

Economic benefits of the RACGP's *Vision for general practice and a sustainable healthcare system*

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Executive summary

With an internationally recognised healthcare system, Australia has been experiencing increasing healthcare costs in a trend that is expected to continue. Although the Australian population is ageing and increases in costs are expected, there is the potential to address these costs through a focus on prevention and efficiency in the health system. Primary healthcare, of which general practice plays a large role, is an efficient part of the health system and The Royal Australian College of General Practitioners (RACGP) has recently developed a new *Vision for general practice and a sustainable healthcare system* (Vision) that addresses issues facing the Australian healthcare system, including its sustainability.¹

A key requirement for the implementation of the RACGP's Vision is funding. While economic benefits are expected to follow from investment in a high-performance general practice model, these benefits are realised at different times. This provides a challenge for decision makers, who incur costs at the point of time and must wait for the economic benefits to follow later and often to different parts of the health sector. In this context, implementation of the RACGP's Vision would require a reallocation of resources across the health system, improving outcomes for individuals, providers and society more broadly.

The RACGP engaged us to assess the economic benefits of its proposed Vision for general practice. Because there is no single measure or combined measures of the Vision in entirety, we estimate the economic benefits using a range of indicators found in existing research to measure the level and quality of general practice proposed by the Vision.

Because information on the total costs to implement the Vision is being worked on separately, we are not able to compare the estimated economic benefits of enhanced general practice in Australia, as described by the Vision, to its cost. If total investment on delivering an enhanced general practice model is lower than the benefits, or if the outcomes (in terms of burden of disease) are delivered more cheaply than via other service models, then the Vision will deliver a positive net impact for society. We estimate that implementing the RACGP's Vision will bring about benefits by

reducing the need for more expensive secondary care and by improving the productivity of the nation through a healthier workforce. It is expected that these benefits will promote health equity for Indigenous Australians, people living in remote areas, and people living in low socioeconomic areas, who currently use disproportionately more secondary care than people who do not fall into these demographic groups.

In total, we estimate benefits of \$1.0 billion in 2021 and \$5.6 billion over the next five years, as well as 98,000 quality adjusted life years (QALYs) gained in 2021 and 520,000 QALYs gained over the next five years.

Our estimate is conservative, applying the lowest estimate of effect when evidence provides a range of guidance. If we were to use the least conservative assumptions in our calculations, we would estimate a total benefit to the Australian healthcare system of \$4.5 billion in 2021 and \$24.8 billion over the next five years.

There are also many non-monetary benefits that are not included in our estimates and would follow from implementation of the RACGP's Vision, including improved patient satisfaction with care and improved health provider satisfaction. Further, we were unable to identify appropriate evidence for, and thus quantify, the impact of the Vision on other indicators of quality general practice care, such as reduced duplication of services and avoidance of unnecessary services.

Thus, our estimates should be considered as a lower bound of the benefits of the Vision. In this way, they provide guidance to decision makers on the potential for optimising reallocations of funding, or introducing additional funding, across the health system. Compared to the \$74 billion spent on hospitals in 2017-2018,² a reallocation of \$1 billion to general practice would likely result in a much greater suite of combined benefits than any resulting loss due to reduced expenditure on hospitals. In practice, this reallocation would likely be realised through reduced future capital costs for the secondary sector, which is unable to maximise cost savings from hospital avoidance unless it can reduce the fixed costs of the healthcare service.

¹ The Royal Australian College of General Practitioners. *Vision for general practice and a sustainable healthcare system*. East Melbourne, Vic: RACGP, 2019.

² Australian Institute of Health and Welfare. *Health expenditure Australia 2017–18*. Health and welfare expenditure series no.65. Cat. no. HWE 77. Canberra: AIHW, 2019.

Estimated benefits of the RACGP's Vision in 2021

1. Australian healthcare system	
	\$773 million savings in preventable hospitalisation, hospital readmission and emergency department presentations
2. Health outcomes	
	\$250 million savings in workforce productivity
	98,000 QALYs gained
3. Health equity	
	Equitable general practice access addressing gaps and improving health and social outcomes for Indigenous Australians and people living in remote areas or in low socioeconomic areas



Background

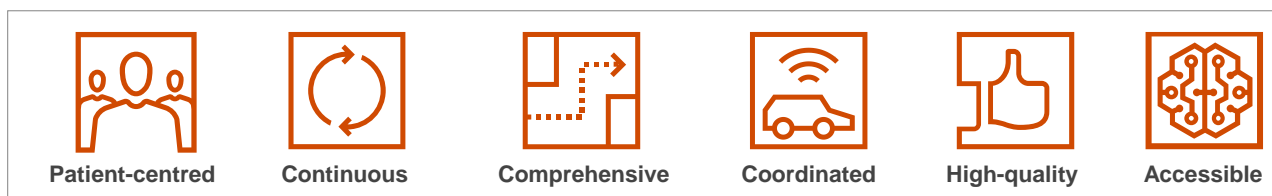
A new vision for general practice and a sustainable healthcare system

While Australia's health system is considered to be one of the best in the world,³ it is economically unsustainable – with healthcare costs increasing at above the rate of inflation.⁴ The Royal Australian College of General Practitioners (RACGP) has put forth a new *Vision for general practice and a sustainable healthcare system* – the Vision – that provides a framework for excellence in healthcare and provides a solution to address a range of issues facing the Australian healthcare system.⁵

The Vision outlines an approach to general practice that aims to address many of Australia's long-standing healthcare challenges, focusing on achieving high-quality healthcare outcomes for Australians in a sustainable way. It acknowledges that the current system disproportionately focuses on acute care, whereas some of the health system's greatest challenges are non-acute issues of an ageing population and the proliferation of chronic conditions. Rather than a short-term treatment for a severe injury or episode of illness, these conditions require prevention activities, early identification, and longer-term disease management that can minimise the need for future acute services by changing the health trajectory of individuals. Primary healthcare is critical to the delivery of these services.

The Vision draws on the quadruple aim of healthcare – to improve the health of the population, improve the patient experience of care, reduce healthcare costs and improve the work life of health providers. It builds on these principles and outlines a system involving improvements to existing general practice services and innovative models of primary care. It is underpinned by six core features of high-performing general practice, as identified by evidence- and experience-based recommendations.

Appendix A describes each of these features in more detail. At the broadest level, the Vision promotes the importance of multidisciplinary general practice teams, which are led by a general practitioner (GP) who has the ultimate responsibility for patients' care. It suggests that patients should be encouraged to form a lasting relationship with a usual GP and their practice to support the continuity of care and a holistic understanding of patients' needs. These practices, in turn, will focus on improved collection and sharing of data, which can be used to support data-enabled quality improvements and safety. The Vision also looks beyond the relationship between the patient and GP and their practice and promotes the need for additional research on general practice as a discipline to facilitate the availability of contemporary, high-quality and evidence-based models of care and health system approaches. The full Vision can be found on the RACGP's website.



Finding the optimal allocation of healthcare resources

A key factor underlying the implementation of the Vision is funding. With finite levels of funding for the entire health system, the challenge is to identify the optimal allocation of these resources. While there are many relevant factors in determining the optimal allocation of health resources, including ethical considerations and questions of health equity, one primary consideration is efficiency.

An efficient allocation of resources occurs when it is not possible to produce more of a service without giving up some other service that is valued more highly.

One challenge in considering the efficiency of health expenditure is that the benefits of different types of investments are realised at different times and often by different parts of the health system. For example, the benefits of early intervention are typically realised in future years and by different jurisdictions, whereas the

³ The Commonwealth Fund, *Mirror, Mirror 2017: International Comparison Reflects Flaws and Opportunities for Better U.S. Health Care*, 2017.

⁴ The Australian Health Policy Collaboration, Victoria University. *Australian health services: too complex to navigate*, Policy Paper No. 1-2019, 2019.

⁵ The Royal Australian College of General Practitioners. *Vision for general practice and a sustainable healthcare system*. East Melbourne, Vic: RACGP, 2019.

benefits of acute intervention are realised in a shorter time frame. This can provide a challenge for decision makers, who incur costs at the point of time and must wait for the economic benefits to follow. Economic theory can draw from an evidence base and provide some guidance on approaches to resource allocation that look beyond the immediate pressures.

Is there a better way?

In a world with finite resources, implementation of the RACGP's Vision would require a reallocation of resources across the health system. The Vision proposes that some of Australia's current health expenditure be redirected to general practice with the net impact of increasing outcomes for individuals, providers and society more broadly. The RACGP engaged us to investigate this hypothesis by estimating the economic benefits of its proposed Vision for general practice. This type of analysis must be firmly based on evidence and, therefore, is limited to available information. Because there is no single measure or combined measures of the Vision in entirety, we estimate the economic benefits of more and better general practice, using several indicators found in existing research to measure the impact of supported general practice services. These measures are a reasonable proxy for certain elements of the Vision; however, they do not form a comprehensive assessment of the benefits of the Vision.

Therefore, the resulting estimate of the economic benefits of the Vision is conservative because it captures only those benefits of enhanced general practice that can be estimated and monetised. It does not include other benefits, such as improved patient satisfaction with care and improved provider role satisfaction, or other indicators of quality general practice care, such as reduced duplication of services and avoidance of unnecessary and inappropriate services.

Because information on the total costs to implement the Vision is being worked on separately, we are not able to compare the estimated economic benefits of enhanced general practice in Australia, as described by the Vision, to its cost. If total spending on delivering an enhanced general practice is lower than the benefits, or if the outcomes (in terms of burden of disease) are delivered more cheaply than via other service models, then the Vision will deliver a positive net impact for society.

Economic benefits of the RACGP's Vision

We estimate that implementing the RACGP's Vision will bring about benefits by reducing the need for more expensive secondary care and by improving the productivity of the nation through a healthier workforce. In total, we estimate benefits of \$1.0 billion in 2021 and \$5.6 billion over the next five years.

This estimate is conservative for two reasons:

- Where the evidence provides a range of estimated benefits of general practice, we apply to the lowest estimate in our economic modelling.
- The estimate does not include other possible benefits of enhanced general practice, such as increased role recognition of GPs, increased general practice research, improved patient satisfaction, and economic growth due to improved population health status.

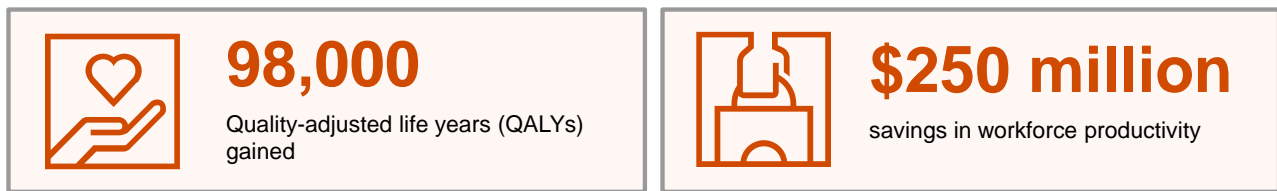
Thus, our estimate should be considered as a lower bound to the benefits of the Vision, which are summarised on the next page.

In 2021, the estimated benefits of the RACGP's Vision are as follows:

Health system efficiency






Health outcomes



Health equity

The RACGP's Vision can address existing gaps in general practice outcomes across population groups.

	Indigenous Australians are: (compared to non-Indigenous Australians)	People living in remote/very remote areas are: (compared to regional areas and major cities)	People in low socioeconomic groups are: (compared to high socioeconomic groups)
 <p>3.0</p>	2.0	1.3	times more likely to have a preventable hospitalisation
 <p>14%</p>	8%	n/d*	
 <p>2.7</p>	1.5	1.4	times more likely to use the emergency department (ED)

* No difference found.

