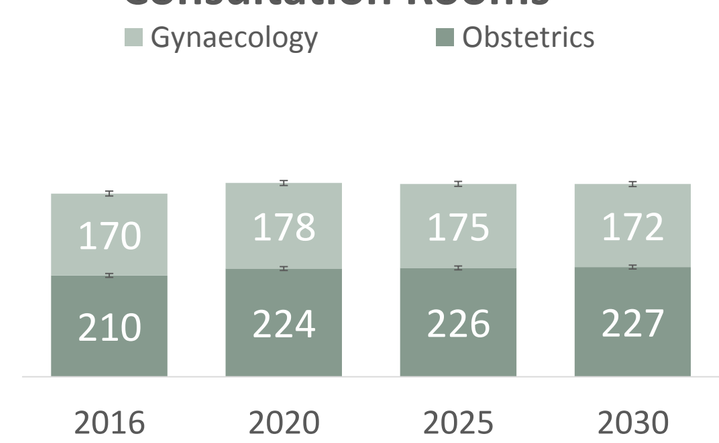
Women's Health Care

Abu Dhabi Region

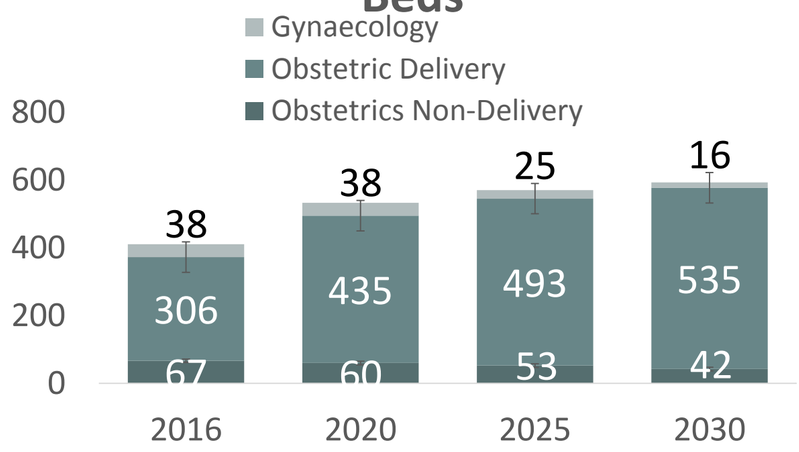
Supply of Acute Overnight Beds



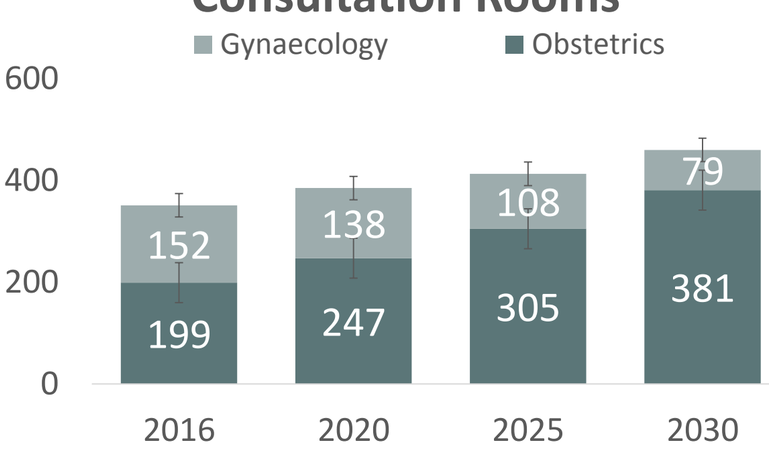
Supply of Outpatient Consultation Rooms



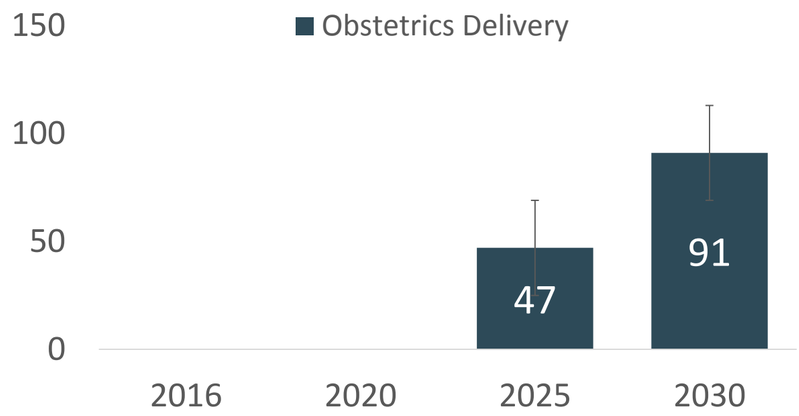
Demand for Acute Overnight Beds



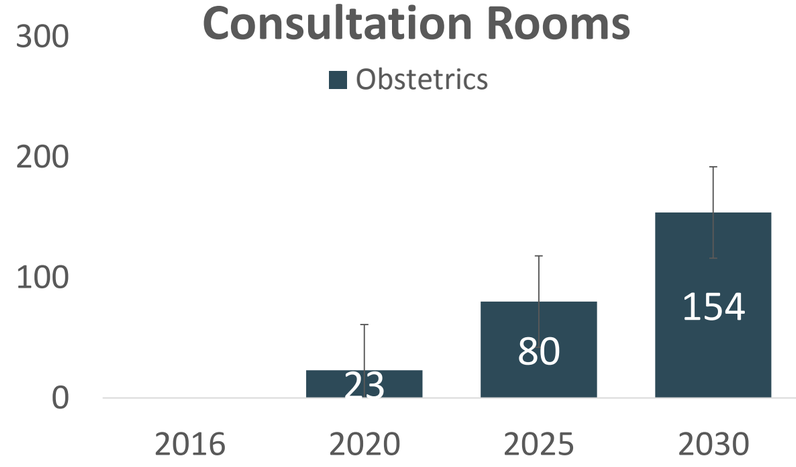
Demand for Outpatient Consultation Rooms



Requirement for Acute Overnight Beds

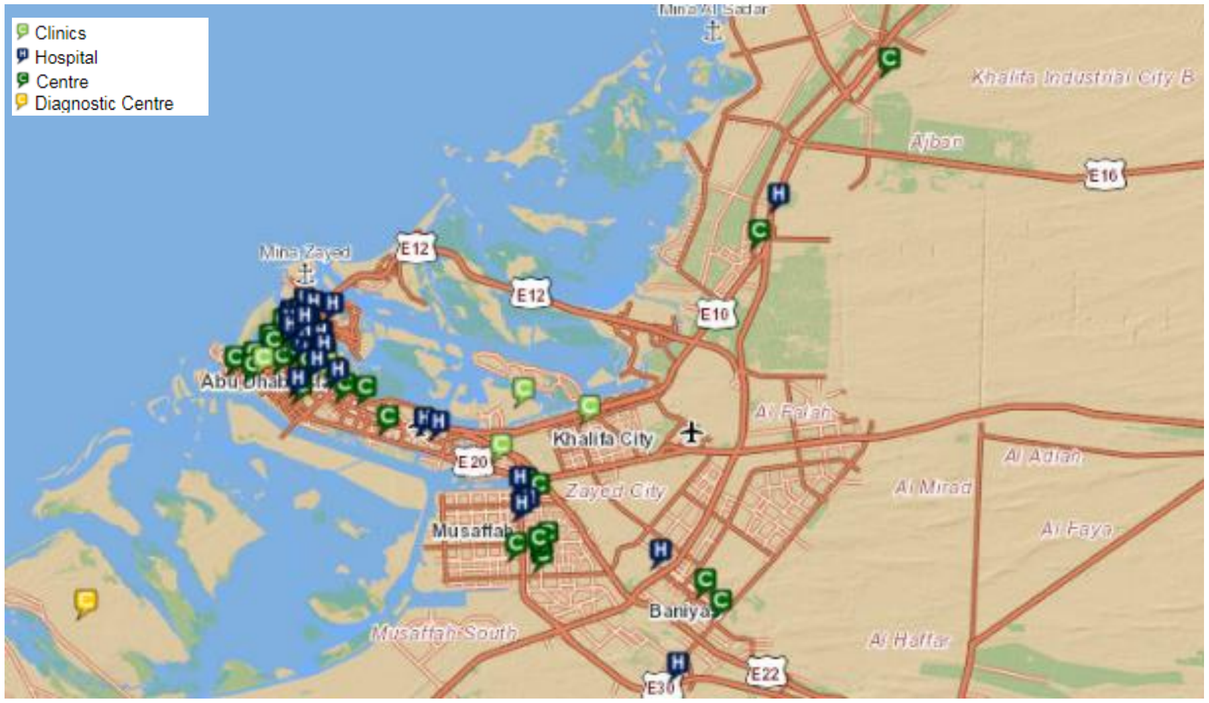


Requirement for Outpatient Consultation Rooms



Diagnostic Care

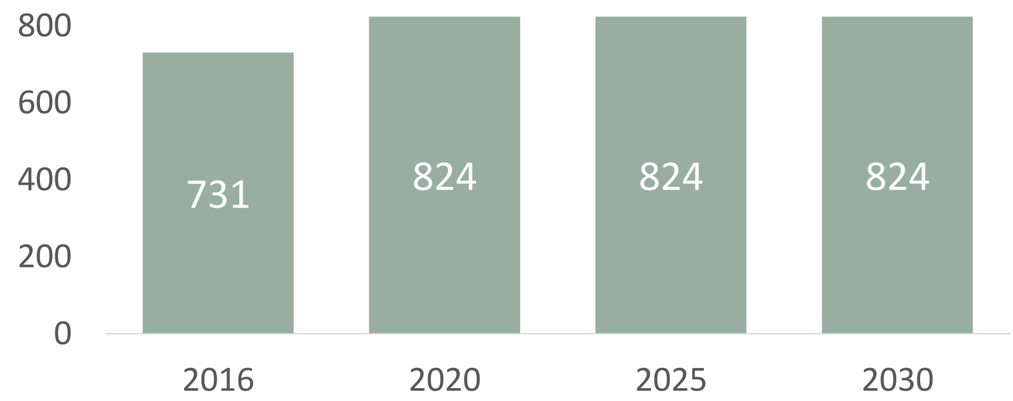
Abu Dhabi Region



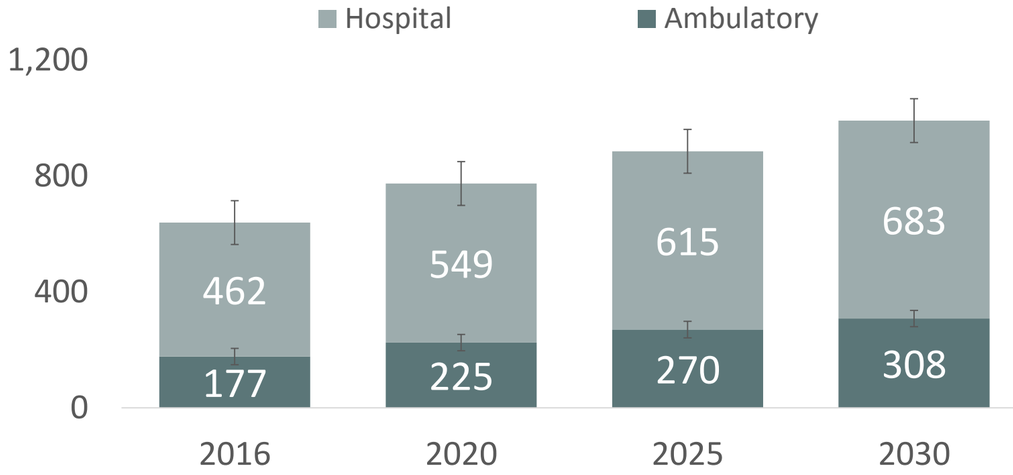
Requirement for Diagnostic Machines, ordered by largest in 2030

Speciality	2030	2025	2020	2016
Ultrasound	195	106	16	-
Radiation Therapy	7	5	2	1
Gamma Camera	9	5	1	-
Computed Tomography	7	3	-	-
Angiography	5	2	-	-
Mammography	4	-	-	-
Positron Emission Tomography	3	1	-	-
Magnetic Resonance	4		-	-
Lithotripter	-	-	-	-
X-Ray	-	-	-	-

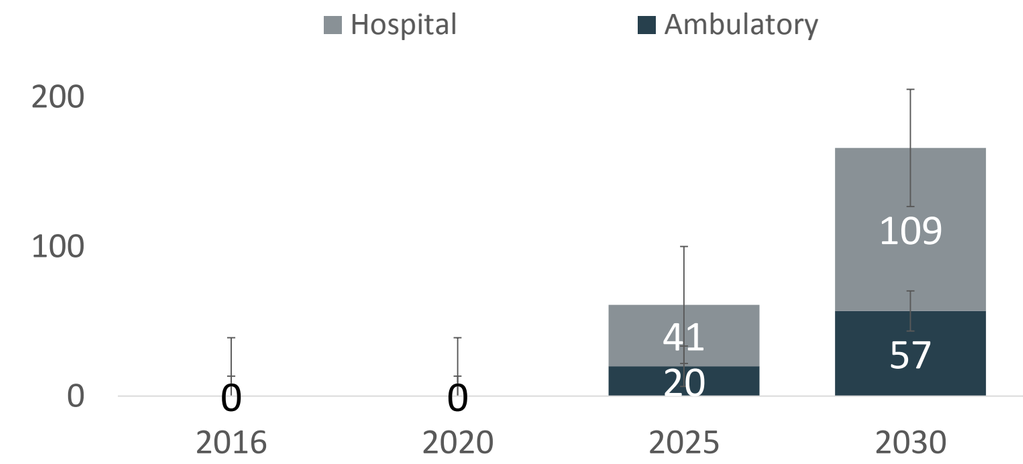
Supply of Diagnostic Machines



Demand for Diagnostic Machines



Requirement for Diagnostic Machines



Requirement total is less than sum of diagnostic machine type due to the large oversupply in X-ray and Lithotripter machines

Clinical Workforce

Abu Dhabi Region

Supply of Abu Dhabi Region Workforce by FTE

Category	2016	2020	Change
Medical	7,096	7,323	227
Allied Health & Pharmacy	9,095	9,172	77
Nursing	16,610	16,761	151
Oral Health	1,309	1,319	10
Total	**34,110**	**34,575**	**465**

Demand for Abu Dhabi Region Workforce by FTE

Category	2016	2020	2025	2030
Medical	7,135	8,038	8,904	9,598
Allied Health & Pharmacy	9,337	10,378	11,410	12,659
Nursing	17,389	20,658	23,787	27,158
Oral Health	1,316	1,353	1,406	1,452
Total	**35,177**	**40,427**	**45,507**	**50,867**

Requirement for Abu Dhabi Region Workforce by FTE

Category	2016	2020	2025	2030
Medical	95	715	1,581	2,275
Allied Health & Pharmacy	242	1,207	2,237	3,484
Nursing	780	3,896	7,019	10,385
Oral Health	7	34	87	134
Total	**1,124**	**5,852**	**10,924**	**16,278**

Top 10 Requirement for Medical Workforce, ordered by largest in 2030

Speciality	2030	2025	2020	2016
Family Medicine	1,696	1,495	1,252	1,181
Emergency Medicine	212	136	65	13
Paediatric Medicine	161	116	68	14
Internal Medicine	141	108	68	14
Anaesthesia	131	101	57	11
Obstetrics &Gynaecology	112	83	46	9
Psychiatry	97	97	96	19
ENT Surgery	87	68	38	8
Radiology	69	48	26	5
Orthopaedics	39	32	18	4

Top 10 Requirement for Allied Health & Pharmacy, ordered by largest in 2030

Speciality	2030	2025	2020	2016
Psychologist	1,174	670	281	56
Social Worker	774	461	205	41
Occupational Therapist	331	121	165	33
Radiographer	252	179	147	30
Pharmacist	247	210	121	24
Speech Pathologist/Audiologist	244	280	127	25
Physical Therapist	241	186	157	31
Respiratory Therapist	129	77	69	14
Radiotherapist	80	60	40	8
Dietician	68	45	37	7

Summary

Abu Dhabi Region

	Acute Overnight beds		Acute Same Day places		Outpatient Consultation rooms	
	Current	**2030**	**Current**	**2030**	**Current**	**2030**
1st	Psychiatry (33)	Psychiatry (333)	-	Urology (48)	Primary Care (277)	Primary Care (804)
2nd	Alcohol & Other Drugs (15)	Orthopaedics (131)	-	Renal Dialysis (26)	Trauma and Injury (8)	Paediatric Medicine (275)
3rd	Endocrinology (6)	Neonatology (113)	-	ENT (24)	Paediatric Surgery (7)	Paediatric Surgery (232)
4th	General Medicine (3)	Obstetric Delivery (91)	-	Orthopaedics (22)	Psychiatry (3)	Obstetrics (154)
5th	Transplant Surgery (2)	General Medicine (83)	-	Gynaecology (20)	-	Orthopaedics (123)

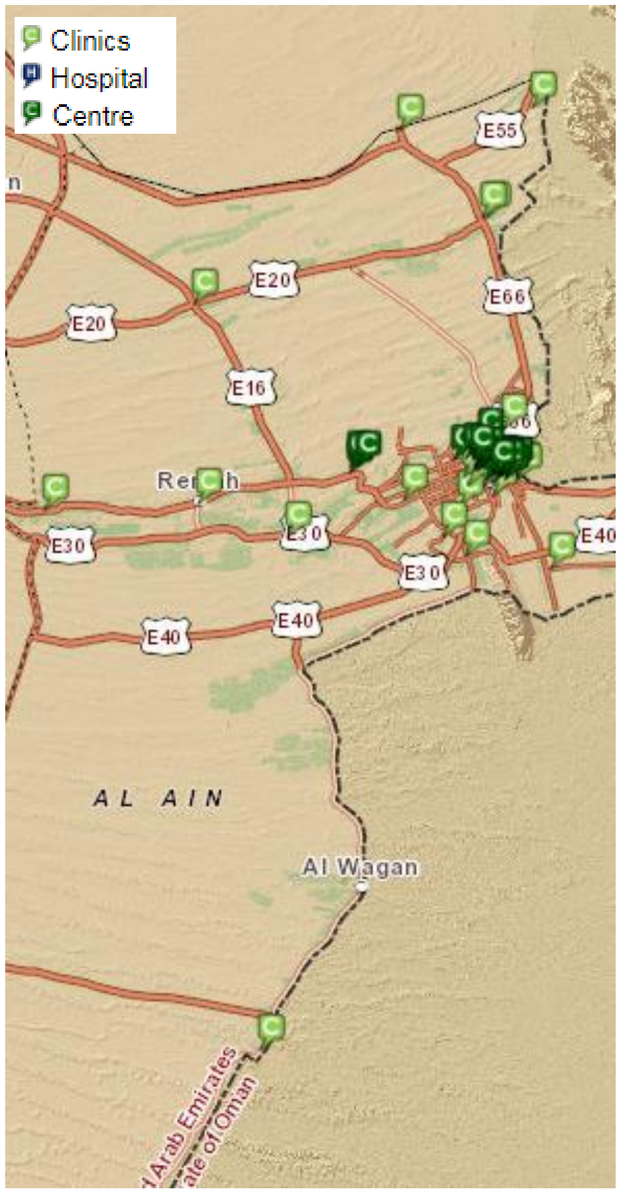
	Current	Emerging (2020-2030)
Emergency Care	No Emergency Care bay requirements as a total Emergency Physicians	Emergency Care bays (All Triage classes) Emergency Physicians
Diagnostic	Radiation therapy Radiographers and Radiotherapists	All machines except lithotripter and X-ray Radiographers and Radiotherapists
Intensive Care	All Intensive Care bed types Intensive Care Specialists	All Intensive Care bed types Intensive Care Specialists
Non-Acute Care	No requirements	No requirements

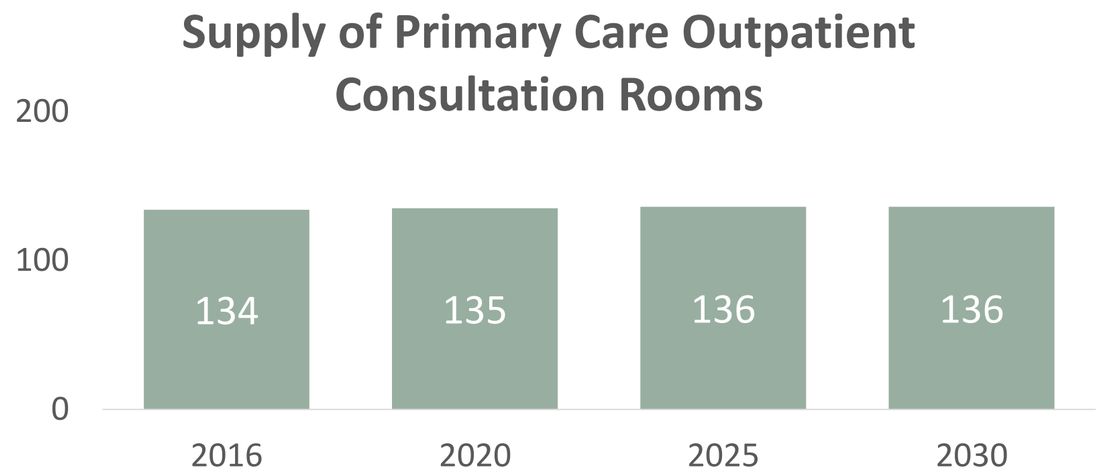
Section D – Al Ain Region

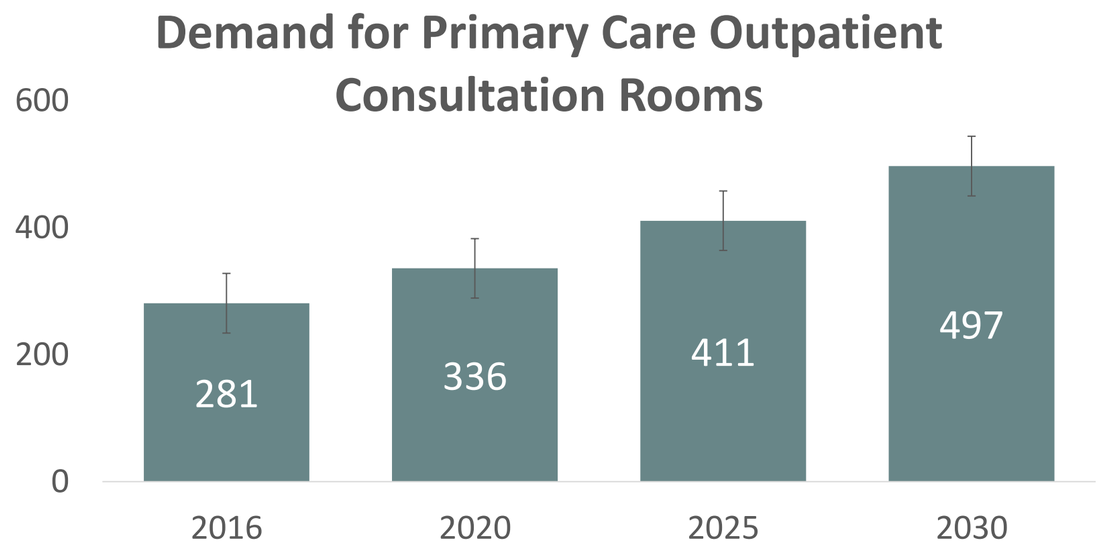
Supply, Demand and Gap Analysis for the Al Ain Region

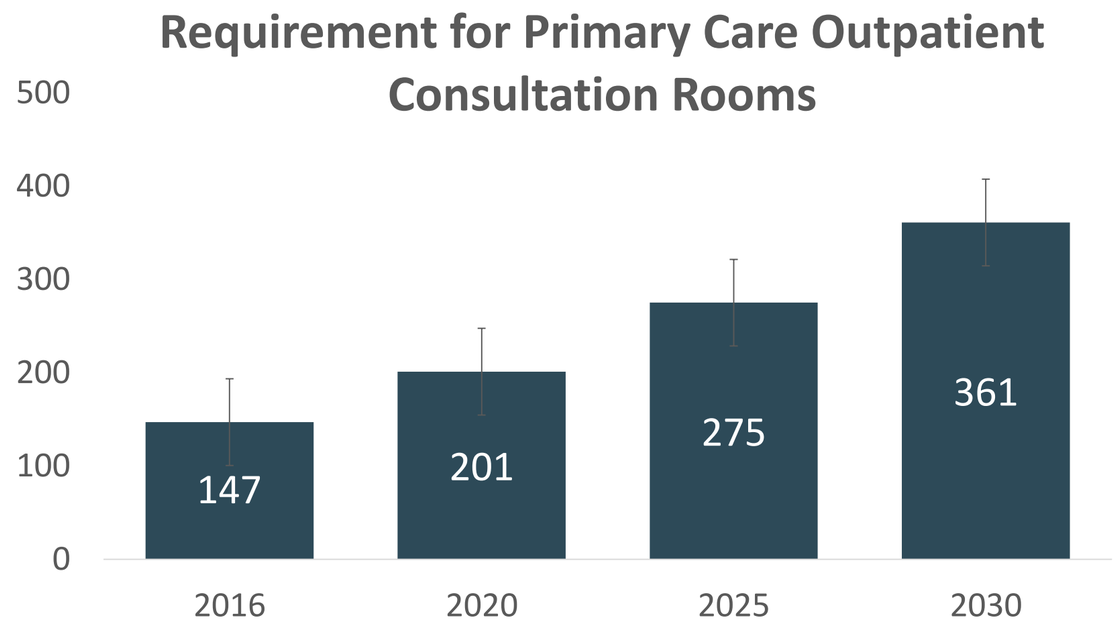
Primary Care

Al Ain Region







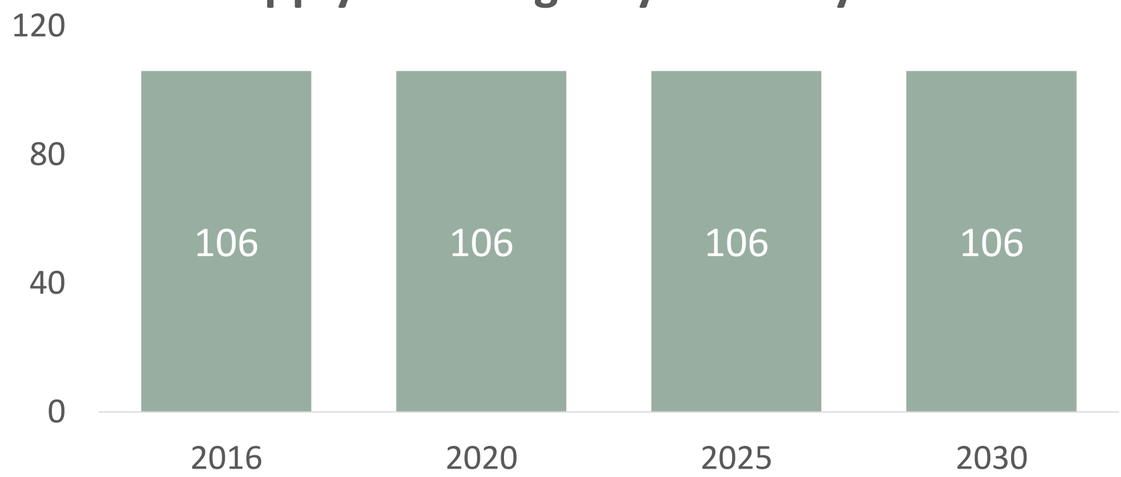


Requirements are based on survey and do not include the new implementation of licensed primary care providers following the policy change introduced by “DoH Standard for Primary Care in Emirate of Abu Dhabi”. This will be included in the next CMP.

