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Whole of Medical Workforce Supply and Demand Compendium Report

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Medical Practitioners in Australia

While the number of medical practitioners continues to grow, there are still significant challenges associated with geographic maldistribution and an imbalance between the generalist and subspecialist medical workforce.

Australia's medical workforce plays a significant role in providing access to high-quality healthcare for the community. However, inequality of access to medical services remains a key issue for Australians.

To achieve an effective, equitable and sustainable health system, the medical workforce must be geographically well distributed and have the appropriate mix of medical specialties in each location. Currently, there are imbalances in Australia's medical workforce including undersupplied specialties, geographical maldistribution and imbalance between generalist[1] and subspecialist skills. This has impacted the medical workforce's ability to provide sustainable access to high-quality medical care and resulted in workforce issues such as training bottlenecks, underemployment of new consultants and increased reliance on service registrars to manage service delivery.[2]

The medical workforce has evolved significantly over the last two decades. The number of doctors more than doubled between 2003 to 2023, a 58% increase on a population basis. Domestic graduating doctor numbers increased 2.5 times over the period, an 84% increase against population.

However, persistent medical workforce gaps have increasingly been met through international labour recruitment. The supply of international medical graduates (IMGs) providing care for Australian communities tripled between 2003 and 2023, the proportion increasing from 21% to 34% of the total. Annual entry of doctors from overseas is higher than domestic graduate production. In the 2023-24 financial year, 5,717 applications for registration of international medical graduates were approved, as against 3,110 domestic graduates of Australian universities.[2]

The Commonwealth, states and territories, health services, specialist medical colleges, universities and other local planning bodies all play crucial roles within Australia's health system, influencing the medical workforce. In December 2021, Australia released the National Medical Workforce Strategy 2021–31 (the strategy) which seeks to address medical workforce challenges through better planning for the future medical workforce.[3]

This study examines the supply of and demand for medical practitioners, disaggregating them into six categories: interns, registrars, hospital non-specialists, limited and provisional

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[1] A generalist is a medical practitioner who works across the full scope of their discipline rather than in a narrow scope for that specialty.

[2] O'Sullivan B., Russell D., McGrail M. and Scott A, 2019, 'Reviewing reliance on overseas-trained doctors in rural Australia and planning for self-sufficiency: applying 10 years' MABEL evidence', Human Resources for Health, accessed 7 October 2020.

[3] Department of Health, Disability and Ageing, 2021–2031, National Medical Workforce Strategy, accessed 10 January 2025.

registrants, specialists and others. It aims to improve understanding of key workforce challenges and provide a solid evidence-base for future workforce planning and policies on the medical workforce.

Summary

Although the medical workforce is projected to be in balance over the next 25 years, there are significant issues with an imbalance between generalist and specialist workforce and geographic maldistribution.

Results

The study presents long-term projections of supply and demand for medical practitioners, indicating that Australia's medical workforce is likely to remain significantly balanced (±3%) over the next 25 years, with supply expected to reach over 200,000 medical practitioners by 2048, see Figure 1.

- The supply of medical practitioners is expected to increase from 134,234 FTE in 2025 to 171,913 FTE in 2033, with further growth expected to reach 225,751 FTE by 2048. This corresponds to 135,027 medical practitioners in 2025, 174,959 in 2033 and 232,342 in 2048.
- On current settings, the supply of IMGs will increase from 47,801 FTE in 2025 to 88,672 FTE by 2048, representing 42% of the total medical workforce growth over the period. The proportion of IMGs of the total is expected to rise to 38%.
- Demand is projected to increase from 135,745 FTE in 2025 to 171,909 FTE in 2033, reaching 227,490 FTE by 2048.

The key challenge with the Australian medical workforce is that, while estimates suggest that there may be enough medical practitioners, they are not optimally distributed across specialties, sectors, settings and locations to meet the needs of the Australian community. This in turn drives international recruitment.

The projections from this study suggest the following:

- The **Specialist** workforce is expected to be in undersupply of 6,981 FTE specialists (7.3%) by 2033 with this deficit increasing further to 12,812 FTE (9.7%) by 2048.
- The **Registrar** workforce is projected to be in undersupply of 2,398 FTE (9.8%) by 2033, increasing to 3,885 FTE (15%) by 2048.
- The oversupply of **hospital prevocational doctors** is expected to increase significantly over the projection period. The current oversupply of 1,391 FTE (8.7%) in 2025 is projected to increase significantly to 7,867 FTE (28%) in 2033 and to 10,783 FTE (28%) by 2048.
- **Hospital career medical officers (CMOs)** are also projected to increase significantly over the projection period to reach an oversupply of 606 FTE (14%) by 2033, with this surplus expected to rise significantly to 2,116 FTE (31%) by 2048.

The number of medical graduates will increase with the new 140 commencing Commonwealth Supported Places (CSPs) as well as the expansion of 6 (non-CSP)

scholarship places through the Northern Territory Medical Program (NTMP). The estimates suggest that the number of **interns** (FTE) will increase from 3,960 FTE in 2025 to 4,308 in 2033, reaching 4,316 FTE by 2048.

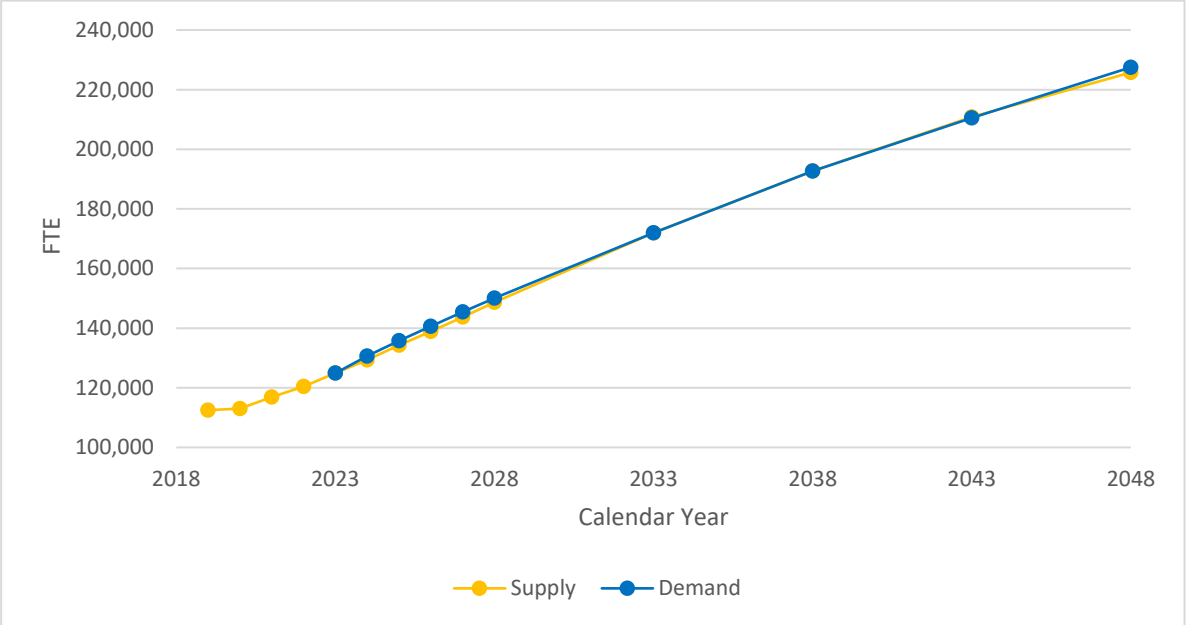
This increase in interns will require increased capacity within the public system to offer internship placements, leading to further growth in the number of prevocational doctors awaiting training positions. This creates bottlenecks in the medical training pipeline, prolonging training periods, increasing job uncertainty among junior doctors and adversely impacting workforce retention.

The significant growth in hospital CMOs, as hospitals strive to meet health service demands, demonstrates the need to ensure adequacy of professional and educational support, as well as strong working conditions of these doctors.

Moreover, there has been a large increase in the number of limited registrant IMGs since 2021, which is further adding to the bottleneck in the hospital prevocational and CMO groups. The supply of **limited and other provisional registrants** is estimated to grow from 9,533 FTE in 2025 to 10,818 FTE in 2033, reaching 11,098 FTE by 2048. Between 2025 and 2048, it is anticipated that IMGs will account for 28% of the growth in prevocational doctor numbers, 50% of the growth in CMO supply and 64% of the growth in registrar numbers.

The study highlights the need for the medical education and training system to strike a balance between addressing service delivery demands and ensuring a steady pipeline of specialists that meets the needs of the Australian community.

Figure 1: FTE National Projections: Supply and demand, 2018–48



Policy implications

The medical workforce plays a crucial role in ensuring the quality, accessibility, effectiveness and sustainability of Australia's health system. The configuration of the medical workforce is also a factor in shaping health expenditure. Having doctors work in the locations, specialties, teams and models of care that best align with evolving community needs will help assure all Australians of access to high-quality healthcare.

While projections of supply and modelled demand indicate that there are likely to be sufficient doctor numbers overall, addressing disparities in geographic and specialty distribution remain vital if affordable, high-quality care is to be accessible to all Australians. The National Medical Workforce Strategy 2021–31 prioritises addressing these disparities by focusing on increasing the number of doctors in rural and remote areas, enhancing generalist skills and supporting the growing cohort of hospital non-specialists who are facing training bottlenecks and career uncertainty, particularly to encourage their transition to areas of critical need.

The study highlights the need for a more flexible and supportive medical system to optimise workforce distribution through education, training, and career support. Collective efforts are essential to prioritise workplace safety and culture, ensuring the retention and attraction of doctors where they are most needed. Although the projected number of doctors is sufficient, retention strategies are crucial as data indicates ongoing attrition.

The complexity of the medical workforce pipeline means no single organisation can solve these issues alone and meaningful change takes time. However, there is a strong commitment from governments and sector stakeholders to progressively improve access to medical care for all Australians.

Governance mechanisms, such as the Health Workforce Taskforce and the Medical Workforce Advisory Collaboration, are advancing initiatives to address these challenges. National efforts include data modelling, specialist medical training and accreditation reform, coordinated junior doctor recruitment, and strengthening the primary care and health workforce. Specific working groups are focused on building generalist capabilities and increasing the capacity for high-quality clinical supervision.

Medical sector stakeholders must collectively commit to implementing the National Medical Workforce Strategy. Joint efforts in national stewardship, governance, leadership and coordination are essential to develop a high-quality, well-distributed and sustainable medical workforce that provides safe and effective healthcare for all Australians.

Workforce Profile

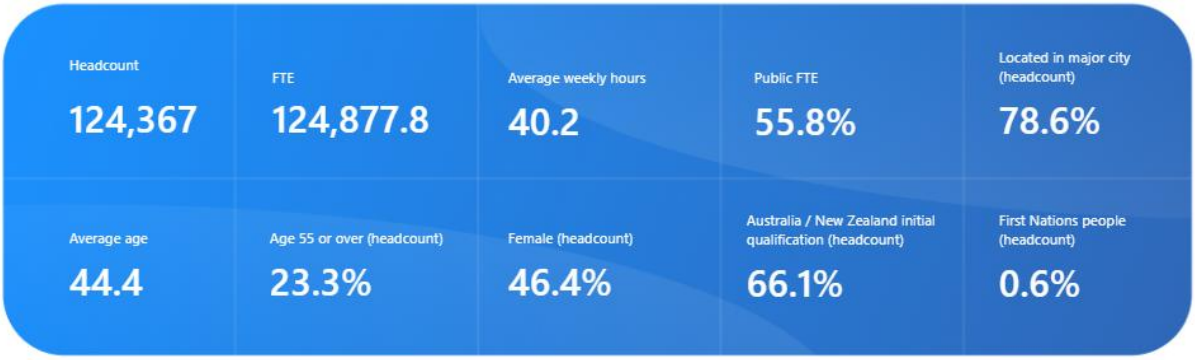
The following section presents a snapshot of the current workforce using the latest available supply data, 2023. It also summaries historical trends observed from 2019–23.

Quick Facts

In 2023, there were:

- 124,367 medical practitioners with average weekly hours of 40.2 that equates to 124,877.8 FTE medical practitioners. Of the 124,877.8 FTE, 82,688.5 were Australian/New Zealand medical graduates, defined as those with an initial medical qualification from Australia or New Zealand. The remaining 42,189.3 FTE were international medical graduates who obtained their initial medical qualification overseas.
- 57,704 female and 66,663 male medical practitioners.

Figure 2: Quick facts on medical workforce, 2023



Practitioner types[4]

Table 1 shows that in 2023:

- There were 75,615 specialists (headcount) accounting for 60.8% of the medical practitioner workforce. The registrars were the second largest group (17.8%), while interns represented the smallest group (3.2%).
- There were 11,068 hospital prevocational medical practitioners, accounting for 8.9% of medical workforce. They worked the longest average hours at 46.8 per week, followed by registrars, who averaged 43.4 hours. As these doctors progress through their training and become specialists, the average weekly hours decline to 38.2 hours.
- Overall, 55.8% of the FTE medical practitioners worked in the public sector. The majority (over 70%) of interns, hospital prevocational, hospital career medical officer (CMO) and

[4] For further details on how each practitioner type is defined, please refer to Appendix B.

registrars were employed in the public sector, while approximately 63% of specialists worked in the private sector.

Table 1: Summary statistics by practitioner type, 2023

Practitioner Type	Headcount	Average weekly hours	FTE	Public FTE (%)	Private FTE (%)
Intern	3,946	39.6	3,902.5	100.0	0.0
Hospital prevocational	11,068	46.8	12,954.6	94.0	6.0
Hospital CMO	2,272	39.8	2,261.0	73.8	26.2
Registrar	22,086	43.4	23,942.2	80.7	19.3
Specialist	75,615	38.2	72,269.1	37.1	62.9
Others	2,678	33.9	2,266.5	21.0	79.0
Limited and other provisional registrant	6,702	43.5	7,281.9	73.3	26.7
Total	**124,367**	**40.2**	**124,877.8**	**55.8**	**44.2**

Workforce Trends and Distribution

Table 2 provides the medical practitioner workforce trends, with key highlights as follows:

- The number of medical practitioners increased from 108,431 in 2019 to 124,367 in 2023 with a Compounded Annual Growth Rate (CAGR) of 3.5% while FTE grew at CAGR of 2.6% over the period, due to a decrease in the average hours worked.
- Overall, the average weekly hours worked decreased slightly from 41.5 in 2019 to 40.2 in 2023, reflecting a 0.8% CAGR decline.
- Over the past 5 years, the proportion of FTE medical practitioners working in the public sector has increased at CARG of 0.9%, while private FTE experienced a 1.1% CAGR decline. This shift is largely driven by the growth in the proportion of FTE hospital CMOs working in the public sector, which rose from 67% in 2019 to 74% in 2023.

