



Abu Dhabi Health Workforce Masterplan 2022

Department of Health, Abu Dhabi



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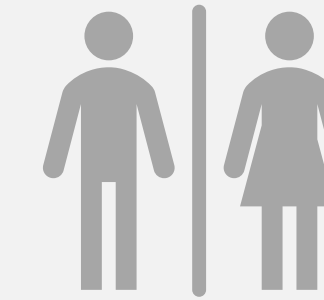
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>>> Key Terms & Concepts

Home care	Health or supportive care provided by a professional caregiver in the patient’s home
HPL data bank	DOH Healthcare Professionals Licensing Database
International Patient Care (IPC)	The division within the DOH entitled to refer patients for treatment abroad or to private hospitals and medical centers outside Abu Dhabi
Local Utilization	Tailoring international reference rates to the local health market as per unique focus groups
Mental Health	Specialised acute care provided in a clinical setting to prevent and treat a mental illness and associated disorders
Patient Inbound/ Outbound	Patients flowing into/outside Abu Dhabi
People of Determination	Individual with special needs with a temporary or permanent, full or partial deficiency or infirmity in his physical, sensory, mental, communication, educational or psychological abilities to an extent that limits his possibility of performing the ordinary requirements
Planned Supply	Expected Supply of the potential newly qualified healthcare professionals emerging from the pipeline of the educational programs and institutes in the UAE and are likely to seek DOH healthcare license, based on historical trends and absorption rates

Population figures	Approximate figures of Abu Dhabi’s current and projected population
PQR	National document that specifies the Unified Healthcare Professional Qualification Requirements for licensure and gets updated periodically in consensus between healthcare regulators in the UAE
Primary Care	The first level of contact of individuals, family, and community with the national health system bringing healthcare as close as possible to where people live and work, and constitutes the first elements of a continuing healthcare process
Reference Rates	Standardized rates, expressed in per capita, quantified to demographic proportions for age and gender specificity and ensure they are reflective of population-specific demand
Supply	Available Healthcare Workforce with an active DOH healthcare license currently and previously
Relative Utilization (RU)	For a study population, relative utilization is an indicator of the operational efficiency of a health system relative to the reference standard
HPL classification	The HPL classification tiering structure for healthcare licenses, it consists of Category (Main Category of Health Workforce), Major (Main Specialty) and Profession (Subspecialty) and aligns with the PQR 2022
Time Series Analysis	A method of analysing a sequence of data points collected over an interval of time

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02	INTRODUCTION
03	METHODOLOGY OVERVIEW
04	HEALTH WORKFORCE TITLES CLASSIFICATION
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06	DELIVERABLES & HEALTH SECTOR SNAPSHOT

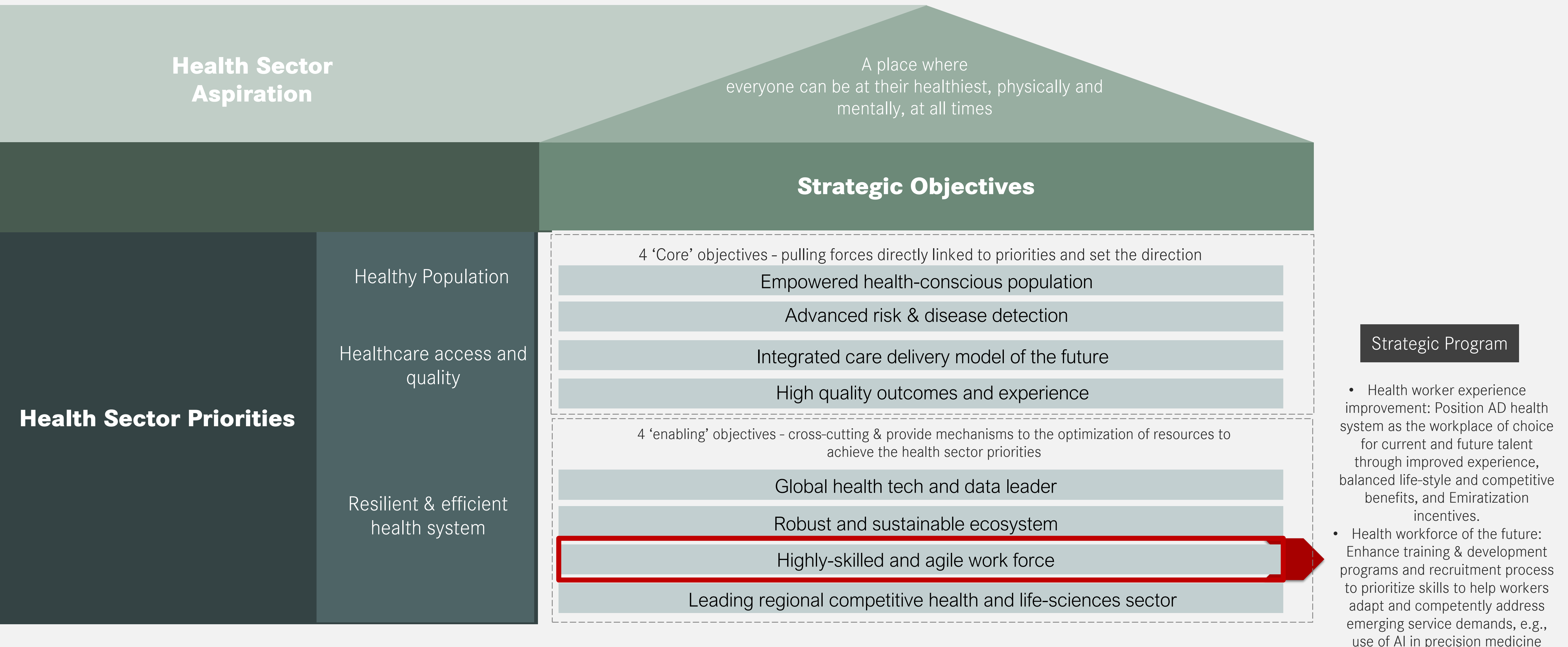


1. Abu Dhabi Health Workforce Masterplan Overview

Overview, Objectives, Process, Framework and
Outcomes

>>> DOH Health Sector Strategic Framework

The overarching aim of the project is in alignment with the health sector's vision and key strategic objectives



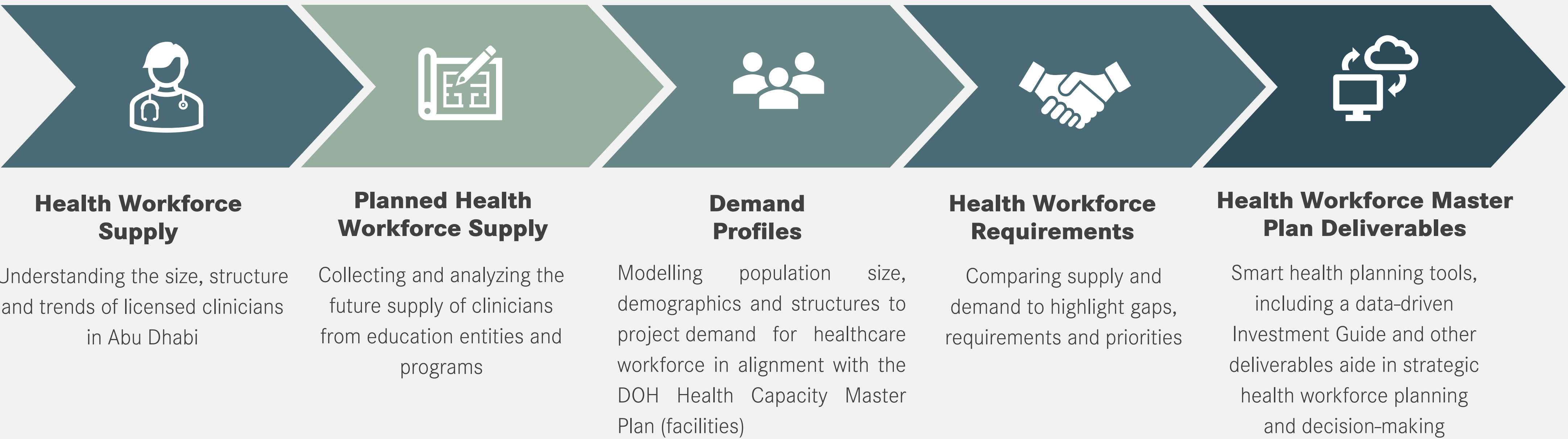
>>> Overview | Introduction

Health Workforce Planning Division plays a key role in developing and managing the strategy for healthcare workforce planning in alignment with DOH health sector vision, priorities and objectives.

Abu Dhabi Health Workforce Master Plan Version 2 is a dynamic long-term planning document that provides a conceptual layout to guide future growth and development and sets out to analyze the current and historical supply trends of the DOH Health Professional Licensing (HPL) data bank and Academic institutions' graduate supply and future projections. This Master Plan serves as an update to the previous Workforce Plan of 2020, and includes a further review of the key specialties and unique population groups in accordance with the latest published PQR version 2022.

The results of this analysis will be instrumental in the development of supply projections of the health workforce, which will be compared against international benchmarks and population-driven demand for healthcare professionals.

The HPL data bank has been analyzed to determine the size, profile and growth of each healthcare professional's category with commentary on how local metrics will influence the strategic planning of the workforce into the future. The analysis includes review of Emiratization targets, set to promote the growth of the National Workforce, on priority areas where acute shortages are observed and need to be addressed.



>>> Overview | Methodology

Data Input



DOH top priority is health workforce sustainability. Which include Emiratization, human empowerment, investment in medical cadres, and upgrading their competencies.



Current/historical supply healthcare workforce supply by profession.



Educational institutes enrollment, drop out and graduates' data per program.



Educational institutes enrollment, drop out and graduates' data per program.



International benchmarks and reference rates



Global research

Supply



- Reviewing historical growth rates, **planned supply** from UAE universities and forecasting future requirements.
- Licensing data of active healthcare professionals (**current supply**) and direct data collection from educational institutions providing the pipeline of potential professionals (planned supply).
- **Graduates Absorption Rate Assumption** Based on historical graduates data from 2017 -2021. Different Absorption rate were applied per gender and nationality

Planned Supply = Enrolments x Graduation Rate x Absorption Rate

Graduation Rate: = Actual total graduates in year A / (Total Graduates in year A + No. of Dropouts in year A)

Demand



- **International reference rates:** standardized rates of healthcare services utilization from advanced health economies per population group (17 Gender-Age groups) to build a baseline reference rate that is used to improve data validity and increase the range of available workforce categories.
- Baseline reference rate workforce demands are projected individually **per healthcare category** (e.g., physicians, nursing, allied health and others).
- Baseline reference rate where **applied to Abu Dhabi population** aiming to reach 90% of utilization of international advanced healthcare systems by 2040. (Rate trends are statistically smoothed to ensure that abnormal variances have been adjusted to reduce any error and impact on the trend providing reliable trend estimates)

Gap

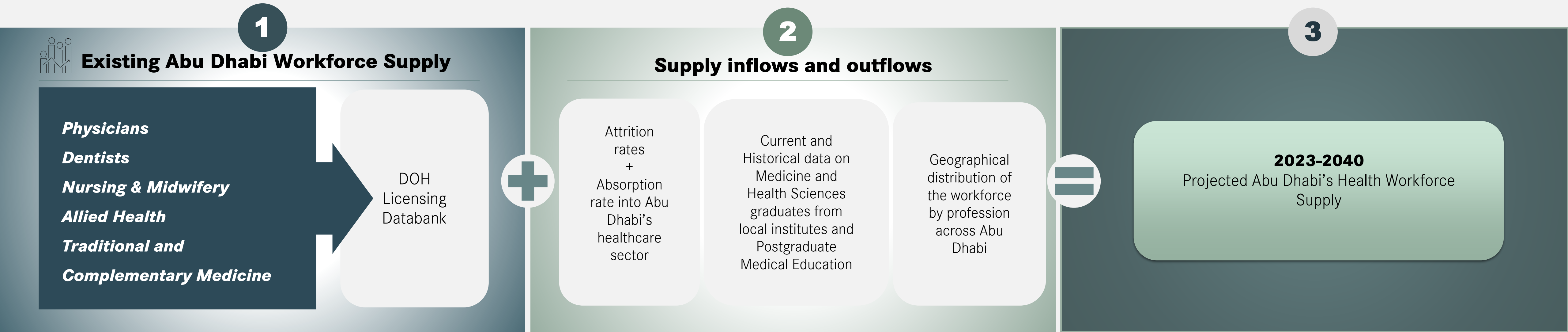


- The differences between Supply (current and planned) and Demand projection are indicators of gaps of workforce required and supply availability.

Gap = Demand (adjusted by RU*) - (Current Supply + Planned Supply)

* **Relative utilization: Healthcare systems efficiency.**

>>> **Methodology** | Supply Projection



1 Existing pool of licensed healthcare professionals in Abu Dhabi is used as base to forecast the supply of Healthcare Professionals into the future

While assuming that:

- ❑ Any resignations or retirements will be replaced in the normal course of business
- ❑ Current supply will remain as a historic reference, static and continuing into the future

2 Adjustments to current supply was made to account for the potential supply increase and the exits from Abu Dhabi health workforce for the course of 2023-2040 considering several factors:

- ❑ **Attrition rates** based on international studies and analysis of the midwifery workforce in selected Arab countries
- ❑ Historic **data from local academic institutes** across the UAE, the annual graduates in 2025 are assumed to remain as steady from 2026 onwards as workforce inflow
- ❑ Historical **absorption rate** and **geographical information** from DOH licensing database is applied to estimate the projected supply and their distribution across Abu Dhabi's regions



1

Demand Modelling

- Established population-sensitive **Baseline Reference File (BRF)***
- Abu Dhabi population data was broken down to **five-year age group** (17 age groups per gender)
- Studied each population-group to find appropriate **FTEs** level by **DRG.****
- BRF projects demand individually to each **healthcare category** (Physicians, Nursing, Allied Health, Dentistry, TCAM)
- Total demand for the entire population is then determined from the **per capita rates** to establish the workforce demand requirements for Abu Dhabi



2

Adjustment to Abu Dhabi's Healthcare Workforce Demand

Demographics of Abu Dhabi's Population

Possible Future Megatrends

Emiratization

Coverage and Local Utilization Curve***

Local Operational Efficiency

Geographical Areas and Patient Flows

Burden of Disease, IPC cases and Historical Trends

Government's Visions

Healthcare Strategic Priorities

1

A mixed regression model of best fit for each projection is applied in projecting the yearly intervals for up to twenty years:

- The per capita rates are ordered into a time series for each combination group 2023-2040
- Rate trends are statistically smoothed to ensure that abnormal variances have been adjusted to reduce any error and impact on the trend providing reliable trend estimates

2

External factors such as government policy, financial considerations and social attitudes can influence the use of healthcare services and hence workforce demand as currently experienced

Based on historic trends and rapid changes to society as observed over the past decades, it is anticipated that Abu Dhabi (and the UAE as a whole) will closely match the situation in referenced mature health economies by the year 2040

*Derived from representative jurisdictions and/or countries for a statistically representative time period, which is segmented by age, gender and meaningful clinical classifications

** The episodes for each DRG are adjusted proportionately based on the population-specific requirements of the different healthcare professionals to generate a weighted requirement of the health professional for that particular DRG.

***Coverage refers to local population utilization of healthcare services (Daman data)

>>> Methodology | Workforce Gap

If there is more workforce supply than required to meet the demand of the population at any given time, this is referred to as **oversupply**, otherwise, it will be classified as **undersupply**.

This report considers Emiratization Targets to promote the growth of the National Workforce with analysis on priority areas where acute shortages are observed and need to be addressed.

$$\text{Gap} = \text{Demand (adjusted by RU)} - (\text{Current Supply} + \text{Planned Supply})$$



Health workforce is divided into major categories:

All healthcare categories and professions have been mapped according to the latest PQR nomenclature 2022.



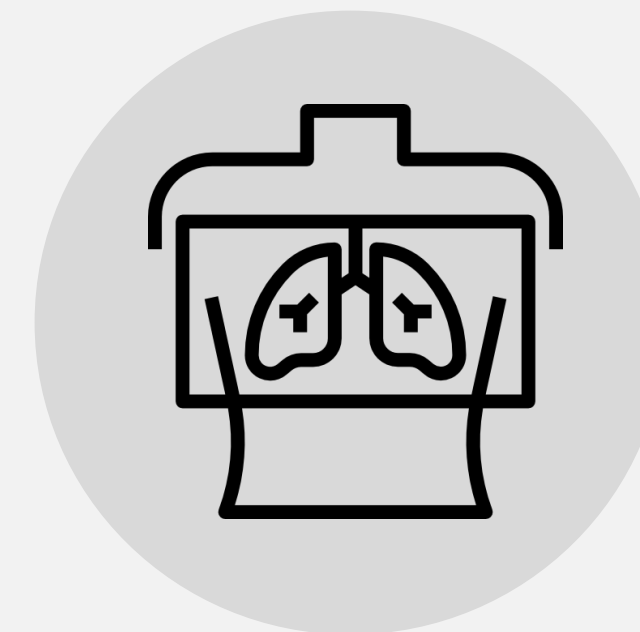
Physicians



Nursing & Midwifery



Dentists



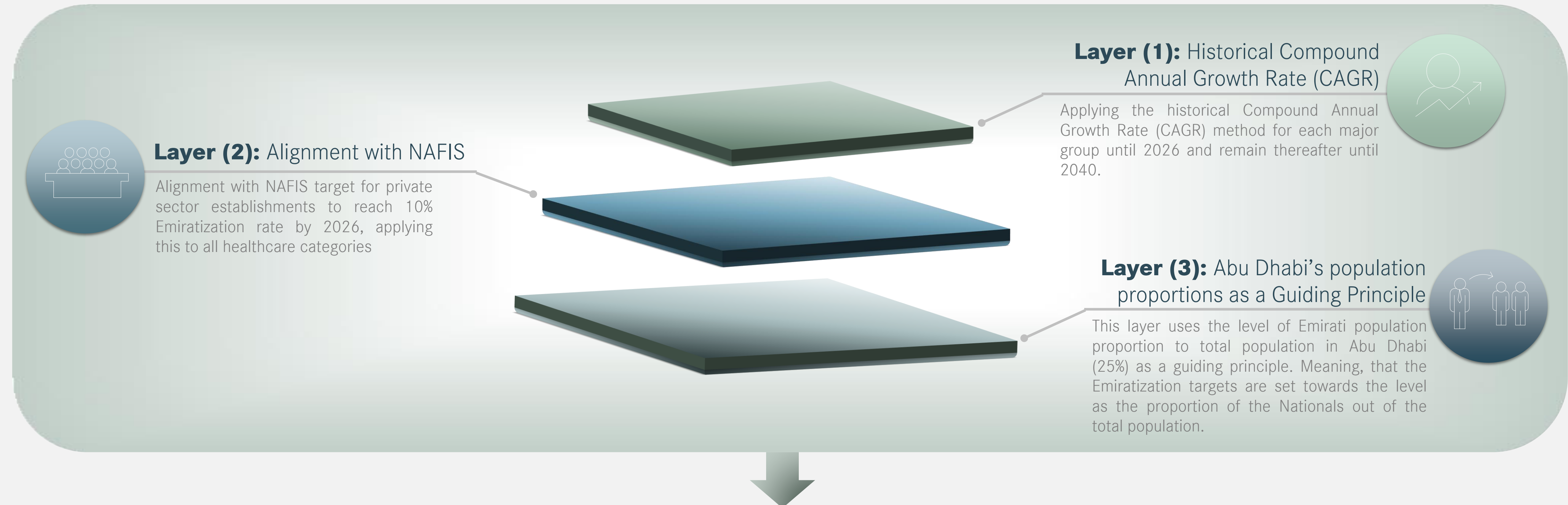
Allied Health



Traditional Complementary
Alternative Medicine

>>> Methodology | Emiratization Targets

Emiratization Targets were determined based on three layer assessment to promote the growth of Emirati health workforce on Abu Dhabi








Post comparison of the three layers, three Emiratization scenarios have been determined per each category for the course of 2023-2040:

- ❑ **Low** target being the minimum of the three
- ❑ **High** being the maximum
- ❑ **Medium** being the average of the minimum and maximum

>>> Methodology | Health Workforce Titles Classification

The Health Regulatory Authorities of UAE have developed the unified healthcare Professional Qualification Requirements (PQR) to standardize the process of licensing healthcare workforce categories across the country. Within the PQR, each category is further split into Major and Profession. The numbers listed below indicate the number of majors and professions within each of these sub-categories. These have been used to map and analyze workforce availability and requirements throughout this strategic planning document.

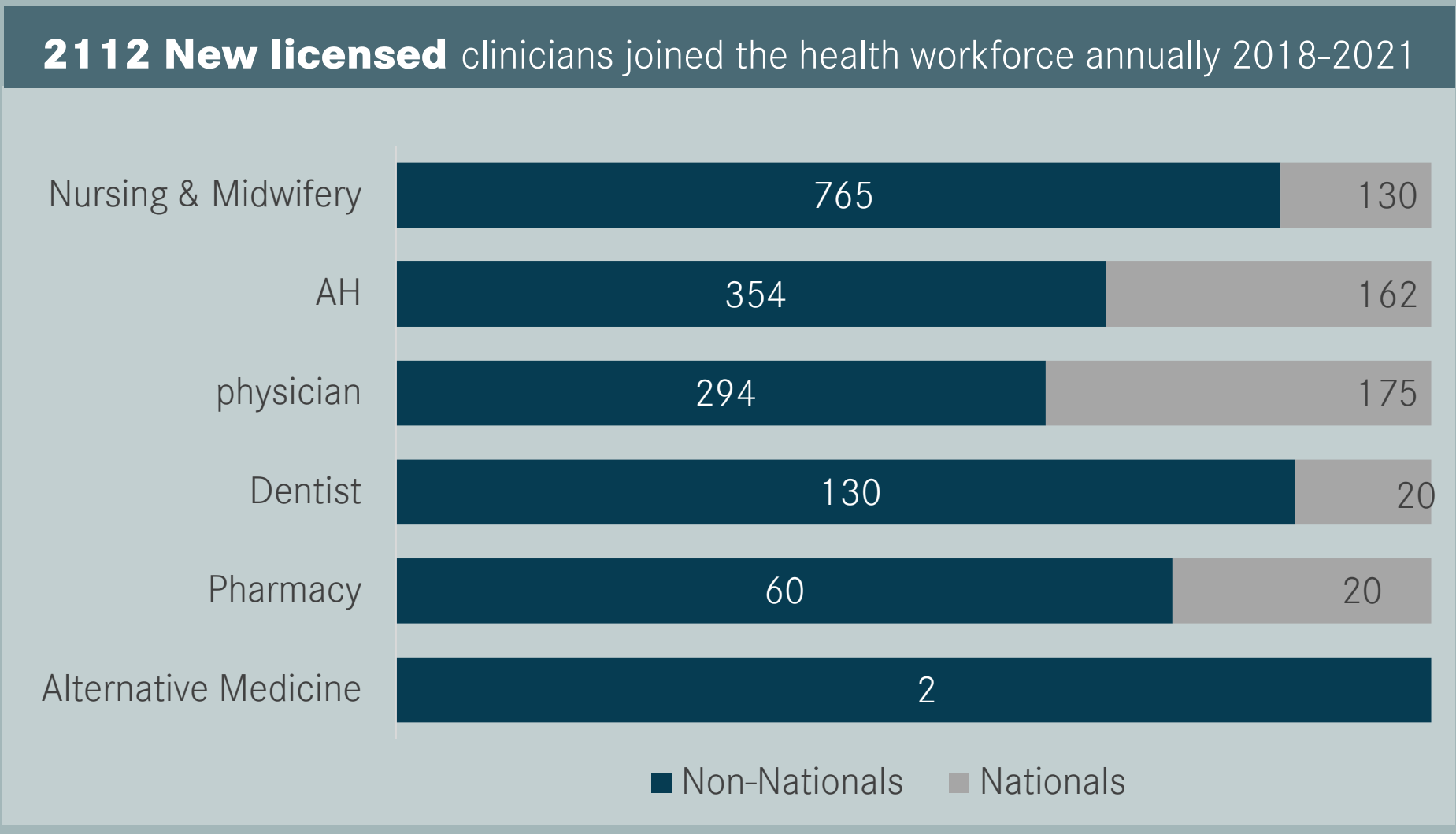
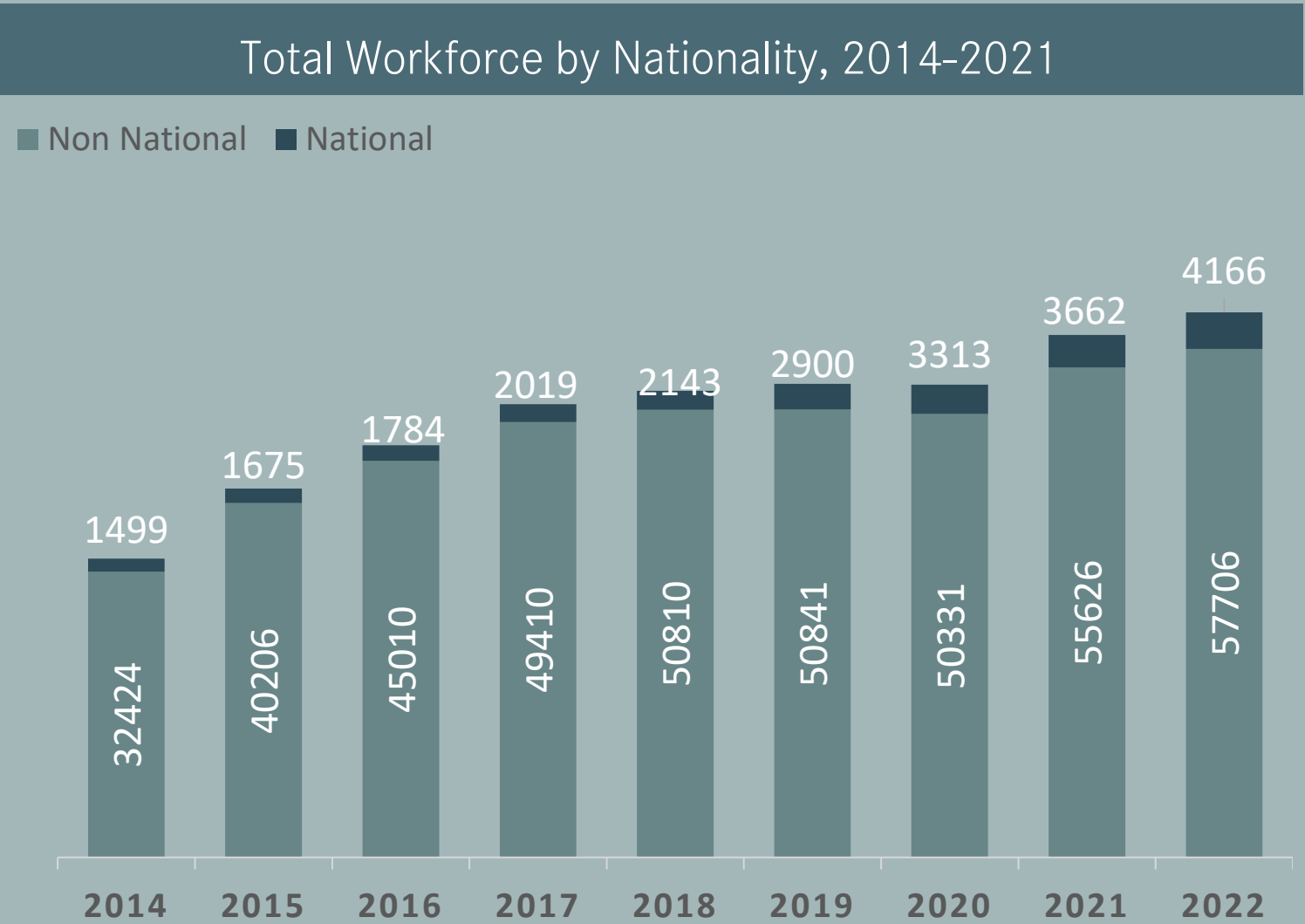
	Category	Major	Profession (Speciality & Subspecialty)
	Physicians	Consultant Physician (78) Specialist Physician (78) General Practitioner	855
	Dentists	Consultant Dentists (17) Specialist Dentists (17) General Dentist	35
	Nursing / Midwifery	Registered Nurse/Midwife (2) Assistant Nurse/Midwife (2) Specialty Nurse (11) Nurse Practitioner	17
	Allied Health	38	156
	Traditional Complementary Alternative Medicine	12	12