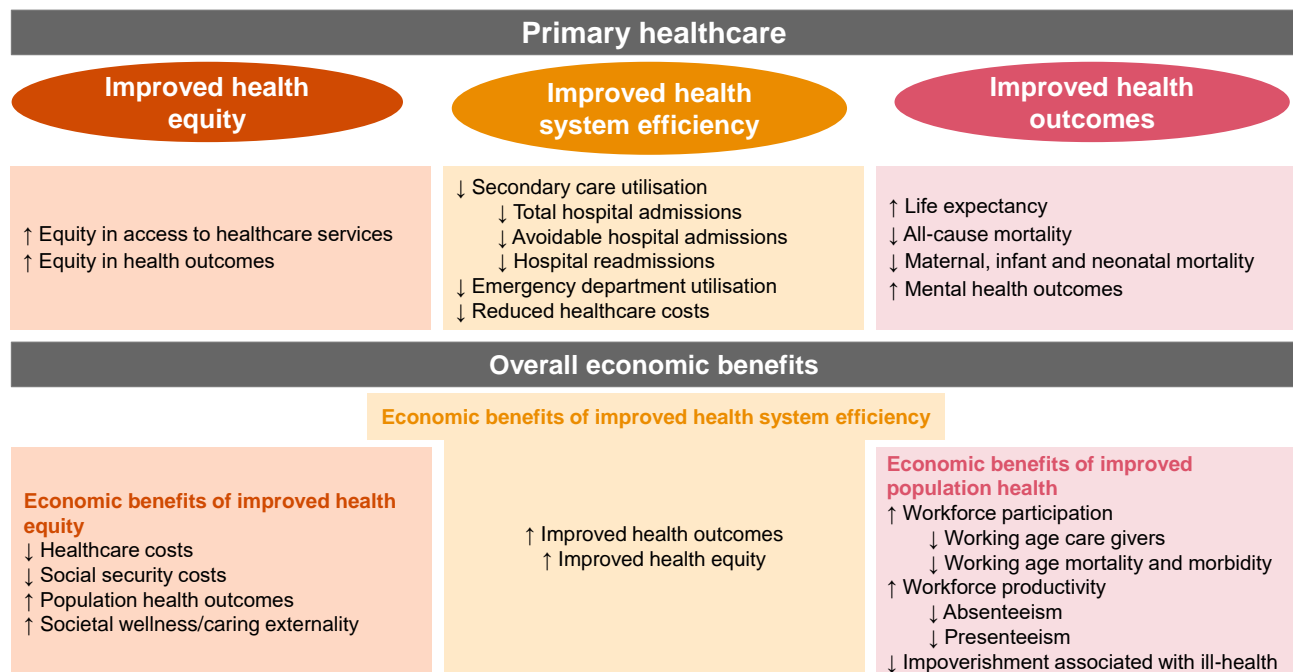
Economic case for high-performance general practice

WHO conceptual framework

In 2018, the World Health Organization (WHO) released a technical paper that summarises the results of a scoping review of literature that assesses a range of economic benefits of primary healthcare.⁶ Although the focus of this review was primary healthcare, most of the evidence presented relates to programs or health services involving general practice.

The paper presents a conceptual framework of primary healthcare that is based on three known macroeconomic benefits of healthcare: health outcomes, health system efficiency and health equity. The authors found strong evidence linking better primary healthcare, specifically general practice, to a range of economic benefits through its potential to improve the three factors outlined in the conceptual framework (Figure 1).

Figure 1: WHO conceptual framework to assess the economic benefits of primary healthcare



Additional benefits of the RACGP's Vision

A high-performing general practice system, as outlined by the RACGP's Vision, has the potential to bring about economic benefits, alongside innovation, integration and efficiency to the healthcare system. It can also deliver international recognition for administering a sustainable and effective healthcare system.⁷

For patients, high-performance general practice can increase their involvement in care and improve

satisfaction with care. It can also increase patient convenience by increasing access to care in a preferred community setting and increase health literacy.

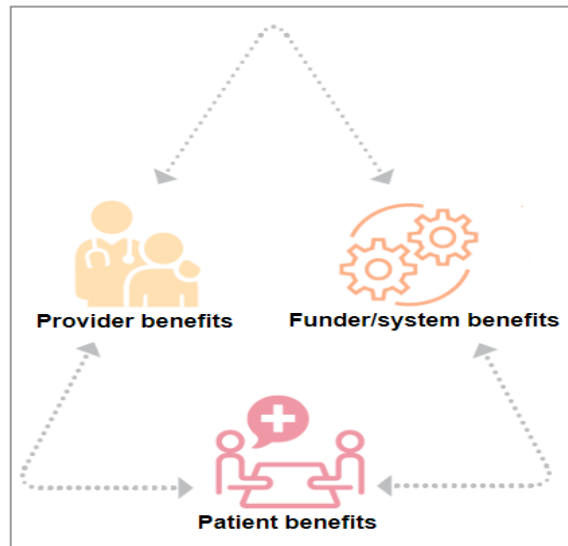
More investment in general practice could also benefit the general practice workforce (providers) by increasing recognition of their role, improving role satisfaction for clinicians and staff, and increasing the

⁶ World Health Organization. Technical Series on Primary Health Care. *Building the economic case for primary health care: a scoping review*. Geneva: WHO, 2018.

⁷ The Royal Australian College of General Practitioners. *Vision for general practice and a sustainable healthcare system*. East Melbourne, Vic: RACGP, 2019.

profession's ability to attract graduates. There is also the potential for reduced administrative burden.⁸

Increased investment in general practice research, as proposed by the Vision, will also deliver benefits. While there is limited evidence on the economic benefits of general practice research, health research more broadly has been shown to lead to both health gains and gains in gross domestic productivity that result directly and indirectly from medical research and further activity stimulated by it. For example, for each \$1 invested into the National Health and Medical Research Council-funded health and medical research workforce (between 2000 and 2005), Australia received \$3.20.⁹



⁸ The Royal Australian College of General Practitioners. *Vision for general practice and a sustainable healthcare system*. East Melbourne, Vic: RACGP, 2019.

⁹ Deloitte Access Economics, *Australia's health and medical research workforce: Expert people providing exceptional returns*, 2016.

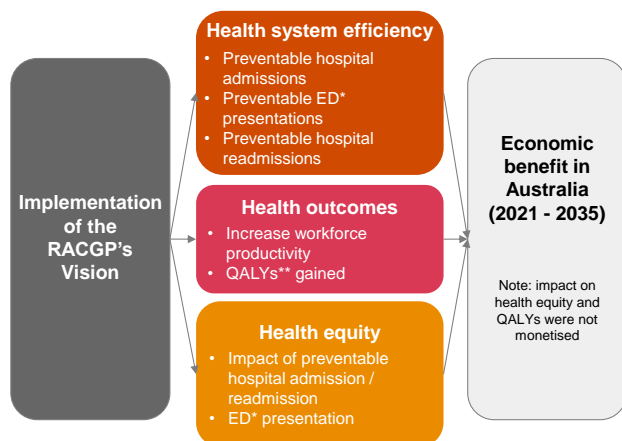
Economic benefits of the RACGP's Vision

Analysis framework

The delivery of high-performance general practice is underpinned by six core characteristics of care: patient-centred, continuous, comprehensive, coordinated, high-quality and accessible. Measuring the benefit to the population health of each core feature separately is difficult because of a lack of unified definitions and data requirements. Additionally, there are interrelationships between general practice and other parts of the health system, which lead to more uncertainty when attempting to quantify benefits.

In order to estimate the economic benefits of the RACGP's proposed Vision for general practice in Australia, we used the analysis framework below.

Figure 2: Framework to assess the economic benefits of a high-performance general practice model



* ED: emergency department, **QALYs: Quality-adjusted life years

Methodology

We developed an economic model to estimate the benefits of the RACGP's Vision, using a suite of proxies found in existing research to describe the high-performance general practice model described by the Vision (see Table 1). The model estimates the impact of enhanced general practice on metrics related to:

- healthcare system efficiency: preventable hospitalisation for ambulatory care sensitive

conditions (ACSC), unplanned hospital readmission and emergency department (ED) presentation

- health outcomes: workforce productivity and quality-adjusted life years (QALYs).

These metrics align with the WHO model of general practice described above,¹⁰ but do not comprehensively cover all benefits of appropriately supported general practice.

The economic model estimates the benefits of the Vision in a single year, and projects the benefits over the next fifteen years, based on forecasted population growth and inflation. To understand the impact of the Vision on health equity, we considered the incidence of the healthcare system efficiency metrics on different population groups, including Indigenous Australians, people living in remote areas, and people living in low socioeconomic areas.

We used publicly available data to populate the model, including data from the Australian Institute of Health and Welfare (AIHW), Australian Bureau of Statistics (ABS), and Independent Hospital Pricing Authority (IHPA), as well as other publicly available research. Where possible, we drew from Australian literature. Where that was not possible, we estimated the Australian case using available data.

Our approach was a conservative one. Where there was a range of estimates in the literature on the impact of general practice, we chose the most conservative one (see Table 1). Further, we defined preventable hospitalisations for ACSC as those that involved a same-day admission or admission no longer than two days. We excluded those preventable hospitalisations for ACSC that required a longer hospital stay because not all potentially preventable admissions are equally avoidable in practice. For example, a theoretically preventable admission that results in the patient staying in hospital for more than two days suggests a severe problem, for which the admission may have been difficult to avoid in practice, at least immediately before the admission.¹¹

¹⁰ World Health Organization. Technical Series on Primary Health Care. *Building the economic case for primary health care: a scoping review*. Geneva: WHO, 2018.

¹¹ Duckett S, and Swerissen H. Building better foundations for primary care. Grattan Institute, 2017.

Table 1: Metrics to assess the health benefit of a high-performance general practice and its link to general practice

Metrics to assess the benefits	Proxy to link general practice to health benefit	Assumed high-performance general practice benefit
Preventable hospitalisation for ACSC	Continuity of care	6.2% reduction in hospital admission
ED presentation	All features of general practice ¹²	10% reduction in ED presentation
Hospital readmission	Outpatient visit within 7 days	12% reduction in hospital readmission
Workforce productivity	Assumption based on preventable hospitalisation	6-8% reduction in absenteeism
QALY	Access to general practice	9-20% reduction in mortality

Results

We estimate that implementing the RACGP's Vision will bring about benefits by reducing the need for more expensive secondary care and by improving the productivity of the nation through a healthier workforce. In total, we estimate benefits of a minimum of \$1.0 billion in 2021 and \$5.6 billion in the next five years. Benefits would reach at least \$7.0 billion in the five years from 2026 to 2030 and \$8.7 billion in the five years from 2031 to 2035.

As noted above, our estimation is conservative, applying the most conservative assumptions across all metrics. If we were to use the least conservative assumptions in our calculations, we would estimate a total benefit to the Australian healthcare system (through avoided preventable hospitalisations, ED presentations and unplanned readmissions) of \$4.5 billion in 2021 and \$24.8 billion in the next five years. The appendix includes more detail on sensitivity testing of our underlying assumptions.

There are many other potential indicators and non-monetary benefits not included in our estimation that would flow from implementation of the RACGP's Vision. Thus, our estimate should be considered as a lower bound to the benefits of the Vision. In this way, it provides guidance to decision makers on the potential for optimising reallocations of funding, or introducing additional funding, across the health system. Compared to the \$74 billion spent on hospitals in 2017-2018, a reallocation of \$1 billion to general practice would likely result in a much greater suite of combined benefits than any resulting loss due to reduced expenditure on hospitals. In practice, this reallocation would likely be realised through reduced future capital costs for the secondary sector, which is unable to maximise cost savings from hospital avoidance unless it can reduce the fixed costs of the healthcare service.

The remainder of this report provides more information on each of the five metrics included in our economic model.

Table 2. Economic and non-economic benefits of the RACGP's Vision in the next 15 years (\$m)

Metrics	2021	2022	2023	2024	2025	2026-2030	2031-2035
Preventable hospitalisations for ACSC	\$152.4	\$160.6	\$169.2	\$178.1	\$187.5	\$1,095.4	\$1,402.5
ED presentations	\$552.0	\$579.8	\$608.4	\$638.0	\$668.8	\$3,846.3	\$4,813.0
Unplanned hospital readmission	\$68.8	\$72.8	\$77.0	\$81.5	\$86.1	\$510.2	\$667.5
Workforce productivity	\$250.4	\$258.4	\$266.5	\$274.7	\$282.9	\$1,542	\$1,789
Total economic benefit	\$1,024	\$1,072	\$1,121	\$1,172	\$1,225	\$6,994	\$8,673
QALYs gained	98,000	101,000	103,900	106,800	109,800	597,000	682,700

¹² We consider a reduction in all ED presentations that would be suitable for general practice. In order to achieve this, it is expected that the general practice presents all features of high-performance general practice: patient-centred, continuous, comprehensive, coordinated, high-quality and accessible.

