



The general practitioner workforce: why the neglect must end



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EXECUTIVE SUMMARY

Health and healthcare are significant priorities for government and the public. Spending on health services and goods represents approximately 10 per cent (\$202.5 billion in 2019–20) of Australia’s economic activity. This level of expenditure warrants continuous assessment of policy settings to ensure public expenditure on healthcare is achieving the best health outcomes possible for all Australians.

The continuing underinvestment and lack of reform in general practice increases overall health expenditure, reduces access and quality of healthcare, and widens the gap in poor health outcomes for vulnerable communities (e.g. people living in rural and remote locations, socio-economically disadvantaged communities, and Aboriginal and Torres Strait Islander people).

This research report provides a review of the contemporary literature and publicly available data to understand the role of general practice in primary care and profiles the current policy context to identify the opportunities for meaningful reform. The report also explores and quantifies the key drivers and outcomes in the variance between the demand and supply of the general practitioner (GP) workforce, to understand the scale of the GP workforce supply shortfall. The analysis demonstrates that the demand for GP services (measured by minutes of MBS items) has increased by approximately 10,200 GP full time equivalents (FTE) over the ten years from 2009 to 2019, resulting in total increase of 58.4 per cent or a compound annual growth rate of 4.7 per cent. **The demand for GP services is driven by population growth (1.6 per cent), ageing (0.2 per cent), increase in number of visits per person (1.7 per cent) and complexity — increased duration of GP consults (1.2 per cent).**^{1,2,3} The increase in the number of visits per person and complexity of GP services seen over the last decade is a response to the increasing prevalence of chronic diseases and comorbidities in the Australian population.⁴

While demand for GP services has increased, the supply of services has not kept pace. This research report estimates that there will be an undersupply of around 10,600 GP FTEs by 2031–32, if GP training places continue to remain unfilled, and the rate of retirement and attrition from the profession escalates, which is not an unlikely scenario.^{5,6,7,8,9,10,11,12,13,14} Further modelling will be required however to estimate the number of Australian and overseas trained GPs required to meet the projected GP FTE shortfall over the next decade, to account for the increasing trend towards GPs working reduced hours due to socio-cultural and demographic changes among general practitioners. Western Australian Department of Health modelling in 2015–16 found that 2.1 Australian-trained general practitioners were required for every 1 Full Service Equivalent (FSE) of clinical practice.¹⁵

The projected considerable shortfall in GP supply has been reported to be due to underlying factors such as:

- negative perceptions and decreasing prestige of general practice among medical students
- limited opportunities to experience and gain skills in general practice in medical school and pre-vocational training which leads to a lack of interest in GP training programs
- general practice training not being prioritised in medical school over prerequisite pre-vocational training rotations such as paediatricsⁱ
- disparity in remuneration between GP registrars compared to their hospital counterparts and inadequate Medicare rebates for general practice (attributed to a lack of training and funding reform and years of no or low MBS indexation)
- ineffectual leave conditions for GP trainees
- inflexibility of general practice training.^{16,17,18,19}

ⁱ Based on feedback from industry experts.

Issues such as training employment conditions, the status and perception of general practice and remuneration through MBS funding arrangements must be addressed to have any chance of increasing the number of GP trainee applications and intake, while ensuring training and fellowship standards are maintained. A systems approach is required to resolve the significant GP workforce issues effectively and efficiently. Strategies to address the projected GP FTE shortfall therefore requires a focus on the full continuum of the GP workforce from first year medical education to prevocational, vocational training, and fellowship.

Evidence also suggests that GP-led team based primary care is the most effective model of primary care as it puts patients and continuity of care at the centre and enables all health professionals to practice to the top of their clinical scope. It also provides GPs with the time and capacity to undertake tasks that only they are trained to perform, such as diagnosis, treatment and overall medical management of the patient. The coordinated involvement of teams in patient care is an essential feature of high performing primary care.^{20,21,22}

In addition to the broader GP workforce issues, the rural general practice workforce requires additional and distinct solutions to overcome unique workforce issues such as professional isolation, uncompetitive remuneration compared to state hospital salaries and locum rates and the viability challenges of running a rural general practice.^{23,24,25} It is critical that state and Commonwealth governments work together to resolve the GP workforce issues, particularly in rural areas where public hospitals are under the jurisdiction of state governments.²⁶ While it is outside the scope of this report to explore these issues in full, these concerns should be explored in further research and policy development.

Significant and necessary reforms which are identified in the Australian Medical Association's (AMA) Delivering Better Care for Patients: the [AMA 10-Year Framework for Primary Care Reform](#),²⁷ the Commonwealth Government's [Australia's Primary Healthcare 10 Year Plan 2022–2032](#),²⁸ and the [National Medical Workforce Strategy](#) (NMWS),²⁹ address the issues raised in this research report and include:

- support GPs to spend more time with patients and improve the indexation of Medicare to better reflect the rising costs of providing high-quality medical care and running a medical practice

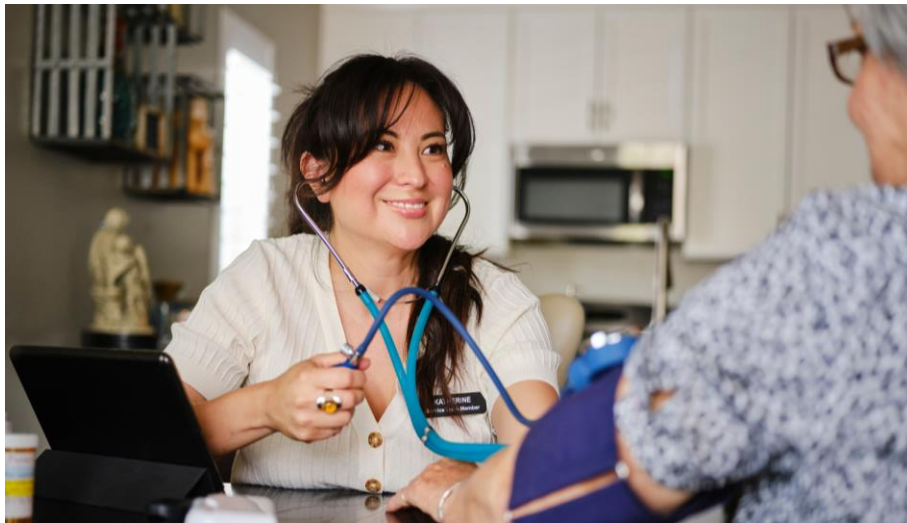
- increase funding for after-hours GP care, wound care, and practice incentive payments
- address disparities in remuneration and employment conditions for GP registrars nationally
- increase exposure to general practice in medical school and prevocational medical training
- improve funding arrangements for GP services in aged care facilities
- increase funding for GP-led team-based primary care
- implement and adequately fund Voluntary Patient Enrolment to complement the MBS fee-for-service model
- implement reforms to improve access to medical care for regional/rural areas and disadvantaged communities
- support clear training pathways and solutions to rural medical workforce needs and distribution.

We are already seeing the impact of the shortfall in GP workforce supply, with growing inequities in healthcare access, poorer patient health outcomes, and increased expenditure on costly hospital services.^{30,31} Without immediate action this spiral will continue, and the sustainability of our healthcare system will be at risk. Reforms to address the cultural and systemic GP workforce issues have been identified by governments and key stakeholders and these now need to be funded and implemented in collaboration with the medical profession as a matter of priority.

BENEFITS OF PRIMARY CARE AND ROLE OF GENERAL PRACTICE

The health system we have today in Australia, organised into primary and secondary healthcare services and hospitals,^{32,33} resembles the system described in the British Government's white paper — [the Dawson Report — Interim report on the Future Provision of Medical and Allied Services](#) in 1920.^{34,35} Dawson's vision of a cost efficient and optimal health system, based on a model of primary healthcare with GPs at the centre of the provision and coordination of care, is now supported by a significant body of contemporary evidence.^{36,37,38,39,40}

This contemporary evidence includes the World Health Organization's (WHO) 2018 technical report on primary healthcare [Building the economic case for primary health care: a scoping review](#), which examined the impact of primary care services on health outcomes, health system efficiency and health equity.⁴¹ The WHO report assessed 46 articles containing meta-analyses, systematic and non-systematic reviews of multiple studies, as well as 11 articles of individual studies. The 57 articles evaluated health outcomes, health systems data, and measures of equity collected over the last 40 years.⁴²



In terms of health outcomes, the WHO report found strong evidence that the supply of primary care physicians leads to a reduction in all cause and cause-specific mortality such as cancer, heart disease and stroke, significant reductions in maternal, neonatal and child mortality, and strong evidence for mental health outcomes (e.g. anxiety, depression, and suicide).⁴³ The WHO report also found strong evidence that primary healthcare can improve health system efficiency. The studies examined found that supply and access to primary care physicians and continuity of care, reduced total and avoidable hospitalisations and emergency department (ED) use, as well as reduce total healthcare costs.⁴⁴

There is strong international evidence that primary care improves universal healthcare access, mitigates the socioeconomic determinants of health and lowers inequities in self-rated health.⁴⁵ An Australian study found that medium and high levels of primary care utilisation by Indigenous residents living in rural and remote communities were associated with decreases in total and avoidable hospitalisations, total deaths, and premature mortality.⁴⁶ The study estimated that for every \$1.00 invested in primary care in remote Indigenous communities between \$4.00 to \$12.00 could be saved in hospital costs.⁴⁷ In addition to the health benefits to individuals and populations, strategic investments in a health system and its workforce also brings macroeconomic benefits of increased productivity and employment and therefore economic growth.^{48,49}

The AMA understands the importance of GP-led primary care in realising health outcomes, health system efficiencies, and health equity for the Australian population.^{50,51,52} Decades of neglect and underinvestment in general practice, by successive Australian governments, has however resulted in a specialty that medical graduates no longer aspire to enter and a reduction in the supply of GPs per head of population.

The role of general practice in addressing disease burden

Australia's health system is one of the best in the world. In 2021, the highly regarded Commonwealth Fund rated Australia as having the third best health system when ranked among eleven similar high-income countries. In its report, Australia was placed at number one with respect to both healthcare outcomes and equity.⁵³

Australia however performed less well on other key measures including access to care. On that measure, Australia placed eighth, meaning that Australia was considered below average when it came to the affordability and timeliness of care. In relation to measures of preventive care, safe care, coordinated care, and engagement and patient preferences, Australia was ranked in the middle. Australia is therefore falling short in several areas, and more needs to be done on access to care, prevention, and coordination — areas best addressed by GPs. Australia's growing and ageing population and changes in patterns of disease due to lifestyle and environmental factors will place further pressure on the health system now, and in the years to come.⁵⁴ The total burden of disease has increased by 20 per cent, from 2013 to 2018, largely due to population growth. In addition to this, ageing and modifiable risk factors means more Australians are living with more chronic conditions, which are often complex, persistent, and often include multiple illnesses.⁵⁵

Chronic conditions are the leading cause of premature death, ill health, and disability in Australia.⁵⁶ The rate of non-fatal burden for some chronic conditions increased from 2013 to 2018. For example, the number of years of healthy life lost due to disability (YLD) from type 2 diabetes increased from 1.9 to 2.3 YLD per 1,000 population over this period.⁵⁷ Similarly, the non-fatal burden of disease for mental health conditions/substance use and neurological conditions increased by 1.2 YLD per 1,000 population over this period.⁵⁸ Consequently, there will be more lived years suffering from these chronic conditions per capita than there has in the past.⁵⁹

Chronic conditions are not usually immediately life threatening, and instead develop gradually, with their prevalence increasing with age. The Australian Institute for Health and Welfare (AIHW) includes the following major illness categories as a chronic condition: arthritis, asthma, back problems, cancer, some cardiovascular diseases, chronic obstructive pulmonary disease (COPD), diabetes, chronic kidney disease, mental and behavioural conditions, and osteoporosis.⁶⁰

Many chronic conditions are largely preventable due to the modifiable nature of the attributable risk factors, such as tobacco smoking, high blood pressure, insufficient physical activity, poor diet and overweight and obesity.⁶¹ Chronic conditions are generally life long and require long-term management by individuals. They are also mostly cared for in a primary care setting by GPs and allied health professionals.⁶²

The prevalence of chronic conditions in Australia cannot be understated — **almost half (47 per cent or more than 11 million people) of Australians have at least one chronic condition, and one in five (20 per cent or 4.9 million people) have multiple chronic conditions.**⁶³ Chronic diseases such as coronary heart disease, back pain and problems, dementia, chronic obstructive pulmonary disease (COPD), and lung cancer contributed the most burden in Australia in 2018.⁶⁴

Evidence shows the number of GP visits increases as the number of chronic conditions increase. For example, the median number of GP visits increased from 6 per year for older women with no chronic conditions, to 17 per year for this age cohort who have seven or more comorbidities. The median number of GP visits increased from 4 per year for younger women with no chronic conditions, to 8 per year for this age cohort with seven or more comorbidities.⁶⁵

In addition to caring for patients with chronic disease, GPs play an important role in diagnosing and treating acute conditions, providing preventative care, and coordinating and managing care and referral arrangements.⁶⁶ GPs are the most visited health professional, with 8 in 10 (83.6 per cent) Australians visiting a GP in 2021-22, and the majority of Australians make multiple visits to a GP each year.⁶⁷

IMPACT OF NEGLECTING GENERAL PRACTICE

Primary healthcare expenditure

In 2019–20, \$202.5 billion was spent on health goods and services in Australia, equating to an average of \$7,926 per person or 10.2 per cent of overall economic activity as measured by Gross Domestic Product (GDP). Total health expenditure in 2019–20 was spent as follows:

- \$83.5 billion (41.2 per cent) on hospitals
- \$66.9 billion on primary care (33.1 per cent), of which \$13.3 billion (only 6.6 per cent of total health expenditure) was spent on unreferral medical services (mainly general practice)
- \$20.2 billion (10.0 per cent) on referred medical services
- \$31.9 billion (15.7 per cent) on other services, research and capital spending.⁶⁸

The Commonwealth Government provides the majority of general practice funding, primarily as a fee for service through the Medicare Benefits Schedule (MBS).^{69,70,71} Additional Commonwealth Government funding is provided to influence the supply, regional distribution, and quality of general practice services.⁷² There is also funding to support engagement of the health workforce in primary healthcare settings through initiatives such as the Practice Incentives Program (PIP), the Workforce Incentive Program (WIP), and Primary Health Networks (PHNs).⁷³ State and territory governments also provide some funding for such programs, mainly to influence the availability of GPs in rural and remote areas.⁷⁴ The remainder comes primarily from insurance schemes and patient contributions.⁷⁵ Although total Commonwealth Government expenditure on general practice increased by a compound annual growth of 3.9 per cent over the 10 years to 2021, government expenditure per person only increased by 2.4 per cent or \$91.00 per person, with patients contributing an additional \$9.00 over this period (2.5 per cent compound annual growth).⁷⁶

In 2019–20, GP consultation services (excluding any incentive payments) funded through the MBS totalled \$8.3 billion,⁷⁷ compared to Department of Defence (\$84 million)⁷⁸ and Department of Veteran Affairs (DVA) (\$721 million).⁷⁹ GP services funded through workers compensation and third party payers totalled \$1.3 billion in 2017–18.⁸⁰ State and territory governments also fund salaried GPs in community health services and EDs, particularly in rural and remote areas.⁸¹

Medicare rebates

Medicare is designed to subsidise the cost of health services, as opposed to covering the full cost of providing the service, with most patients expected to pay some form of out-of-pocket cost for most health services. When a patient is bulk-billed for a service (for example, when a patient cannot afford to pay an out-of-pocket cost), the difference in cost for providing the service is cross-subsidised from the out-of-pocket costs from other patients, as well as other funding sources (for example, government grants or block funding).

Over almost three decades, from 1995 to 2022, Medicare rebates more broadly have only seen an average annual indexation rate of 1.1 per cent,⁸² well below average annual changes to the Consumer Price Index (CPI)⁸³ and Average Weekly Earnings (AWE)⁸⁴ of 2.4 and 3.5 per cent respectively. Although Medicare rebates received a boost in indexation of 2.5 per cent in 2006, this was abruptly followed by six separate years of no indexation and the other remaining years with an average indexation rate of 1.3 per cent.⁸⁵

Years of inadequate indexation means the patient rebate provided by Medicare no longer bears any relationship to the actual cost of providing high-quality services to patients, and the cross-subsidisation is not sufficient to make up the difference. The medical practice therefore has to either absorb these costs and risk becoming unviable or pass more of the cost onto patients (with either higher out-of-pocket costs, reduced time spent with patients, or reduced bulk-billing of patients). To illustrate this issue, an analysis of the indexation and bulk-billing rates of the Level B consultation item (the most commonly used item by general practitioners, used for consultations lasting less than 20 minutes) was performed.

