



Analysis of after hours primary care pathways

National Association of Medical Deputising Services

November 2016

Contents

Key observations	v
Executive summary	viii
1 Introduction	16
2 After hours primary care in Australia	17
2.1 After hours primary care	17
2.2 Access to primary care	18
2.3 Delivery of after hours primary care	23
2.3.1 Emergency departments	23
2.3.2 Ambulance	26
2.3.3 Extended and 'after hours only' clinics	28
2.3.4 Healthdirect Australia	28
2.3.5 GP Access Schemes	30
2.3.6 After Hours Home and ACF Visits	30
3 Patient Pathway Analysis	32
3.1 Comparison context	32
3.2 Financial evaluation	34
3.3 Financial evaluation results	35
3.4 Other impacts	37
3.5 Summary	39
Appendix A: Patient pathway analysis	40
A.1. Analytical framework	40
A.2. Emergency department	41
A.2.1. Financial cost	42
A.2.2. Other costs	43
A.3. Ambulance	44
A.3.1. Financial cost	44
A.3.2. Other costs	50
A.4. Extended and after hours only clinics	50
A.4.1. Financial costs	50
A.4.2. Other costs	52
A.5. Healthdirect Helpline	53
A.5.1. Financial Costs	53
A.5.2. Other Costs	55
A.6. Hunter GP Access	55
A.6.1. Financial Costs	56

A.7. After hours home and ACF visits	57
A.7.1. Financial cost	57
A.7.2. Other costs	58
Appendix B: Patient pathways analysis including admitted patient costs	60
B.1. Emergency department (with admitted patients)	60
B.1.2. Summary: Emergency department presentation costs, including admitted patient costs	62
B.2. Ambulance	64
B.2.1. Hospital emergency departments	64
B.3. Impact on other patient pathways	66
Appendix C: NAMDS members	67
Limitation of our work	68
General use restriction	68

Charts

Chart 2.1: Demand for after hours versus in hours primary care	20
Chart 2.2: Workforce participation: males and females 1990 to 2016.....	23
Chart 2.3: Public hospital emergency department presentations in Australia by triage category	25
Chart 2.4: Number of ambulance patients in Australia	27
Chart 2.5: Healthdirect nurse-triage call recommendations/advice.....	29
Chart 2.6: Healthdirect after-hours GP helpline recommendations/advice.....	30
Chart A.1: Proportion of Government grants and contributions to ambulance revenue	48

Tables

Table 3.1: Patient cohorts considered in this analysis	34
Table 3.2: Comparison of patient pathway costs that include and exclude admitted patient costs	35
Table 3.3: Cost per patient of accessing alternative pathways.....	36
Table A.1: Descriptions of patient cohorts	41
Table A.2: Cost of emergency department presentations by triage category and age cohort.....	43
Table A.3: Emergency department cost by patient cohort (non-admitted)	43
Table A.4: Scheduled ambulance service fees	47
Table A.5: Cost per patient – non-emergency and treat no transport	48
Table A.6: Non-admitted patient costs by age cohort and triage category (arrived by ambulance)	49
Table A.7: Total non-admitted patient costs (arrived by ambulance)	49
Table A.8: Weighted average cost of ambulance pathway	49
Table A.9: Ambulance and emergency department per patient costs.....	50
Table A.10: Extended and after hours only clinics cost by State and Territory.....	51
Table A.11: Total per patient cost of extended and after hours only clinics	52
Table A.12: Healthdirect Helpline costs	55
Table A.13: Hunter GP Access costs	57
Table A.14: Medical Deputising cost by State and Territory	58
Table A.15: Total per patient cost of Medical Deputising	58
Table B.1: Financial cost of emergency department outcomes by triage and age cohort	61
Table B.2: Proportion of patients admitted and transferred by triage category and cohort	61
Table B.3: Per patient cost by cohort.....	64
Table B.4: Per patient cost by cohort.....	66
Table B.5: Comparison of patient pathway costs that include and exclude admitted patient costs	66

Figures

Figure 2.1: After hours primary care operation times	18
Figure 2.2: After hours primary care policy and services timeline	19
Figure 3.1: Patient pathway connections	33
Figure A.1: Ambulance pathway	45
Figure A.2: Ambulance transports by jurisdiction	46
Figure A.3: Per patient cost of after hours and extended hours clinics	52
Figure A.4: Healthdirect Helpline pathway	54
Figure A.5: Hunter GP Access pathway	56
Figure B.1: Emergency department triage category 4 presentation cost	62
Figure B.2: Emergency department triage category 5 presentation cost	63
Figure B.3: Category 4 ambulance patients	65
Figure B.4: Category 5 ambulance patients	65

Glossary

ACF	Aged Care Facility
ACT	Australian Capital Territory
AH	After Hours
AIHW	Australian Institute of Health and Welfare
ATS	Australian Triage Scale
CAGR	Cumulative annual growth rate
COAG	Council of Australian Governments
ED	Emergency Department
GP	General Practitioner
GPAH	General Practice After Hours Program
IHPA	Independent Hospital Pricing Authority
Low acuity	Low urgency
MBS	Medicare Benefits Schedule
NAMDS	National Association for Medical Deputising Services
NSW	New South Wales
NT	Northern Territory
RACF	Residential Aged Care Facility
PBO	Parliamentary Budget Office
QLD	Queensland
SA	South Australia
TAS	Tasmania
UDG	Urgency Disposition Groups
VIC	Victoria
WA	Western Australia

Key observations

- **Access to after hours primary care improved following a series of government initiatives, particularly since 2005**
 - Improving access to primary care after hours has been a particular policy objective for government, reflecting the changing preferences of society and avoiding primary care being provided unnecessarily in emergency departments as a last resort.
 - Access to after hours primary care has increased significantly since the Commonwealth Government introduced a series of policies in 2005 most significantly “Round the Clock Medicare: Investing in After-Hours General Practice (GP) services”.
 - These policies were introduced in response to declining after hours primary care access as well as changing community preferences.
- **After hours pathways have different roles and ensuring the most appropriate pathway is utilised has significant benefit to the health system**
 - The lowest cost pathways for patients seeking after hours primary care are extended and ‘after hours only’ clinics (\$93) and after hours home and Aged Care Facility (ACF) visits (\$128). Emergency departments is the most expensive at \$1,351 if arriving by ambulance (or treated and not transported) and \$368 if self-presenting.
 - In 2012-13 AIHW estimated that 2.12 million presentations to emergency departments were avoidable, GP-type presentations, of which 63% occur after hours. If this quantum of presentations occurred today, the cost would be approximately \$0.8 billion. If a quarter of the AIHW estimated number of the GP-type presentations were diverted to either extended and ‘after hours only’ clinics or home and ACF visits, the net benefit to the health system would be \$81.8 million to \$93.5 million nationally.
 - Further, a study of 50,000 patients who utilised home and ACF visits showed that 94% would seek care using an alternative pathway if the service did not exist. Based on the preference information, the cost to the health system would be \$181 million higher compared with after hours home and ACF visits. Over four years, this would be in the order of \$724 million assuming no change in policy or volumes.
- **A case study examined the availability of after hours home and ACF visits and low acuity presentations to emergency departments**
 - It is acknowledged that the differences in patient preferences in accessing care pathways is complex and is influenced by a range of different factors. In order to understand this relationship an analysis of two discrete regions with similar population characteristics but with markedly different access to after hours home and ACF visits was undertaken.
 - A case study considered rates of primary care and low acuity emergency department presentations in two regions with similar demographics: the Central Coast and the Gold Coast.

- The Central Coast had a lower utilisation of home and ACF visits, and extended and 'after hours only' clinics and higher rates of low acuity emergency department presentations compared with the Gold Coast.

	Gold Coast	Central Coast
Home and ACF visits / 1,000 people	82	2
Low acuity ED presentations / 1,000 people	19	52

- Overall the case study shows for two similar regions, Central Coast has lower rates of after-hours home and clinic visits and higher rates of low acuity emergency department presentations than Gold Coast.

- **Low acuity presentations as a proportion of total emergency department presentations have declined since 2005-06, but there are still a large number, particularly those arriving by ambulance**

- Lower acuity (category 4 and 5) presentations as a proportion of total emergency department activity have declined from 54% to 47% over the period 2005-06 to 2014-15. Since 2011-12 more urgent (category 1 to 3) presentations to emergency departments have grown at higher rate at 7.0% than lower acuity (categories 4-5) at 3.4%.
- Low acuity presentations arriving from ambulances have also declined but still represent over 564,000 presentations or 23.7% of total ambulance arrivals. Ambulance is the most expensive patient pathway costing \$1,351 per patient, which includes the cost of those patients treated and not transported to an emergency department.

- **Ensuring access and choice should continue to be a government policy objective**

- Primary care is considered the cornerstone of the Australian health system and access is crucial for delivering better quality and lower cost outcomes.
- While access has improved more can be done to further strengthen access to after hours primary care. Particular for priority groups including families, residents of in ACFs and those living with disability.
- Trends in the delivery of health care centre on patient choice and integrated care that includes treatment in the community as opposed to hospital. Ensuring patients have choice in the service and when it can be utilised based on their personal and clinical circumstances is a policy priority.
- Community awareness of the availability of after hours services, such as home and ACF visits, is low and could be improved to improve the use of the most appropriate pathways.

Executive summary

Primary care is an important part of Australia's health system as it is often the first point of contact for patients seeking care and a referral point to other services. Evidence has shown that health care systems with strong primary care produce better health outcomes for patients at a lower cost to the health system.¹ Given this, it is important that sufficient access exists to promote equitable, appropriate and cost-effective treatment at all hours of the day.