Table 2: Workforce trends 2019–23

	2019	2020	2021	2022	2023	CAGR (%)
Headcount	108,431	111,311	115,185	119,523	124,367	3.5
Average weekly hours	41.5	40.6	40.6	40.3	40.2	-0.8
FTE	112,489.9	112,987.5	116,860.9	120,376.4	124,877.8	2.7
Public FTE (%)	53.9	54.5	54.4	55.1	55.8	0.9
Private FTE (%)	46.1	45.5	45.6	44.9	44.2	-1.1

Sex and age profile of medical practitioners

Key highlights from Table 3 are as follows:

- Overall, the proportion of female FTE medical practitioners increased from 40.4% in 2019 to 43.3% in 2023.
- Over the past 5 years, those aged between 30–39 years provided the highest FTE with their contribution increasing slightly from 29.3% in 2019 to 30.8% in 2023. The FTE contribution for all other age groups have remained relatively steady over the period, see Table 3.

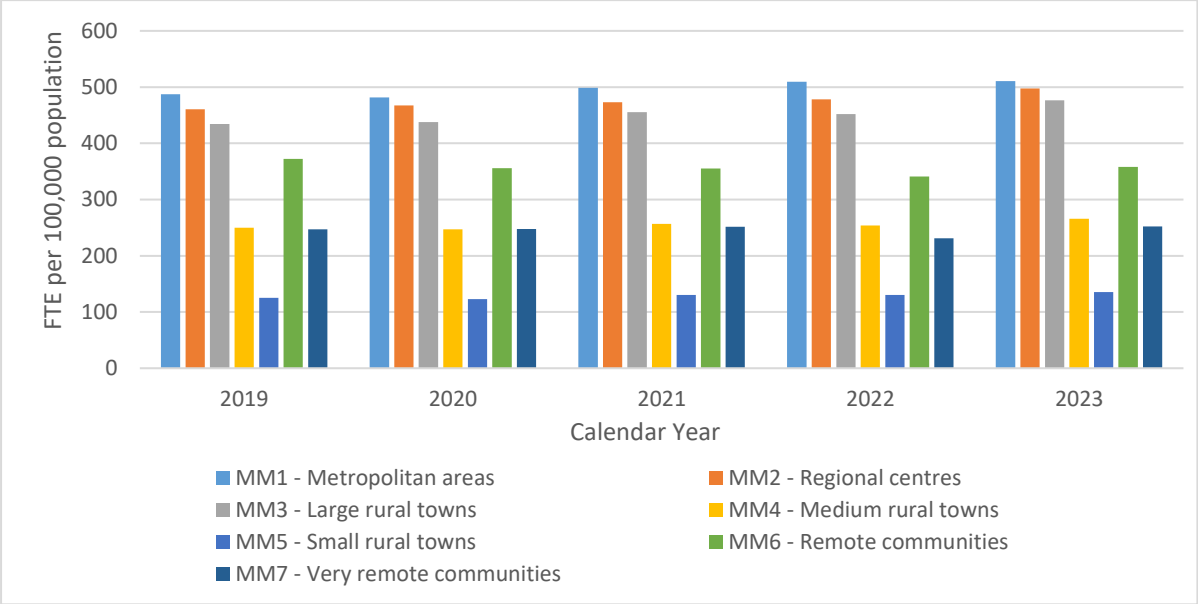
Table 3: FTE by sex and age-groups, 2019 and 2023

	2019			2023		
Age group	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Under 30	7,751.7	8,494.7	16,246.4 (14.4%)	8,119.2	9,591.2	17,710.4 (14.2%)
30–39	16,863.9	16,113.6	32,977.5 (29.3%)	19,350.0	19,122.8	38,472.8 (30.8%)
40–49	16,411.1	10,356.8	26,767.9 (23.8%)	16,947.1	13,095.9	30,043.0 (24.1%)
50–59	13,536.8	6,848.3	20,385.1 (18.1%)	13,747.6	7,805.2	21,552.9 (17.3%)
60–69	9,210.9	3,128.5	12,339.4 (11.0%)	9,293.9	3,736.2	13,030.1 (10.4%)
70+	3,270.8	502.8	3,773.6 (3.4%)	3,361.1	707.5	4,068.6 (3.3%)
Total	**67,045.2**	**45,444.7**	**112,489.9 (100%)**	**70,819.0**	**54,058.8**	**124,877.8 (100%)**

Full-Time Equivalent (FTE) medical practitioners by Modified Monash Model (MMM)

There is maldistribution of medical practitioners between rural and remote areas compared with metropolitan areas. In 2023, the FTE medical practitioners per 100,000 population in metropolitan areas (Modified Monash – Category 1 (MM1)) was 510.5, compared to only 135.5 in small rural towns (MM5), see Figure 3.

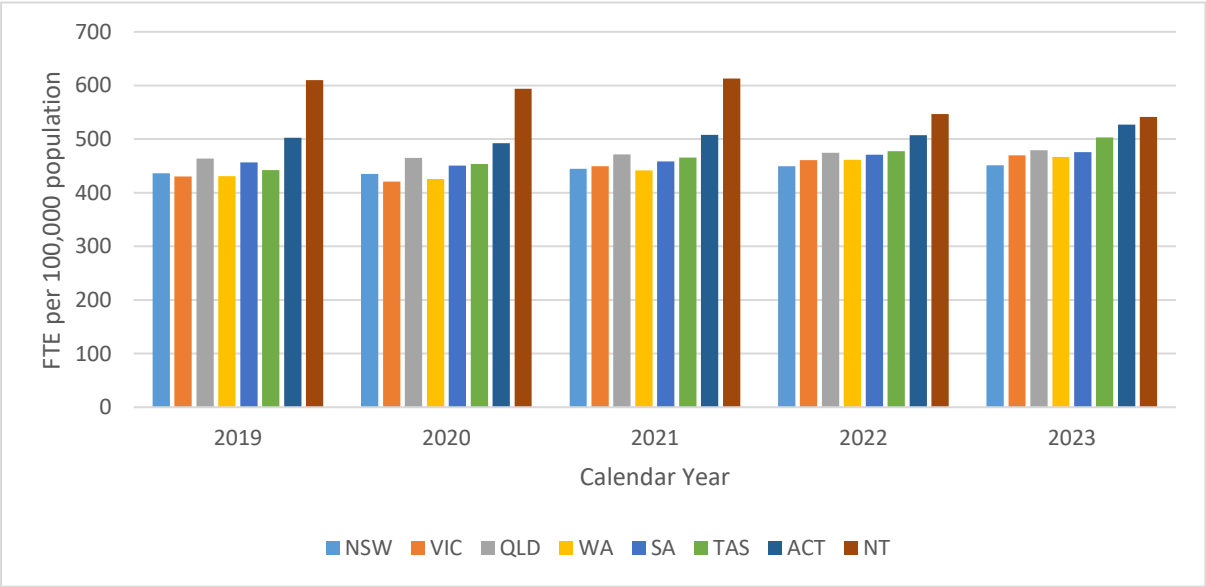
Figure 3: FTE medical practitioners per 100,000 population by Modified Monash Model (2023), 2019–23



Full-Time Equivalent (FTE) medical practitioners by state and territories

In 2023, across jurisdictions, Northern Territory (NT) had the highest FTE medical practitioners per 100,000 population at 541.3, while New South Wales (NSW) had the lowest at 451.4, see Figure 4.

Figure 4: FTE medical practitioners per 100,000 population by states and territories, 2019–23



For more details on trends in FTE and average hours worked by sex, place of initial medical qualification and practitioner type, please refer to the Whole of Medical Workforce Supply Profile Dashboard.

What is supply and demand modelling?

Supply and demand modelling is a tool used to understand how much of something is available (supply) and how much is needed (demand).

Effective health workforce planning is a key instrument for a resilient and sustainable health system. Health workforce modelling provides insights into the current and projected health workforce, playing an integral role in workforce planning to ensure we have the workforce we need and where they are most needed.

This medical supply and demand study provides valuable insights into the medical workforce, helping to identify potential workforce gaps. By quantifying the projected supply and demand for medical practitioners from 2024 to 2048, using data collected from several sources between 2014 and 2023, the study provides important evidence to guide policy decisions on regulating the number of medical students, specialist training places and the distribution of international medical graduates (IMGs) across Australia.

Methodology for the medical supply and demand model

To enable detailed scenario modelling of the whole of medical workforce, a combination of microsimulation and time series regression modelling approaches for supply and demand is used. Microsimulation is a technique for modelling the behaviour of individuals according to predetermined probabilistic rules. Time series regression is a statistical method for predicting future values based on the response history and the influence of relevant predictors.

The Microsimulation approach provides maximum flexibility for adapting the model to different populations and unique supply and demand scenarios. This enhances our understanding of the effects of existing policies and helps identify ways to improve them.

For detailed information on the methodology, refer to the Whole of Medical Workforce Supply and Demand Model – Methodology Paper.

Overview

This study models the supply of and demand for medical practitioners who are currently working clinical hours. For the modelling, medical practitioners are grouped into the following categories:

1. Interns (Australian and New Zealand medical graduates)
2. Hospital prevocational doctors
3. Hospital career medical officers (CMOs)
4. Registrars
5. Specialists

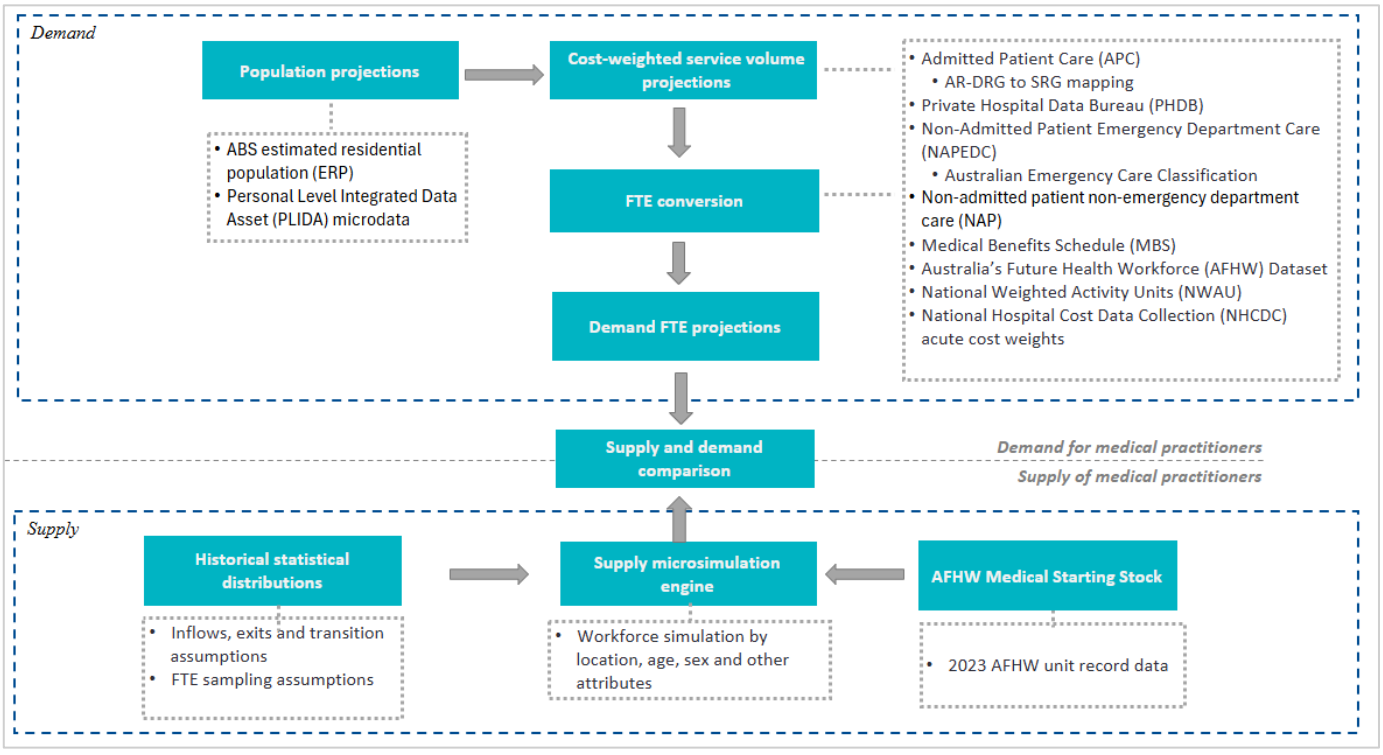
6. Others which include non-specialists working outside of hospitals and Non-Vocationally Recognised General Practitioners (Non-VR GPs)
7. Limited and other provisional registrants.

The Whole of Medical Workforce Supply and Demand Model Methodology Paper provides details on the definition of each of the above seven categories of medical practitioners.

Each of the seven medical practitioner categories are modelled separately and modelling has been undertaken at the Statistical Area 4 (SA4) geography (where data availability permitted). However, results will be published at State and Territory level, with their aggregation forming the National results.

Figure 5 presents a summary of the process used in modelling the whole of medical workforce.

Figure 5: Overview of the modelling process



Supply

The whole of medical supply model uses the Australia's Future Health Workforce (AFHW)[5] data on medical practitioners from 2014 to 2023.

The supply model uses the microsimulation approach where attributes such as entries and exits to the workforce and practitioner FTE are modelled distinctly. The supply methodology begins by identifying the current stock of medical practitioners, analysing their demographic profile and historically observed work patterns. Statistically significant predictors of future medical workforce supply (such as age, sex, etc.) are selected, and their historical distributions are measured to allow the development of a microsimulation model.

The supply model incorporates a **training pipeline analysis** that predicts the number of medical students and graduates from Australian Medical Schools (onshore and offshore) and the number that subsequently transition to interns each year, considering transition rates between each year of study. The training pipeline analysis has included the new 140 commencing Commonwealth Supported Places (CSPs) as well as the expansion of 6 (non-CSP) scholarship places through the Northern Territory Medical Program (NTMP).

Table 4 below shows the projected number of first year medical students and interns over the projection period.[6] The first-year enrolments are assumed to remain constant from 2026 onward assuming no further increases to CSP places.