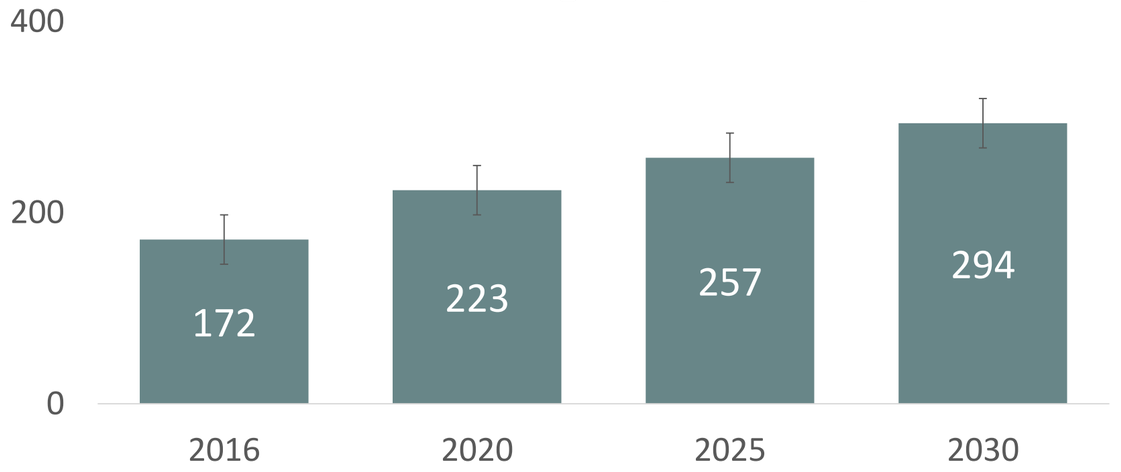
Emergency Care

Al Ain Region

Supply of Emergency Care Bays



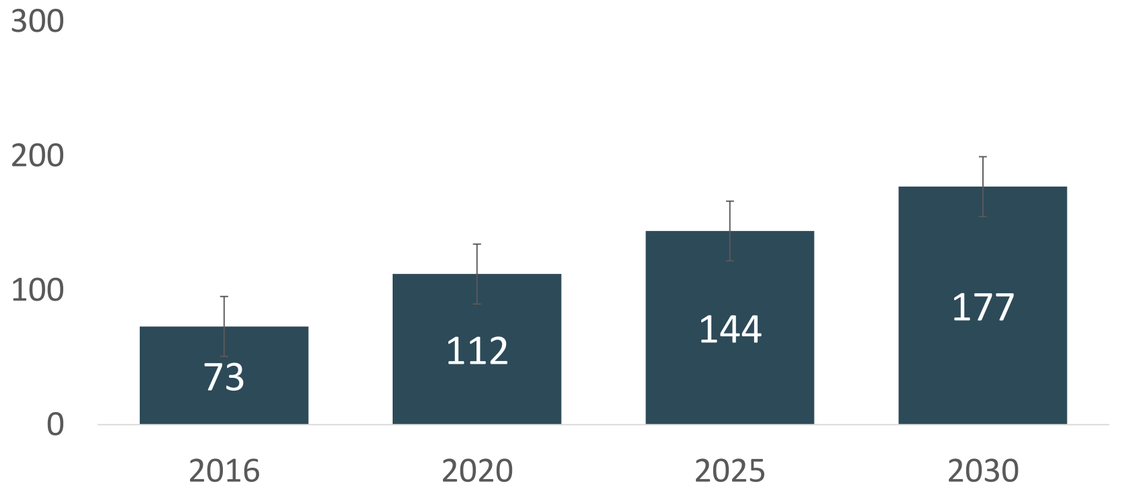
Demand for Emergency Care Bays



Requirements for Emergency Care Bays by Triage Class

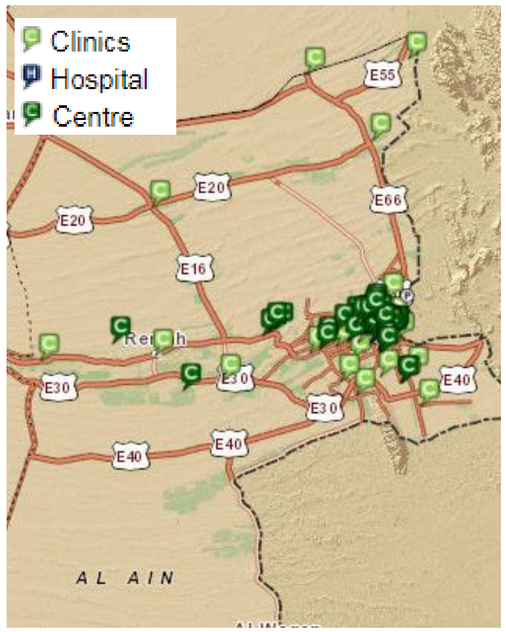
Triage Class	2016	2020	2025	2030
1 – Immediate Life Threat	-	1	1	2
2 – Imminent Life Threat	11	20	31	45
3 – Potential Life Threat	27	46	69	94
4 – Serious	31	42	41	37
5 – Less Urgent	3	3	1	-

Requirement for Emergency Care Bays



Specialist Outpatient Care

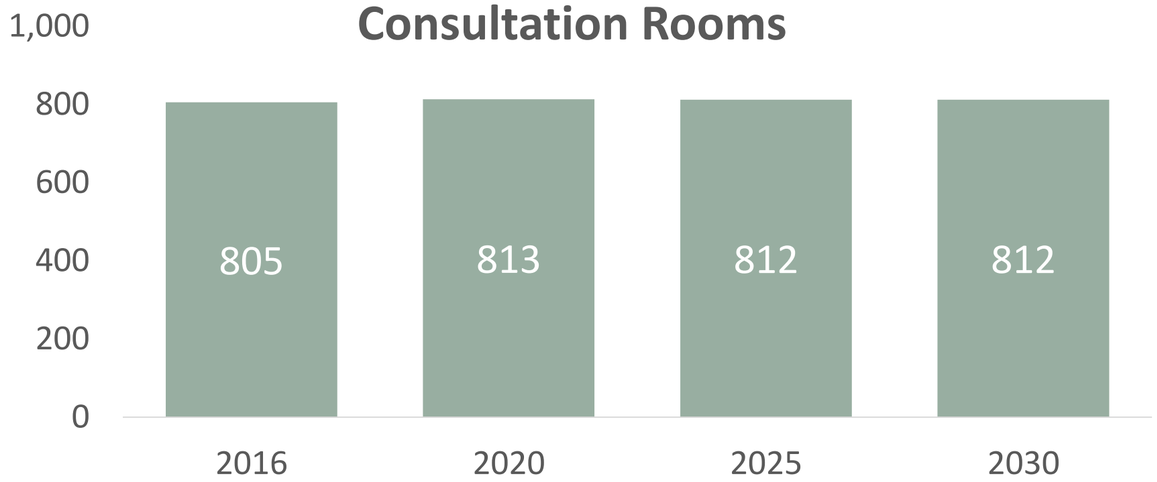
Al Ain Region



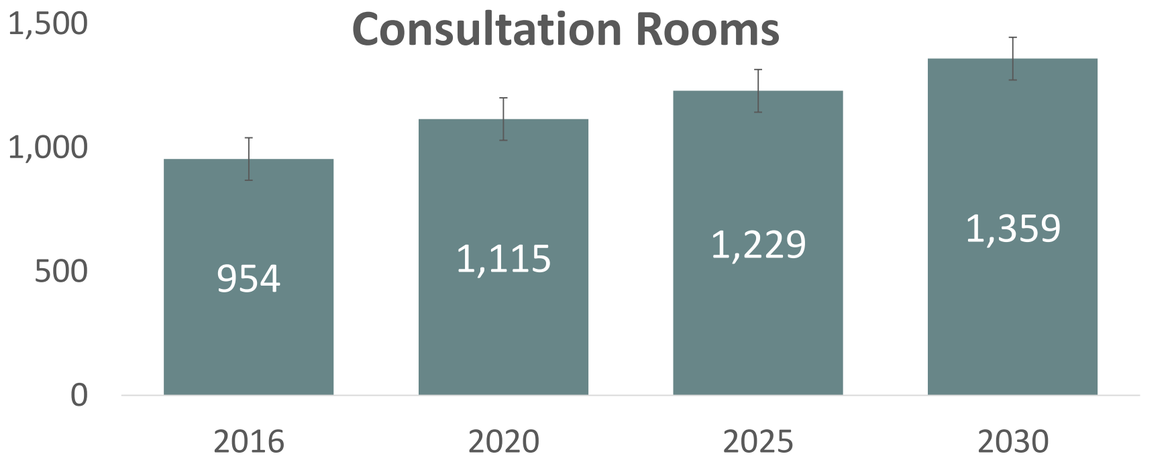
Requirement for Specialist Outpatient Consultation Rooms, Top 10 in 2030

Speciality	2030	2025	2020	2016
Paediatric Medicine	197	127	68	23
Paediatric Surgery	144	76	30	7
Orthopaedics	77	49	30	16
Immunology and Infectious Diseases	51	25	10	-
Gastroenterology and Hepatology	44	30	19	11
Nephrology	24	17	11	7
Trauma and Injury	23	13	4	-
Cardiology Medical	22	21	21	19
ENT Surgery	21	12	6	-
Plastic Surgery	20	17	13	9

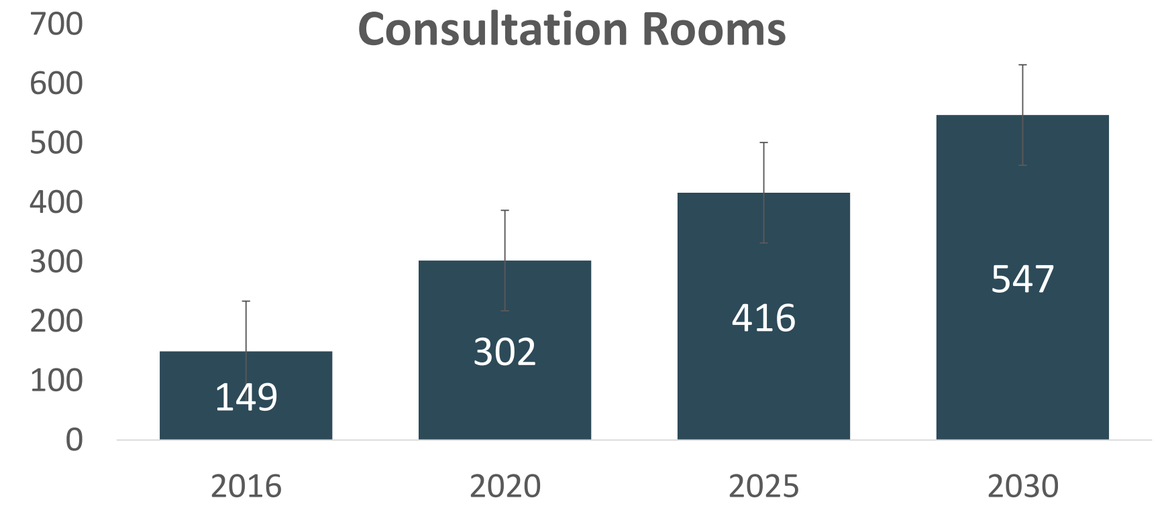
Supply of Specialist Outpatient Consultation Rooms



Demand for Specialist Outpatient Consultation Rooms



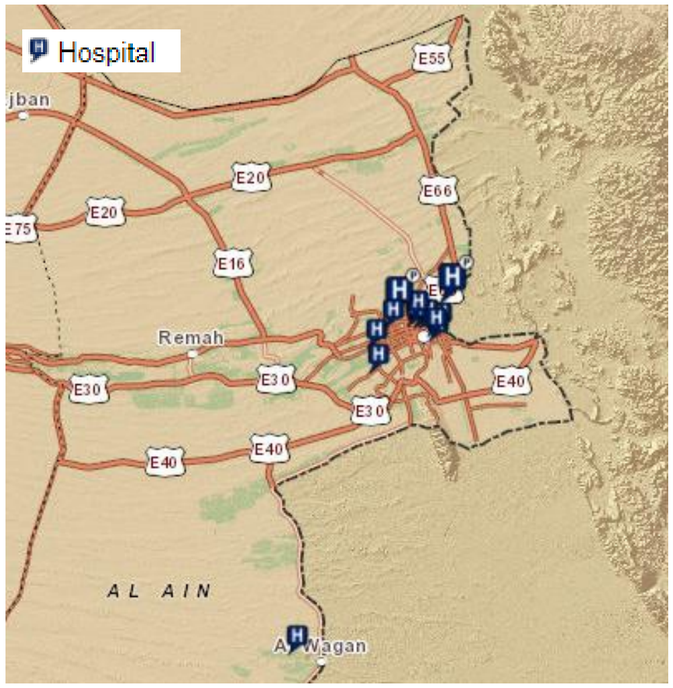
Requirement for Specialist Outpatient Consultation Rooms



Supply figures have been relatively adjusted to demand, which explains the slight drop in supply projections in 2030

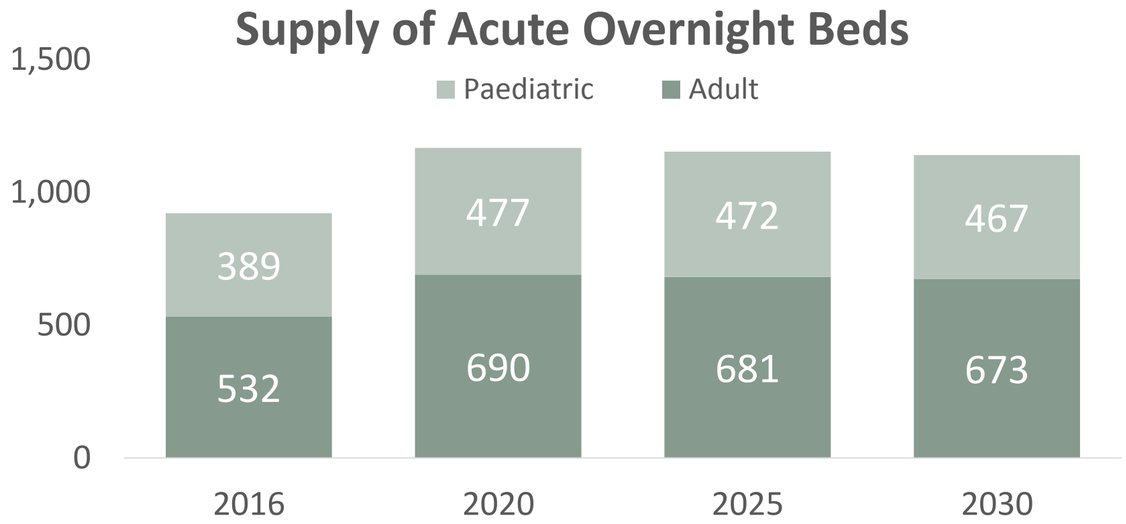
Acute Overnight Care

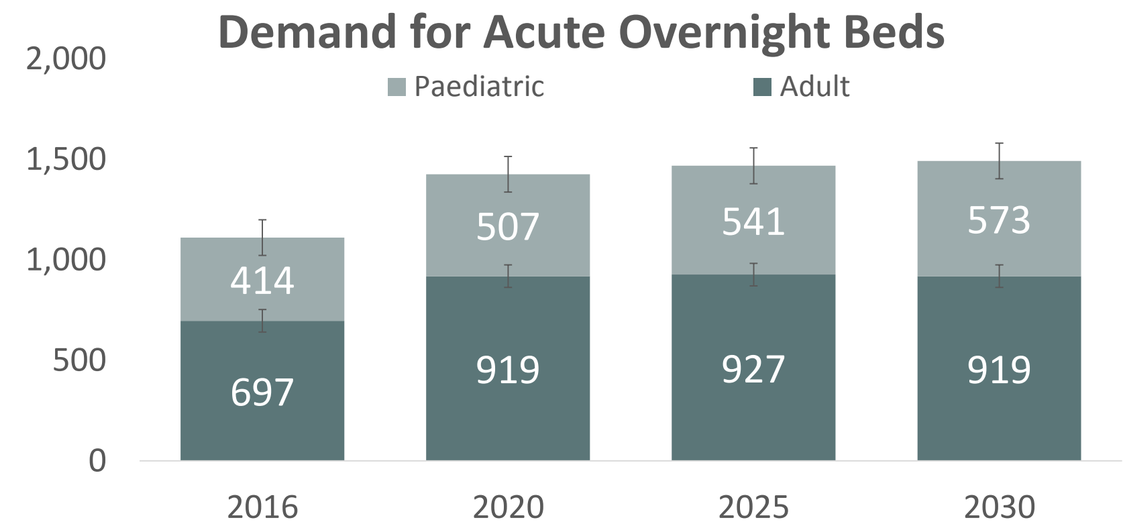
Al Ain Region

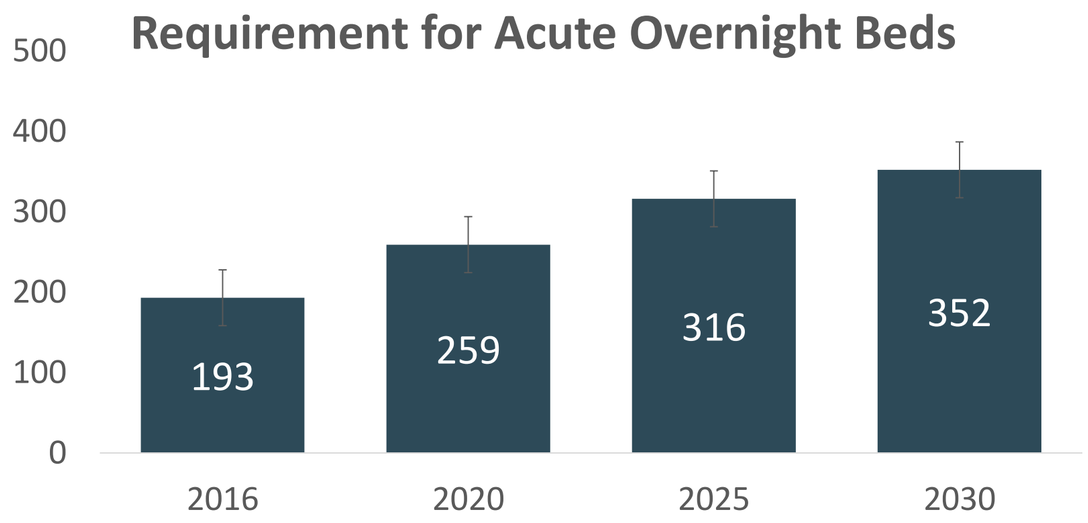


Requirement for Acute Overnight Beds, Top 10 in 2030

Speciality	2030	2025	2020	2016
Neonatology	120	59	5	1
Orthopaedics	101	82	63	41
General Medicine	33	21	10	-
General Surgery	15	17	17	17
Gastroenterology	13	21	24	23
Plastic Surgery	12	10	8	5
Cardiothoracic Surgery	12	7	3	3
Neurological Surgery	9	5	2	-
Burns	9	6	3	2
Respiratory Medicine	8	31	44	35



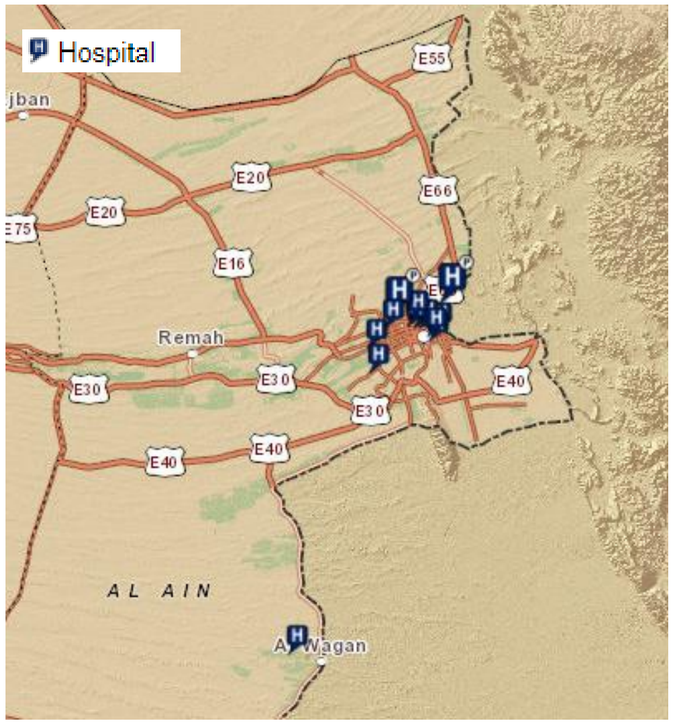




Supply figures have been relatively adjusted to demand, which explains the slight drop in supply projections in 2030. Significant difference between this version and 2015 CMP is as a result of modelled and projected demand enhancements by place of residence, whilst currently residents are travelling from Al Ain to Abu Dhabi to receive care, this demand and resulting requirements are expected to reverse the outflow of patients to Abu Dhabi to receive care, thereby reducing unnecessary travel time to secondary and some tertiary hospital services