>>> Overview | Data Sources*

- | | | | |
|-----------|--|-----------|---|
| 1 | Health Professional Licensing (HPL) Data Bank | 2 | DOH Health Facility Licensing (HFL) Data Bank |
| 3 | Medical Education Data (Residency and Fellowship) | 4 | DOH Healthcare Capacity Master Plan (2020) ² |
| 5 | DOH Data Collection Tool | 6 | UAE Scholarship Data for healthcare programs |
| 7 | Professional Qualifications Requirement (PQR) 2022 | 8 | Department of Government Support (Megatrends & Future Skills) |
| 9 | Specific strategic stakeholders, such as Early Childhood Authority and Zayed Higher Organization | 10 | Statistics Center of Abu Dhabi (SCAD) |
| 11 | International Patient Care (IPC) | 12 | DOH Healthcare Facilities Sector & DOH Strategic Affairs |
| 13 | Daman Data | | |

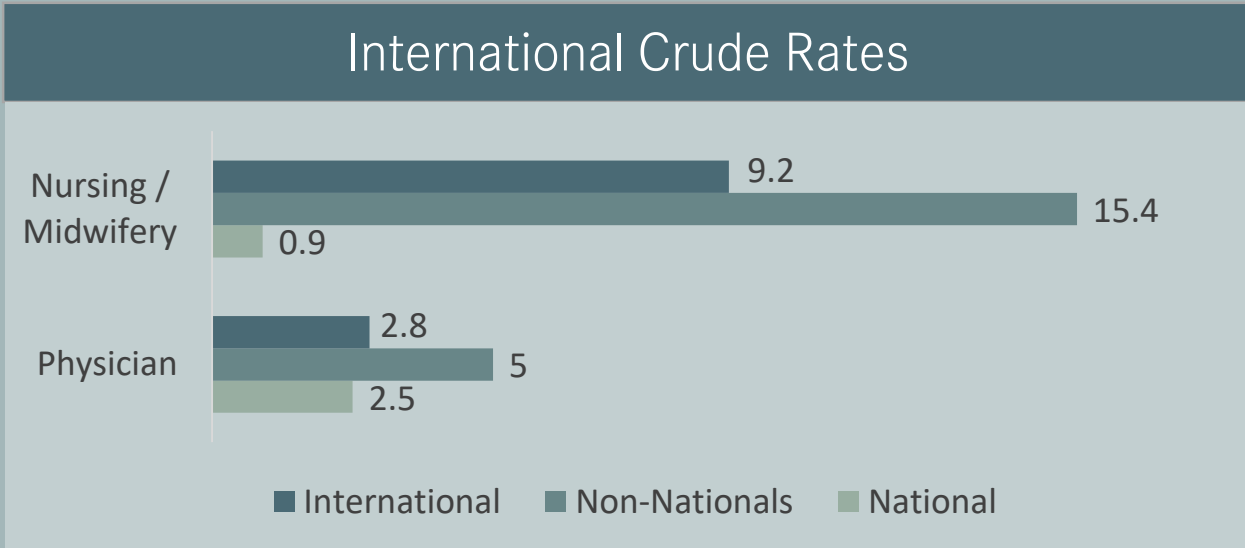
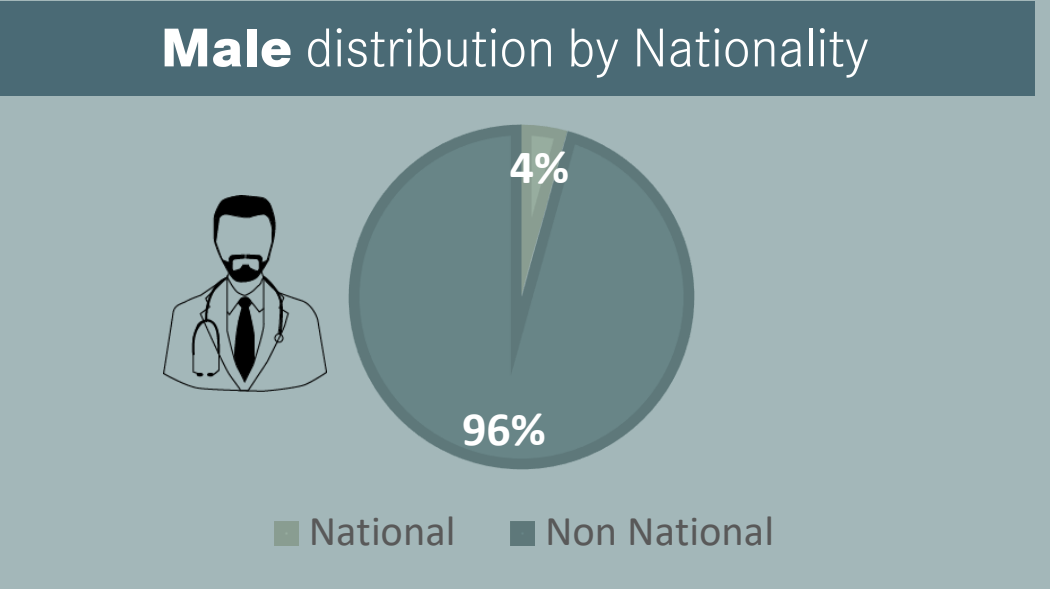
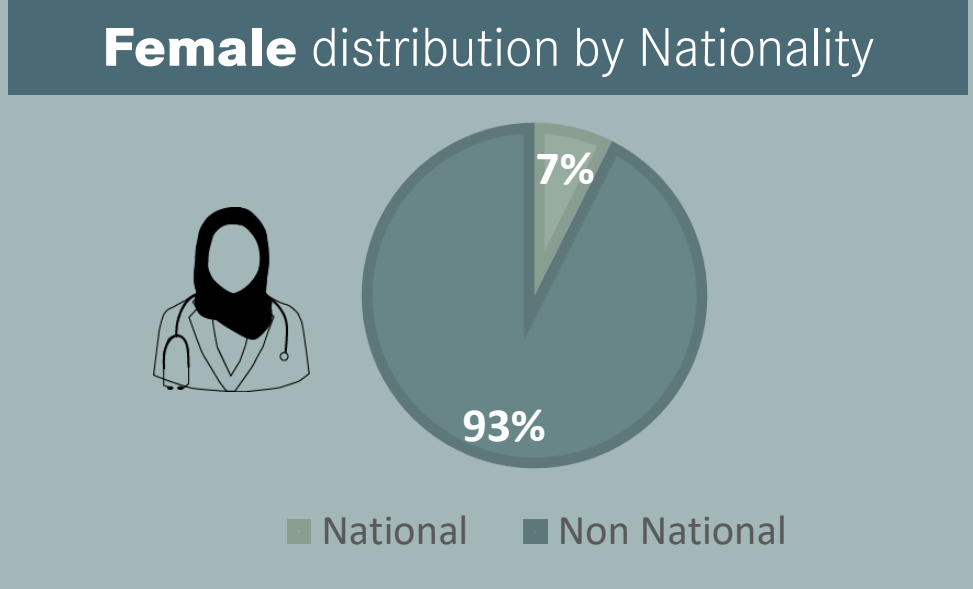
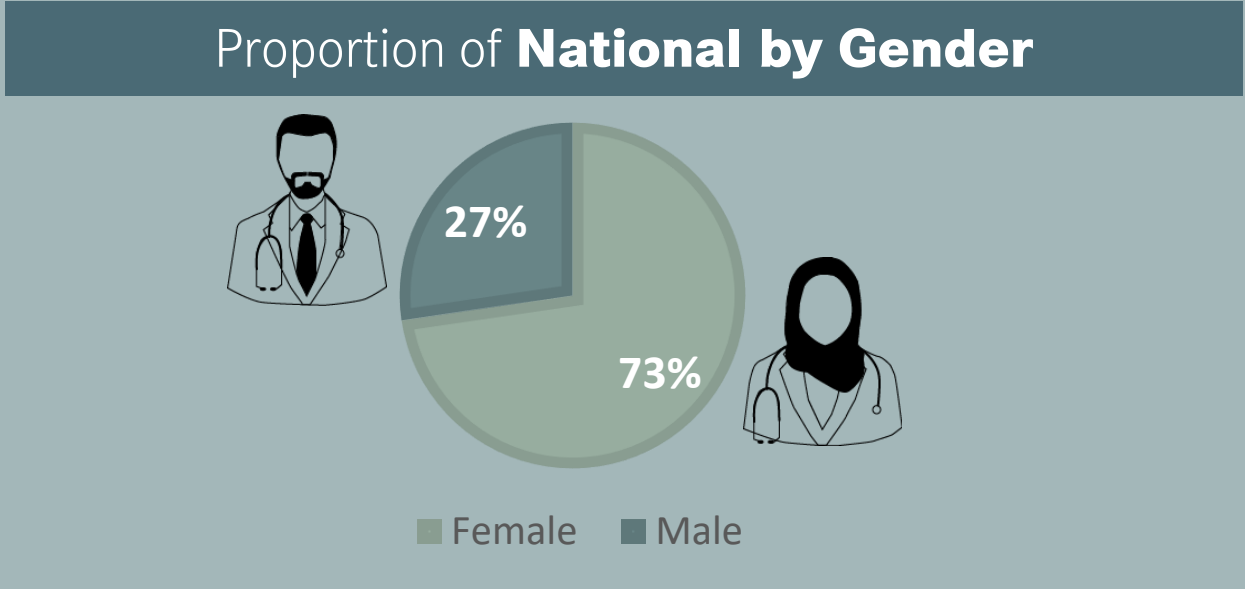
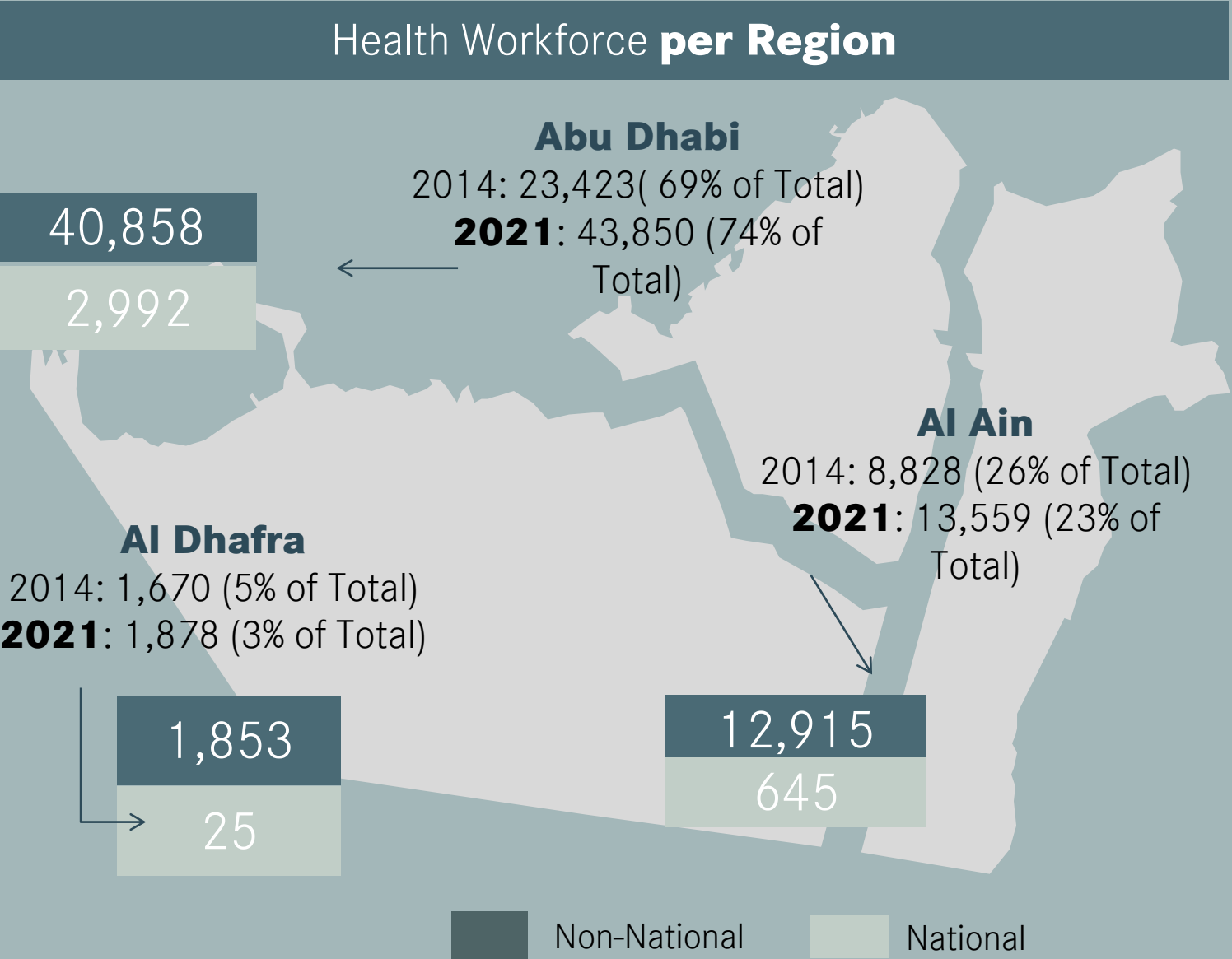


Abu Dhabi's Health Workforce Sector Snapshot



Workforce Categories	2021 % of Total Workforce
Nursing	51.2%
Physicians	18.8%
Allied Health	18.5%
Pharmacy	7.0%
Dentistry	4.4%
Alternative Medicine	0.1%

Nursing is the fastest growing category.



Highest Gap by 2030	Highest Oversupply by 2030
Internal Medicine	General Practitioner
Clinical Psychology	General Dentist
Registered Nurse	Radiography Technician
Speciality Nurse	Endodontics
Emergency Medical Service	Medical Laboratory Technician

01

FUTURE MEGATRENDS

02

HEALTHCARE SECTOR IMPACT
AND OVERVIEW

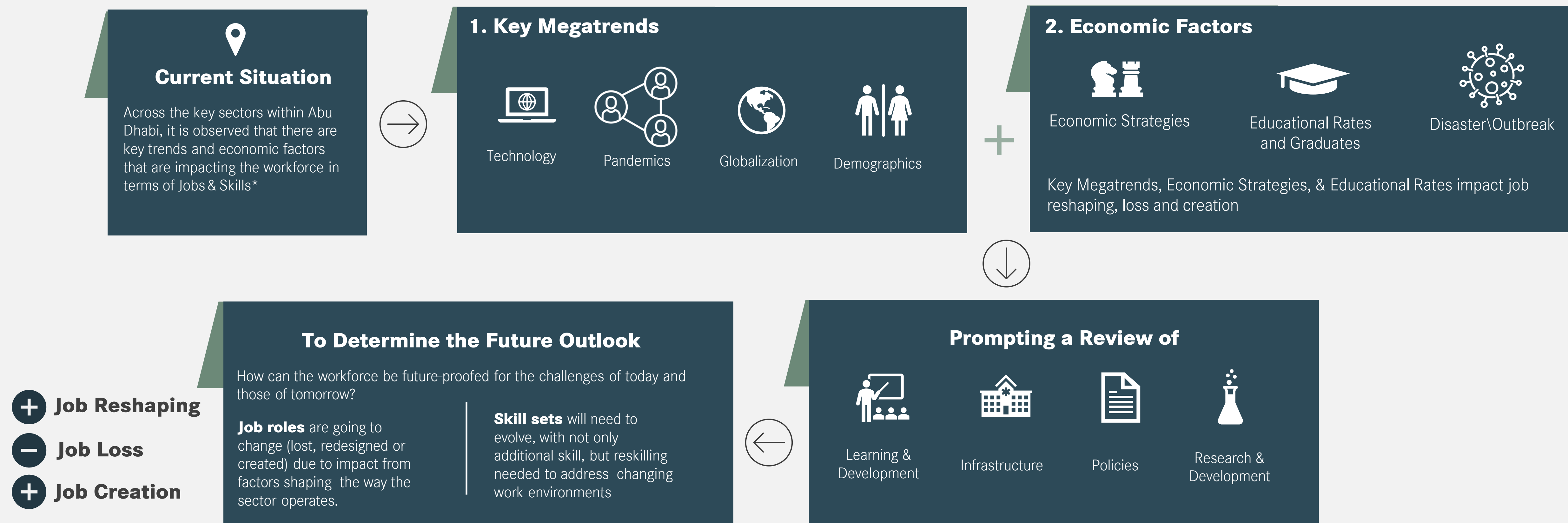
2. Megatrends Impact

Megatrend analysis and the impact on healthcare
jobs and skills

>>> Megatrends | Future megatrends

Developing a future ready workforce is a priority of the DOH. With the changing patient expectations, lifestyle choices, ageing population, globalization, technological and social change, the health sector priorities are being reshaped and are influencing the demand for healthcare services and workforce.

The Future of Health and Healthcare demands data-enabled delivery systems and virtual care, integrated across the continuum of care from precision prevention to personalized care delivery, with most health services offered in appropriate settings.



>>> Megatrends | Health Impact and Overview

The following points summarize the megatrend impact on healthcare.

Healthcare continues to be a sector of key global investments and a sector of focus in all benchmark countries, accelerated by the COVID-19 pandemic. Technology will drive transformation with a shift towards preventative medicine

01

Healthcare equity, integrated care models, population health management and value-based care are key in ensuring effectiveness and access to health services. Increasing global interconnectedness will boost the medical tourism industry

02

Due to the impact of the megatrends, some jobs will be redesigned, created and removed based on the new requirements

03

Benchmark countries have also provided workforce and education programs to combat the global shortage of healthcare workers

04

In the Abu Dhabi healthcare industry particularly, there is a shortage of individuals with technical expertise and familiarity with technology solutions

05

Finally, Abu Dhabi needs to continue its efforts to drive even more collaboration between government-companies-academia in order to re-position impacted job holders into other higher value jobs

06

01

WORKFORCE SIZE & DEMOGRAPHICS

02

MAJOR CLINICAL CATEGORIES

03

INTERNATIONAL BENCHMARKS

04

HEALTHCARE CATEGORIES OVERVIEWS

3. Workforce Size and Demographics

Analyzing the current and historical workforce size, distribution and demographic

>>> Health Workforce Demographics



1

Age

- Average age: 39 years (2021) vs 37 years (2014)
- Proportion over the age of 50: 13% (2021)
- Fastest growing cohort: Female 31-35 years

2

Gender

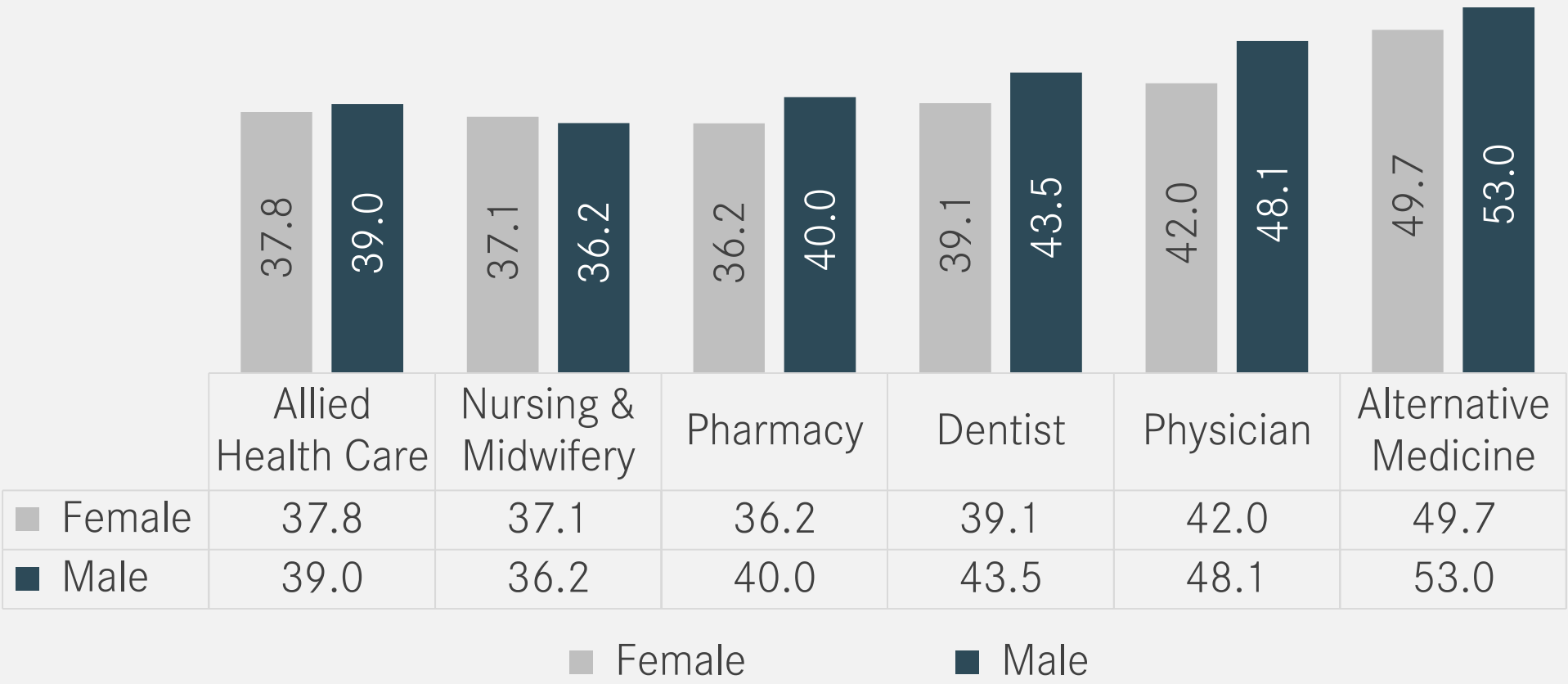
- Proportion of Workforce 2021: 40% Male, 60% Female
- Proportion of Workforce 2014: 41% Male, 59% Female