Improving access to after hours primary care is an important policy objective for government

Improving access to primary care after hours has been a particular policy objective for government, reflecting the changing preferences of society changes in the GP workforce, community expectations and avoiding primary care being provided unnecessarily in emergency departments as a last resort.

The Commonwealth Government, which has responsibility for primary care, introduced policy initiatives and services aimed at increasing access to primary care in the after hours. The primary objective of the policy was to increase access to primary care after hours in the face of declining participation rates by General Practitioners (GPs) in providing after hours care. The decline in home and Aged Care Facility (ACF)-visiting rates since the 1990s resulted in patients seeking primary care from alternative providers. This has meant that access to primary care for patients requiring care in their own home (the elderly, disabled etc.) or for residents of aged care facilities had significantly reduced.

The most significant reforms to address this decline in after hours primary care was in 2005 when the Commonwealth Government introduced its "Round the Clock Medicare: Investing in After-Hours GP services", which increased the Medicare Benefits Schedule (MBS) rebate for after hours services including home and ACF visit items. Several subsequent MBS initiatives built on this foundation. This policy focus has been further supported through the introduction of new services such as Healthdirect (nurse helpline) in 2006 and a range of State and Territory Government initiatives designed to improve access to after hours primary care and reduce primary care type presentations at emergency departments.

There were a number of reasons the Commonwealth Government improved incentives for GPs to provide more after hours primary care. Improving continuity of care for patients via increasing access to appropriate care pathways, as an alternative to accessing emergency departments, was a key driver for the policy.

There has also been changes in the demographics of the patients and GPs that influence the demand and supply for primary care. More broadly, consumers are seeking increased availability in how they access goods and services in the economy. With increases in workforce participation rates,

¹ World Health Organisation (2008), The World Health Report 2008: Primary health care

particularly by females, services including primary care are required outside of the traditional 9am to 5pm business hours. After hours primary care assists in providing availability in accessing services that more adequately meet changing work schedules and other family responsibilities.

For GPs, there has been a shift in the number of clinicians, the number of hours being worked each week and a marked shift in their preference for working predictable and less hours. Younger doctors have expressed a preference to work in metropolitan settings to suit lifestyle choices and are less likely to provide services in regional and rural areas. Research also shows that financial incentives are not sufficient for regular GPs to provide additional after hours coverage.² The impact of these factors was a reduction in participation by regular GPs delivering after hours primary care.

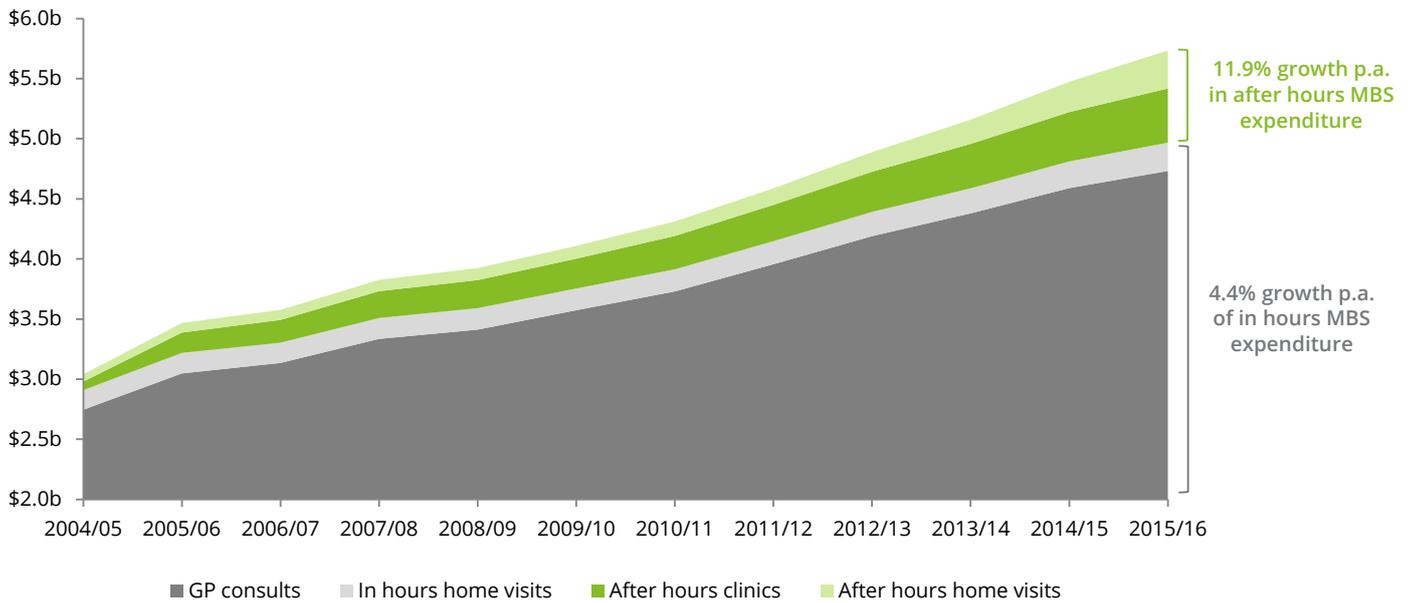
Access and utilisation of after hours primary care has increased and comprises a small amount of total expenditure

Commonwealth Government policy to improve access to primary care has resulted in an increase in after hours primary care services being delivered. The Parliamentary Budget Office estimated that more than 75% of growth in MBS expenditure, including after hours items, was due to policy changes that either increased the scope of services or increased the rebate.³ Chart i: shows that since the introduction of the "Round the Clock Medicare: Investing in after-hours GP services" and proceeding policy there has been an 11.9% per annum increase in after hours MBS expenditure while in hours expenditure has increased by 4.4% per annum over the same period. Despite the higher growth rate, in hours MBS expenditure comprises 86.6% of expenditure while out of hours comprises 13.4% per annum.

² Melbourne Institute (2016), Do Financial Incentives Influence GPs' Decisions to Do After-Hours Work? A Discrete Choice Labour Supply Model

³ Parliamentary Budget Office (2015), Medicare Benefits Schedule – Spending trends and projections (Report no. 04/2015)

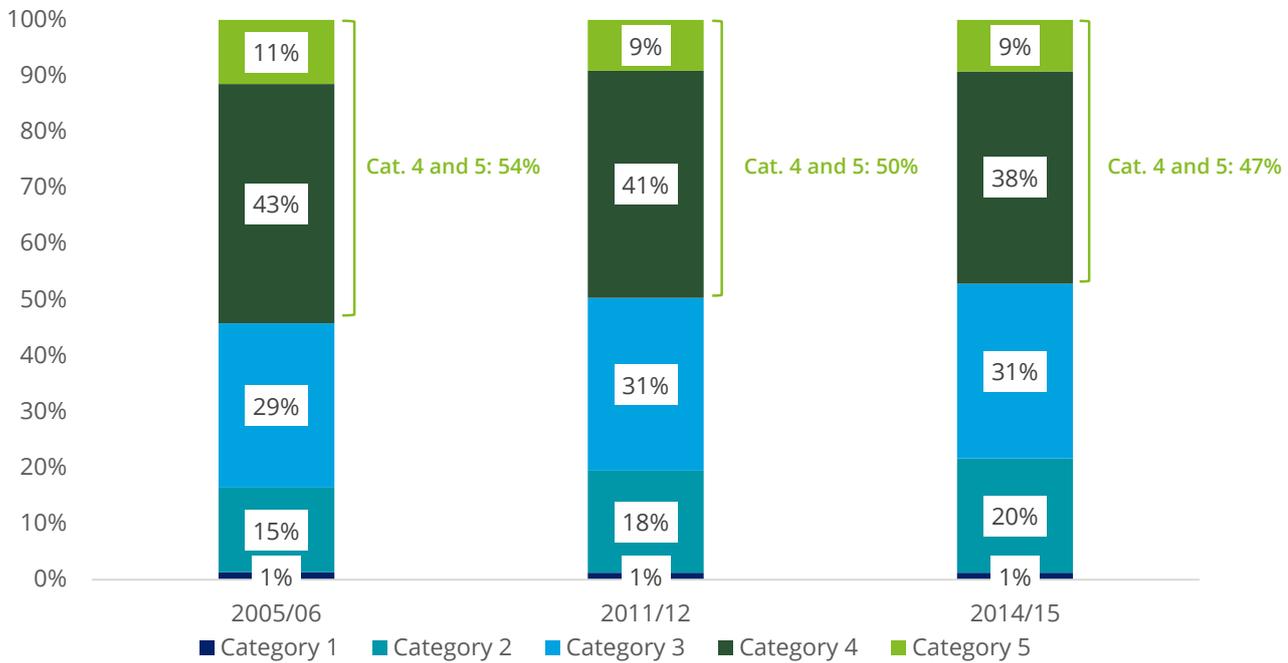
Chart i: Change in and after hours MBS expenditure



Source: MBS

The fastest growing area of expenditure has been home and ACF visits (14.6% per annum), comprising 5.5% of total expenditure. Over the same period, there has been a decrease in the proportion of low acuity presentations at emergency departments in Australia. Chart ii: shows the change in mix of presentations between 2005-06 and 2014-15. The proportion of category 4 and 5 presentations decreased from 54% to 47% of total presentations.

Chart ii: Proportion of emergency department presentations by triage category (2005-06 to 2014-15)



Source: AIHW (2015), Emergency department care 2014-15: Australian hospital statistics

The relative decline in category 4 and 5 presentations (low acuity presentations) relates to a complex interaction of a number of factors that influence the volume and mix of presentations, including access to alternative care options, demographics and the triaging processes of emergency departments.