Acute Same Day Care

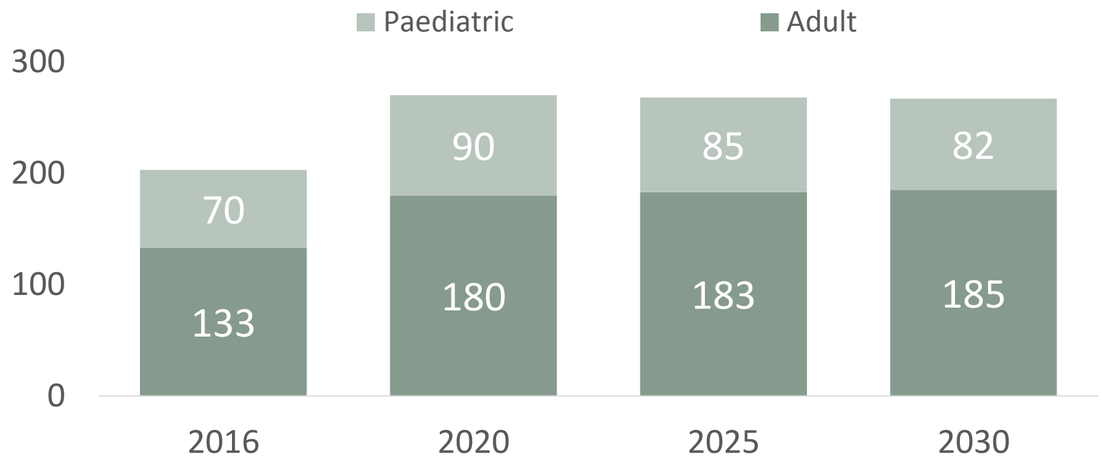
Al Ain Region



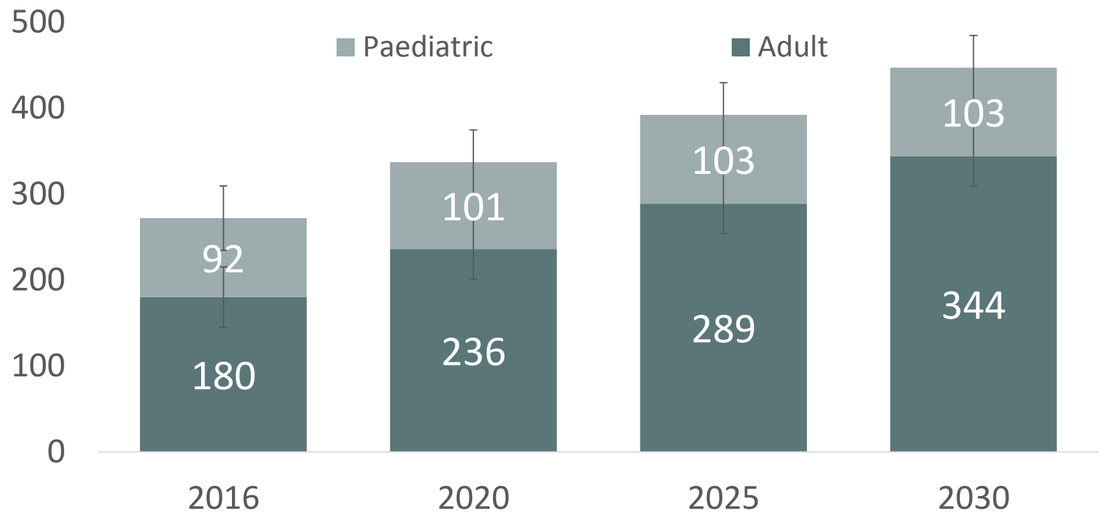
Requirement for Acute Same Day Places, Top 10 in 2030

Speciality	2030	2025	2020	2016
ENT	27	16	8	7
Urology	27	16	7	4
Orthopaedics	20	13	7	6
Renal Dialysis	16	8	1	4
General Medicine	12	7	4	3
Gastroenterology	11	13	12	13
Cardiology Medical	10	8	5	5
Chemotherapy	10	5	2	1
General Surgery	9	10	8	7
Ophthalmology	9	6	4	4

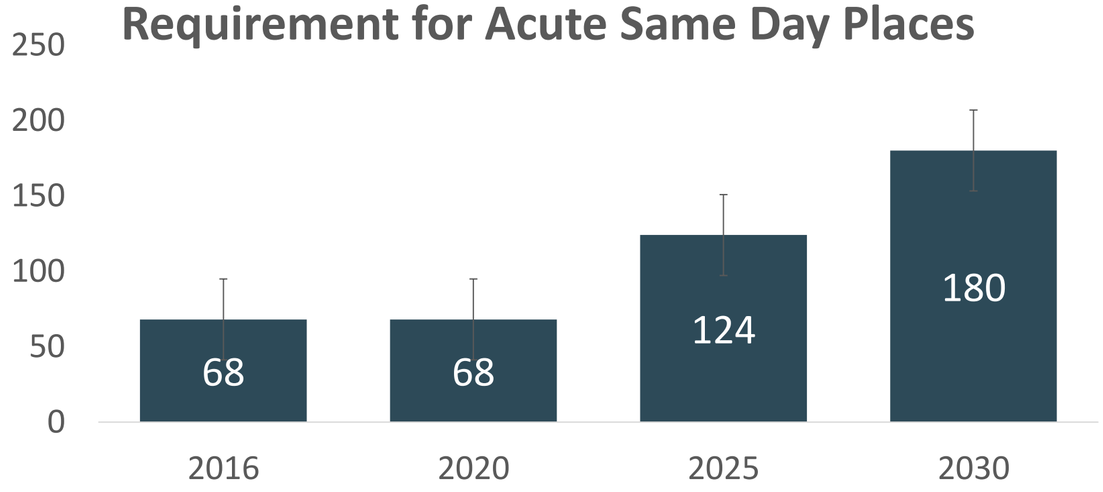
Supply of Acute Same Day Places



Demand for Acute Same Day Places

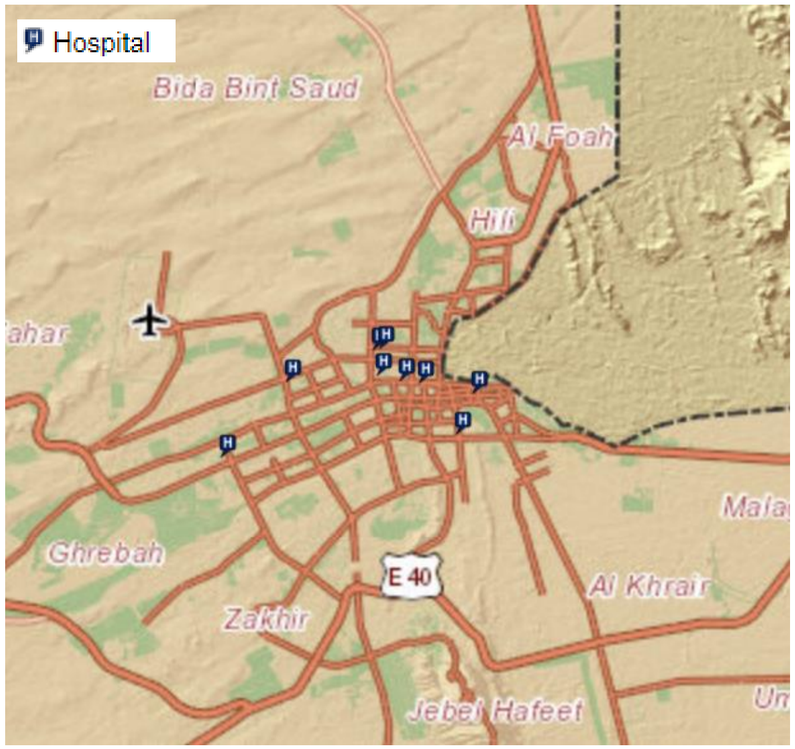


Requirement for Acute Same Day Places



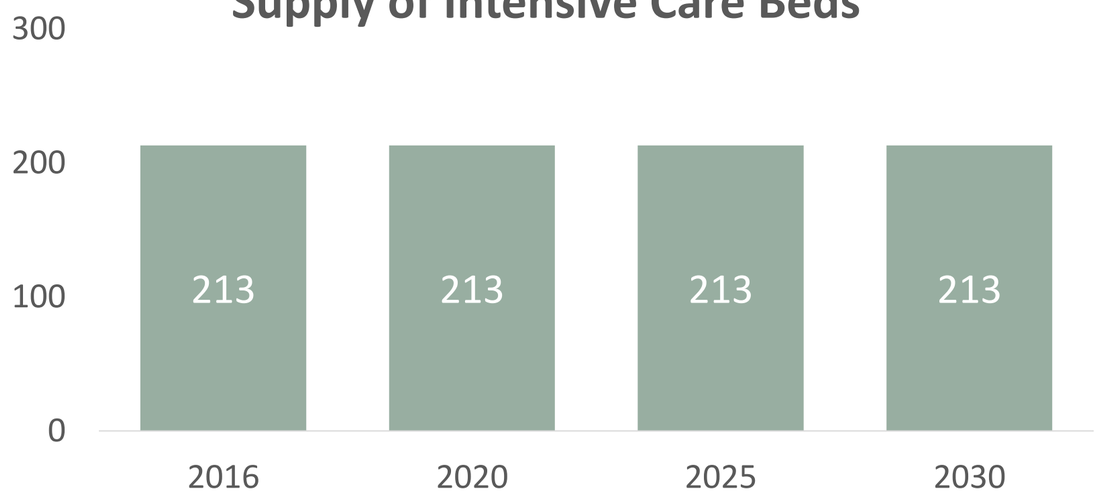
Intensive Care

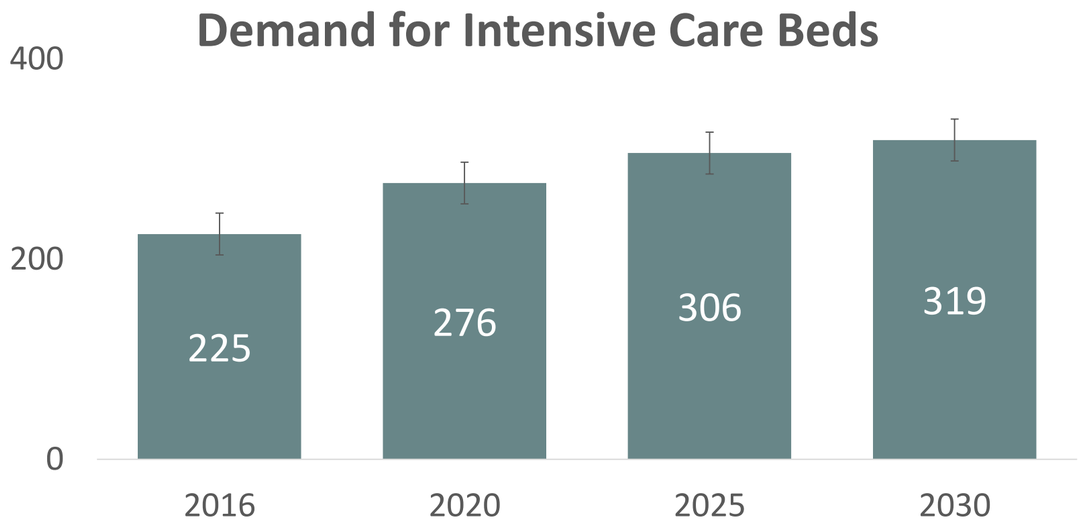
Al Ain Region

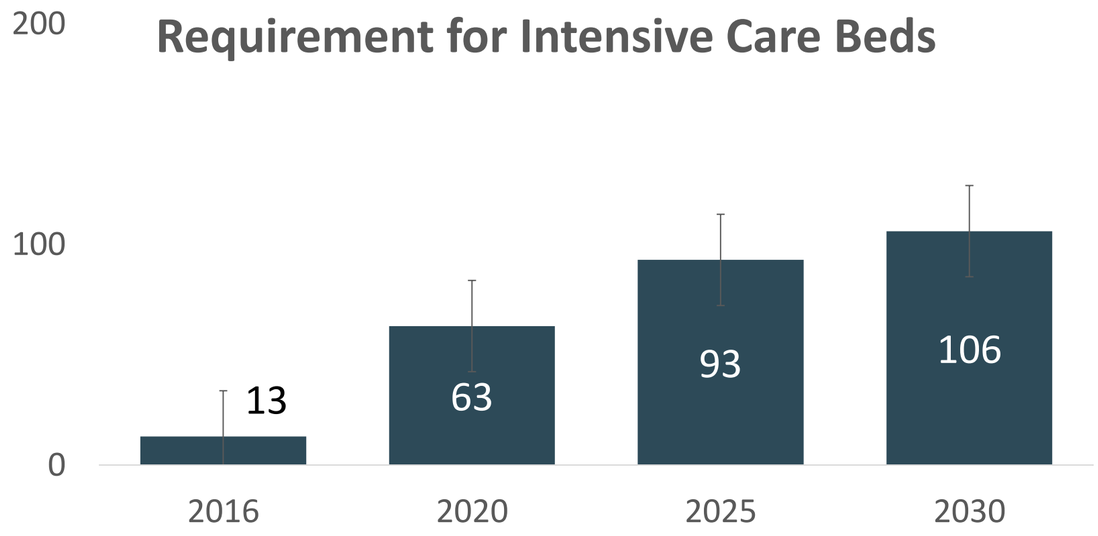


Requirement for Intensive Care Beds by Type, ordered by largest in 2030

Intensive Care Bed Type	2030	2025	2020	2016
Neonatology	78	60	38	8
General	19	26	20	4
Paediatric	9	7	5	1

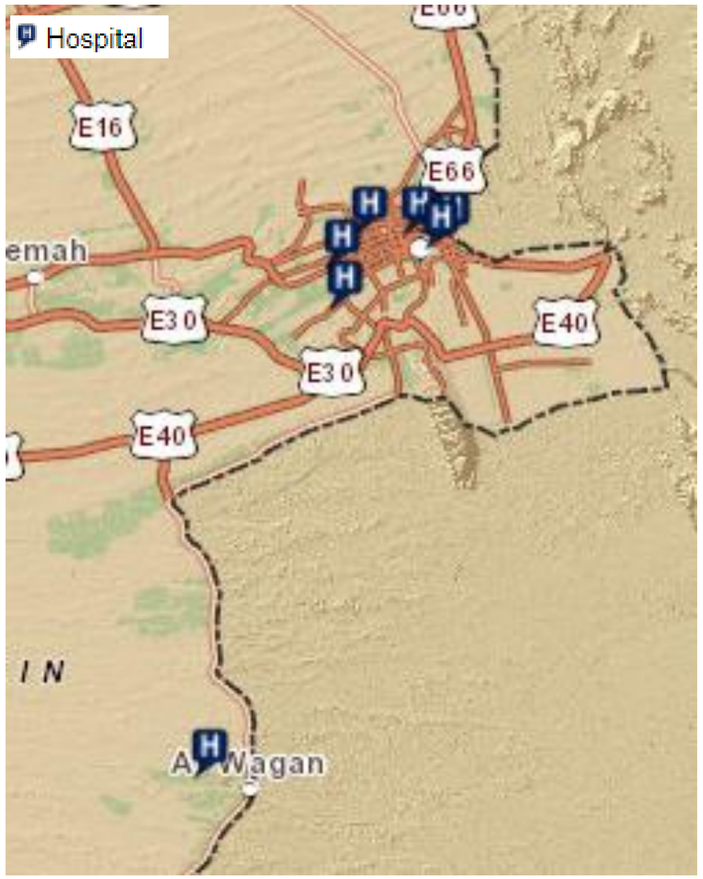






Non-Acute Care & Long Term Care

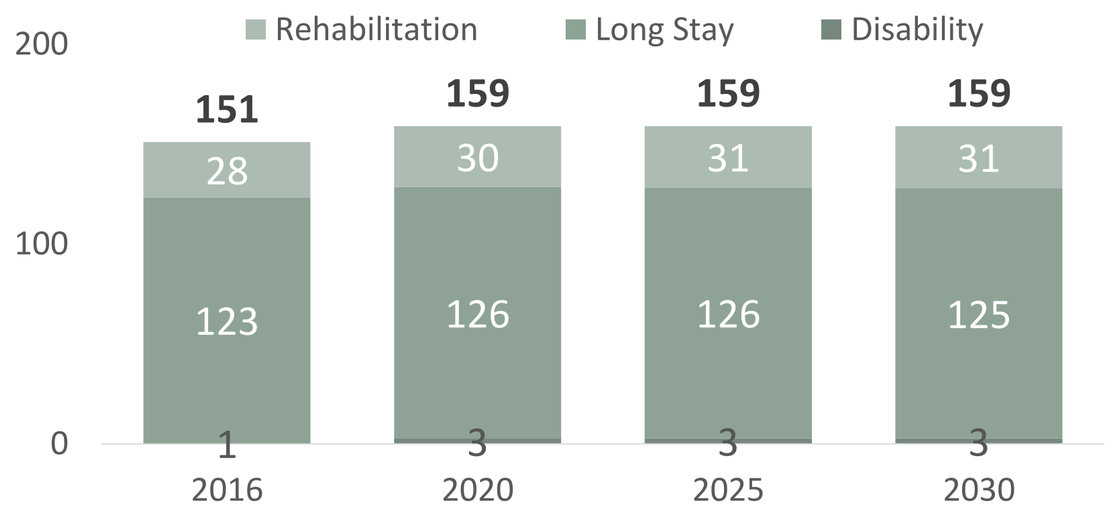
Al Ain Region



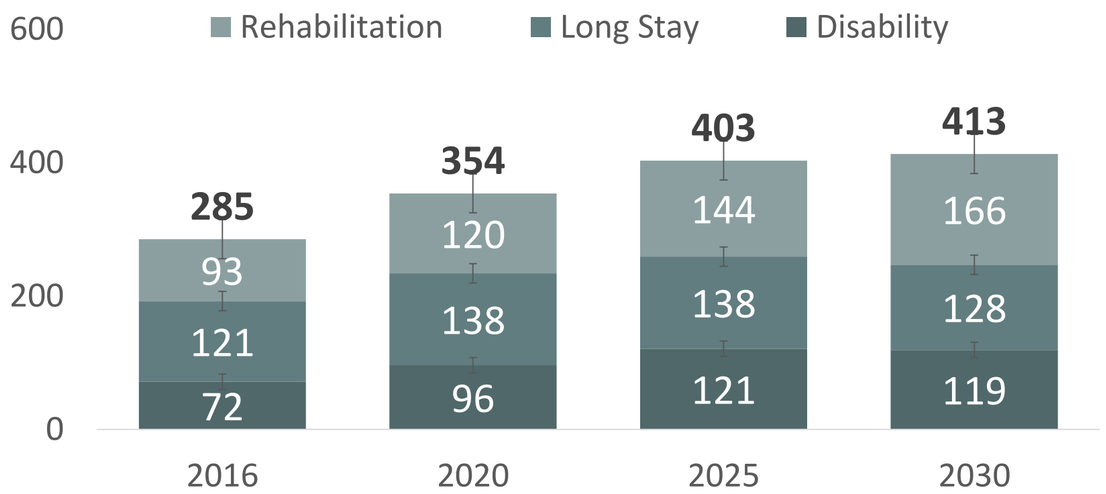
Requirement for Non-Acute Care Beds by Type, ordered by largest in 2030

Non-Acute Care Bed Type	2030	2025	2020	2016
Rehabilitation	135	113	89	65
Disability	116	118	94	71
Long Stay	3	13	13	0

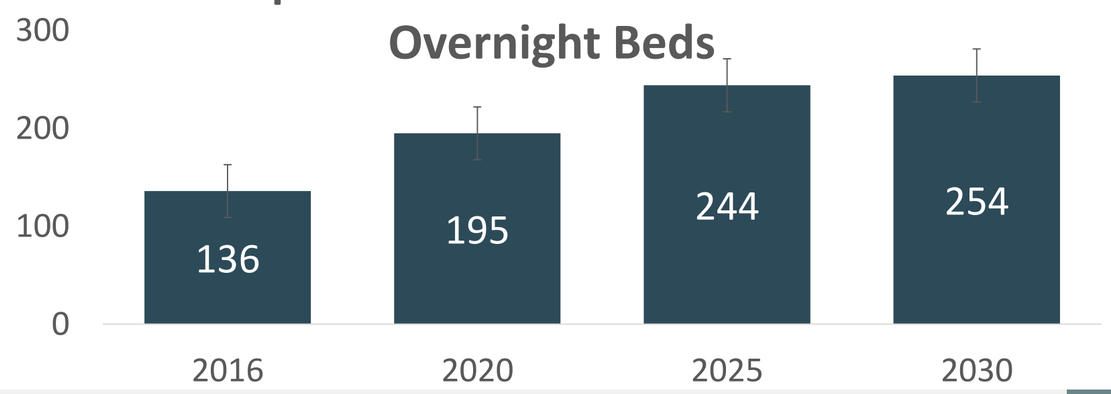
Supply of Non-Acute Care Overnight Beds



Demand of Non-Acute Care Overnight Beds

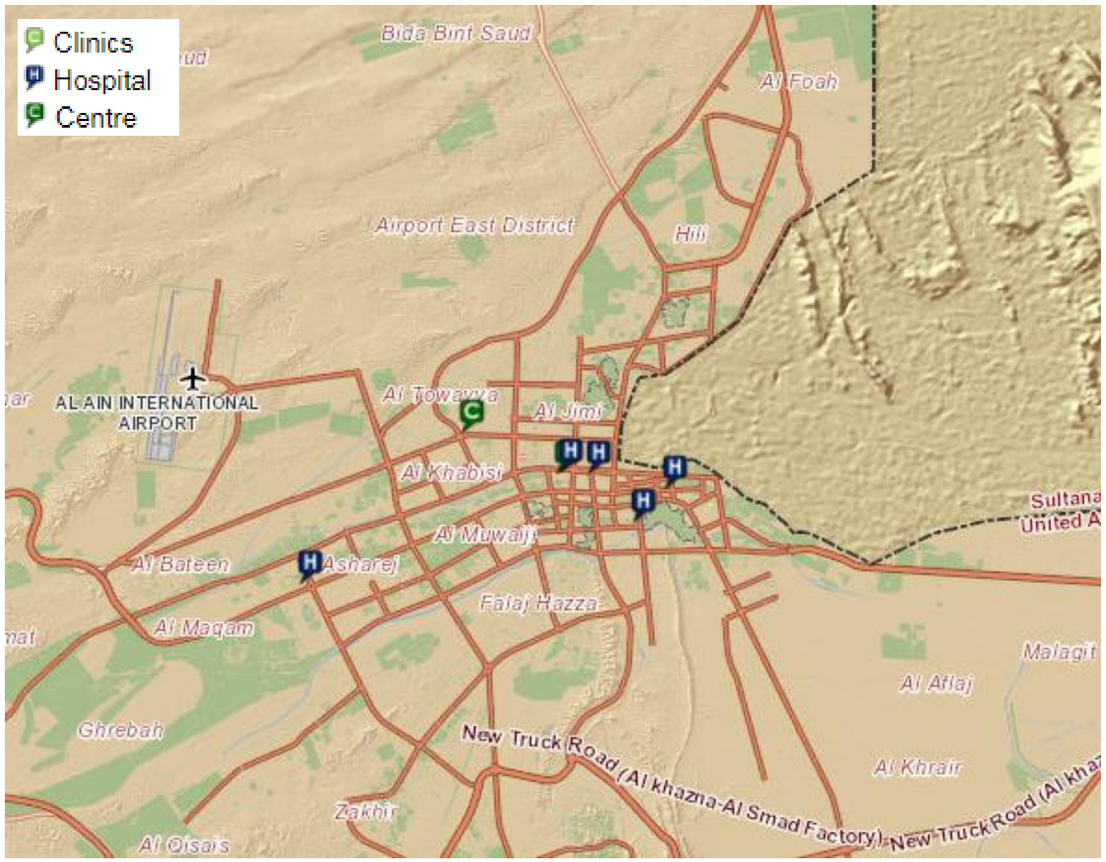


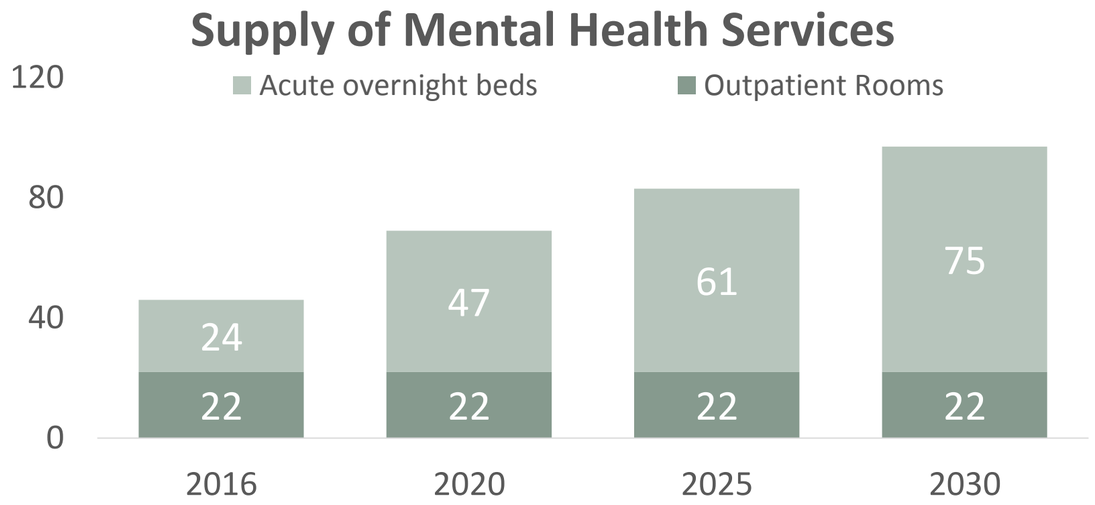
Requirement for Non-Acute Care Overnight Beds