Hospitalisations for ambulatory care sensitive conditions

Ambulatory care sensitive conditions (ACSC) are hospital admissions that could have potentially been prevented through the provision of appropriate individualised preventative health interventions and early disease management, usually delivered in primary care and community-based care settings (including by general practitioners, medical specialists, dentists, nurses and allied health professionals).¹³



The Australian Government (through the Australian Institute of Health and Welfare (AIHW)) monitors and reports on twenty-two ACSC, which are divided into three groups: vaccine-preventable, acute or chronic conditions. In 2017-18, there were almost 750,000 ACSC, which represented 6.6 per cent of total hospitalisations in the same period. Vaccine preventable conditions accounted for around 10 per cent of the ACSC; acute and chronic conditions each accounted for about 45 per cent of the ACSC. When compared to previous years, ACSC have been increasing on average 3.5 per cent per year since 2013-14.¹⁴

Impact of general practice on ACSC

According to a recent WHO exploratory review,¹⁵ there is strong evidence across at least three systematic reviews^{16,17,18} that greater access to primary care and higher continuity of care can reduce ACSC hospitalisations. There is also strong evidence that case management programs in primary care and higher continuity of care are associated with a reduction in hospitalisations for all conditions.^{19,20,21}

In one study conducted in England from 2011 to 2013, the authors tested the association between continuity of care, measured through the usual provider of care index, and hospital admissions for ACSC (the same conditions published by the AIHW). After controlling for demographic and clinical patient characteristics, an increase in the usual provider of care index of 0.2 reduced ACSC admissions by 6.2 per cent.²²

While the usual provider of care in Australia is unknown, a recent survey found that around 97 per cent of Australians aged 45 or over have a usual GP or place of care,²³ but about 25 per cent of general practice care is delivered outside of an individual's usual practice.²⁴ There is also evidence that 28 per cent of Australians were not able to access their preferred GP in the preceding 12 months.²⁵ Taken together, this suggests that Australia's usual provider of care index would be in the middle on a scale of low to high.

¹³ Australian Institute of Health and Welfare. *Admitted patient care 2017-18: Australian hospital statistics*. Health services series no. 90. Cat. no. HSE 225. Canberra: AIHW, 2019.

¹⁴ *Ibid.*

¹⁵ World Health Organization. Technical Series on Primary Health Care. *Building the economic case for primary health care: a scoping review*. Geneva: WHO, 2018.

¹⁶ Wolters RJ, Braspenning JCC, and Wensing M. 'Impact of primary care on hospital admission rates for diabetes patients: A systematic review,' *Diabetes Research and Clinical Practice*, 129, 182-196, 2017.

¹⁷ Rosano A, Loha CA, Falvo R, van der Zee J, Ricciardi W,... and de Belvis AG. 'The relationship between avoidable hospitalization and accessibility to primary care: a systematic review,' *European Journal of Public Health*, 23, 356-360, 2013.

¹⁸ van Loenen T, van den Berg MJ, Westert GP, and Faber MJ. 'Organizational aspects of primary care related to avoidable hospitalization: a systematic review,' *Family Practice*, 31, 502-516, 2014.

¹⁹ Huntley AL, Johnson R, King A, Morris RW, and Purdy S. 'Does case management for patients with heart failure based in the community reduce unplanned hospital admissions? A systematic review and meta-analysis,' *BMJ Open*, 6(5), e010933-e010933, 2016.

²⁰ Cabana MD, and Jee SH. 'Does continuity of care improve patient outcomes?' *Journal of Family Practice*, 53, 974-980, 2014.

²¹ Worrall G, and Knight J. 'Continuity of care for older patients in family practice,' *Canadian Fam Physician*, 52:755, 2006.

²² Barker I, Steventon A, and Deeny SR. '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 (Clinical Research Ed)*, 356, j84, 2017.

²³ Australian Institute of Health and Welfare. *Healthy Communities: coordination of health care experiences with GP care among patients aged 45 and over*, 2016. Cat. no. CHC 2. Canberra: AIHW, 2018.

²⁴ Wright M, Hall J, van Gool K, and Haas M. 'How common is multiple general practice attendance in Australia?' *Australian Journal of General Practice*, 47(5), 289-296, 2018.

²⁵ Australian Institute of Health and Welfare. *Healthy Communities: coordination of health care experiences with GP care among patients aged 45 and over*, 2016. Cat. no. CHC 2. Canberra: AIHW, 2018.

Methodology

The diagram below shows how we estimate the savings arising from avoided hospitalisations that

would follow from the enhanced general practice model presented in the RACGP's Vision.



* We estimated a rate per person and per age group for each ACSC in 2017-18. We estimated total hospitalisations for ACSC in 2021-35 by applying 2017-18 ACSC rates to the projected Australian population to 2035.

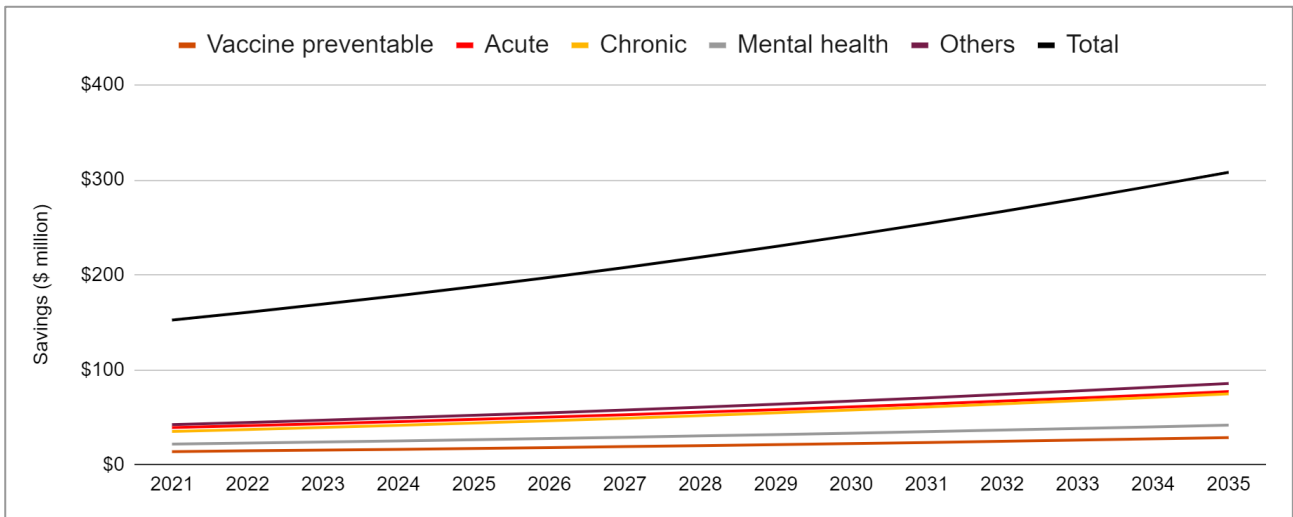
** We indexed the average cost of hospitalisation per ACSC from 2021 to 2035 using the health CPI.

Results

We estimate that at a minimum, \$152 million would be saved in 2021 if GPs and their teams were better supported to manage conditions commonly resulting

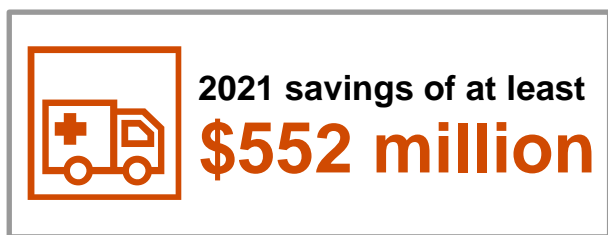
in preventable hospital admissions. The total savings over the next five years would reach at least \$848 million.

Figure 3: Savings to the Australian healthcare system due to avoided hospitalisations for ACSC (\$m) from 2021 to 2035



Emergency department presentations

Emergency departments (ED) are an important component of the healthcare system and many of Australia's public hospitals provide care for patients who require resuscitation, emergency, urgent, semi-urgent and non-urgent attendances.²⁶ In 2018-19, there were 8.3 million ED presentations in Australia and almost half of them (3.9 million) were classified as semi or non-urgent presentations.²⁷



The age-standardised rate of ED presentation per 1,000 population has increased from 310.4 in 2014-15 to 329.2 in 2018-19, an average annual growth rate of 1.5 per cent. The annual growth rate from 2017-18 to 2018-19 was 2.5 per cent.²⁸ Reasons for the growth includes the rising incidence of chronic illness and decreased availability of general practitioners, especially for after-hours and urgent visits.²⁹

Impact of general practice on ED presentations

According to a recent WHO exploratory review,³⁰ there is strong evidence that reduced access to primary care, including primary care physicians per capita and distance to primary care providers, is associated with increased ED presentations.^{31,32,33,34} Evidence also links greater continuity of care with reduced ED presentations.^{35,36}

In 2013, Nagree and colleagues estimated the proportion of patients presenting to the emergency departments of Perth's major hospitals whose needs may have been able to be met by general practice, using four different methods. Three of these methods showed that 10 to 12 per cent of all ED presentations may have been suitable for general practice, while the fourth method (presented by the AIHW) reported that about 25 per cent of ED presentations could have been managed by general practice.³⁷

²⁶ Australian Institute of Health and Welfare. *Emergency department care 2017-18: Australian hospital statistics*. Health services series no. 89. Cat. no. HSE 216. Canberra: AIHW, 2018.

²⁷ Australian Institute of Health and Welfare. *Emergency department care 2018-19*. Retrieved from: <<https://www.aihw.gov.au/reports-data/myhospitals/sectors/emergency-department-care>>.

²⁸ *Ibid.*

²⁹ Nagree Y, Camarda VJ, Fatovich DM, Cameron PA, Dey I, ... and Mountain D. 'Quantifying the proportion of general practice and low-acuity patients in the emergency department,' *The Medical Journal of Australia*, 198, 612-615, 2013.

³⁰ World Health Organization. Technical Series on Primary Health Care. *Building the economic case for primary health care: a scoping review*. Geneva: WHO, 2018.

³¹ Huntley A, Lasserson D, Wye L, Morris R, Checkland K, ... and Purdy S. 'Which features of primary care affect unscheduled secondary care use? A systematic review,' *BMJ Open*, 4 (5), e004746- e004746, 2014.

³² Carret MLV, Fassa ACG, and Domingues MR. 'Inappropriate use of emergency services: a systematic review of prevalence and associated factors,' *Cadernos de Saude Publica*, 25(1), 7-28, 2009.

³³ Kirkland SW, Soleimani A, and Newton AS. 'The impact of pediatric mental health care provided outpatient, primary care, community and school settings on emergency department use - a systematic review,' *Child Adolescent Mental Health*, 23(1), 4-13, 2018.

³⁴ O'Malley AS. 'Current evidence on the impact of continuity of care,' *Current Opinion in Pediatrics*, 16(6), 693-699, 2004.

³⁵ Cabana MD, and Jee SH. 'Does continuity of care improve patient outcomes?' *The Journal of Family Practice*, 53(12), 974-980, 2004.

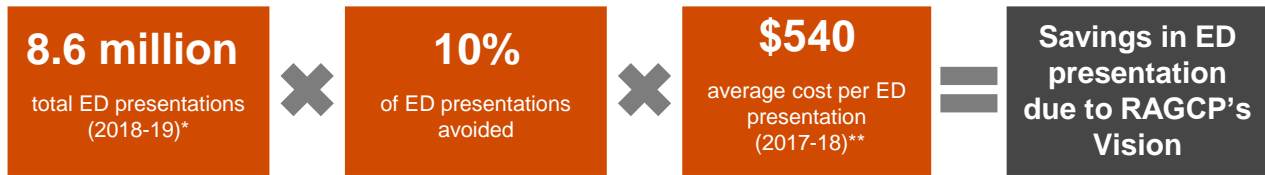
³⁶ Worrall G, and Knight J. 'Continuity of care for older patients in family practice,' *Canadian Family Physician*, 52, 755, 2006.

³⁷ Nagree Y, Camarda VJ, Fatovich DM, Cameron PA, Dey I, ... and Mountain D. 'Quantifying the proportion of general practice and low-acuity patients in the emergency department,' *The Medical Journal of Australia*, 198, 612-615, 2013.

Methodology

The diagram below shows how we estimate the savings arising from avoided ED presentations that would follow from the enhanced general practice model presented in the RACGP's Vision. Based on the evidence available in existing research, we use the percentage of all ED presentations that may

have been suitable for general practice as a proxy for the percentage of potentially preventable ED presentations (those classified as semi or non-urgent) that well-coordinated GP care could have managed.



* We estimated a rate per person and per age group for ED presentations in 2017-18. We estimated total ED presentations from 2021 to 2035 by applying 2017-18 ED presentation rates to the projected Australian population from 2021 to 2035.