Case study – after hours home and ACF visits and emergency department presentations

The Commonwealth Government’s policy objective to expand access to after hours primary care, including home and ACF visits, was to facilitate care in more appropriate settings and divert primary care type activity from more expensive emergency departments that are established to provide emergency care. While the differences in patient preferences in access care pathways is complex and is influenced by a range of different factors, in order to understand the relationship an analysis of two discrete regions with similar population characteristics but with markedly different access to after hours after hours home and ACF visits has been undertaken.

A comparison was conducted of the per capita rate of after hours home and ACF visits and low acuity emergency department presentations for two geographic areas with similar population characteristics: Central Coast, NSW versus Gold Coast, Queensland:

- Both areas are of a similar size in terms of population, have similar demographic characteristics and cover a similar sized geographic catchment
- Both regions have similar access to general practice services, with GP consultations at 1,348 per 1,000 people in Central Coast and 1,370 per 1000 in the Gold Coast (July to September 2015)
- However both regions have different profiles in terms of accessing after-hours home and clinic visits, and low acuity emergency department presentations
- Central Coast has significantly lower rates of after hours home and ACF visits (2 per 1,000) and clinic visits (67 per 1,000) than Gold Coast (at 82 home and ACF visits per 1,000; and 104 clinic visits per 1,000)
- Central Coast has higher rates of low acuity ED presentations than Gold Coast at 52 per 1,000; compared with 19 per 1,000 at Gold Coast

- Daytime presentation rates to GPs were virtually identical across the two areas at 1,348 in Central Coast and 1,370 for the Gold Coast

Overall the case study shows for two similar regions, Central Coast has lower rates of after-hours home and clinic visits and higher rates of low acuity emergency department presentations than Gold Coast.

After hours pathways have different purposes and ensuring patients access the most appropriate pathway has significant value to the health system

There is a range of options available to the community to access primary care after hours. However access to these pathways is dependent on the location, availability of services and circumstances of the individual.

Pathways such as emergency departments and ambulance services are primarily designed to facilitate access to emergency care and to be able to deal with the full range of medical responses that may be required. It is recognised that ambulance and emergency department pathways are not appropriate for primary care but act as an important option of last resort when access to other options is poor. Other pathways such as GP clinics are designed to deal with episodes that require attention or advice, but also prevention, dealing with regular healthcare matters and early intervention of deteriorating health conditions.

This report has considered the cost of each of these pathways through a framework by considering the financial cost to the health system of a patient requiring urgent primary care after hours. By definition, these costs are borne by the Commonwealth Government, State and Territory Governments and the individual (where gap payments or an ambulance service may be involved).

The analysis shows that the highest cost patient pathways for after hours primary care are emergency department via an ambulance (\$1,351) and emergency departments (self-referred) (\$368). The lowest cost patient pathway was extended and after hours only clinics (\$93). The pathway with the second lowest cost is after hours home and ACF visits (\$128) where urgent primary care is delivered in the individual's place of residence (e.g. home or ACF).

Table i: After hours primary care cost by patient pathway (per patient)

Pathway	Weighted average patient pathway cost
Emergency department (self-referred)	\$368
Ambulance to emergency department	\$1,351
Extended and after hours only clinics	\$93
Healthdirect	\$256
Hunter GP Access Scheme	\$169
After hours home and ACF visits	\$128

The benefits of providing awareness of and access to different pathways is that it offers options for patients to receive care in the most appropriate

setting for their personal and clinical circumstance. Table i: shows the differences in the cost per patient of each pathway is significant and where access is poor, ambulance and emergency department pathways, which are highest cost, become the pathways of last resort.

The difference in cost to the health system of utilising one pathway over another is significant. For example, in 2015-16 there were 2.8 million home and ACF visits item numbers. A survey of 50,000 (non ACF) patients who accessed home and ACF visits revealed what alternative pathway would have been accessed if they did not utilise after hours home and ACF visits, as seen in Table ii: . The results of the survey show that the majority of patients would have delayed seeking care or gone to a hospital emergency department. The cost of each of these pathways has been quantified in this report and used here to determine the cost per patient that would have been incurred if they did not receive a home or ACF visit through after hours home and ACF visits. It should be noted that patients in ACFs cannot be surveyed and are therefore not included in the survey results. Residents in ACFs requiring primary care in the after hours are likely to utilise an ambulance, which is the most expensive alternative pathway. Including residents of ACFs in the survey would increase the total cost per patient in Table ii: .

Table ii: Cost per patient of accessing alternative pathways

Alternative	Proportion of patients	Cost
Called an ambulance	4%	\$1,351
Gone to the hospital emergency department	27%	\$368
Gone to an after or extended hours clinic	18%	\$93
Delayed seeking medical care	44%	\$47
Gone without medical care	6%	Not costed
Total	100%	\$192

Source: NAMDS Patient Survey, 2016

The weighted average cost of alternative after hours care is \$192 per patient. This is \$64 per patient higher than the MDS (\$128 in Table i:). Over 2.8 million home or ACF visits item numbers occurred in 2015-16, meaning that the total estimated additional cost to the health system of accessing alternative pathways based on preferences surveyed was \$181 million. Over four years, this would be in the order of \$724 million assuming no change in policy or volumes. This estimate is relatively conservative as it:

- Does not include the cost of potential higher downstream care associated with patients delaying access to care, particularly for those groups that have trouble accessing primary care due to personal circumstances (e.g. disabilities, family responsibilities)
- Only pertains to patients in a home environment (who can elect other options); if ACF residents were included then the total estimated cost to the health system would be higher as, in the absence of a ACF visit,

operators of aged care facilities have no alternative than to arrange an ambulance carry for a sick resident.

The majority of these costs are borne by governments; however there are increased out of pocket expenses for patients, particularly where ambulance services, extended and after hours only clinics and in hours GP clinics with a co-payment are used. In total, the Commonwealth Government would incur less cost if after hours home and ACF visits did not exist, reflecting that after hours home and ACF visits items are funded by the Commonwealth and the alternative pathways are funded between a combination of State/Territory Government and patients. The State and Territory Governments would incur more cost. This is primarily driven by patients attending emergency departments and utilising ambulance services instead, which are predominately funded by State/Territory Governments. Finally, patients would also incur more cost through utilising other GP services (either in or after hours) that do not always bulk bill and ambulance services where most jurisdictions charge patients a portion of the total cost. This is summarised in Table iii:.

Table iii: Impact of removing after hours home and ACF visits by jurisdiction

State / Territory	Commonwealth	State/Territory	Patient	Total
NSW	-\$58.5m	\$108.6m	\$17.2m	\$67.3m
Vic	-\$59.9m	\$102.3m	\$21.2m	\$63.6m
Qld	-\$73.1m	\$92.4m	\$5.6m	\$24.9m
WA	-\$36.2m	\$43.8m	\$7.4m	\$15.0m
SA	-\$21.2m	\$22.7m	\$4.7m	\$6.1m
Tas	-\$3.5m	\$4.6m	\$0.4m	\$1.4m
ACT	-\$2.9m	\$3.3m	\$0.5m	\$0.8m
NT	-\$0.9m	\$2.2m	\$0.4m	\$1.8m
Australia	-\$256.2m	\$379.8m	\$57.4m	\$181.0m

The AIHW estimated that in 2012-13 there were 2.12 million presentations in emergency departments categorised as avoidable GP-type presentations. 1.3 million (63%) of these presentations occurred in the after hours period, as defined in section 2.1. The estimated direct financial cost of this activity was \$0.8 billion, not including the related costs associated with ambulance transport. It is important to acknowledge that there is no consistent and agreed definition of GP-type presentations in emergency departments and estimating the number of these patients is problematic due to definitional and data limitations. However, if a quarter of the AIHW's estimated number of avoidable GP-type patients avoided the emergency department through improved access to extended or after hours clinics or the after hours home and ACF visits the benefit to the health system would be \$81.8 to \$93.5 million nationally relating to emergency department costs.

Some groups have trouble accessing after hours primary care due to their personal circumstances

Presently, one of the most frequent users of after hours primary care are parents seeking assistance with children under the age of five years demonstrating the demand for advice and care during after hours periods. Families with multiple children and structured working requirements report

difficulties in seeking care during in hours periods.⁴ Access to home and ACF visits facilitates access for these patients and prevents patients delaying or avoiding care and potentially experiencing deteriorating conditions.

People living with disabilities and residents of ACFs also report difficulties in accessing primary care. Approximately 800,000 people in 2012 were living with a disability and needed to see a GP but did not as either the waiting time was too long or services were not available when required.⁵ These patients often require the assistance of a carer, which can have a significant impact on the welfare of the carer, particularly during after hours periods.

Elderly patients living in ACFs are often transported to hospital by ambulance because they are unable to obtain care at their place of residence, particularly with the decline of home and ACF visits and access to care in the after hours that has occurred between the 1994 and 2010 (noting that 1994 was the earliest data recorded). Ambulance transport is the most expensive patient pathway at \$1,351 per patient. Being able to treat these patients at the ACF would reduce cost per patient to \$128 if an after hours home or ACF visit were utilised and avoiding an emergency department presentation arriving via ambulance.

Providing choice ensures there is equitable access to primary care in the after hours

Policy should continue to support choices that promote awareness and access for patients to be treated in the most clinically appropriate settings. This analysis shows that there are significant differences in the cost of the various pathways; and where there is poor access to after hours clinics and in home primary care services, the cost to the system is greater where those patients present to emergency departments.