3

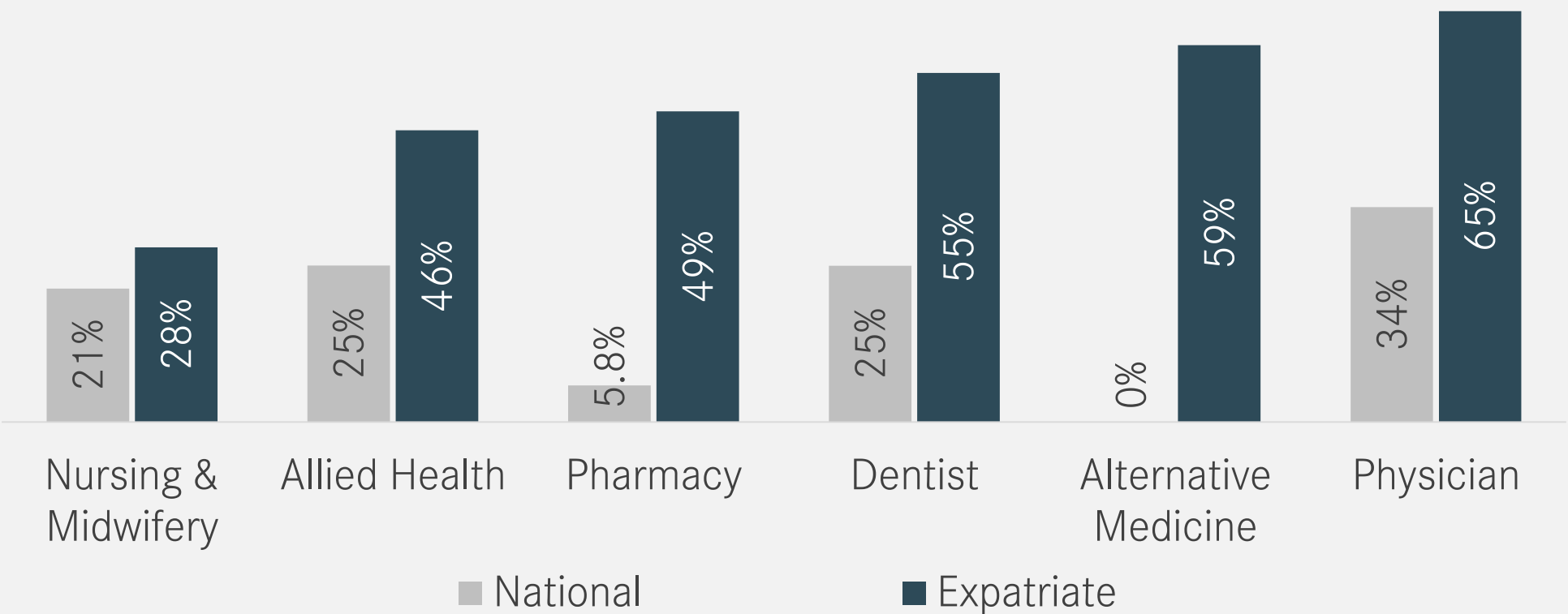
Nationality

- Proportion of Nationals in Workforce: 6.2% (2021) vs 4.4% (2014)
- 31% of the Workforce is from the Philippines (the largest)

Average Age (Years) by Gender, 2021



Percentage of Male by Nationality, 2021



>>> Workforce Size and Demographics

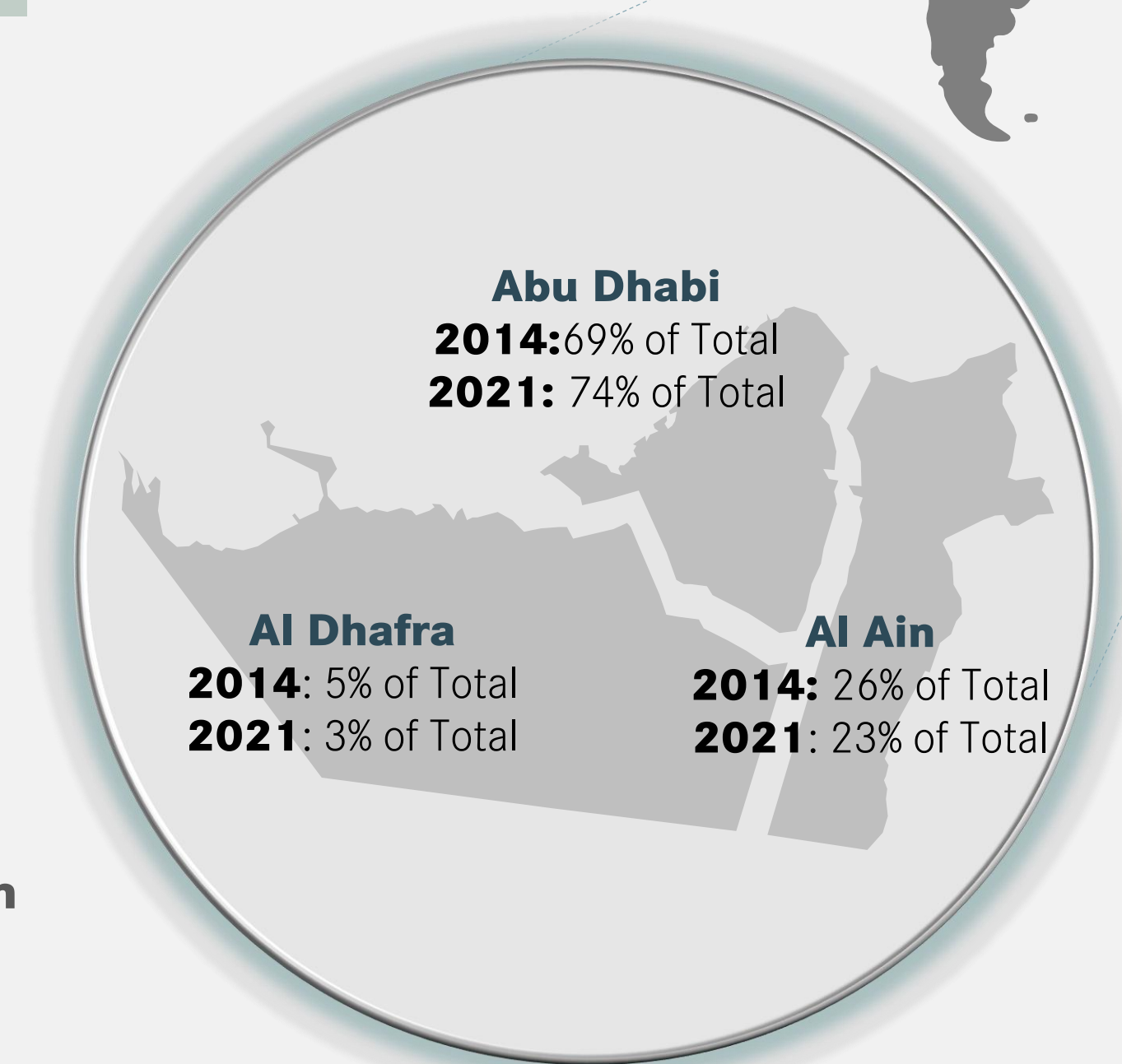
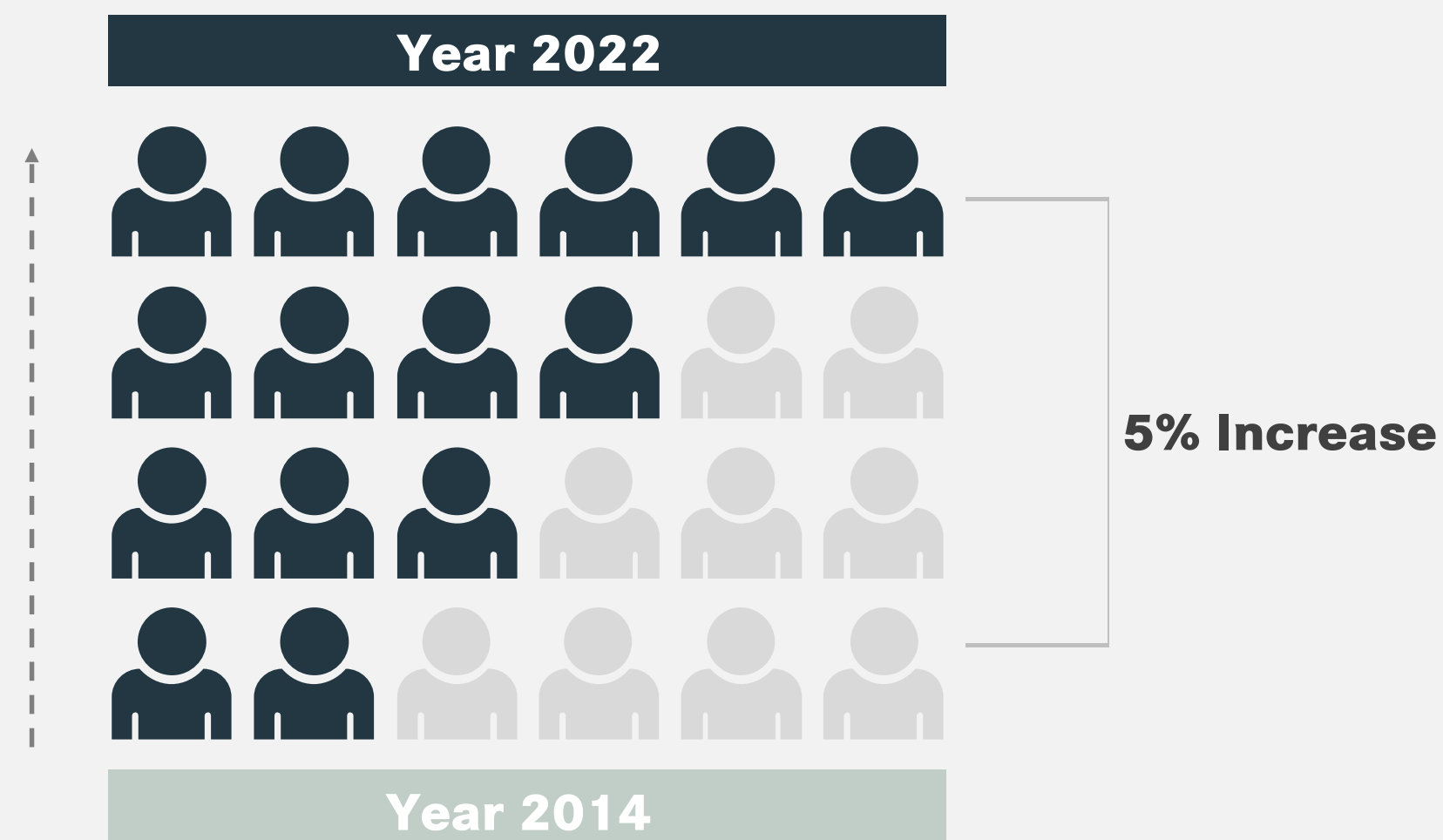
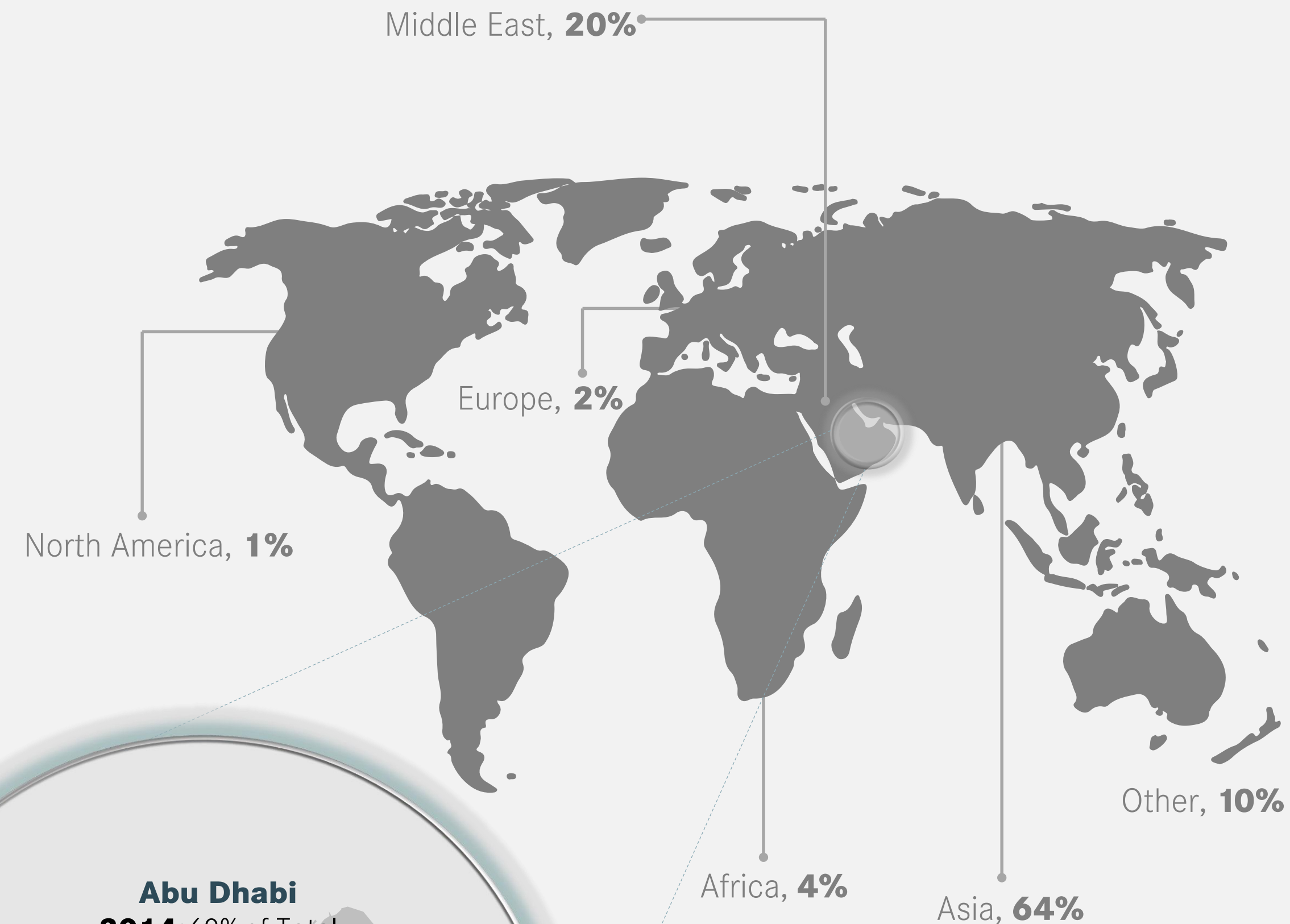
Of all licensed clinicians at the baseline of this study, 51.2% are in the Nursing & Midwifery Major and 18.8% are in the Physicians Major.

The majority of **Nationals** within the workforce are Physicians (45%), followed by Allied Health (28%) and then Nursing (17%).

However, the largest component of Abu Dhabi Health Workforce are **Non-National** clinicians

- ❑ 93.8% from abroad (decreasing from 95.6% in 2014)
- ❑ The largest contributing regions are Asia & the Middle East

The large majority of Non-Nationals within the workforce are in Nursing & Midwifery (53%), followed by Allied Health (18%) and Physicians (17%). This mismatch is highlighted by the fact that only 1.0% of the Nursing major group are made up of Nationals.



Largest proportion of **Nationals** are in the Abu Dhabi region. Approximately **equating to double** the grand total of both regions Al Ain and Al Dhafra Emirati health workforce

There was a 5% increase in proportion of the total workforce working in **Abu Dhabi Region**

>>> Major Clinical Categories

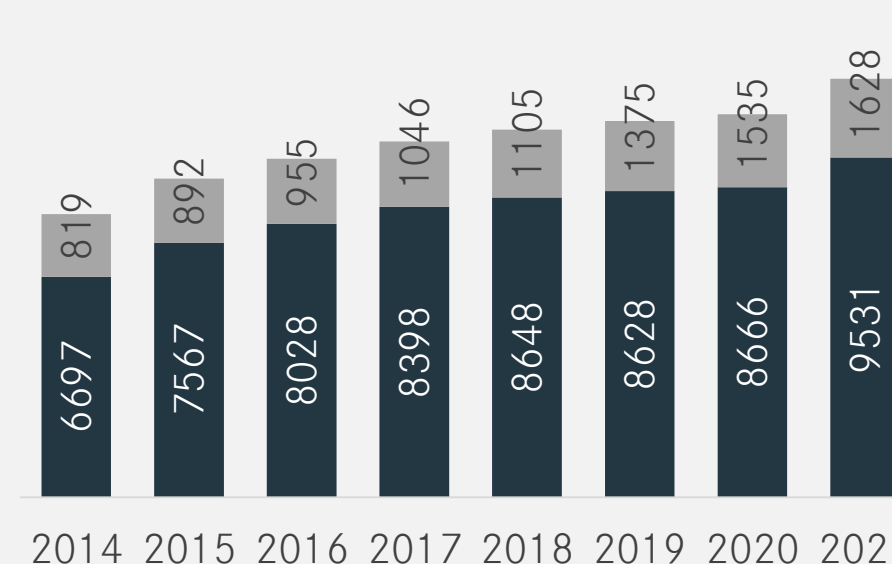
Of the 59,288 clinicians licensed in 2021, 51.2% are in the Nursing & Midwifery Major and 18.8% are in the Physicians Major.

The majority of Nationals within the workforce are Physicians (45%), followed by Allied Health (28%) and then Nursing (17%).

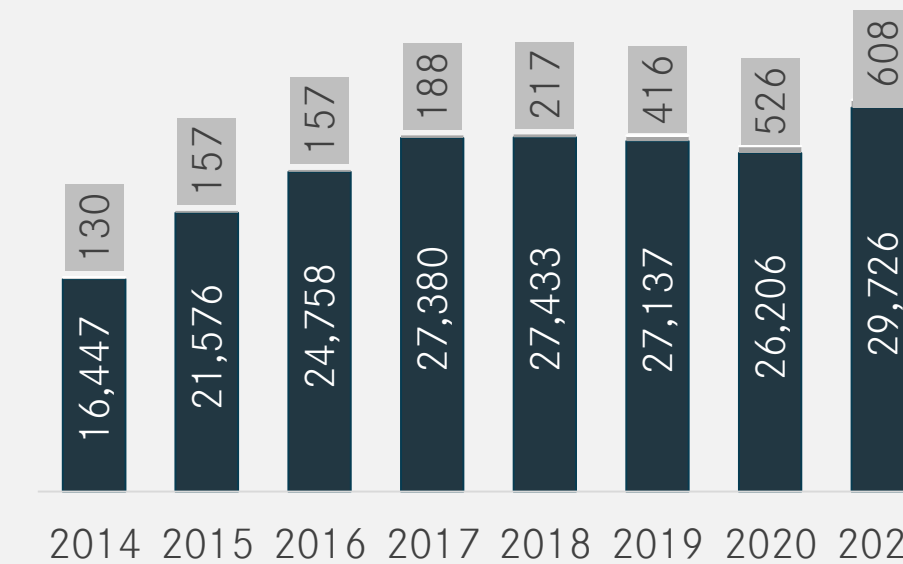
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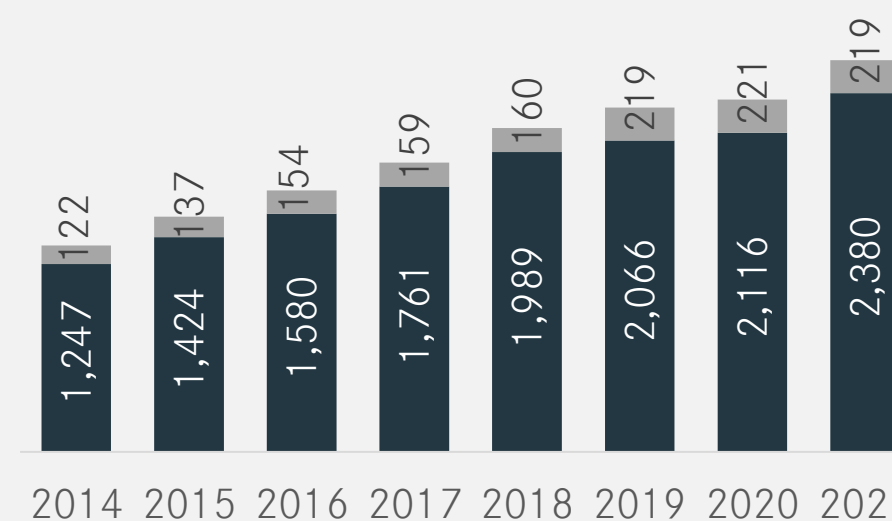
Physician