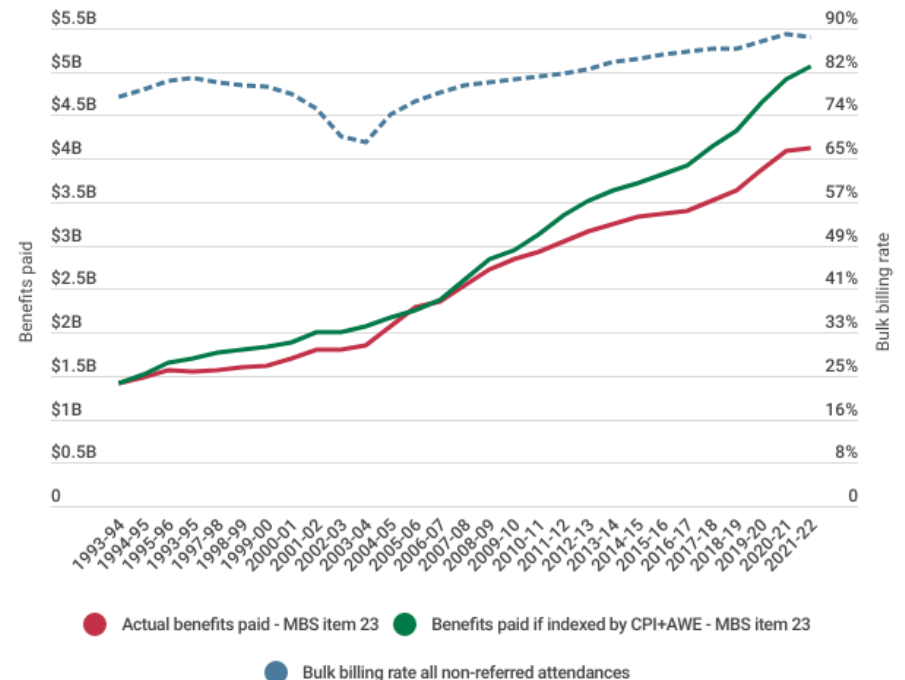
The effect of inadequate indexation on a standard GP Level B consultation service lasting less than twenty minutes (MBS item 23) has been a total cost of \$8.6 billion to GPs and the Australian population (Figure 1).^{86,87} It has resulted in patients having had to cover the gap through out-of-pocket costs and general practices risking further erosion of sustainability of their businesses.

The significant disparity between CPI/AWE and Medicare indexation, coupled with historical high rates of GP bulk-billed services, has resulted in a reduction in real income for GPs over the last several decades. Depicted in Figure 1, it is evident that rates of bulk-billing started to decline when the disparity between the Medicare rebate and the actual costs of providing the service become too significant (for the purposes of this analysis, CPI and AWE have been used as an indicator for the actual cost of providing the service, 70 per cent weight based on the AWE and 30 per cent weight based on the CPI).^{88,89,90,91} This can be observed from 1999–00, with bulk-billing rates reaching an all-time low of 68.5 per cent in 2003–04. The Senate Select Committee on Medicare report⁹² published in 2003 noted “*real incomes for GPs who exclusively bulk-bill, relative to average weekly ordinary time earnings, have fallen in the past ten years, and that an increase in net earnings of about 10.6 per cent would be required to retain relative parity*” and that “*this decline in remuneration in real terms for GPs who bulk-bill around 80 per cent of their patients is of serious concern, and the Committee concludes that the relative under-remuneration is a primary factor, along with practitioner shortage, in the falling rates of bulk-billing in Australia*”.

To address this issue, the government of the day (the Howard government) introduced bulk billing incentives on 1 February 2004⁹³ and increased the Medicare rebate from 85 per cent to 100 per cent of the schedule fee for all GP visits,⁹⁴ effective from 1 January 2005. Depicted in Figure 1, this resulted in a large increase in the Medicare rebate for the Level B consultation item in 2004–05, and then again in 2005–06,⁹⁵ which brought the rebate closer to the actual cost of providing the service.

This led to steady increase in bulk-billing rates up until the last year where bulk-billing rates have started to decline again (a 0.5 per cent decline between 2020-21 and 2021-22), despite the bulk-billing requirements for GP services during the COVID-19 pandemic (e.g. bulk-billing for COVID-19 vaccinations and MBS telehealth services). This may indicate that the Medicare rebate and bulk billing incentives are once again substantially different from the cost of providing the service, and that government intervention is now required.

Figure 1: Actual and notional benefits paid for MBS item 23 and bulk-billing rates for all GP services^{96,97,98,99}

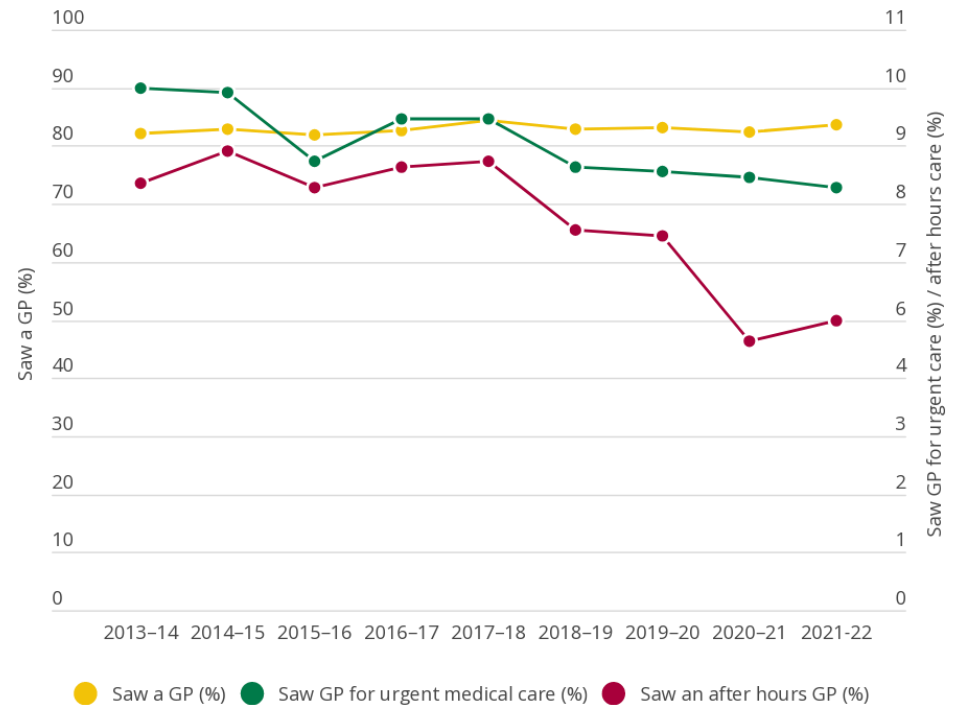


Access to care through general practice

The proportion of the population who visited a GP peaked at 84.3 per cent in 2017-18, declined to 82.4 per cent in 2020-21 and rebounded to 83.6 per cent in 2021-22 (Figure 2).¹⁰⁰ While the COVID-19 pandemic may be a factor in the decline of people visiting a GP (e.g. reduced GP visits due to fear of contracting COVID-19), it is unclear to what extent, considering this may be offset by increases in telehealth usage and GP visits for COVID-19 vaccinations.¹⁰¹ In 2021, 9.8 per cent of people aged 15 years and over reported delaying or missing needed care from a GP due to COVID-19 and approximately 20 percent of GP visits were conducted via telehealth.¹⁰² There was also a significant decline, from 8.1 to 5.5 per cent in less than a decade, in the proportion of people who saw an after-hours GP (Figure 2).¹⁰³

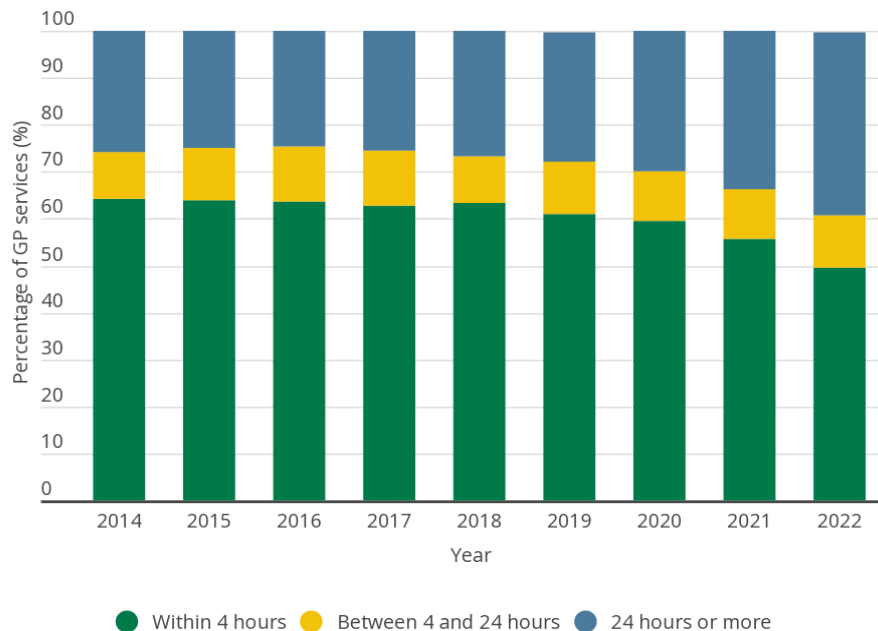


Figure 2: Proportion of persons aged 15 years and over who saw a GP 2014–2022¹⁰⁴



Depicted in Figure 3, there has been a marked reduction in GP access for urgent medical care over recent years.¹⁰⁵ This is demonstrated by a 13.3 per cent increase in the proportion of people who waited for 24 hours or more to see a GP for urgent medical care, from 2014 to 2022. Correspondingly, the proportion of people seen within four hours has decreased by 14.5 per cent over the same period (64.2 per cent to 49.7 per cent, respectively). The proportion of people waiting between four and 24 hours however increased by only 0.9 per cent in those eight years (10.0 per cent to 10.9 per cent, respectively).^{106,107}

Figure 3: Length of time between making appointment and seeing GP for most recent urgent medical care¹⁰⁸



Reduced access to a GP is further exacerbated for people living in outer regional, rural, and remote locations. In 2021-22, 28.7 per cent of residents reported waiting longer than they felt acceptable to get an appointment with a GP compared to 21.6 per cent of residents in major cities.¹⁰⁹ In addition, people who live in areas of socioeconomic disadvantage are more likely to report unacceptable wait times compared to those of most advantage, 26.2 per cent compared to 19.2 per cent.¹¹⁰

If GP supply in rural and remote locations is to be improved, workforce and professional issues commonly experienced by GPs practising in rural and remote locations must be addressed or offset. These issues include, but are not limited to:

- professional isolation
- challenges of relocating family members and adapting to the social infrastructure of rural communities, with many GPs therefore favouring fly-in fly-out and drive-in drive-out models which impact patient continuity of care
- practice unsustainability, particularly for those rural practices which are small, have reduced capital appreciation, and are more likely to bulk-bill patients
- inability to compete with state hospital salaries and locum rates
- the higher costs associated with living and running a practice in rural areas.^{111,112,113}

Emergency department presentations

Australia’s growing and ageing population, along with an increasing prevalence of chronic diseases, and the growing number of people with comorbidities and complex conditions, are contributing to the year-on-year growth (except in 2019–20 due to the outbreak of COVID-19) in emergency department (ED) presentations.^{114,115,116,117} Australian hospitals are increasingly unable to respond to the increasing demand for ED services with access block and ED overcrowding worsening, and this is associated with increased mortality, morbidity and length of hospital stay.¹¹⁸ The Australian College of Emergency Medicine defines access block as “the situation where patients who have been admitted and need a hospital bed are delayed from leaving the ED for more than eight hours due to a lack of inpatient bed capacity”, and states that access block is the single most serious issue facing emergency departments in Australia.¹¹⁹

While rates of ED presentations that are lower urgency are sometimes used as a proxy measure of access to primary healthcare,¹²⁰ these measures are often conflated to be the most pressing issue for EDs and primary care.¹²¹ GP type presentations to EDs are managed relatively quickly and are not resource intensive.^{122,123} The more significant issue is the chronic underfunding of general practice and primary care that reduces access to appropriate care over time, causing a person's acute or chronic condition to deteriorate, which results in requirements for high level of care via emergency department and hospital admission.¹²⁴ This is reflected in data showing that emergency patient acuity is rising, with 43 per cent of ED presentations assigned the three most urgent categories (resuscitation, emergency and urgent) in 2009–10 compared to 53 per cent in 2018–19.¹²⁵

Hospital admissions

Potentially preventable hospitalisations (PPH) are used by government as a measure of access to timely, effective, and appropriate primary and community healthcare.^{126,127} PPHs are defined hospital admissions (grouped into three broad categories: vaccine-preventable, acute, and chronic conditions), that could potentially have been avoided through preventative health interventions or appropriate individualised disease management in the community.¹²⁸

It is important to note that a hospitalisation classified as potentially preventable does not mean that the hospitalisation itself was unnecessary, and variations in PPH by location or population groups may indicate higher rates of disease rather than lack of primary care services. The AIHW describes a PPH as where *"optimal management at an earlier stage might have prevented the patient's condition worsening to the point where they needed hospitalisation. Some PPH may not be avoidable, such as those for chronically ill or elderly patients who have received optimum primary care, or procedures such as tonsillectomies that are an appropriate follow-up to primary care"*.¹²⁹

Between 2011 to 2019, before the beginning of the COVID-19 pandemic when we saw disruptions in the usual patterns of healthcare utilisation, an extra three people in every 1,000 were hospitalised for conditions that were potentially preventable — an increase from 23.8 to 27.3 per 1,000 people.¹³⁰ The increase in PPH rates over the last decade may indicate a reduction in access to primary care and GP services. PwC has estimated savings of \$152 million if PPHs with same day or less than two days hospital stay (i.e. 6.2 per cent of all PPH) were avoided.¹³¹

Australia's ranking among other Organisations of Economic Cooperation and Development (OECD) countries, in admission rates for some chronic conditions, provides a picture of our performance in primary care internationally. Of the 28 OECD countries, Australia ranked 3rd highest rate of hospital admissions for chronic obstructive pulmonary disease (COPD), 6th highest for asthma and 10th highest for diabetes hospital admission rate.¹³²

There is clear evidence that increasing investment in general practice reduces the rate of hospital admissions, including PPHs, and ED presentations.^{133,134,135,136} This includes findings from an Australian study demonstrating that regularity of GP care reduces the risk, by up to 11 per cent, of high use hospitalisations.¹³⁷ Similarly, a systematic review found five studies from north America that consistently showed that continuity of care, measured by seeing the same general practitioner, reduced ED presentations.¹³⁸

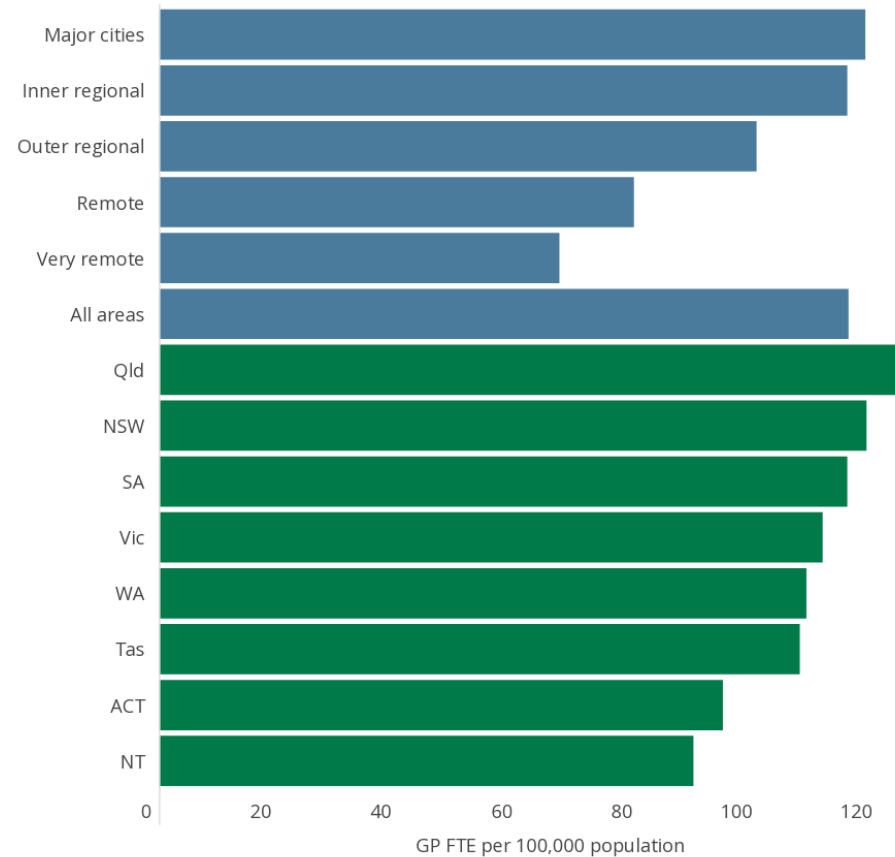
AVAILABILITY OF GENERAL PRACTITIONERS

The 2022 Productivity Commission report on government services found that the rates of GP FTE services increased annually from 105.6 per 100,000 population in 2014 to 117.0 per 100,000 population in 2019, before declining to 114.5 per 100,000 in 2020.¹³⁹ In 2020, Queensland had the highest rates of GP FTE services per 100,000 population (122.9 per 100,000 population) and Northern Territory had the lowest rates of GP FTE services per 100,000 population (88.7 per 100,000 population).¹⁴⁰ The availability of GPs vary significantly between each state and territory and decrease with increasing rurality (Figure 4).¹⁴¹

The declining availability of GPs indicates that the supply of GP FTE is not keeping pace with population growth. The declining interest by junior doctors to enter the specialty of general practice is a significant issue for the future supply of GPs. The National Health Workforce dataset (NHWD) shows that a higher proportion of junior doctors are continuing to choose non-GP specialty training, resulting in the number of non-GP specialists growing faster than GP specialists — 2.4 per cent compared to 3.6 per cent compound annual growth in the number of GP and non-GP specialists from 2013 to 2020 respectively.¹⁴²



Figure 4: GP availability by region, 2020¹⁴³



There has been an overall decline in the number of medical students expressing interest in a general practice career at graduation. The peak body representing medical education, training and research in Australia and New Zealand, Medical Deans Australia and New Zealand (Medical Deans), conducts an annual survey of final year medical students from all medical schools across Australia. The Medical Deans survey found that in 2015, 17.8 per cent of medical students identified general practice as their preferred specialty for future practice compared to 13.8 per cent in 2022.^{144,145} When preferences for the speciality of rural generalist is combined with general practice as the preferred specialty, this increases to 18.6 per cent.^{146,147} As the rural generalist specialty is a new category in the 2022 medical student survey, it is difficult to interpret this result within the context of the declining trend in student's interest in general practice.