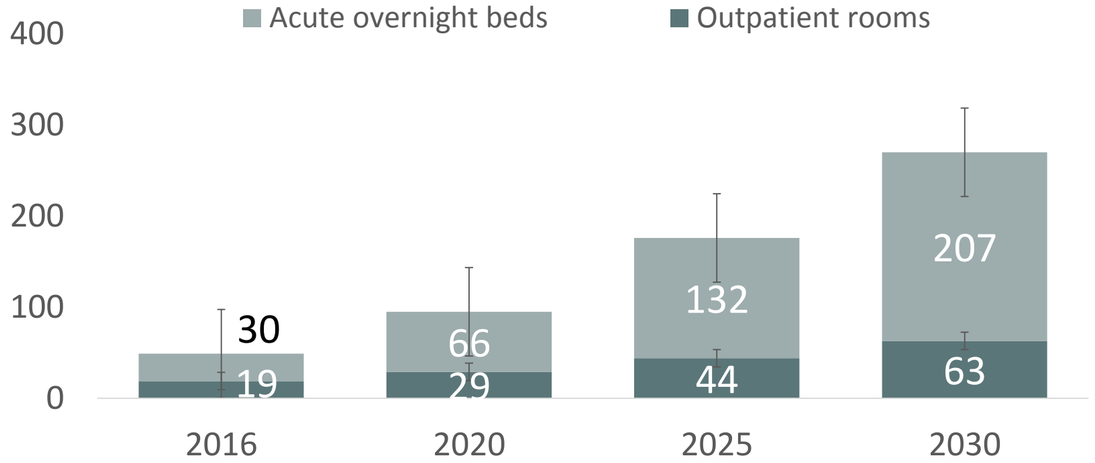


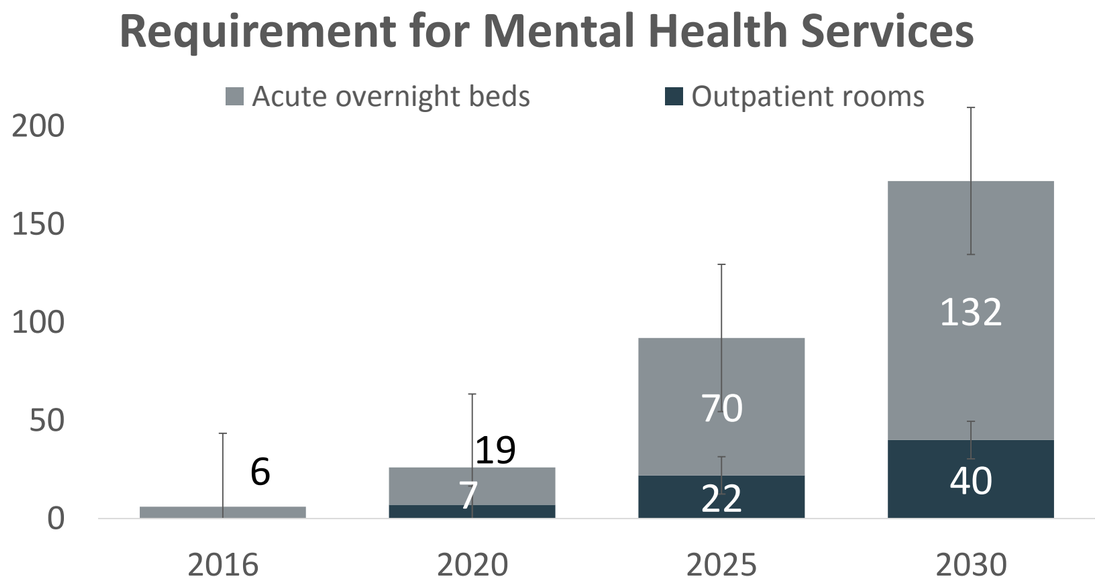
Mental Health Care

Al Ain Region



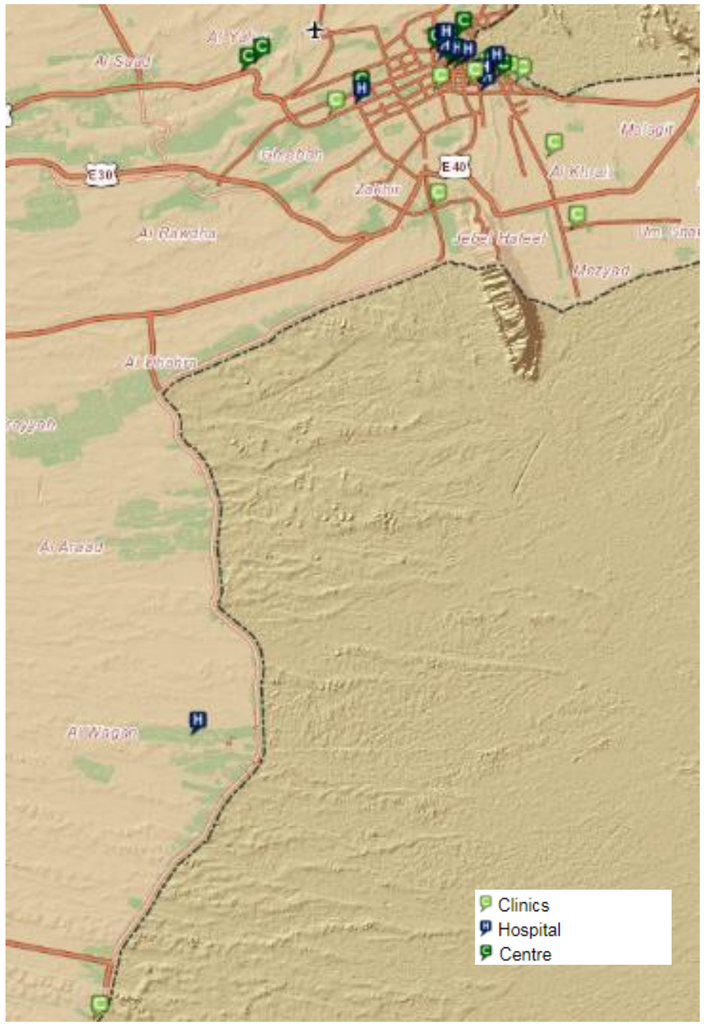




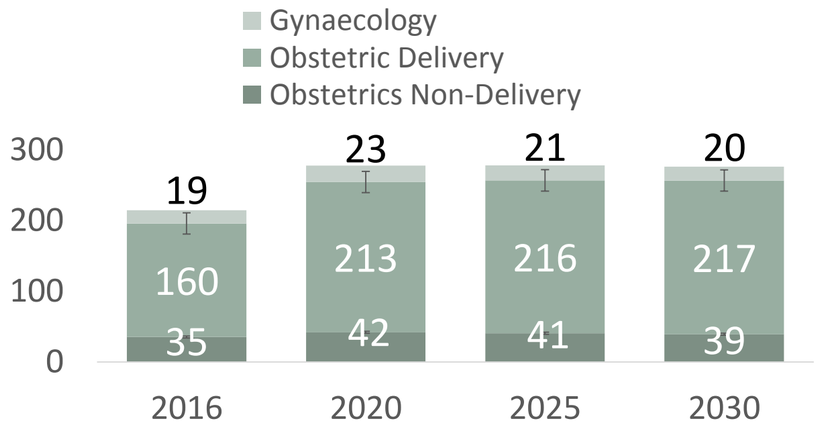


Women's Health Care

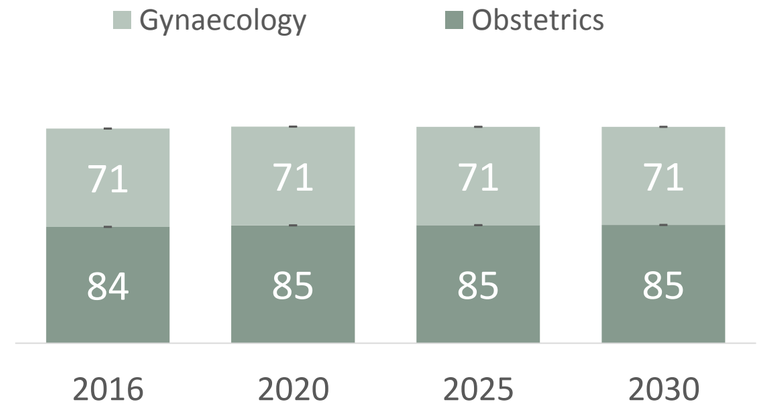
Al Ain Region



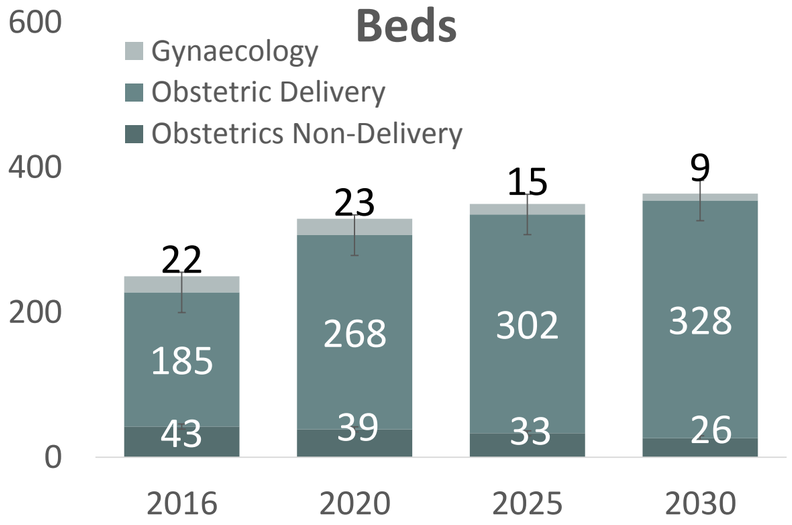
Supply of Acute Overnight Beds



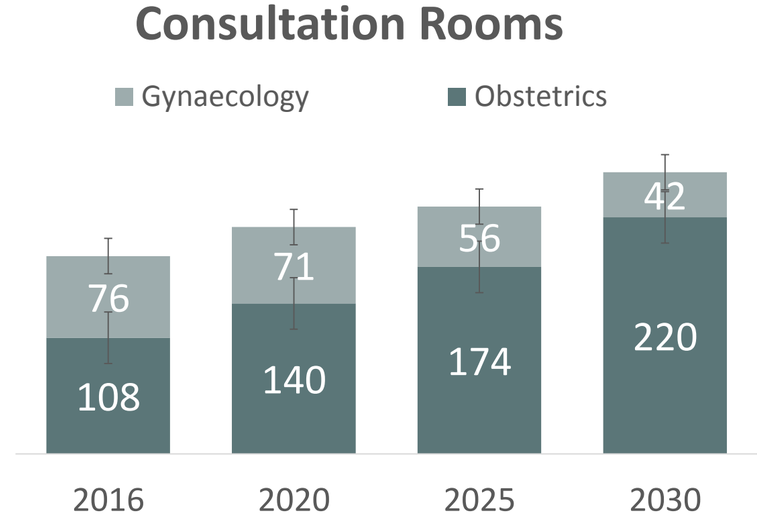
Supply of Outpatient Consultation Rooms



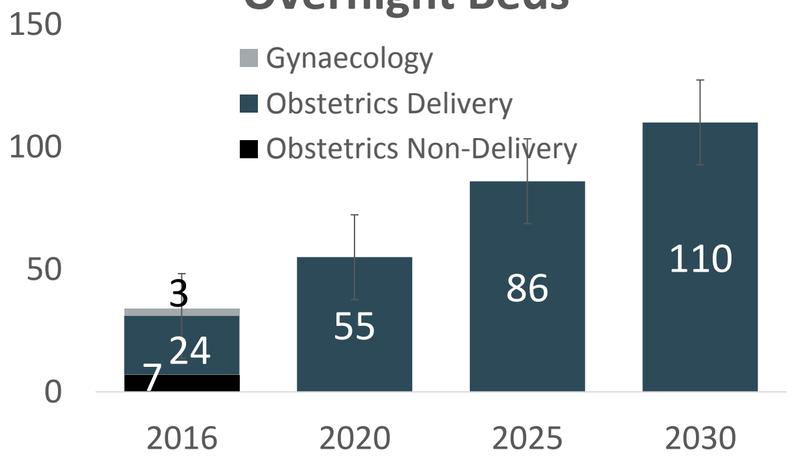
Demand for Acute Overnight Beds



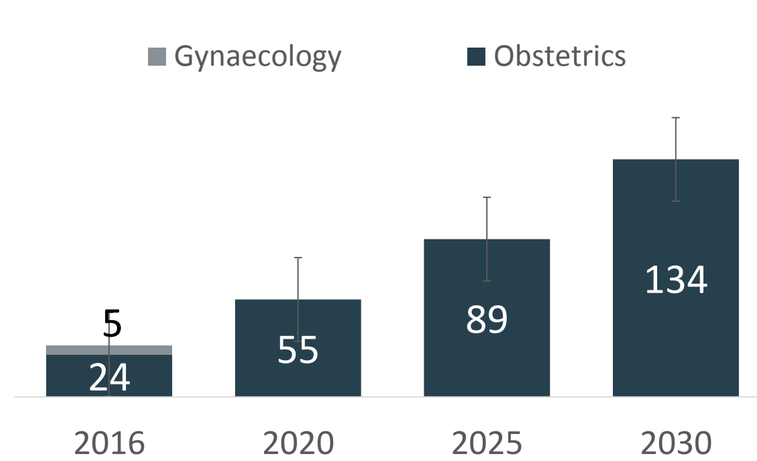
Demand for Outpatient Consultation Rooms



Requirement for Acute Overnight Beds



Requirement for Outpatient Consultation Rooms



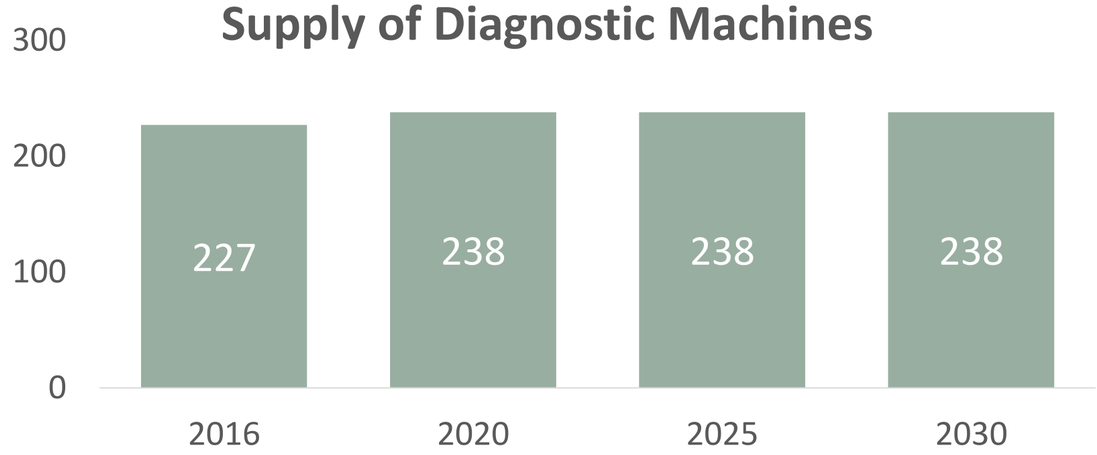
Diagnostic Care

Al Ain Region

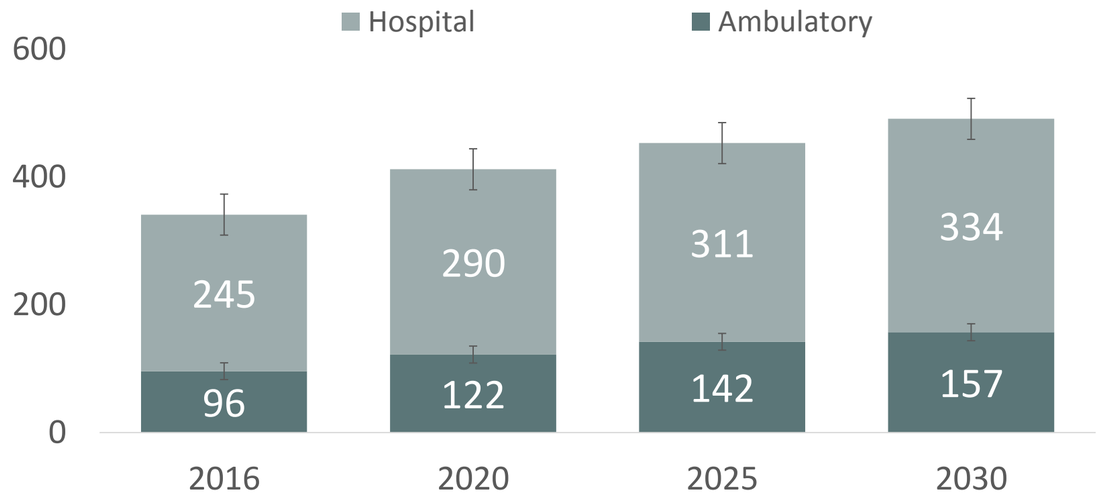
Requirement for Diagnostic Machines, ordered by largest in 2030

Speciality	2030	2025	2020	2016
Ultrasound	165	133	92	53
X-Ray	34	37	44	36
Computed Tomography	11	10	9	6
Magnetic Resonance	9	8	6	4
Mammography	9	7	6	4
Lithotripter	8	9	10	8
Gamma Camera	5	3	2	-
Angiography	5	4	3	1
Positron Emission Tomography	4	3	3	2
Radiation Therapy	1	1	-	-

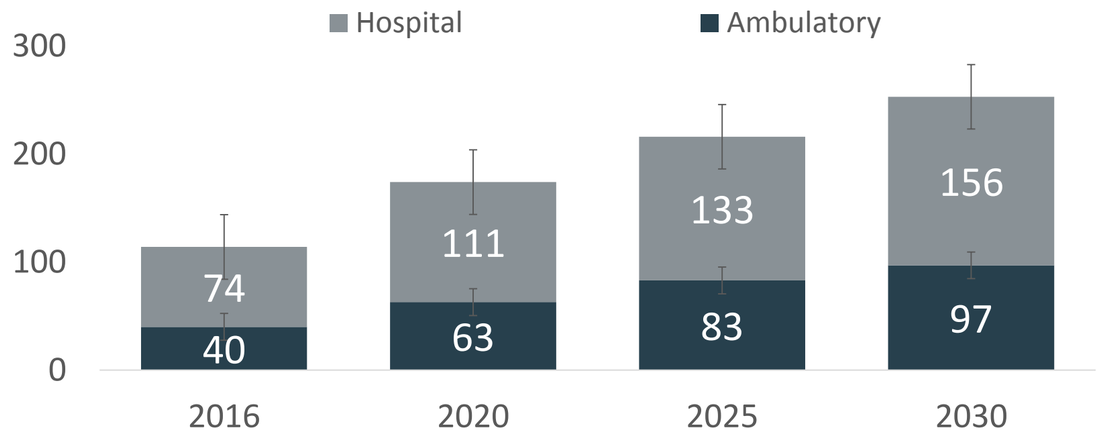
Supply of Diagnostic Machines



Demand for Diagnostic Machines



Requirement for Diagnostic Machines



Clinical Workforce

Al Ain Region

Supply of Al Ain Region Workforce by FTE

Category	2016	2020	Change
Medical	1,909	1,918	8
Allied Health & Pharmacy	3,350	3,355	5
Nursing	6,910	6,920	10
Oral Health	476	477	1
Total	**12,645**	**12,670**	**24**

Demand for Al Ain Region Workforce by FTE

Category	2016	2020	2025	2030
Medical	2,060	2,498	2,966	3.429
Allied Health & Pharmacy	3,480	4,013	4,272	4,986
Nursing	7,306	8,901	10,327	12,260
Oral Health	481	502	530	563
Total	**13,327**	**15,914**	**18,095**	**17,812**

Requirement for Al Ain Region Workforce by FTE

Category	2016	2020	2025	2030
Medical	151	580	1048	1,511
Allied Health & Pharmacy	130	658	917	1,631
Nursing	396	1,981	3,407	5,340
Oral Health	5	25	53	86
Total	**682**	**3,244**	**5,425**	**8,568**

Requirement for Medical Workforce, Top 10 largest in 2030

Speciality	2030	2025	2020	2016
Family Medicine	633	558	459	413
Paediatric Medicine	140	84	44	9
Emergency Medicine	118	69	31	6
Internal Medicine	114	77	44	8
Anaesthesia	105	68	35	7
Obstetrics & Gynaecology	96	68	40	8
Radiology	56	34	17	3
ENT Surgery	56	37	18	4
Psychiatry	42	42	42	8
Orthopaedics	30	20	12	2

Requirement for Allied Health & Pharmacy, Top 10 largest in 2030

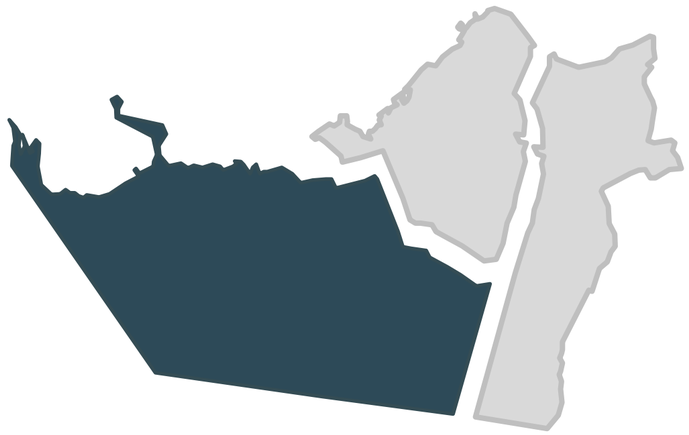
Speciality	2030	2025	2020	2016
Psychologist	444	250	104	21
Social Worker	299	176	78	16
Speech Pathologist/Audiologist	138	61	66	13
Radiographer	130	66	81	16
Pharmacist	115	98	77	14
Occupational Therapist	103	67	36	7
Physical Therapist	102	59	68	14
Clinical Laboratory Technologist	75	31	34	7
Respiratory Therapist	65	29	37	7
Radiotherapist	48	26	24	-5

Summary

Al Ain Region

	Acute Overnight Beds		Acute Same Day places		Outpatient Consultation rooms	
	Current	**2030**	**Current**	**2030**	**Current**	**2030**
1st	Orthopaedics (41)	Neonatology (120)	Gastroenterology (13)	ENT (27)	Primary Care (147)	Primary Care (361)
2nd	Respiratory Medicine (35)	Obstetric Delivery (110)	General Surgery (7)	Urology (27)	General Medicine (38)	Paediatric Medicine (197)
3rd	Obstetric Delivery (24)	Psychiatry (109)	ENT (7)	Orthopaedics (20)	Obstetrics (24)	Paediatric Surgery (144)
4th	Gastroenterology (23)	Orthopaedics (101)	Orthopaedics (6)	Gynaecology (18)	Paediatric Medicine (23)	Obstetrics (134)
5th	Neurology (23)	General Medicine (33)	Cardiology Medical (5)	Renal Dialysis (16)	Cardiology Medical (19)	Orthopaedics (77)