Table 4: Projected number of medical students (first year) and interns each year, selected years 2024–48

	2024	2025	2026	2027	2028	2029	2030	2035	2040	2045	2048
First year enrolments	3,195	3,265	3,295	3,295	3,295	3,295	3,295	3,295	3,295	3,295	3,295
Interns	3,953	4,004	4,057	4,239	4,329	4,308	4,364	4,364	4,364	4,364	4,364

The supply model for international medical graduates assumes that new IMGs enter the workforce through the provisional registration pathway as recorded by the Australian Health Practitioner Regulation Agency (Ahpra). The 2023 provisional registration count was used as the baseline for estimating inflows. For 2024, an adjustment was applied based on Ahpra

[5] The Australia's Future Health Workforce (AFHW) datasets are created from the National Health Workforce Datasets (NHWDS) for modelling purposes. A sequence of rules (supply criteria) is applied to each NHWDS to determine which practitioners meet the definition of supply for each profession (and sub-groups where applicable). The headcount and workload of these practitioners, along with other variables required for modelling, are included, derived or imputed in the AFHW datasets.

[6] The new commencing places are scheduled to start between 2024 and 2026. However, some universities have deferred their 2024 CSP to 2025, totalling 30 deferred places. No new commencing CSPs are expected beyond 2030.

preliminary registration data and expert assessment, which indicated an increase of approximately 1,194 additional registrations compared to 2023. Consequently, the final inflow of 5,359 each year used in the model was calculated as the 2023 provisional registration figure plus this estimated increase.

Demand

Demand is estimated based on current patterns of observed utilisation of medical services. This method captures expressed (observed) service demand for medical services across a variety of care settings and is specific to each of the practitioner types used in the model. Historical patterns of usage are examined and used to estimate the future demand for medical practitioners, accounting for differences in service demand across specialities, age groups and geographies.

The demand is projected assuming the supply of medical practitioners is equal to the demand in the base year, 2023.This approach does not directly capture the population's need for services, particularly for individuals who require medical care but cannot access it due to factors such as affordability or local availability. The model preserves current patterns of over- and under-utilisation and does not directly account for resource constraints nor changes in technology and models of health care.

The following key data sources are used to capture service utilisation:

1. Medical Benefits Schedule (MBS) data
2. AIHW Admitted Patient Care (APC) NMDS
3. Private Hospital Data Bureau (PHDB)
4. National Non-Admitted Patient Emergency Department Care Database (NNAPEDCD) data
5. National Non-Admitted Patient Database (NNAPD)
6. National Hospital Cost Data Collection (NHCDC)

The number of services or separations alone is not a sufficient metric for comparison, as each require varying levels of resources, particularly in terms of workforce effort. This measure does not consider factors such as the severity of conditions, complexity of procedures, or degree of medical input required.

To address this, services or separations are converted into a more universal metric known as units of demand activity. This metric is weighted to better represent the relative effort required by specialists for each service or separation and allows for a more accurate comparison of resource use within each category.

To compare demand to supply and identify the workforce gap, demand activity projections are converted to FTE medical practitioners by comparing the demand values against the supply FTE from AFHW dataset for a specified reference year (2023). Specifically, the base year supply FTE is divided by the base year demand activity to yield an FTE-to-activity ratio, which is then multiplied by the demand projections for each forecast year.

Demand by practitioner type

Demand activity is first projected for specialist medical practitioners for various care settings (public hospitals, private hospitals, public non-admitted and MBS billings) and attributed to supply FTE reported in the AFHW dataset. The demand FTE for each non-specialist practitioner type is then estimated by applying the ratio of non-specialist FTE to specialist FTE from AFHW dataset (FTE ratio) each year.

The FTE ratios for each of the non-specialist practitioner type are projected based on the historical trends and therefore change over time. These FTE ratios are applied to the specialist medical practitioner FTE projections by year, care setting and provider location.

The demand for 'limited and other provisional registrants' and 'interns' is assumed to be equal to supply. For limited and other provisional registrants, this assumption is due to insufficient workforce data, making it difficult to accurately assess demand. For interns, it is assumed that there is no 'measurable' demand until their ability to work independently has been assessed.

Limitations

- The model forecasts are based on modelling conducted on historical trends in the AFHW dataset. The modelling is therefore limited to only being able to carry forward existing trends in the workforce data. Any changes to models of care and technological improvements in the projection period that may affect workforce FTE in providing medical services is not considered.
- The primary source of supply modelling data, the AFHW, is a longitudinal survey of medical practitioners. The survey has three notable limitations:
    1. all supply FTE/hours are self-reported and therefore subject to measurement errors, response bias, and potential inaccuracies due to memory recall and misinterpretation of questions.
    2. the survey only captures the primary work location of medical practitioners, and
    3. medical practitioners without general registration, such as interns, do not complete the survey and therefore most of their data must be imputed.
- Due to limitations in data availability, the university training pipeline model is based on coarse aggregated data of student enrolments and graduations.
- The model does not account for Primary Health Network (PHN) commissioned health services and the Department of Veteran Affairs funded health services.

Key findings and insights

The main outputs of the whole of medical model are supply and demand projections for each of the seven types of medical practitioners (headcount and FTE).

National projections

Both the supply of and demand for medical practitioners are estimated to increase in the future, with the overall medical workforce expected to remain largely balanced throughout of the projection period. However, notable differences are expected across different types of medical practitioners.

The whole of medical model projections at national level (Table 5 and Figure 6) indicate that:

- The supply of medical practitioners is expected to increase from 134,234 FTE in 2025 to 171,914 in 2033 and further increase to 225,751 FTE by 2048. This corresponds to 135,027 medical practitioners in 2025, 174,959 in 2033 and 232,342 in 2048.
- Demand is projected to increase from 135,745 FTE in 2025 to 171,909 FTE in 2033, reaching 227,490 FTE by 2048.
- The FTE medical workforce is expected to remain largely balanced (± 3.0%) throughout the projection period.[7]
    - The estimates indicate a small current shortfall of 1,511.6 FTE (1.1%) in 2025. However, the medical workforce is expected to shift into slight oversupply between 2033 till 2044 before returning to a modest undersupply from 2045 onward, with a projected shortfall of 1,739.7 FTE (0.8%) by 2048.
    - In terms of headcount, the estimates indicate a slight undersupply throughout the projection period, with a shortfall of 1,749 (1.3%) medical practitioners in 2025, increasing to 3,440 (1.5%) by 2048.
    - Modelling also assumes that high levels of international medical labour recruitment will continue, with IMGs projected to make up 42% of the total growth in medical practitioner supply from 2025 to 2048.

The national supply projections indicate that:

- The national average FTE per medical practitioner is projected to decrease slightly from 0.99 in 2025 to 0.97 in 2048[8].

[7] Throughout this document, the percentage shortage/oversupply is calculated as proportion of the supply.

[8] Average FTE per medical practitioner is calculated by dividing the total FTE by the total headcount of medical practitioner in a given year (i.e. Average FTE = Total FTE ÷ Total headcount).

- The total entry rate (headcount), including re-entries, is expected to decline throughout the projection period, dropping from 9.4% of total supply (headcount) in 2025 to 6.6% in 2048.
- The total exit rate (headcount), including temporary exits, is projected to remain around 5.5% of total supply (headcount) throughout the projection period. Exit rates are expected to remain lower than entry rates, consistent with historical trends.
- Most new entries into the medical workforce consist of interns (around 39% of total new entries) and limited and other provisional registrants (around 56% of total new entries). The key assumptions regarding the number of new entries each year are as follows:
    - The number of new interns is based on the training pipeline analysis (discussed in *Supply* section above).
    - The number of limited and other provisional entrants is assumed to remain constant throughout the projection period. The most recent data from Ahpra is used to determine the number of limited and provisional registrants in 2024 and is kept constant over the projection period.
    - The number of new entries for hospital prevocational doctors, hospital CMOs, Registrars, Specialist and Other groups is held constant at the 2023 level.

Figure 6: FTE Medical practitioners: National supply versus demand, 2018–48

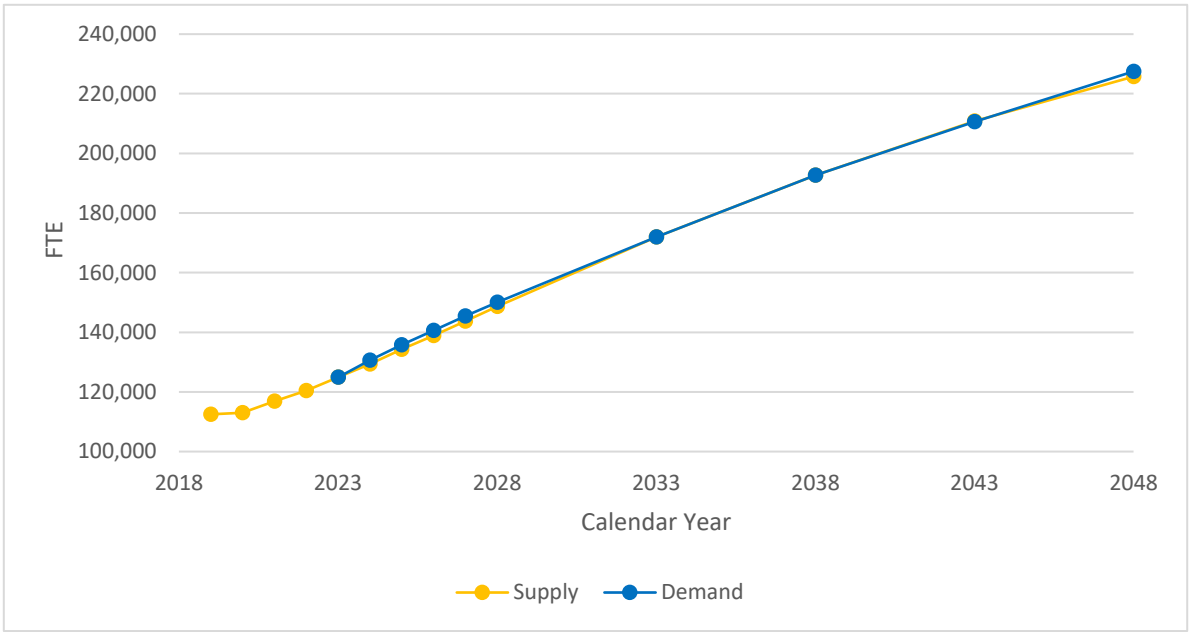


Table 5: National Projections, 2025, 2033 and 2048

Practitioner type	Supply			Demand			Surplus / Shortfall		
	2025	2033	2048	2025	2033	2048	2025	2033	2048
Headcount									
Whole of Medical	**135,027**	**174,959**	**232,342**	**136,776**	**176,164**	**235,783**	**-1,749**	**-1,205**	**-3,440**
Intern	4,004	4,364	4,364	NA	NA	NA	NA	NA	NA
Hospital Prevocational	13,740	24,869	34,062	12,537	17,961	24,449	1,203	6,908	9,613
Hospital CMO	2,555	4,455	6,974	2,631	3,855	4,831	-76	600	2,143
Registrar	22,344	23,378	25,315	22,967	25,666	29,049	-623	-2,288	-3,734
Specialist	80,444	102,936	143,677	82,806	110,403	157,496	-2,362	-7,467	-13,819
Other Medical	2,963	4,645	7,359	2,854	3,603	5,002	109	1,042	2,357
Limited and other provisional	8,976	10,312	10,592	NA	NA	NA	NA	NA	NA
FTE									
Whole of Medical	**134,233.6**	**171,913.7**	**225,750.5**	**135,745.3**	**171908.9**	**227,490.2**	**-1,511.6**	**4.9**	**-1,739.7**
Intern	3,959.4	4,307.5	4,315.6	NA	NA	NA	NA	NA	NA
Hospital Prevocational	15,900.2	28,331.2	38,222.5	14,509.7	20,463.9	27,439.2	1,390.5	7,867.3	10,783.3
Hospital CMO	2,578.0	4,495.5	6,888.3	2,653.4	3,889.2	4,772.0	-75.4	606.4	2,116.2
Registrar	23,847.6	24,353.9	26,227.6	24,517.8	26,751.7	30,112.1	-670.1	-2,397.8	-3,884.5
Specialist	75,887.6	95,563.7	132,584.2	78,138.1	102,544.8	145,395.7	-2,250.5	-6,981.1	-12,811.6
Other Medical	2,528.1	4,044.2	6,414.6	2,434.3	3,134.0	4,357.7	93.9	910.1	2,056.9
Limited and other provisional	9,532.6	10,817.8	11,097.9	NA	NA	NA	NA	NA	NA

NA – Not Applicable.

National trends for medical practitioner type throughout the projection period

Interns and Limited and other provisional registrants

- The demand for interns and limited and other provisional registrants is assumed to match their respective supplies throughout the projection period, see Figures 7 and 8.
- The supply of **interns** is projected to increase from 3,959 FTE in 2025 to 4,308 in 2033, reaching 4,316 FTE by 2048. The average FTE per intern is expected to remain at 1.0 throughout the projection period.
- The supply of **limited and other provisional registrants** is estimated to grow from 9,533 FTE in 2025 to 10,818 FTE in 2033, reaching 11,098 FTE by 2048. The average FTE for this group is projected to decline slightly from 1.1 to 1.0 throughout the projection period.
- Most interns transition to hospital prevocational group in the following year, with the average annual transition rate projected to rise from 74% in 2024 to 79% by 2048.
- The average annual transition rate from intern to hospital CMO group is also projected to rise from 6.3% in 2024 to 11% by 2048.