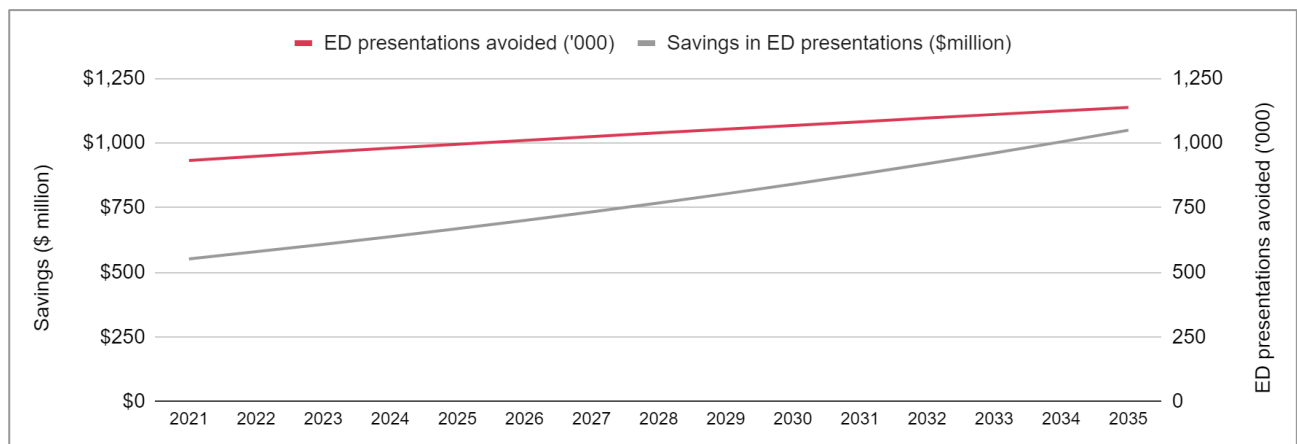
** We inflated the average cost per ED presentation from 2021 to 2035 using the health CPI.

Results

We estimate that, in 2021, at least \$552 million would be saved, representing 932,000 avoided ED presentations, if GPs and their teams were better supported to manage conditions commonly resulting

in semi-urgent and non-urgent ED presentations. Over the next five years, we estimate that these savings could reach a minimum of \$3.0 billion, representing 4.8 million fewer ED presentations.

Figure 4: ED presentations avoided and savings to the Australian healthcare system (\$m) from 2021 to 2035



Unplanned hospital readmissions

Unplanned or unexpected hospital readmissions may arise as a result of the need for care that can only be delivered in a hospital or as the result of a lack of appropriate post-discharge care in the community.

Hospital readmission is a National Healthcare Agreement Indicators (NHA) performance indicator that includes unplanned readmission to the same public hospital that occurred within 28 days following select types of surgical procedures (appendectomy, cataract extraction, hip replacement, hysterectomy, knee replacement, prostatectomy, tonsillectomy and adenoidectomy) and for which an adverse event was the cause of the hospitalisation. The performance indicator does not, however, include information on all unplanned or unexpected readmissions, or readmission to another hospital.³⁸ The Australian Commission on Safety and Quality in Health Care (ACSQHC) has also recently developed a list of eleven groups of avoidable hospital readmissions to inform safety and quality reforms in Australia.

Impact of general practice on hospital readmissions

There are three systematic reviews with some evidence that case management and transitional care programmes, delivered through general practice, can reduce hospital readmissions.^{40,41,42} A 2017 study by Shen et al. estimated that a dedicated 20-minute post-hospital discharge follow-up visit with a primary care clinician, completed within seven days after discharge, was associated with a 12 to 24 per cent reduction in the 30-day readmission rate.⁴³



**2021 savings of at least
\$69 million**

In 2017-18, there were around 2,800 readmissions in public hospitals captured by the NHA indicator. Cataract extraction had the lowest rate of readmission, with 3.1 per 1,000 hospitalisations and tonsillectomy and adenoidectomy the highest, with 39.1 per 1,000 hospitalisations.³⁹

³⁸ Australian Institute of Health and Welfare. *Admitted patient care 2017–18: Australian hospital statistics*. Health services series no. 90. Cat. no. HSE 225. Canberra: AIHW, 2019.

³⁹ *Ibid.*

⁴⁰ Jones CE, Hollis RH, Wahl TS, Oriol BS, Itani KM, ... and Hawn MT. 'Transitional care interventions and hospital readmissions in surgical populations: a systematic review,' *American Journal of Surgery*, 212(2), 327-335, 2016.

⁴¹ Joo JY, and Liu MF. 'Case management effectiveness in reducing hospital use: a systematic review,' *International Nursing Review*, 64(2), 296-308, 2017.

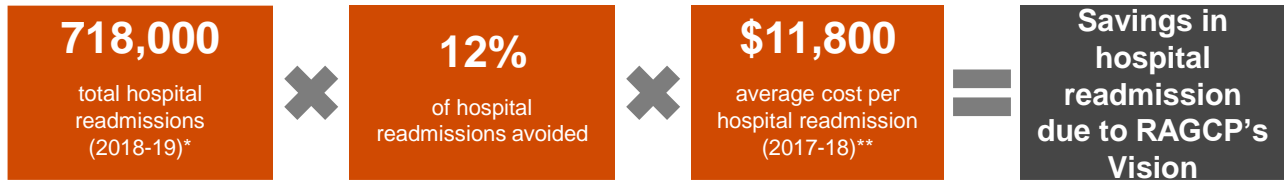
⁴² Verhaegh KJ, MacNeil-Vroomen JL, Eslami S, Geerlings SE, de Rooij SE, and Buurman BM. 'Transitional care interventions prevent hospital readmissions for adults with chronic illnesses,' *Health Affairs (Project Hope)*, 33(9), 1531-1539, 2014.

⁴³ Shen E, Koyama SY, Huynh DN, Watson HL, Mittman B, ... and Nguyen HQ. 'Association of a Dedicated Post-Hospital Discharge Follow-up Visit and 30-Day Readmission Risk in a Medicare Advantage Population,' *JAMA International Medicine*, 177(1), 132-135, 2017.

Methodology

The diagram below shows how we estimate the savings arising from avoided hospital readmissions

that would follow from the enhanced general practice model presented in the RACGP's Vision.



* We estimated total hospital readmissions in 2021 to 2035 by applying 2017-18 hospital readmissions rates to the projected Australian population from 2021 to 2035.

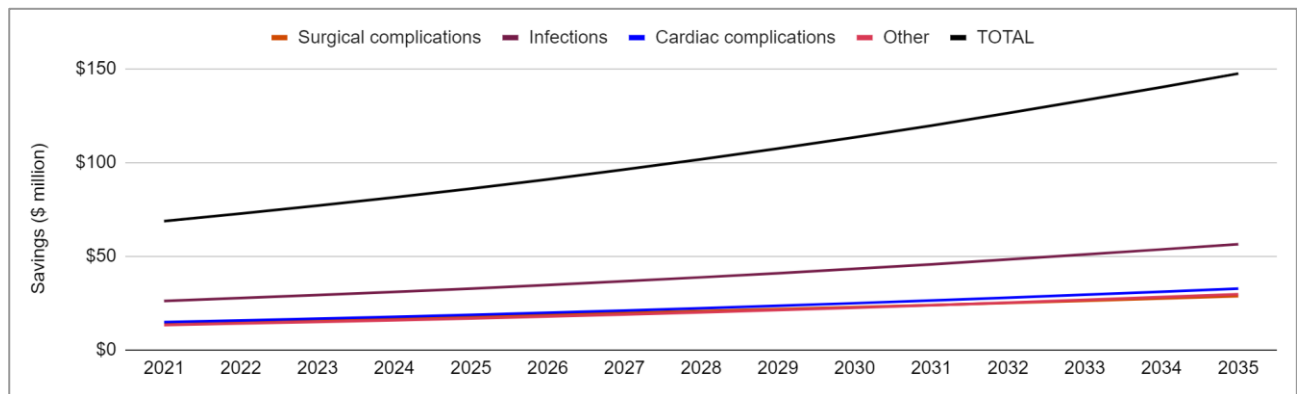
** The average number of days in hospital for each readmission is 5.2 days. We inflated costs from 2021 to 2035 using the health CPI.

Results

We estimate that implementation of the RACGP's Vision would save a minimum of \$69 million in 2021, and total savings as a result of avoided readmissions to hospital over the next five years would reach at least \$386 million.

Infections account for 38 per cent of the savings, followed by surgical and cardiac complications with around 22 per cent of the savings each.

Figure 5: Savings to the Australian healthcare system due to reduction in unplanned hospital readmission (\$m) from 2021 to 2035



Quality-adjusted life years

General practice is responsible for most preventive healthcare measures in Australia, which includes interventions that target both the population through early detection, prevention and appropriate management of people with established disease. In Australia, four out of five people saw a general practitioner in the previous year.⁴⁴

One form of estimating the level of interpersonal care delivered by general practice is by measuring the continuity of care, or the 'ability to provide uninterrupted care or service across programs, practitioners and levels over time'.⁴⁵ With such uninterrupted care, general practitioners have the opportunity to better understand patients' perspectives and priorities, increasing the chance of achieving better health outcomes.⁴⁶



A high-performance primary healthcare system, particularly with a high percentage of people being better able to see their preferred GP, can produce a range of benefits to society through its potential to improve population health, including increased life expectancy and lower all-cause and disease specific mortality.⁴⁷

Impact of general practice on burden of disease

According to a recent WHO exploratory review,⁴⁸ there is strong evidence that a higher supply of general practice reduces all-cause and cause-specific mortality,^{49,50,51} and continuity of care reduces mortality.⁵² This builds on the link between general practice and activity that can reduce mortality, such as the uptake of cancer screening which can increase the chances of successful treatment through early detection. For example, enhanced general practice has been shown to increase breast cancer screening (mammography) between three and 21 per cent, cervical cancer screening (Pap test) between four and 30 per cent, and colorectal cancer screening (faecal occult blood test) between four and 30 per cent.⁵³

There is also an association between general practice and better management of some diseases. For example, enhanced general practice has been shown to improve glycated haemoglobin control.^{54,55} Further, there is evidence showing that integrating pharmacists into general practice clinics improves systolic blood pressure control in hypertensive patients, potentially improving control from 66 per cent to 81 per cent.⁵⁶

⁴⁴ Australian Institute of Health and Welfare. *Health and welfare services: Primary health care*. Retrieved from: <<https://www.aihw.gov.au/reports-data/health-welfare-services/primary-health-care/overview>>.

⁴⁵ Australian Institute of Health and Welfare. *Australia's health performance: continuity of care*. Retrieved from: <<https://www.aihw.gov.au/reports-data/indicators/australias-health-performance-framework/national/national/continuity/continuity-of-care>>.

⁴⁶ Shi L. 'The Impact of Primary Care: A Focused Review,' *Scientifica* (Cairo), 432892, 2012.

⁴⁷ Gray DJP, Sidaway-Lee K, White E, Thorne A, and Evans PH. '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, 2018.

⁴⁸ World Health Organization. Technical Series on Primary Health Care. *Building the economic case for primary health care: a scoping review*. Geneva: WHO, 2018.

⁴⁹ Engström S, Foldevi M, and Borgquist L. 'Is general practice effective? A systematic literature review,' *Scandinavian Journal of Primary Health Care*, 19(2), 131-144, 2001.

⁵⁰ Macinko J, Starfield B, and Shi L. 'Quantifying the health benefits of primary care physician supply in the United States,' *International Journal of Health Services: Planning, Administration, Evaluation*, 37(1), 111-126, 2007.

⁵¹ Starfield B, Shi L, and Macinko J. 'Contribution of primary care to health systems and health,' *The Milbank Quarterly*, 83(3), 457–502, 2005.

⁵² Gray DJP, Sidaway-Lee K, White E, Thorne A, and Evans PH. '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, 2018.

⁵³ Baron RC, Melillo S, Rimer BK, Coates RJ, Kerner J, Habarta N, Chattopadhyay S, Sabatino SA, Elder R, Leeks KJ; and Task Force on Community Preventive Services. 'Intervention to increase recommendation and delivery of screening for breast, cervical, and colorectal cancers by healthcare providers: a systematic review of provider reminders,' *American Journal of Preventive Medicine*, 38(1), 110-117, 2010.

⁵⁴ Renders CM, Valk GD, Griffin S, Wagner EH, Eijk JT, and Assendelft WJ. 'Interventions to improve the management of diabetes mellitus in primary care, outpatient and community settings,' *The Cochrane Database of Systematic Reviews*, 1):CD001481, 2001.