	Current	**Emerging (2020-2030)**
Emergency Care	Emergency Care bays (Triage Class 2, 3, 4 & 5) Emergency Physicians	Emergency Care bays (Triage Class 1, 2, 3 & 4) Emergency Physicians
Diagnostic	Ultrasound, X-ray, CT, MRI, Mammography, Lithotripter, Angiography, PET Radiographers and Radiotherapists	All machines Radiographers and Radiotherapists
Intensive Care	All Intensive Care bed types Intensive Care Specialists	All Intensive Care bed types Intensive Care Specialists
Non-Acute Care	Disability and Rehabilitation overnight beds	All Non-acute care overnight bed types

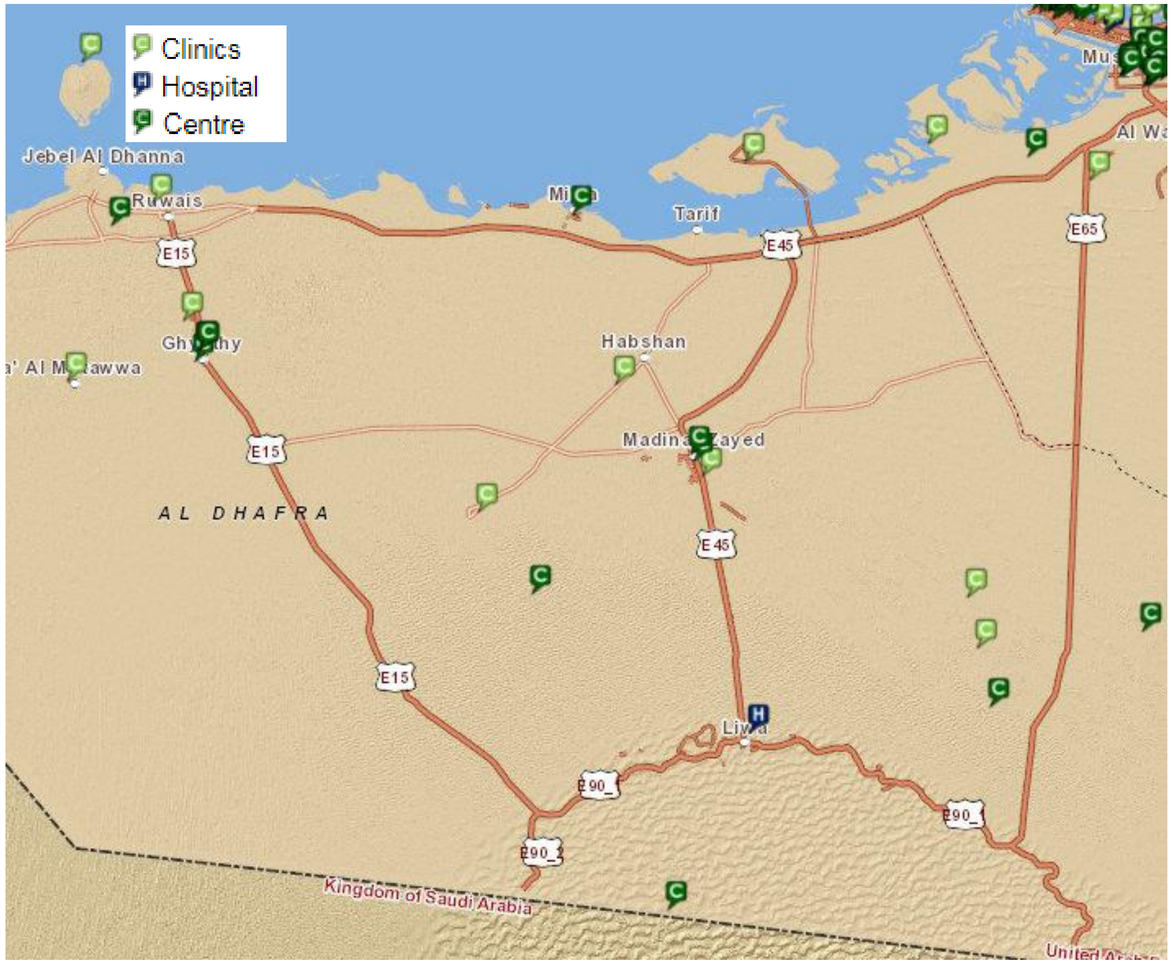


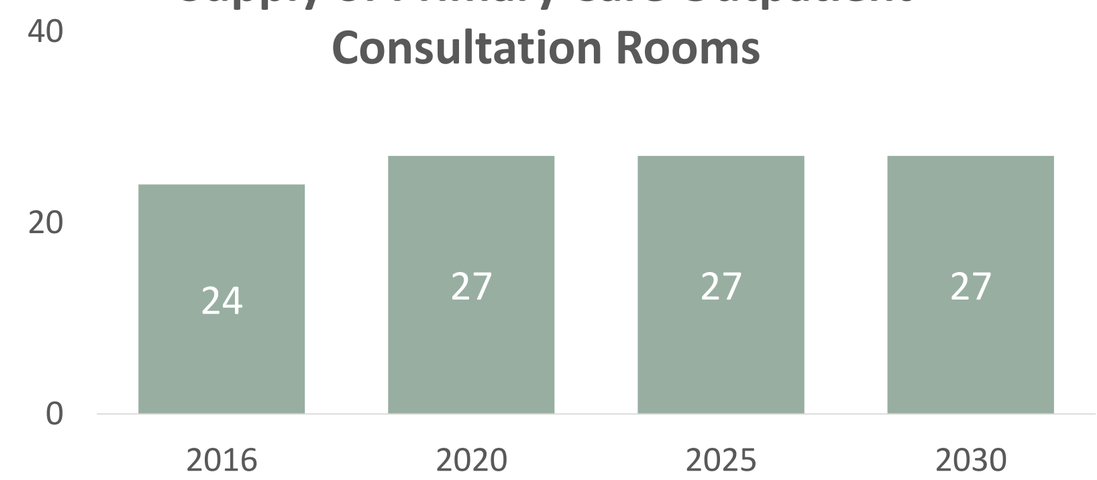
Section E – Al Dhafra Region

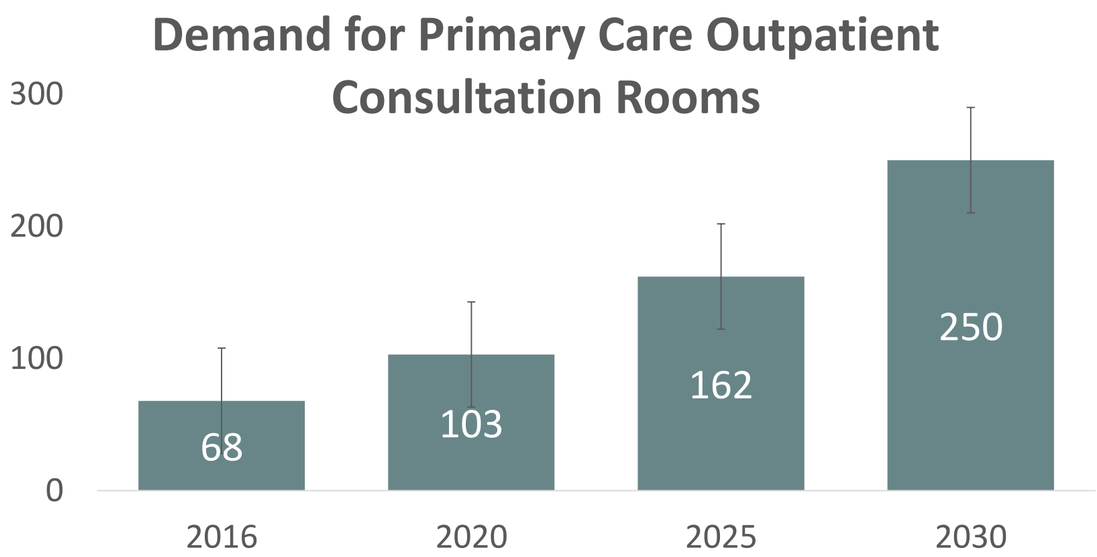
Supply, Demand and Gap Analysis for the Al Dhafra Region

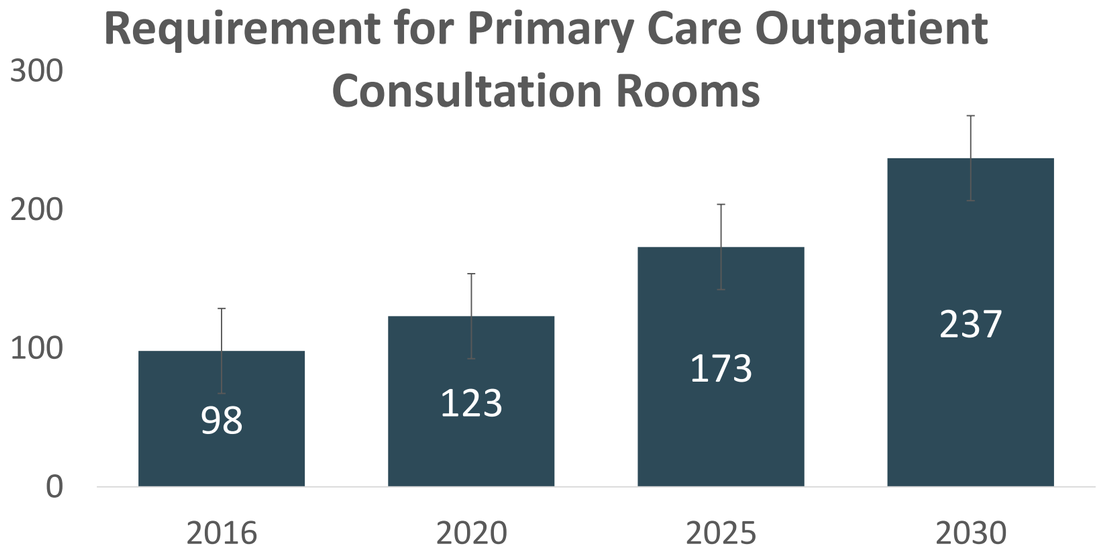
Primary Care

Al Dhafra Region





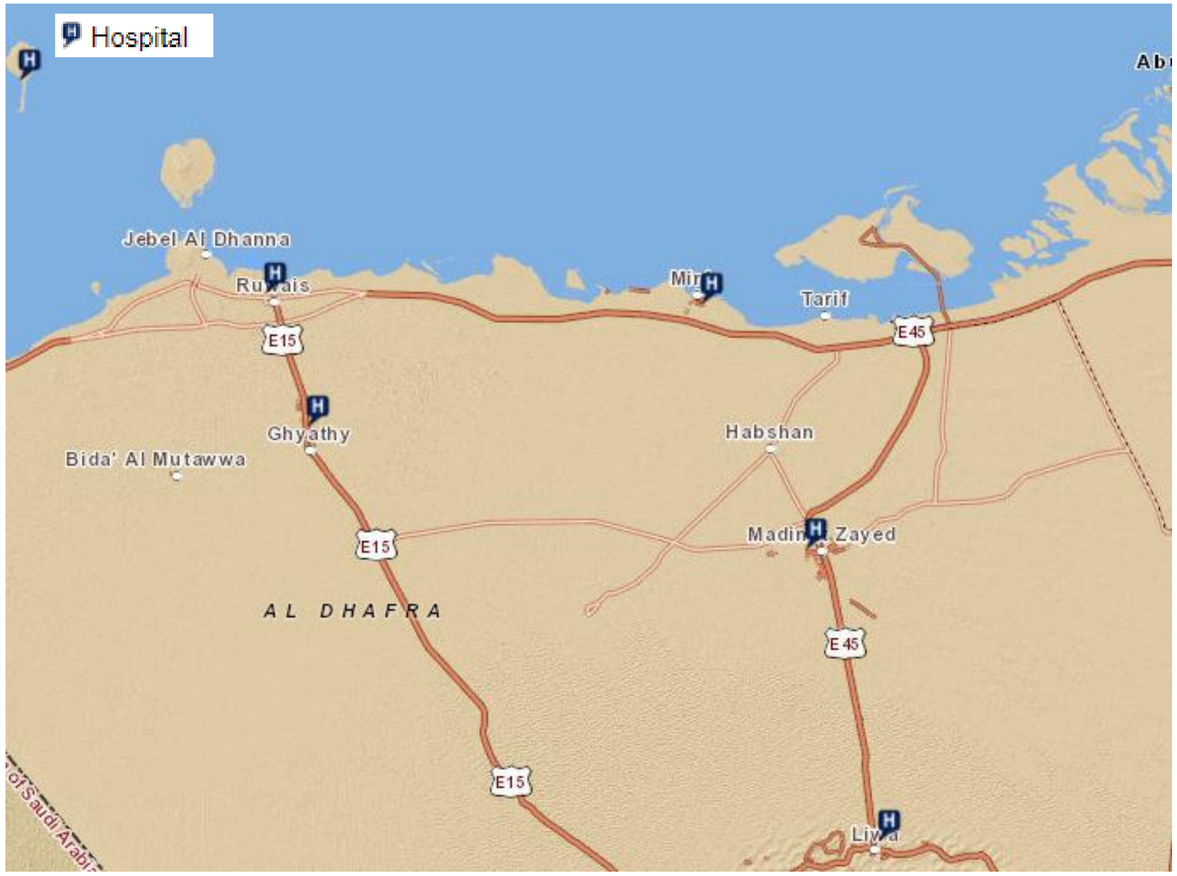




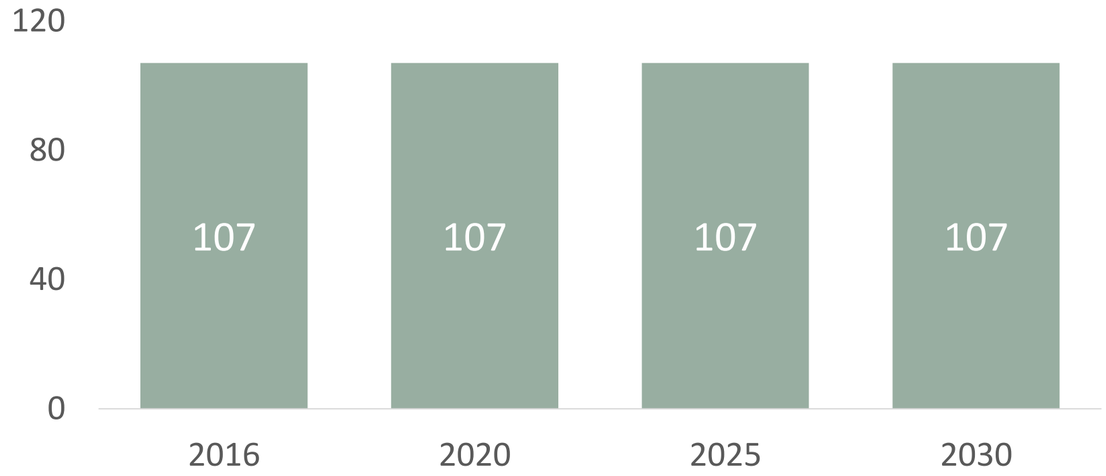
Requirements are based on survey and do not include the new implementation of licensed primary care providers following the policy change introduced by “DoH Standard for Primary Care in Emirate of Abu Dhabi”. This will be included in the next CMP.

Emergency Care

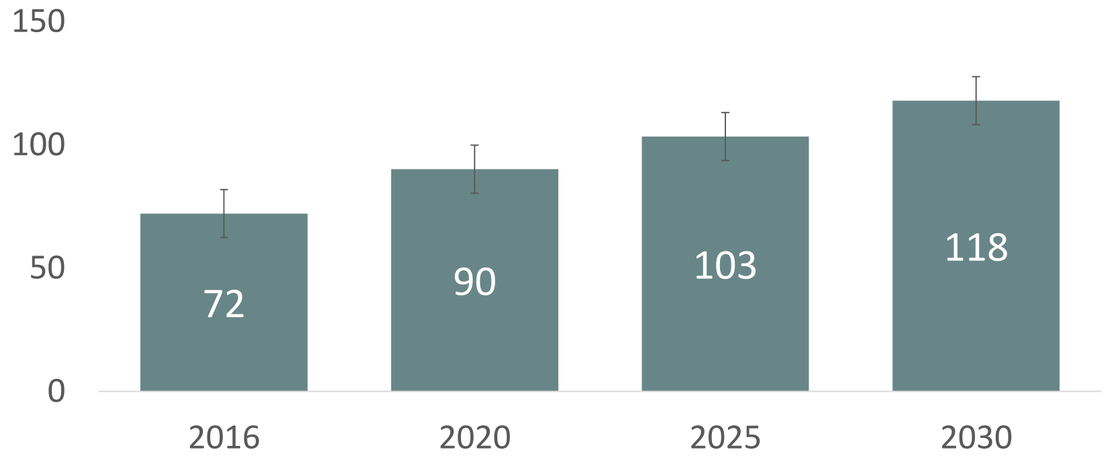
Al Dhafra Region



Supply of Emergency Care Bays



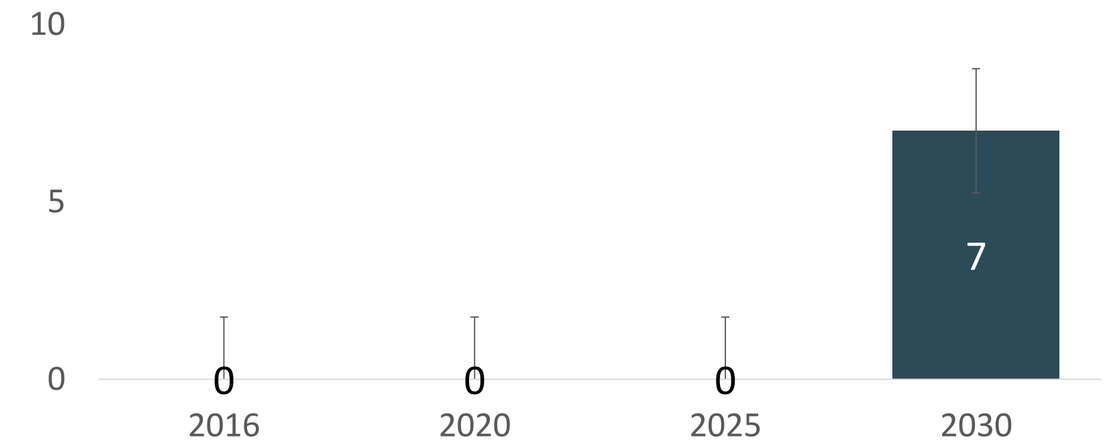
Demand for Emergency Care Bays



Requirements for Emergency Care bays by Triage Class

Triage Class	2016	2020	2025	2030
1 – Immediate Life Threat	-	-	-	-
2 – Imminent Life Threat	-	-	-	5
3 – Potential Life Threat	-	-	-	6
4 – Serious	-	-	-	-
5 – Less Urgent	-	-	-	-

Requirement for Emergency Care Bays



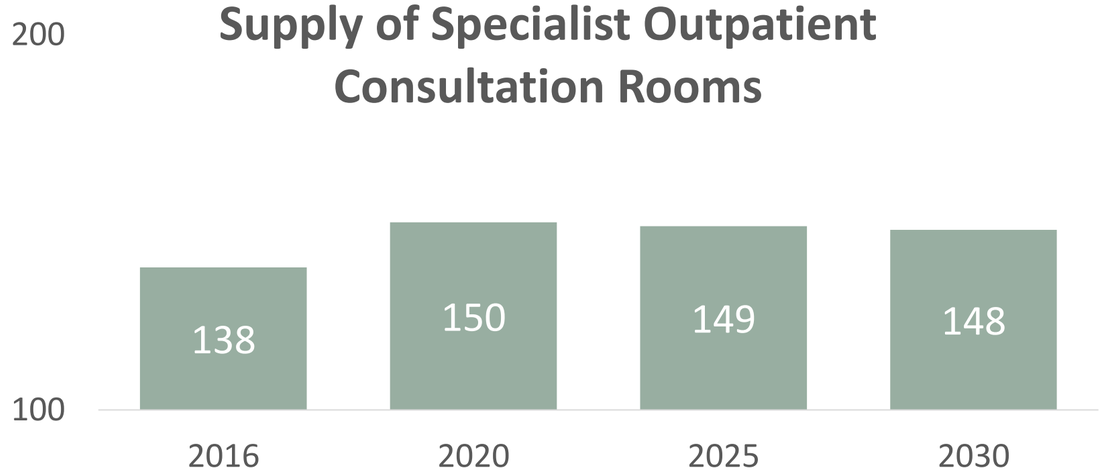
Specialist Outpatient Care

Al Dhafra Region

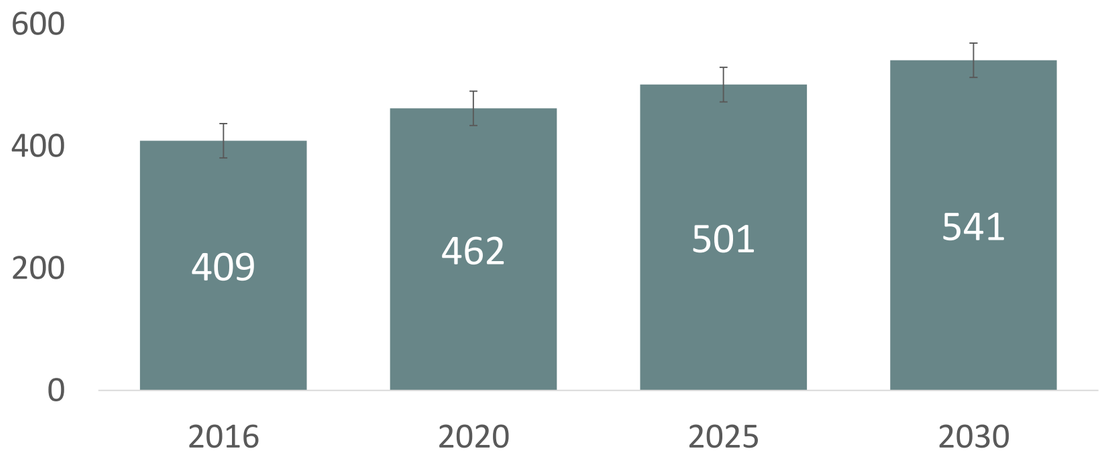
Requirement for Specialist Outpatient Consultation Rooms, Top 10 in 2030

Speciality	2030	2025	2020	2016
Orthopaedics	49	32	21	15
Paediatric Medicine	41	28	15	8
Immunology and Infectious Diseases	38	18	7	3
ENT Surgery	24	18	13	10
Endocrinology	23	20	17	14
Paediatric Surgery	19	11	5	2
Dermatology	19	19	19	17
Gastroenterology and Hepatology	19	13	9	6
Urology	16	13	10	9
Trauma and Injury	16	10	5	2

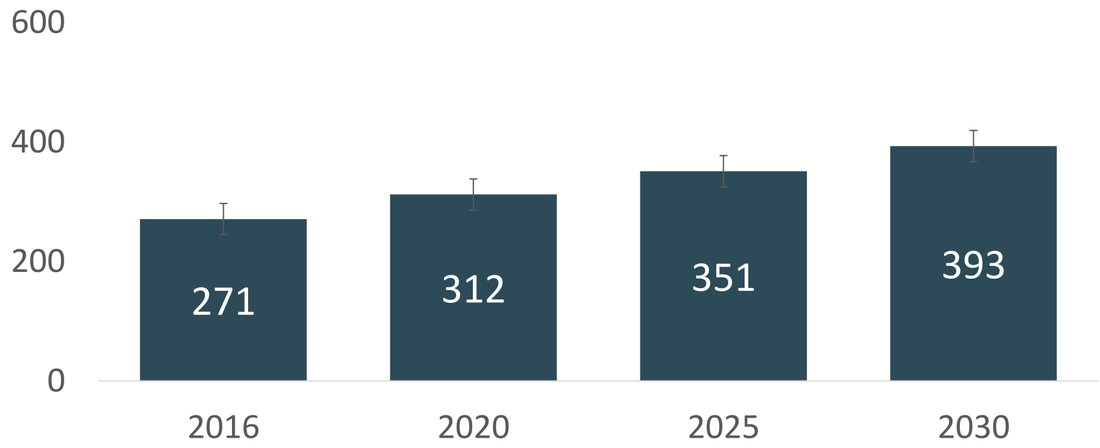
Supply of Specialist Outpatient Consultation Rooms