In addition to the clear differences in financial cost of each pathway, there are additional benefits to patients, particularly the elderly, families with young children and those living with disabilities and other individuals and groups who would have difficulty leaving their homes. Improving access to after hours primary care avoids health issues escalating and higher downstream costs.

The cost differences highlight that for patients requiring urgent after hours care, the lowest cost pathways are extended and after hours only clinics, and home and ACF visits. The cost of treating these patients would be much greater utilising emergency department and ambulance pathways. This demand can also be an inappropriate use of critical resources for services that are primarily designed to deal with emergency conditions.

In addition, key trends in health care centre on patient choice and integrated care that includes treatment out of hospital and in the community. Providing consumers with awareness, education and choice in how to access appropriate care has clear benefits for the patient and the system. There are also clear benefits for providing access to vulnerable groups who have difficulties accessing care after hours without the use of an ambulance such as elderly patients living in the community and residents in residential aged care facilities.

⁴ Comino EJ, Zwar NA, Hermiz O. (2007). The Macarthur GP After-hours Service: a model of after-hours care for Australia

⁵ AIHW (2012), Access to health services by Australians with disability 2012

1 Introduction

The National Association for Medical Deputising Services (NAMDS) has engaged Deloitte Access Economics to assess the benefits of after hours primary care pathways.⁶ NAMDS members deliver approximately 65% of the after hours home and ACF visits in Australia. The remainder is served by other after hours providers who are not part of NAMDS and those GPs who still do some home visits.

There has been significant growth in the number of Australians accessing after hours primary care over the last decade. Recent growth has been because of a number of changes occurring in government policy, which has expanded the access to and range of services available to the community following broader trends in the health industry. These trends have included factors that influence demand such as increased workforce participation rates, which has led to people seeking more after hours primary care, and a reduction in the number of doctors working hours during regular clinic hours due to preferences of the GP workforce.

For GPs, there has been a shift in the number of clinicians, the number of hours being worked each week and a marked shift in their preference for working predictable and even less hours. These changes mean that there are fewer hours being provided by GPs on average and therefore reduced access for patients. There are also trends among younger doctors who prefer to work in metropolitan settings to suit lifestyle choices and are less likely to provide services in regional and rural areas. Research shows that regular GPs have a growing preference for working in hours and that financial incentives do not provide a significant enough incentive for them to provide additional after hours coverage.⁷ The impact of these factors on provision of after hours services was a marked reduction in participation by regular GPs at the same time that patients were seeking care.

The increase in demand for after-hours services has attracted attention from government who has sought to evaluate the most appropriate way to deliver and fund after hours primary care in Australia, including the most recent *Review of after hours primary health care* completed in October 2014.⁸ These reviews have identified that primary care is at the core of the Australian health care system, and important for reducing downstream demand and continuity of care for patients. There are still challenges in accessing primary care for some patient groups due to their personal circumstances.

The purpose of this report is to consider the primary drivers for the increase in the number of people accessing after hours care, the benefits of after hours pathways and the policy implications of further integrating after hours primary care into the Australian health system.

⁶ A list of NAMDS members can be found at Appendix C

⁷ Melbourne Institute (2016), Do Financial Incentives Influence GPs' Decisions to Do After-Hours Work? A Discrete Choice Labour Supply Model

⁸ Jackson (2014), Review of after hours primary health care for the Department of Health

2 After hours primary care in Australia

As a precursor to the analysis, this chapter provides context to the need and role of after hours primary care in the health system, the current policy context and factors that have influenced its supply and demand.

2.1 After hours primary care

Primary care is often the first interaction people have with the healthcare system and is responsible for addressing healthcare needs and directing them to other services as appropriate. The majority of primary health care services are delivered through general practitioners (GPs) although other professions such as nurses, dentists and mental health specialists deliver additional services.

After hours primary care refers to periods during the week and on the weekend (including public holidays) when GP clinics are typically closed. After hours care (including transitional hours) is defined as the hours between:

- 6pm to 6am Monday to Friday
- 12pm Saturday to 6am on Monday
- All hours on public holidays.

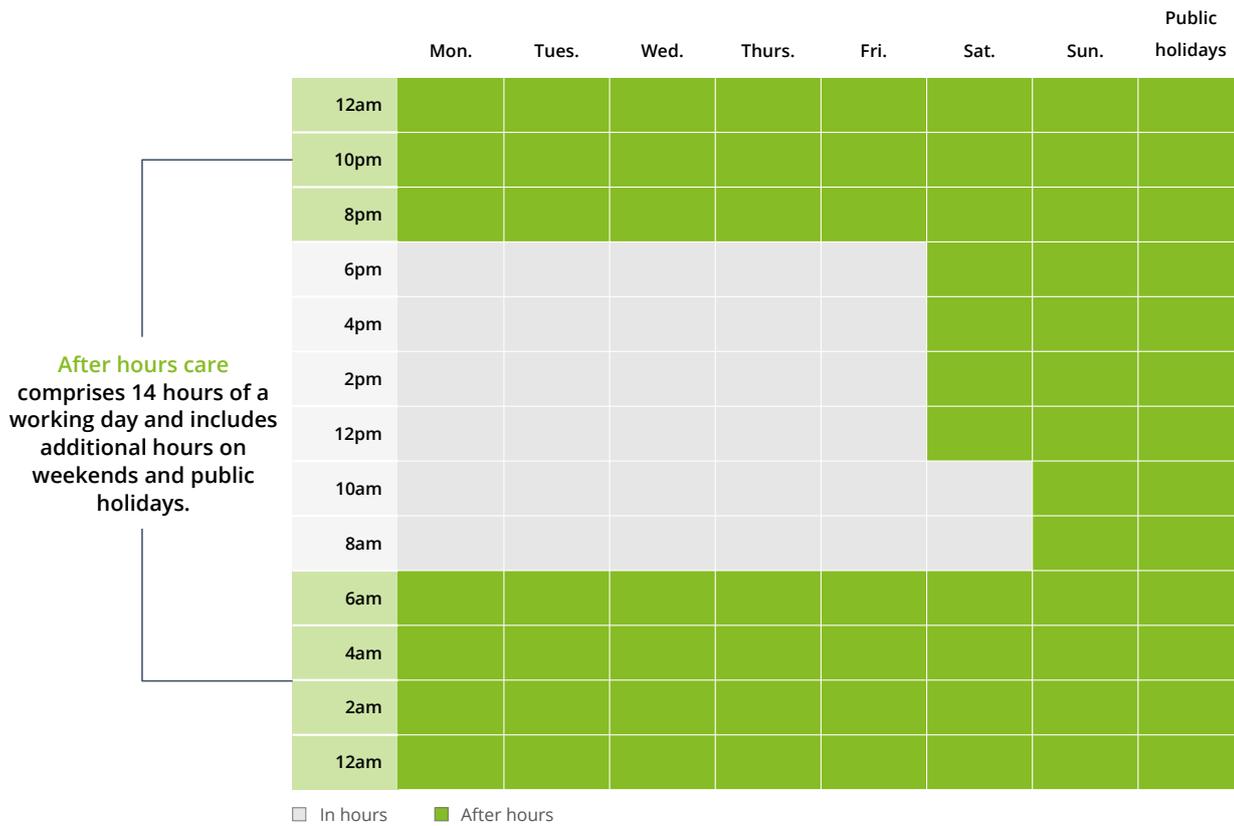
It is noted that the definition of the after hours period is different depending on the purpose. For instance, the after hours period defined in the MBS for urgent after hours home visits (item numbers 597 and 599) do not include all hours and typically include hours between 6pm to 11pm but not 11pm to 7am, which is covered through a separate MBS item number (599).⁹

Figure 2.1: shows that after hours care covers the majority of each day (14 hours on a working day), which results in 68% of all hours of a financial year being defined as 'after hours'.¹⁰

⁹ Item numbers 597 and 599 include hours: 7am to 8am and 6pm to 11pm Monday to Friday, 7am to 8am and 12pm to 11pm on Saturday and 7am to 11pm on Sunday.

¹⁰ 68% reflects an average of the number hours defined as after hours in each jurisdiction in Australia (i.e. reflects differences in public holidays between jurisdictions, using the 2016/17 financial year as a base).

Figure 2.1: After hours primary care operation times



Source: Department of Health

2.2 Access to primary care

Access to primary care after hours is an important component of the Australian health system given the impact on patients, doctors and the broader health system when access is constrained. The primary driver of increasing access to after hours primary care is to ensure continuity of care rests with the regular GP and to reduce the number of presentations to emergency department for primary care type services during these periods, which was considered a more expensive pathway for dealing with patients seeking access to primary care.