Additional data in the forthcoming years is required to understand the nature of this survey response with respect to students' interest in general practice. Additionally, in the 2011 survey of final year medical students, 14.9 per cent reported that they were 'absolutely certain' and the remaining 85 per cent feeling 'not at all or moderately certain' of their stated specialist interest area.¹⁴⁸ The preferences of a medical graduate are therefore likely to change from what they may have indicated during their final year of medical education. The critical time in career decision making is in the early postgraduate years with increasing certainty of preference increasing from postgraduate year 1 (PGY1) until the time of specialty training application,¹⁴⁹ where a second (PG2) or third year (PGY3) of prevocational training is often completed before entering vocational training.



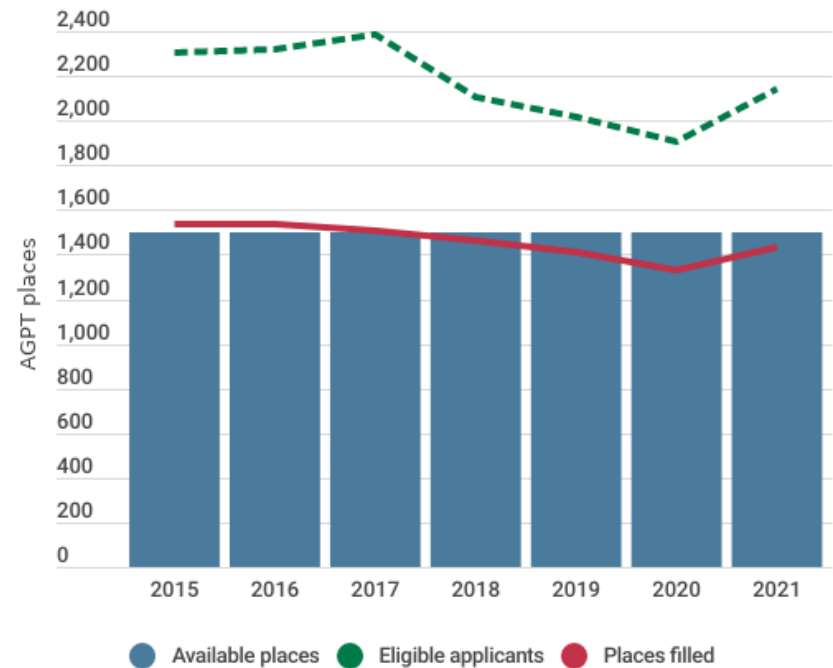
The Australian General Practice Training (AGPT) Program is the largest Commonwealth funded general practice training program with more than 5,000 Registrars training towards fellowship at any given time, providing 1,500 general practice training places each year.¹⁵⁰ The AGPT National Registrar Survey (NRS) is an annual, national survey of GP registrars currently training in the AGPT program. It collects information via an online questionnaire about registrar satisfaction, experience and future career plans. The 2021 AGPT program survey found that 68 per cent of registrars decided to become GP specialists after they had completed their medical degree.¹⁵¹ Of the GP registrars enrolled in the AGPT program, 59 per cent reported general practice as their first choice of specialisation (a decrease from 62 per cent in 2020), and 24 per cent of registrars indicated that they had applied to other speciality programs prior to starting the AGPT program (an increase of 3 per cent from 2020). These included basic physician training, paediatrics, emergency medicine, surgical training, anaesthesia, obstetrics and gynaecology, and psychiatry.¹⁵² These numbers suggest that of the registrars training to be a GP, this was not their first choice of specialisation for around 40 per cent of those surveyed.

The Australian General Practice Training Program enrolments

The program's 1,500 training places have not been filled since 2017. In 2018, 40 places were unfilled; this number increased to 171 in 2020 and rebounded to 66 in 2021 (Figure 5).¹⁵³ This recent increase in students expressing interest in a career in general practice, via the rural generalist pathway, and the decrease in the number of unfilled places in the AGPT program in 2021 is an encouraging sign. The unfilled places however remain, and the declining interest among medical students and postgraduate doctors is a significant concern for the future supply of the GP workforce.

General practice has a higher rate of discontinuation, approximately 13 per cent, when compared to other specialties such as ophthalmology, where the rate of discontinuation is less than one per cent. Efforts to make the GP training program more attractive will likely result in a greater number of applications and more of the training places filled. It will also likely result in improved retention of trainees throughout the training program.

Figure 5: Number of GP registrar training places, eligible applicants and positions filled 2015–2021¹⁵⁴



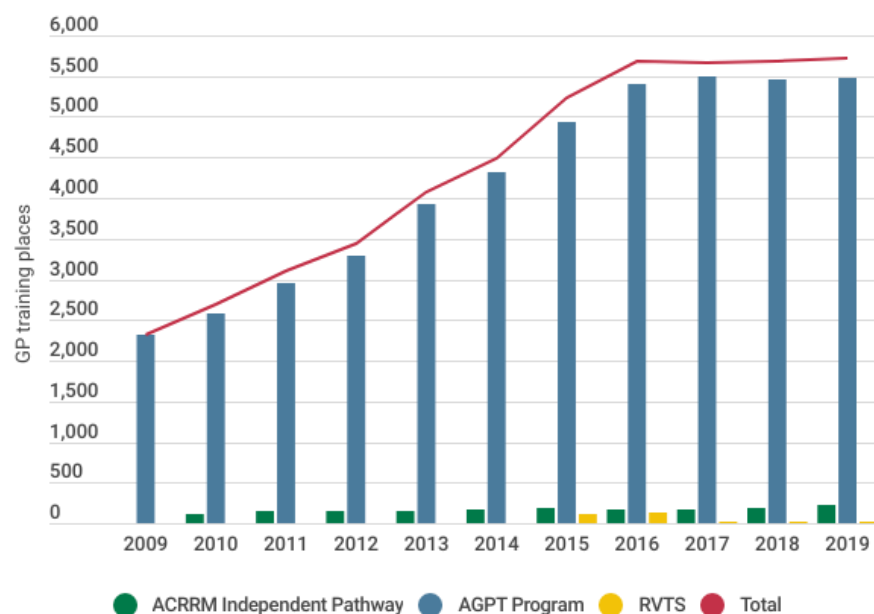
Other Australian general practice training pathways

Other GP training pathways include the Australian College of Rural and Remote Medicine (ACRRM) Independent Pathway (self-funded by the registrar) and Rural Generalist Training Scheme — with up to 100 Commonwealth Government fully funded places from 2021.¹⁵⁵

The Royal Australian College of General Practitioners (RACGP) also provides alternative pathways under the Practice Experience Program (PEP), with the Standard Stream supporting non-vocationally registered doctors who do not hold a specialist qualification, and the Specialist Stream supporting international medical graduates (IMGs) with overseas qualifications. The PEP is co-funded by the Commonwealth Government for medical practitioners based in non-metropolitan locations until June 2023.¹⁵⁶ The PEP Specialist Stream will then be replaced by the Fellowship Support Program (FSP) and will move from government to self-funded.¹⁵⁷ The withdrawal of Commonwealth funding from the PEP Specialist Stream will further reduce the supply of specialist GPs in non-metropolitan locations.

RACGP also offers a flexible, government-funded GP training program, under the Remote Vocational Training Scheme (RVTS), for medical practitioners in rural, remote, and Aboriginal and Torres Strait Islander communities. The RVTS is provided through a distance education model, and it has two streams of trainees: the remote stream for medical practitioners working in rural and remote locations i.e. Modified Monash Model (MMM) 4–7 and the AMS stream for medical practitioners working in Aboriginal Community Controlled Health Services (MMM 2–7). RVTS currently has two intakes per year for a total of 32 training positions (22 in remote scheme and 10 in the AMS stream).¹⁵⁸

Figure 6: Number of trainees by GP training program 2009 to 2019^{159,160,161,162}



Reasons for choosing or not choosing general practice as a career path

The attractiveness of general practice as a specialty has been reported by medical graduates, GP trainees, and GPs to be the nature of the job itself. These factors include:

- being responsible for patient continuity of care
- working with a community to improve health outcomes
- treating a variety of patients which requires a unique skills mix
- patient-doctor interactions
- the ability to practice holistic care
- flexibility of working hours and work-life balance.^{163,164}

Several factors however have been cited for the decline in GP workforce, the lack of interest by medical graduates in general practice and the GP training places remaining unfilled. This includes:

- the negative perception and decreasing prestige of general practice among medical students
- the limited opportunities in medical school and during pre-vocational training rotations to experience and gain skills in general practice which leads to a lack of interest in GP training programs,
- general practice training not being prioritised in medical school over prerequisite prevocational training rotations such as paediatricsⁱⁱ
- disparity in remuneration between GP registrars compared to their hospital counterparts and inadequate Medicare rebates for general practice (attributed to a lack of training and funding reform and years of no or low MBS indexation)
- ineffectual leave conditions for GP trainees
- the inflexibility of general practice training.^{165,166,167,168}

ⁱⁱ Based on feedback from industry experts.



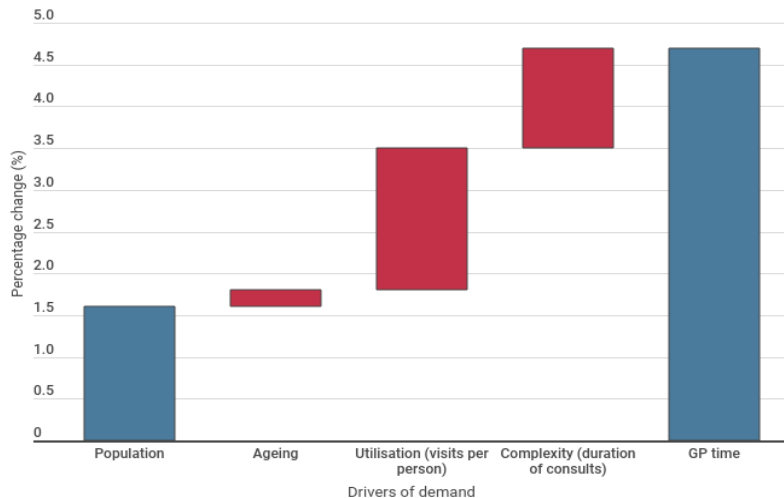
GENERAL PRACTITIONER WORKFORCE

Historic demand

The demand in GP services, as per Medicare claiming, was found to **increase by approximately 10,200 GP FTE over the 10 years from 2009 to 2019**, resulting in a compound annual growth rate of 4.7 per cent or total increase of 58.4 per cent over this period.^{169,170,171} In the past five years, from 2016 to 2021, the workforce only added an equivalent of 4,2000 full time GPs,¹⁷² which suggests that GPs have worked under increased pressure to keep up with demand.

Depicted in Figure 7, the growth in demand over this period was driven by population growth (1.6 per cent), ageing (0.2 per cent), the increase in the average number of GP visits per patient (1.7 per cent), and complexity of care as measured by an increase in the use of longer GP consults (1.2 per cent).^{173,174,175,176}

Figure 7: Annual growth in GP demand 2008–09 to 2018–19^{177,178,179,180}



Projected demand

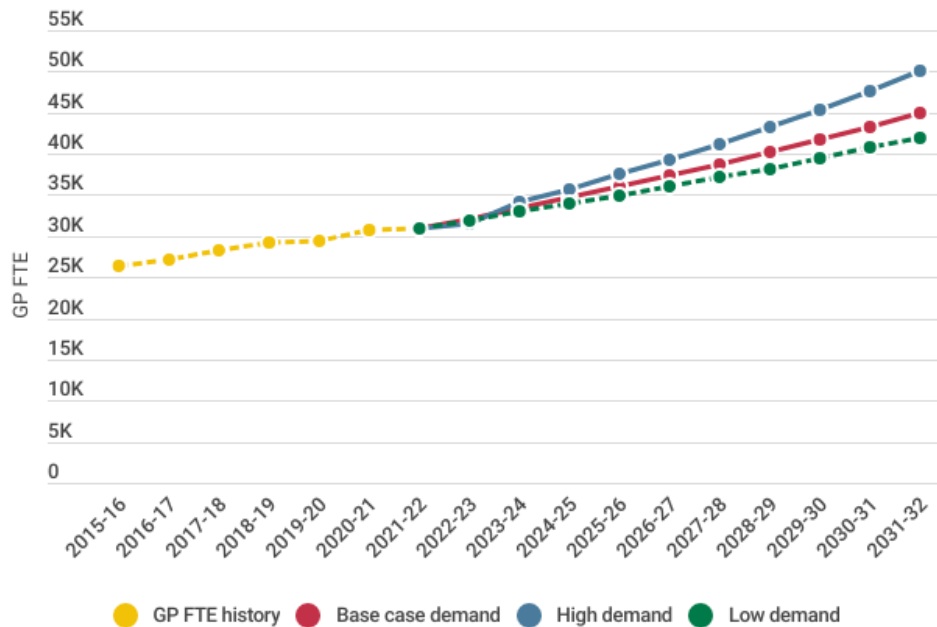
This research report also projected what underlying demand will look like over the next decade. The demand projection assumes that there are no constraints on the number of doctors supplied (however in reality there would be). The unconstrained demand will indicate the underlying need for services, although many of these services will go unmet if there is insufficient supply of GPs. The estimated demand counts the number of MBS claims for each item number and allocates an estimated time for each item based on the MBS description and external estimates of time per consult using the Bettering the Evaluation and Care of Health (BEACH) data.¹⁸¹ This estimated time per consult is held constant over the entire time series. Realistically, as GPs become increasingly stretched, they will be under pressure to reduce the amount of time spent on each consult to accommodate the increasing patient load.

GPs have historically taken on work which is untimed, and this is not included in the projection estimates. The consults themselves are included in the time estimates, however the unremunerated non-contact time involved in providing care, such as updating patient records, reviewing results and communicating with other care providers is not included. This unremunerated non-contact time can be extensive, particularly for home and aged care facility visits. The non-contact time has been estimated to total 89 minutes for GP care in residential aged care facilities (RACF) for the first patient.¹⁸² As workload pressures increase, GPs will find it more challenging to undertake the important work that is required to be provided outside of their consultation rooms.

The amount of demand for GPs has been growing strongly over the past decade. To assess the future expected demand in GP services, three growth projections were produced, based on the current growth in utilisation per person by age cohorts and using the Australian Bureau of Statistics (ABS) projected population of those cohorts.^{183,184,185,186} In the high demand scenario, demand based on MBS claiming data is assumed to continue at the rate of historical growth (2009 to 2019) for each age cohort.^{187,188,189} **This projection shows that approximately 50,000 GP FTE will be required by 2031 if the current demand trends continue.**^{190,191,192,193}

In the base case demand projection (i.e. expected scenario if there is intervention), it is assumed that there is a reduction in growth in utilisation from the historical rate of 1.7 per cent to 1.0 per cent and the growth in complexity including ageing reduced to 1.2 per cent, **resulting in a projected demand of around 45,000 GP FTE by 2031–32**.^{194,195,196,197} This might be achievable if prevention becomes more effective through greater investment in primary care. The low demand projection (3.1 per cent total growth) assumes a reduction in growth in utilisation (1.0 per cent) and no growth in the average age equivalent complexity of patients (still growth of 0.5 per cent in minutes per visit due to ageing).^{198,199,200,201}

Figure 8: Scenario Modelling of Historical and Projected Demand in GP Services (FTE)^{202,203,204,205}



The sources of demand (population growth, ageing and increased health need) over the past decade are expected to persist into the next decade.^{206,207} Population growth is expected to continue to increase by 1.5 per cent to 2031.²⁰⁸ The AMA has made a conservative assumption in the base case and low demand projections that future demand will continue to grow at two-thirds of the historic rate for both visits per person and complexity (length of consults). Compared to the base case scenario, the low demand scenario further assumes there is no growth in the length of consultations. The combined net growth from all factors of 3.8 per cent per year in the base case projection.

There are risks that the base case rate of growth is not a realistic representation of the growing need for GP services in the Australian population. The prevalence of chronic disease among each age cohort will continue to increase as the population grows and ages, and modifiable risk factors attributable to burden of disease persist in the Australian population.²⁰⁹

There are however known risk factors with unknown effects on demand. These include the recent increase in the prevalence of complex conditions such as mental health, compounded with an increase in multi-morbidities.^{210,211} For example, those suffering from diabetes and mental health conditions may not stick to the strict adherence of the management of the condition if they are also suffering from mental health issues. The impact of the compounding effect of complex health issues and multi-morbidities on projected demand of GP services is difficult to quantify and model. Nevertheless, given the increasing burden and complexity of disease seen in the Australian population, the three sets of projected demand for GP services in this study is not unreasonable, and may even be considered conservative.