Demand for Specialist Outpatient Consultation Rooms



Requirement for Specialist Outpatient Consultation Rooms



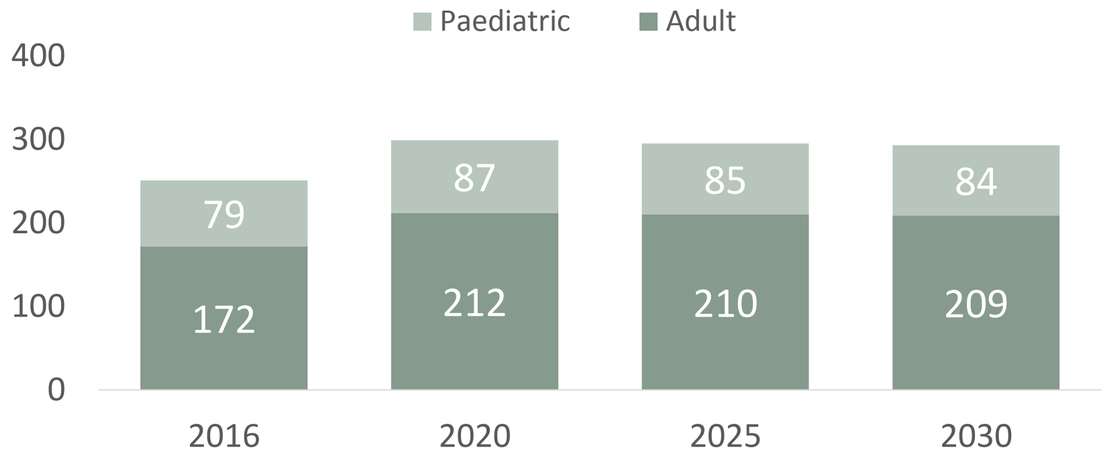
Acute Overnight Care

Al Dhafra Region

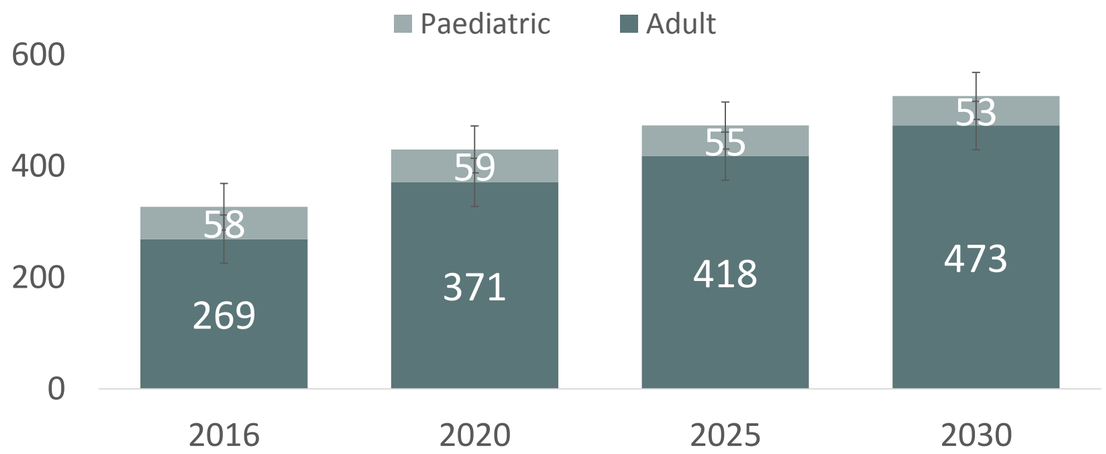
Requirement for Acute Overnight Beds, Top 10 in 2030

Speciality	2030	2025	2020	2016
Orthopaedics	63	42	25	9
General Medicine	31	22	14	8
Respiratory Medicine	16	13	10	3
Cardiology Medical	15	14	13	9
Gastroenterology	14	12	9	5
General Surgery	13	12	13	11
Immunology and Infectious Diseases	10	7	4	-
Medical Oncology	10	7	5	3
Cardiology Invasive	9	9	9	9
Plastic Surgery	8	6	5	3

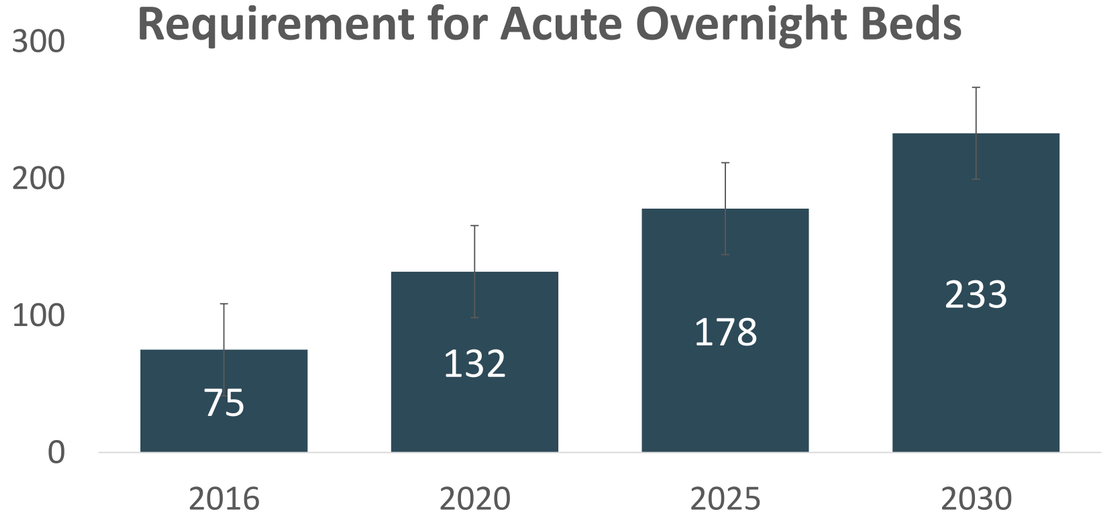
Supply of Acute Overnight Beds



Demand for Acute Overnight Beds



Requirement for Acute Overnight Beds



Supply figures have been relatively adjusted to demand, which explains the slight drop in supply projections in 2030
Requirement total is less than sum of top 10 specialties due to the large oversupply in other specialties

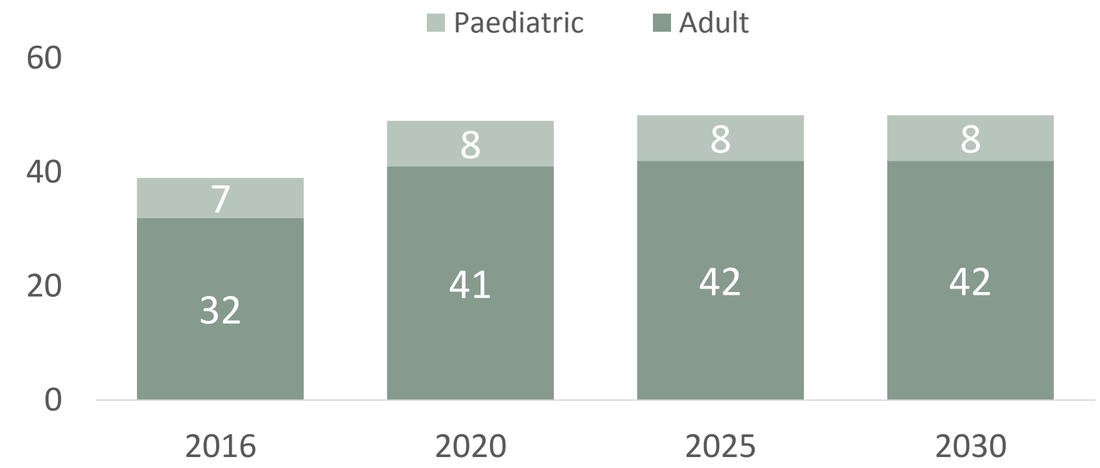
Acute Same Day Care

Al Dhafra Region

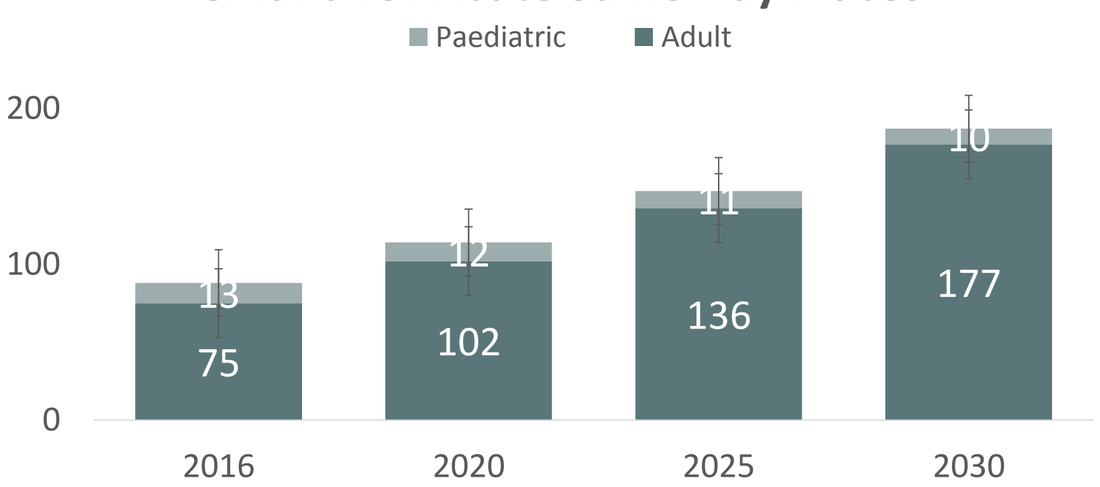
Requirement for Acute Same Day Places, Top 10 in 2030

Speciality	2030	2025	2020	2016
Renal Dialysis	24	15	7	4
Urology	21	14	8	5
Orthopaedics	15	10	6	4
ENT	13	9	6	4
General Surgery	9	8	7	5
General Medicine	8	5	3	2
Gastroenterology	8	8	7	7
Plastic Surgery	5	4	3	3
Cardiology Medical	5	3	1	-
Chemotherapy	4	3	1	1

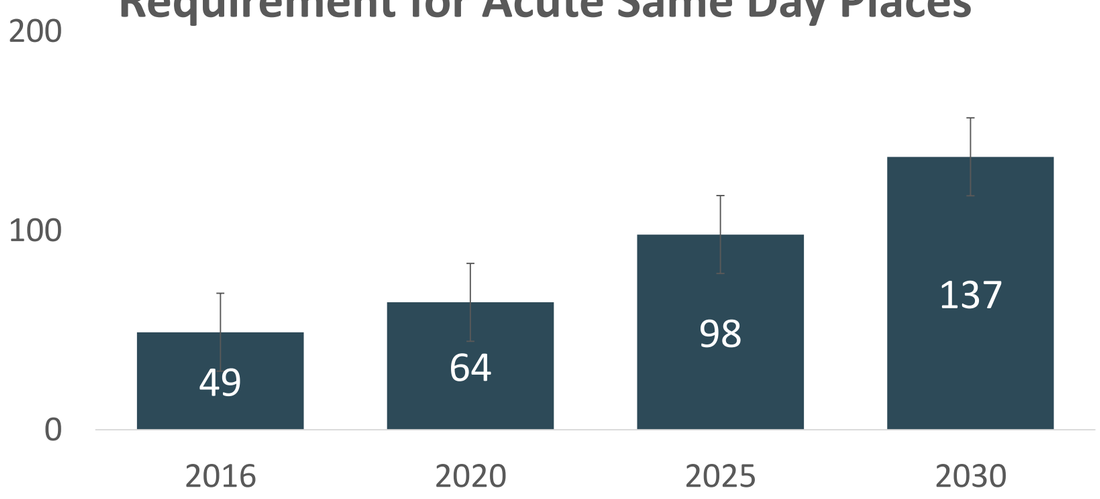
Supply of Acute Same Day Places



Demand for Acute Same Day Places



Requirement for Acute Same Day Places



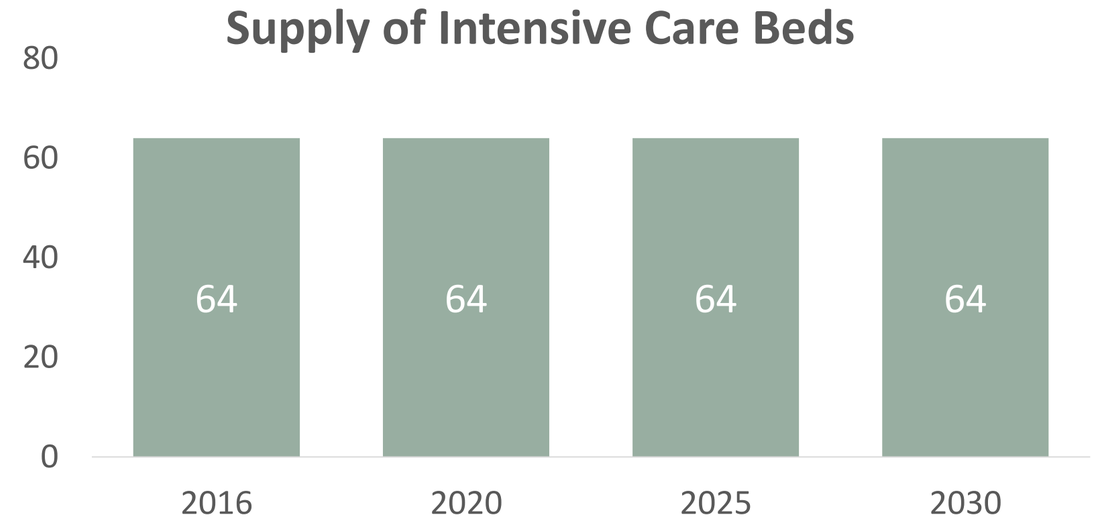
Requirement total is less than sum of top 10 specialties due to the large oversupply in other specialties

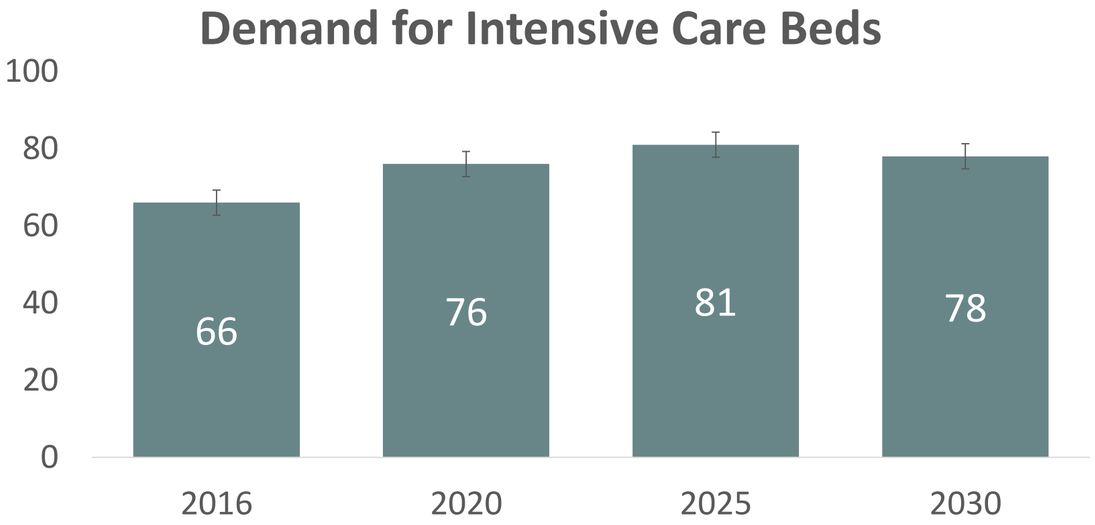
Intensive Care

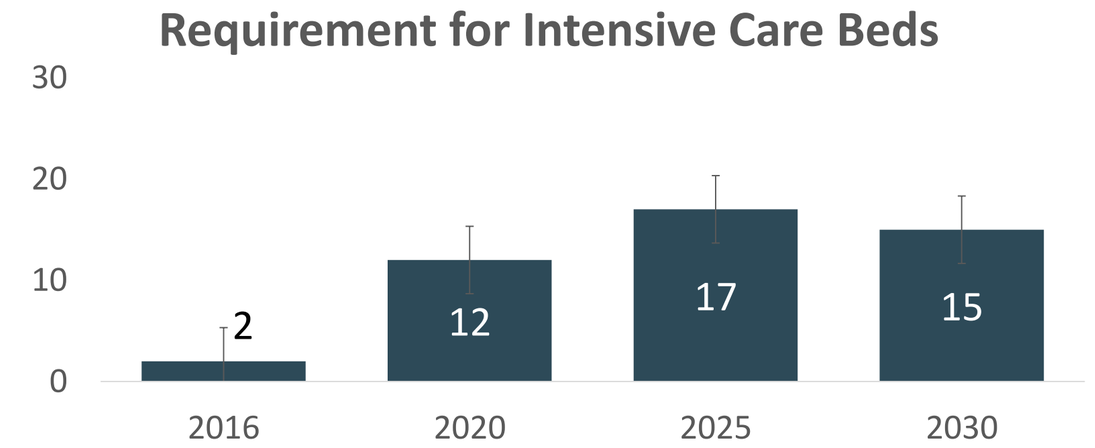
Al Dhafra Region

Requirement for Intensive Care Beds by Type, ordered by largest in 2030

Intensive Care Bed Type	2030	2025	2020	2016
General	15	16	11	2
Neonatology	-	1	1	-
Paediatric	-	-	-	-







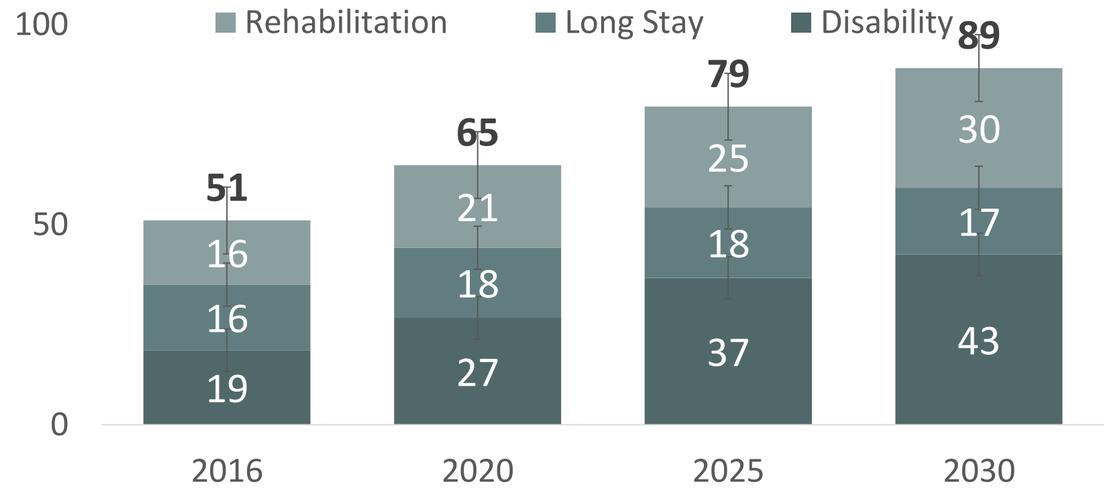
Non-Acute Care & Long Term Care

Al Dhafra Region

Supply of Non-Acute Care Overnight Beds

No current or future supply of non-acute overnight beds in Al Dhafra

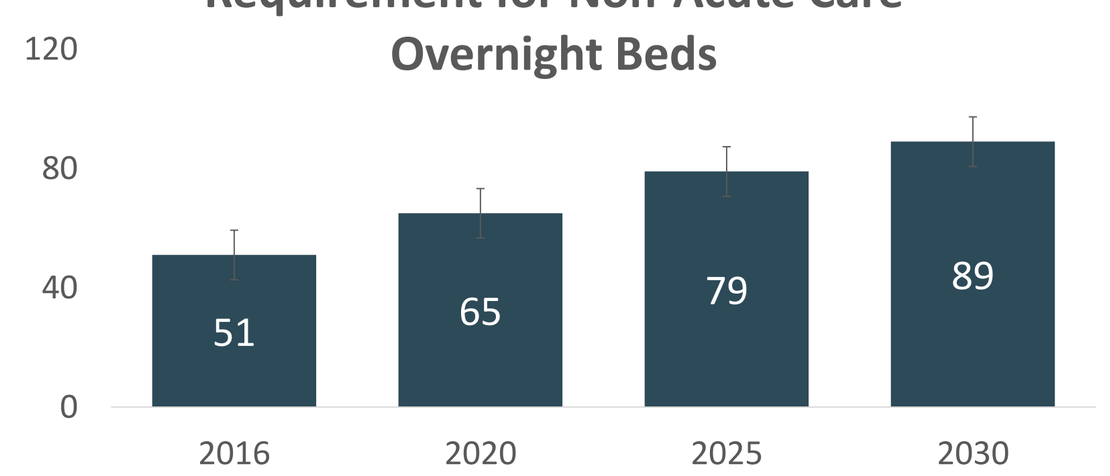
Demand of Non-Acute Care Overnight Beds



Requirement for Non-Acute Care Beds by Type, ordered by largest in 2030

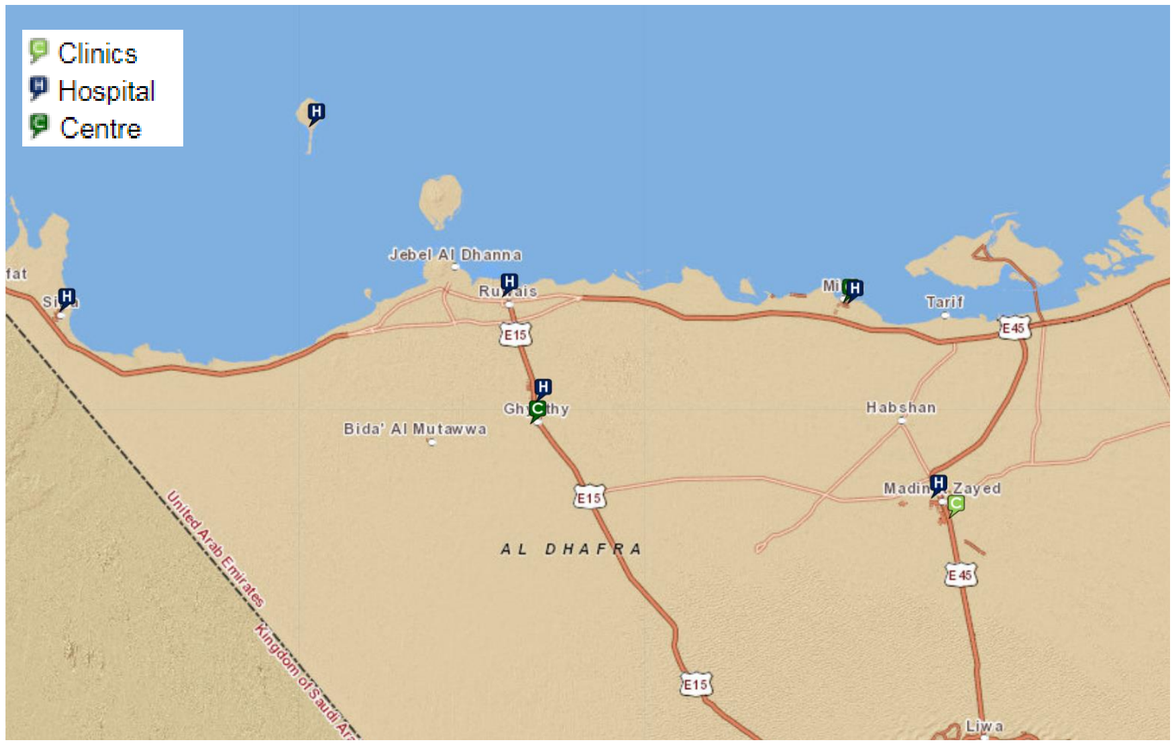
Non-Acute Care Bed Type	2030	2025	2020	2016
Rehabilitation	30	25	21	16
Disability	43	37	27	19
Long Stay	17	18	18	16