Figure 7: FTE Intern workforce: National supply, 2018–48

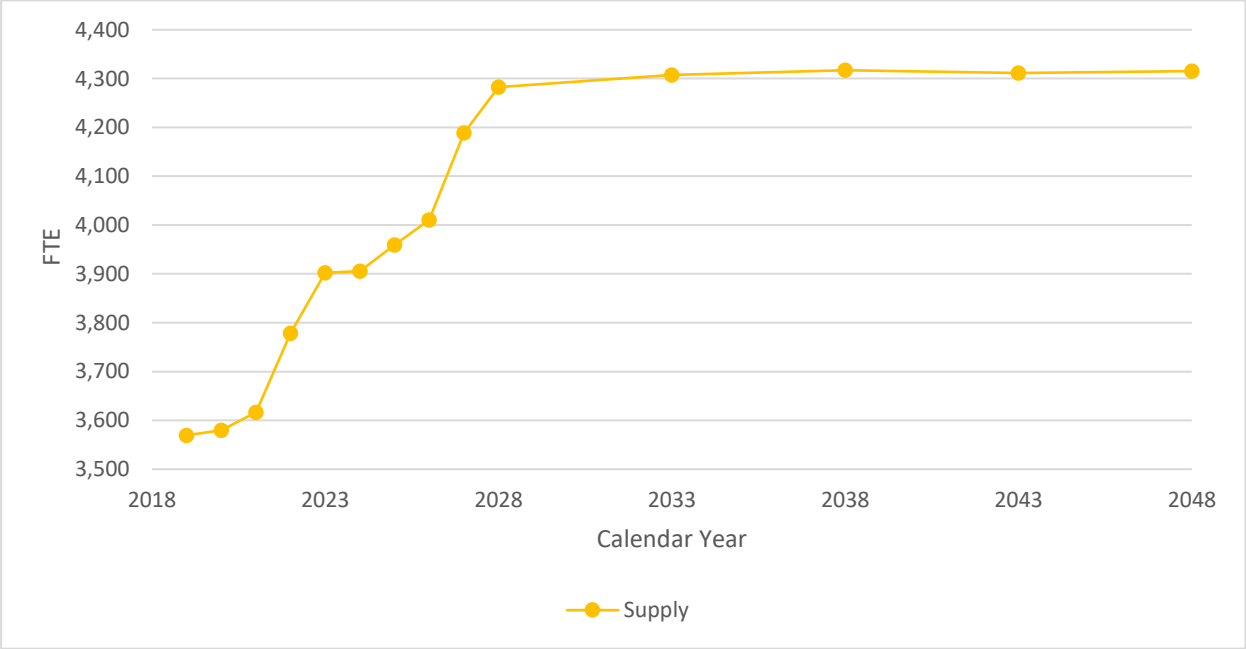
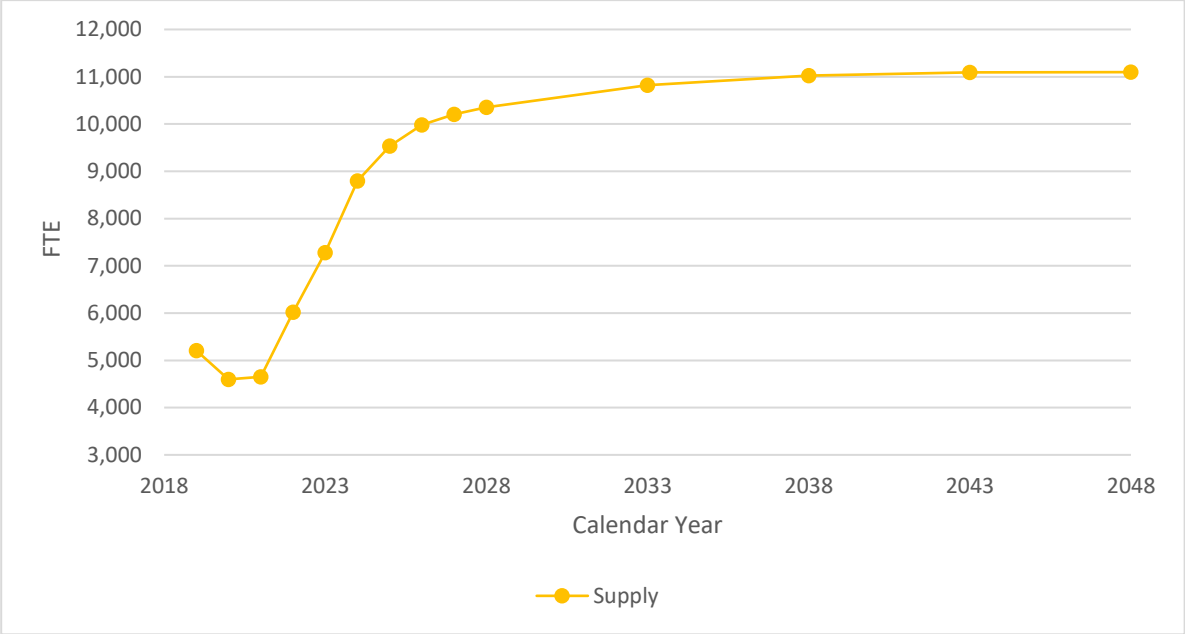


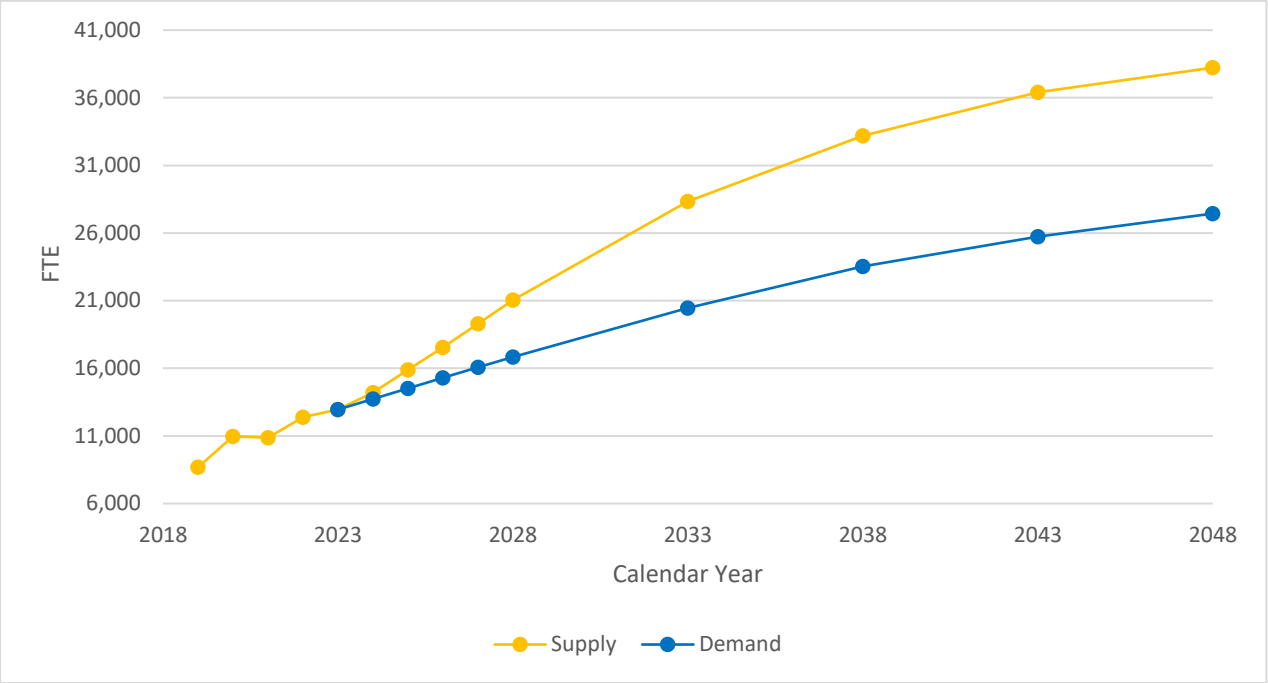
Figure 8: FTE Limited and other provisional registrant workforce: National supply, 2018–48



Hospital prevocational doctors

- The supply of hospital prevocational doctors is estimated to increase from 15,900 FTE in 2025 to 28,331 FTE in 2033, reaching 38,222 FTE by 2048, see Figure 9. The average FTE per hospital prevocational doctor is expected to remain at 1.2 throughout the projection period.
- The demand estimates indicate a current oversupply of 1,390.5 FTE hospital prevocational doctor in 2025, which is projected to increase to 7,867 FTE in 2033 and to 10,783 FTE by 2048. In percentage terms, this represents an 8.7% oversupply in 2025, rising to around 28% in 2033 and remaining at this level through to 2048.
- The average annual transition rate from hospital prevocational group to registrar group is projected to decline from 36% in 2024 to 15% by 2048. This highlights the growing bottleneck to enter specialist training programs.
- The average annual transition rate from hospital prevocational doctor group to hospital CMO group is expected to increase slightly from 3.4% in 2024 to 3.8% by 2048. However, in absolute numbers, the transition is projected to nearly triple, rising from 376 doctors in 2024 to 1,295 by 2048.

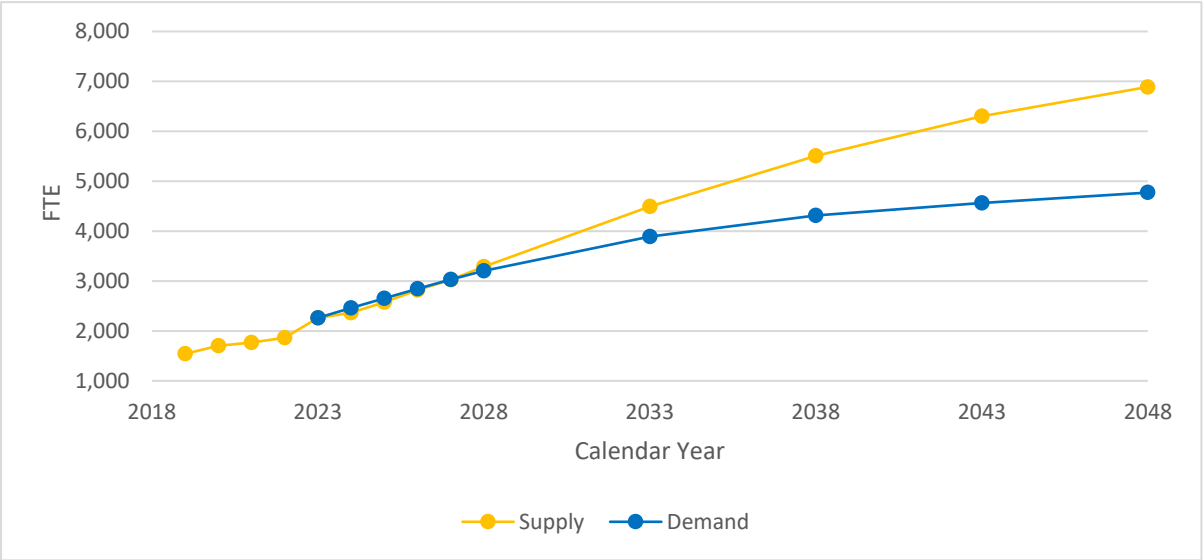
Figure 9: FTE Hospital prevocational workforce: National supply versus demand, 2018–48



Hospital CMOs

- The supply of hospital CMOs is projected to grow from 2,578 FTE in 2025 to 4,496 FTE in 2033, reaching 6,888 FTE by 2048, see Figure 10. The average FTE per hospital CMO is expected to remain steady at approximately 1.0 throughout the projection period.
- The demand estimates suggest FTE hospital CMOs are expected to be balanced (±3%) in 2025. However, projections suggest an oversupply of 606 FTE by 2033, increasing to 2,116 FTE by 2048. In percentage terms, this represents a 14% oversupply by 2033, rising to 31% by 2048.
- The average annual transition rate from hospital CMO to registrar group declines from 9% in 2024 to 3.4% by 2048.
- The average annual transition rate from hospital CMO to hospital prevocational doctor group is expected to remain steady between 18% and 22% throughout the projection period.

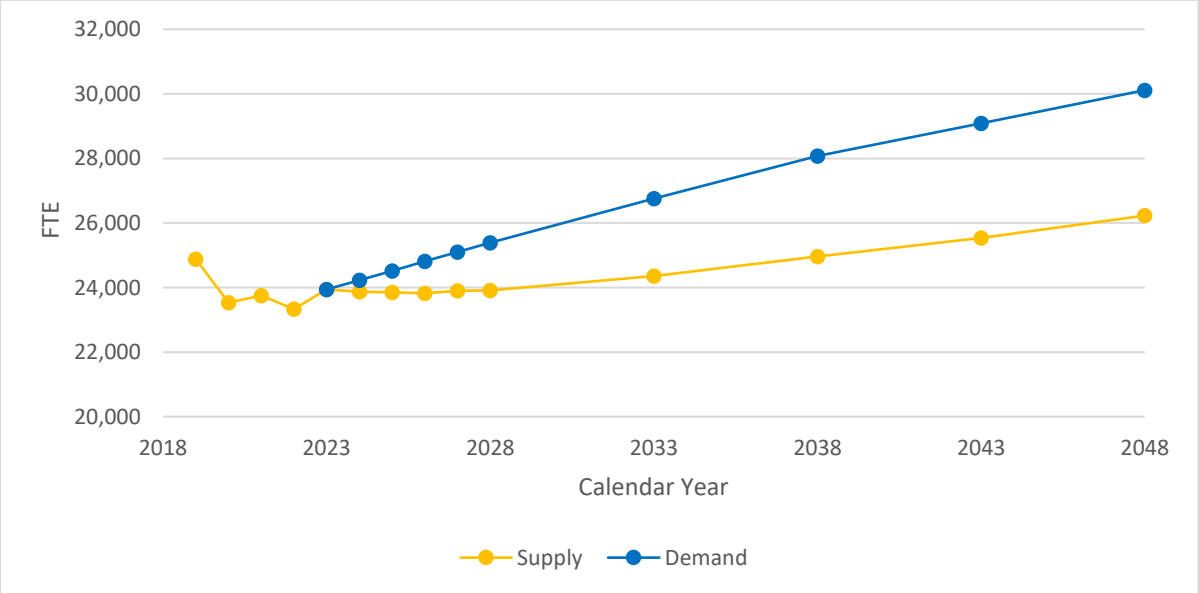
Figure 10: FTE Hospital CMO workforce: National supply versus demand, 2018–48



Registrars

- The supply of registrars is estimated to increase from 23,848 FTE in 2025 to 24,354 FTE in 2033, reaching 26,228 FTE by 2048, see Figure 11. The average FTE per registrar is projected to decrease from 1.1 to 1.0 throughout the projection period.
- The demand estimates suggest FTE registrars are expected to be balanced (±3%) in 2025. However, the registrar workforce is projected to face an undersupply of 2,398 FTE in 2033, increasing to 3,885 FTE by 2048. In percentage terms, this represents a 9.8% shortfall by 2033, rising to 15% by 2048.
- The average annual transition rate from registrar to specialist group is expected to remain steady at approximately 13% throughout the projection period.