General practitioner supply projections

Projection assumptions

The AMA has calculated a projection of GP FTE supply based on the average of the most recent three years (2019–2021) of intake for the RACGP AGPT program,²¹² the recently expanded Rural Generalist Program and the other smaller training programs ACCRM RVTS, and ACCRM Independent Pathway (approximate total of 1,700).²¹³ The projections then allow for a series of other factors which influence total supply. The first is an allowance made for the number of graduates which will not complete the training. The data shows there is a significant number (approximately 200) each year that discontinue training.²¹⁴

An understanding of the reasons for discontinuation of GP training is required to assess whether this leakage of the potential GP workforce can be arrested. For example, if GP registrars are leaving due to perceived poor remuneration or prestige of the specialty, strategies could be implemented to prevent the discontinuations.^{215,216,217}

There is a separate calculation for the number of migrants who enter directly into the workforce by applying to the Medical Board of Australia for recognition of experience. The [*Medical Board of Australia – Report on Specialist medical colleges specialist pathway*](#) is an annual report detailing the number of applications and admissions to fellowships for each of the colleges. The assumption used for the projections is an average of the preceding three years and ongoing growth in these migrant applications matching the overall growth in the workforce, two per cent per annum. This will keep international migrants as a small but significant supply of new GP entrants, approximately 250 in 2022, growing to approximately 300 by 2031.

This channel of the GP workforce is also heavily reliant on entrants from the United Kingdom (UK). The last five pre-COVID-19 pandemic years saw an average of 81 per cent of all fellows admitted using this pathway come from the UK.^{218,219,220,221,222,223,224} This must be acknowledged as a potential risk if the UK was to keep hold of their own GPs through better workforce practices or more attractive retention measures.

There are also several other programs to train IMGs in Australia on a visa. These are contained in the 3GA pathway programs, which have now been combined into the More Doctors for Rural Australia Program (MDRAP). IMGs provide a valuable resource to the Australian community. A number of these IMGs on temporary visas graduate and seek permanent residency and fellowship which further bolsters the GP workforce. This has been estimated at approximately 150 IMGs gaining GP fellowship annually.²²⁵

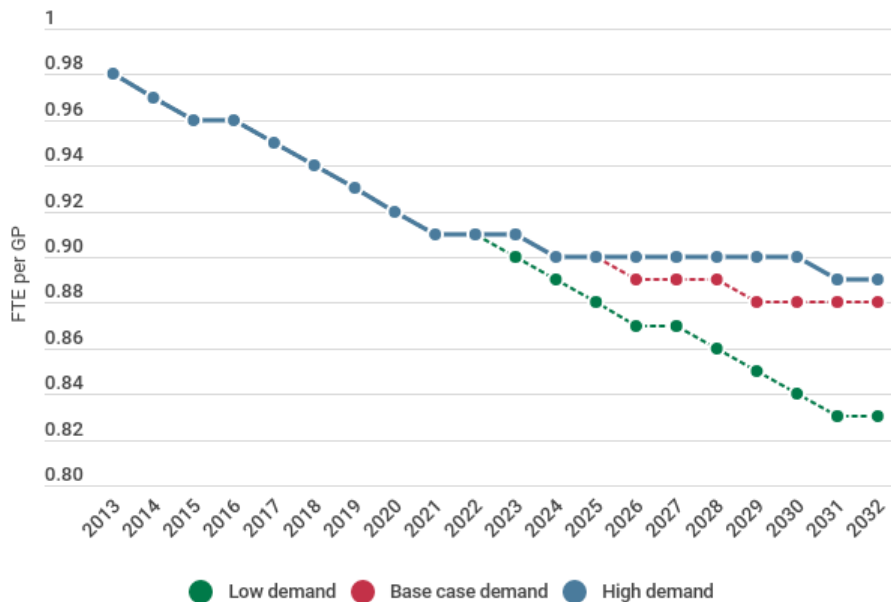
The AMA has projected that the number of retirements will increase, based on a larger proportion of workers in the older age cohorts. In the base case supply projections, the AMA has assumed GPs will retire at the rate of 1.4 per cent per annum over the next decade.²²⁶ GPs may leave the workforce not only to retire, but they may pursue other careers. The AMA has used data from the Productivity Commission's Report of Government Services which shows a small proportion of GPs each year choosing to leave, only 0.5 per cent overall.²²⁷ This is likely to be a conservative estimate given the increasing stresses on GPs.

The final major component affecting the supply of GPs is the change in the average number of hours worked. At first glance the cause is linked to the growth in the number of older workers in the GP workforce. A deeper examination revealed a more complex and nuanced picture. On average GPs have been trending towards fewer hours per worker. Both male (1.08 in 2013 to 1.01 in 2020) and female workers (0.83 in 2013 to 0.81 in 2020) have reduced their FTE per GP.²²⁸ On average, female GPs work less FTE hours than their male counterparts.²²⁹ The combined effect has been lowering the average hours worked across the GP workforce.

The AMA has a base case (i.e. expected case) supply projection for a continuation of the recent trends in FTE by the age and gender cohorts of the workforce. There is some degree of uncertainty whether these trends will continue, moderate, cease or even perhaps reverse with targeted policies. This is an important factor which will further reduce the supply of hours of GPs. The AMA assumed a reduction in hours of 0.5 per cent per year in the decade to 2031 for the base case supply projection, and a reduction in hours of 1.1 per cent in the low supply scenario.

Figure 9 depicts the history of FTE per GP decline and three projection scenarios which are all plausible. The largest reduction is just a continuation of the recent pattern of decline in FTE per GP figures. This is a simple linear trend which ignores the more nuanced composition and age specific shifts. The second largest decline is where we allow the age and gender specific FTE trends to continue. The reduction is less as the female FTE component is stabilising and not trending lower.²³⁰ The least reduction occurs in the scenario where there are no further reductions in age/gender specific rates. There is still a compositional effect of having a larger number of workers entering the workforce working at lower FTE rates than previous generations. This is also a significant risk factor for the GP workforce. We don't yet know how GPs are going to respond to the pandemic induced fatigue experienced across the profession.

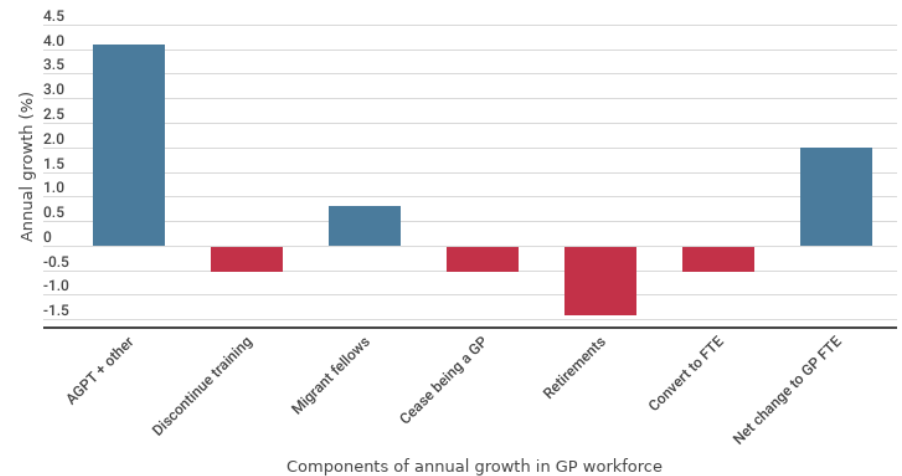
Figure 9: FTE per GP 2013–2032²³¹



Supply projection

The AMA's analysis of GP supply has found that simply looking at the levels of GP trainees creates a false sense of security for understanding the adequacy of GP workforce supply. As shown in Figure 10, when all the separate components of GP supply are assessed, the net impact of greater retirements and reduction in hours worked through more part-time workers is evident. That is, the overall increase in the GP workforce (2.0 per cent) is far lower than what is implied from the level of GP trainees (4.1 per cent). It is likely however that the components of GP workforce growth will not follow the neat assumptions in the base case projections, due to the effects of the COVID-19 pandemic on the medical workforce's mental and physical well-being, and other environmental and policy factors that will impact on recruitment and retention of the GP workforce. Several scenarios, based on various assumptions of the components of GP supply, are therefore modelled in the demand versus supply projections in the following section of the report, to determine the range of potential outcomes.

Figure 10: Base case components of annual growth in GP workforce 2022–2031^{232,233,234,236,236}



Demand and supply to 2030–31

Depicted in Figure 11, there are a range of potential outcomes in the expected gap between GP demand and supply, depending on the assumptions for demand and supply. All projection scenarios of projected growth in demand and supply however show a significant and persistent shortfall of GP FTE. There is an immediate boost in the projected GP FTE demand required to cope with the current backlog of primary care needs stemming from the pandemic, followed by a steady increase in demand as the population grows, ages, and increasingly develops chronic diseases and comorbidities over time.

The AMA has estimated there is an existing shortage of GPs which is already having an impact on the 2021–22 data. **A conservative estimate of the current shortage of 860 GP FTEs**, is based on the impact of a flat demand in 2021–22 driven by fewer minutes per average consult (as depicted in Figure 8). Since 2018–19 there has been a decline in minutes per consultation which may partly reflect the limitations of the workforce to be able to supply the underlying demand in the community.^{237,238} The estimated current shortage is therefore likely to be an underestimate due to artificially low demand constrained by a lack of GP supply as well as delayed care due to the COVID-19 pandemic, which is beginning to surface now.²³⁹

There are several significant risks for both the demand and supply of GPs. The AMA has modelled several assumptions of the risks to project a range of potential GP shortage outcomes by 2031–32. Figure 11 presents the base case demand projections and three alternative supply projections.

Under the 'high supply' scenario, all GP places are filled in the AGPT program and discontinuations are reduced to approximately 90 per year (5 per cent of the filled training program) if the program is made more attractive.^{240,241} Under the 'low supply' scenario AGPT places²⁴² continue to remain unfilled at the historic rate, retirements increase by a further 1 per cent per year, part-time trends continue to reduce FTE per GP, and an additional 0.25 per cent per year of GPs leave the profession due to burnout.

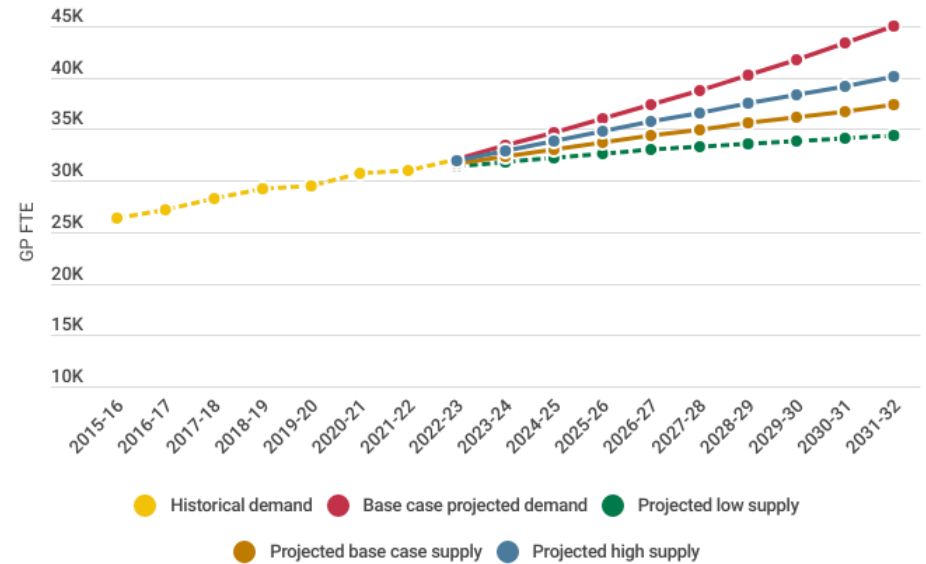


In all demand scenarios modelled, the average per person demand on the GP’s time will increase. Older people visit the doctor more often and spend more time each visit than younger people. Our scenarios model the consequences of the changes to the frequency and time spent at the GP after accounting for this underlying ageing of the population.

In the base case demand projection, where it assumes there is a reduction in growth in utilisation (number of visits per patient) and complexity, the base case supply projection shortfall continues to accumulate as shown in the Figure 11, reaching an estimated total of 7,600 FTE by 2031–32. This might be achievable if prevention becomes more effective through greater investment in primary care.

A high supply scenario estimates a shortfall of 3,100 GP FTEs, where supply is boosted and demand kept to the base case, to a low supply scenario of 10,600 GP FTE shortfall by 2031–32, where AGPT places continue to remain unfilled based on general practice not being the primary choice of junior doctors, and an increase in the rate of retirement and leaving the profession.^{243,244,245,246,247,248,249,250,251,252} Appendix A provides further detail on the demand and supply modelling methodology. The latest RACGP General Practice: Health of the Nation survey reported an increase in the proportion of GPs intending to retire within the next five years (an increase from 18 per cent to 25 per cent over the last year) and less than 80 per cent of younger GPs intending to remain practising in 10 year’s time compared to 90 per cent of those surveyed in 2017.²⁵³ Further modelling will be required to estimate the number of Australian and overseas trained GPs that are required to meet the projected GP FTE shortfall over the next decade, to account for the increasing trend towards GPs working reduced hours due to socio-cultural and demographic changes among general practitioners. Western Australian Department of Health modelling in 2015–16 found that 2.1 Australian-trained general practitioners were required for every 1 Full Service Equivalent (FSE) of clinical practice.²⁵⁴

Figure 11: Scenario modelling of GP workforce demand and supply projections^{255,256,257,258,259,260,261,262,263,264,265}



Some level of unmet demand will always occur in any cost constrained health system, however in reality the demand will be constrained by supply as GPs will struggle to meet the needs of their communities. As the amount of unmet demand increases, so will the consequences.

GPs already feel pressured to work longer hours or reduce the time they spend with patients to meet the needs of their communities, which leads to GP burn out and dissatisfaction with the specialty. As the projected gap between demand and supply continues to grow, more patients will wait longer to access a GP and present with more severe conditions because their care was delayed. This will ultimately result in greater hospital presentations from conditions that could have been prevented and managed in the community — which ends up costing the health system more.

POLICY CONTEXT

Overarching primary care plans

The AMA has long advocated for increased government investment in general practice to ensure it can continue to meet the increasing cost of providing high quality patient care to a growing and ageing population, and with unprecedented rates of chronic conditions and multi-morbidities. Indeed, the AMA released its [Delivering Better Care for Patients: the AMA 10-Year Framework for Primary Care Reform](#) in 2020, and its recommendations were echoed in the Commonwealth Government's [Future Focused Primary Health Care: Australia's Primary Health Care 10 year Plan 2022–2032](#).^{266,267}

Constructively, as a result of advocacy by the AMA and other peak medical bodies during the 2022 Federal Election, the newly elected government [committed \\$750 million](#)²⁶⁸ to implement [Australia's Primary Health Care 10 year Plan 2022–2032](#)²⁶⁹ to address issues such as funding, access and workforce. The Strengthening Medicare Taskforce has also been established to build on [Australia's Primary Health Care 10 year Plan 2022–2032](#). The Strengthening Medicare Taskforce is focused on reforms that will improve patient access to general practice and GP-led multidisciplinary team care, making primary care more affordable for patients, improving prevention and management of ongoing and chronic conditions, and reducing pressure on hospitals.²⁷⁰

General practitioner-led team-based primary healthcare

The AMA, along with other medical peak bodies, is an active member of the SMTF and supports its aims. Despite the burn out experienced by GPs and other medical practitioners from being at the front line of the COVID-19 pandemic, the AMA continues to advocate for GP-led team based primary care, as it puts patients and continuity of care at the centre and enables all health professionals to practice to the top of their clinical scope. It also provides GPs with the time and capacity to undertake tasks that only they are trained to perform, such as diagnosis, treatment and overall medical management of the patient. The coordinated involvement of teams in patient care is an essential feature of high performing primary care that can achieve the quadruple aim of health outcomes and enhanced patient experience while reducing health care costs and improving professional fulfilment of general practitioners and allied health professionals.^{271,272,273}

The AMA does not support task substitution of GP-led patient care by non-medical health professionals as a solution for GP workforce supply issues, as this further fragments patient care and results in poorer health outcomes and increased costs in the long-term.²⁷⁴ The AMA has expressed its strong opposition to experiments such as the pharmacy trial in North Queensland and states that "Governments need to come to the table with viable solutions to support general practice and build collaborative models — not changes that completely undervalue the quality of care that is provided through general practice and fragmented patient care".²⁷⁵



National Medical Workforce Strategy

To that end, the AMA has [called on Government](#)²⁷⁶ to implement the Commonwealth Department of Health's [National Medical Workforce Strategy](#) (NMWS)²⁷⁷ that was released in January 2022. The general practice workforce strategies in the NMWS include to:

1. Increase the number of trainees in undersupplied specialties and decrease the number of trainees in oversupplied specialties.
2. Collaboratively set and fund the number and distribution of education, and training places through a national pool.
3. Support broader education and experience of generalist skills, and rural and remote clinical practice, during medical school and on training programs.
4. Support informed decision making for generalist career pathways and encourage rewarding of generalist experience in trainee selection.
5. Establish portability of entitlements for doctors across different settings.

The AMA's position on medical workforce and training states that *"Delivering a medical workforce to meet future community requirements for health care requires the focus of medical workforce policy and planning to shift from increasing medical school places towards giving medical students and postgraduate doctors more opportunities to train in rural areas, targeted increases in postgraduate training capacity in the geographic areas and specialties where they are needed, and on improving the distribution of the medical workforce."*²⁷⁸ It appears that if the NMWS is effectively funded and implemented, the education and training places will be well targeted, supported and distributed, and the overall intake of medical students won't simply be increased.