⁵⁵ Grimshaw JM, Thomas RE, MacLennan G, Fraser C, Ramsay CR, ... and Donaldson C. 'Effectiveness and efficiency of guideline dissemination and implementation strategies,' *Health Technology Assessment*, 8(6), 1-72, 2004.

⁵⁶ Lindenmeyer A, Hearnshaw H, Vermeire E, Van Royen P, Wens J, and Biot Y. 'Interventions to improve adherence to medication in people with type 2 diabetes mellitus: a review of the literature on the role of pharmacists,' *Journal of Clinical Pharmacy and Therapeutics*, 31(5), 409-419, 2006.

Methodology

A QALY is a generic measure of disease burden that accounts for both the quality and the quantity of life lived. It is used here to estimate the health benefits of the RACGP's Vision. One QALY is equivalent to one person living in perfect health for a year.

The diagram below shows how we estimate the QALYs that would be gained from implementation of the enhanced general practice model presented in the RACGP's Vision. It outlines how the estimated QALYs are based on three conditions: cancer, chronic obstructive pulmonary disease (COPD), and coronary heart disease (CHD).



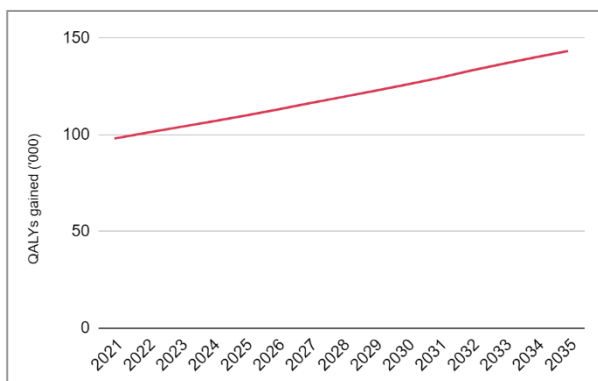
* We estimated the total number of deaths by disease in 2021 to 2035 by applying 2015-17 (COPD and CHD) and 2019 (all-cancers) death rates to the projected Australian population in 2021 to 2035.

Results

From 2015 to 2017, COPD and CHD together accounted for almost 80,000 deaths in Australia.⁵⁷ In 2019, cancer accounted for almost 50,000 deaths.⁵⁸

With a stronger general practice sector, it is estimated that around 98,000 QALYs would be gained in 2021. The total QALYs gained in the next five years would be more than 519,500.

Figure 6: QALYs gained due to reduction in disease specific mortality from 2021 to 2035



Putting a dollar value on QALYs

Health economists often use QALYs to help determine whether a health intervention provides value for money by comparing the gain in QALYs to the lost opportunity of allocating the funding to that intervention. Public summaries from the Pharmaceutical Benefit Advisory Committee (PBAC) provide some guidance on thresholds used to assess the value of QALYs, suggesting that new drugs are generally recommended if their expected incremental cost per QALY is somewhere between \$45,000 and \$75,000.⁵⁹

If the government invested \$1 billion into the RACGP's Vision, with an annual return of 98,000 QALYs, this would result in a cost per QALY of slightly more than \$10,000. Using PBAC standards, this would represent high value for money.

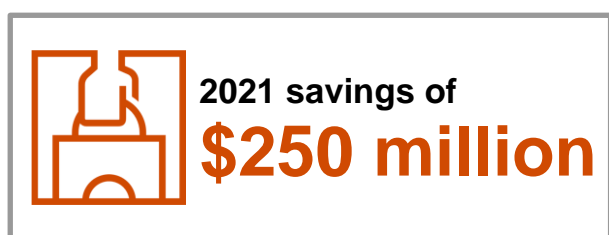
⁵⁷ Australian Institute of Health and Welfare. Life expectancy and death: deaths in Australia (web report). Retrieved from: <<https://www.aihw.gov.au/reports-data/health-welfare-services/primary-health-care/overview>>.

⁵⁸ Australian Institute of Health and Welfare. *Cancer in Australia 2019*. Cancer series no.119. Cat. no. CAN 123. Canberra: AIHW, 2019.

⁵⁹ 'Public Summary Document: Gefitinib, tablet, 250 mg, Iressa® - July 2013,' *The Pharmaceutical Benefits Scheme*, Retrieved from: <<http://www.pbs.gov.au/info/industry/listing/elements/pbac-meetings/psd/2013-07/gefitinib>>.

Workforce productivity: absenteeism

In working-age adults, health conditions markedly increase the probability of not being in the labour force in Australia. Participation in the labour force is lower for people with the following conditions when compared with those without the health conditions: cancer (15 per cent), cardiovascular conditions (22 per cent), mental health/nervous conditions (51 per cent), diabetes (30 per cent) and arthritis (24 per cent).⁶⁰ Similarly, the percentage of people reporting being out of the labour force was almost double for those with COPD, when compared to people without COPD (17 per cent vs. 33 per cent).⁶¹



Health conditions also impact the productivity of the employed. Chronic diseases, for example, lower productivity through absenteeism and presenteeism (when employees show up to work sick, injured, overly fatigued or otherwise not operating at normal levels of productivity). In 2014-15, there were around 16 million Australians in the labour force or at school/studying. Around 15 per cent of these individuals reported they had taken time away from work or school/study in the last two weeks due to their own illness or injury.⁶² In addition to the productivity impacts for those who are unwell, an unhealthy population may prevent other adults, who become carers for those who are unwell, from entering the labour market or lower their productivity. In 2014-15, around 4.5 per cent of people in the labour force or at school/studying had taken time off in the last two weeks to care for someone else.⁶³

In 2011, Holden and colleagues examined the health conditions that impacted the productivity of working Australians, after adjusting for comorbidity, demographics, and work-related characteristics. They found that the following health conditions were associated with increased absenteeism: arthritis, cancer, COPD/bronchitis or emphysema, drug and alcohol problems, obesity, psychological distress and workplace injury.⁶⁴

Impact of general practice on productivity

Enhanced general practice can bring improvements in the management of chronic disease and other health conditions, which in turn have the potential to reduce time missed from work, improving productivity and providing further economic benefits.^{65,66}

In 2011-12, people with a mental or behavioural condition were the most likely to have had time off work or study/school in the last 12 months due to their condition (31.2 per cent), followed by people with cancer (30.9 per cent). The proportion of people taking time off work or study/school for all other long-term health conditions ranged from 7.5 per cent to 19.3 per cent. A recent systematic review with meta-analysis assessed the effectiveness of psychological and education interventions to prevent depression in primary care and found a 16.3 per cent reduction in the incidence of depression as a result of these healthcare services.⁶⁷ General practice interventions can also increase the uptake of cancer screening,⁶⁸ which in turn can increase the percentage of patients being diagnosed in early stages of the disease. Cancer patients diagnosed in the early stages of the disease have a greater chance of receiving successful treatments, a lower chance of needing more aggressive treatments, and greater potential for higher productivity through workforce engagement.

⁶⁰ Laplagne P, Glover M, and Shomos A. 'Effects of Health and Education on Labour Force Participation', *Productivity Commission Staff Working Paper*, Melbourne, May 2007.

⁶¹ Australian Institute of Health and Welfare. *Chronic disease and participation in work*. Cat. no. PHE 109. Canberra: AIHW, 2009.

⁶² Australian Bureau of Statistics. *Health Service Usage and Health Related Actions, Australia, 2014-15*. Retrieved from: <<https://www.abs.gov.au/>>.

⁶³ *Ibid.*

⁶⁴ Holden L, Scuffham PA, Hilton MF, Ware RS, Vecchio N, and Whiteford HA. 'Which Health Conditions Impact on Productivity in Working Australians?' *Journal of Occupational and Environment Medicine*, 53(3), 253-257, 2011.

⁶⁵ Evans-Lacko S, and Knapp M. 'Global patterns of workplace productivity for people with depression: absenteeism and presenteeism costs across eight diverse countries,' *Social Psychiatry Psychiatric Epidemiology*, 51(11), 1525-1537, 2016.

⁶⁶ Sadatsafavi M, Rousseau R, Chen W, Zhang W, Lynd L, and FitzGerald JM. 'The preventable burden of productivity loss due to suboptimal asthma control: a population-based study,' *Chest*, 145(4), 787-793, 2014.

⁶⁷ Conejo-Cerón S, Moreno-Peral P, Rodríguez-Morejón A, Motrico E, Navas-Campaña D, ... and Bellón JÁ. 'Effectiveness of Psychological and Educational Interventions to Prevent Depression in Primary Care: A Systematic Review and Meta-Analysis,' *Annals of Family Medicine*, 15(3), 262-271, 2017.

⁶⁸ Sabatino SA, Habarta N, Baron RC, Coates RJ, Rimer BK, ... and Task Force on Community Preventive Services. 'Interventions to increase recommendation and delivery of screening for breast, cervical, and colorectal cancers by healthcare providers systematic reviews of provider assessment and feedback and provider incentives,' *American Journal of Preventive Medicine*, 35(1 Suppl), S67-S74, 2008.

Methodology

The diagram below shows how we estimate the productivity gains, through reduced absenteeism, that would be gained from implementation of the

enhanced general practice model presented in the RACGP's Vision.



* Health conditions selected: all-cancers, COPD, mental health, arthritis, alcohol/illicit drugs problems, obesity; we estimated the total number of people with selected health conditions in 2021 to 2035 by applying prevalence estimates to the projected Australian population in 2021 to 2035.

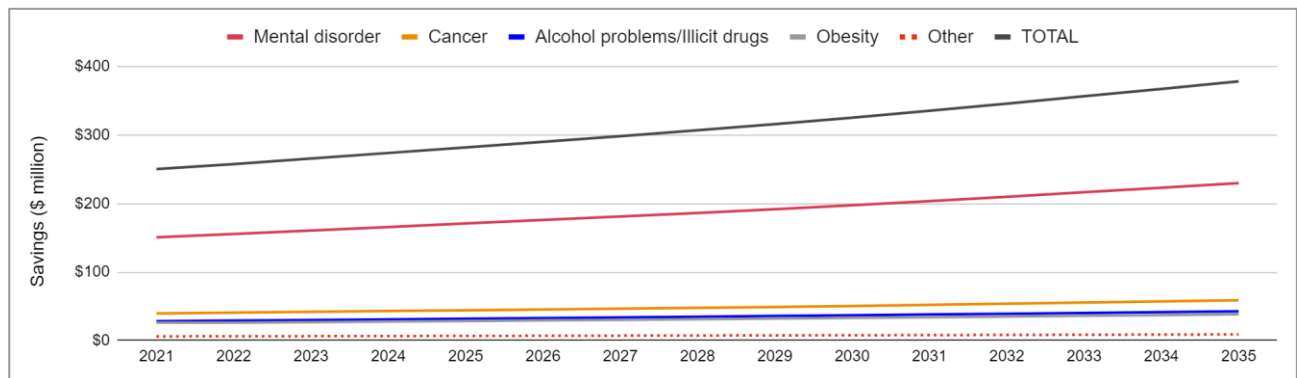
** We inflated wages to 2021 to 2035 using health CPI.

Results

We estimate that savings related to improved productivity from enhanced general practice would be \$250 million in 2021. Total savings in the five years from 2021 to 2025 would be approximately \$1.3 million. Mental and behaviour conditions





account for 60 per cent of the savings, followed by cancer (16 per cent) and alcohol/illicit drugs problems and obesity (around 10 per cent each). COPD accounted for almost 60 per cent of the other category and arthritis for the remaining 40 per cent.

Figure 7: Savings in workforce productivity (\$m) from 2021 to 2035



Health equity

Certain population groups in Australia – such as people of low socioeconomic status, rural and remote populations and Indigenous Australians – experience higher rates of illness and death. In 2014-15, people living in the lowest socioeconomic areas were more likely to have diabetes (2.6 times) and heart, stroke or vascular disease (1.7 times), and higher death rates (1.5) when compared to people living in the highest socioeconomic areas. People living in rural and remote areas also face multiple challenges, normally related to their geographic isolation, and often experience poorer health outcomes than people living in cities. In 2015, people living in very remote areas had a mortality rate almost 1.4 times higher than people living in major cities.

	Indigenous Australians are: (compared to non-Indigenous Australians)	People living in remote / very remote areas are: (compared to regional areas and major cities)	People in low socioeconomic groups are: (compared to high socioeconomic groups)
	3.0	2.0	1.3
times more likely to have a preventable hospitalisation			
	14%	8%	n/d*
more likely to have hospital readmission			
	2.7	1.5	1.4
times more likely to use the emergency department (ED)			

* No difference found.