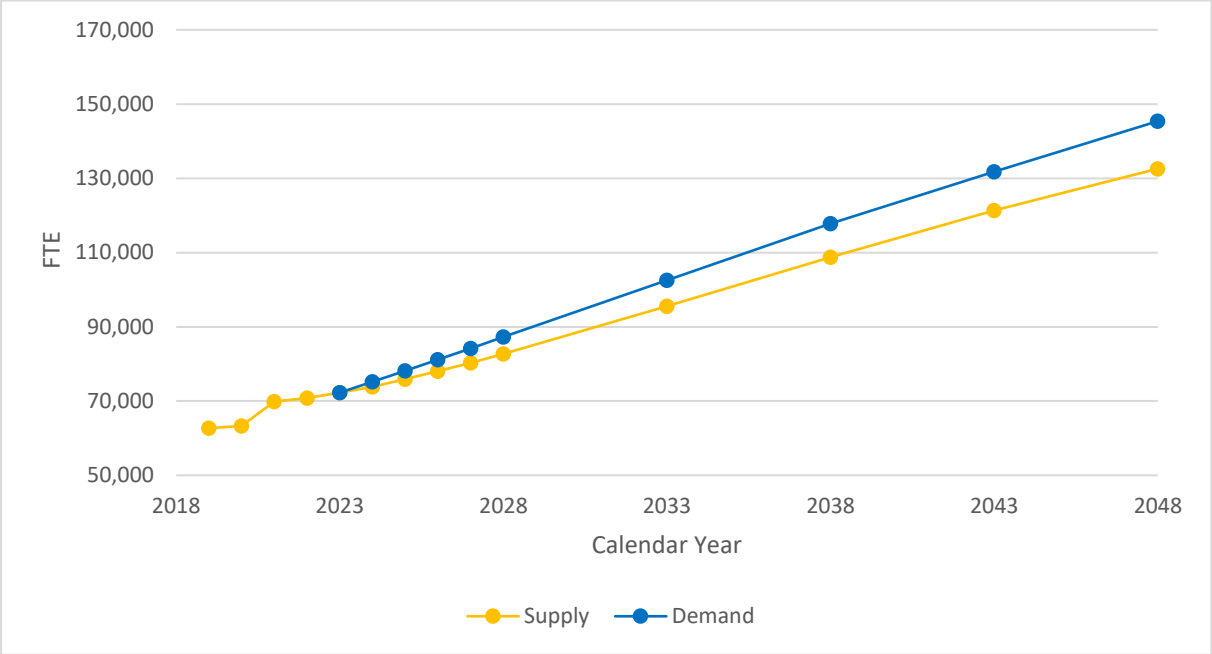
Figure 11: FTE Registrar workforce: National supply versus demand, 2018–48



Specialists

- The supply of specialists is estimated to increase from 75,888 FTE in 2025 to 95,564 FTE in 2033, reaching 132,584 FTE by 2048, see Figure 12. The average FTE per specialist is expected to remain steady at 0.9 throughout the projection period.
- The demand estimates suggest FTE specialists are expected to be balanced (±3%) in 2025. However, specialists are projected to face an undersupply of 6,981 FTE by 2033, with the deficit expected to increase substantially to 12,812 FTE by 2048. In percentage terms, this represents a 7.3% shortfall by 2033, increasing further to 9.7% by 2048.

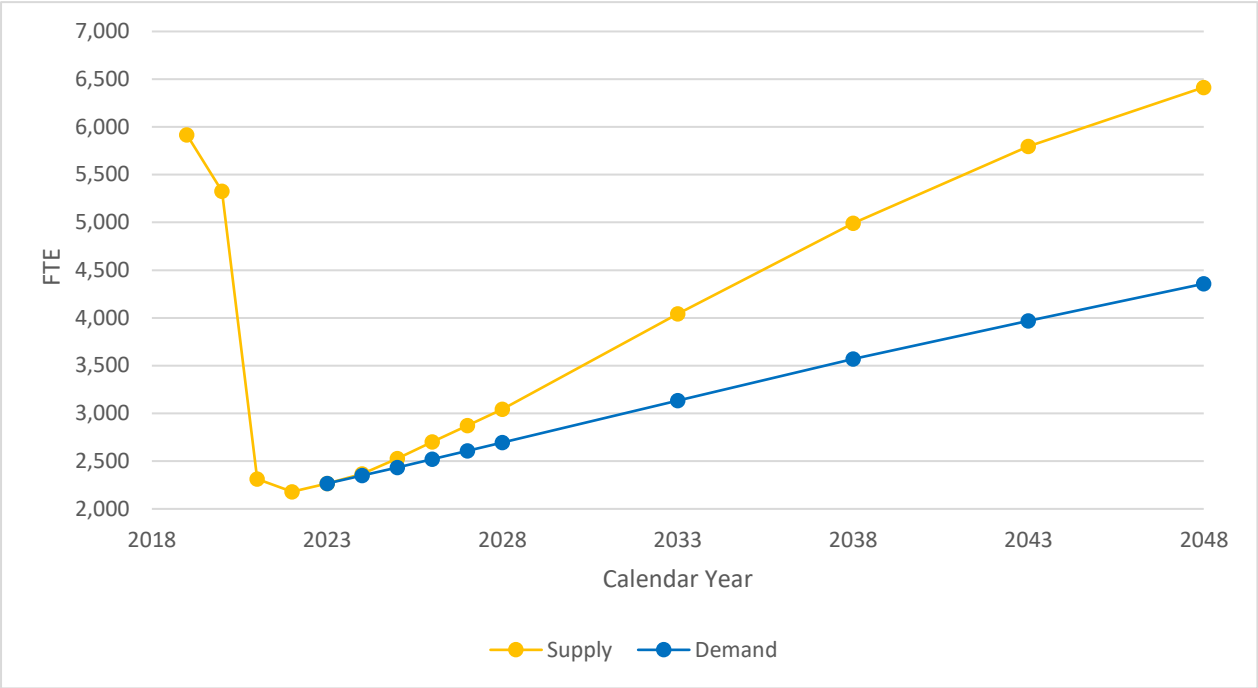
Figure 12: FTE Specialist workforce: National supply versus demand, 2018–48



Others

- The supply of other medical practitioners is estimated to increase from 2,528 FTE in 2025 to 4,044 FTE in 2033, reaching 6,415 FTE by 2048, see Figure 13. The average FTE for this group is expected to remain steady at 0.9 throughout the projection period.
- The demand estimates suggest FTE other practitioners are expected to be balanced (±3%) in 2025. However, they are projected to shift into an oversupply of 910 FTE by 2033 and further increase to 2,057 FTE by 2048. In percentage terms, this represents a 23% oversupply by 2033, rising to 32% by 2048.
- The average annual transition rate from other to registrar group declines from 16% in 2024 to 7.7% by 2048.
- The average annual transition rate from other to hospital prevocational group increases from 6.9% in 2024 to 8.4% by 2048.

Figure 13: FTE Other medical workforce: National supply versus demand, 2018–48



Summary State and Territory Projections

Throughout the projection period (2024 to 2048), most states and territories are expected to maintain a balance or slight oversupply of medical practitioners. However, all will face imbalances in the structure and composition of their medical workforce.

Table 6 presents a summary of state and territory projections for medical practitioners. Detailed results for each state and territory are included in Appendix A.

Table 6: Summary of State-level projections - Projected under/oversupply of FTE medical practitioner types and % under/oversupply, 2025, 2033 and 2048

State/ Territory	Hospital prevocational			Hospital CMO			Registrar			Specialist			Other		
	2025	2033	2048	2025	2033	2048	2025	2033	2048	2025	2033	2048	2025	2033	2048
NSW	610.1 (14.4%)	3,049.7 (39.3%)	4,468.0 (42.5%)	79.2 (9.2%)	439.6 (30.8%)	965.4 (43.5%)	-198.8 (-2.6%)	-188.5 (-2.5%)	180.2 (2.2%)	-753.0 (-3.2%)	-2651.3 (-9.3%)	-4,764.0 (-12.1%)	-1.3 (-0.2%)	167.3 (14.0%)	468.4 (24.6%)
VIC	330.0 (7.7%)	2,194.9 (29.0%)	3,703.9 (35.4%)	13.6 (2.2%)	264.0 (22.5%)	772 (42.9%)	-171.1 (-2.8%)	-1,020.8 (-16.5%)	-2,083.8 (-30.5%)	-747.7 (-3.9%)	-2,509.2 (-10.1%)	-4,751.5 (-13.4%)	34.1 (5.3%)	268.6 (25.1%)	556.7 (32.5%)
QLD	320.3 (9.6%)	1,257.2 (21.7%)	477.8 (6.2%)	-66.6 (-14.3%)	-52.8 (-6.4%)	53.5 (4.3%)	-309.8 (-6.2%)	-939.7 (-18.6%)	-1589.4 (-29.7%)	-430.2 (-2.6%)	-1,452.9 (-7.0%)	-3,552.3 (-12.4%)	25.2 (4.9%)	204.2 (25.1%)	453.0 (35.2%)
SA	80.7 (7.3%)	472.9 (24.7%)	682.5 (27.5%)	-22.7 (-14.0%)	-8.9 (-3.4%)	86.3 (22.1%)	-128.4 (-8.0%)	-457.5 (-28.8%)	-789.3 (-47.7%)	-152.4 (-2.9%)	-274.3 (-4.4%)	16.1 (0.2%)	13.3 (7.7%)	59.3 (24.2%)	134.9 (37.0%)
WA	-75.9 (-3.9%)	274.2 (8.0%)	590.0 (12.9%)	-67.2 (-22.2%)	-60.5 (-11.4%)	109.7 (13.5%)	115.4 (4.9%)	168.9 (7.0%)	285.7 (11.2%)	19.4 (0.2%)	403.0 (3.8%)	976.3 (6.4%)	8.7 (2.9%)	121.5 (23.6%)	283.2 (34.5%)
TAS	51.0 (11.7%)	307.7 (37.4%)	584.9 (53.8%)	-19.3 (-28.5%)	0.3 (0.3%)	82.1 (44.4%)	11.7 (2.2%)	35.9 (6.4%)	70.2 (11.5%)	-104.7 (-6.6%)	-197.9 (-11.1%)	41.6 (1.8%)	4.5 (9.6%)	37.6 (45.0%)	73.3 (59.2%)
NT	31.6 (14.5%)	91.8 (23.2%)	33.6 (6.2%)	9.2 (27.6%)	11.9 (22.5%)	6.8 (9.2%)	13.6 (3.8%)	22.1 (5.8%)	20.1 (4.9%)	-13.8 (-1.9%)	-16.8 (-1.7%)	-151.8 (-10.9%)	0.4 (1.7%)	21.4 (42.1%)	29.5 (42.3%)
ACT	42.6 (12.6%)	218.9 (34.5%)	242.6 (29.4%)	-1.6 (-2.7%)	12.7 (12.2%)	40.5 (25.0%)	-2.6 (-0.6%)	-18.2 (-3.8%)	21.8 (4.1%)	-68 (-4.7%)	-281.7 (-16.4%)	-626.1 (-27.2%)	9.0 (20.7%)	30.3 (39.8%)	57.9 (45.5%)
National	1,390.5 (8.7%)	7,867.3 (27.8%)	10,783.3 (28.2%)	-75.4 (-2.9%)	606.4 (13.5%)	2,116.2 (30.7%)	-670.1 (-2.8%)	-2,397.8 (-9.8%)	-3,884.5 (-14.8%)	-2,250.5 (-3.0%)	-6,981.1 (-7.3%)	-12,811.6 (-9.7%)	93.9 (3.7%)	910.1 (22.5%)	2,056.9 (32.1%)

What do the results indicate?

The study presents long-term projections of supply and demand for medical practitioners, indicating that Australia's medical workforce is likely to remain balanced (±3%) over the next 25 years, with supply expected to exceed 200,000 medical practitioners by 2048.

However, inequitable access to medical services is likely to remain a key issue for Australian communities, due to an imbalance between generalist9 and specialist workforce and the geographic maldistribution of practitioners Under current settings, this is addressed by reliance on international labour recruitment. Acknowledging that IMGs are and will remain important part of the medical workforce, the National Medical Workforce Strategy 2021–31 identified high of levels of IMG dependence as a risk.

The results highlight the issues in Australia's medical workforce training pipeline and structure. Medical practitioners need to be trained for and available to work in the locations, vocations and sectors that are required to meet the needs of the Australian community. The current settings are unlikely to achieve self-sufficiency or fix the leaks in the pipeline (retention) due to limited career prospects.

The increase in medical graduates will drive the need for the public health system to expand intern placements, further growing the pool of prevocational doctors and specialist training opportunities that are aligned to the needs of the health system and community. The projections suggest that the number of hospital prevocational doctors (those with the intention of entering specialist training) are expected to more than double over the next 25 years, reaching an oversupply of about 28% by 2048. On the other hand, the number of registrars (FTE) is expected to grow by only 10% over the same period. It will be important to anticipate training bottlenecks as prevocational doctors wait to secure entry into specialist training and to align growth in training opportunities to priority workforce requirements.

The rate of hospital prevocational doctors transitioning to the registrar group is projected to decline significantly from 52% in 2018 to 33% in 2024 and projections suggest that it may decline further. Delayed progression could extend the duration of medical training, heighten job uncertainty for junior doctors, and impact on wellbeing and workforce retention.

As noted in the National Medical Workforce Strategy, reforming models of care and the deployment of medical workforce is required to optimise the health of all Australians. This includes consideration of issues such as technology, virtual care, remote supervision and the role of other health professionals. In the context of increasing demands upon health service providers, a greater emphasis on the training and deployment of generalists can increase the flexibility and mobility of the medical workforce.

[9] A generalist is a medical practitioner who works across the full scope of their discipline rather than in a narrow scope for that specialty.

Another challenge is the increasing difficulty of the health service provider role, driven by rising demand for services and evolving patient expectations that require a 24/7 service delivery model. As a result, more medical practitioners are needed to cover out-of-hours services. However, strict supervision requirements and set limits around on-call and night duty set by the medical colleges constrain trainee availability. This forces hospitals to rely heavily on hospital prevocational doctors, IMGs and CMOs to meet service demands. The number of hospital CMOs are estimated to increase from 2,578 FTE in 2025 to 6,888 FTE by 2048 - a 167.0% increase. This highlights the issue of professional development, supervision and working conditions of CMOs.

The direction and length of the medical training pathway is changing. Bottlenecks in the medical training pipeline delay the progression of junior doctors through to vocational training and is one of the key issues currently facing the medical workforce. If the training bottlenecks increase, prevocational doctors may be more likely to transition to the hospital CMO group and disengage from further training and medical careers.

While an increase in medical graduate numbers may help address shortages in less popular specialties, it cannot be assumed that workforce growth alone will solve the problem.