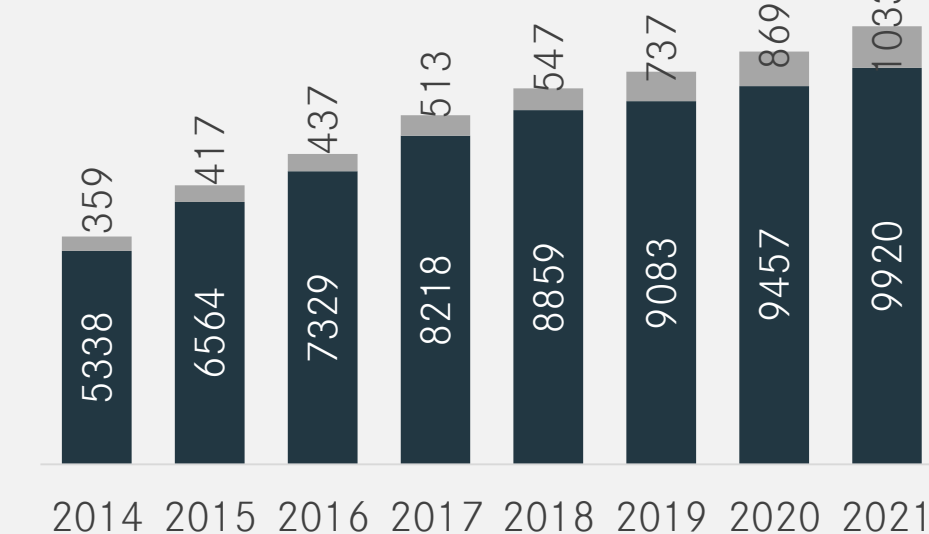
Nursing & Midwifery



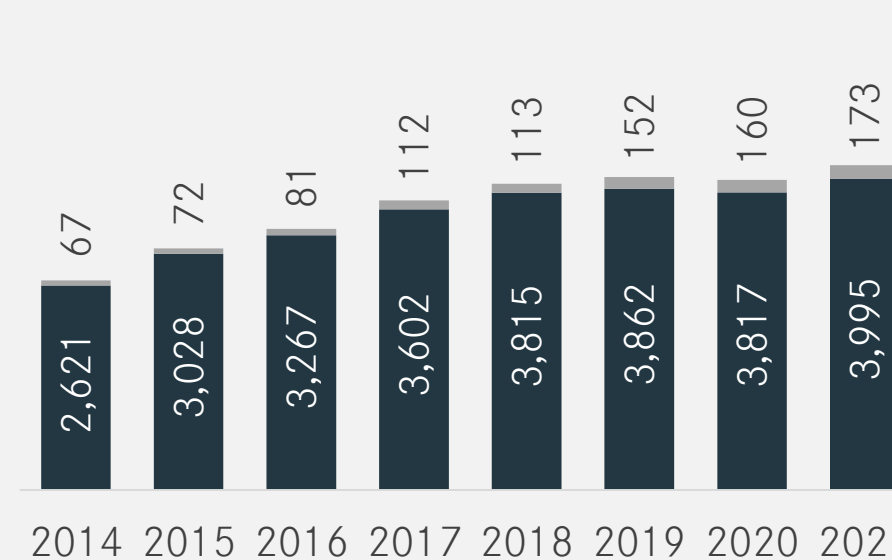
Dental



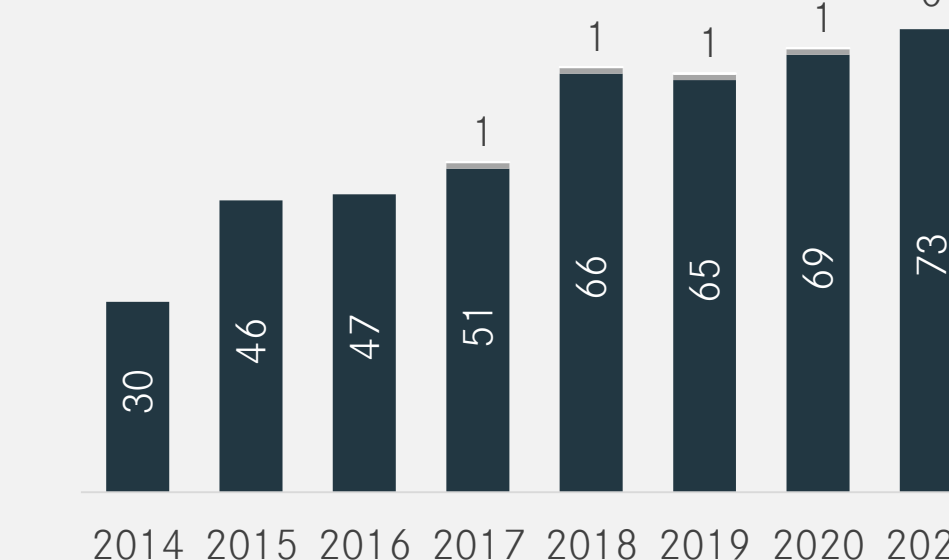
Allied Health



Pharmacy



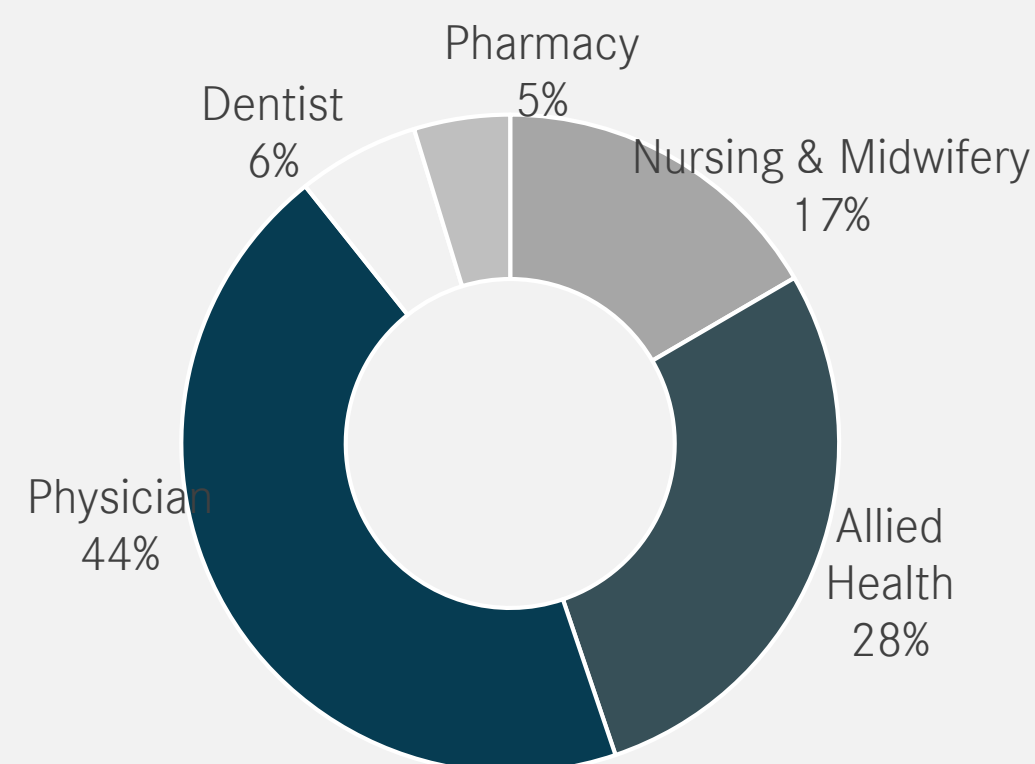
Alternative Medicine



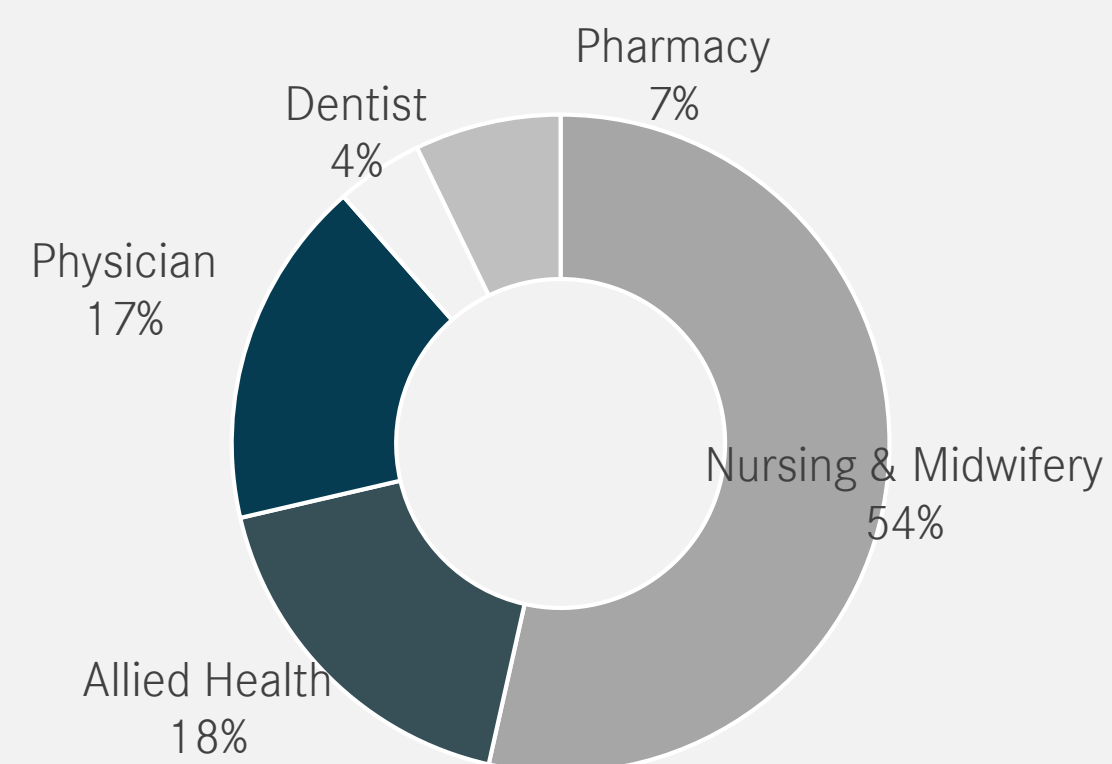
Nationals

Non-Nationals

National by Major Group, 2021



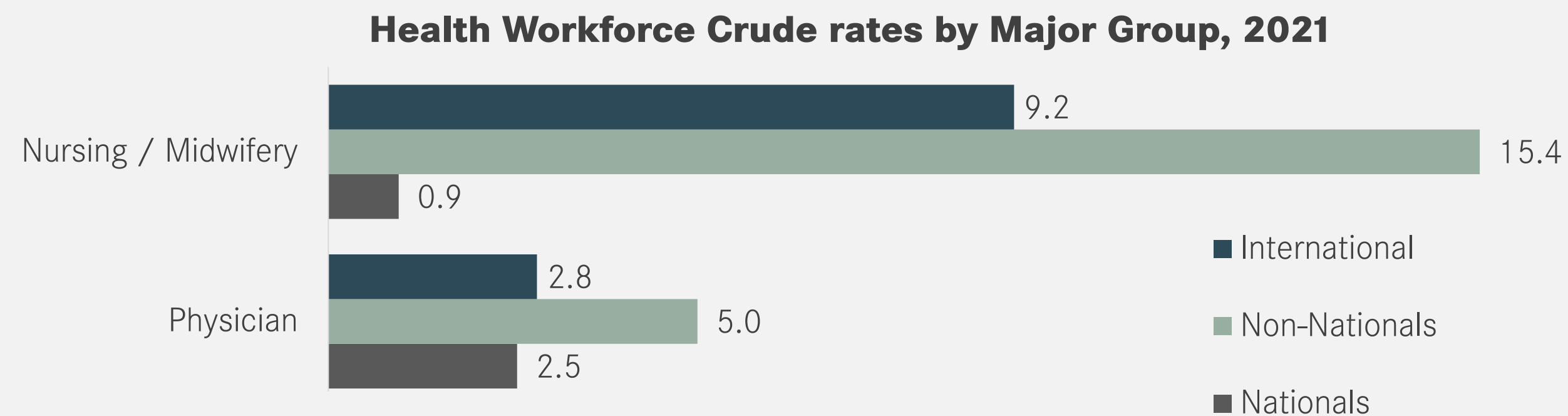
Non-National by Major Group, 2021



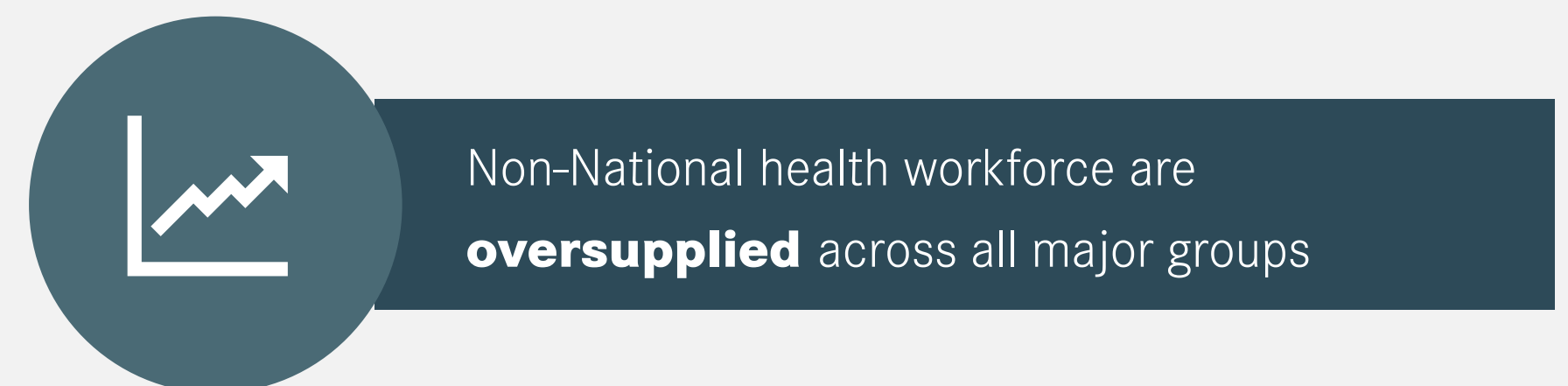
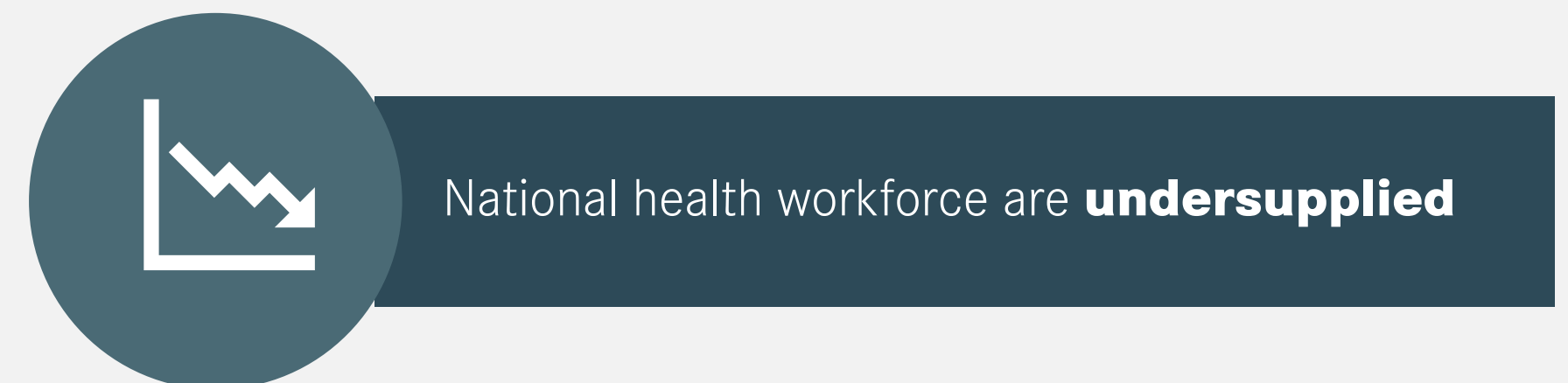
>>> International Rate Comparison

Population Crude rates are used to provide a high-level comparison between other benchmark countries. They are used as a validation to workforce planning projections only as they are not sensitive to local factors, population demographics and unique healthcare system traits. One of the limitations, however, with using crude rates in Abu Dhabi is the reduced serviceable population (portion of the population that accesses healthcare) and the historically lower non-national utilization of healthcare.

The population crude rate per 1,000 for Abu Dhabi would in fact be higher than most countries with universal healthcare, if the reduced serviceable population is taken into account.



When compared to International crude rates



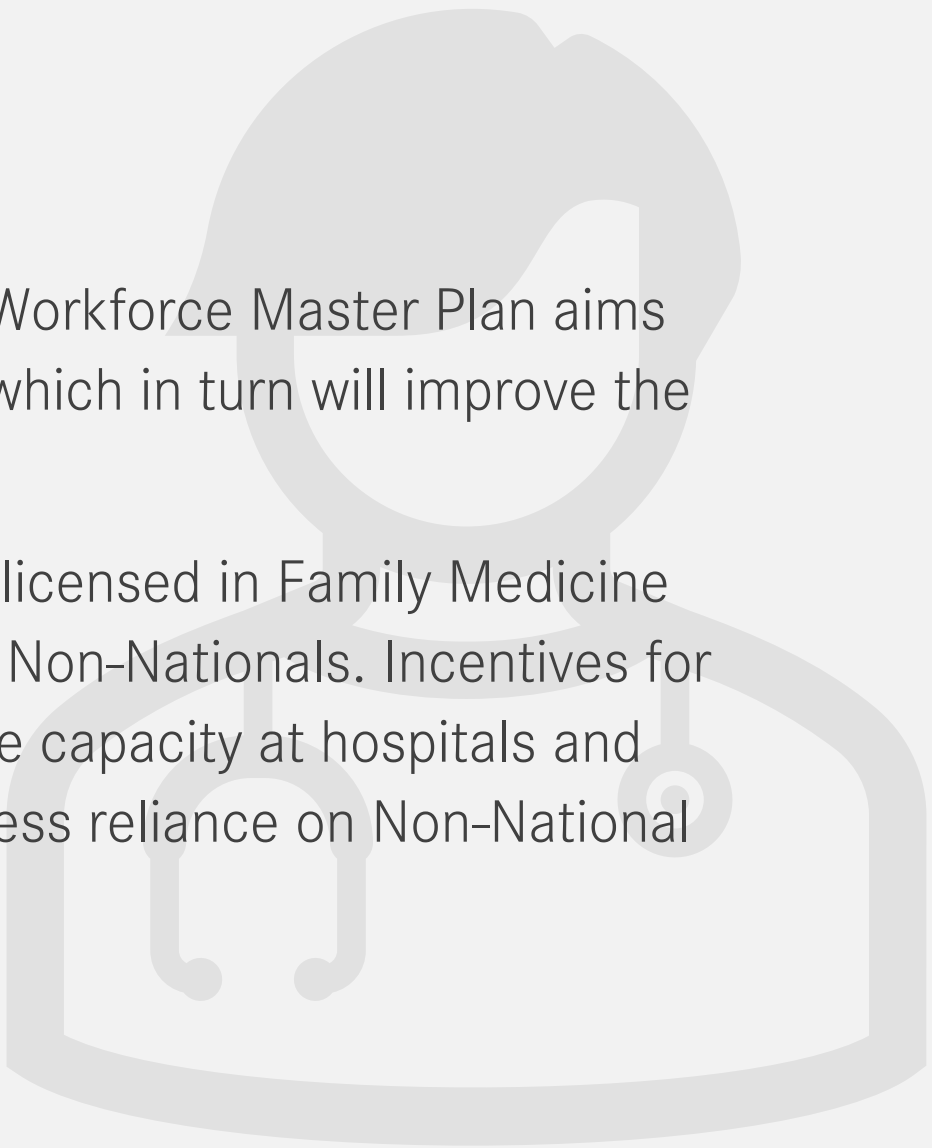
>>> Physician Overview

Between 2018 and 2021, the number of Physicians has grown by 451 each year on average. Of the 11,160 Physicians in 2021, 74% are licensed in a facility within Abu Dhabi Region, with only 4% in Al Dhafra.

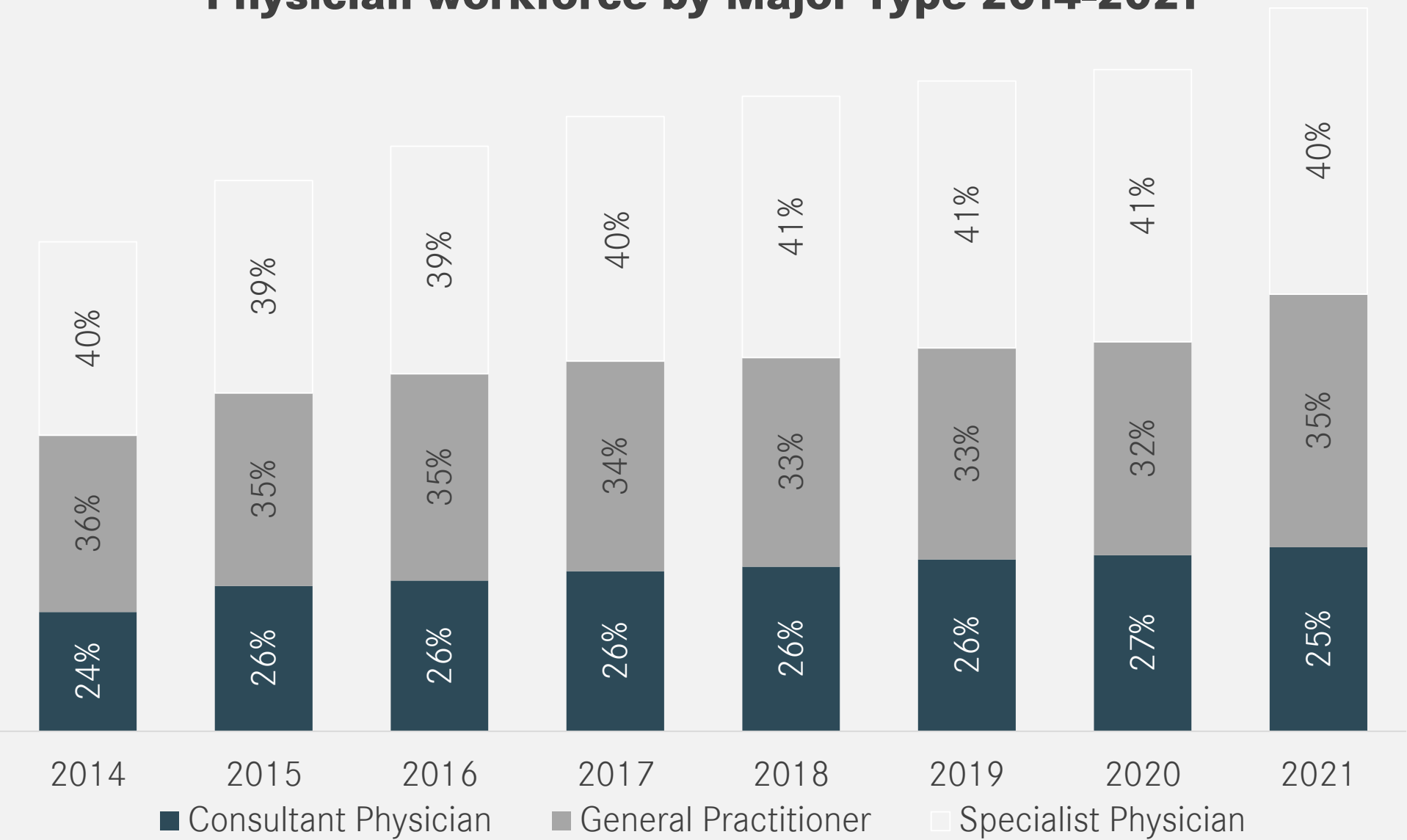
Abu Dhabi has a rate of 4.3 Physicians per 1,000 capita¹, a figure that is higher than most of the high-income countries. Within Abu Dhabi, the Abu Dhabi region has nearly 3 times the rate than that of Al Dhafra, as a natural result of the higher concentration of the population in Abu Dhabi region overall, which provides healthcare for not only its local catchment but also for those travelling from across the UAE for highly specialized medical services.

Future investment strategies highlighted in Abu Dhabi’s Health Workforce Master Plan aims to highlight these capacity gaps for each Region and specialty, which in turn will improve the medical coverage for the population.

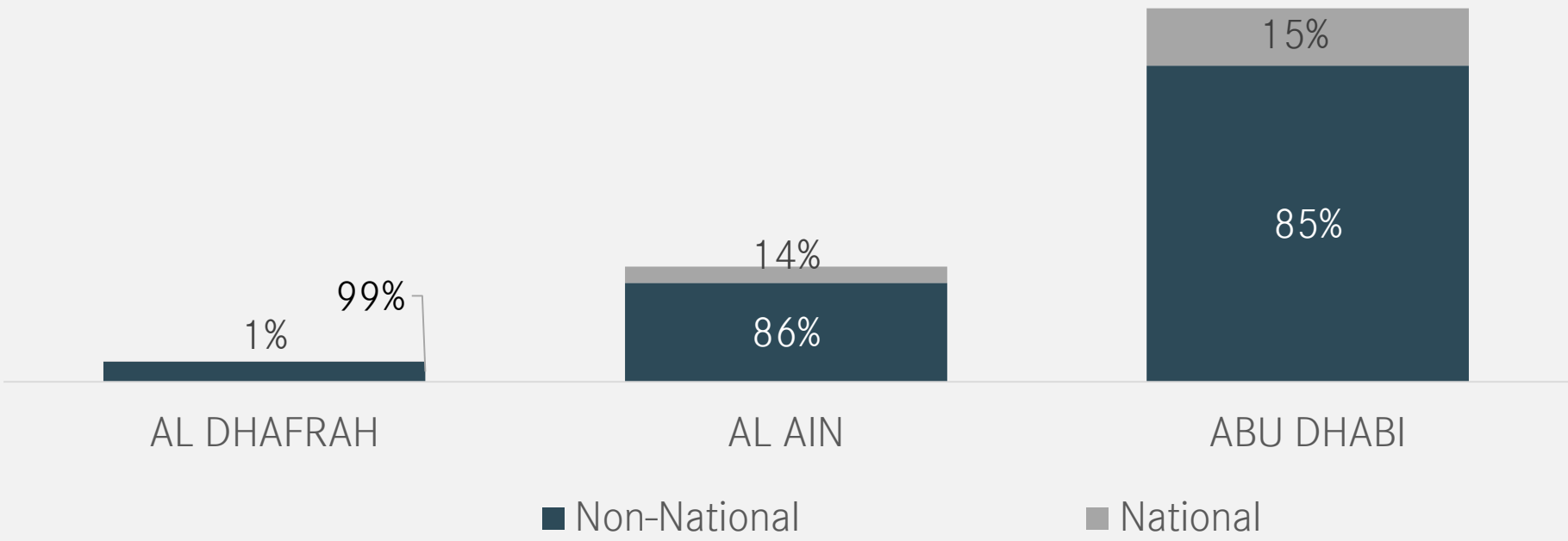
14% of the Physician Workforce are Nationals, who are typically licensed in Family Medicine or General Medicine, while the majority of sub-specialists being Non-Nationals. Incentives for Nationals to continue specialist training, as well as improving the capacity at hospitals and education institutions to cater for this, will ensure that there is less reliance on Non-National specialists.



Physician workforce by Major Type 2014-2021



Physician by Region and Nationality, 2021



	Al Dhafrah	Al Ain	Abu Dhabi
Proportion of Total workforce	4%	23%	73%
Per 1,000 capita	1.8	3.4	5.1

* Note: Per Capita rates are a calculation of workforce per population of that region = Workforce/(Abu Dhabi Population/1000)

>>> **Physician Overview** | Top Majors



Top 20 Physician Major (2021)	Total Workforce
General Practitioner	3,887
Internal Medicine	1,366
Pediatrics	924
General Surgery	661
Obstetrics Gynecology	620
Anesthesiology and Critical Care Medicine	450
Dermatology	374
Radiology	347
Family Medicine	317
Ophthalmology	262
Emergency Medicine	256
Pathology	214
Psychiatry	160
Cardiology	156
Forensic Medicine	141
Critical Care Medicine	124
Plastic Surgery	99
Anesthesia	61
Otolaryngology	52
Physical Medicine Rehabilitation	43
Others	646
Total	11,160

>>> Nursing Overview

The Nursing & Midwifery workforce is the largest component of Abu Dhabi's healthcare workforce, making up over 50% of all licensed clinicians. Of the all Nursing & Midwifery workforce in 2021, 89% were licensed as Registered Nurses.