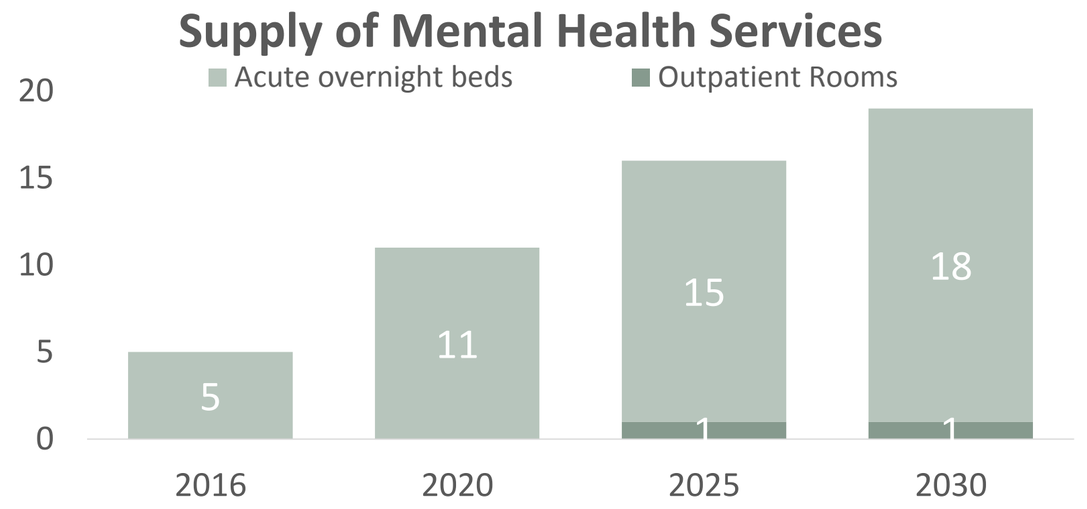
Requirement for Non-Acute Care Overnight Beds

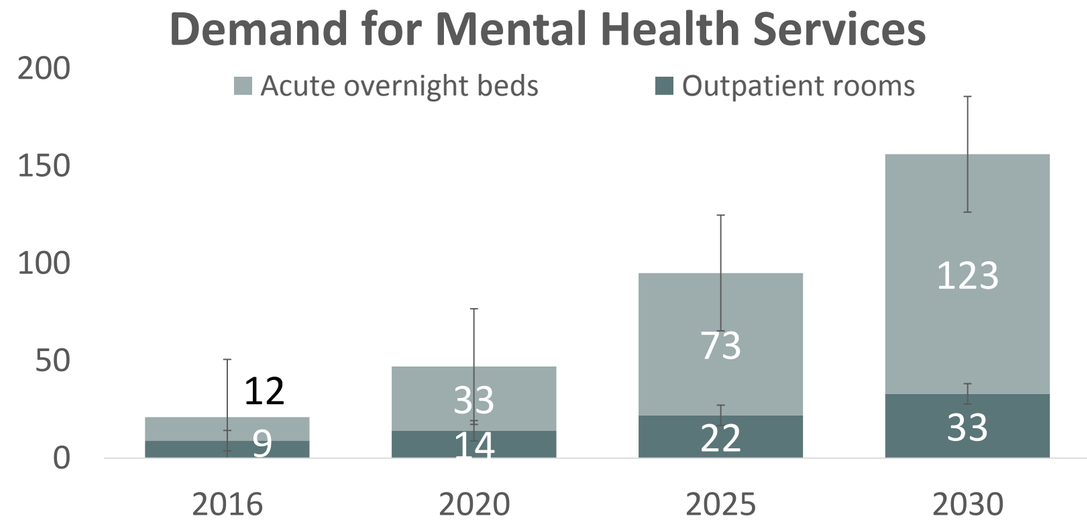


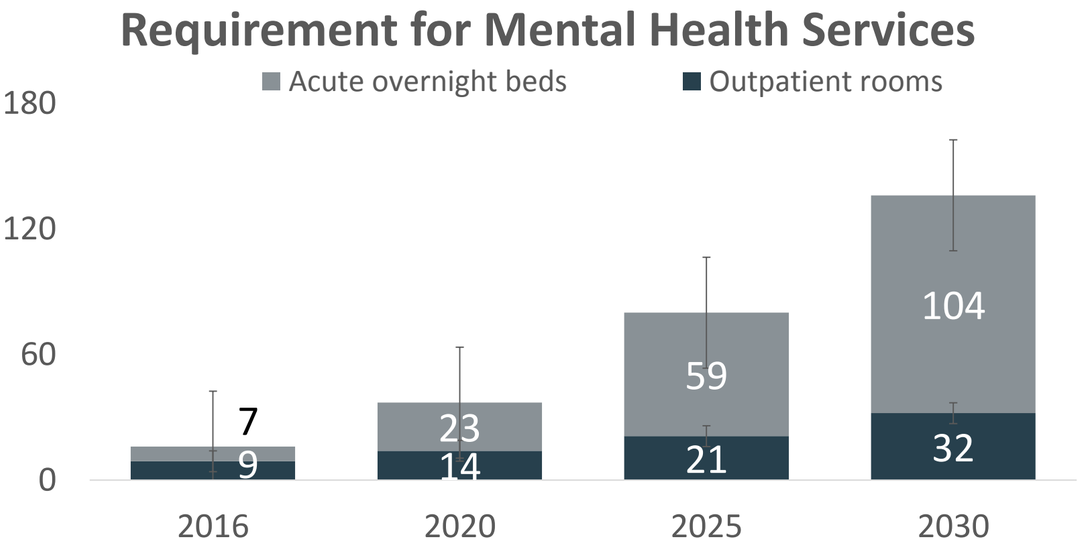
Mental Health Care

Al Dhafra Region



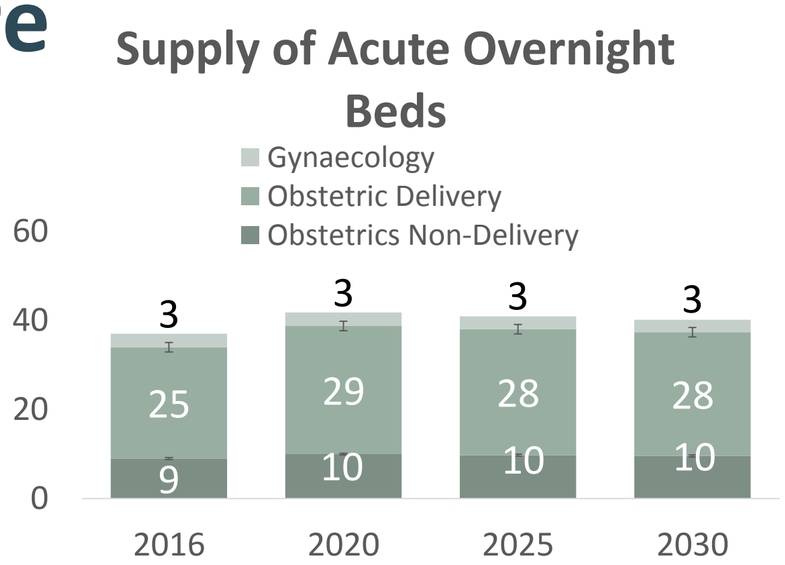


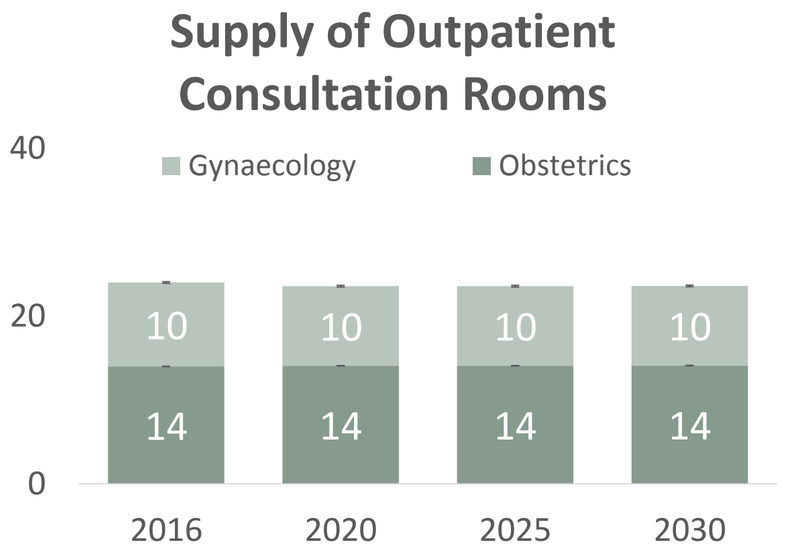


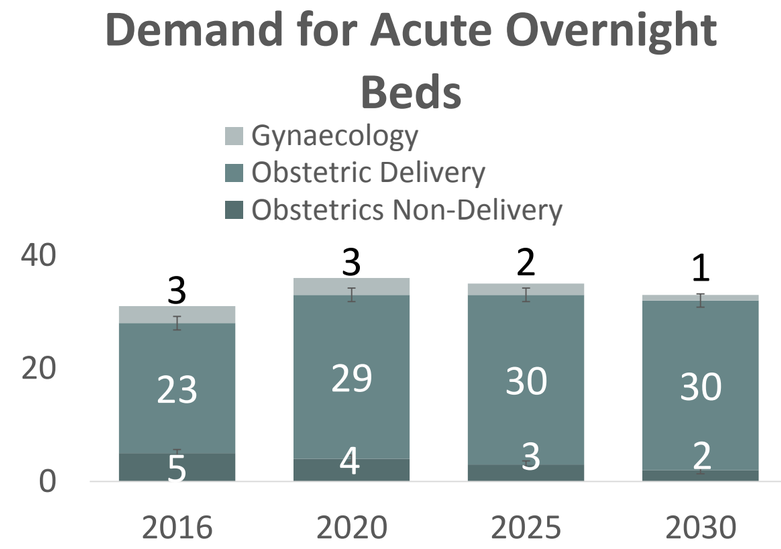


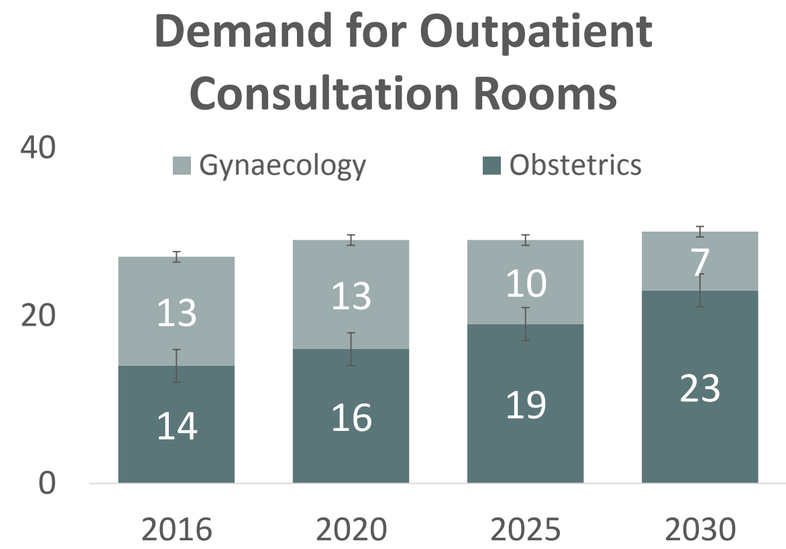
Women's Health Care

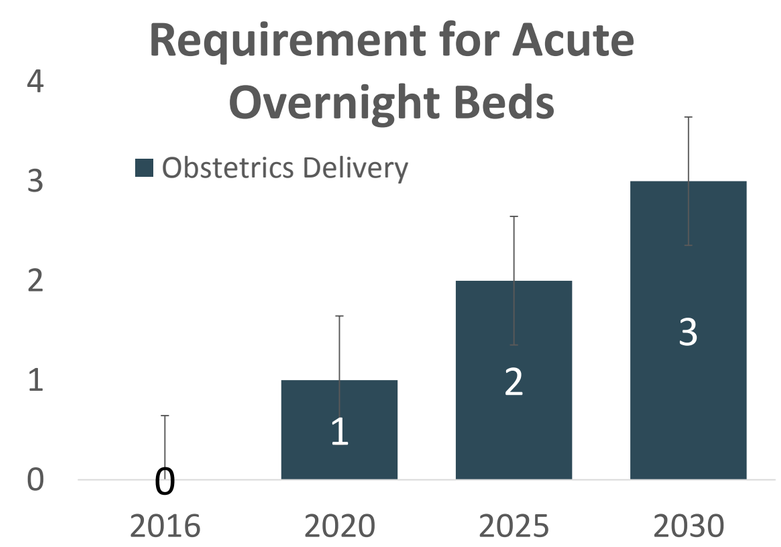
Al Dhafra Region

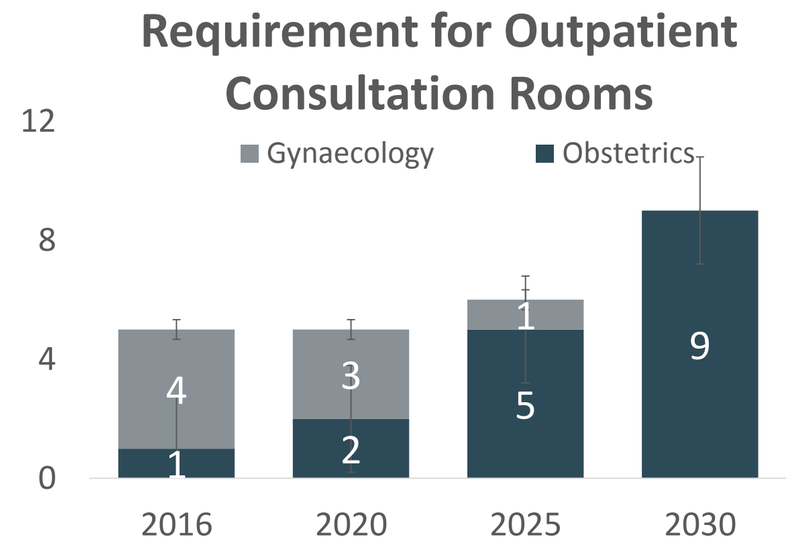












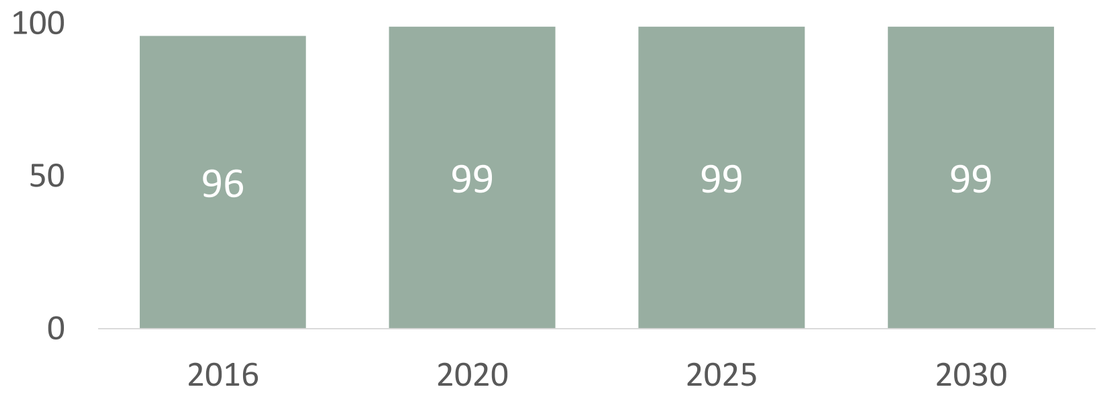
Diagnostic Care

Al Dhafra Region

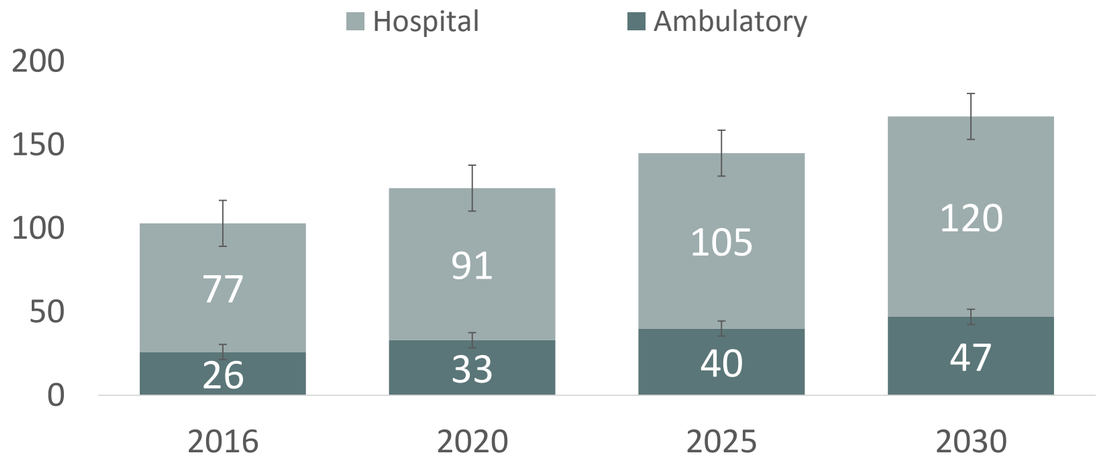
Requirement for Diagnostic Machines, ordered by largest in 2030

Speciality	2030	2025	2020	2016
Ultrasound	45	26	9	-
Lithotripter	6	7	7	7
Magnetic Resonance	5	4	3	2
Mammography	4	3	3	2
Angiography	4	3	3	2
Gamma Camera	3	2	2	1
Radiation Therapy	2	1	1	1
Positron Emission Tomography	1	1	1	-

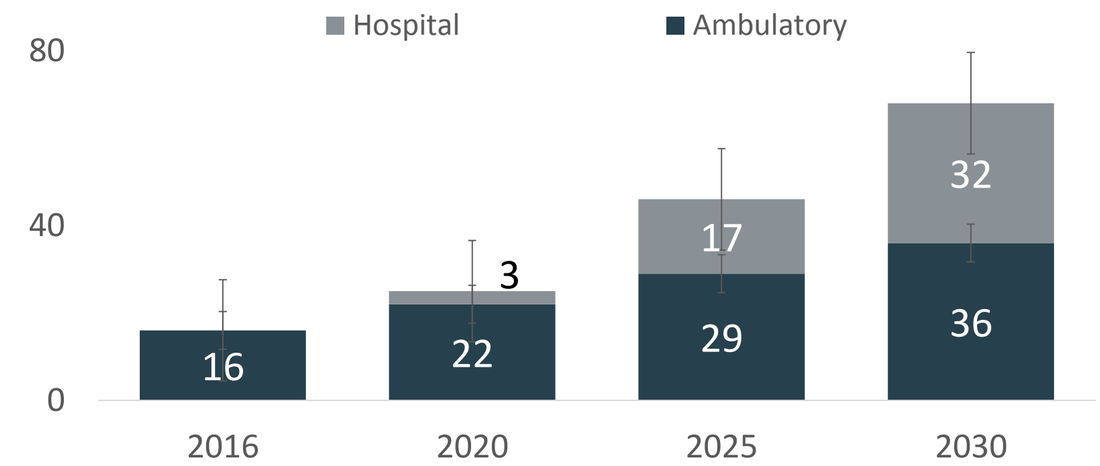
Supply of Diagnostic Machines



Demand for Diagnostic Machines



Requirement for Diagnostic Machines



Requirement total is less than sum of diagnostic machine type due to the oversupply in X-ray and CT machines

Clinical Workforce

Al Dhafra Region

Supply of Al Dhafra Region Workforce by FTE

Category	2016	2020	Change
Medical	458	460	2
Allied Health & Pharmacy	703	704	1
Nursing	1,053	1,055	2
Oral Health	37	37	0
Total	**2,251**	**2,256**	**5**

Demand for Al Dhafra Region Workforce by FTE

Category	2016	2020	2025	2030
Medical	722	868	1,058	1,258
Allied Health & Pharmacy	757	975	1,142	1,443
Nursing	1,186	1,721	2,438	3,348
Oral Health	42	62	89	124
Total	**2,707**	**3,626**	**4,727**	**6,173**

Requirement for Al Dhafra Region Workforce by FTE

Category	2016	2020	2025	2030
Medical	264	408	598	798
Allied Health & Pharmacy	54	271	438	739
Nursing	133	666	1,383	2,293
Oral Health	5	25	52	87
Total	**456**	**1,370**	**2,471**	**3,917**

Requirement for Medical Workforce, Top 10 largest in 2030

Speciality	2030	2025	2020	2016
Family Medicine	369	323	273	250
Medical Practitioners	90	63	24	0
Emergency Medicine	51	28	12	2
Anaesthesia	44	28	13	3
Orthopaedics	26	16	7	1
Radiology	23	13	6	1
Psychiatry	23	23	23	5
Internal Medicine	22	15	9	2
ENT Surgery	22	13	5	1
Intensive Care	13	7	3	1

Requirement for Allied Health & Pharmacy, Top 10 largest in 2030

Speciality	2030	2025	2020	2016
Psychologist	163	89	36	7
Physical Therapist	116	37	63	13
Social Worker	115	66	28	6
Occupational Therapist	91	50	21	4
Speech Pathologist/Audiologist	55	31	13	3
Radiographer	54	38	23	5
Pharmacist	45	43	38	8
Respiratory Therapist	27	17	11	2
Dietician	24	35	17	3
Podiatrist	21	12	5	1

Summary

Al Dhafra Region

	Acute Overnight beds		Acute Same Day places		Outpatient Consultation rooms	
	Current	**2030**	**Current**	**2030**	**Current**	**2030**
1st	General Surgery (11)	Psychiatry (85)	Gastroenterology (7)	Renal Dialysis (24)	Primary Care (98)	Primary Care (237)
2nd	Orthopaedics (9)	Orthopaedics (63)	Urology (5)	Urology (21)	General Medicine (78)	Orthopaedics (49)
3rd	Cardiology Medical (9)	General Medicine (31)	General Surgery (5)	Orthopaedics (15)	Dermatology (17)	Paediatric Medicine (41)
4th	Cardiology Invasive (9)	Alcohol & Other Drugs (20)	Renal Dialysis (4)	ENT (13)	Orthopaedics (16)	Immunology & Infectious Diseases (38)
5th	General Medicine (8)	Respiratory Medicine (16)	ENT (4)	General Surgery (9)	Ophthalmology (15)	Psychiatry (32)

	Current	Emerging (2020-2030)
Emergency Care	No Emergency Care bays Emergency Physicians	Emergency Care bays (Triage 2 & 3) Emergency Physicians
Diagnostic	Lithotripter, MRI, Mammography, Angiography, Gamma Camera, Radiation Therapy Radiographers and Radiotherapists	Ultrasound, Lithotripter, MRI, Mammography, Angiography, Gamma Camera, Radiation Therapy, PET Radiographers and Radiotherapists
Intensive Care	General ICU beds Intensive Care Specialists	General and Neonatology ICU beds Intensive Care Specialists
Non-Acute Care	All Non-acute care overnight bed types	All Non-acute care overnight bed types

Section F – Investing in Healthcare

Regulation, Insurance & Resources for Investors

Investing in Healthcare

Guidance

DOH LICENSING INQUIRIES

For DoH Licensing inquires

- Free Abu Dhabi Government contact number 800555
- Smartphone mobile application, visit DoH website www.haad.ae
  1- DoH Media Center
  2- DoH Mobile App

PROFESSIONAL QUALIFICATION REQUIREMENTS (PQR)

To review updated Healthcare "Professional Qualification Requirements (PQR) please visit DoH website

- go to Homepage >> Healthcare Professionals >> Services & Requirements >> Professional Qualification Requirements (PQR)

APPLICATIONS

For information about how to apply for new registration and other application types please visit DoH website

- go to Homepage >> Healthcare Professionals>> Services & Requirements >> Licensing >> Health Professionals Licensing >> then choose the type of application