The NMWS also reports that it will further analyse Australia's domestic and international workforce supply to inform the settings for migration of IMGs and to examine and mitigate the impact of prolonged and inappropriate locum use to fill workforce gaps.²⁷⁹ While it is beyond the scope of this AMA GP workforce report to further explore the supply of GPs through IMGs, it is an important policy issue that warrants attention, to ensure that the balance between the supply of locally and overseas trained GPs is sustainable and able to provide high quality and accessible primary health care to all Australians now and into the future.

Australian Medical Students Association Roundtable: Medical student interest in general practice

In August 2022, the Australian Medical Students Association (AMSA) held a Roundtable on "Medical Student Interest on General Practice – Reversing the Trend" and in November 2022 it released the associated report of recommendations to Government, universities and general practice colleges.²⁸⁰ The AMSA Roundtable provided the opportunity for industry groups and key stakeholders to collectively identify the priority issues and propose solutions that are not only implementable but address systemic barriers to the intake of GP trainees. Of note, are practical recommendations for university medical schools to provide medical students with greater exposure to general practice, through embedding general practice in the curriculum in each year of a medical degree and actively employing GPs as academic teaching staff and researchers. Providing funding for practices to support placements and training rotations for medical students and prevocational doctors is another solution proposed in the AMSA report that addresses structural barriers to medical students and graduates who may be interested in becoming a GP.²⁸¹

General practitioner trainee remuneration and employment conditions

The AMA has had long standing concerns that GP trainees experience a lack of parity in remuneration compared to their hospital counterparts and are disadvantaged by an inability to transfer leave and other entitlements as they progress through training.²⁸² In its 2020–21 prebudget submission, the AMA called on the Commonwealth Government to commit to the development of a single employer model for GP trainees to address the inequitable employment conditions experienced by GP trainees.²⁸³ Aligned with AMA's advocacy, the federal government announced in October 2022, a commitment of \$0.8 million over 4 years from 2022–23 to fund 10 additional Single Employer Model trials in rural and remote areas from 1 July 2023. The federal government budget announcement also provides support for the NSW Government's agreement with the recommendation from the "Inquiry into health outcomes and access to health and hospital services in rural, regional and remote New South Wales" for an expansion of the single employer model to other locations.²⁸⁴ The Government's investment into trials of the single employer model is a productive first step, but at too small a scale to represent true reform.

General practitioner workforce in rural and remote locations

The GP workforce in rural and remote locations has had a longer history of concerted action and has been guided by the [Stronger Rural Health Strategy](#) (SRHS). The SRHS is a 10-year strategy from 2018–19 to improve the supply of the health workforce in rural and remote locations and aims to deliver 3,000 extra doctors and 3,000 extra nurses by 2028. The SRHS includes several initiatives focused on teaching, training, recruitment, and retainment.²⁸⁵

This includes changes to the John Flynn Prevocational Doctor Program, an initiative under the SRHS. From 1 January 2023, the current Rural Junior Doctor Training Innovation Fund core and rural generalist funding streams will be consolidated under the new John Flynn Prevocational Doctor Program. The new program is aimed at improving the supply of rural general practice by increasing rural primary care rotations for hospital-based doctors in rural areas from 110 to 200 FTE between by 2025, expanding eligibility to include doctors in their first 5 postgraduate years, and allowing a limited pool of metropolitan-hospital-based doctors to undertake rotations in rural primary care settings.²⁸⁶

The Senate Standing Committee on Community Affairs' inquiry into the provision of general practitioner and related health services to outer metropolitan, rural and regional Australians²⁸⁷ noted that "*While supportive of the new JFPDP, the committee is concerned that it may not include all successful elements of its predecessor. The committee notes that the JFPDP is due to commence in January 2023 with 440 rotations to rural hospitals and up to 800 rotations by 2025. It is further concerned that 800 rotations is a far cry short of the 1200 placements previously offered under the JFPP.*" The Senate Committee also called for the reinstatement of the John Flynn Placement Program (JFPP) which commenced in 1997 and ceased in early 2022. The JFPP introduced medical students to life as a rural doctor by offering them the opportunity to spend eight weeks over four years in one small rural or remote community.

The rural general practice workforce requires additional and distinct solutions to overcome unique workforce issues such as professional isolation, uncompetitive remuneration compared to state hospital salaries and locum rates, and the viability challenges of running a rural general practice.^{288,289} The nature of general practice in rural areas differs from other locations due a range of factors, including, but not limited to, the requirement to also provide services to public hospital patients.²⁹⁰ It is therefore critical that state and territory and Commonwealth governments work together to resolve the GP workforce issues, particularly in rural areas where public hospitals are under the jurisdiction of state and territory governments.²⁹¹ In the development of GP workforce solutions, state governments need to consider the impact on the attraction and retention of GPs, and develop solutions in collaboration with local GPs and the community.²⁹² For example, over-reliance on virtual care schemes and telehealth as a solution to GP workforce issues has been reported to compromise continuity and quality of care.²⁹³ While it is outside the scope of this report to explore these issues in full, these concerns should be explored in further research and policy development.

Other considerations

Although beyond the scope of this report, the impact of the trend towards corporatisation of medicine and general practice, and private virtual medicine, on GP workforce supply and health outcomes should be considered in future research and policy development.

CONCLUSION

While there is general acknowledgement of the value of primary care and general practice for an efficient and effective healthcare system, the systemic neglect and underinvestment by successive governments, from both major political parties, has seen general practice decline to levels that are unsustainable. The AMA's analysis demonstrates that a perfect storm has been created, whereby the neglect of general practice, through policies such as inadequate Medicare indexation and uncompetitive training and employment conditions, has signalled to medical graduates and GP fellows that general practice is not a specialty worthy of pursuing.

The neglect of general practice has only served to contribute to the reduction in enrolment of GP trainees and a projected undersupply of the GP workforce — **an estimated shortfall of around 10,600 GP FTE by 2031–32.**

While the issues identified in this research report are complex and multifaceted there are significant reforms that have been proposed by the AMA and government, which if implemented, could address the issues raised in this research report and include:

- support GPs to spend more time with patients and improve the indexation of Medicare to better reflect the rising costs of providing high-quality medical care and running a medical practice
- increase funding for after-hours GP care, wound care, and practice incentive payments
- address disparities in remuneration and employment conditions for GP registrars nationally
- increase exposure to general practice in medical school and prevocational medical training
- improve funding arrangements for GP services in aged care facilities
- increase funding for GP-led team-based primary care
- implement and adequately fund Voluntary Patient Enrolment to complement the MBS fee-for-service model

- implement reforms to improve access to medical care for regional/rural areas and disadvantaged communities
- support clear training pathways and solutions to rural medical workforce needs and distribution.

Some level of unmet demand will always occur in any cost constrained health system, but as the amount of unmet demand increases, so do the consequences. In reality, the demand will be constrained by supply, so these shortfalls will present as longer waits to access a GP, greater severity of conditions when presenting to a GP and the inability to manage conditions in the community, ultimately resulting in greater hospital and emergency department presentations. As these workforce issues grow, increasing dissatisfaction with the specialty will naturally occur. The longer the gap between demand and supply is left to grow unabated, as projected, the faster the acceleration of the projected GP workforce problems and its consequences.

There is no time to wait, and the neglect must end now.



APPENDIX A

General practitioner service demand modelling

This research report sought to understand the historical change in demand for GP services. Demand for GP services was calculated using Medicare claiming data, which provided a measure of the actual quantity of GP services (in minutes and converted to FTE GP services) provided over the ten-year period from 2008–09 to 2018–19 financial years. While this measure of demand is an indicator of met need for GP services, the amount of unmet need is unknown. The quantity of GP services actually provided was naturally constrained by the supply and access to GP services over that time period. Therefore, the estimated demand for GP services in this research report, is likely to be an underestimate of the ‘true’ level of demand.

Medicare claiming data is the best measure of change in demand for GP services as it represents the majority of the GP services provided in Australia. All MBS items considered to be GP type consultation services were identified. The total volume of services for the in-scope MBS item numbers by patient gender, age group for each financial year from 2008–09 to 2018–19 were extracted from the Medicare statistics website.²⁹⁴ A GP consultation duration (minutes) was applied to each MBS item, based on the MBS description and external estimates of time per consult using BEACH data,²⁹⁵ multiplied through by the volume of claims, to determine the total number of GP minutes of service provided in each financial year.

GP minutes are ascertained from the number of items claimed from MBS Statistics individual item reports for each and every item in the GP group.²⁹⁶ Those items that are claimed by other medical specialists are excluded from within this group. Each item is assigned the same number of minutes throughout the time series. For example, a Level B consult (item 23) is given 12 minutes as an average length of consultation as implied by the now discontinued BEACH data collection.²⁹⁷

The composition of items claimed has been trending towards longer consultations such as Level C and Level D but also items related to mental health and chronic disease such as Chronic Disease Management Plans (CDMPs). Items such as CDMPs have no explicit time allocated to them so have been assigned a Level C consultation. A similar process is followed for other management items such as team care assessments, health assessments.

This time estimation process is potentially subject to variation of the level and the change over time. As we have used the same length of time for each consultation item consistently over time, the pattern of growth is not at all sensitive to the level of time chosen. For example, lifting a Level B consultation to 14 minutes would lower the implied growth by only 0.2 per cent per annum over 10 years.

Likewise, assumptions are required for the conversion of minutes to FTE. Consistent with the method used by the department, the conversion uses 40 hours of work as full time and 32 hours per week of that being clinical hours. This is also subject to potential variation over time if the amount of administration to comply with paperwork increases due to changes in item numbers or processes. Any increase in administration over time from the base year would decrease the number of hours of clinical time per FTE which would in turn raise the number of FTE required to meet demand. We have used a conservative assumption that clinical time has remained a constant proportion of a full-time work week over time despite growing compliance paperwork. This adds a potential that even more FTE demand is required than the AMA has calculated.

Population growth is drawn from the ABS Australian estimated resident population series.²⁹⁸

Components of GP supply

New entrants

The AMA has calculated a projection of FTE supply. The first is based on the average of the most recent three years (2019, 2020, and 2021) of intake for the RACGP AGPT program,²⁹⁹ the recently expanded Rural Generalist Program and the other smaller training programs ACCRM RVTS, and ACCRM Independent Pathway (approximate total of 1,700). The AMA considers the impact of supply on these programs remaining unchanged from the final year of a continuing program (RACGP AGPT, ACCRM) or the budget projections of the recent expansion of the Rural Generalists Program.

Discontinued trainees

The projections then allow for a series of other factors which influence total supply. The first is an allowance made for the number of graduates who will not complete the training. The NHWD supplies estimates of the number of trainees who discontinue training (for whatever reason). The data shows there is a significant number (approximately 200) each year that discontinue training.³⁰⁰ An understanding of the reasons for discontinuation of GP training is required to assess whether this leakage of the potential GP workforce can be arrested. For example, if GP registrars are leaving due to perceived poor remuneration or prestige of the specialty, strategies could be implemented to prevent the discontinuations.

Specialist pathway and other pathways

There is a separate calculation for the number of migrants entering directly into the workforce by applying to the Medical Board of Australia for recognition of experience. The application allows them to join as a fellow of the colleges without undertaking further training. The [Medical Board of Australia – Report on Specialist medical colleges specialist pathway](#) is an annual report detailing the number of applications and admissions to fellowships for each of the colleges. The AMA has used fellowships granted in this report from RACGP and ACCRM as proxies for additions to the GP workforce outside of the training programs.

The number of admissions in the latest report from 2020 is only 30 due to the imposition of international border restrictions during the pandemic. The assumption used for the projections is an average of the preceding three years and ongoing growth in these migrant applications matching the overall growth in the workforce, two per cent per annum. This will keep international migrants as a small but significant supply of new GP entrants, approximately 250 in the 2022, growing to approximately 300 by 2031.

This channel of the GP workforce is also heavily reliant on entrants from the UK. The last five pre-COVID-19 pandemic years saw an average of 81 per cent of all fellows admitted using this pathway come from the UK. This must be acknowledged as a potential risk if the UK was to keep hold of their own GPs through better workforce practices or more attractive retention measures.

There are also several other programs to train IMGs in Australia on a visa. These are contained in the 3GA pathway programs, which have now been combined into the MDRAP. IMGs provide a valuable resource to the Australian community. A number of these IMGs on temporary visas graduate and seek permanent residency and fellowship which further bolsters the GP workforce. This has been estimated at approximately 150 IMGs gaining fellowship annually.

Leave Australian GP workforce

There are ways for GPs to leave the GP workforce without retiring from the medical profession. Specialists are less likely to change careers given the length of training required to enter. That said, many GPs can, and do, also work in the hospital sector. Where remuneration is greater in the hospital sector or another country there will be a 'pull factor'. For those that are dissatisfied with their current role or seeking a change from their GP career there can also be a 'push factor'.

The AMA has used data from the Productivity Commission's Report of Government Services which shows a small proportion of GPs each year choosing to leave, only 0.5 per cent overall.³⁰¹ This is a conservative estimate given the stresses on GPs and the lower average remuneration of GPs compared to other specialties. Risks to this parameter are tilted to the upside if action is not taken to keep GPs. The AMA has estimated that many of the younger and older people leaving from this report would have been included in other estimates such as discontinuation or retirement. The age-based rates for those between 35 and 54 and a proportion of those between 55 and 64, were included in the attrition assumptions, as they were not included in the baseline retirement.

Of course, Australia is not the only country in need of more doctors. The pandemic shone a light on the fragile nature of the healthcare workforce all over the globe. Australian GPs are not just at risk from other specialties, state governments or healthcare sectors within the profession but are already the target of a global strategy by governments of most developed countries looking to recruit more doctors that are already trained and experienced.

Retirements

Retirements are a major factor confronting the medical profession more broadly but particularly so for GPs. That said, the picture is not quite as bleak as the data first implies, as not all GPs are likely to retire at 67.

The AMA has projected overall number of retirements to increase, based on a larger proportion of workers in the older age cohorts. The AMA has also tempered these projections based on the choices we know doctors make to remain in the workforce for many years later than other occupations. When compared with other occupations, GPs tend to work into much older ages. As at 2020, there are 933 GPs over the age of 75 participating in the labour force according to the NHWD.³⁰²

The AMA has estimated GPs retiring at the rate of 1.4 per cent per annum for projections over the next decade. This broadly continues the small share of GPs who continue to work into later years. There remains a significant risk for the GP workforce if retirement patterns change in future. For example, if the Australian Health Practitioner Regulation Authority (AHPRA) implements a policy that makes retaining a medical licence in older age more onerous, the age of retirement may reduce from what is seen today, putting additional pressure on the supply of GPs. While it is a significant asset for the health system and the community that GPs continue to work and use their training for many years, it cannot be used as an excuse not to train the next generation of GPs in sufficient numbers.

Reduction in hours

The final major component effecting the supply of GPs is the change in the average number of hours worked. At first glance the cause is linked to the growth in the number of older workers in the GP workforce. A deeper examination showed a more complex and nuanced picture.

REFERENCES

- ¹ Australian Government Services Australia (2019-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp
- ² The University of Sydney (2013-2016). *Bettering the Evaluation and Care of Health (BEACH) National Study of General Practitioner Activity*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>
- ³ Australian Bureau of Statistics (2021). Australian estimated resident population series. Retrieved 1/09/2022 from: <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/dec-2021>
- ⁴ Australian Institute of Health and Welfare (2021). *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/burden-of-disease/abds-impact-and-causes-of-illness-and-death-in-aus/summary>
- ⁵ Australian Government Department of Health and Aged Care (2022). *General Practice Workforce Providing Primary Care Services in Australia*. Retrieved 1/09/2022 from <https://hwd.health.gov.au/resources/data/gp-primarycare.html>
- ⁶ Australian Government Services Australia (2019-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp
- ⁷ The University of Sydney (2013-2016). *Bettering the Evaluation and Care of Health (BEACH) National Study of General Practitioner Activity*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>
- ⁸ Australian Bureau of Statistics (2021). Australian estimated resident population series. Retrieved 1/09/2022 from: <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/dec-2021>
- ⁹ Britt H. & Miller G.C. (2014). *Byte from BEACH. No: 2014; 2 Debunking the myth that general practice is '6 minute medicine'*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>
- Individual GP items have been held a constant length of time throughout the history period. These have been calibrated to match the BEACH data analysis. The share of consultations that are longer, a Level C as compared with a Level B, have grown over time as well as item numbers such as chronic disease management which is driving up the average time spent per consultation. These underlying trends are combined as one growth factor labelled 'complexity'.
- ¹⁰ The Royal Australian College of General Practitioners (2021). *General Practice Health of the Nation*. Retrieved 23/08/2022 from <https://www.racgp.org.au/health-of-the-nation>
- ¹¹ Australian Government Department of Health and Aged Care (2020). *National Health Workforce Data Tool Data selected: Number of practitioners by primary specialty in labour force in Australia 2013 to 2020*. Retrieved 21/08/2022 from <https://hwd.health.gov.au/datatool/>
- ¹² Medical Board of Australia (2022). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2021 – 31 December 2021*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>
- ¹³ Medical Board of Australia (2021). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2020 – 31 December 2020*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>
- ¹⁴ Medical Board of Australia (2020). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2019 – 31 December 2019*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

¹⁵ Government of Western Australia Department of Health (2018). *General practice workforce supply and training in Western Australia Version 1.3*. Retrieved 19/10/2022 from: <https://ww2.health.wa.gov.au/Reports-and-publications/General-practice-workforce-supply-and-training>

¹⁶ Townsend, D., Campbell, N., & Chandler, C. (2017). Overcoming negative perceptions among Australian medical students about a career in general practice. *The Medical Journal of Australia*, 206(4), 149-150. <https://doi.org/10.5694/mja16.00454>

¹⁷ Australian Government Department of Health and Aged Care (2021). *National Medical Workforce Strategy 2021–2031*. Retrieved 1/09/2022 from: <https://www.health.gov.au/resources/publications/national-medical-workforce-strategy-2021-2031>

¹⁸ Scott A. (2017). *ANZ – Melbourne Institute Health Sector Report. General Practice Trends*. Retrieved 1/09/2022 from: <https://www.anz.com.au/content/dam/anzcomau/pdf/anz-mi-general-practice-trends-health-sector-report.pdf>

¹⁹ Thistlethwaite, J., Shaw, T., Kidd, M., Leeder, S., Burke, C., & Corcoran, K. (2017). *Attracting health professionals into primary care: strategies for recruitment*. Retrieved 1/09/2022 from: https://nceph.anu.edu.au/files/full_report_18263.pdf

²⁰ Wagner, E. H., Flinter, M., Hsu, C., Crompton, D., Austin, B. T., Etz, R., ... & Ladden, M. D. (2017). Effective team-based primary care: observations from innovative practices. *BMC Family Practice*, 18(1), 1-9. <https://doi.org/10.1186/s12875-017-0590-8>

²¹ Australian Medical Association (2021). *AMA Position Statement on the Medical Home – 2021*. Retrieved 7/11/2022 from: <https://www.ama.com.au/articles/medical-home-2021>

²² John, J. R., Jani, H., Peters, K., Agho, K., & Tannous, W. K. (2020). The effectiveness of patient-centred medical home-based models of care versus standard primary care in chronic disease management: A systematic review and meta-analysis of randomised and non-randomised controlled trials. *International journal of environmental research and public health*, 17(18), 6886. <https://doi.org/10.3390/ijerph17186886>

²³ Larkins, S., & Evans, R. (2014). Greater support for generalism in rural and regional Australia. *Australian family physician*, 43(7), 487-490.