The burden and benefit are also not equal across sectors (public vs private) leading to growing concerns around the return on investment to training a specialist in the public system. While most training currently occurs in the public sector, the data shows that although most hospital prevocational doctors (over 80%) and registrars (over 90%) work in the public sector, over 60% of the specialists (FTE) ultimately practice in the private sector. Additionally, there is a notable decline in the average working hours as doctors progress through their training and become specialists. In 2023, hospital prevocational doctors worked the longest average hours at 47 per week. This decreases to 43 hours per week for registrars and further drop to 38 hours per week once they become specialists.

Multiple stakeholders and organisations influence the medical workforce distribution and pipeline. However, fragmented stakeholder interests and workforce planning leads to gaps and distortions in the overall national workforce. Addressing these gaps requires a shared common goal and a concerted and collaborative effort by medical colleges, state and territory governments and the federal government to encourage and support medical graduates to pursue specialities in high demand, particularly in areas of workforce need and the right sectors. Moreover, when exploring solutions to address gaps between supply and demand, it is also essential to consider non-supply factors such as reducing demand, promoting health, ensuring affordability, and improving models of care.

This study provides a strong evidence base to support future reforms in medical education and training, ensuring a sustainable medical workforce that meets community needs while providing all doctors the opportunity to enjoy fulfilling careers.

Consultations

During development of the medical model, the department consulted with the following stakeholders:

- Australian Institute of Health and Welfare
- Australian Medical Association
- State and Territory workforce planners

Next steps

The medical model will be updated every two years with the latest available data across all data sources.

We welcome stakeholder feedback to support the continuous improvement of the model, enhancing its value as a tool for effective health program delivery and workforce planning.

If you require further information regarding the medical model or the results as published contact us at healthworkforcedata@health.gov.au.

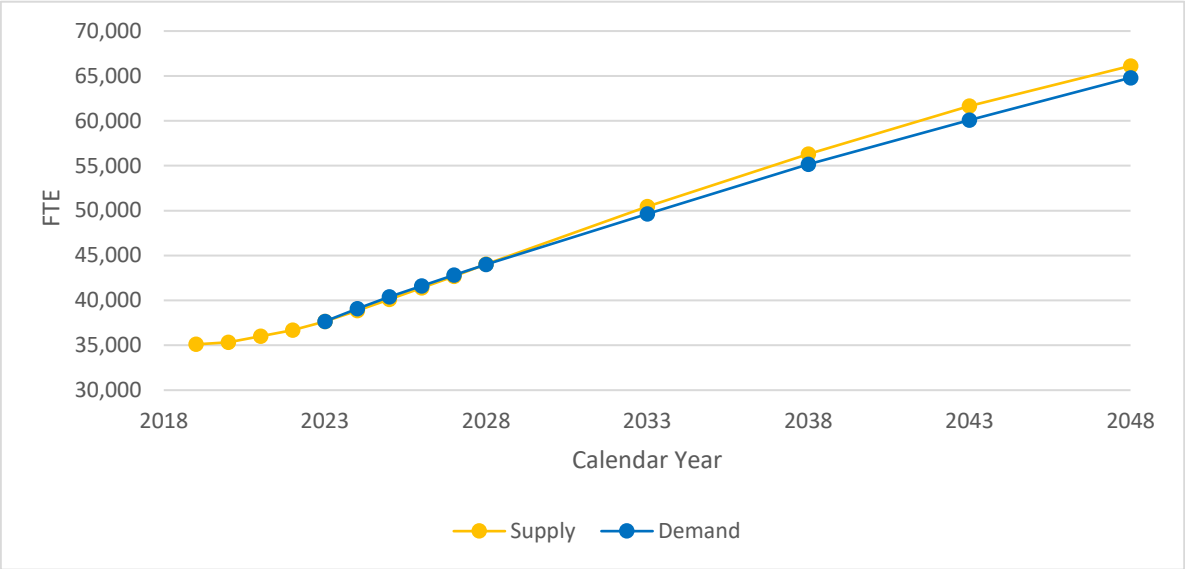
Appendix A: Detailed State and Territory Projections

New South Wales (NSW)

- The supply of medical practitioners in NSW is expected to increase from 40,116 FTE in 2025 to 50,455 FTE in 2033, and further increase to 66,117 FTE by 2048, see Figure 14.
- Overall, the demand estimates suggest that the medical workforce in NSW will likely remain in balance (±3%) for most of the projection period. By 2048, a slight oversupply is expected, amounting to approximately 2.0% of FTE medical practitioners.
- **Interns and Limited and other provisional registrants**:[10] The supply of interns in NSW is expected to increase from 1,164 FTE in 2025 to 1,238 FTE by 2048. Similarly, the supply of limited and other provisional registrants is projected to grow from 2,263 FTE in 2025 to 2,679 FTE by 2048.
- **Hospital prevocational doctors:** NSW is expected to have an oversupply of 610 FTE hospital prevocational doctors in 2025, which is expected to increase significantly to 3,050 FTE by 2033. By 2048, the oversupply is estimated to be 4,468 FTE.
- **Hospital CMOs:** NSW is expected to have an oversupply of 79 FTE hospital CMO in 2025, with this figure expected to increase significantly to 440 FTE by 2033. By 2048, the oversupply is estimated to reach 965 FTE.
- **Registrars:** Registrars in NSW are expected to be in slight undersupply, with the shortfall peaking at 289 FTE in 2029. This trend continues until 2040, after which they are projected to shift to oversupply. By 2048, the registrar workforce is expected to have an oversupply of 180 FTE.
- **Specialists:** NSW is expected to have a shortfall of 753 FTE specialists in 2025, with this deficit projected to increase to 2,651 FTE by 2033. By 2048, the shortage is estimated to reach 4,764 FTE.
- **Others:** Other practitioners in NSW are expected to be in balance in 2025. However, this group is projected to experience an oversupply of 167 FTE by 2033, with the surplus increasing to 468 FTE by 2048.

[10] The supply is assumed to be equal to demand for these two groups.

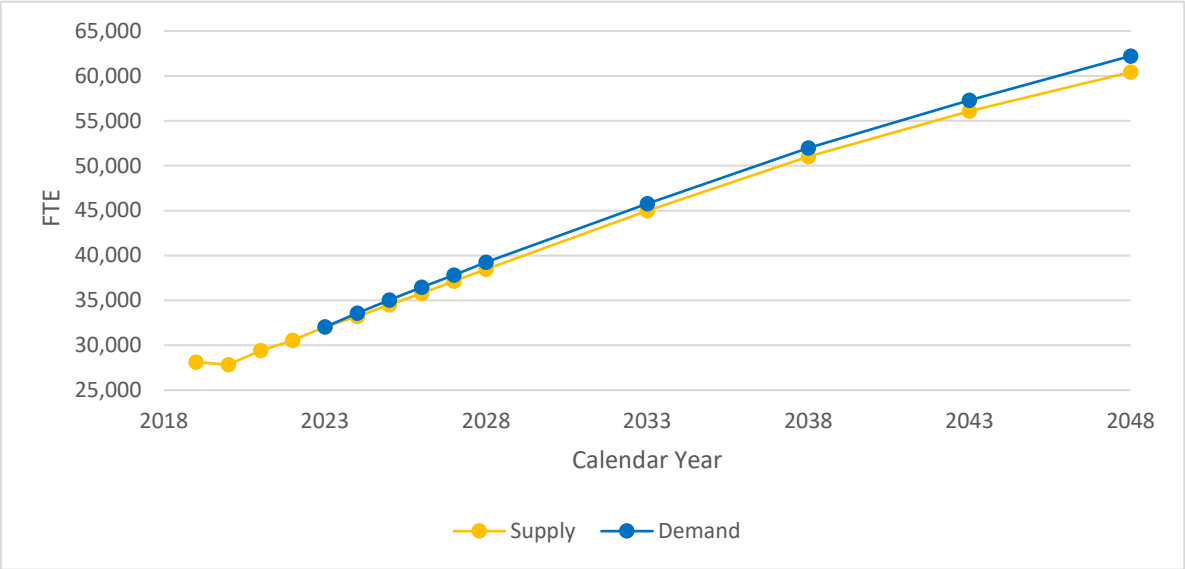
Figure 14: FTE Medical Practitioners: NSW supply versus demand, 2018–48



Victoria (VIC)

- The supply of medical practitioners in VIC is expected to increase from 34,495 FTE in 2025 to 44,980 FTE in 2033, and further increase to 60,419 FTE by 2048, see Figure 15.
- Overall, the demand estimates suggest that the medical workforce in VIC will likely remain in balance (±3%) for most of the projection period. By 2048, a slight undersupply of 3.0% of FTE medical practitioners is expected.
- **Interns and Limited and other provisional registrants**: The supply of interns in VIC is expected to increase from 941 FTE in 2025 to 1,028 FTE by 2048. Similarly, the supply of limited and other provisional registrants is projected to grow from 2,681 FTE in 2025 to 3,124 FTE by 2048.
- **Hospital prevocational doctors:** VIC is expected to have an oversupply of 330 FTE hospital prevocational doctors in 2025, with this figure expected to increase significantly to 2,195 FTE by 2033. By 2048, the oversupply is estimated to reach 3,704 FTE.
- **Hospital CMOs:** Hospital CMOs in VIC are expected to remain in balance (±3%) until 2027. However, by 2048, an oversupply of 772 FTE is projected.
- **Registrars:** Registrars in VIC are expected to be in balance in 2025, but a shift toward undersupply is projected, leading to a shortfall of 1,021 FTE by 2033. By 2048, the shortage is expected to reach 2,084 FTE.
- **Specialists:** VIC is expected to have a shortfall of 748 FTE specialists in 2025, with this shortage projected to increase to 2,509 FTE by 2033. By 2048, the shortage is estimated to reach 4,752 FTE.
- **Others:** Other practitioners in VIC are expected to have an oversupply of 34 FTE in 2025, with this surplus expected to increase to 267 FTE by 2033 and to 557 FTE by 2048.

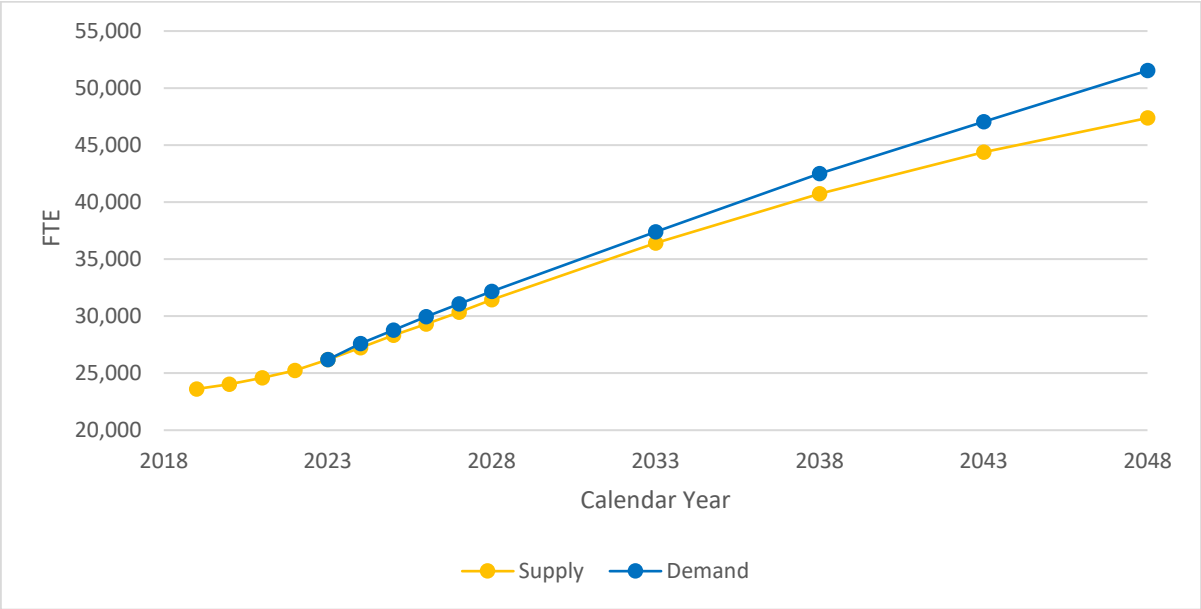
Figure 15: FTE Medical Practitioners: VIC supply versus demand, 2018–48



Queensland (QLD)

- The supply of medical practitioners in QLD is expected to increase from 28,323 FTE in 2025 to 36,410 FTE in 2033, and further increase to 47,374 FTE by 2048, see Figure 16.
- Overall, the demand estimates suggest that the medical workforce in QLD is likely to be in undersupply for most of the projection period. By 2048, a shortage of 8.8% of FTE medical practitioners is expected.
- **Interns and Limited and other provisional registrants**: The supply of interns in QLD is expected to increase from 888 FTE in 2025 to 996 FTE by 2048. Similarly, the supply of limited and other provisional registrants is projected to grow from 1,816 FTE in 2025 to 2,123 FTE by 2048.
- **Hospital prevocational doctors:** QLD is expected to have an oversupply of 320 FTE hospital prevocational doctors in 2025, with this figure expected to increase significantly to 1,257 FTE by 2033. By 2048, the surplus is estimated to decline to 478 FTE.
- **Hospital CMOs:** QLD is expected to have a shortfall of 67 FTE hospital CMOs in 2025, with this deficit expected to decline to 53 FTE by 2033. From 2040 onward, hospital CMOs are expected to shift to a slight oversupply, reaching a surplus of 54 FTE by 2048.
- **Registrars:** QLD is expected to face a shortfall of 310 FTE registrars in 2025, with this deficit expected to grow significantly to 940 FTE by 2033. By 2048, the shortage is expected to reach 1,589 FTE.
- **Specialists:** Specialists in QLD are expected to be in balance in 2025, but this is expected to shift to undersupply to reach a shortfall of 1,453 FTE by 2033 and further increase to 3,552 FTE by 2048.
- **Others:** QLD is expected to have an oversupply of 25 FTE other practitioners in 2025, with this surplus expected to increase to 204 FTE by 2033 and further increase to 453 FTE by 2048.