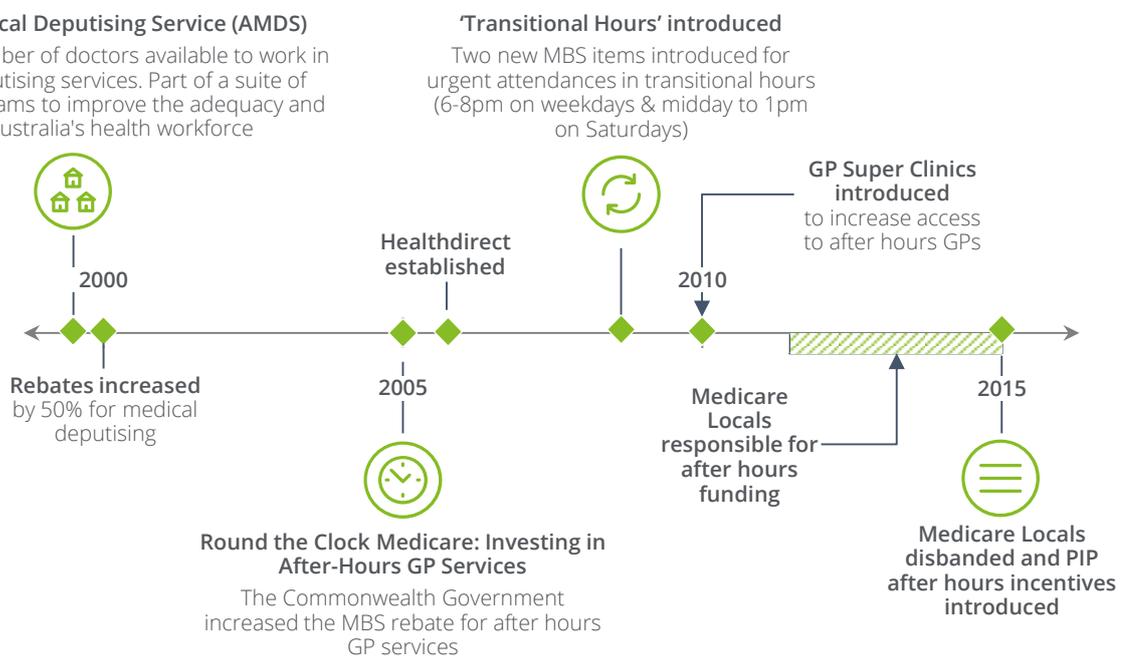
These benefits have long been recognised by governments who have increased access to after hours primary care through a series of initiatives such as telephone triaging and funding for after hours services at existing GP clinics and other policy changes.

The most significant change in government policy was in 2005 when the Commonwealth Government introduced after hours care reform "Round the Clock Medicare: Investing in After-Hours GP Services". This initiative included three new funding components designed to increase access to after hours care: operating subsidies; start up grants; and supplementary grants. This initiative also included a host of Medicare incentives available to GPs who provide after hours services, including a \$10 loading to Medicare rebates for after hours GP attendances. The Commonwealth Government

continued to build on this policy initiative in 2007 when it extended access to the \$10 loading to include the 'transition' hours between 6pm and 8pm.

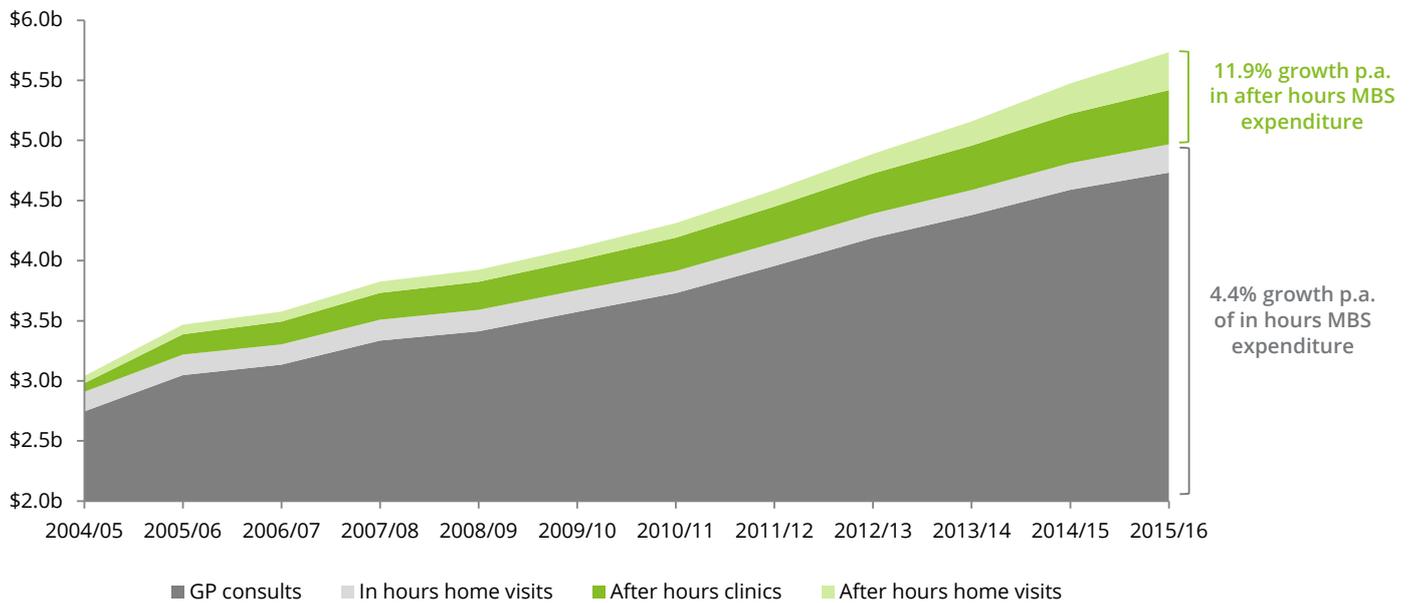
In 2008, the General Practice After Hours Program (GPAH) replaced the former After Hours Primary Medical Care and "Round the Clock Medicare: Investing in After-Hours GP Services" programs. The GPAH Program aimed to ensure that as many people as possible had access to quality after hours GP care. It did this by providing grants to support the viability of existing and new after hours GP services, as well as those normal hour GP services wishing to extend their hours of operation into the after hours period. These grants were in operation until Medicare Locals were given responsibility for allocating funding of after hours primary care in 2013.

Figure 2.2: After hours primary care policy and services timeline



The result of these initiatives was a significant increase in access to after hours primary care by providers as these initiatives were designed to provide stronger incentives, particularly between 2013 and 2016. Chart 2.1 shows that since the introduction of the initial initiative "Round the Clock Medicare: Investing in After-Hours GP Services" in 2005 there has been a significant increase in access to after hours services and a commensurate increase in MBS expenditure on after hours care in Australia. Expenditure has grown at a cumulative annual growth rate (CAGR) of 11.9% since 2005/06 for after hours GP clinics and home and ACF visits, reflecting this policy. Over the same period, in hours primary care increased at a rate of 4.4% (CAGR). Despite the higher growth rate, in hours MBS expenditure comprised 86.6% of expenditure while out of hours covering 68% of the hours of the year comprised 13.4% in 2015-16.

Chart 2.1: MBS expenditure on after hours versus in hours primary care



Source: MBS

The main reason for this increase in expenditure has been changes to policy and rebate increases which underpinned expansion in access for patients seeking care. The Parliamentary Budget Office (PBO) completed an analysis of MBS expenditure to determine the reasons why expenditure had increased and also to predict the quantum of future expenditure. The PBO estimated that more than 75% of this growth was due to policy changes that either increased the scope of services or increased the rebate.¹¹

Although this only considers the relevant MBS expenditure on after hours GP clinics and home and ACF visits, there has also been a growth in the number of after hours presentations at emergency departments. Emergency departments are a significant form of after hours care and policies like “Round the Clock Medicare: Investing in After Hours GP Services” were developed in part to avoid emergency departments presentations, particularly for GP-type presentations. It should be noted that only some presentations to emergency departments are categorised as primary care type presentations

The intent of Government policies in relation to after hours primary care was to increase access in the context of a number of changes occurring in the population’s attitude towards accessing services including working patterns, lifestyle and also those delivering primary care services in Australia.

Further, without awareness of and access to alternative primary care, people seeking care had limited options and often presented at their local emergency department, waited until they could get an appointment with their regular GP the following day or did not seek care at all. Many primary care and primary care support services were introduced (such as

¹¹ Parliamentary Budget Office (2015), Medicare Benefits Schedule – Spending trends and projections (Report no. 04/2015)

Healthdirect) to reduce the number of patients calling ambulances and presenting at emergency departments.

There are numerous factors impacting on patient use of after hours primary care, ranging from supply factors (e.g. access (supply of) to GPs) and demand factors (e.g. changing patient's requirements).

Supply factors

The ability of people to access a service is a key consideration in determining whether the service will be used which is a function of the number of doctors available, including their geographical location.

Significant barriers to receiving treatment from GPs will reduce the amount of primary care being received. There have been numerous Commonwealth Government initiatives developed to address the supply shortfall. For example, the AMDS program was introduced via government legislation in 1999 to address scarcity of supply in after hours. Also, after hours items on the MBS are paid at a premium to a similar item access in hours to incentivise doctors to provide after hours care.

Research shows that regular GPs have a growing preference for working in hours and that financial incentives do not provide a significant enough incentive for them to provide additional after hours coverage.¹² Demographics and family circumstances play a much smaller role in a doctor's choice to provide after hours care relative to obtaining regular working hours.¹³ For example, GPs in Tasmania have stated that there is a lack of willingness to work during after hours, particularly in the unsociable hours¹⁴ while younger doctors are often looking to maintain consistent working hours during social hours.¹⁵ The impact of these preferences is seen in the reduction in the average working hours of GPs, which is estimated to have reduced 3.4 hours per week in the decade leading up to 2009.¹⁶

The decline in home and ACF-visiting rates since the 1990s has resulted in patients looking for other alternatives when seeking primary care. Chart 2.2: shows the number of home and ACF visits since 1993-94 per 100,000 people (the first year data was available). The trough of home and ACF visits was in 2008-09; 56% of the number of visits per 100,000 people seen in 1993-94.¹⁷ Home and ACF visits have increased since and were 71% of the number of visits per 100,000 people when compared with the peak in 1993-94. This means there was significantly less access available for patients requiring care in their own home (the elderly, disabled etc.) or for residents of aged care facilities.