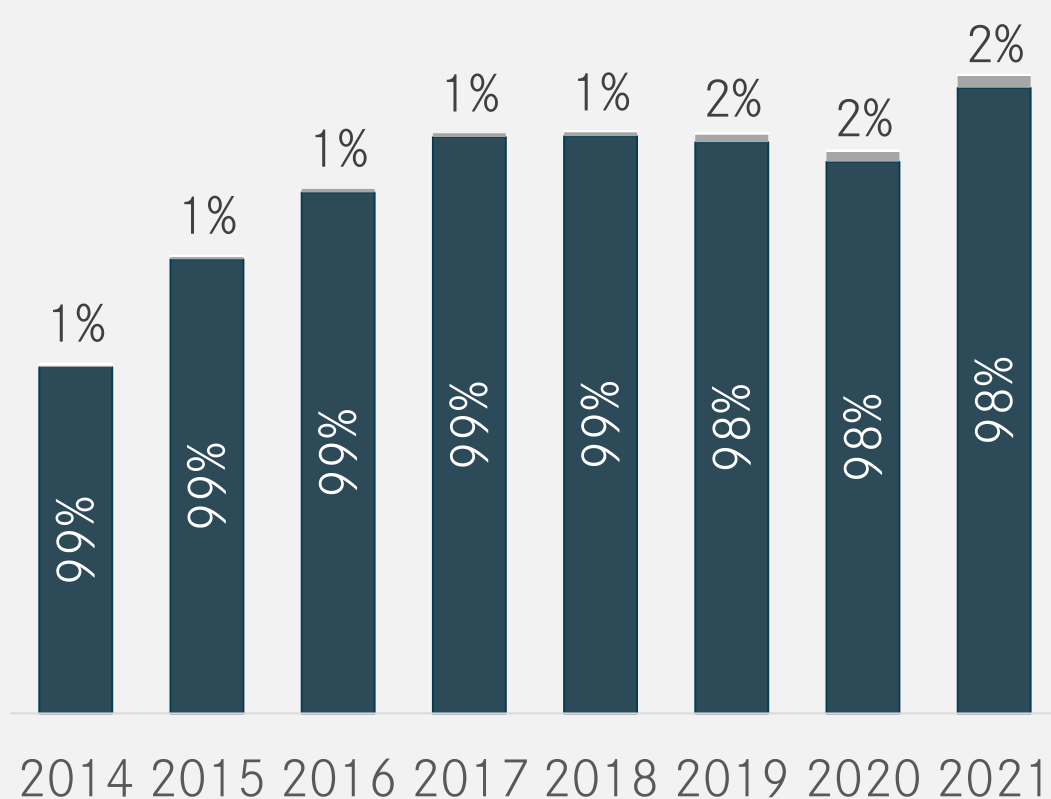
The Nursing & Midwifery per 1,000 capita within Abu Dhabi is 11.8, which is higher than most of high-income countries and those with universal healthcare. The allocation of these Nurses is heavily weighted towards Abu Dhabi Region, with 73% working within the Region compared to 3% for Al Dhafra.

The greatest risk to the stability of the healthcare workforce lies within Nursing & Midwifery, with over 98% of the workforce being supplied by Non-Nationals. Over the last 5 years, this figure has increased by only 1%.

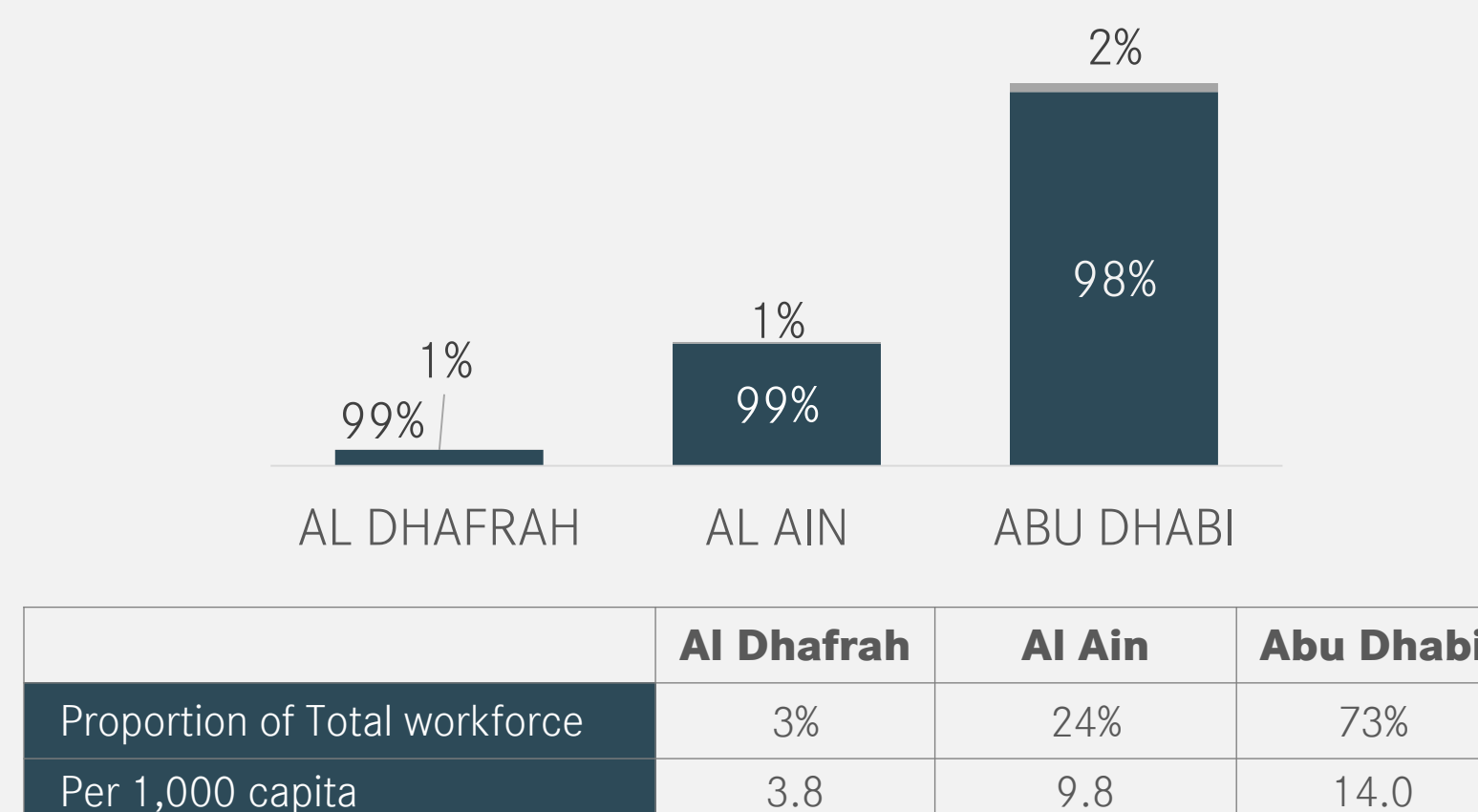
This higher proportion of Non-National workforce is highly sensitive to economics and business continuity. External factors and potential strategies to mitigate this are discussed in the Emiratization chapter of this report.

The Nursing & Midwifery workforce is experiencing a change not only in size but also in its structure. The Nursing & Midwifery profession is seeing a shift towards greater autonomy, with Nursing & Midwifery Practitioners becoming recently licensed, improving prescribing rights and greater influence in patient case management and community care. With Primary Care model of care moving forward in Abu Dhabi, there will be greater influence in healthcare within this segment, ensuring that avoidable admissions are minimized, and chronic disease is managed closer to home and not in acute care.

Nursing & Midwifery by Nationality 2014-2021



Nursing & Midwifery by Region and Nationality, 2021



Nursing & Midwifery Majors (as in 2021)	Total Workforce
Registered and Specialty Nurse	26988
Assistant Nurse	2,580
School Nurse	405
Registered Midwife	262
Assistant Midwife	90
Nurse Practitioner	8
Total	30,333

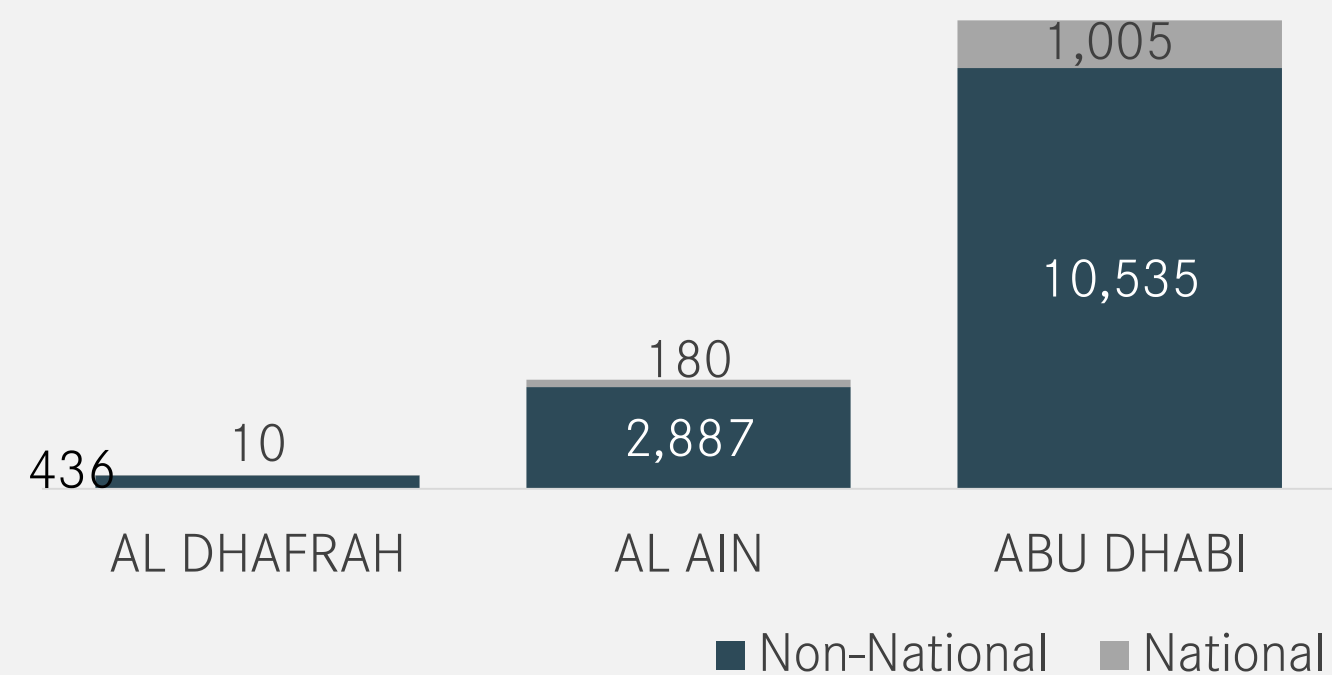
>>> Allied Health Overview

Allied Health continues to be a fast-growing group in healthcare, driven by the greater increase in multi-disciplinary care, case management, community care and the greater autonomy of allied health clinicians.

The requirements for Allied Health clinicians are continuing to rise as the population shifts towards an aging population structure and Abu Dhabi experiences increased rates of chronic diseases.

There have been drastic shifts in the number of licensed Allied Health clinicians over the past years. Nationals make up 9.4% of the allied health workforce, with the majority licensed in Emergency Medical Technician/ Paramedics, Medical Laboratory, Medical Imaging, Clinical Dietetics – Nutritionist and Physiotherapy.

Allied Health by Region and Nationality, 2021



	Al Dhafrah	Al Ain	Abu Dhabi
Proportion of Total workforce	3%	20%	77%
Per 1,000 capita	1.8	4.2	7.3

Amongst the top 5 Non-National specialties, although Medical Laboratory remained to rank the top, its workforce decreased to 1,864 in 2021 from 2,097 in 2019, likely related to the COVID-19 pandemic. In contrast, Emergency Medical Technician/Paramedics workforce has experienced continuous growth, more than doubled from 603 in 2014 to 1488 in 2021. Current Allied Health supply is highly skewed towards the Abu Dhabi Region.

Top 25 Allied Health Majors (as in 2021)	Total Workforce
Pharmacy	4,236
Medical Laboratory	1,864
Emergency Medical Services	1,728
Physiotherapy	1,560
Medical Imaging	1,338
Dental Clinical Support	1,230
Respiratory Therapy	536
Central Sterile Services	324
Clinical Dietetics Nutrition	320
Anesthesia	293
Optometry	288
Occupational Therapy	268
Speech Therapy	211
Cardiovascular Technology	153
Psychology	65
Electro- Neurodiagnostics Technologist	67
Audiology	77
Operation Theatre Technician	58
Social Worker	52
Assisted Reproductive Technology (ART)	51
Renal Dialysis	50
Radiation Therapy	39
Ophthalmic positions	33
Medical Physicist	31
Nuclear Medicine	30
Others	245
Total	15,121

>>> Allied Health | Pharmacy Overview

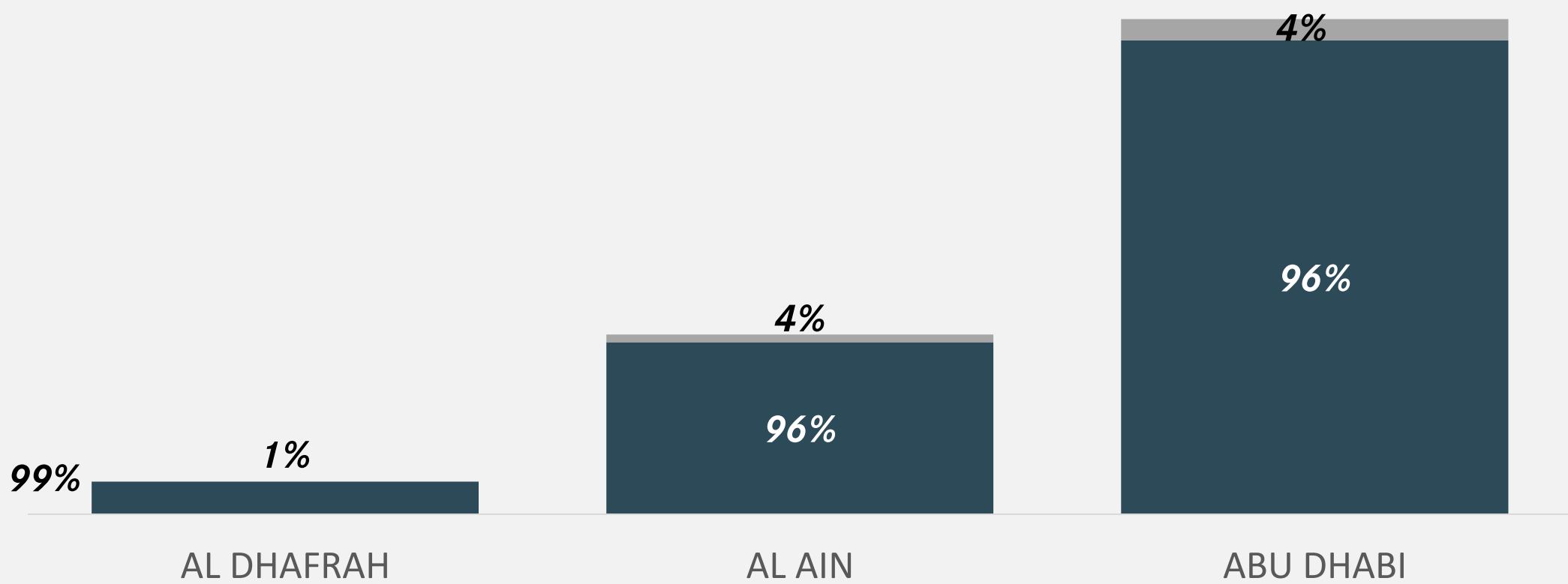
Abu Dhabi currently has over 4,000 Pharmacists licensed in the workforce, equating to 1.6 Pharmacists per 1,000 capita. This rate is, however, skewed towards the Abu Dhabi Region, which holds 70% of the Pharmacy workforce.

There is an overall oversupply of Pharmacists in Abu Dhabi. However, it is noted that there is a low supply of Pharmacists in the Al Dhafra Region, with only 5% of the workforce licensed in the area which equates to 0.8 Pharmacist per 1,000 capita, which sits well below international comparators.

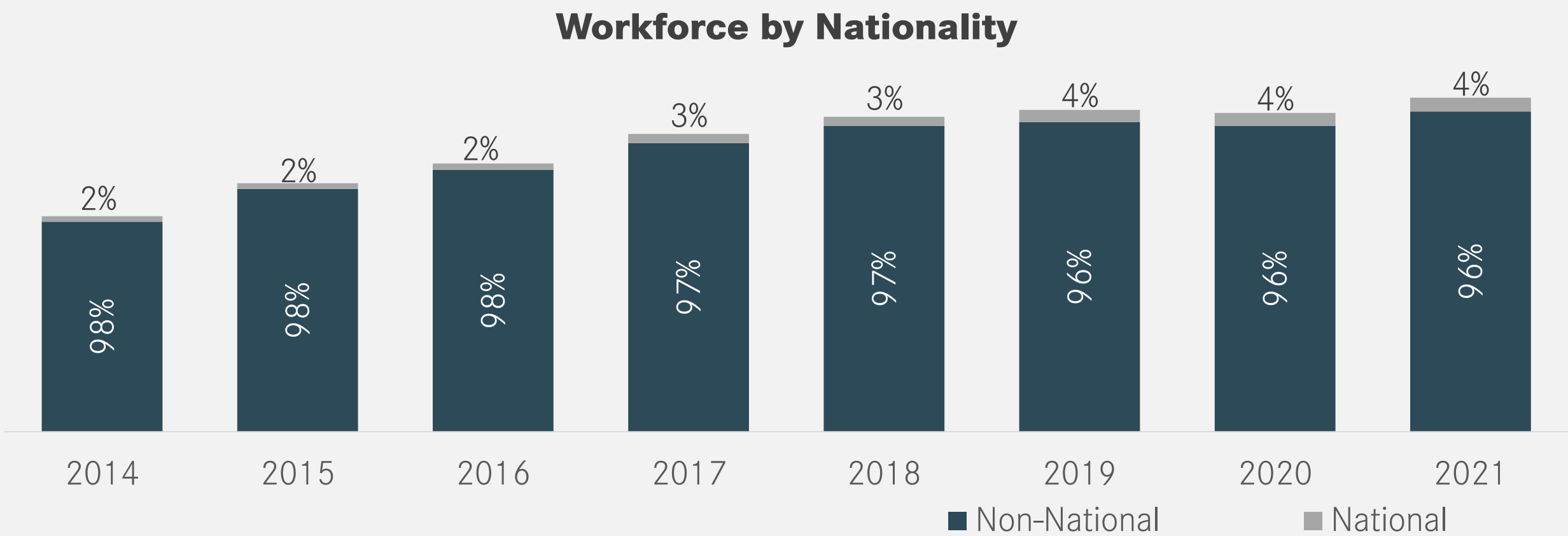
The Pharmacy workforce is made up of only 4.2% Nationals, with only 1 works in Al Dhafra. Like other workforce groups, the concentration of healthcare facility supply, and Medical Tourism in Abu Dhabi Region results in a greater proportion of Pharmacists to support this service activity within this Region. Pharmacy will likely experience a gradual oversupply but with the expansion in service scope, following international mega trends in becoming Primary Care providers with heightened prescribing rights and greater autonomy to provide routine services such as vaccinations to reduce the burden on the Physician Primary care model.



Pharmacy Workforce by Region and Nationality 2021



	Al Dhafrah	Al Ain	Abu Dhabi
Proportion of Total workforce	5%	25%	70%
Per 1,000 capita	0.8	1.4	1.8



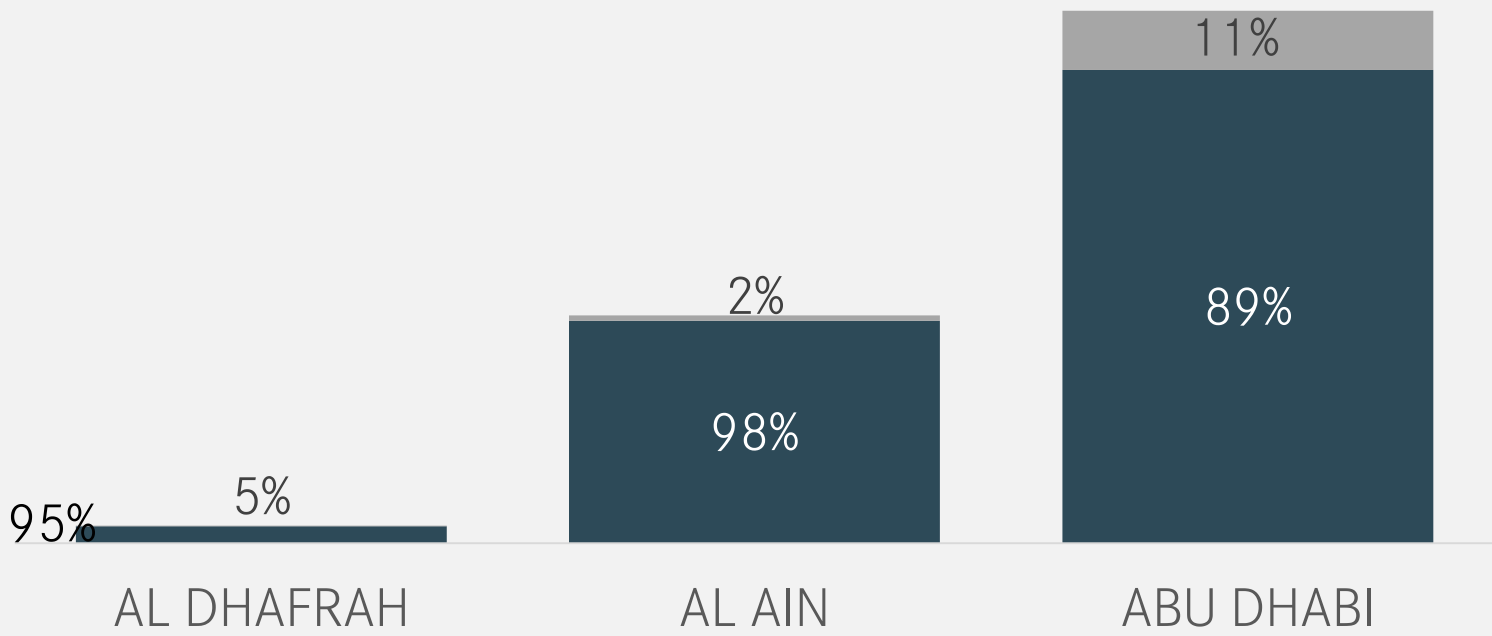
>>> Dentistry Overview

The Dental Workforce is made up of Consultant Dentist, General Dentist and Dentist Specialist. Over the last 3 years, there are on average 150 new dentists being licensed annually. Over 70% of the Dental Workforce are licensed as General or GP Dentists

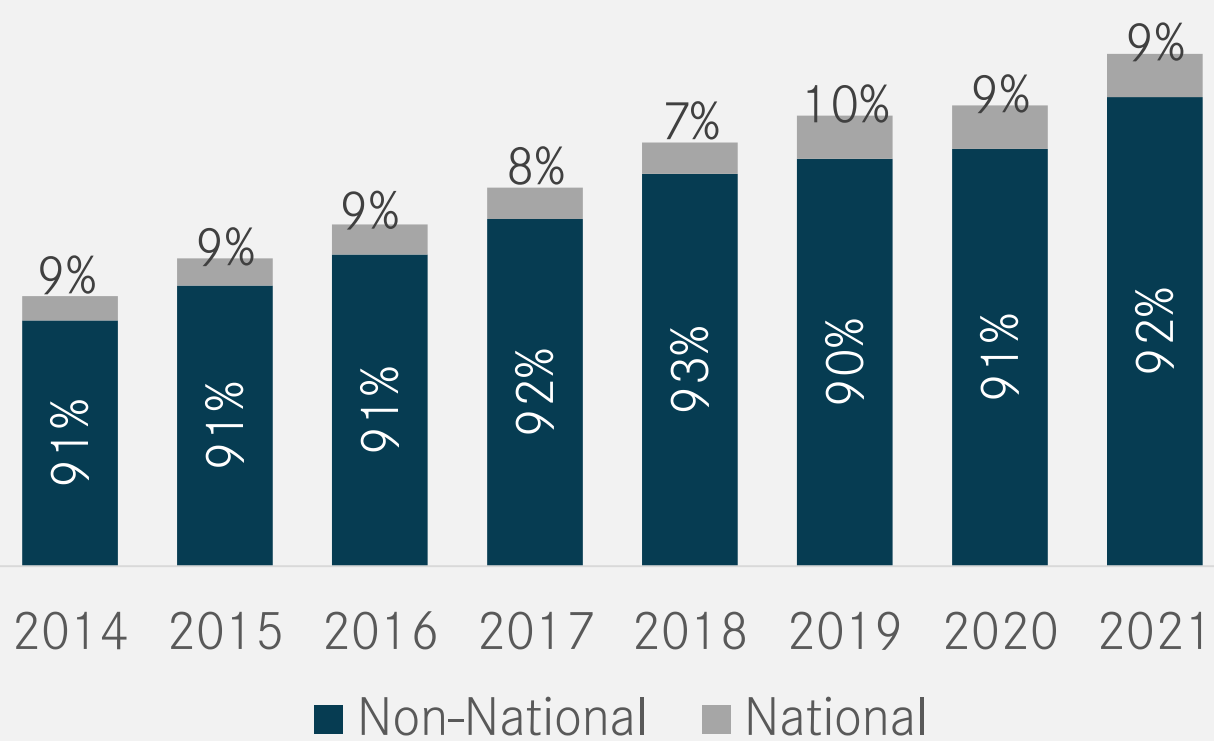
There is a high proportion of Dentists within the Abu Dhabi Region, accounting for more than 70% of the dental workforce. This equates to 1.1 Dentists per 1,000 capita, well above the rates of the majority of comparison countries¹ as well as the rate currently shown in Al Dhafra (0.24 Dentists per 1,000). This disproportionate allocation is not only because of the higher density of healthcare facilities in the region, but also because of the high number of cosmetic dental services that draw inflows from not only Al Ain and Al Dhafra but also inbound medical tourism.