Indigenous Australians also experience widespread disadvantage and health inequality. In 2014-15, Indigenous Australians were more likely to rate their health as 'fair/poor' (almost 1.5 times), less likely to rate it as 'excellent/very good' and more likely to

experience high/very high levels psychological distress (2.7 times) when compared to non-Indigenous Australians. Indigenous Australians also have shorter life expectancy (around 11 years for males and nine years for females in 2010-12) compared to non-Indigenous Australians. These differences can be attributed to factors such as greater difficulty in accessing affordable health services.

Impact of general practice on equity

According to a recent WHO exploratory review,⁶⁹ there is some evidence that specific healthcare system models supporting general practice can improve equity of access for disadvantaged adults when compared with other health services, in the context of specific primary healthcare designs and reimbursement mechanisms for general practitioners.^{70,71,72,73} General practice seems to be distributed more evenly than specialist care, which is often used disproportionately by more affluent households.⁷⁴ There is also evidence that general practice improves equity of health outcomes^{75,76,77,78} and reduces inequities in self-rated health.⁷⁹

ACSC in different population groups

In 2017-18, the age-standardised rate of ACSC was three times higher in Indigenous Australians when compared to non-Indigenous Australians, with the highest difference being in vaccine-preventable conditions (4.4 times) and diabetes complications (four times).⁸⁰ In the same year, people living in remote or very remote areas were almost two times more likely to have a preventable hospitalisation with ACSC than people living in major cities or regional areas, with the highest difference in vaccine-preventable conditions

⁶⁹ World Health Organization. Technical Series on Primary Health Care. *Building the economic case for primary health care: a scoping review*. Geneva: WHO, 2018.

⁷⁰ Tao W, Agerholm J, and Burström B. 'The impact of reimbursement systems on equity in access and quality of primary care: A systematic literature review,' *BMC Health Services Research*, 16(1), 542, 2016.

⁷¹ Batista R, Pottie K, Bouchard L, Ng E, Tanuseputro P, and Tugwell P. 'Primary health care models addressing health equity for immigrants: a systematic scoping review,' *Journal of Immigrant and Minority Health*, 20(1), 214-230, 2018.

⁷² van Doorslaer E, Masseria C, and Koolman X. 'Inequalities in access to medical care by income in developed countries,' *Canadian Medical Association Journal*, 174(2), 177-183, 2006.

⁷³ Richard L, Furler J, Densley K, Haggerty J, Russell G, ... and Gunn J. 'Equity of access to primary healthcare for vulnerable populations: the IMPACT international online survey of innovations,' *International Journal for Equity in Health*, 15(64), 2016.

⁷⁴ Ferrer RL. 'Pursuing equity: contact with primary care and specialist clinicians by demographics, insurance, and health status,' *Annals of Family Medicine*, 5(6), 492-502, 2007.

⁷⁵ Starfield B. 'Primary care: an increasingly important contributor to effectiveness, equity, and efficiency of health services,' *SESPAS report 2012. Gaceta Sanitaria*, 26(S1), 20-26, 2012.

⁷⁶ Shi L. 'The Impact of Primary Care: A Focused Review,' *Scientifica* (Cairo), 432892, 2012.

⁷⁷ Kringos DS, Boerma W, van der Zee J, and Groenewegen P. 'Europe's strong primary care systems are linked to better population health but also to higher health spending,' *Health Affairs* (Millwood), 32(4), 686-694, 2013.

⁷⁸ Cookson R, Mondor L, Asaria M, Kringos DS, Klazinga NS, and Woodchis WP. 'Primary care and health inequality: Difference-in-difference study comparing England and Ontario,' *PloS One*, 12(11), e0188560, 2017.

⁷⁹ Shi L, Starfield B, Politzer R, and Regan J. 'Primary care, self-rated health, and reductions in social disparities in health,' *Health Services Research*, 37(3), 529-550, 2002.

⁸⁰ Australian Institute of Health and Welfare. *Admitted patient care 2017-18: Australian hospital statistics*. Health services series no. 90. Cat. no. HSE 225. Canberra: AIHW, 2019.

(2.8 times).⁸¹ In terms of socioeconomic status, the lowest socioeconomic groups were 1.3 times as likely as people in highest socioeconomic groups to have a preventable hospitalisation for ACSC.⁸²

Unplanned hospital readmissions in different population groups

Using the unplanned/unexpected readmission metric previously described, Indigenous Australians were, overall, 14 per cent more likely to be readmitted to hospital within 28 days of a surgical procedure when compared to non-Indigenous Australians, though for some procedures the readmission rate was lower for Indigenous Australians.⁸³ People living in remote/very remote areas also experienced hospital readmission rates an average eight per cent higher than those in people living in major cities or regional areas. Similarly, some readmission rates for some specific surgical procedures were lower in remote areas.⁸⁴

ED presentations in different population groups

In 2018-19, the rate of ED presentations was 2.7 times higher for Indigenous than for non-Indigenous Australians.⁸⁵ This number represents the rate of all five triage categories of ED presentations (where semi and non-urgent categories include the presentations that are possibly preventable through general practice). In terms of socioeconomic status, people in the two lowest groups were 1.5 times more likely to have a semi-urgent ED presentation and two times more likely to have a non-urgent ED presentation than people in the two highest socioeconomic groups.⁸⁶ People living in remote/very remote areas are also more likely to have a semi-urgent ED presentation (1.9 times) and non-urgent ED presentation (3.1 times) than people living in major cities or regional areas.⁸⁷

Summary of impacts on health equity

Through its impact on different metrics of healthcare use, implementation of the RACGP's Vision is expected to improve access to general practice and address the health gap between different population groups.

⁸¹ *Ibid.*

⁸² Australian Institute of Health and Welfare. *Admitted patient care 2017–18: Australian hospital statistics*. Health services series no. 90. Cat. no. HSE 225. Canberra: AIHW, 2019.

⁸³ *Ibid.*

⁸⁴ *Ibid.*







⁸⁵ Australian Institute of Health and Welfare. *Emergency department care 2018-19*. Retrieved from: <<https://www.aihw.gov.au/reports-data/myhospitals/sectors/emergency-department-care>>.

⁸⁶ *Ibid.*

⁸⁷ *Ibid.*

Appendices

Appendix A: Core features of high-performing general practice

Feature	Description
 <p>Patient-centred</p>	<p>Patient-centred care empowers the patient to be involved in decisions regarding their healthcare. It takes into consideration the patient's culture and background, wishes and circumstances, and fosters an ongoing relationship between a patient and their GP.</p>
 <p>Continuous</p>	<p>General practice is centred on the continuous therapeutic relationship between a patient and their GP. Continuous care fosters a coordinated approach to the management of a patient's health requirements based on the GP's access to information about past events and understanding of the patient's personal circumstances.</p> <p>Patients who have continuity of care with a regular GP:</p> <ul style="list-style-type: none"> • report high levels of satisfaction with their experience of care • have lower rates of hospitalisation and emergency department attendances • have lower mortality rates • are more likely to receive appropriate and patient-centred care.
 <p>Comprehensive</p>	<p>Comprehensive care involves the availability of a wide range of services that can respond to the needs of patients of all ages, as well as to the changing needs of the broader community.</p> <p>Comprehensive care in the general practice context usually takes the form of a multidisciplinary team of care providers who are wholly accountable for the primary healthcare requirements of the patient.</p>
 <p>Coordinate</p>	<p>Coordinated care involves effective communication and a smooth patient journey through the various levels and settings within the healthcare system, including hospitals, other specialists, disability services and the social sector.</p> <p>Coordinated care takes place both inside and outside the practice and ensures that:</p> <ul style="list-style-type: none"> • health resources are targeted to patients who would benefit most from services (such as those with chronic or complex conditions) • practices can provide a central point of coordination and integration to reduce duplication across sectors and subsequent waste and inefficiencies • patient information (stored in electronic health records) is shared across service providers, improving communication and decision-making • there is better support for transition between hospitals and community-based care, allowing patients to leave hospitals safely and sooner, freeing hospital beds.
 <p>High-quality</p>	<p>In general practice, safe and high-quality care encompasses:</p> <ul style="list-style-type: none"> • quality improvement • encouraging safe practice structures and systems • clinical governance • research • reducing inefficiencies. <p>Safe, high-quality care involves engaged leadership and the participation of the entire practice team. GPs' role as stewards in the healthcare system can contribute significantly to a high-quality healthcare system through preventing harm from over-testing, overdiagnosis and overtreatment.</p>
 <p>Accessible</p>	<p>In general practice, accessible care is defined by the ease with which patients can obtain appropriate care. It is dependent on adequate infrastructure and effective management systems supporting GPs and their teams.</p> <ul style="list-style-type: none"> • Accessible care encompasses elements of cultural appropriateness and ensuring that the care provided to a patient is culturally safe, sensitive and responsive. • Accessible care also involves offering alternative types of clinical encounters for patients who are unable to attend the practice, including phone, email, video or online consultations and home visits. <p>The cost of services will also affect how accessible they are.</p>

Source: RACGP. *Vision for general practice and a sustainable healthcare system*. East Melbourne, Vic: RACGP, 2019.

Appendix B: Technical parameters

Table B.1: Economic evaluation parameters for hospitalisations for ACSC, ED presentations, unplanned readmissions, QALYs and workforce productivity

Data input	Source/assumption
Hospitalisations for ambulatory care sensitive conditions (ACSC)	
<p>Total of hospitalisations for ACSC in 2017-18:</p> <p>747,742 (AIHW report) + 620,939 (additional ACSCs) = 1,368,681</p>	<p>Hospitalisations for 22 ACSC were sourced from AIHW report from 2017-18.⁸⁸ These ACSC are divided into vaccine preventable, acute and chronic conditions.</p> <p>Additional 17 ACSC were sourced from the literature⁸⁹ and divided into mental health and other conditions. Hospitalisations for these additional ACSC were extracted from AIHW database.⁹⁰</p> <p>A rate per person and per age group was estimated for each ACSC in 2017-18. Using the population growth per age group⁹¹ and considering the rate of ACSC per person/age group to be constant, the number of ACSC from 2021 to 2035 was estimated based on the population growth.⁹²</p>
<p>Benefit of general practice in reducing hospitalisation for ACSC:</p> <p>Increase in the usual provider of care index of 0.2 reduce ACSC admissions by 6.22%⁹³</p>	<p>In order to estimate the possible reduction of ACSC in Australia as a result of implementation of the RACGP's Vision, we assumed the Vision would improve the continuity of care. One indicator of continuity of care is the usual provider of care index which ranges from 0 (low) to 1 (high).</p> <p>While the usual provider of care in Australia is unknown, recent evidence shows that:</p> <ul style="list-style-type: none"> the proportion of patients with a usual GP or usual place of care is 97.5%⁹⁴ the percentage of adults who could not access their preferred GP in the preceding 12 months is 28.5%⁹⁵ over 25% of surveyed Australians reported attending more than one general practice in the previous year.⁹⁶ <p>Taken together, this suggests that Australia's usual provider of care index would be in the middle on a scale of low to high, and it was assumed that a high-performance general practice could increase the usual provider of care index in Australia by at least 0.2.</p>
Emergency department (ED) presentations	
<p>Total of ED presentations in 2018-19:</p> <p>8,352,192 (public hospitals) + 583,229 (private hospitals) = 8,600,721</p>	<p>Total of emergency department presentations in public hospitals in 2018-19 were sourced from AIHW report.⁹⁷</p> <p>Total of emergency department presentations in private hospitals in 2016-17 were sourced from Australian Bureau of Statistics (ABS) and estimated for 2018-19 using the annual average growth from 2013-14 to 2016-17 (2.1%).⁹⁸</p> <p>A rate of ED presentation per person and per age group was estimated in 2018-19. Using the population growth per age group⁹⁹ and considering the rate per person/age group to be</p>

⁸⁸ Australian Institute of Health and Welfare 2019. *Admitted patient care 2017-18: Australian hospital statistics*. Health services series no. 90. Cat. no. HSE 225. Canberra: AIHW.

⁸⁹ Purdy S, Griffin T, Salisbury C, and Sharp D. 'Ambulatory care sensitive conditions: terminology and disease coding need to be more specific to aid policy makers and clinicians,' *Public Health*, 123(2), 169-173, 2009.

⁹⁰ Australian Institute of Health and Welfare. *Procedures and healthcare interventions (ACHI 10th edition), Australia, 2017-18*. Retrieved from <<https://www.aihw.gov.au/reports/hospitals/procedures-data-cubes/contents/data-cubes>>.