¹² Melbourne Institute (2016), Do Financial Incentives Influence GPs' Decisions to Do After-Hours Work? A Discrete Choice Labour Supply Model

¹³ Melbourne Institute (2016), Do Financial Incentives Influence GPs' Decisions to Do After-Hours Work? A Discrete Choice Labour Supply Model

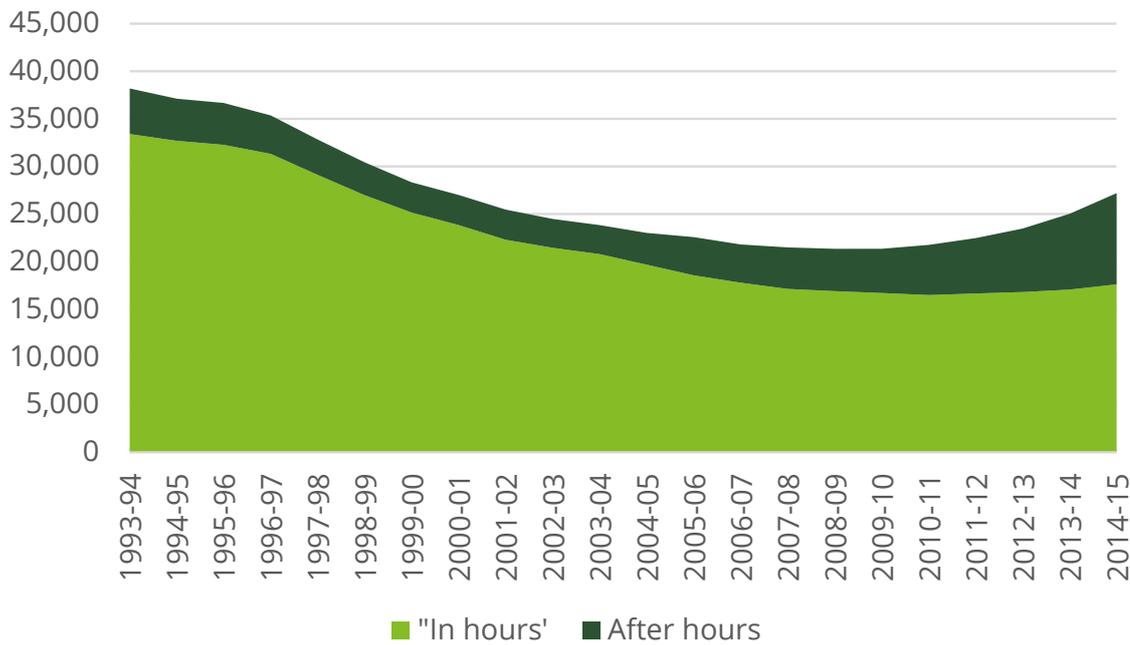
¹⁴ PHN Tasmania (2015), After hours general practice forum

¹⁵ Deeble Institute (2015), Review of after-hours service models: Learnings for regional, rural and remote communities

¹⁶ Ibid

¹⁷ The latest available data from Medicare data is 1993-94. It is likely the peak was prior to 1993-94.

Chart 2.2: Home and ACF visits: in hours and after hours (per 100,000 people)



Source: MBS

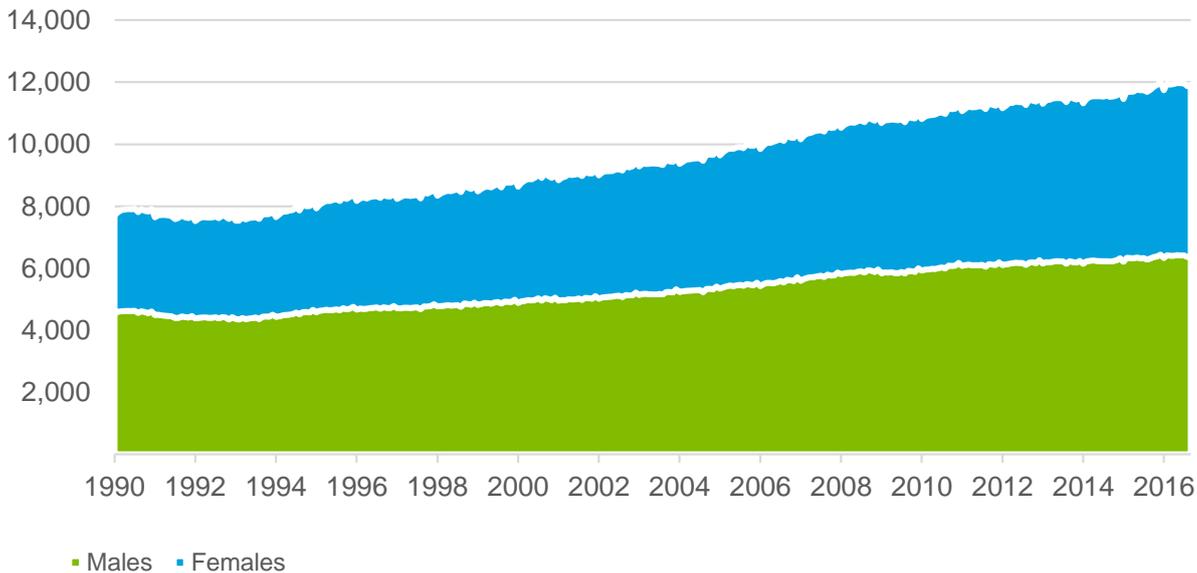
There is also the indirect consequence of patients being unable to obtain appointments with their GPs during in hours periods. In 2014-15, 22.2% of patients with a preferred GP noted that they were unable to obtain an appointment with their preferred GP on one or more occasions and 27.6% of patients did not seek a GP or were delayed in accessing a GP when needed.¹⁸ A recent study of accessing GPs for ill children showed that 22% of parents could not get a same-day appointment. The parents then need to consider other alternatives.

Demand factors

There are also changes relating to patient circumstances and preferences that mean patients increasingly seek treatment in the after hours. One of the most significant trends is the increasing female participation in the workforce (which has increased overall participation) meaning it is more difficult for a greater proportion of the population to obtain care during working hours (i.e. in hours). Chart 2.3: shows that workforce participation has increased 77.1% from 1980 and females now comprise 46.6% of the workforce compared with 40.7% in 1980. In families where both parents (or carers) are engaged in the workforce it can be difficult to obtain care, particularly for children when trying to manage other children and working arrangements. Access to after hours care can provide significantly more flexibility in managing these situations. There is also a shift in broader consumer expectations regarding the availability of all services where people are further seeking the ability and need to plan around work and family responsibilities and access services later at night, on weekends and on public holidays.

¹⁸ ABS (2015), 4839.0 - Patient Experiences in Australia: Summary of Findings, 2014-15

Chart 2.3: Workforce participation: males and females 1990 to 2016



Source: ABS (2016), 6202.0 - Labour Force, Australia, Sep 2016

Another factor influencing demand is the general community’s awareness of the services available. For example, data provided by NAMDS shows that regions with greater levels of awareness of the home and ACF visiting services have a greater use. Based on a survey completed by NAMDS, (unprompted) awareness was 26% of the population in 2016. Regions with greater awareness such as South Australia (highest per capita use of after hours home and ACF visits) had the highest level of awareness (36% or more than double the national average).

2.3 Delivery of after hours primary care

There are numerous services available to people seeking after hours primary care, which are funded by a combination of the Commonwealth and the State and Territory governments. These range from telephone triage services used primarily to provide advice, right through to services designed to deal with serious episodes such as emergency departments.

At a high-level, the delivery of after hours primary care comprises the following six services:

- Emergency departments
- Ambulance (and subsequent emergency department treatment)
- Extended and ‘after hours only’ (or ‘dedicated AH clinics’) clinics
- Healthdirect - telephone triage service
- GP access schemes such as the Hunter GP Access Scheme
- Home and ACF visits

Each service is discussed in turn.

2.3.1 Emergency departments

Emergency departments (public) delivered 8.9 million presentations in 2014-15 with approximately 68% of presentations occurring after hours. They provide care 24 hours a day and 7 days a week for patients who require urgent medical and surgical care with access to a broad range of

ancillary services such as imaging and pathology. Emergency departments are not designed to provide ongoing care, which is predominately the purpose of a patient's regular GP.

Patients who attend emergency departments are triaged into one of five categories based on how urgently they require care:

- ATS category 1 – Resuscitation: Immediate care is required
- ATS category 2 – Emergency: Care is required within 10 minutes
- ATS category 3 – Urgent: Care is required within 30 minutes
- ATS category 4 – Semi-urgent: Care is required within 60 minutes
- ATS category 5 – Non-urgent: Care is required within 120 minutes.

On average, 75% of patients are seen within the timeframes mandated by the triage categories. Patients are typically either treated and not admitted, treated and admitted into a hospital ward, or transferred to another facility. Some patients will leave before receiving treatment.

The majority of patients who attend emergency departments are not patients who require only primary care outside of a hospital. The AIHW estimated in 2013 that there were 2.12 million GP-type (i.e. could be treated by a GP) presentations or 32% of total presentations.¹⁹ The AIHW has reported that there are limitations associated with this estimate given the difficulties in estimating the number of avoidable GP-type patients based on the available data.²⁰ The AIWH definition focuses on patients who are triaged as category 4 and 5, did not arrive by ambulance and are not admitted (or transferred).