Of the 2,599 licensed dentists, only 219 are Nationals, of which 3 are in Al Dhafra Region. There is a strong need to increase coverage of dental services outside of Abu Dhabi and to improve the self-sufficiency of Al Ain and Al Dhafra Region in particular.

Dental Workforce by Region and Nationality

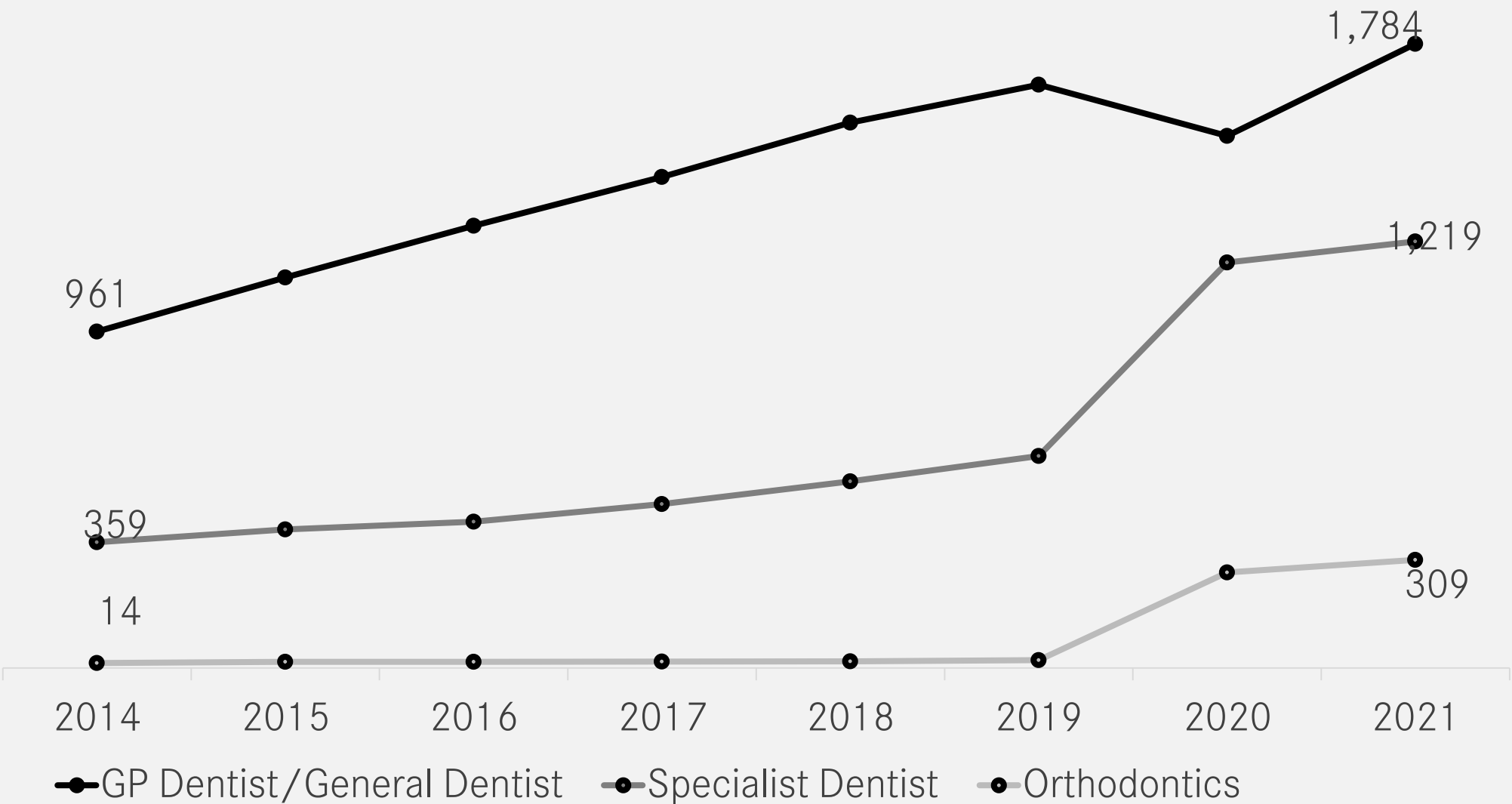


Dental Workforce by Nationality



	Al Dhafrah	Al Ain	Abu Dhabi
Proportion of Total workforce	2%	29%	69%
Per 1,000 capita	0.24	1.0	1.1

Trend of Top 3 Specialties, 2014-2021



Dentists by Major (2021)	Total Workforce	Work-force per capita (per 100,000)	National FTE	National per capita (per 100,000)
General Dentist	1,828	71	139	22
Orthodontics	333	13	26	4
Pediatric Dentistry	95	4	14	2
Prosthodontics	86	3	12	2
Periodontics	72	3	4	1
Endodontics	71	3	8	1
Oral Maxillofacial Surgery	68	3	3	0
Oral Surgery	40	2	11	2
Restorative Dentistry	4	0	1	0
Oral Medicine	1	0	0	0
Forensic Odontology	1	0	1	0
Grand Total	2,599	101	219	34

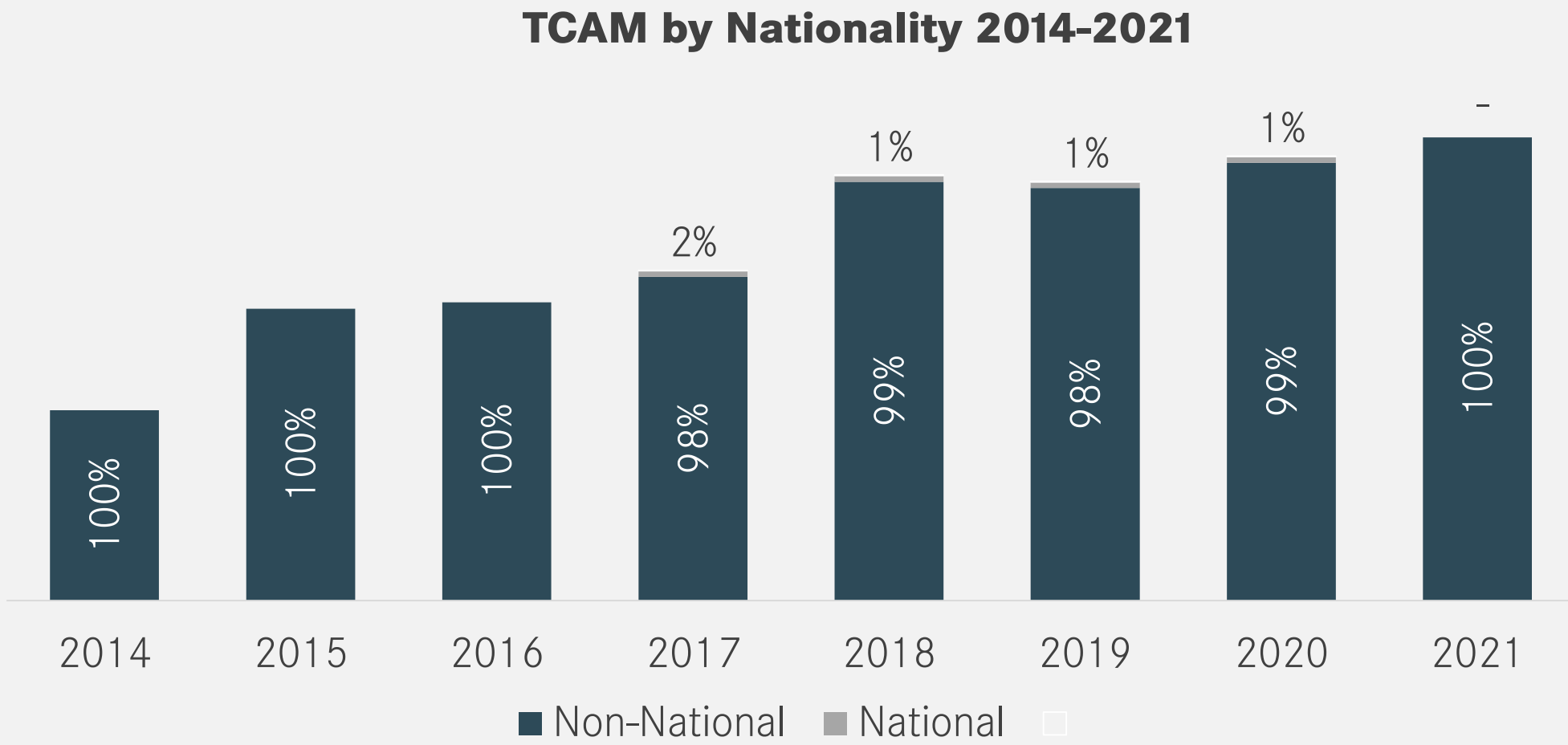
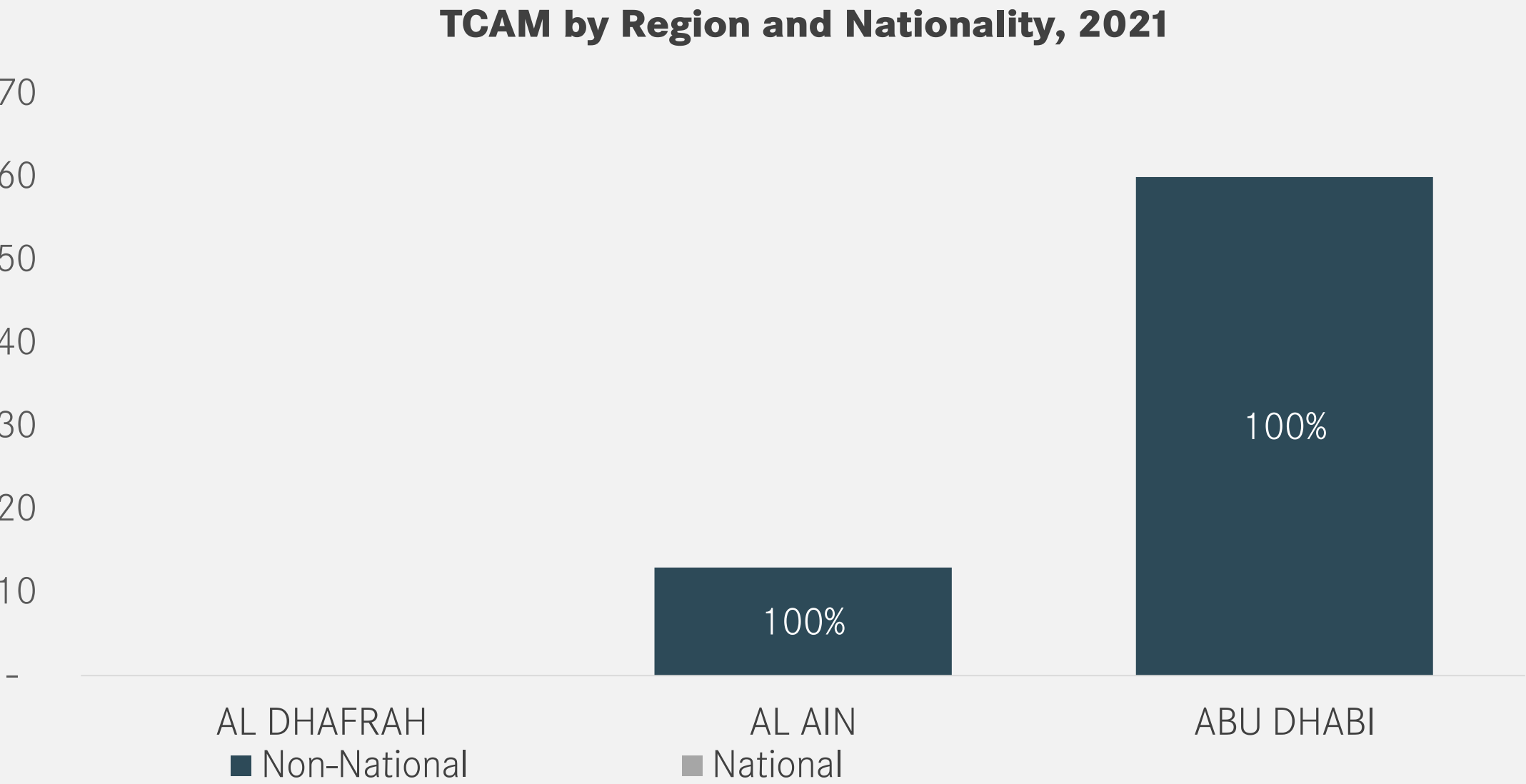
*Note: Comparison Countries: World Health Organization's Global Health Workforce Statistics, OECD, supplemented by country data. Average rate per 1,000 between 2015 and 2019

>>> Traditional & Complementary Medicine Overview

Over the last 3 years, there are on average 2 new Alternative Medicine Professionals being licensed annually. Over 28% of the Alternative Medicine Workforce are licensed as Homeopathy Practitioners.

This disproportionate allocation is largely due to the higher density of health facilities, inflow of patients from other regions and the high number of wellness offerings in adjunct to medical tourism services.

There is a high proportion of Alternative Medicine health workers within the Abu Dhabi Region, accounting for nearly 82% of the Alternative Medicine workforce, which equates to 0.038 professionals per 1,000 capita.



	Al Dhafrah	Al Ain	Abu Dhabi
Proportion of Total workforce	0	18%	82%
per 1,000 capita	0	0.018	0.038

01

EDUCATION ENTITY DATA
COLLECTION PROCESS

02

STAKEHOLDER ENGAGEMENT

03

SUMMARY OF RESULTS

4. Education and Planned Supply

Analyzing the educational system and the number of
planned graduates entering the workforce

>>> Education | Education Entity Data Collection Process

Overview:

The DOH Data Collection Tool is a web-based toolkit for capturing student data from local education institutes offering medical and health sciences across the UAE. Number of graduates are anticipated to join health workforce in Abu Dhabi. DOH held several introductory meetings with key education stakeholders. Each entity was requested to nominate a manager for their data to be provided to DOH on an annual basis. When the tool was launched, each Data Collection managers for academic educational institutions and scholarship bodies were required to complete an individual data collection form (see next slide) for their facility. Ultimately, this provides insight into the number of local graduates that may enter the workforce.

Data capture included:

- Institution information: Profile, commissioning year and general information
- Course Information: Current and future course offerings and course profile
- Student Information: Number of students in each medical and health sciences course, dropout rates, demographics and graduation rates

Outputs include:

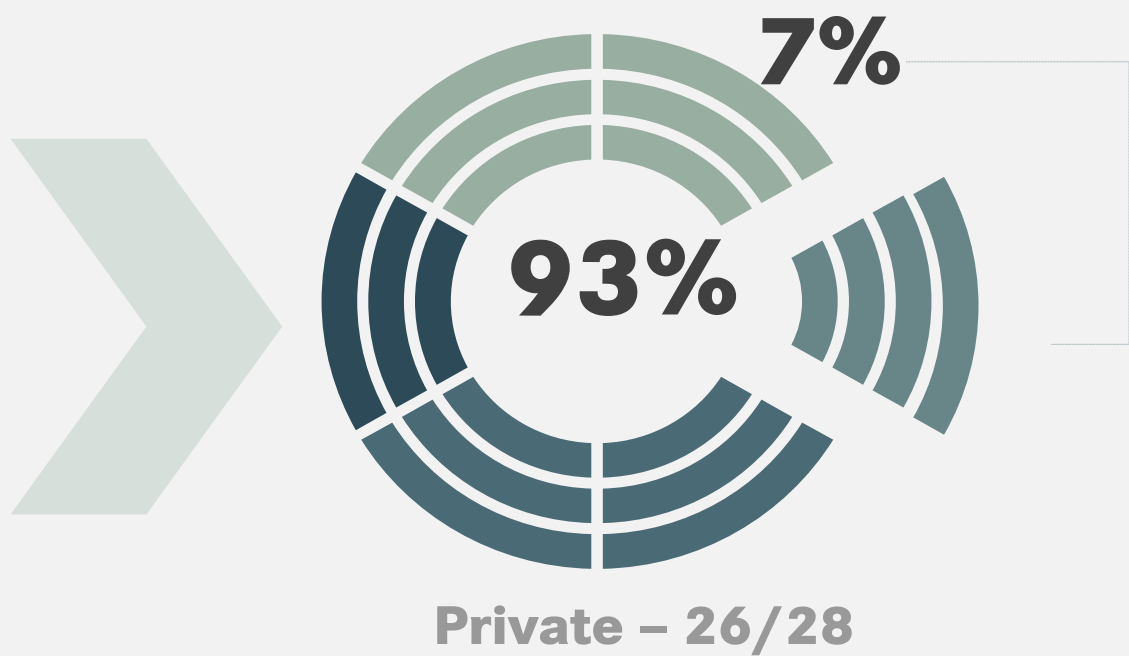
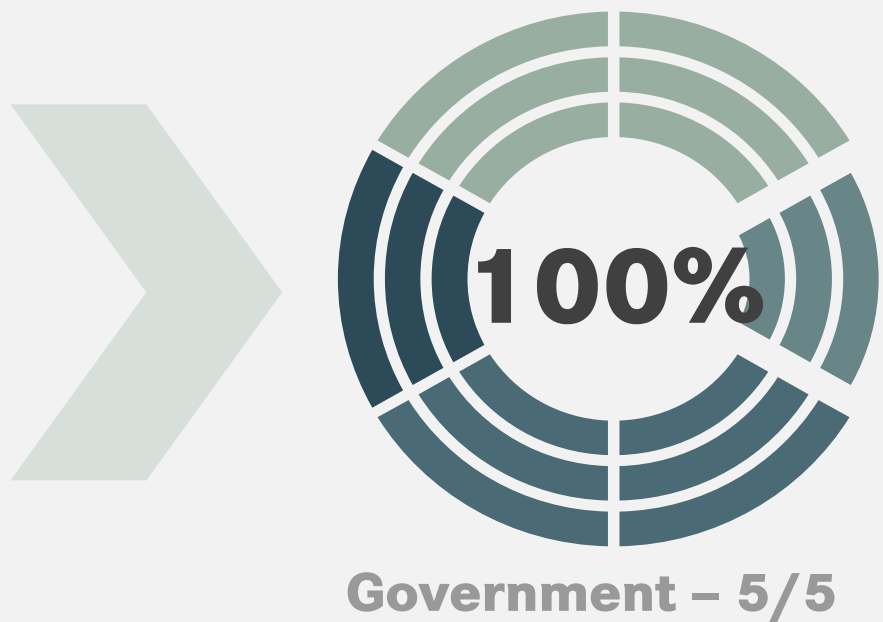
- Identification of planned workforce: total applicants, enrolments, graduates, and dropout rate by Nationality and gender
- Current course offerings and alignment with PQR
- Gap analysis to understand future medical and health science student priorities



>>> Education | Stakeholder Engagement

Federal Entities	Abu Dhabi Local Entities	Healthcare Provider					
<div><div> وزارة التربية والتعليم MINISTRY OF EDUCATION</div><div> وزارة شؤون الرئاسة MINISTRY OF PRESIDENTIAL AFFAIRS</div><div> مكتب البعثات الدراسية SCHOLARSHIPS OFFICE</div></div>	<div><div> دائرة الصحة DEPARTMENT OF HEALTH</div><div> دائرة التعليم والمعرفة DEPARTMENT OF EDUCATION AND KNOWLEDGE</div></div>	<div> صحة SEHA شركة أبوظبي للخدمات الصحية Abu Dhabi Health Services Co. P.J.S.C</div>					
Government Universities							
<div> جامعة زايد ZAYED UNIVERSITY</div>	<div> جامعة الإمارات العربية المتحدة United Arab Emirates University</div>	<div> جامعة خليفة Khalifa University</div>	<div> كليات التقنية العليا Higher Colleges of Technology</div>	<div> كلية فاطمة للعلوم الصحية FATIMA COLLEGE OF HEALTH SCIENCES</div>			
Private Universities							
<div> جامعة العلوم والتقنية في الفجيرة UNIVERSITY OF SCIENCE & TECHNOLOGY OF FUJAIRAH</div>	<div> UNIVERSITY OF WOLLONGONG IN DUBAI</div>	<div> جامعة الشارقة UNIVERSITY OF SHARJAH</div>	<div> جامعة العين للعلوم والتكنولوجيا AL AIN UNIVERSITY OF SCIENCE AND TECHNOLOGY</div>	<div> كلية الإمارات للتكنولوجيا Emirates College of Technology We Prepare for Future Careers نُعَدُّكُمْ لِهَيْئَةِ الْمُسْتَقْبَلِ</div>	<div> جامعة رأس الخيمة للطب والعلوم الصحية RAK Medical & Health Sciences University Ras Al Khaimah, United Arab Emirates</div>	<div> جامعة عجمان AJMAN UNIVERSITY</div>	
<div> UNIVERSITY OF MEDICINE AND HEALTH SCIENCES</div>	<div> كلية الخوارزمي الدولية KHAWARIZMI INTERNATIONAL COLLEGE</div>	<div> KIC</div>	<div> MBRU</div>	<div> جامعة محمد بن راشد للطب والعلوم الصحية MOHAMMED BIN RASHID UNIVERSITY OF MEDICINE AND HEALTH SCIENCES</div>	<div> جامعة أبوظبي Abu Dhabi University</div>	<div> AUS الجامعة الأميركية في الشارقة American University of Sharjah</div>	<div> جامعة الخليج الطبية GULF MEDICAL UNIVERSITY ACADEMIC HEALTH CENTER</div>
<div> NEW YORK UNIVERSITY</div>	<div> كلية دبي للصيدلة للبنات Dubai Pharmacy College for Girls</div>	<div> كلية دبي الطبية DUBAI MEDICAL COLLEGE</div>	<div> CUCA كلية المدينة الجامعية بعجمان CITY UNIVERSITY COLLEGE OF AJMAN</div>	<div> CANADIAN UNIVERSITY DUBAI Your portal to Canadian education</div>	<div> AUD AMERICAN UNIVERSITY IN DUBAI</div>	<div> الجامعة البريطانية في دبي The British University in Dubai</div>	

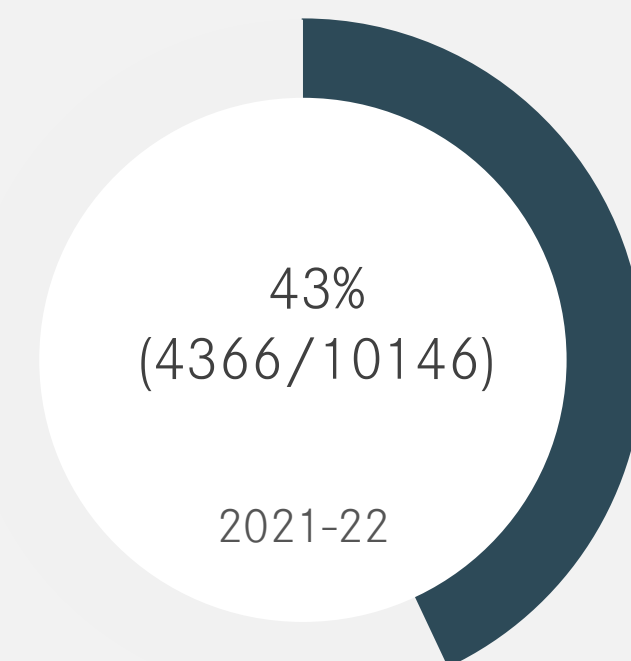
Stakeholders Response Rate



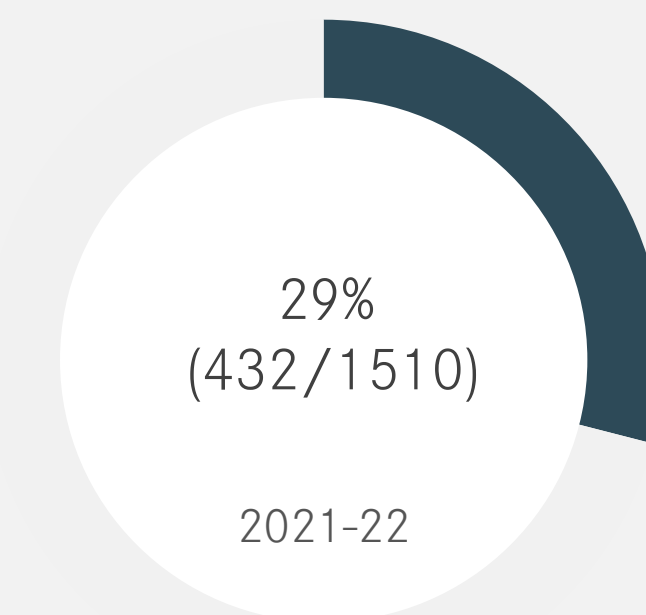
>>> Education | Summary of Results

The existing education course offering is concentrated in Dental, Pharmacy, Medicine and Nursing graduates. A fall in graduates was experienced in 2021, possibly due to Covid disruptions. However, a boost in enrolments and graduates is urgently required across all courses.