⁹¹ ABS. Australian Bureau Statistics. *Population Projections, Australia, 2017-2066*. Retrieved from: <http://stat.data.abs.gov.au/Index.aspx?DataSetCode=POP_PROJ_2011>.

⁹² ABS. Australian Bureau Statistics. *Population Projections, Australia, 2017-2066*. Retrieved from: <http://stat.data.abs.gov.au/Index.aspx?DataSetCode=POP_PROJ_2011>.

⁹³ Barker I, Steventon A, and Deeny SR. '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 (Clinical Research Ed)*, 356, j84, 2017.

⁹⁴ Australian Institute of Health and Welfare 2018. *Healthy Communities: coordination of health care experiences with GP care among patients aged 45 and over, 2016*. Cat. no. CHC 2. Canberra: AIHW.

⁹⁵ Australian Institute of Health and Welfare 2018. *Healthy Communities: coordination of health care experiences with GP care among patients aged 45 and over, 2016*. Cat. no. CHC 2. Canberra: AIHW.

⁹⁶ Wright M, Hall J, van Gool K, and Haas M. 'How common is multiple general practice attendance in Australia?' *Australian Journal of General Practice*, 47(5), 289-296, 2018.

⁹⁷ Australian Institute of Health and Welfare. *Emergency department care 2018-19*. Retrieved from: <<https://www.aihw.gov.au/reports-data/myhospitals/sectors/emergency-department-care>>.

⁹⁸ Australian Bureau of Statistics (ABS). *Private Hospitals, Australia, 2016-17*. Retrieved from: <<https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4390.0Main+Features12016-17?OpenDocument>>.

⁹⁹ ABS. Australian Bureau Statistics. *Population Projections, Australia, 2017-2066*. Retrieved from: <http://stat.data.abs.gov.au/Index.aspx?DataSetCode=POP_PROJ_2011>.

Data input

Source/assumption

Benefit of general practice in reducing ED presentation:

10% of total emergency department (ED) presentation¹⁰¹

constant, the average total population growth from 2020 to 2035 is 1.4%.¹⁰⁰

In Australia, ED presentations are classified according to their urgency, using the Australasian Triage Scale (ATS).

Those ED presentations classified according to ATS as semi or non-urgent - those that do not arrive by an emergency services vehicle and were discharged without referral to another hospital - are considered of lower urgency care and may be avoidable through provision of other appropriate services in the community. In 2017-18, around 37% (2.9 million) of all ED presentations were for lower urgency care.¹⁰²

Our assumption of 10% reduction in ED presentation represents 27% of those classified as lower urgency in Australia in 2017-18.

Unplanned hospital readmissions

Total of hospital unplanned readmissions in 2017-18:

3,187 (AIHW report - public hospitals) +

6,385 (estimated for private hospitals) +

708,549 (additional readmissions from ACSQHC) =

718,121

AIHW reports unplanned or unexpected readmissions after selected surgical procedures. It is a National Healthcare Agreement (NHA) performance indicator in the outcome area of Australians receiving appropriate high-quality and affordable hospital and hospital-related care.

Some readmissions may relate to the provision of hospital care, but others may relate to the unavailability of appropriate post-discharge care in the community.¹⁰³

Unplanned readmissions include hospitalisations for which:

- unplanned readmission to the same public hospital occurred within 28 days following selected surgical procedures:
 - appendicectomy
 - cataract extraction
 - hip replacement
 - hysterectomy
 - knee replacement
 - prostatectomy
 - tonsillectomy and adenoidectomy
- cause of the hospitalisation (the principal diagnosis) was an adverse event.

In order to estimate the number of readmissions in private hospitals for selected surgical procedures listed above, a rate of readmission for each surgical procedure reported to public hospitals was applied to the number of surgical procedures undertaken in private hospitals.

Example: appendicectomy procedures in 2017-18

Total hospitalisations (public hospitals) ¹⁰⁴	Rate of readmission for adverse event per 1,000 (public hospitals) ¹⁰⁵	Total hospitalisations (private hospitals) ¹⁰⁶	Estimated total readmissions in private hospitals (applying readmission rate in public hospitals)
30,437	21	11,145	235

The Australian Commission on Safety and Quality in Health Care (ACSQHC) has recently developed a list with eleven groups of avoidable hospital readmissions to inform safety and quality reforms in Australia.¹⁰⁷ We have listed all hospitalisations in 2017-18 for which the principal diagnosis was in one of the eleven groups developed by ACSQHC and assumed five per cent of these hospitalisations were readmissions.

The five per cent assumption is a conservative approach, considering that only the 3,187 hospitalisations where the principal diagnosis was an adverse event (readmissions) in

¹⁰⁰ ABS. Australian Bureau Statistics. *Population Projections, Australia, 2017-2066*. Retrieved from: <http://stat.data.abs.gov.au/Index.aspx?DataSetCode=POP_PROJ_2011>.

¹⁰¹ Nagree Y, Camarda VJ, Fatovich DM, Cameron PA, Dey I, ... and Mountain D. 'Quantifying the proportion of general practice and low-acuity patients in the emergency department,' *The Medical Journal of Australia*, 198, 612-615, 2013.

¹⁰² Australian Institute of Health and Welfare (AIHW). *Use of emergency departments for lower urgency care: 2015-16 to 2017-18*. Retrieved from: <<https://www.aihw.gov.au/reports/health-care-quality-performance/use-of-emergency-departments-for-lower-urgency-car/contents/summary>>.

¹⁰³ Australian Institute of Health and Welfare 2019. *Admitted patient care 2017-18: Australian hospital statistics*. Health services series no. 90. Cat. no. HSE 225. Canberra: AIHW.

¹⁰⁴ *Ibid.*

¹⁰⁵ *Ibid.*

¹⁰⁶ Australian Institute of Health and Welfare (AIHW). *Procedures and healthcare interventions (ACHI 10th edition), Australia, 2017-18*. Retrieved from: <<https://www.aihw.gov.au/reports/hospitals/procedures-data-cubes/contents/data-cubes>>.

¹⁰⁷ Australian Commission on Safety and Quality in Health Care. *Avoidable hospital readmissions, 2019*. Retrieved from: <<https://www.safetyandquality.gov.au/publications-and-resources/resource-library/avoidable-hospital-readmissions-ahrs-v1-jun-2019>>.

Data input

Source/assumption

2017-18 for a selected surgical procedure represent almost five per cent of the entire group of hospitalisations for the same adverse events in 2017-18.¹⁰⁸

A rate of readmission per hospitalisation and per age group was estimated in 2017-18. Using the population growth per age group¹⁰⁹ to estimate total hospitalisations from 2021 to 2035 and considering the rate of readmission to be constant, the number of unplanned readmissions from 2021 to 2035 was estimated based on the population growth. For unplanned readmissions developed by ACSQHC, future estimates were based on rate per population.

Benefit of general practice in reducing hospital readmissions:

12% reduction in hospital readmission¹¹⁰

Evidence shows that patients who have access and completed a post-hospital discharge follow-up visit with a primary care clinician within seven days have a 12% to 24% lower risk for 30-day readmission.¹¹¹

Quality-adjusted life years (QALYs)

Benefit of general practice in reducing mortality for specific diseases:

- 9% (all-cancer)
- 20% (COPD)
- 17% (CHD)

Evidence shows that for each 1 per cent increasing of patients being better able to see their preferred general practitioner was associated with:

- reduction in 0.3% in all-cancer mortality¹¹²
- reduction in 0.7% in COPD mortality¹¹³
- reduction in 0.6% in CHD mortality.¹¹⁴

In 2013-14, around 28.5 per cent of Australians were not able to access their preferred GP in the preceding 12 months.¹¹⁵ We have assumed that with a high-performance general practice system, all Australians would be able to access their preferred GP.

Mortality was reduced assuming an increase of 28.5 percent of patients being better able to see their preferred GP.

Number of deaths due to specific diseases:

- 49,900 (all-cancer, 2019)
- 21,900 (COPD, 2015-17)
- 57,500 (CHD, 20195-17)

Number of deaths for all-cancer in 2019 was sourced from AIHW report "Cancer in Australia 2019".¹¹⁶ For COPD and CHD, deaths in 2015-17 were sourced from AIHW Deaths web report.¹¹⁷

A rate of death per person and age group was estimated in 2019 for all cancers and in 2015-17 for COPD and CHD. Using the population growth per age group¹¹⁸ and considering the death rate to be constant, we estimated the number of deaths for each disease from 2021 to 2035 based on the population growth.

Number of years gained due to avoided death for specific diseases:

- 16 years (all-cancer)
- 10 years (COPD)

Average age of death for each disease is:

- 71.2 years (all-cancer)¹¹⁹
- 78.9 years (COPD)¹²⁰
- 80.3 years (CHD).¹²¹

¹⁰⁸ Australian Institute of Health and Welfare. *Procedures and healthcare interventions (ACHI 10th edition), Australia, 2017-18*. Retrieved from: <<https://www.aihw.gov.au/reports/hospitals/procedures-data-cubes/contents/data-cubes>>.

¹⁰⁹ ABS. Australian Bureau Statistics. *Population Projections, Australia, 2017-2066*. Retrieved from: <http://stat.data.abs.gov.au/Index.aspx?DataSetCode=POP_PROJ_2011>.

¹¹⁰ Shen E, Koyama SY, Huynh DN, Watson HL, Mittman B, ... and Nguyen HQ. 'Association of a Dedicated Post-Hospital Discharge Follow-up Visit and 30-Day Readmission Risk in a Medicare Advantage Population,' *JAMA International Medicine*, 177(1), 132-135, 2017.

¹¹¹ *Ibid.*

¹¹² Levene LS, Bankart J, Khunti K, and Baker R. 'Association of primary care characteristics with variations in mortality rates in England: an observational study,' *PLoS One*, 7(10), e47800, 2012.

¹¹³ *Ibid.*

¹¹⁴ Honeyford K, Baker R, Bankart MJ, and Jones D. 'Modelling factors in primary care quality improvement: a cross-sectional study of premature CHD mortality,' *BMJ Open*, 3(10), e003391, 2013.

¹¹⁵ Australian Institute of Health and Welfare 2018. *Healthy Communities: coordination of health care experiences with GP care among patients aged 45 and over, 2016*. Cat. no. CHC 2. Canberra: AIHW.

¹¹⁶ Australian Institute of Health and Welfare. *Cancer in Australia 2019*. Cancer series no.119. Cat. no. CAN 123. Canberra: AIHW.

¹¹⁷ Australian Institute of Health and Welfare. *Life expectancy and death: deaths in Australia (web report)*. Retrieved from: <<https://www.aihw.gov.au/reports-data/health-welfare-services/primary-health-care/overview>>.

¹¹⁸ ABS. Australian Bureau Statistics. *Population Projections, Australia, 2017-2066*. Retrieved from: <http://stat.data.abs.gov.au/Index.aspx?DataSetCode=POP_PROJ_2011>.

¹¹⁹ Australian Institute of Health and Welfare. *Cancer in Australia 2019*. Cancer series no.119. Cat. no. CAN 123. Canberra: AIHW.

¹²⁰ Australian Institute of Health and Welfare. *Life expectancy and death: deaths in Australia (web report)*. Retrieved from: <<https://www.aihw.gov.au/reports-data/health-welfare-services/primary-health-care/overview>>.

¹²¹ Australian Institute of Health and Welfare. *Life expectancy and death: deaths in Australia (web report)*. Retrieved from: <<https://www.aihw.gov.au/reports-data/health-welfare-services/primary-health-care/overview>>.