Public emergency departments are the responsibility of State and Territory Governments and provided at no cost to those patients seeking care. The exact total expenditure on emergency departments in Australia is not reported; however, the Independent Hospital Pricing Authority (IHPA) reported that of the hospitals that provided information there was \$4.0 billion in emergency department expenditure in 2013-14.²¹

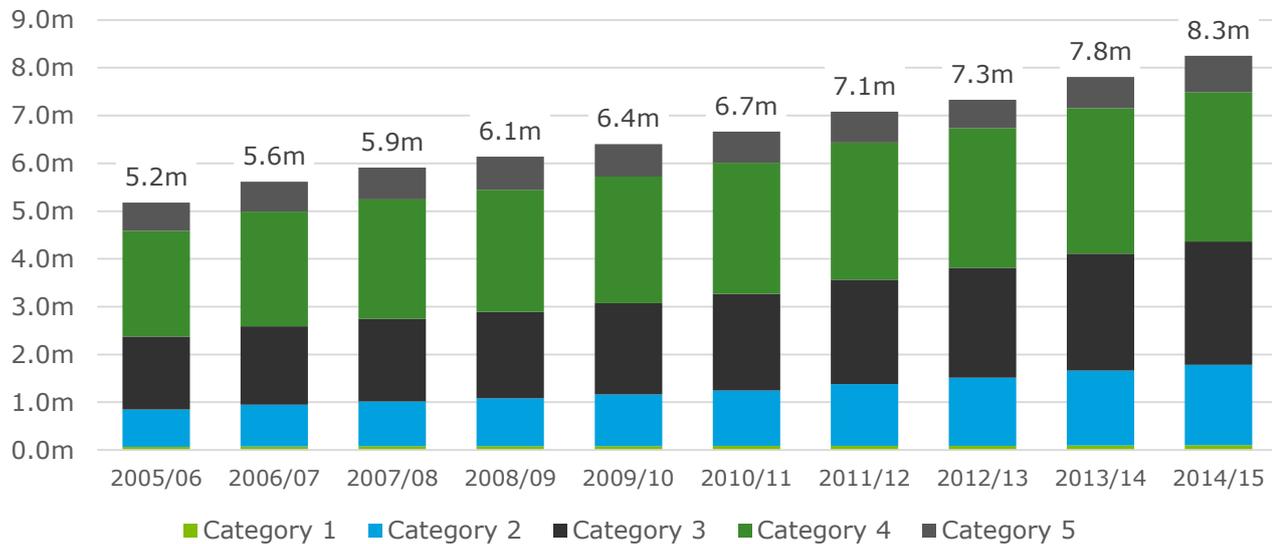
Emergency department presentations have increased 41% from 5.2 million in 2005-06 to 8.3 million presentations in 2014-15, an overall CAGR of 5.3%. Growth has been strongest over this period in category 2 (8.9% CAGR) and category 3 (6.0% CAGR) as seen in Chart 2.4:. These presentations are not included in the definition of 'avoidable GP-type presentations' as the AIHW definition only includes presentations which are categorised as triage 4 and 5. These categories grew at a slower rate, 3% for category 5 or 4% for category 4.

¹⁹ AIHW (2013), 2012-13 Australian Hospital Statistics: Emergency department care

²⁰ AIHW (2015), 2014-15 Australian Hospital Statistics: Emergency department care

²¹ IHPA (2016), Australian Public Hospitals Cost Report 2013-2014 Round 18

Chart 2.4: Public hospital emergency department presentations in Australia by triage category

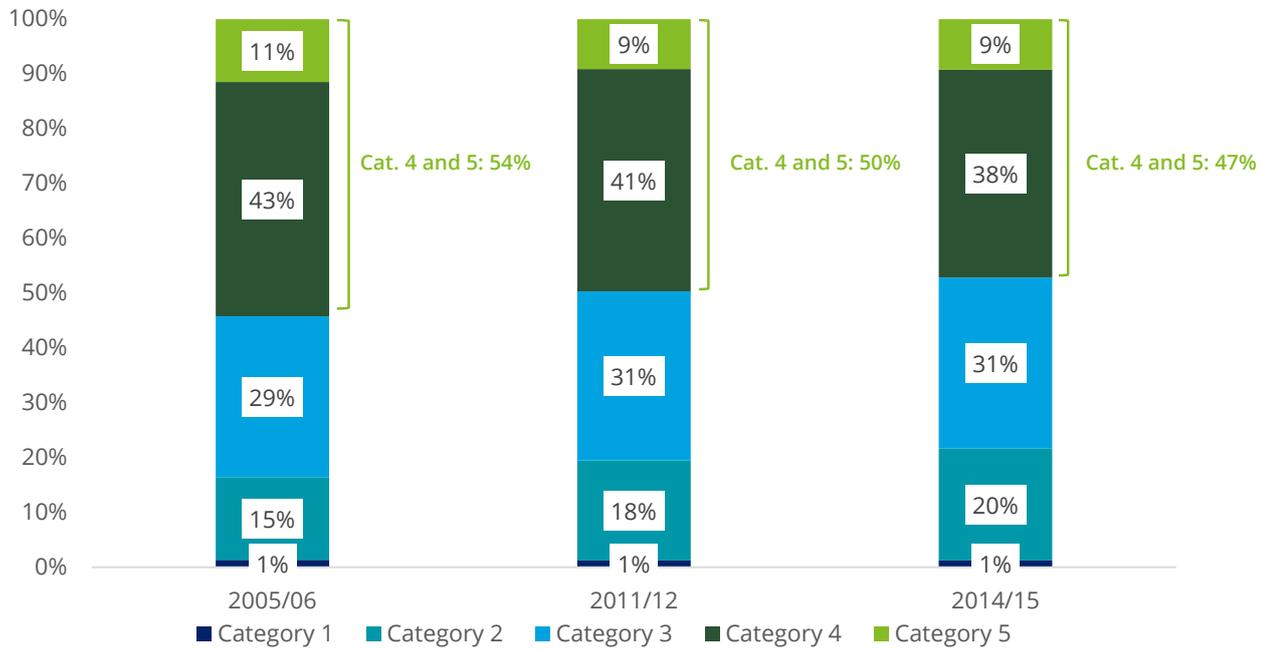


Source: AIHW (2015), Emergency department care: Australian hospital statistics 2014-15

Since 2011-12, emergency department presentations have grown at 5.2% per annum. This is primarily due to growth in categories 1 to 3, which have grown at a CAGR of 7.0% (i.e. they have grown at a higher rate than the same categories 1, 2 and 3 for the period from 2005-06 to 2010-11). At the same time, growth in category 4 and 5 presentations have grown slower at a rate of 3.4% (CAGR) (as compared to a CAGR of 3.9% for category 4 and 5 between 2005-06 to 2010-11).

This is shown in Chart 2.5: - category 4 and 5 reduce from being 54% of the total number of presentations in 2005-06 and 50% in 2011-12, to 47% in 2014-15.

Chart 2.5: Change in the proportion of emergency department presentations by category



Source: AIHW (2005-2015), Emergency department care: Australian hospital statistics

It is noted that there are a number of factors that influence the number of emergency department presentations at each category. These factors include access to alternative pathways, the triaging practices of the hospital and the age, demographic and health profiles of those who present.

2.3.2 Ambulance

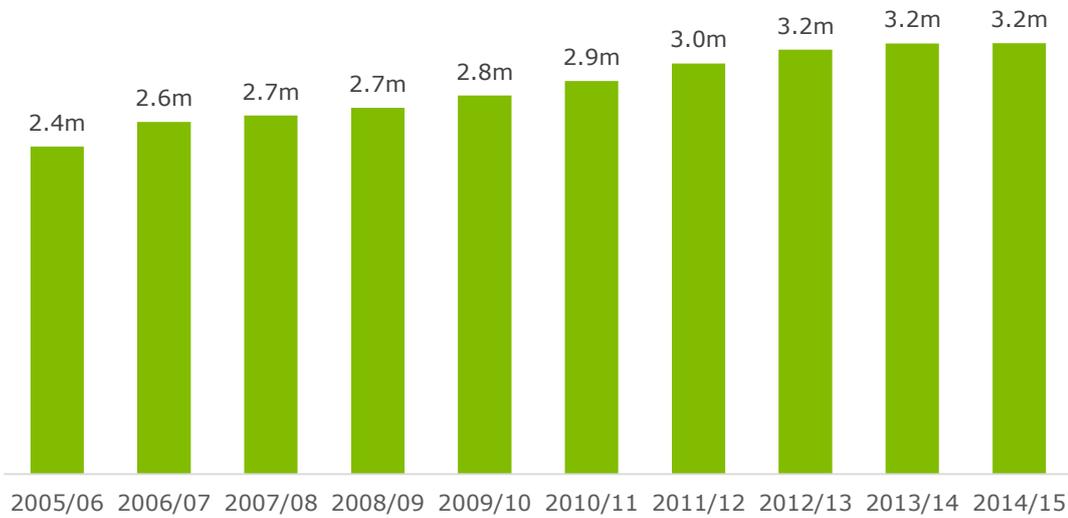
Ambulance services provide emergency and non-emergency transport to patients in the community and at hospital. Transport is provided in a range of vehicles ranging from road vehicles to fixed and rotary-wing aircraft.

Ambulance services are primarily designed to facilitate access to emergency departments for patients unable to undertake travel due to their condition. Ambulance services also undertake non-emergency transports and treat patients in the community on the spot without a subsequent carry (referred to as a treat, do not transport).

State and Territory Governments are responsible for funding ambulance services; however, ambulance services set a schedule of fees that are charged to users of the service. In some jurisdictions, ambulance services are funded predominately by Government; however, the majority of jurisdictions have fees to recover costs from users. These fees are sometimes paid for by private health insurers (for those with coverage), or the Commonwealth Government for eligible patients (e.g. veterans).