Figure 16: FTE Medical Practitioners: QLD supply versus demand, 2018–48

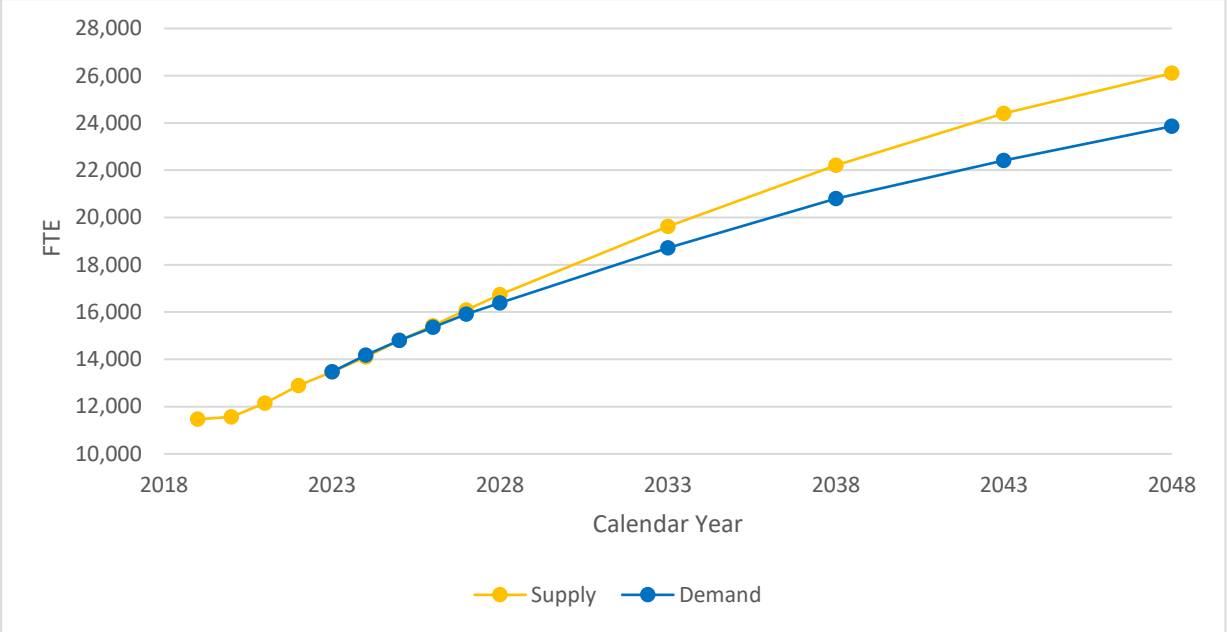


Western Australia (WA)

- The supply of medical practitioners in WA is expected to increase from 14,797 FTE in 2025 to 19,624 FTE in 2033, and further increase to 26,105 FTE by 2048, see Figure 17.
- Overall, the demand estimates suggest that the medical workforce in WA will likely be in oversupply for most of the projection period. By 2048, the oversupply is projected to reach 8.6% FTE medical practitioners.
- **Interns and Limited and other provisional registrants**: The supply of interns in WA is expected to increase from 411 FTE in 2025 to 441.3 FTE by 2048. Similarly, the supply of limited and other provisional registrants is projected to grow from 1,523 FTE in 2025 to 1,723 FTE by 2048.
- **Hospital prevocational doctors:** WA is expected to face a slight shortfall of 76 FTE hospital prevocational doctors in 2025. However, this is expected to shift to an oversupply of 274 FTE by 2033 with the surplus increasing to 590 FTE by 2048.
- **Hospital CMOs:** WA is expected to have a shortfall of 67 FTE hospital CMOs in 2025, with this deficit expected to shift to 61 FTE by 2033. From 2039 onward, hospital CMOs are expected to shift to oversupply, reaching 110 FTE by 2048.
- **Registrars:** WA is expected to have an oversupply of 115 FTE registrars in 2025, with this surplus expected to increase to 169 FTE by 2033. By 2048, the oversupply is expected to reach 285.7 FTE.
- **Specialists:** Specialists in WA are expected to be in balance in 2025. However, this group is expected to shift to an oversupply of 403 FTE by 2033, with the surplus increasing to 976 FTE by 2048.

- **Others:** Other practitioners in WA are expected to be in balance in 2025. However, this group is projected to experience an oversupply of 122 FTE by 2033, with this surplus increasing to 283 FTE by 2048.

Figure 17: FTE Medical Practitioners: WA supply versus demand, 2018–48

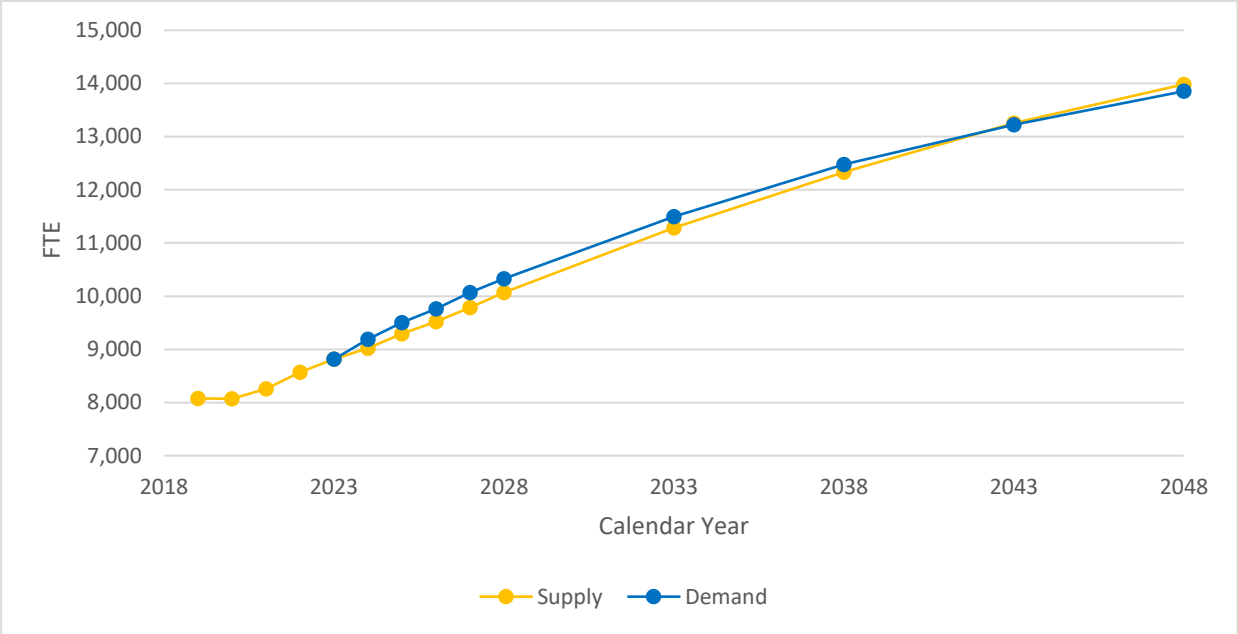


South Australia (SA)

- The supply of medical practitioners in SA is expected to increase from 9,296 FTE in 2025 to 11,287 FTE in 2033, and further increase to 13,984 FTE by 2048, see Figure 18.
- Overall, the demand estimates suggest that the medical workforce in SA will likely remain in balance (±3%) for most of the projection period. By 2048, the oversupply is projected to reach 0.9% of FTE medical practitioners.
- **Interns and Limited and other provisional registrants**: The supply of interns in SA is expected to increase from 310 FTE in 2025 to 333 FTE by 2048. Similarly, the supply of limited and other provisional registrants is projected to grow from 662 FTE in 2025 to 762 FTE by 2048.
- **Hospital prevocational doctors:** SA is expected to have a surplus of 81 FTE hospital prevocational doctors in 2025, with this figure expected to increase significantly to 473 FTE by 2033. By 2048, the surplus is estimated to reach 682.5 FTE.
- **Hospital CMOs:** SA is expected to have a shortfall of 23 FTE hospital CMOs in 2025, with this deficit expected to decline to 9 FTE by 2033. From 2034 onward, hospital CMOs are expected to shift to oversupply, reaching 86 FTE by 2048.
- **Registrars:** SA is expected to have a shortfall of 128 FTE registrars in 2025, with this deficit expected to increase significantly to 458 FTE by 2033. By 2048, the shortage is expected to reach 789 FTE.

- **Specialists:** Specialists in SA are expected to be in balance in 2025. However, this is expected to shift to an undersupply with a shortfall of 274 FTE by 2033. The shortage is anticipated to decline in subsequent years and return to balance by 2048. This trend is driven by a change in the average FTE per practitioner, which is currently declining but expected to stabilise. As a result, the overall FTE growth rate for specialists will increase, eventually closing the demand gap.
- **Others:** SA is expected to have an oversupply of 13 FTE other practitioners in 2025. However, this group is projected to grow to 59 FTE by 2033, with this surplus expected to increase to 135 FTE.

Figure 18: FTE Medical Practitioners: SA supply versus demand, 2018–48

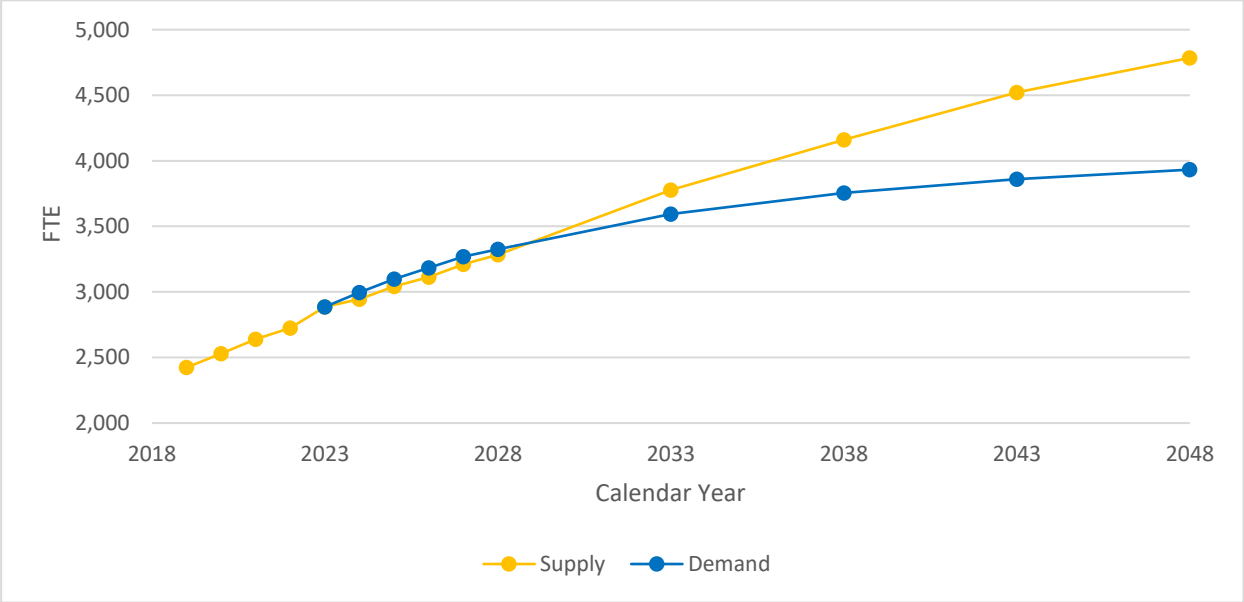


Tasmania (TAS)

- The supply of medical practitioners in TAS is expected to increase from 3,042 FTE in 2025 to 3,776 FTE in 2033, and further increase to 4,785 FTE by 2048, see Figure 19.
- Overall, the demand estimates suggest that the medical workforce in TAS will likely be in oversupply for most of the projection period. By 2048, the oversupply is projected to reach 17.8% of FTE medical practitioners.
- **Interns and Limited and other provisional registrants**: The supply of interns in TAS is expected to increase from 98 FTE in 2025 to 108 FTE by 2048. Similarly, the supply of limited and other provisional registrants is projected to grow from 280 FTE in 2025 to 323 FTE by 2048.
- **Hospital prevocational doctors:** TAS is expected to have an oversupply of 51 FTE hospital prevocational doctors in 2025, with this figure expected to increase significantly to 308 FTE by 2033. By 2048, the surplus is estimated to reach 585 FTE.

- **Hospital CMOs:** TAS is expected to have a shortfall of 19 FTE hospital CMOs in 2025, with this deficit expected to decline to 5 FTE by 2032. From 2033 onward, hospital CMOs are expected to shift to oversupply, reaching 82 FTE by 2048.
- **Registrars:** Registrars in TAS are expected to be in balance in 2025 but projected to grow to a surplus of 36 FTE by 2033. By 2048, the oversupply is expected to reach 70 FTE.
- **Specialists:** TAS is expected to have a shortfall of 105 FTE specialists in 2025, with this deficit expected to peak at 212 FTE in 2032. By 2048, specialists are expected to be in balance.
- **Others:** TAS is expected to have an oversupply of 5 FTE other practitioners in 2025, with this surplus expected to increase to 38 FTE by 2033 and further increase to 73 FTE by 2048.

Figure 19: FTE Medical Practitioners: TAS supply versus demand, 2018–48

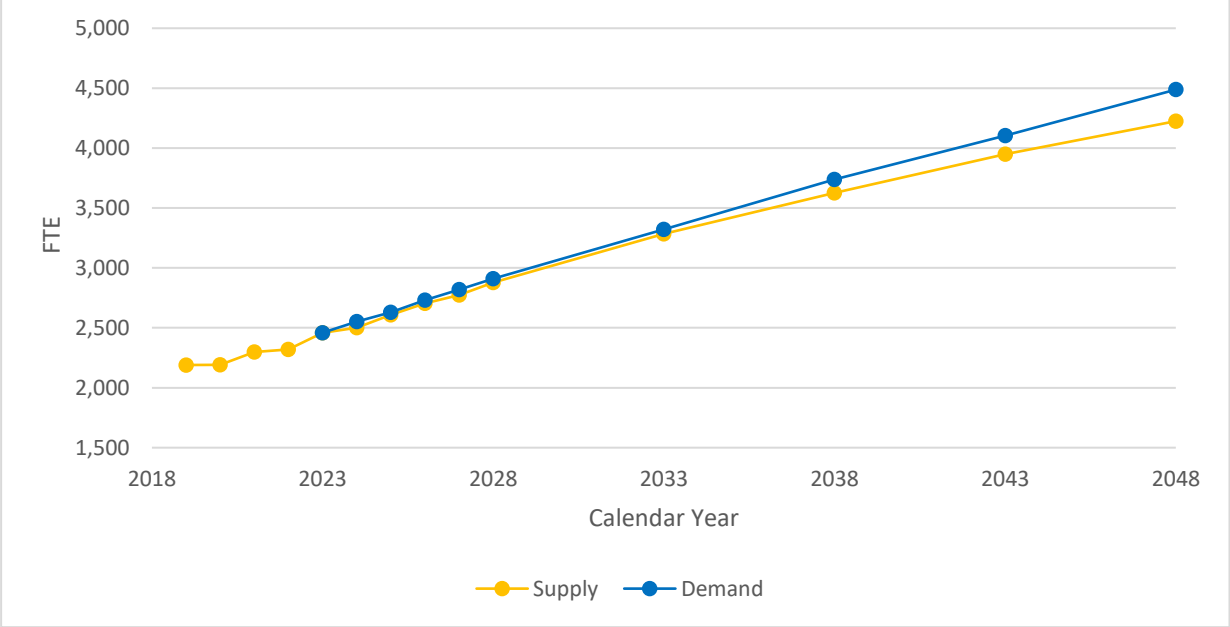


Australian Capital Territory (ACT)

- The supply of medical practitioners in the ACT is expected to increase from 2,608 FTE in 2025 to 3,283 FTE in 2033, and further grow to 4,225 FTE by 2048, see Figure 20.
- Overall, the demand estimates suggest that the medical workforce in the ACT is likely to be in a slight undersupply for most of the projection period. By 2048, the undersupply is projected to reach 6.2% of FTE medical practitioners.
- **Interns and Limited and other provisional registrants**: The supply of interns in the ACT is expected to increase from 96 FTE in 2025 to 112 FTE by 2048. Similarly, the supply of limited and other provisional registrants is projected to grow from 151 FTE in 2025 to 168 FTE by 2048.