²⁴ New South Wales Government (2022). *NSW Government response: Inquiry into health outcomes and access to health and hospital services in rural, regional and remote New South Wales*. Retrieved 9/11/2022 from: <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2615#tab-reportsandgovernmentresponses>

²⁵ Commonwealth of Australia (2022). *Provision of general practitioner and related primary health services to outer metropolitan, rural, and regional Australians*. Retrieved 27/09/2022 from: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/PrimaryHealthServices/Final_Report

²⁶ Commonwealth of Australia (2022). *Provision of general practitioner and related primary health services to outer metropolitan, rural, and regional Australians*. Retrieved 27/09/2022 from: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/PrimaryHealthServices/Final_Report

²⁷ Australian Medical Association (2020). *Delivering Better Care for Patients: The AMA 10-Year Framework for Primary Care Reform*. Retrieved 1/9/2022 from <https://www.ama.com.au/article/delivering-better-care-patients-ama-10-year-framework-primary-care-reform>

- ²⁸ Australian Government Department of Health and Aged Care (2022). *Australia's Primary Health Care 10 Year Plan 2022-2032*. Retrieved 1/9/2022 from <https://www.health.gov.au/resources/publications/australias-primary-health-care-10-year-plan-2022-2032>
- ²⁹ Australian Government Department of Health and Aged Care (2022). *National Medical Workforce Strategy 2021-2031*. Retrieved 1/9/2022 from <https://www.health.gov.au/resources/publications/national-medical-workforce-strategy-2021-2031>
- ³⁰ Australian Institute of Health and Welfare (2021). *Australia's health performance framework*. Retrieved 12/09/2022 from: <https://www.aihw.gov.au/reports-data/australias-health-performance/australias-health-performance-framework>
- ³¹ Australian Institute of Health and Welfare (2021). *Health expenditure Australia 2019-20*. Retrieved 12/09/2022 from: <https://www.aihw.gov.au/reports/health-welfare-expenditure/health-expenditure-australia-2019-20>
- ³² Australian Institute of Health and Welfare (2016). *Primary Health Care in Australia*. Retrieved 1/9/2022 from <https://www.aihw.gov.au/reports/primary-health-care/primary-health-care-in-australia>
- ³³ Australian Institute of Health and Welfare (2022). *Health system overview*. Retrieved 1/9/2022 from <https://www.aihw.gov.au/reports/australias-health/health-system-overview>
- ³⁴ World Health Organization (2018). *Technical Series on Primary Health Care, Building the economic case for primary health care: a scoping review*. Retrieved 1/9/2022 from <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.48>
- ³⁵ Lord Dawson of Penn (1920). *Interim Report on the Future Provision of Medical and Allied Services*. Retrieved 1/9/2022 from <https://www.sochealth.co.uk/national-health-service/healthcare-generally/history-of-healthcare/interim-report-on-the-future-provision-of-medical-and-allied-services-1920-lord-dawson-of-penn/>
- ³⁶ World Health Organization (2018). *Technical Series on Primary Health Care, Building the economic case for primary health care: a scoping review*. Retrieved 1/9/2022 from <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.48>
- ³⁷ Barker, I., Steventon, A., & Deeny, S. R. (2017). Association between continuity of care in general practice and hospital admissions for ambulatory care sensitive conditions: cross sectional study of routinely collected, person level data. *bmj*, 356. <https://doi.org/10.1136/bmj.j84>
- ³⁸ Gray, D. J. P., Sidaway-Lee, K., White, E., Thorne, A., & Evans, P. H. (2018). Continuity of care with doctors—a matter of life and death? A systematic review of continuity of care and mortality. *BMJ open*, 8(6), e021161. <http://dx.doi.org/10.1136/bmjopen-2017-021161>
- ³⁹ Scott, I. A. (2010). Public hospital bed crisis: too few or too misused?. *Australian Health Review*, 34(3), 317-324. <https://doi.org/10.1071/AH09821>
- ⁴⁰ O'Malley, A. S. (2013). After-hours access to primary care practices linked with lower emergency department use and less unmet medical need. *Health Affairs*, 32(1), 175-183. <https://doi.org/10.1377/hlthaff.2012.0494>
- ⁴¹ World Health Organization (2018). *Technical Series on Primary Health Care, Building the economic case for primary health care: a scoping review*. Retrieved 1/9/2022 from <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.48>
- ⁴² World Health Organization (2018). *Technical Series on Primary Health Care, Building the economic case for primary health care: a scoping review*. Retrieved 1/9/2022 from <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.48>
- ⁴³ World Health Organization (2018). *Technical Series on Primary Health Care, Building the economic case for primary health care: a scoping review*. Retrieved 1/9/2022 from <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.48>

⁴⁴ World Health Organization (2018). *Technical Series on Primary Health Care, Building the economic case for primary health care: a scoping review*. Retrieved 1/9/2022 from <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.48>

⁴⁵ World Health Organization (2018). *Technical Series on Primary Health Care, Building the economic case for primary health care: a scoping review*. Retrieved 1/9/2022 from <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.48>

⁴⁶ Zhao, Y., Thomas, S. L., Guthridge, S. L., & Wakerman, J. (2014). Better health outcomes at lower costs: the benefits of primary care utilisation for chronic disease management in remote Indigenous communities in Australia's Northern Territory. *BMC health services research*, 14(1), 1-9. doi:10.1186/1472-6963-14-463

⁴⁷ Zhao, Y., Thomas, S. L., Guthridge, S. L., & Wakerman, J. (2014). Better health outcomes at lower costs: the benefits of primary care utilisation for chronic disease management in remote Indigenous communities in Australia's Northern Territory. *BMC health services research*, 14(1), 1-9. <https://doi.org/10.1186/1472-6963-14-463>

⁴⁸ World Health Organization (2018). *Technical Series on Primary Health Care, Building the economic case for primary health care: a scoping review*. Retrieved 1/9/2022 from <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.48>

⁴⁹ Dussault G, Kawar R, Castro Lopes S, Campbell J (2018). *Building the primary health care workforce of the 21st century - Background paper to the Global Conference on Primary Health Care: From Alma-Ata Towards Universal Health Coverage and the Sustainable Development Goals*. Geneva. Retrieved 1/9/2022 from: <https://apps.who.int/iris/handle/10665/328072>

⁵⁰ Australian Medical Association (2021). *Primary Health Care 2021 AMA Position Statement*. Retrieved 1/9/2022 from: <https://www.ama.com.au/articles/primary-health-care-2021>

⁵¹ Australian Medical Association (2020). *Delivering Better Care for Patients: The AMA 10 Year Framework for Primary Care Reform*. Retrieved 1/9/2022 from: <https://www.ama.com.au/articles/delivering-better-care-patients-ama-10-year-framework-primary-care-reform>

⁵² The Royal Australian College of General Practitioners (2019). *Vision for general practice and a sustainable healthcare system*. Retrieved 1/9/2022 from: <https://www.racgp.org.au/advocacy/advocacy-resources/the-vision-for-general-practice/the-vision>

⁵³ Schneider, E. C., Shah, A., Doty, M. M., Tikkanen, R., Fields, K., & Williams II, R. D. (2021). *Reflecting Poorly: Health Care in the US Compared to Other High-Income Countries*. Retrieved 16/9/2022 from: <https://www.commonwealthfund.org/publications/fund-reports/2021/aug/mirror-mirror-2021-reflecting-poorly>

⁵⁴ Australian Institute of Health and Welfare (2021). *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/burden-of-disease/abds-impact-and-causes-of-illness-and-death-in-aus/summary>

⁵⁵ Australian Institute of Health and Welfare (2021). *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/burden-of-disease/abds-impact-and-causes-of-illness-and-death-in-aus/summary>

⁵⁶ Australian Institute of Health and Welfare (2020). *How healthy are Australians?* Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/australias-health/how-healthy-are-australians>

⁵⁷ Australian Institute of Health and Welfare (2021). *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/burden-of-disease/abds-impact-and-causes-of-illness-and-death-in-aus/summary>

⁵⁸ Australian Institute of Health and Welfare (2021). *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/burden-of-disease/abds-impact-and-causes-of-illness-and-death-in-aus/summary>

⁵⁹ Australian Institute of Health and Welfare (2021). *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/burden-of-disease/abds-impact-and-causes-of-illness-and-death-in-aus/summary>

⁶⁰ Australian Institute of Health and Welfare (2021). *Chronic condition multimorbidity*. Retrieved from <https://www.aihw.gov.au/reports/chronic-disease/chronic-condition-multimorbidity>

⁶¹ Australian Institute of Health and Welfare (2020). *Australia's Health 2020: In Brief. AIHW*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/australias-health/australias-health-2020-in-brief/summary>

⁶² Australian Institute of Health and Welfare (2021). *Chronic condition multimorbidity*. Retrieved from <https://www.aihw.gov.au/reports/chronic-disease/chronic-condition-multimorbidity>

⁶³ Australian Institute of Health and Welfare (2020). *Australia's Health 2020: In Brief. AIHW*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/australias-health/australias-health-2020-in-brief/summary>

⁶⁴ Australian Institute of Health and Welfare (2020). *Australia's Health 2020: In Brief. AIHW*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/australias-health/australias-health-2020-in-brief/summary>

⁶⁵ Dobson, A., Forder, P., Hockey, R., Egan, N., Cavenagh, D., Waller, M., ... & Mishra, G. (2020). The impact of multiple chronic conditions: *Findings from the Australian Longitudinal Study on Women's Health*. Report prepared for the Australian Government Department of Health. Retrieved 2/9/2022 from: <https://alswh.org.au/wp-content/uploads/2020/09/ALSWH-Major-Report-Multimorbidity-2020.pdf>

⁶⁶ Royal Australian College of General Practitioners (RACGP) (2022). *The Role of Specialist GPs*. Retrieved 2/9/2022 from: <https://www.racgp.org.au/advocacy/position-statements/view-all-position-statements/health-systems-and-environmental/the-role-of-specialist-gps>

⁶⁷ Australian Bureau of Statistics (2014-2022). *Patient Experiences in Australia: Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

⁶⁸ Australian Institute of Health and Welfare (2021). *Health Expenditure Australia 2019-20*. Retrieved from <https://www.aihw.gov.au/reports/health-welfare-expenditure/health-expenditure-australia-2019-20>

⁶⁹ Tikkanen R. Osborn R. Mossialos E. Djordjevic A and Wharton G. *International Health Care System Profiles Australia*. The Commonwealth Fund, June 2020. <https://www.commonwealthfund.org/international-health-policy-center/countries/australia>

⁷⁰ Wright, M., Versteeg, R., & van Gool, K. (2021). How much of Australia's health expenditure is allocated to general practice and primary healthcare? *Australian Journal of General Practice*, 50(9), 673–678. <https://search.informit.org/doi/10.3316/informit.048700919305252>

⁷¹ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 16/08/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

⁷² Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 16/08/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

⁷³ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 16/08/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

⁷⁴ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 16/08/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

⁷⁵ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 16/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

⁷⁶ Productivity Commission (2022). *Report on Government Services 2022. Primary and community health data tables - Table10A.2*. Retrieved 8/08/2022 from: <https://www.pc.gov.au/research/ongoing/report-on-government-services/2022/health/primary-and-community-health>

⁷⁷ Australian Government Department of Health and Ageing (2022). *Medicare annual statistics – Rolling 12 months (2009–10 to 2021–22)*. Retrieved 9/11/2022 from: <https://www.health.gov.au/resources/publications/medicare-annual-statistics-rolling-12-months-2009-10-to-2021-22>

⁷⁸ Australian Institute of Health and Welfare (2021). *Health expenditure Australia 2019–20*. Retrieved 8/08/2022 from: <https://www.aihw.gov.au/reports/health-welfare-expenditure/health-expenditure-australia-2019-20/contents/spending-trends-by-source/government-sources>

⁷⁹ Productivity Commission (2022). *Report on Government Services 2022. Primary and community health data tables - Table10A.1*. Retrieved 8/08/2022 from: <https://www.pc.gov.au/research/ongoing/report-on-government-services/2022/health/primary-and-community-health>

⁸⁰ Wright, M., Versteeg, R., & van Gool, K. (2021). How much of Australia's health expenditure is allocated to general practice and primary healthcare? *Australian Journal of General Practice*, 50(9), 673–678. Retrieved 8/08/2022 from: <https://search.informit.org/doi/10.3316/informit.048700919305252>

⁸¹ Productivity Commission (2022). *Report on Government Services 2022. Primary and community health data tables - Table10A.2*. Retrieved 8/08/2022 from: <https://www.pc.gov.au/research/ongoing/report-on-government-services/2022/health/primary-and-community-health>

⁸² Australian Government Department of Health and Ageing (1995–2022). *Medicare Benefits Schedule Book*. Retrieved 16/09/2022 from: <http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/downloads>

⁸³ Australian Bureau of Statistics (2022). *6401.0 Consumer Price Index, Australia*. Retrieved 16/09/2022 from: <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/consumer-price-index-australia/latest-release>

⁸⁴ Australian Bureau of Statistics (2022). *6302.0 Average Weekly Earnings, Australia*. Retrieved 16/09/2022 from: <https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/average-weekly-earnings-australia/latest-release>

⁸⁵ Australian Government Department of Health and Ageing (1995–2022). *Medicare Benefits Schedule Book*. Retrieved 16/09/2022 from: <http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/downloads>

⁸⁵ Australian Government Senate Select Committee on Medicare Secretariat (2003). *Medicare – healthcare or welfare?* Retrieved 21/09/2022 from: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Former_Committees/medicare/fairer_medicare/report/index

⁸⁶ Productivity Commission (2005-2021). *Report on Government Services*. Retrieved 1/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services>.

⁸⁷ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

⁸⁸ Productivity Commission (2005-2021). *Report on Government Services*. Retrieved 1/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services>.

⁸⁹ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

⁹⁰ Australian Bureau of Statistics (2022). *6401.0 Consumer Price Index, Australia*. Retrieved 16/09/2022 from: <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/consumer-price-index-australia/latest-release>

⁹¹ Australian Bureau of Statistics (2022). *6302.0 Average Weekly Earnings, Australia*. Retrieved 16/09/2022 from: <https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/average-weekly-earnings-australia/latest-release>

⁹² Australian Government Senate Select Committee on Medicare Secretariat. (2003). *Medicare – healthcare or welfare?* Retrieved 21/09/2022 from: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Former_Committees/medicare/fairer_medicare/report/index

⁹³ The Hon Tony Abbott, Minister for Health and Ageing (2004). *Bulk billing incentives from February 1 media release*. Retrieved 16/09/2022 from: https://parlinfo.aph.gov.au/parlInfo/download/media/pressrel/O2DB6/upload_binary/o2db63.pdf;fileType=application%2Fpdf#search=%22media/pressrel/O2DB6%22

⁹⁴ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 26/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

⁹⁵ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

⁹⁶ Productivity Commission (2005-2021). *Report on Government Services*. Retrieved 1/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services>.