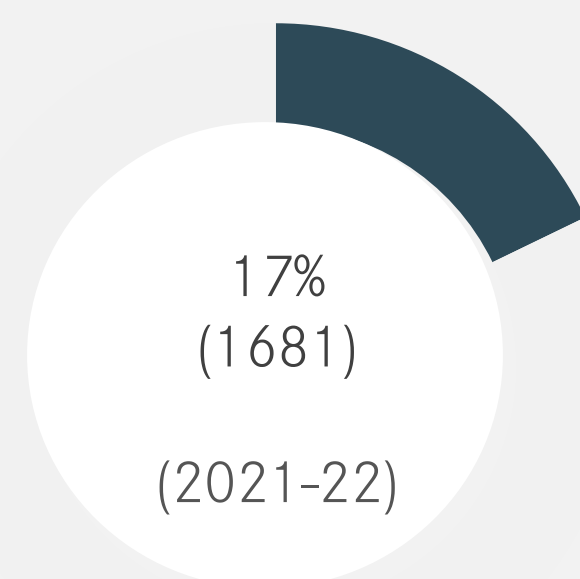
Enrolments
Proportion that are National



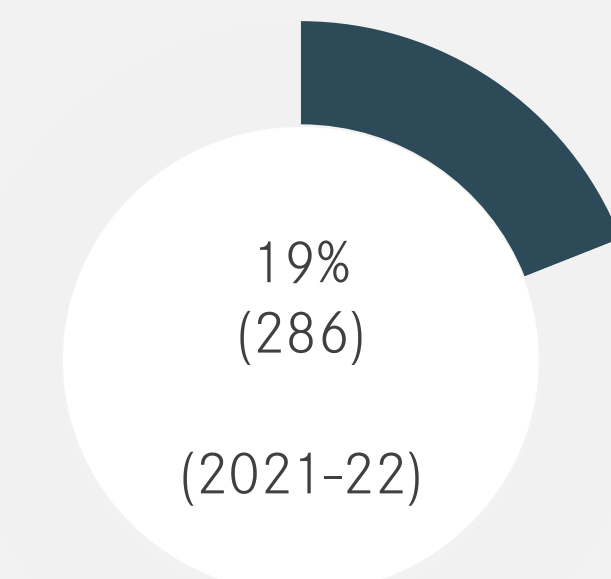
Graduates
Proportion that are National



Proportion of **Male to Female** Enrolees

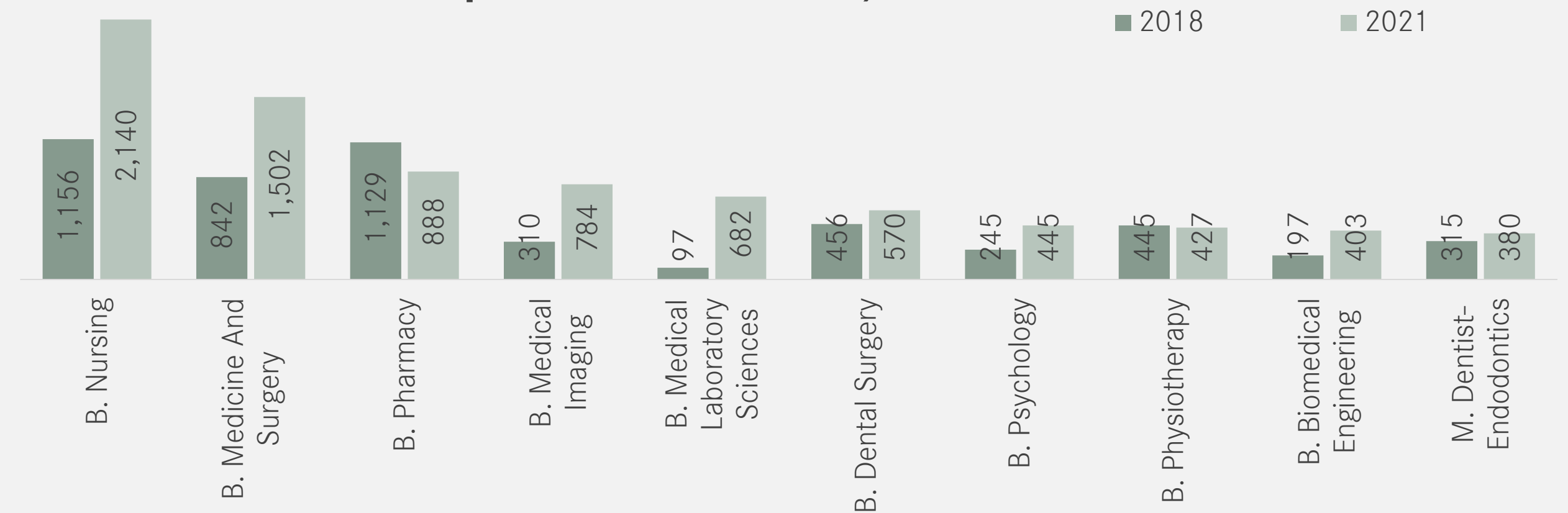


Proportion of **Male to Female** Graduates

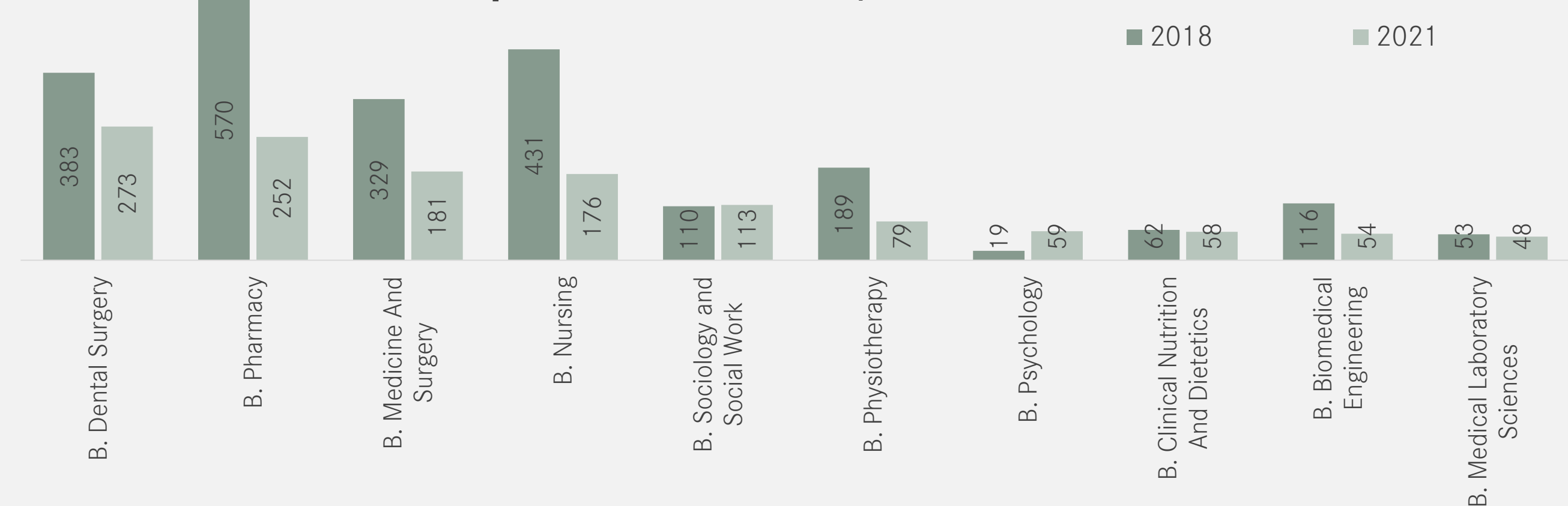


2 out of 10 Enrolees and Graduates in Medical and Health Sciences are Males. This proportion has remained similar across 2018-2021

Top 10 Course Enrolments, 2018 and 2021



Top 10 Course Graduates, 2018 and 2021

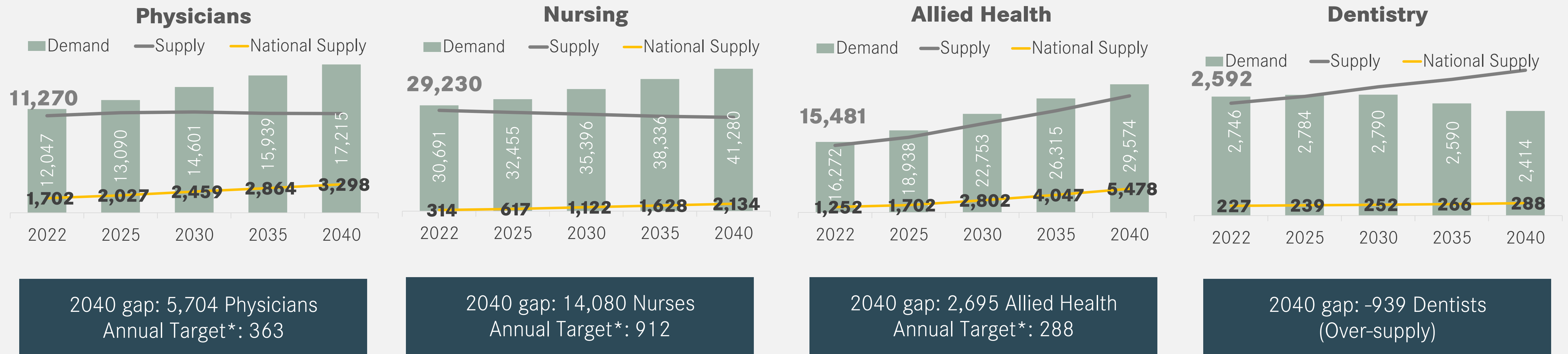


01	Health Workforce Gap Analysis : Abu Dhabi
02	Gap Analysis : Physicians
03	Gap Analysis : Nursing and Midwifery
04	Gap Analysis : Allied Health
05	Gap Analysis : Dentists
06	Health Workforce Needs: Overview
07	Emiratization Needs
08	Education Needs
08	Health Workforce Needs



>>> Health Workforce Gap Analysis | Abu Dhabi

Comparing **2022 supply** with **demand** for the Abu Dhabi population up to the year 2040.



The entire health workforce profile compared to the requirements of the National and Non-National population, shows that all major categories will be under-supplied, except Dentistry.

The graphs above represent the current and future demand and supply. In 2022, supply is slightly below the current demand for all health Categories. However, we see a growing oversupply of Dentists and General Practitioners in the future years.

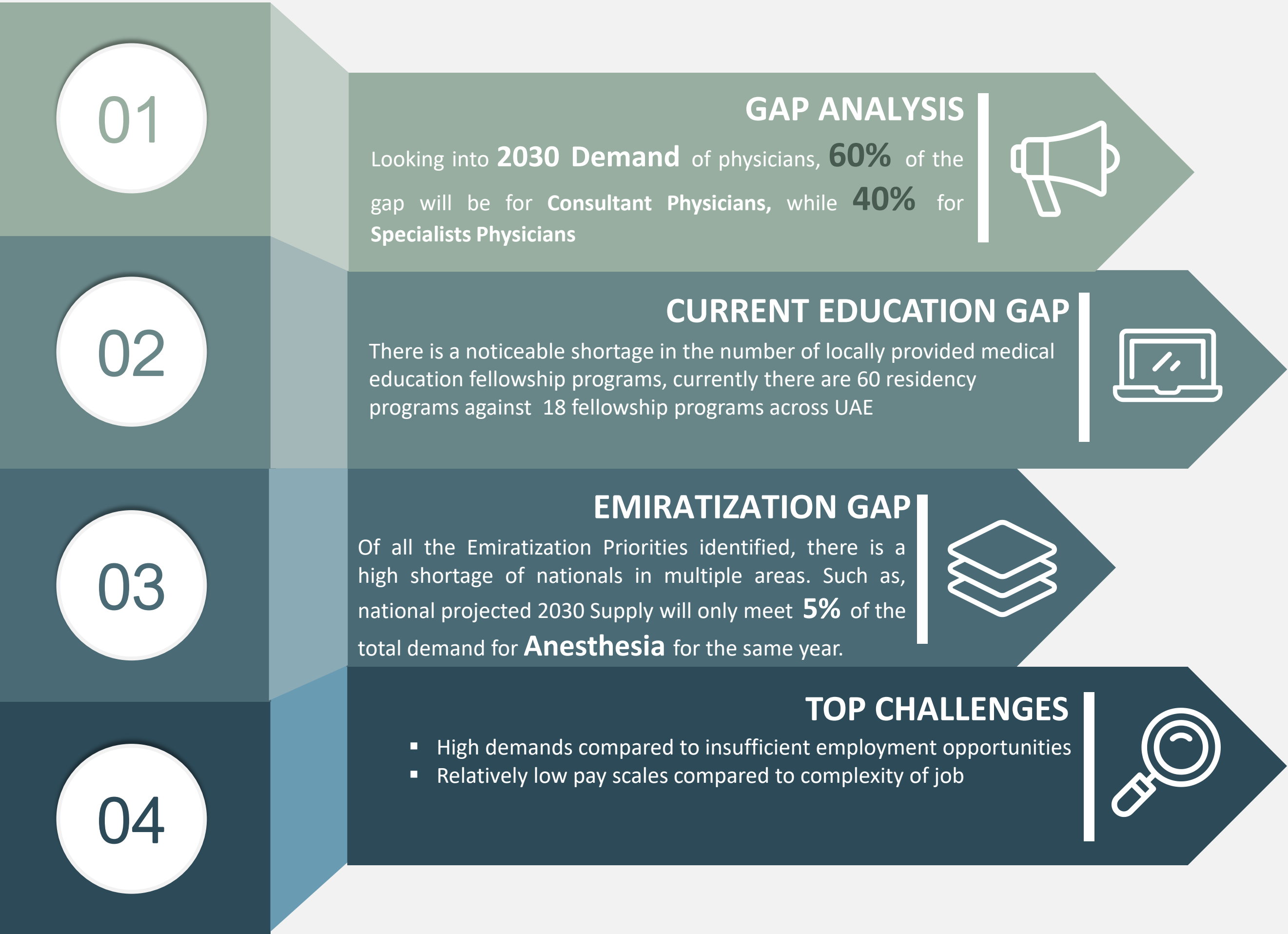
With many local educational institutes offering undergraduate and postgraduate courses on Medicine, Dentistry, Allied Health (Medical Laboratory, Physiotherapy, Pharmacy, etc.), and Nursing, the potential (planned supply) workforce in the pipeline is developing and will well serve the future increasing market demand.

The gradual decline in the projected supply of the Nursing workforce is due to the high average attrition rate of Nursing and Midwifery globally due to multiple factor including but not limited to : migration , retirement, global nursing shortage.

This indicate the needs to increase the number of nursing graduates and investing in additional nursing programs to cover the attrition rate.

Gap Analysis | Physicians

SITUATIONAL ANALYSIS



RECOMMENDATIONS...

SPECIALIZED CARE

Moving towards more specialized models of care. Enact policies that sustain and attract talented physicians expertise

SPECIALIZED EDUCATION PROGRAMS

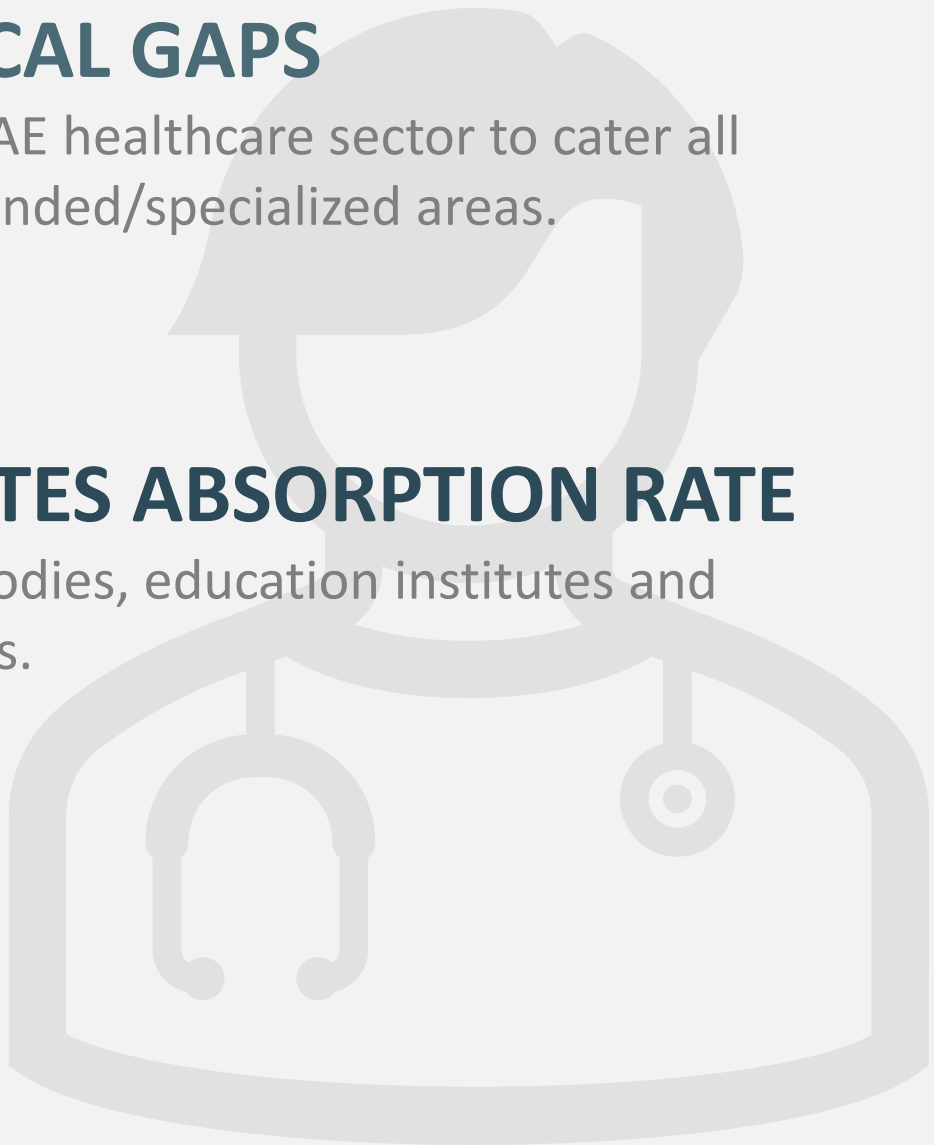
Expansion of existing capacity and open new specialized programs to service the highly demand specialties

FOCUS ON EMIRATIZING CRITICAL GAPS

Work with key strategic stakeholders in the UAE healthcare sector to cater all Emiratization efforts towards the highly demanded/specialized areas.

INCREASE PHYSICIAN GRADUATES ABSORPTION RATE

collaborative efforts from health regulatory bodies, education institutes and healthcare providers to increase employments.



Gap Analysis | Nursing and Midwifery

SITUATIONAL ANALYSIS

01

GAP ANALYSIS

Looking into **2030 Highest Demands** of nursing workforce, it is noticeable that more than **75%** of the anticipated gap will be mainly in four areas i.e.: Emergency Nurses, Critical care nurses, Pediatric Nurses and Registered nurses.



02

CURRENT EDUCATION GAP

- Very low number of enrolled male students in nursing academic programs.
- Lack of programs for Practitioner Nurse.
- Limited supply from specialized nursing post-graduate programs
- Limited programs for midwifery



03

EMIRATIZATION GAP

Emiratis form **only 2%** of total nursing workforce in Abu Dhabi. Majority of total Emirati Nursing Workforce are **Female**.



04

TOP CHALLENGES

- Career development & low advancement support.
- More competitive packages in other roles & when compared to complexities of work
- Traditional restrictions for some national Females to nursing's work requirement (night shift, prolonged working hours...etc.)



RECOMMENDATIONS...

CENTRALIZED NURSING COMMITTEES

Enhance collaboration between government and healthcare in the UAE entities to better track and tackle the local nursing challenges.

INVESTMENT IN MORE NURSING PROGRAMS

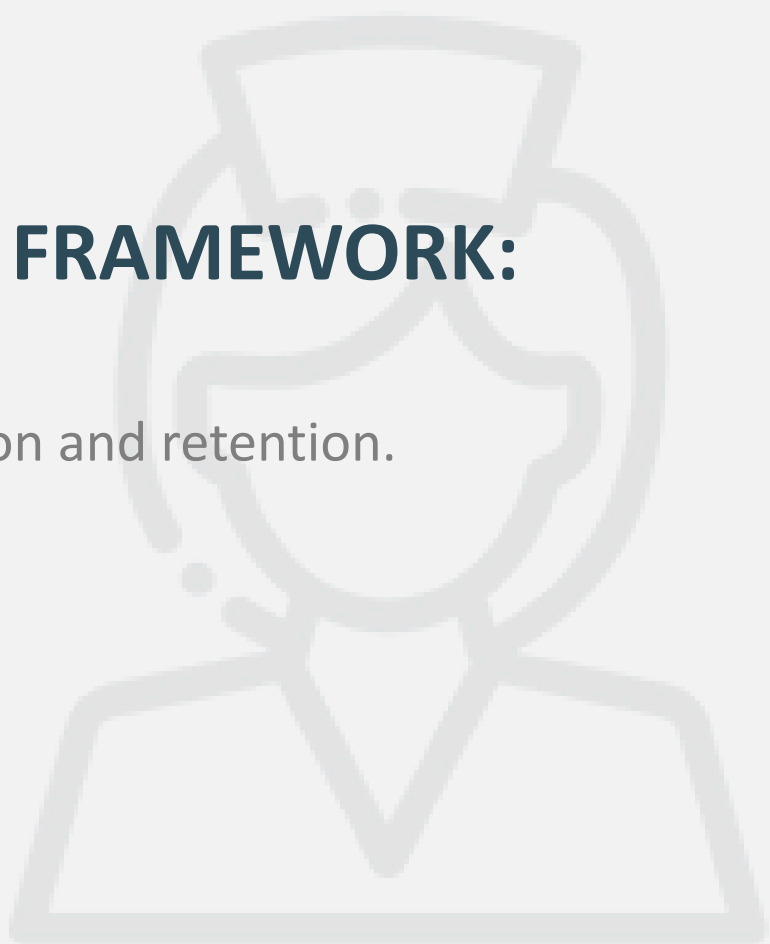
- Increase funding for specialized nursing and midwifery education.
- Increase seats capacity for Male students.
- bridging programs to support and direct the UAE job-seekers from the other over-supplied professions to the highly demanded nursing programs.

INCENTIVES AND SUSTAINING

- More attractive career environment for nursing to drive the study-choice of youth Emirati Male.
- incentives and current pay scale enhancement

ROBUST AND AGILE EMPLOYMENT FRAMEWORK:

- Develop innovative recruitment strategies
- Drive policies to boost nursing workforce attraction and retention.