APPLICATION STATUS

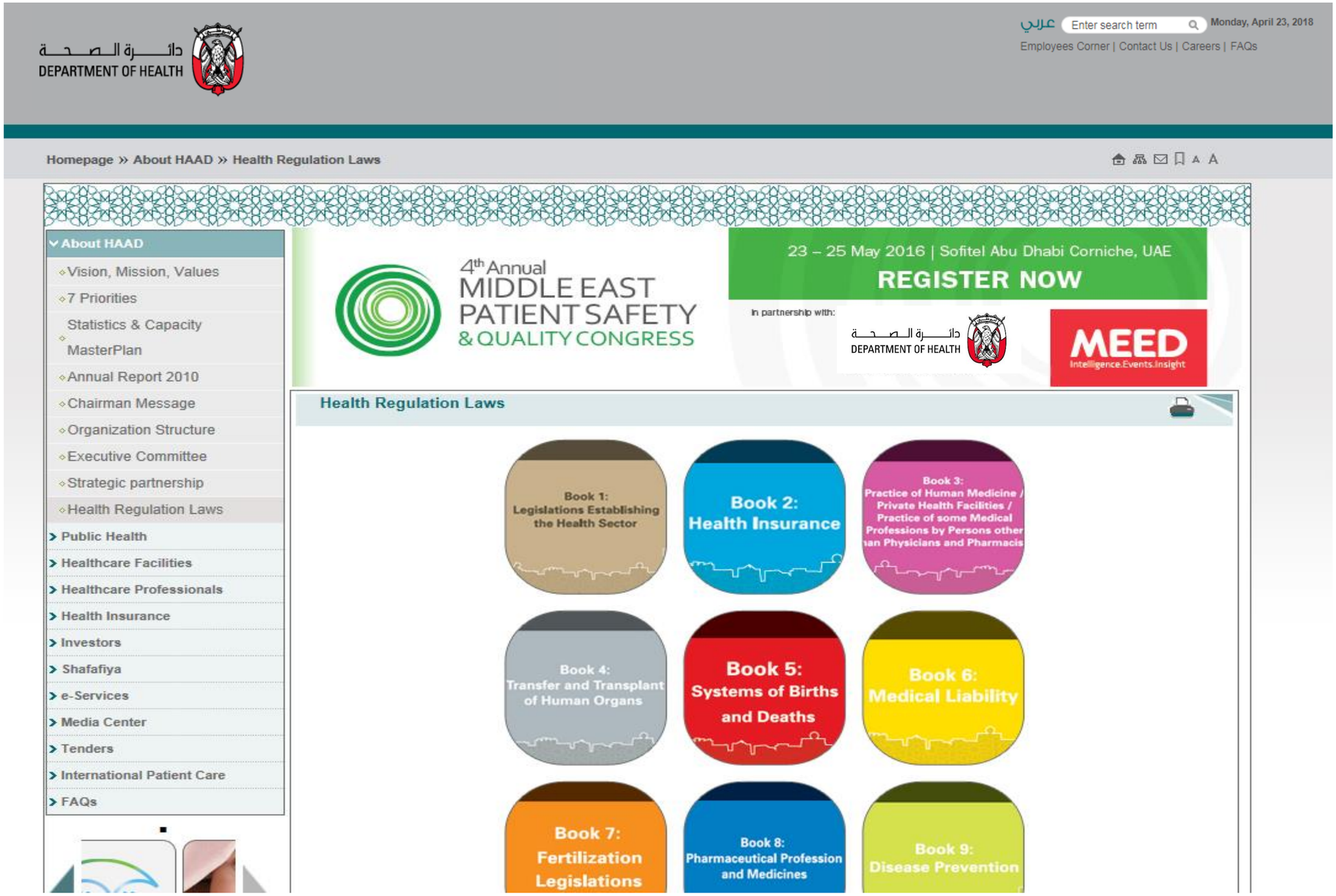
To apply for new application dataflow directly or check application status please visit DoH website

- Homepage >> e-services >> Healthcare Professionals >> Apply with/without facility sponsorship (dataflow)
- To check the application status go to >> Apply with/without facility sponsorship (dataflow) >> find your application status

Investing in Healthcare

Health Regulation Laws

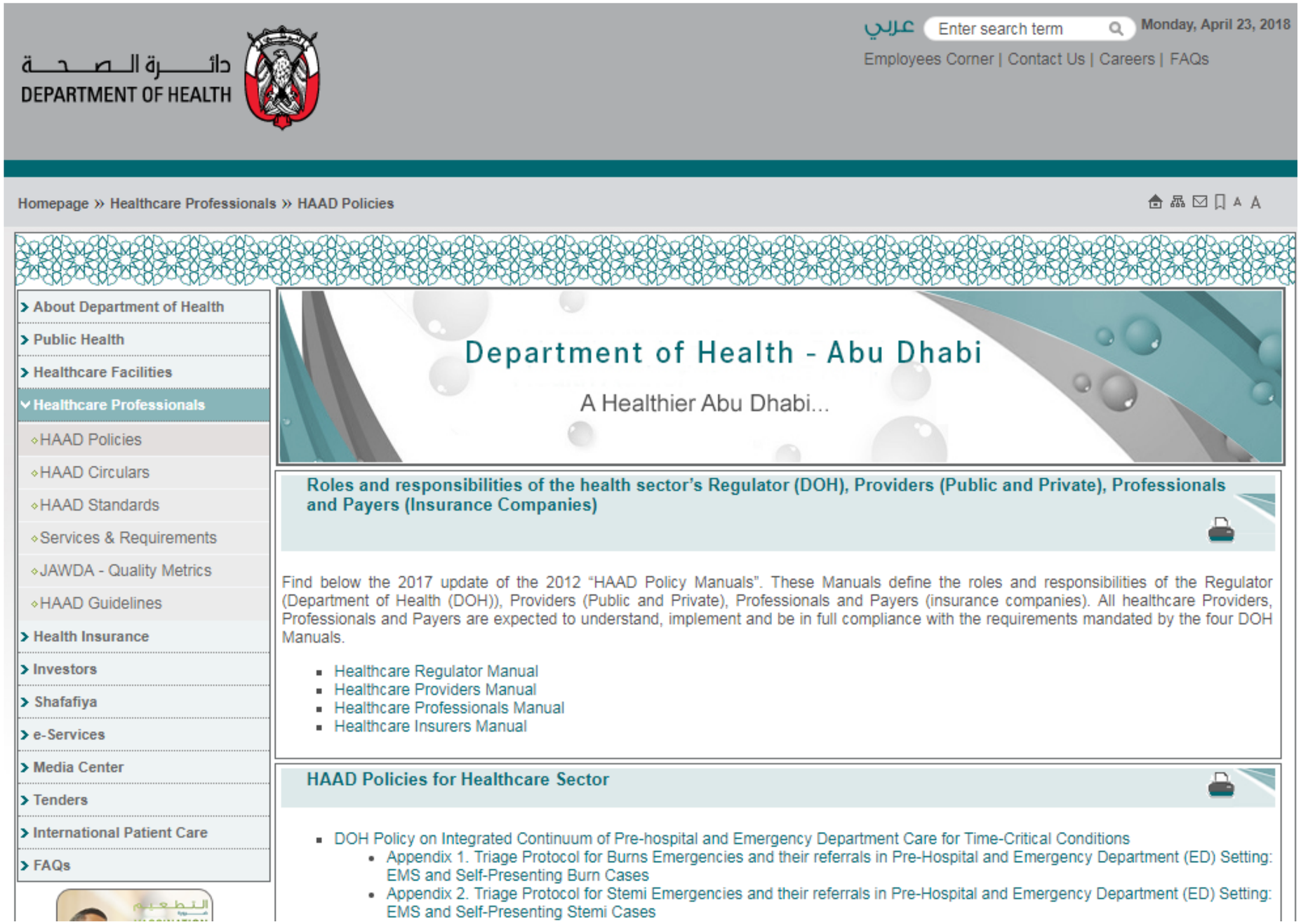
Health Regulation Laws



Investing in Healthcare

DoH Manuals

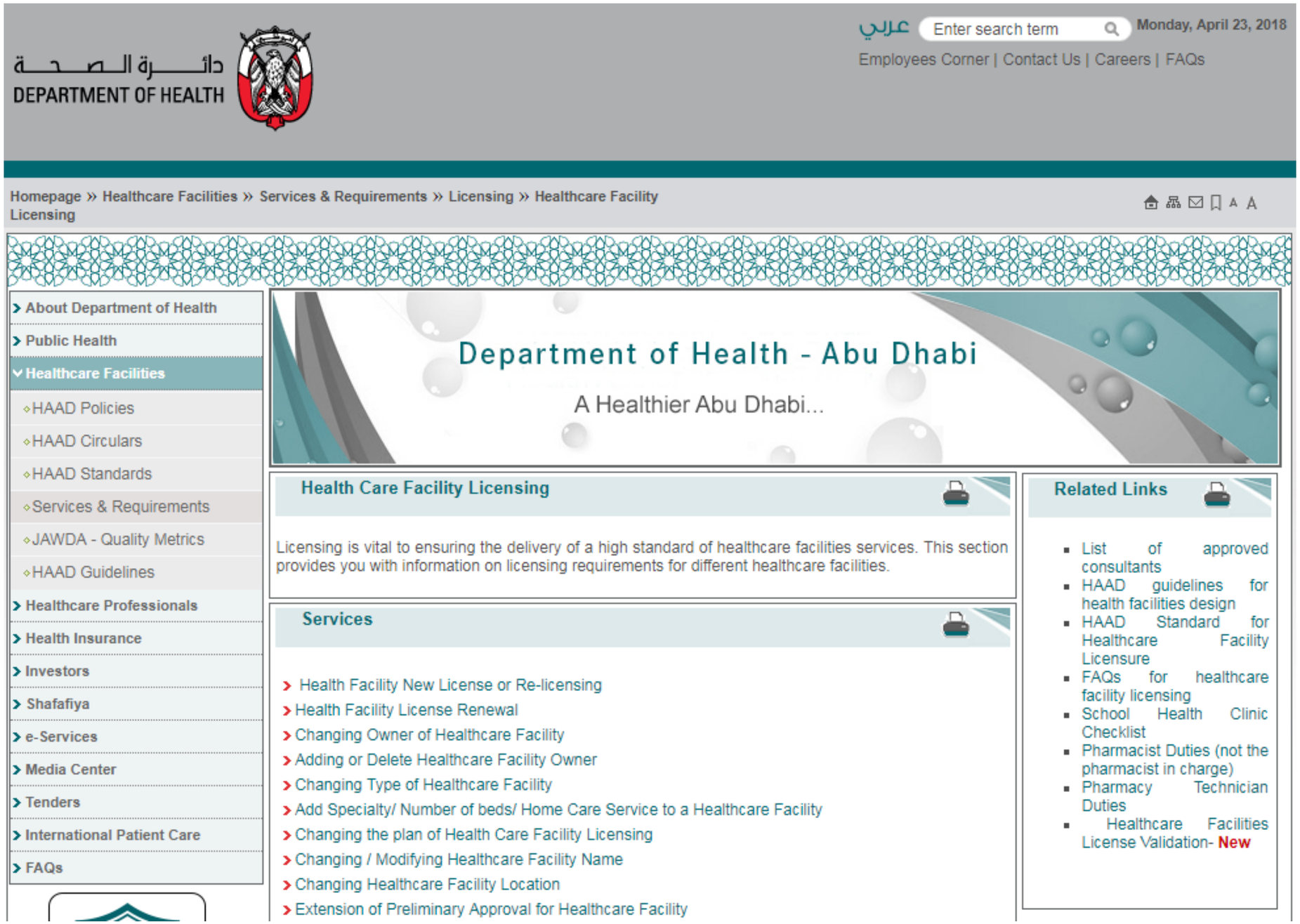
DoH Policies



Investing in Healthcare

Healthcare Facility Licensing

Healthcare Facility Licensing



Investing in Healthcare

Healthcare Professionals Licensing

Healthcare Professionals Licensing

Investing in Healthcare

Health Insurance

Health Insurance

Investing in Healthcare

Mandatory Insurance Model

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

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

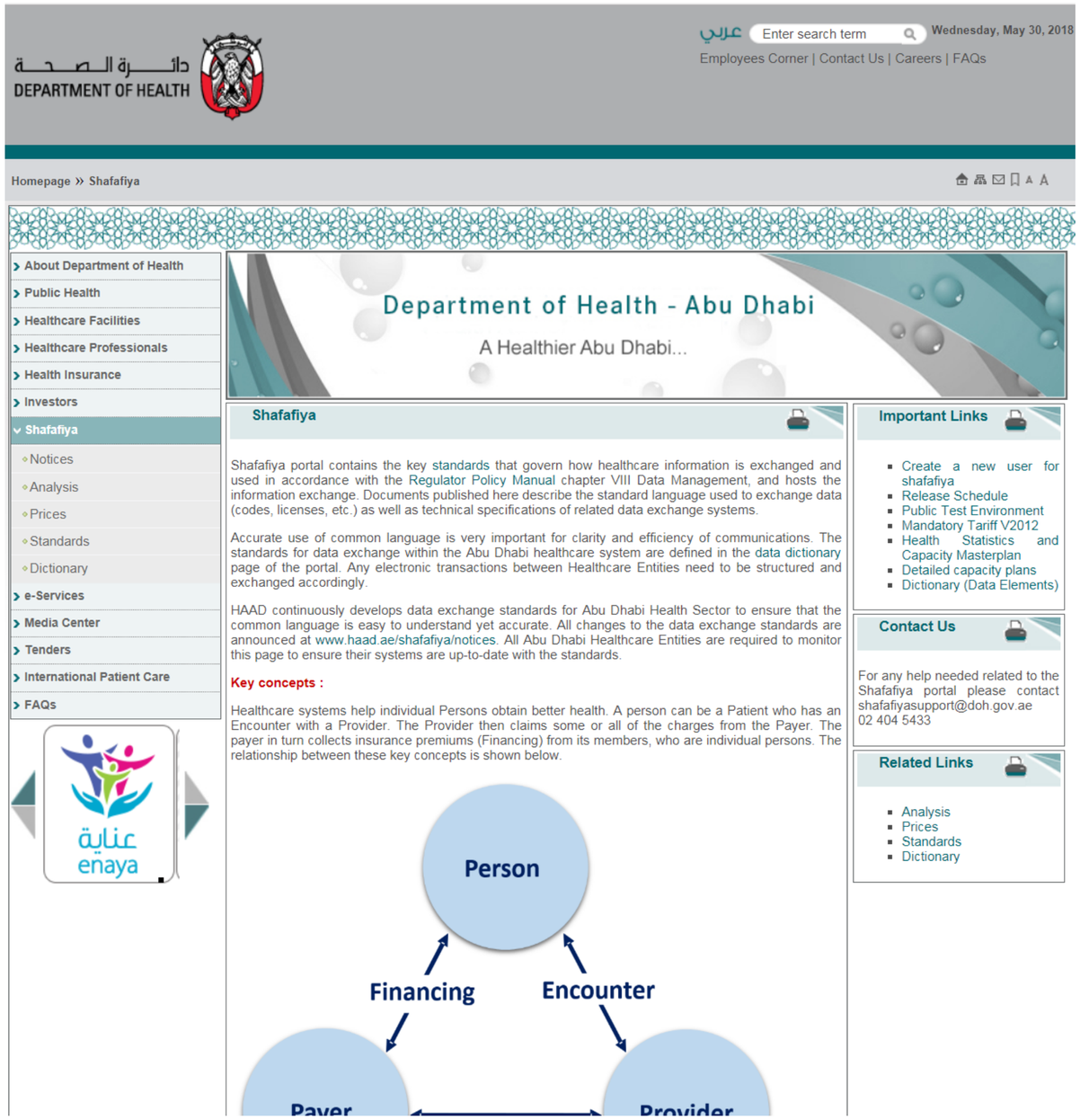
Increase in demand corresponded to an increase in supply by private providers	Private are providing 67% of outpatient care Public is still providing 54% of inpatient care

Investing in Healthcare

Data Standards and Procedures

Mandatory health insurance has been accompanied by the Data Standards and e-claims system

www.haad.ae/shafafiya

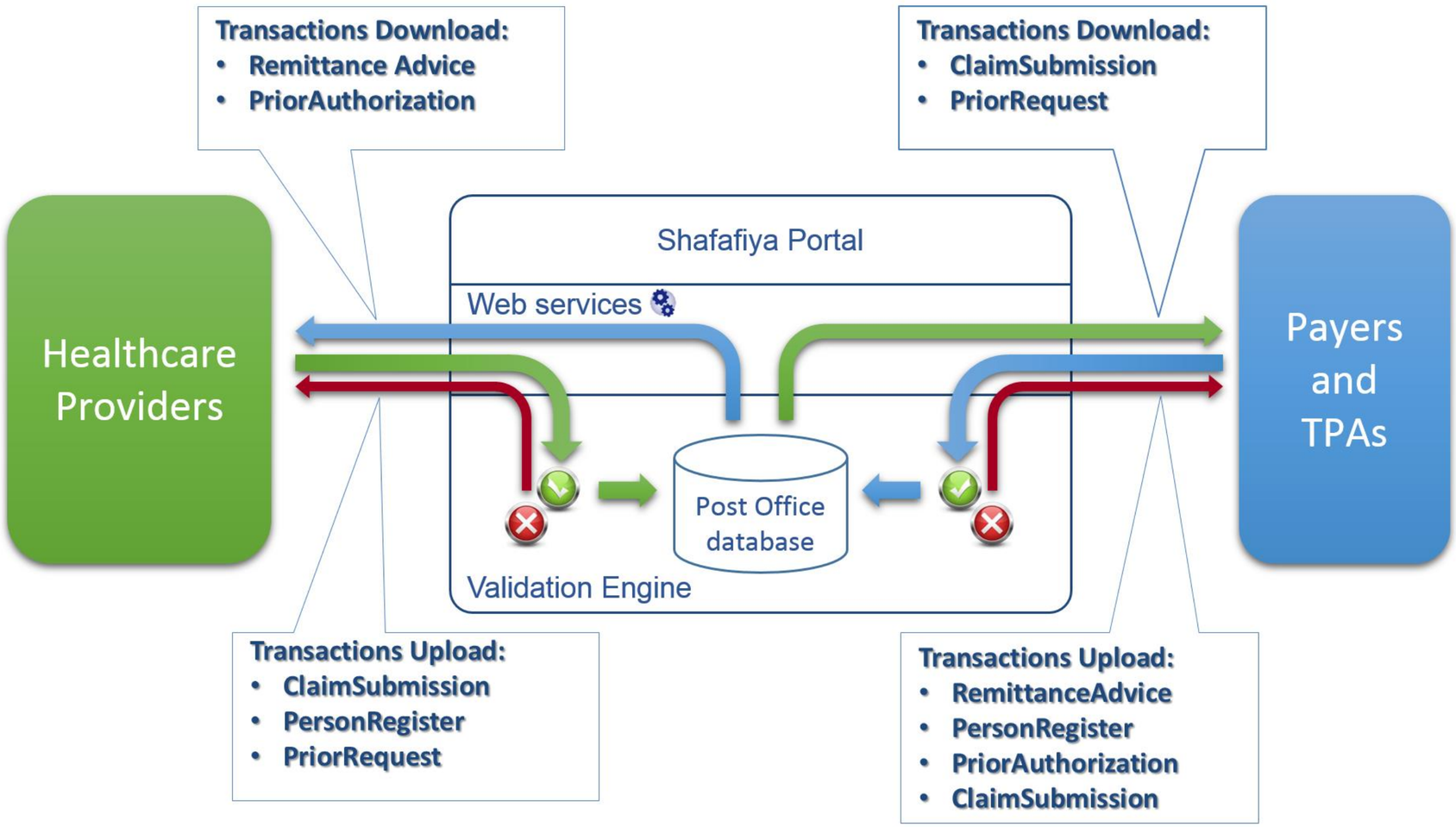


- Payers may not receive paper
- Providers must use clinical codes
- All prices must be linked with standard clinical codes

Investing in Healthcare

Insurance & E-Claims

www.haad.ae/shafafiya



Investing in Healthcare

Healthcare Information Standards

Shafafiya

Investing in Healthcare

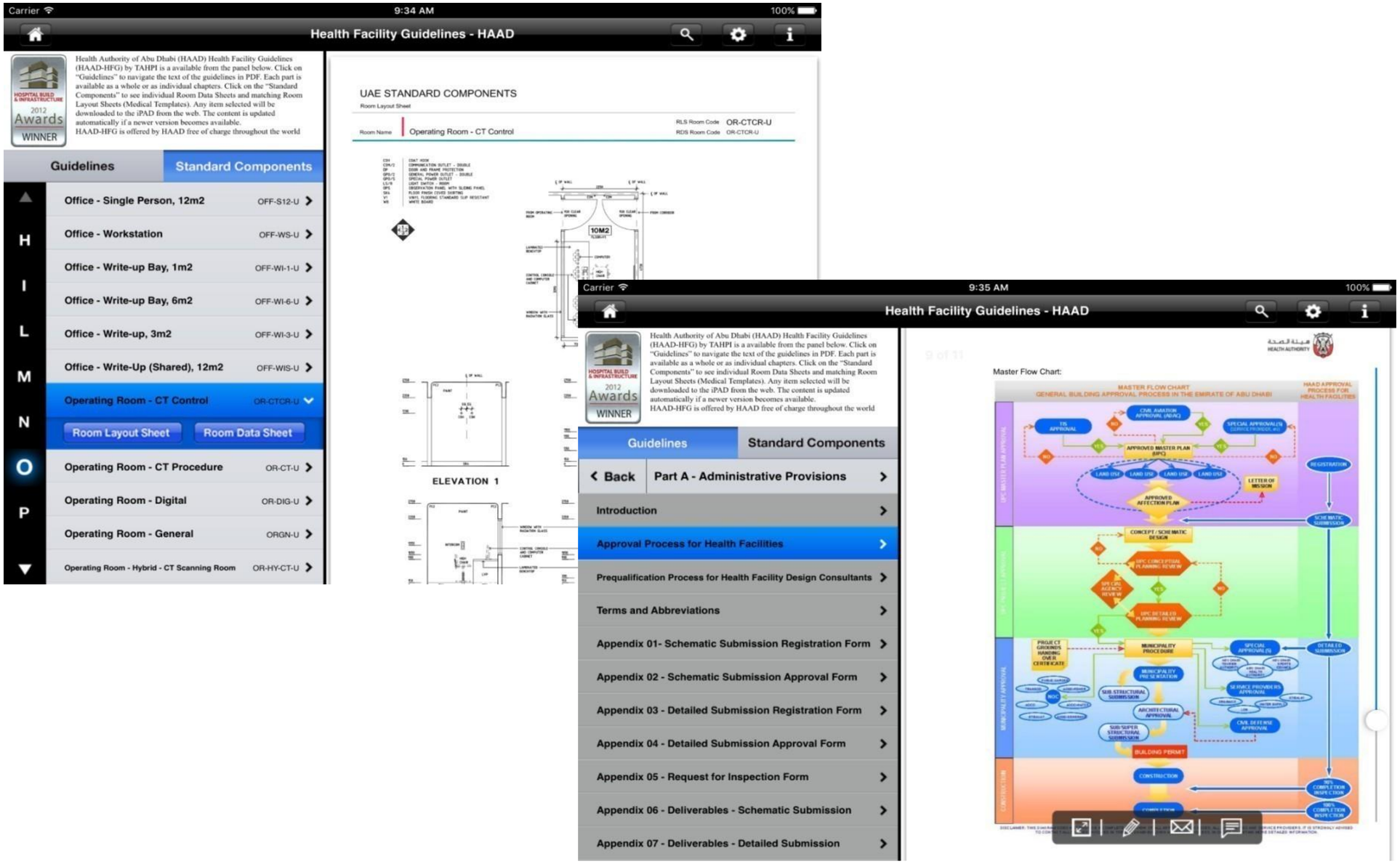
DoH Resources: Health Statistics & Healthcare Capacity Master Plan

Online: http://www.haad.ae/statistics

Investing in Healthcare

DoH Resources: DoH Health Facility Guidelines

Online: http://www.healthdesign.com.au/haad.hfg/Full_Index/full_index.html
App: https://itunes.apple.com/au/app/health-facility-guidelines/id452943167?mt=8



Investing in Healthcare

DoH Resources: Map Module

The geospatial mapping of supply, future capacity and available Government land for development of health services
Publicly 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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DEPARTMENT OF HEALTH