- **Hospital prevocational doctors:** The ACT is expected to have an oversupply of 43 FTE hospital prevocational doctors in 2025 which is expected to increase significantly to 219 FTE by 2033. By 2048, the surplus is estimated to reach 243 FTE.
- **Hospital CMOs:** Hospital CMOs in the ACT are expected to be in balance in 2025. However, this group is expected to shift to oversupply of 13 FTE by 2033, reaching 41 FTE by 2048.
- **Registrars:** Registrars in the ACT are expected to be in balance in 2025. However, this group is expected to shift to undersupply of 18 FTE by 2033. From 2042 onward, the trend is expected to reverse, with an oversupply reaching 22 FTE by 2048.
- **Specialists:** The ACT is expected to have a shortfall of 68 FTE specialists in 2025, with this deficit expected to increase to 282 FTE in 2033. By 2048, the shortage of specialists is expected to increase significantly to 626 FTE.
- **Others:** The ACT is expected to have an oversupply of 9 FTE other practitioners in 2025, with this surplus projected to increase to 30 FTE by 2033 and further to 58 FTE.

Figure 20: FTE Medical Practitioners: ACT supply versus demand, 2018–48



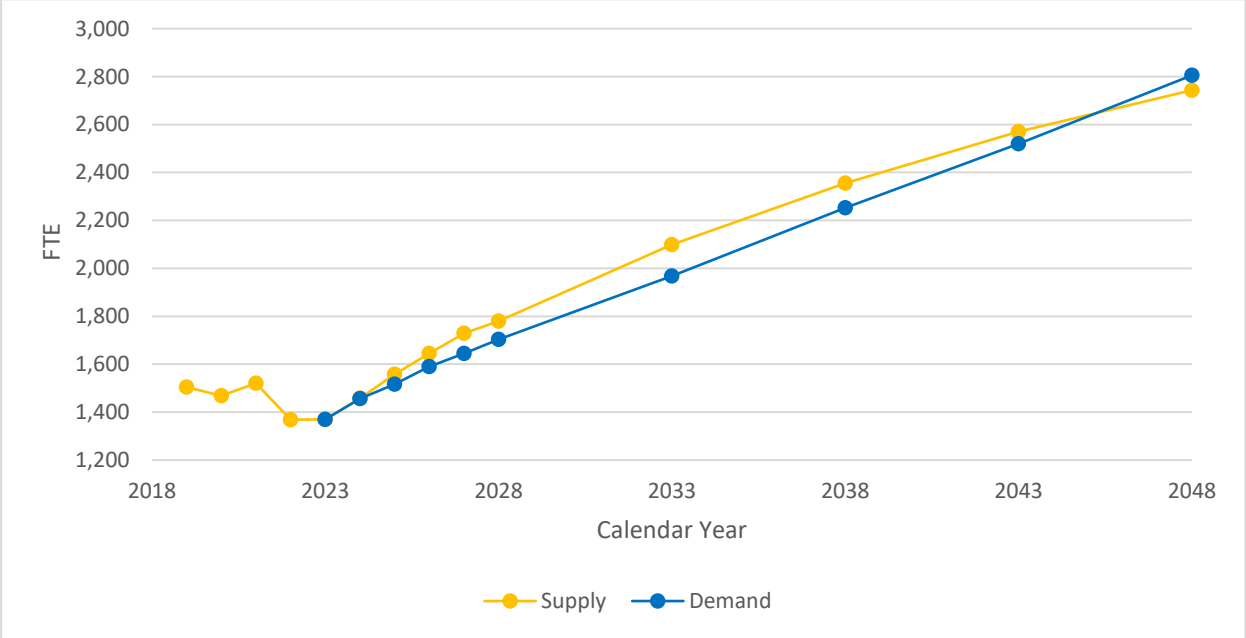
Northern Territory (NT)

- The supply of medical practitioners in the NT is expected to increase from 1,558 FTE in 2025 to 2,099 FTE in 2033, and further increase to 2,743 FTE by 2048, see Figure 21.
- Overall, the demand estimates suggest that the medical workforce in the NT will be in slight oversupply for most of the projection period. However, from 2046 onward, a slight undersupply is expected, with a projected shortfall of 2.3% of FTE medical practitioners.
- **Interns and Limited and other provisional registrants**: The supply of interns in the NT is expected to increase from 52 FTE in 2025 to 60 FTE by 2048. Similarly, the supply of

limited and other provisional registrants is projected to grow from 157 FTE in 2025 to 197 FTE by 2048.

- **Hospital prevocational doctors:** The NT is expected to have an oversupply of 32 FTE hospital prevocational doctors in 2025 which is expected to increase to 92 FTE by 2033. By 2048, the surplus is estimated to decline to 34 FTE.
- **Hospital CMOs:** The NT is expected to have an oversupply of 9 FTE hospital CMOs in 2025, with this surplus expected to increase to 12 FTE by 2033. However, by 2048, the surplus is estimated to decline to 7 FTE.
- **Registrars:** The NT is expected to have an oversupply of 14 FTE registrars in 2025, with this surplus expected to increase to 22 FTE by 2033. By 2048, registrar oversupply is estimated to decline to 20 FTE.
- **Specialists:** Specialists in the NT are expected to be in balance in 2025. However, this group is expected to shift to undersupply reaching a shortfall of 17 FTE by 2033. By 2048, specialist undersupply is expected to increase significantly to 152 FTE.
- **Others:** Other practitioners in the NT are expected to be in balance in 2025. However, this group is expected to shift to an oversupply of 21 FTE by 2033. By 2048, the surplus is expected to increase to 30 FTE.

Figure 21: FTE Medical Practitioners: NT supply versus demand, 2018–48



Appendix B: Medical Practitioner Types

The following criteria determines which group the total medical workforce supply is allocated. Note that once a medical practitioner is classified as part of the medical workforce 'supply', they are counted once within that group, and all their working hours (and FTE) allocated to it.

#	Medical Practitioner Type	Criteria
1	Interns	○ Provisional registration AND; ○ Initial medical qualifications from an Australian or New Zealand medical school; - Includes graduates from Australian Medical Council (AMC) accredited offshore universities (such as Monash Malaysia).
2	Hospital prevocational doctors	○ General registration and does not have a registered specialty AND; ○ Main job area is 'Hospital non-specialist' OR Main job setting is 'Hospital' OR 'Outpatient' AND; ○ Not classified as a specialist AND; ○ Not classified as a registrar ○ Have intension to enter specialty training ○ If specialty training intentions are unknown, then those whose hospital position was not Career Medical Officer (CMO) or similar.
3	Hospital Career Medical Officers (CMOs)	○ General registration and does not have a registered specialty AND; ○ Main job area is 'Hospital non-specialist' OR Main job setting is 'Hospital' OR 'Outpatient' AND; ○ Not classified as a specialist AND; ○ Not classified as a registrar ○ No intension of entering specialty training - If specialty training intentions are unknown, then those who had hospital position as CMO or similar.
4	Registrars	○ General or Specialist registration AND; ○ GP trainee is 'yes' OR Main job area is 'Specialist-in-training' OR Hospital position is 'Registrar – accredited' AND; ○ Not classified as a specialist (in any specialty). Note this group includes practitioners with specialist registration who do not work clinical hours but are

		currently training in another specialty. If they have clinical hours, then they are classified as a specialist).
5	Specialists	○ Specialist registration OR classified as a 'supply specialist' for modelling perspective AND; ○ Has an accredited specialty.
6	Other	○ All remaining medical practitioners who meet the initial criteria for inclusion in supply model. ○ Note this group includes non-specialists working outside of hospitals and non-vocationally registered GPs.
7	Limited and other provisional (non-intern) registrants	○ Provisional registration AND initial medical qualification from a medical school outside Australia or New Zealand. ○ Limited registration and employed. Note, this group includes International Medical Graduates (IMGs) who are undertaking their internship in Australia and all other IMGs/Specialist International Medical Graduates (SIMGs) who have not yet progressed to general or specialist registration.

Appendix C: Case studies

Northern Territory Case Study

The Northern Territory (NT), a large territory in central northern Australia, is the least populous of the country's eight states and territories. It has the highest proportion of Aboriginal and Torres Strait Islander peoples relative to its total population (31.0%) and nearly all its land areas is classified as remote (MM6) or very remote (MM7). The burden of disease for Indigenous people is higher in the NT than elsewhere in Australia, and their health outcomes are poorer. Life expectancy at birth is lower in the NT than in all other states and territories.[11,12] These geographic and demographic factors present significant challenges in the provision of appropriate health services.

The NT faces significant challenges in attracting and retaining medical professionals, which adversely affects continuity of care, an essential factor in delivering effective healthcare, especially in rural and remote areas.

The NT's vast geography and widely dispersed population create unique challenges in meeting national standards and benchmarks. To maintain safe and effective health delivery, the region requires a higher level of medical and health workforce compared to other parts of Australia. Unlike major cities where multiple providers operate, remote clinics in the NT are typically managed by either an Aboriginal medical service or the NT government. In many cases, these clinics serve as the sole healthcare provider for their communities, delivering a full spectrum of care including health promotion, preventative care, primary health care, acute and emergency care, rehabilitation and palliative care.

Therefore, the conventional population density approach (ratio of health workers to population) used nationally for health workforce planning may not be suitable for the NT. This method is likely to underestimate the workforce needed due to the region's unique geographic and demographic challenges.

A 2024 study by the NT government examined the region's health workforce needs based on population healthcare demands, measured by the burden of disease and injury.[13] The study found a 22.0% shortfall in the health workforce relative to the burden of disease and injury between 2014–2018, indicating that the existing workforce was insufficient to meet the NT's needs for health protection, health care and overall population health maintenance. Additionally, evidence suggests

[11] Zhao Y., Li SQ., Wilson T., Burgess CP., Improved life expectancy for Indigenous and non-Indigenous people in the Northern Territory, 1999–2018: overall and by underlying cause of death, *Med J Aust* 2022; 217: 30-35, accessed 15 March 2025.

[12] Australian Bureau of Statistics, 2020-2022, Life expectancy: statistics about life tables and life expectancy at birth estimates for Australia, states and territories and sub-state regions, 8 Nov 2023, accessed 11 September 2024.

[13] Northern Territory Government, 2014-2038, Health Workforce Assessment and Planning Models: Assessing Burden of Disease and Injury for Health Workforce Needs in the Northern Territory, 2014-2038, accessed 18 March 2025.

that despite its greater remoteness and health needs, the NT has received the lowest per capita funding from MBS and PBS.[14]

Therefore, the findings from this study which are based on the observed utilisation of medical services and the conventional FTE-to-service assessment, should be interpreted with caution. Given the NT's unique geography and population demographics, it is unlikely that conventional supply and demand modelling techniques can adequately capture the level and type of medical workforce needed to address its specific disease burden and healthcare demands.

Western Australia Case Study

Western Australia (WA) spans the entire western third of the country, covering approximately 2.5 million kilometres square, making it the largest health system in the world by geographic area. The state provides healthcare to a population of 2.7 million residents across this vast region. The WA Country Health Services (WACHS) delivers a broad range of health services to more than 560,000 country residents, including over 60,000 Aboriginal and Torres Strait Islander peoples.[15]

Given WA's geographic and demographic characteristics, the clinical service and medical workforce models differ somewhat from those in other jurisdictions, as well as from the models employed by tertiary care and major training centres within WA, particularly in the Perth metropolitan area. Consequently, the junior medical workforce is predominately concentrated in this region. This metro-centric medical training model presents unique challenges when considering the expansion of specialist training positions, as it does not align with the workforce needs of the broader, more dispersed community.

Therefore, WA faces growing workforce shortages and relies heavily on visiting medical officers and locum doctors to service WACHS. There is also a significant reliance on specialist IMGs to complement the local workforce. Additionally, WA's junior medical workforce is heavily supplemented by overseas trained junior doctors (approximately 400 per year), who are often employed on short-term contracts aimed at attracting those seeking international experience. However, this reliance contributes to high attrition rates, as a considerable proportion of these junior doctors do not remain in WA for the full year. These factors result in seasonal fluctuations in both workforce supply and service demand, which may not be fully captured by the supply and demand modelling method used in this study.

As a result, the findings from this study which are based on the annual medical registration data and observed utilisation of medical services using yearly demand data, should be interpreted with caution. Given WA's unique geography and population demographics, it is unlikely that

[14] Zhao Y., Wakerman J., Zhang X., Wright J., VanBruggen M., Nasir R., Duckett S., Burgess P., 2022, Remoteness, models of primary care and inequity: Medicare under-expenditure in the Northern Territory. Aust Health Rev. 2022 Jun;46(3):302-308, Australian Health Review, accessed 15 March 2025.

[15] Government of Western Australia, WA Country Health Service - Overview, 2025, accessed 19 March 2025.

conventional supply and demand modelling techniques can adequately capture the level and type of medical workforce needed to address the state's specific workforce challenges and healthcare needs.

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All information in this publication is correct as at June 2026