Data input	Source/assumption
<ul style="list-style-type: none"> 10 years (CHD) 	For each disease, considering the average age of death, life expectancy was sourced from Australian Bureau of Statistics. ¹²²
Utility index scores of people living with specific diseases: <ul style="list-style-type: none"> 0.87 (all-cancer) 0.53 (COPD) 0.72 (CHD) 	Quality of life index score for healthy Australians was estimated to be 0.87. ¹²³ We applied disease specific disability weight to the quality of life index score of healthy Australians. ¹²⁴
Workforce productivity: absenteeism	
Benefit of general practice in reducing absenteeism: <ul style="list-style-type: none"> 6.2% (all-cancer, COPD, arthritis, alcohol and illicit drug problems and obesity) 8.1% (Mental disorder) 	Due to lack of Australian data linking high-performance general practice and absenteeism, we used reduction of preventable hospitalisation as a proxy of reduction of absenteeism, except for mental disorders. A recent systematic review with meta-analysis assessed the effectiveness of psychological and education interventions to prevent depression in primary care and found a 16.3 per cent reduction in depression as a result of these healthcare services. ¹²⁵ As a conservative approach, we assumed 8.1 per cent reduction in absenteeism.
People with selected health conditions in 2021: <ul style="list-style-type: none"> Cancer: 1,880,495 COPD: 166,073 Mental disorder: 5,469,206 Arthritis: 121,573 Alcohol problems: 828,477 Illicit drugs: 511,553 Obesity: 1,238,556 <p>TOTAL: 10,215,934</p>	Prevalence of each selected health condition per age group in Australia was sourced from different reports ^{126,127,128,129,130,131} and applied for the Australian estimated working age population (18-65 years) from 2021 to 2035. ¹³²
Proportion of employed people who had to take day off work for selected health conditions: <ul style="list-style-type: none"> Cancer: 30.6% COPD: 9.9% Mental health: 23.4% Arthritis: 14.9% 	Proportion of people who had time away from work in the last 12 months was sourced from the National Health Survey in 2014-15. ¹³³ Note: While the National Health Survey reports times away from school/study or work, we assumed the aggregate estimate applied to the time away from work for the working age population.

¹²² ABS. Australian Bureau of Statistics. *Life Tables, States, Territories and Australia, 2016-2018*. Retrieved from: <<https://www.abs.gov.au/ausstats/abs@.nsf/mf/3302.0.55.001>>.

¹²³ Clemens S, Begum N, Harper C, Whitty JA, & Scuffham PA. 'A comparison of EQ-5D-3L population norms in Queensland, Australia, estimated using utility value sets from Australia, the UK and USA,' *Quality of Life Research*, 23(8), 2375-2381, 2014.

¹²⁴ World Health Organization. 'Introduction and methods: Assessing the environmental burden of disease at national and local level. Chapter 3. The Global Burden of Disease concept' [online]. Retrieved from <http://www.who.int/quantifying_ehimpacts/publications/en/9241546204chap3.pdf?ua=1>.

¹²⁵ Conejo-Cerón S, Moreno-Peral P, Rodríguez-Morejón A, Motrico E, Navas-Campaña D, ... and Bellón JÁ. 'Effectiveness of Psychological and Educational Interventions to Prevent Depression in Primary Care: A Systematic Review and Meta-Analysis,' *Annals of Family Medicine*, 15(3), 262-271, 2017.

¹²⁶ Australian Institute of Health and Welfare. *Cancer in Australia 2019*. Cancer series no.119. Cat. no. CAN 123. Canberra: AIHW.

¹²⁷ Australian Institute of Health and Welfare. *Chronic obstructive pulmonary disease (COPD)*. Cat. no. ACM 35. Canberra: AIHW. Retrieved from: <<https://www.aihw.gov.au/reports/chronic-respiratory-conditions/copd>>.

¹²⁸ Australian Institute of Health and Welfare. *Prevalence of mental disorders in the Australian population*. Retrieved from: <<https://www1.health.gov.au/internet/publications/publishing.nsf/Content/mental-pubs-m-mhaust2-toc-mental-pubs-m-mhaust2-hig-mental-pubs-m-mhaust2-hig-pre>>.

¹²⁹ Australian Institute of Health and Welfare. *Rheumatoid arthritis*. Cat. no. PHE 252. Canberra: AIHW. Retrieved from: <<https://www.aihw.gov.au/reports/chronic-musculoskeletal-conditions/rheumatoid-arthritis>>.

¹³⁰ Australian Institute of Health and Welfare. *Alcohol, tobacco & other drugs in Australia*. Retrieved from: <<https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/contents/introduction>>.

¹³¹ Australian Institute of Health and Welfare. *Overweight and obesity: an interactive insight*. Retrieved from: <<https://www.aihw.gov.au/reports/overweight-obesity/overweight-and-obesity-an-interactive-insight/contents/what-is-overweight-and-obesity>>.

¹³² ABS. Australian Bureau of Statistics. *Population Projections, Australia, 2017-2066*. Retrieved from: <http://stat.data.abs.gov.au/Index.aspx?DataSetCode=POP_PROJ_2011>.

¹³³ ABS. Australian Bureau of Statistics. *Health Service Usage and Health Related Actions, Australia, 2014-15*. Retrieved from: <<https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4364.0.55.0022014-15?OpenDocument>>.

Data input	Source/assumption
<ul style="list-style-type: none"> Alcohol problems: 11.1% Illicit drugs: 11.1% Obesity: 14.6% 	
Number of additional days of work missed due to each health condition: <ul style="list-style-type: none"> Cancer: 13.4 COPD: 7.7 Mental health: 8.1 Arthritis: 2.9 Alcohol problems: 1.1 Illicit drugs: 1.7 Obesity: 1.8 	Number of additional days of work missed due to each selected health condition in Australians was sourced from different reports. ^{134,135,136,137,138,139}
Average weekly salary in Australia (2019): <ul style="list-style-type: none"> \$1,659 	All employees average weekly total earnings was sourced from Australian Bureau of Statistics. ¹⁴⁰ Note: Wages were inflated to their value in 2020-35 using general CPI of 1.8%. ¹⁴¹

Table B.2: Cost parameters for hospitalisations for ACSC, ED presentations and unplanned readmissions

Cost item	Inputs
Average annual inflation rate	3.2% annually ¹⁴² Note: Where necessary, costs were inflated to their value in 2021-35.
Hospital cost components	Average cost same day hospitalisation in 2017-18: ¹⁴³ \$1,291 Average cost per day (overnight) in 2017-18: ¹⁴⁴ \$2,270
Hospitalisations for ambulatory care sensitive conditions (ACSC): <ul style="list-style-type: none"> Average same day: 90% Average overnight: 10% (1.6 days) 	We estimate the cost for each ACSC using the proportion of same day hospitalisations and number of days overnight. In order to determine the average cost per each ACSC, we assumed that only ACSC resulting in same day admissions or admissions of no more than two days were preventable. We excluded those preventable hospitalisations for ACSC that required a longer hospital stay because not all potentially preventable admissions are equally avoidable in practice. For example, a theoretically preventable admission that results in the patient staying in hospital for more than two days suggests a severe problem, for which the admission may have been difficult to avoid in practice, at least immediately before the admission. ¹⁴⁵

¹³⁴ The Cancer Council New South Wales. *Cost of Cancer in NSW, 2007*. Retrieved from: <https://www.cancercouncil.com.au/wp-content/uploads/2010/11/costofcancer_summary.pdf>.

¹³⁵ The Australian Lung Foundation. *Economic impact of COPD and cost-effective solutions, 2008*. Retrieved from: <<http://www.rnig.org.au/docs/EconomicImpactofCOPDandCostEffectiveSolutions-226.pdf>>.

¹³⁶ Beyond Blue. *Creating a mentally healthy workplace: return on investment analysis, 2014*. Retrieved from: <https://www.headsup.org.au/docs/default-source/resources/beyondblue_workplaceroi_finalreport_may-2014.pdf>.

¹³⁷ The Arthritis Foundation of Australia. *The Prevalence, Cost and Disease Burden of Arthritis in Australia, 2001*. Retrieved from: <https://arthritisaustralia.com.au/wordpress/wp-content/uploads/2017/09/Access_Economics_2001.pdf>.

¹³⁸ Roche A, Pidd K, and Kostadinov V. 'Alcohol- and drug-related absenteeism: a costly problem,' *Australian and New Zealand Journal of Public Health*, 40(3), 236-238, 2016.

¹³⁹ Australian Institute of Health and Welfare. *Obesity and workplace absenteeism among older Australians*. Retrieved from: <<https://www.aihw.gov.au/getmedia/f7a2c2cb-028f-4898-a1f2-e5dace9fecb9/bulletin31.pdf.aspx?inline=true>>.

¹⁴⁰ ABS. Australian Bureau of Statistics. 'Cat 6302.0 – Average Weekly Earnings, Australia', Nov 2019.

¹⁴¹ ABS. Australian Bureau of Statistics. 'Cat 6345.0 - Wage Price Index, Australia', Dec 2019.

¹⁴² ABS. Australian Bureau of Statistics. 'Cat 6401.0 - Consumer Price Index, Australia', Dec 2019.

¹⁴³ IPHA. Independent Hospital Pricing Authority. *National Hospital Cost Data Collection Cost Report: Round 22 Financial Year 2017-18*.

¹⁴⁴ *Ibid*.

¹⁴⁵ Duckett S, and Swerissen H. *Building better foundations for primary care*. Grattan Institute, 2017.

Cost item	Inputs
Unplanned hospital readmissions:	In order to estimate the average cost, we considered the average number of days in hospital for each procedure. ¹⁴⁶
<ul style="list-style-type: none"> Weighted average days in hospital: 5.2 days 	
Average cost per ED presentation in 2017-18:	Sourced from National Hospital Cost Data Collection Cost Report. ¹⁴⁷
<ul style="list-style-type: none"> \$538 	

¹⁴⁶ Australian Institute of Health and Welfare. *Procedures and healthcare interventions (ACHI 10th edition), Australia, 2017-18*. Retrieved from: <<https://www.aihw.gov.au/reports/hospitals/procedures-data-cubes/contents/data-cubes>>.

¹⁴⁷ IPHA. Independent Hospital Pricing Authority. *National Hospital Cost Data Collection Cost Report: Round 22 Financial Year 2017-18*.

Appendix C: Sensitivity analysis

In this report, we used the most conservative estimates to measure the economic benefits of the RACGP's Vision for general practice and a sustainable healthcare system.

In order to estimate the maximum savings associated with the RACGP's Vision, we used the least conservative for different variables (see table C.1). Tables C.2 and C.3 below present the sensitivities tested and their impacts in terms of total economic benefit.

Table C.1: Parameters of the sensitivity analysis

Economic model variables	Conservative approach	Maximum benefit
Variable A: general practice benefit to hospitalisation for ACSC	reduction of 6.2%	reduction of 18.6%
Variable B: limit to length of stay for hospitalisations for ACSC	ACSC resulting in same day or admission no more than 2 days <ul style="list-style-type: none"> average same day: 90% average overnight: 10% (1.6 days) 	All ACSC resulting in same day or admission <ul style="list-style-type: none"> average same day: 40% average overnight: 60% (7.2 days)
Variable C: General practice benefit to ED presentation	reduction of 10%	reduction of 12%
Variable D: General practice benefit to unplanned readmission	reduction of 12%	reduction of 24%
Variable E: Percentage of hospitalisations for adverse event considered unplanned readmission	5% of all hospitalisations associated with the ICD-10 listed by the ACSQHC were considered unplanned readmission	10% of all hospitalisations associated with the ICD-10 listed by the ACSQHC were considered unplanned readmission

Table C.2: Total economic benefits of the RACGP's Vision in 2021, conservative approach and maximum savings

Metrics	Conservative approach	Maximum benefit considering the economic model variables A to E (see table 5)					
		Variable A	Variable B	Variable C	Variable D	Variable E	all (A-E)
Preventable hospitalisation	\$152.4	\$457.2	\$152.4	\$152.4	\$1,095.6	\$152.4	\$3,286.8
ED presentation	\$552.0	\$552.0	\$662.4	\$552.0	\$552.0	\$552.0	\$662.4
Unplanned readmission	\$68.8	\$68.8	\$68.78	\$137.6	\$68.8	\$129.2	\$258.3
Workforce productivity	\$250.4	\$250.4	\$250.4	\$250.4	\$250.4	\$250.4	\$250.4
Total economic benefit	\$1,024	\$1,328	\$1,134	\$1,092	\$1,967	\$1,084	\$4,458

Table C.3: Total economic benefits of the RACGP's Vision in the next five years (2021-2025), conservative approach and maximum savings

Metrics	Conservative approach	Maximum benefit considering the economic model variables A to E (see table 5)					
		Variable A	Variable B	Variable C	Variable D	Variable E	all (A-E)
Preventable hospitalisation	\$847.8	\$2,543.5	\$847.8	\$847.8	\$6,108.8	\$847.8	\$18,326.5
ED presentation	\$3,047.0	\$3,047.0	\$3,656.4	\$3,047.0	\$3,047.0	\$3,047.0	\$3,656.4
Unplanned readmission	\$386.2	\$386.2	\$386.2	\$772.4	\$386.2	\$725.6	\$1,451.3
Workforce productivity	\$1,332.9	\$1,332.9	\$1,332.9	\$1,332.9	\$1,332.9	\$1,332.9	\$1,332.9
Total economic benefit	\$5,614	\$7,310	\$6,223	\$6,000	\$10,875	\$5,953	\$24,767



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