Note: Bulk billing data for 2021-22 was sourced from Department of Health and Aged Care (2022). *Medicare annual statistics - State and territory (2009-10 to 2021-22)*. Retrieved 1/10/2022 from: <https://www.health.gov.au/resources/publications/medicare-annual-statistics-state-and-territory-2009-10-to-2021-22>

⁹⁷ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

⁹⁸ Australian Bureau of Statistics (2022). *6401.0 Consumer Price Index, Australia*. Retrieved 16/09/2022 from: <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/consumer-price-index-australia/latest-release>

⁹⁹ Australian Bureau of Statistics (2022). *6302.0 Average Weekly Earnings, Australia*. Retrieved 16/09/2022 from: <https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/average-weekly-earnings-australia/latest-release>

¹⁰⁰ Australian Bureau of Statistics (2022). *Patient Experiences in Australia: Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

¹⁰¹ Australian Institute of Health and Welfare (2022). *Australia's health 2022: data insights*. Retrieved 8/08/2022 from <https://www.aihw.gov.au/reports/australias-health/australias-health-2022-data-insights/summary>

¹⁰² Australian Institute of Health and Welfare (2022). *Australia's health 2022: data insights*. Retrieved 8/08/2022 from <https://www.aihw.gov.au/reports/australias-health/australias-health-2022-data-insights/summary>

¹⁰³ Australian Bureau of Statistics (2022). *Patient Experiences in Australia: Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

¹⁰⁴ Australian Bureau of Statistics (2014-2022). *Patient Experiences in Australia: Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

¹⁰⁵ Australian Bureau of Statistics (2014-2022). *Patient Experiences in Australia: Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

¹⁰⁶ Australian Bureau of Statistics (2014-2022). *Patient Experiences in Australia: Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

¹⁰⁷ Australian Bureau of Statistics (2014-2022). *Patient Experiences in Australia: Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

¹⁰⁸ Australian Bureau of Statistics (2014-2022). *Patient Experiences in Australia: Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

¹⁰⁹ Australian Bureau of Statistics (2022). *Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

¹¹⁰ Australian Bureau of Statistics (2022). *Summary of Findings*. Retrieved 22/11/2022 from: <https://www.abs.gov.au/statistics/health/health-services/patient-experiences>

¹¹¹ Larkins, S., & Evans, R. (2014). Greater support for generalism in rural and regional Australia. *Australian family physician*, 43(7), 487-490.

¹¹² New South Wales Government (2022). *NSW Government response: Inquiry into health outcomes and access to health and hospital services in rural, regional and remote New South Wales*. Retrieved 9/11/2022 from: <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2615#tab-reportsandgovernmentresponses>

¹¹³ Commonwealth of Australia (2022). *Provision of general practitioner and related primary health services to outer metropolitan, rural, and regional Australians*. Retrieved 27/09/2022 from: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/PrimaryHealthServices/Final_Report

¹¹⁴ Australian Institute of Health and Welfare (2021). *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/burden-of-disease/abds-impact-and-causes-of-illness-and-death-in-aus/summary>

¹¹⁵ Australian Institute of Health and Welfare (2021). Emergency department care. Retrieved 2/11/2022 from: <https://www.aihw.gov.au/reports-data/myhospitals/sectors/emergency-department-care>

¹¹⁶ Australian Medical Association (2021). *Public hospitals cycle of crisis*. Retrieved 2/11/2022 from: <https://www.ama.com.au/public-hospitals-cycle-of-crisis>

¹¹⁷ Richardson, D. B., & Mountain, D. (2009). Myths versus facts in emergency department overcrowding and hospital access block. *Medical Journal of Australia*, 190(7), 369-374.

- ¹¹⁸ Australian Medical Association (2021). *Public hospitals cycle of crisis*. Retrieved 2/11/2022 from: <https://www.ama.com.au/public-hospitals-cycle-of-crisis>
- ¹¹⁹ Australasian College for Emergency Medicine (2022). *Position statement access block*. Retrieved 2/11/22 from: <https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/Better-Outcomes-for-Patients/Access-Block>
- ¹²⁰ Australian Institute of Health and Welfare (2020). *Use of emergency departments for lower urgency care: 2015–16 to 2018–19*. Retrieved 31/08/2022 from: <https://www.aihw.gov.au/reports/primary-health-care/use-of-ed-for-lower-urgency-care-2018-19>
- ¹²¹ Richardson, D. B., & Mountain, D. (2009). Myths versus facts in emergency department overcrowding and hospital access block. *Medical Journal of Australia*, 190(7), 369-374.
- ¹²² Australasian College for Emergency Medicine (2021). *'GP-type' patients must not be blamed for hospital access block media release*. Retrieved 2/11/2022 from: <https://acem.org.au/News/March-2021/%E2%80%98GP-type%E2%80%99-patients-must-not-be-blamed-for-hospital>
- ¹²³ Richardson, D. B., & Mountain, D. (2009). Myths versus facts in emergency department overcrowding and hospital access block. *Medical Journal of Australia*, 190(7), 369-374.
- ¹²⁴ Australasian College for Emergency Medicine (2022). *Position statement access block*. Retrieved 2/11/22 from: <https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/Better-Outcomes-for-Patients/Access-Block>
- ¹²⁵ Australian Medical Association (2021). *Public hospitals cycle of crisis*. Retrieved 2/11/2022 from: <https://www.ama.com.au/public-hospitals-cycle-of-crisis>
- ¹²⁶ Australian Institute of Health and Welfare (2020). *Disparities in potentially preventable hospitalisations across Australia: Exploring the data*. Retrieved 1/09/2022 from <https://www.aihw.gov.au/reports/primary-health-care/disparities-in-potentially-preventable-hospitalisations-exploring-the-data>
- ¹²⁷ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 1/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>
- ¹²⁸ Australian Institute of Health and Welfare (2020). *Disparities in potentially preventable hospitalisations across Australia: Exploring the data*. Retrieved 1/09/2022 from <https://www.aihw.gov.au/reports/primary-health-care/disparities-in-potentially-preventable-hospitalisations-exploring-the-data>
- ¹²⁹ Australian Institute of Health and Welfare (2020). *Disparities in potentially preventable hospitalisations across Australia: Exploring the data*. Retrieved 1/09/2022 from <https://www.aihw.gov.au/reports/primary-health-care/disparities-in-potentially-preventable-hospitalisations-exploring-the-data>
- ¹³⁰ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 11/08/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>
- ¹³¹ Price Waterhouse Coopers (2020). *Economic benefits of the RACGP's Vision for general practice and a sustainable healthcare system – commissioned and supported by The Royal Australian College of General Practitioners*. Retrieved 1/09/2022 from: <https://www.racgp.org.au/advocacy/advocacy-resources/the-vision-for-general-practice/economic-benefits-of-the-racgp-vision>
- ¹³² Australian Institute of Health and Welfare (2022). *OECD Health Care Quality and Outcomes Indicators, Australia 2021*. Retrieved 16/09/2022 from <https://www.aihw.gov.au/reports/international-comparisons/oecd-health-care-quality-and-outcomes-indicators-2021>

- ¹³³ Ha, N. T., Wright, C., Youens, D., Preen, D. B., & Moorin, R. (2020). Effect modification of multimorbidity on the association between regularity of general practitioner contacts and potentially avoidable hospitalisations. *Journal of general internal medicine*, *35*(5), 1504-1515. <https://doi.org/10.1007/s11606-020-05699-0>
- ¹³⁴ Moorin, R. E., Youens, D., Preen, D. B., & Wright, C. M. (2020). The association between general practitioner regularity of care and 'high use' hospitalisation. *BMC health services research*, *20*(1), 1-10. doi.org/10.1186/s12913-020-05718-0
- ¹³⁵ World Health Organization (2018). *Technical Series on Primary Health Care. Building the economic case for primary health care: a scoping review*. Retrieved 1/9/2022 from <https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.48>
- ¹³⁶ Huntley, A., Lasserson, D., Wye, L., Morris, R., Checkland, K., England, H., Salisbury, C., & Purdy, S. (2014). Which features of primary care affect unscheduled secondary care use? A systematic review. *BMJ open*, *4*(5), e004746. doi:10.1136/bmjopen-2013-004746
- ¹³⁷ Moorin, R. E., Youens, D., Preen, D. B., & Wright, C. M. (2020). The association between general practitioner regularity of care and 'high use' hospitalisation. *BMC health services research*, *20*(1), 1-10. doi.org/10.1186/s12913-020-05718-0
- ¹³⁸ Huntley, A., Lasserson, D., Wye, L., Morris, R., Checkland, K., England, H., Salisbury, C., & Purdy, S. (2014). Which features of primary care affect unscheduled secondary care use? A systematic review. *BMJ open*, *4*(5), e004746. doi:10.1136/bmjopen-2013-004746
- ¹³⁹ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 16/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>
- ¹⁴⁰ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 16/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>
- ¹⁴¹ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 16/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>
- ¹⁴² Australian Government Department of Health and Aged Care (2020). *National Health Workforce Data Tool Data selected: Number of practitioners by primary specialty in labour force in Australia 2013 to 2020*. Retrieved 21/09/2022 from <https://hwd.health.gov.au/datatool/>
- ¹⁴³ Productivity Commission (2022). *Report on Government Services 2022*. Retrieved 16/09/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>
- ¹⁴⁴ Medical Deans Australia and New Zealand (2020). *National Data Report 2020: 2015–2019 Data from Final Year Students at Australian Medical Schools*. Retrieved 23/04/2022 from: <https://medicaldeans.org.au/data/medical-schools-outcomes-database-reports/>
- ¹⁴⁵ Medical Deans Australia and New Zealand (2022). *National Data Report 2020: 2017–2021 Data from Final Year Students at Australian Medical Schools*. Retrieved 4/08/2022 from: <https://medicaldeans.org.au/data/medical-schools-outcomes-database-reports/>
- ¹⁴⁶ Medical Deans Australia and New Zealand (2020). *National Data Report 2020: 2015–2019 Data from Final Year Students at Australian Medical Schools*. Retrieved 23/04/2022 from: <https://medicaldeans.org.au/data/medical-schools-outcomes-database-reports/>
- ¹⁴⁷ Medical Deans Australia and New Zealand (2022). *National Data Report 2020: 2017–2021 Data from Final Year Students at Australian Medical Schools*. Retrieved 4/08/2022 from: <https://medicaldeans.org.au/data/medical-schools-outcomes-database-reports/>

- ¹⁴⁸ Scott, A., Joyce, C., Cheng, T., & Wang, W. (2013). *Medical career path decision making: a rapid review*. Retrieved 1/09/2022 from: https://www.saxinstitute.org.au/wp-content/uploads/REPORT_Medical-career-path.pdf
- ¹⁴⁹ Scott, A., Joyce, C., Cheng, T., & Wang, W. (2013). *Medical career path decision making: a rapid review*. Retrieved 1/09/2022 from: https://www.saxinstitute.org.au/wp-content/uploads/REPORT_Medical-career-path.pdf
- ¹⁵⁰ Australian Government Department of Health and Aged Care (2022). *About the Australian General Practice Training (AGPT) Program*. Retrieved 28/04/2022 from: <https://www.health.gov.au/initiatives-and-programs/australian-general-practice-training-agpt-program/about-the-australian-general-practice-training-agpt-program>
- ¹⁵¹ Taylor R, Clarke L, Radloff A. (2021). *Australian General Practice Training Program: National Report on the 2021 National Registrar Survey*. Retrieved 22/8/2022 from: <https://www.health.gov.au/resources/publications/agpt-program-national-report-on-the-2021-national-registrar-survey>
- ¹⁵¹ Taylor R, Clarke L, Radloff A. (2021). *Australian General Practice Training Program: National Report on the 2021 National Registrar Survey*. Retrieved 22/8/2022 from: <https://www.health.gov.au/resources/publications/agpt-program-national-report-on-the-2021-national-registrar-survey>
- ¹⁵² Taylor R, Clarke L, Radloff A. (2021). *Australian General Practice Training Program: National Report on the 2021 National Registrar Survey*. Retrieved 22/8/2022 from: <https://www.health.gov.au/resources/publications/agpt-program-national-report-on-the-2021-national-registrar-survey>
- ¹⁵³ The Royal Australian College of General Practitioners (2021). *General Practice Health of the Nation*. Retrieved 23/08/2022 from <https://www.racgp.org.au/health-of-the-nation>
- ¹⁵⁴ The Royal Australian College of General Practitioners (2021). *General Practice Health of the Nation*. Retrieved 23/08/2022 from <https://www.racgp.org.au/health-of-the-nation>
- ¹⁵⁵ Australian Government Department of Health and Aged Care (2022). *General Practice Workforce Providing Primary Care Services in Australia*. Retrieved 1/09/2022 from <https://hwd.health.gov.au/resources/data/gp-primarycare.html>
- ¹⁵⁶ General Practice Registrars Australia (2022). *Pathways into general practice*. Retrieved 3/06/2022 from <https://gpra.org.au/training/fellowship-pathways/>
- ¹⁵⁷ General Practice Registrars Australia (2022). *Pathways into general practice*. Retrieved 3/06/2022 from <https://gpra.org.au/training/fellowship-pathways/>
- ¹⁵⁸ Royal Australian College of General Practice (2022). *About the Remote Vocational Training Scheme*. Retrieved 27/06/2022 from <https://www.racgp.org.au/education/students/starting-the-gp-journey/remote-vocational-training-scheme-rvts>
- ¹⁵⁹ Department of Health and Aged Care (2018). *Summary Snapshot Vocational Medical Education and Training*. Retrieved 1/09/2022 from: <https://hwd.health.gov.au/resources/publications/report-met2-2017.html>
- ¹⁶⁰ Australian Government Department of Health and Aged Care (2021). *Medical Education and Training (MET) 4th Edition 2019. Table 4.13 Vocational training positions/ trainees by medical specialty 2019*. Retrieved 1/09/2022 from: <https://hwd.health.gov.au/resources/publications/report-met4-2019.html>
- ¹⁶¹ Australian Government Department of Health and Aged Care (2019). *MET3 Summary Snapshot 2018 Vocational Medical Education and Training*. Retrieved 1/09/2022 from: <https://hwd.health.gov.au/resources/publications/report-met3-2018.html>

¹⁶² Australian Government Department of Health and Aged Care (2018). *MET02 Summary Snapshot Vocational Medical Education and Training*. Retrieved 1/09/2022 from: <https://hwd.health.gov.au/resources/publications/report-met2-2017.html>

¹⁶³ Thistlethwaite, J., Shaw, T., Kidd, M., Leeder, S., Burke, C., & Corcoran, K. (2017). *Attracting health professionals into primary care: strategies for recruitment*. Retrieved 1/09/2022 from: https://nceph.anu.edu.au/files/full_report_18263.pdf

¹⁶⁴ Taylor R, Clarke L, Radloff A. (2021). *Australian General Practice Training Program: National Report on the 2021 National Registrar Survey*. Retrieved 22/8/2022 from: <https://www.health.gov.au/resources/publications/agpt-program-national-report-on-the-2021-national-registrar-survey>

¹⁶⁵ Townsend, D., Campbell, N., & Chandler, C. (2017). Overcoming negative perceptions among Australian medical students about a career in general practice. *The Medical Journal of Australia*, 206(4), 149-150. <https://doi.org/10.5694/mja16.00454>

¹⁶⁶ Australian Government Department of Health and Aged Care (2021). *National Medical Workforce Strategy 2021–2031*. Retrieved 1/09/2022 from: <https://www.health.gov.au/resources/publications/national-medical-workforce-strategy-2021-2031>

¹⁶⁷ Scott A. (2017). *ANZ – Melbourne Institute Health Sector Report. General Practice Trends*. Retrieved 1/09/2022 from: <https://www.anz.com.au/content/dam/anzcomau/pdf/anz-mi-general-practice-trends-health-sector-report.pdf>

¹⁶⁸ Thistlethwaite, J., Shaw, T., Kidd, M., Leeder, S., Burke, C., & Corcoran, K. (2017). *Attracting health professionals into primary care: strategies for recruitment*. Retrieved 1/09/2022 from: https://nceph.anu.edu.au/files/full_report_18263.pdf

¹⁶⁹ Australian Government Services Australia (2009–2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

¹⁷⁰ The University of Sydney (2013-2016). *Bettering the Evaluation and Care of Health (BEACH) National Study of General Practitioner Activity*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>

¹⁷¹ Australian Bureau of Statistics (2021). *Australian estimated resident population series*. Retrieved 1/09/2022 from: <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/dec-2021>

¹⁷² Australian Government Department of Health and Aged Care (2022). *General Practice Workforce Providing Primary Care Services in Australia (2014-2021 calendar years)*. Retrieved 18/11/2022 from <https://hwd.health.gov.au/resources/data/gp-primarycare.html>

¹⁷³ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

¹⁷⁴ The University of Sydney (2013-2016). *Bettering the Evaluation and Care of Health (BEACH) National Study of General Practitioner Activity*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>

¹⁷⁵ Australian Bureau of Statistics (2021). *Australian estimated resident population series*. Retrieved 1/09/2022 from: <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/dec-2021>

¹⁷⁶ Britt H. & Miller G.C. (2014). *Byte from BEACH. No: 2014; 2 Debunking the myth that general practice is '6 minute medicine'*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>

Individual GP items have been held a constant length of time throughout the history period. These have been calibrated to match the BEACH data analysis. The share of consultations that are longer, a Level C as compared with a Level B, have grown over time as well as item numbers such as chronic disease management which is driving up the average time spent per consultation. These underlying trends are combined as one growth factor labelled 'complexity'.