SITUATIONAL ANALYSIS

01

GAP ANALYSIS

More than **55%** of the anticipated gap in 2030 in all Allied Health majors will mainly be composed of the gap in three majors that are **Emergency Medical Services, Psychology and Occupational Therapy.**



02

CURRENT EDUCATION GAP

No education programs supplying highly prioritized areas:

- Cardiac Perfusionist
- Renal Dialysis
- Genome and Genetics
- Optometry, Physician Assistant and Podiatrists



03

EMIRATIZATION GAP

In 2030, there will be a gap of more than **500 National** workforce to meet **2030 Demand** for Allied Health Care



04

TOP CHALLENGES

- Career development & low advancement support
- Traditional restrictions for Females to certain occupations
- Many jobs within Allied Health category are anticipated to become obsolete or replaced with the advancements in technologies



RECOMMENDATIONS...

SPECIALIZED CARE

Moving towards more specialized models of care aiming at reaching the future demand.

EQUIP FOR FUTURE

- demand-driven decisions to increase education programs for highly prioritized areas.
- Agile upskilling program for junior practitioner and new graduates.

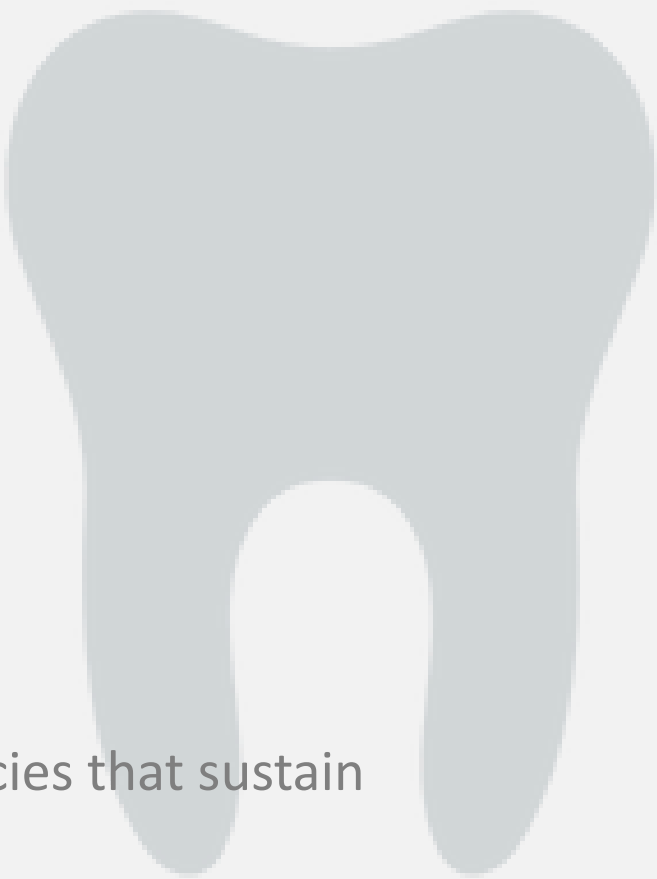
ATTRACT AND SUSTAIN EMIRATI

Enact policies that sustain and attract talented Emirati students enrolment in allied health programs.

INCREASE ALLIED HEALTH GRADUATES ABSORPTION RATE

collaborative efforts from health regulatory bodies, education institutes and healthcare providers to increase employments.





SITUATIONAL ANALYSIS

01

GAP ANALYSIS

There exist sufficient supply of dentistry workforce, with an **oversupply** of Endodontics and Orthodontics



02

CURRENT EDUCATION GAP

- Lack of Fellowship programs for Dentistry
- Upskilling programs to meet future emerging dentistry services



03

EMIRATIZATION GAP

Although supply of dentistry workforce is sufficient in Abu Dhabi. **Emiratis form only 9%** of total dentistry workforce in Abu Dhabi



04

TOP CHALLENGES

- Emiratization
- Clinical Skills
- Career development and low advancement support



RECOMMENDATIONS...

SPECIALIZED CARE

Moving towards more specialized models of care. Enact policies that sustain and attract talented physicians.

SPECIALIZED EDUCATION PROGRAMS

- Fellowship program to move toward more specialized model of care.

FOCUS ON EMIRATIZATION

- Agile upskilling program for junior practitioner and new graduates
- Career development plan for Emirati dentists.

INCREASE EMIRATI DENTISTS GRADUATES ABSORPTION RATE

collaborative efforts from health regulatory bodies, education institutes and healthcare providers to increase employments.



>>> Workforce Needs | Overview

The Workforce needs is divided into two layers: **Emiratization & Educational Needs** and **Health Workforce Needs**,

Emiratization & Education Needs

The Emiratization needs: are assessed quantitatively and qualitatively based on historical growth of Emiratization, Government vision, policies and efforts to increase Emiratization rates and uniform the strategic distribution of Nationals across the clinician groups.

Educational needs: Building on the gaps identified in the healthcare workforce, an analysis was conducted using a scorecard to understand the gaps in the local medical and healthcare programs offered in UAE. The aim of the exercise is to inform targeted future investments in the education sector to achieve the Emiratization targets and fulfil the National vision.

Health Workforce Needs

This analysis provides a review of the entire health workforce profile, compared to the requirements of Abu Dhabi population through to year 2040. It maps the supply of currently licensed clinicians, both Nationals and Non-Nationals, to international references, by comparing majors based on international naming conventions aligned with the current PQR.

>>> Emiratization Needs | Growing the National Workforce

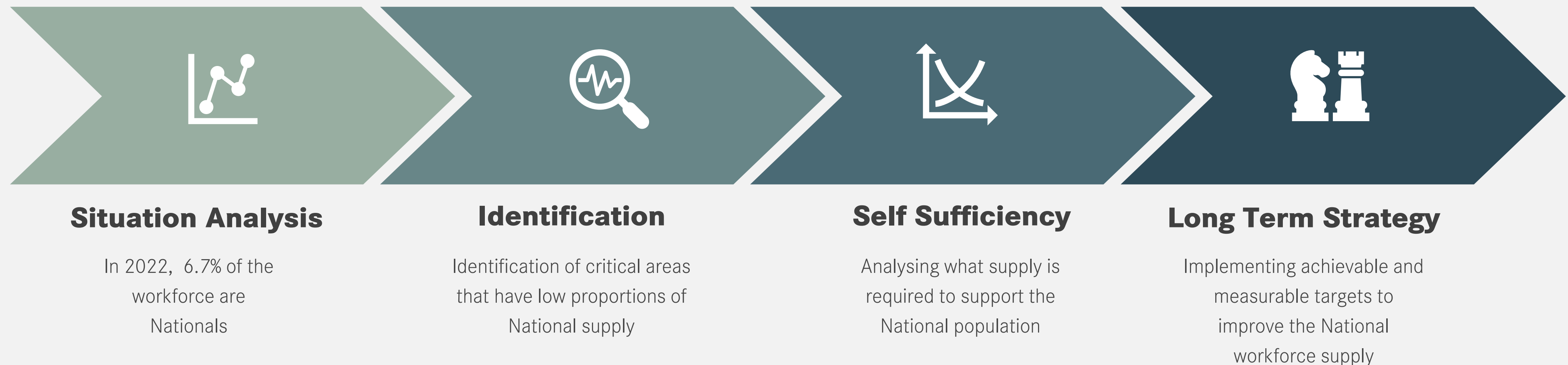
Healthcare sustainability is of high priority for the DOH due to the importance of the sector and the services provided to all residents of the Emirate. The DOH works with its Healthcare Providing and Educational partners to encourage Medical and Health Science students through training and improving Nationals' skillset to achieve the best standards in the healthcare district.

The UAE aims to achieve its objective by unlocking the potential of citizens and enabling them to be a driving force of the UAE's economic development. Therefore, the UAE Government launched the Emiratization campaign which mandates the inclusion of Emiratis in all sectors of labor market. Emiratization aims to increase the number of Emiratis in the job market and their contribution to the economy and productivity. It will lead to substantially increase the number of workforce who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

Plans towards Emiratization include:

- Staffing plans and incentives to attract qualified UAE national healthcare professionals.
- Career development opportunities that provide necessary support for qualified UAE national healthcare professionals in accordance with the Unified Healthcare Professional Qualification Requirements (PQR).
- Measure job satisfaction of National healthcare professionals and develop plans to address any significant areas of discontent
- Further development of local academic programs and international scholarship programs

Growing the National Workforce



>>> Emiratization & Education Needs | Priority Ranking

Low number of National Health Workforce in certain specialties does not necessarily classify those specialties as a high priority or strategic for the sector. However, Emiratization Priorities for Abu Dhabi's Health Workforce has been identified and classified based on multiple factors & criteria, such as:

- Specialization's vitality to the business continuity in the Healthcare Sector of Abu Dhabi
- Specialization's criticality to sustain a vital and critical Healthcare Services in the Sector
- Current limited supply of National Health Workforce in such specializations
- The challenging education programs and the reluctance of Nationals to join
- Current limited or non-existent supply of education programs supporting the demanded specializations



>>> Emiratization & Education Priorities

Physician

Allied Health

Nursing

Critical

- Anesthesia
- Clinical Hematology
- Emergency Medicine
- Critical Care Medicine
- Medical Oncology
- Neonatology
- Neurology
- Neurosurgery
- Obstetrics & Gynecology
- Oral Maxillofacial Surgery

- Orthopedic Surgery
- Otolaryngology
- Pediatrics
- Psychiatry**
- Radiology
- General Surgery
- Urology
- Internal Medicine**
- Vascular Surgery**

High

- Aerospace Medicine**
- Aviation Medicine**
- Anatomic Pathology
- Clinical Pathology
- Cardiology
- Child Neurology**
- Diagnostic Radiology
- Family Medicine**
- Histopathology**
- Immunology
- Laboratory Genetics Genomics**

- Nuclear Medicine
- Occupational Medicine
- Ophthalmology
- Pediatric Surgery**
- Palliative Medicine**
- Physical Medicine and Rehabilitation
- Radiology Medical Physics**

Moderate

- Allergyology
- Cardiac Surgery**
- Clinical Biochemical Genetics**
- Clinical Genetics
- Community Medicine**
- Dermatology
- Dentistry Specialties**
- Endocrinology
- Forensic Medicine
- Gastroenterology**

- Infectious Diseases**
- Interventional Radiology**
- Medical Microbiology Pathology
- Nephrology
- Plastic Surgery
- Pulmonology**
- Radiation Oncology**
- Tropical Medicine**

Critical

- Anesthesia Technology
- Audiology
- Cardiovascular Technology
- Cardiac Perfusion
- Central Sterile Services Technology
- Clinical Pharmacy
- Clinical Psychology
- Medical imaging
- Medical Laboratory Specialties**

- Occupational Therapy
- Optometry**
- Physician Assistant**
- Physiotherapy
- Renal Dialysis
- Respiratory Therapy
- Speech Therapy

High

- Emergency Medical Services
- Electro- Neurodiagnostic Tech.
- Mortuary Technology**
- Genetic Counselling**
- Operation Theatre Tech**

- Podiatry
- Prosthetics and Orthotics Technology
- Radiotherapy Technology
- Nuclear Medicine Technology

Moderate

- Assisted Reproductive Technology (ART)**
- Aesthetician Therapy**
- Dental Clinical Support**
- Clinical Dietetics Nutrition**
- Health Education
- Medical Physicist
- Ophthalmic Technology
- Pharmacy (Pharmacist)
- Psychology

- Public Health**
- Clinical Social Work
- Toxicology

Critical

- Registered Nurse
- Registered Midwife
- Specialty Nurse
- Anesthesia Nurse
- Community Nurse
- Critical Care Nurse
- Dialysis Nurse
- Emergency Nurse
- Home care Nurse

- Infection Control Nurse
- Mental Health Nurse
- Neonatal Nurse
- Oncology Nurse
- Pediatric Nurse

High

- School Nurse

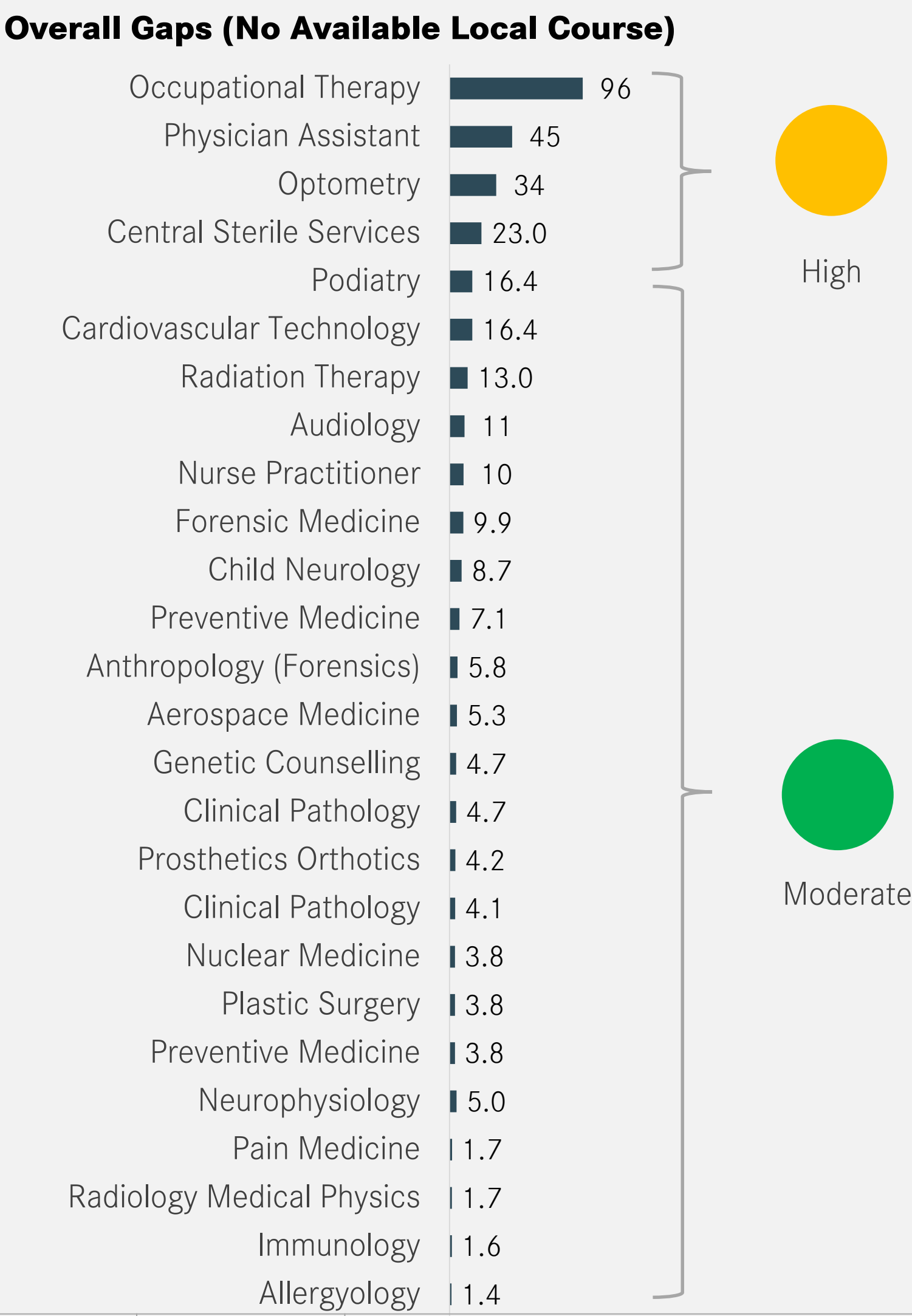
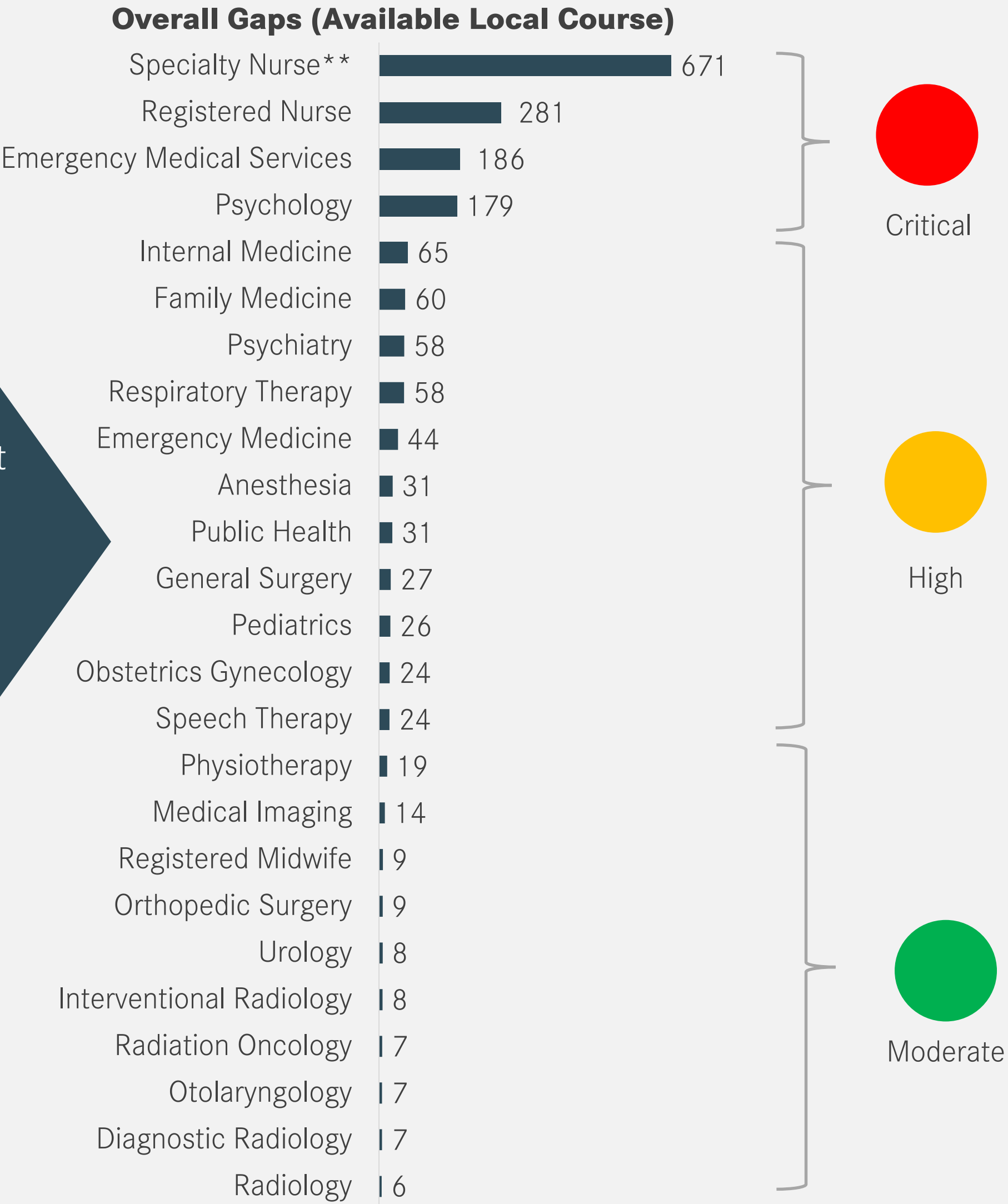
Moderate

- Nurse Practitioner**

Ranking	Definition
●	Highly Critical & Vital Specialty, Severe shortage of National Health Workforce
●	Vital Specialty, High Shortage of National Health Workforce
●	Important Specialty, Medium Shortage of National Health Workforce

>>> Education Needs | Local Education Offerings

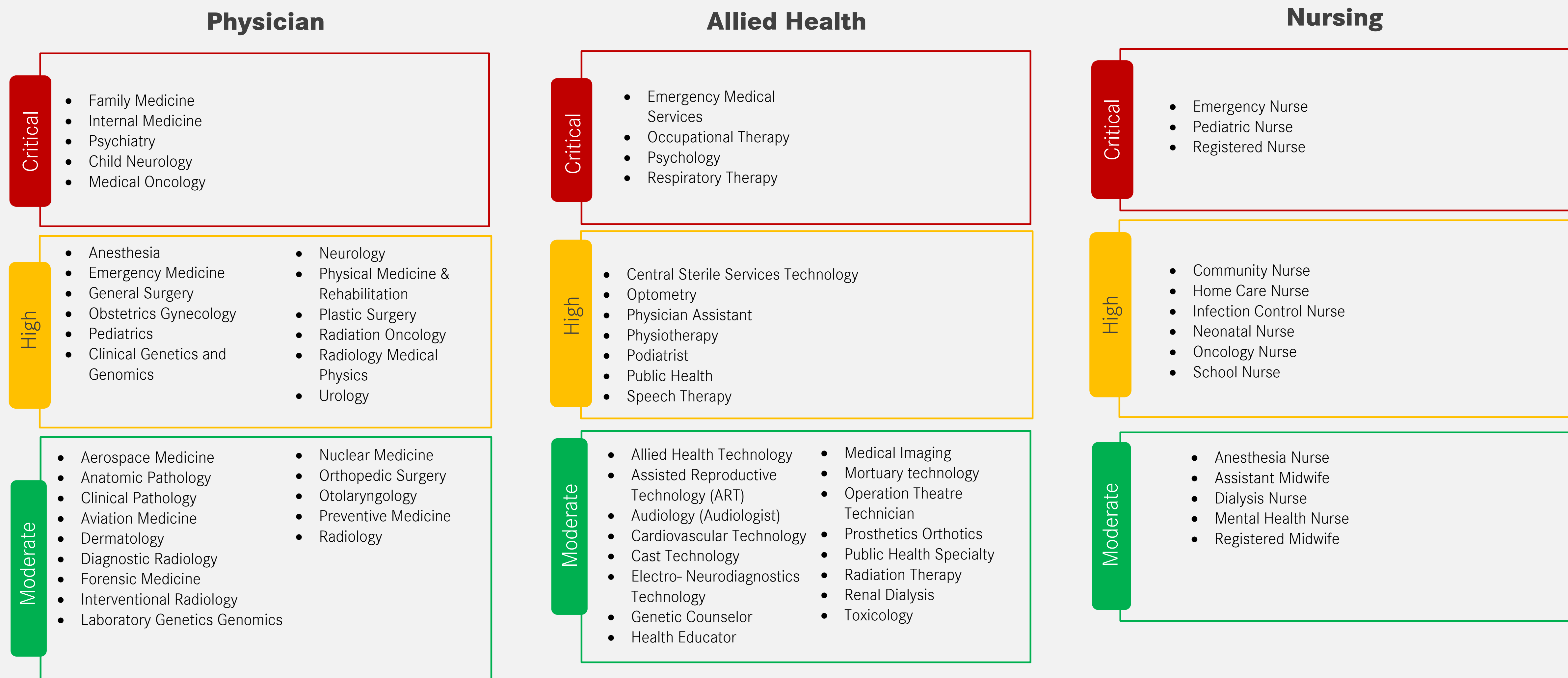
These highlighted priorities of local educations for investment , showing the availability of education programs according to the largest **annual gaps** for all health professionals by 2030



Ranking	Annual Gap	Definition
<div></div>	>100	Highly critical & vital specialty severe shortage of health workforce
<div></div>	20-100	Vital specialty high shortage of health workforce
<div></div>	1-20	Important Specialty, Medium Shortage of National Health Workforce

• Note: Annual Gap 2030 (all) = Gap between projected 2030 Demand and 2030 Supply of all workforce divided by 8 (years)
• ** No all courses are available for specialty nurse

>>> Health Workforce Needs | Overall Health Sector Requirements



Allied Health

Critical

- Emergency Medical Services
- Occupational Therapy
- Psychology
- Respiratory Therapy

High

- Central Sterile Services Technology
- Optometry
- Physician Assistant
- Physiotherapy
- Podiatrist
- Public Health
- Speech Therapy

Moderate

- Allied Health Technology
- Assisted Reproductive Technology (ART)
- Audiology (Audiologist)
- Cardiovascular Technology
- Cast Technology
- Electro- Neurodiagnostics Technology
- Genetic Counselor
- Health Educator
- Medical Imaging
- Mortuary technology
- Operation Theatre Technician
- Prosthetics Orthotics
- Public Health Specialty
- Radiation Therapy
- Renal Dialysis
- Toxicology

Nursing

Critical

- Emergency Nurse
- Pediatric Nurse
- Registered Nurse

High

- Community Nurse
- Home Care Nurse
- Infection Control Nurse
- Neonatal Nurse
- Oncology Nurse
- School Nurse

Moderate

- Anesthesia Nurse
- Assistant Midwife
- Dialysis Nurse
- Mental Health Nurse
- Registered Midwife

Ranking	Definition
●	Highly critical & vital specialty severe shortage of health workforce
●	Vital specialty high shortage of health workforce
●	Important Specialty, Medium Shortage of National Health Workforce