¹⁷⁷ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

¹⁷⁸ The University of Sydney (2013-2016). *Bettering the Evaluation and Care of Health (BEACH) National Study of General Practitioner Activity*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>

¹⁷⁹ Australian Bureau of Statistics (2021). *Australian estimated resident population series*. Retrieved 1/09/2022 from: <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/dec-2021>

¹⁸⁰ Britt H. & Miller G.C. (2014). *Byte from BEACH. No: 2014; 2 Debunking the myth that general practice is '6 minute medicine'*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>

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¹⁸² Australian Medical Association (2019). *Submission to the Royal Commission into Aged Care Quality and Safety*. Retrieved 16/09/2022 from: <https://www.ama.com.au/submission/ama-submission-royal-commission-aged-care-quality-and-safety>

¹⁸³ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

¹⁸⁴ The University of Sydney (2013-2016). *Bettering the Evaluation and Care of Health (BEACH) National Study of General Practitioner Activity*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>

¹⁸⁵ Australian Bureau of Statistics (2021). *Australian estimated resident population series*. Retrieved 1/09/2022 from: <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/dec-2021>

¹⁸⁶ Australian Bureau of Statistics (2018) *Population Projections, Australia medium series*. Retrieved 2/07/2022 <https://www.abs.gov.au/statistics/people/population/population-projections-australia/2017-base-2066#national>.

¹⁸⁷ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

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²⁰³ Australian Bureau of Statistics (2021). *Australian estimated resident population series*. Retrieved 1/09/2022 from: <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/dec-2021>

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²⁰⁷ Australian Institute of Health and Welfare (2021). *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018*. Retrieved 16/9/2022 from: <https://www.aihw.gov.au/reports/burden-of-disease/abds-impact-and-causes-of-illness-and-death-in-aus/summary>

²⁰⁸ Australian Bureau of Statistics (2018). *Population Projections, Australia medium series*. Retrieved 2/07/2022
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²¹¹ Australian Institute of Health and Welfare (2022). *Australia's health 2022: in brief*. Canberra: AIHW. Retrieved 22/11/2022 from:
<https://www.aihw.gov.au/reports/australias-health/australias-health-2022-in-brief/summary>

²¹² The Royal Australian College of General Practitioners (2021). *General Practice Health of the Nation*. Retrieved 23/08/2022 from <https://www.racgp.org.au/health-of-the-nation>

²¹³ Department of Health and Aged Care (2021). *Medical Education and Training Dataset by calendar year*. Retrieved 22/11/2022 from:
<https://hwd.health.gov.au/resources/information/nhwds.html>

Analysis used medical speciality by year and trainees, general practice (various programs). An estimate for the new additional training places for Rural Generalists has been added based on Rural Generalist program information.

²¹⁴ Australian Government Department of Health and Aged Care (2020). *National Health Workforce Data Tool Data selected: Number of practitioners by primary specialty in labour force in Australia 2013 to 2020 (calendar years)*. Retrieved 21/08/2022 from <https://hwd.health.gov.au/datatool/>

²¹⁵ Medical Board of Australia (2022). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2021 – 31 December 2021*. Retrieved 16/09/2022 from:
<https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²¹⁶ Medical Board of Australia (2021). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2020 – 31 December 2020*. Retrieved 16/09/2022 from:
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²²¹ Medical Board of Australia (2019). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2018 – 31 December 2018*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²²² Medical Board of Australia (2018). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2017 – 31 December 2017*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²²³ Medical Board of Australia (2017). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2016 – 31 December 2016*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²²⁴ Medical Board of Australia (2016). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2015 – 31 December 2015*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²²⁵ Department of Health and Aged Care (2020). *Medical Education and Training, 5th Edition*. Retrieved 22/11/2022 from: <https://hwd.health.gov.au/met-primary/index.html>

Fellows, by calendar year, with filters, 'New fellows', 'Medical specialty', General Practice, various programs. AMA estimates of new IMG fellows based on the total annual college fellowship less those that come from domestic pathways. These series fluctuate, the exact tracing of graduates and fellows is not possible with the data hence this estimate is considered an approximation. National Health Workforce Dataset by calendar year has been used to estimate fellowships from domestic pathways.

²²⁶ Department of Health and Aged Care (2021). *National Health Workforce Dataset, by calendar year*. Retrieved 22/11/2022 from: <https://hwd.health.gov.au/datatool/>

The assumed rate of retirement is consistent with a continuation of the current age structure of the workforce. That is, the rate of retirement in the projections is consistent with having an older average GP retirement than the economy wide average retirement age as that is what is implied by the current age structure. The 'rate of retirement' is based on headcount of doctors.

²²⁷ Productivity Commission (2022). *Report on Government Services 2022, Primary and Community Health data table 10A.63 Attrition of general practitioners across age brackets, by calendar year*. Retrieved 16/08/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

The AMA has estimated that many of the younger and older people leaving from the Productivity Commission report would have been included in other estimates such as discontinuation or retirement. The age based rates for those between 35 and 54 and a proportion of those between 55 and 64, were included in the attrition assumptions in the AMA projections, as they were not included in the baseline retirement.

²²⁸ Department of Health and Aged Care (2021). *National Health Workforce Dataset, by calendar year*. Retrieved 22/11/2022 from: <https://hwd.health.gov.au/datatool/>

²²⁹ Department of Health and Aged Care (2021). *National Health Workforce Dataset, by calendar year*. Retrieved 22/11/2022 from: <https://hwd.health.gov.au/datatool/>

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Projections are AMA scenarios. Some AMA scenarios utilise the overall workforce FTE changes, others use the age and sex specific rates of change

²³¹ Department of Health and Aged Care (2021). *National Health Workforce Dataset, by calendar year*. Retrieved 22/11/2022 from: <https://hwd.health.gov.au/datatool/>

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²³³ Medical Board of Australia (2022). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2021 – 31 December 2021*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²³⁴ Medical Board of Australia (2021). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2020 – 31 December 2020*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²³⁵ Medical Board of Australia (2020). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2019 – 31 December 2019*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²³⁶ Productivity Commission (2022). *Report on Government Services 2022, Primary and Community Health data table 10A.63 Attrition of general practitioners across age brackets, by calendar year*. Retrieved 16/08/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

²³⁷ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

²³⁸ The University of Sydney (2013-2016). *Bettering the Evaluation and Care of Health (BEACH) National Study of General Practitioner Activity*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>

²³⁹ White, J., Cavenagh, D., Byles, J., Mishra, G., Tooth, L., & Loxton, D. (2022). The experience of delayed health care access during the COVID 19 pandemic in Australian women: A mixed methods exploration. *Health & Social Care in the Community*, 30(4), e1384-e1395.

²⁴⁰ The Royal Australian College of General Practitioners (2021). *General Practice Health of the Nation*. Retrieved 23/08/2022 from <https://www.racgp.org.au/health-of-the-nation>

²⁴¹ Taylor R, Clarke L, Radloff A. (2021). *Australian General Practice Training Program: National Report on the 2021 National Registrar Survey*. Retrieved 22/8/2022 from: <https://www.health.gov.au/resources/publications/agpt-program-national-report-on-the-2021-national-registrar-survey>

²⁴² Taylor R, Clarke L, Radloff A. (2021). *Australian General Practice Training Program: National Report on the 2021 National Registrar Survey*. Retrieved 22/8/2022 from: <https://www.health.gov.au/resources/publications/agpt-program-national-report-on-the-2021-national-registrar-survey>

²⁴³ Australian Government Department of Health and Aged Care (2022). *General Practice Workforce Providing Primary Care Services in Australia, by calendar year*. Retrieved 1/09/2022 from <https://hwd.health.gov.au/resources/data/gp-primarycare.html>

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²⁵² Medical Board of Australia (2020). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2019 – 31 December 2019*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²⁵³ The Royal Australian College of General Practitioners (2022). *General Practice Health of the Nation*. Retrieved 17/10/2022 <https://www.racgp.org.au/general-practice-health-of-the-nation-2022>

²⁵⁴ Government of Western Australia Department of Health (2018). *General practice workforce supply and training in Western Australia Version 1.3*. Retrieved 19/10/2022 from: <https://ww2.health.wa.gov.au/Reports-and-publications/General-practice-workforce-supply-and-training>

²⁵⁵ Australian Government Department of Health and Aged Care (2022). *General Practice Workforce Providing Primary Care Services in Australia, by calendar year*. Retrieved 1/09/2022 from <https://hwd.health.gov.au/resources/data/gp-primarycare.html>

²⁵⁶ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 9/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

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²⁶² Medical Board of Australia (2022). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2021 – 31 December 2021*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

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²⁶⁴ Medical Board of Australia (2020). *Report on Specialist Medical Colleges Specialist Pathway Data 1 January 2019 – 31 December 2019*. Retrieved 16/09/2022 from: <https://www.medicalboard.gov.au/registration/international-medical-graduates/specialist-pathway/guides-and-reports.aspx>

²⁶⁵ Productivity Commission (2022). *Report on Government Services 2022, Primary and Community Health data table 10A.63 Attrition of general practitioners across age brackets*. Retrieved 16/08/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

²⁶⁶ Australian Medical Association (2020). *Delivering Better Care for Patients: The AMA 10 Year Framework for Primary Care Reform*. Retrieved 1/9/2022 from: <https://www.ama.com.au/articles/delivering-better-care-patients-ama-10-year-framework-primary-care-reform>

²⁶⁷ Australian Government Department of Health and Aged Care (2022). *Australia's Primary Health Care 10 Year Plan 2022-2032*. Retrieved 1/9/2022 from <https://www.health.gov.au/resources/publications/australias-primary-health-care-10-year-plan-2022-2032>

²⁶⁸ Australian Government Department of Health and Aged Care (2022). *Strengthening Medicare Taskforce*. Retrieved 8/11/2022 from: <https://www.health.gov.au/committees-and-groups/strengthening-medicare-taskforce>

²⁶⁹ Australian Government Department of Health and Aged Care (2022). *Australia's Primary Health Care 10 Year Plan 2022-2032*. Retrieved 1/9/2022 from <https://www.health.gov.au/resources/publications/australias-primary-health-care-10-year-plan-2022-2032>

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²⁷¹ Wagner, E. H., Flinter, M., Hsu, C., Crompton, D., Austin, B. T., Etz, R., ... & Ladden, M. D. (2017). Effective team-based primary care: observations from innovative practices. *BMC Family Practice*, 18(1), 1-9. <https://doi.org/10.1186/s12875-017-0590-8>

²⁷² Australian Medical Association (2021). *AMA Position Statement on the Medical Home – 2021*. Retrieved 7/11/2022 from: <https://www.ama.com.au/articles/medical-home-2021>

²⁷³ John, J. R., Jani, H., Peters, K., Agho, K., & Tannous, W. K. (2020). The effectiveness of patient-centred medical home-based models of care versus standard primary care in chronic disease management: A systematic review and meta-analysis of randomised and non-randomised controlled trials. *International journal of environmental research and public health*, 17(18), 6886. <https://doi.org/10.3390/ijerph17186886>

²⁷⁴ Australian Medical Association (2020). *Delivering Better Care for Patients: The AMA 10 Year Framework for Primary Care Reform*. Retrieved 1/9/2022 from: <https://www.ama.com.au/articles/delivering-better-care-patients-ama-10-year-framework-primary-care-reform>

²⁷⁵ Australian Medical Association (2022). *Pharmacy trial a dangerous experiment undermining GPs' valued role*. Retrieved 8/11/2022 from: <https://www.ama.com.au/ama-rounds/7-october-2022/articles/276> Australian Medical Association (2022). *Implement health workforce plan, AMA tells Government*. Retrieved 8/11/2022 from: <https://www.ama.com.au/ama-rounds/26-august-2022/articles/implement-health-workforce-plan-ama-tells-government>

²⁷⁶ Australian Medical Association (2022). *Implement health workforce plan, AMA tells Government*. Retrieved 8/11/2022 from: <https://www.ama.com.au/ama-rounds/26-august-2022/articles/implement-health-workforce-plan-ama-tells-government>

²⁷⁷ Australian Government Department of Health and Aged Care (2022). *National Medical Workforce Strategy 2021-2031*. Retrieved 1/9/2022 from <https://www.health.gov.au/resources/publications/national-medical-workforce-strategy-2021-2031>

²⁷⁸ Australian Medical Association (2019). *Medical Workforce and Training position statement*. Retrieved 8/11/2022 from: <https://www.ama.com.au/position-statement/medical-workforce-and-training-2019>

²⁷⁹ Australian Government Department of Health and Aged Care (2022). *National Medical Workforce Strategy 2021-2031*. Retrieved 1/9/2022 from <https://www.health.gov.au/resources/publications/national-medical-workforce-strategy-2021-2031>

²⁸⁰ Australian Medical Students' Association (2022). *AMSA Roundtable Report Medical Student Interest in General Practice – Reversing the Trend. Recommendations for Government, Universities and General Practice Colleges*. Retrieved 14/11/2022 from: www.tinyurl.com/amsaroundtablereport

²⁸¹ Australian Medical Students' Association (2022). *AMSA Roundtable Report Medical Student Interest in General Practice – Reversing the Trend. Recommendations for Government, Universities and General Practice Colleges*. Retrieved 14/11/2022 from: www.tinyurl.com/amsaroundtablereport

²⁸² Australian Medical Association (2019). *GP registrar employment contracts under spotlight at AMANatCon*. <https://www.ama.com.au/e-dit/issue-162/articles/gp-registrar-employment-contracts-under-spotlight-ama-natcon>. Accessed 5 September 2022

²⁸³ Australian Medical Association (2022). *Pre-budget Submission 2020-21*. Retrieved 5/9/2022 from: <https://www.ama.com.au/articles/ama-pre-budget-submission-2020-21>

²⁸⁴ New South Wales Government (2022). *NSW Government response: Inquiry into health outcomes and access to health and hospital services in rural, regional and remote New South Wales*. Retrieved 9/11/2022 from: <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2615#tab-reportsandgovernmentresponses>

²⁸⁵ Australian Government Department of Health and Aged Care (2022). *Stronger Rural Health Strategy*. Retrieved 2/09/2022 from: <https://www.health.gov.au/health-topics/rural-health-workforce/stronger-rural-health-strategy>

²⁸⁶ Australian Government Department of Health and Aged Care (2022). *John Flynn Prevocational Doctor Program*. Retrieved 2/09/2022 from: <https://www.health.gov.au/initiatives-and-programs/john-flynn-prevocational-doctor-program>.

²⁸⁷ Commonwealth of Australia (2022). *Provision of general practitioner and related primary health services to outer metropolitan, rural, and regional Australians*. Retrieved 27/09/2022 from: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/PrimaryHealthServices/Final_Report

²⁸⁸ Larkins, S., & Evans, R. (2014). Greater support for generalism in rural and regional Australia. *Australian family physician*, 43(7), 487-490.

²⁸⁹ New South Wales Government (2022). *NSW Government response: Inquiry into health outcomes and access to health and hospital services in rural, regional and remote New South Wales*. Retrieved 9/11/2022 from: <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2615#tab-reportsandgovernmentresponses>

²⁹⁰ New South Wales Government (2022). *NSW Government response: Inquiry into health outcomes and access to health and hospital services in rural, regional and remote New South Wales*. Retrieved 9/11/2022 from: <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2615#tab-reportsandgovernmentresponses>

²⁹¹ Commonwealth of Australia (2022). *Provision of general practitioner and related primary health services to outer metropolitan, rural, and regional Australians*. Retrieved 27/09/2022 from: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/PrimaryHealthServices/Final_Report

²⁹² Commonwealth of Australia (2022). *Provision of general practitioner and related primary health services to outer metropolitan, rural, and regional Australians*. Retrieved 27/09/2022 from: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/PrimaryHealthServices/Final_Report

²⁹³ Commonwealth of Australia (2022). *Provision of general practitioner and related primary health services to outer metropolitan, rural, and regional Australians*. Retrieved 27/09/2022 from: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/PrimaryHealthServices/Final_Report

²⁹⁴ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 24/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

²⁹⁵ Britt H. & Miller G.C. (2014). *Byte from BEACH. No: 2014; 2 Debunking the myth that general practice is '6 minute medicine'*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>

²⁹⁶ Australian Government Services Australia (2009-2019). *Medicare Item Reports, 2009-2019 financial years*. Retrieved 24/08/2022 from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

²⁹⁷ The University of Sydney (2013–2016). *Bettering the Evaluation and Care of Health (BEACH) National Study of General Practitioner Activity*. Retrieved 1/09/2022 from: <https://www.sydney.edu.au/medicine-health/our-research/research-centres/bettering-the-evaluation-and-care-of-health.html>

²⁹⁸ Australian Bureau of Statistics (2022). *National, state and territory population. Statistics about the population and components of change (births, deaths, migration) for Australia and its states and territories*. Retrieved 2/07/2022 from: <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/dec-2021>

²⁹⁹ The Royal Australian College of General Practitioners (2021). *General Practice Health of the Nation*. Retrieved 23/08/2022 from <https://www.racgp.org.au/health-of-the-nation>

³⁰⁰ Australian Government Department of Health and Aged Care (2020). *National Health Workforce Data Tool Data selected: Number of practitioners by primary specialty in labour force in Australia 2013 to 2020, by calendar year*. Retrieved 21/08/2022 from <https://hwd.health.gov.au/datatool/>

³⁰¹ Productivity Commission (2022). *Report on Government Services 2022, Primary and Community Health data table 10A.63 Attrition of general practitioners across age brackets, by calendar year*. Retrieved 16/08/2022 from: <https://www.pc.gov.au/ongoing/report-on-government-services/2022/health>

³⁰² Australian Government Department of Health and Aged Care (2020). *National Health Workforce Data Tool Data selected: Number of practitioners by primary specialty in labour force in Australia 2013 to 2020, by calendar year*. Retrieved 21/08/2022 from <https://hwd.health.gov.au/datatool/>



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