The number of patients being treated by ambulance services has grown 31.6% since 2004-05 although it has remained relatively flat over the past 3 years, as seen in Chart 2.6:.

Chart 2.6: Number of ambulance patients in Australia

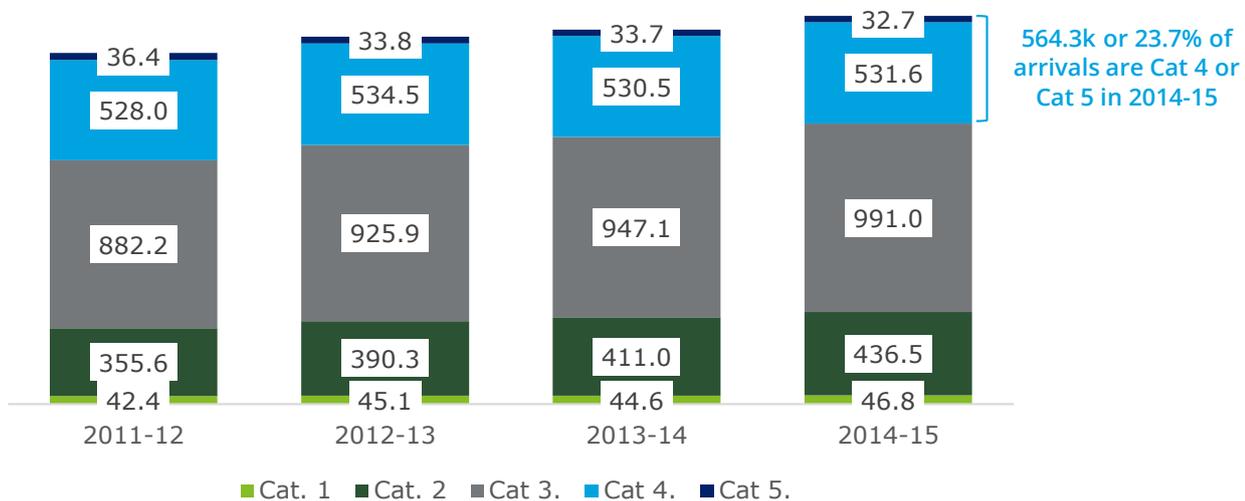


Source: Productivity Commission (2016), Report on Government Services

The majority of ambulance transports end at emergency departments, including a large number of patients triaged as categories 4 and 5 at the emergency department. Since 2011-12, arrivals have increased 3.4% per annum (CAGR). This growth is largely attributable to categories 1 to 3 growing at 3.4%, 7.1% and 4.0% (CAGR) respectively – all at or above the overall annual growth rate. Categories 4 and 5 have grown at a slower rate over the same period. Category 4 has increased at 0.2% while category 5 has declined at 3.5%.

Although growth has been lower in low acuity presentations, they comprise a significant number of the total number of presentations arriving by ambulance. In 2014-15 patients triaged as either category 4 or 5 were 23.7% of the total number of presentations arriving by ambulance or over 564,000 as seen in Chart 2.7:.

Chart 2.7: Patients arriving by ambulance to emergency departments by ATS triage category ('000s)



Source: AIHW (2011-2015), Emergency department care: Australian hospital statistics.

Note (1): The emergency department triage categories are different to ambulance triage categories.

Note (2): The AIHW did not publish arrival mode by triage category prior to 2011-12.

2.3.3 Extended and 'after hours only' clinics

An extended hours clinic is a regular GP clinic that offers appointments in after hours periods. 'After hours only' clinics are clinics which only operate during a part of the after hours period, often as a cooperative arrangement between general practices within a geographic area. These clinics typically do not offer 24 hour access but will remain open until 10pm or midnight in more populated areas and open for fewer hours in less populated areas.

Extended and 'after hours only' clinics provide access to patients seeking care regardless of the acuity.

2.3.4 Healthdirect Australia

The Council of Australian Governments (COAG) established Healthdirect in 2006, comprising 24-hour nurse-based triage that provide health advice and information and referral to other health services. Healthdirect has had over 5 million calls since inception and approximately 1 million calls in 2014-15.

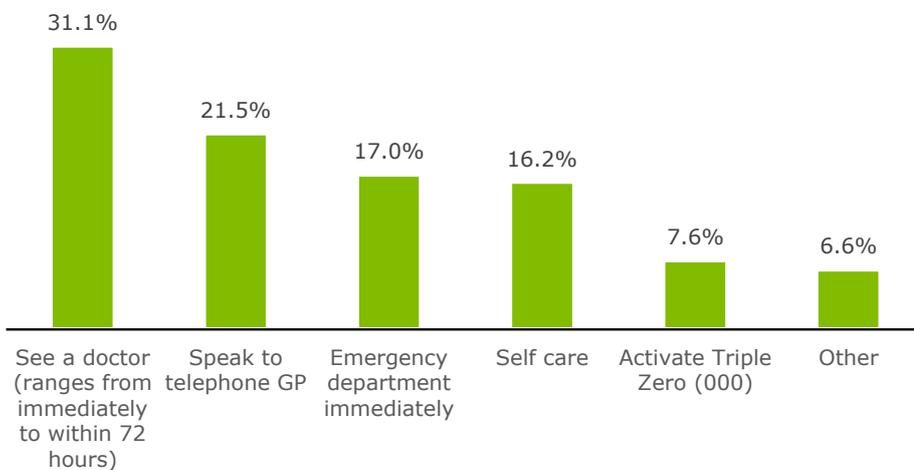
The Healthdirect nurse-triage was expanded in 2011 to include the After Hours GP helpline during after hours periods to assist people when their regular GPs are not available.²² The GP helpline is not available during all 'after hours' times and differs depending on whether a person is located in or outside a major city. Access to the After Hours GP helpline was cut back

²² Hours of availability do not align entirely with the definition of 'after hours' and are different depending on whether you are located in a major city. The exact availability is available from: <http://www.healthdirect.gov.au/after-hours-gp-helpline>.

in June 2015 and is now limited to patients calling from outside of metropolitan areas.

When calling the nurse helpline, which is available in and after hours, a caller speaks with a nurse who will provide information and advice regarding the amount of care the patient requires and whether they should seek care (e.g. from a GP or go to the emergency department). Chart 2.8: shows the recommendations and advice provided to patients, which are predominately referred to a GP (31.1%), the After Hours GP helpline (21.5%), emergency departments (17.0%) and self care (16.2%). The majority of the users are parents of young children, women and those living in remote areas.²³

Chart 2.8: Healthdirect nurse-triage call recommendations/advice

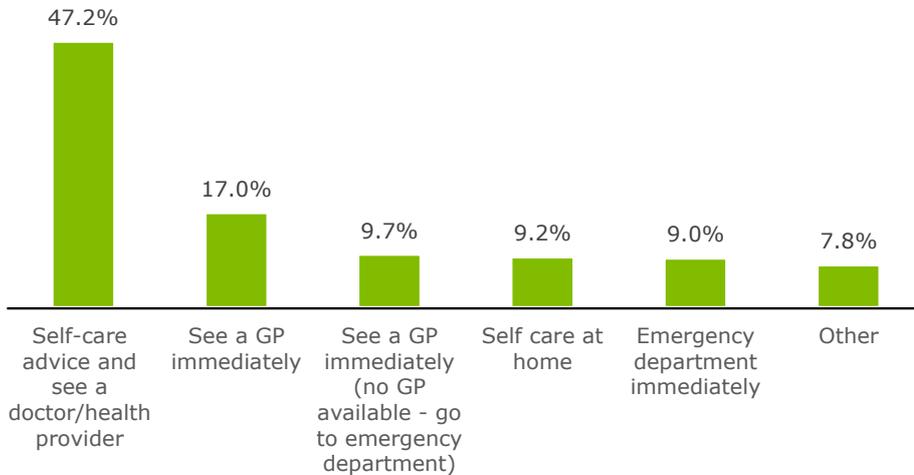


Source: Healthdirect Australia (2015), Annual Report, Business Highlights 2014-2015

For 21.5% of patients, the nurse will refer the patient to the Healthdirect After Hours GP Helpline – a phone advice and triage service run by GPs. The nurse will assign a level of urgency to the case and a doctor will call back in 15 minutes to an hour, depending on the level of urgency. The majority of calls end in self-care and advice being provided to the patients (65%) where the patient can complete care by themselves or with the assistance of a GP the next day.

²³ RACGP (2016), Who uses the 'after hours GP helpline'? A profile of users of an after-hours primary care helpline

Chart 2.9: Healthdirect after-hours GP helpline recommendations/advice



Source: Healthdirect Australia (2015), Annual Report, Business Highlights 2014-2015

The majority of the clinical issues relate to providing advice on medication, changing bowel habits, rashes, and coughs for children and nausea/vomiting.²⁴

2.3.5 GP Access Schemes

There are a few GP access schemes in Australia that provide a range of services in order to better deal with patients' diverse needs. The service delivery models can vary but generally comprise a series of services, including:

- A phone triage service
- GP clinics
- Transport services
- Home and ACF visits.

One of the larger GP Access schemes in Australia is the Hunter GP Access scheme. The Hunter GP Access scheme is based in the Hunter Valley of NSW and comprises all four elements noted above. The model is funded through then Medicare Local funding and now PHN funding and is considered an innovative way to treat patients during after hours care as it provides a full suite of services for urgent care requirements. In 2013-14, the Hunter GP Access had 74,206 calls to its triage service and the majority were directed to an after hours clinics (60.7%). Other patients were referred onto other services previously discussed such as Healthdirect (12.3%) and to emergency departments (11.7%). The Hunter GP Access scheme also undertakes limited home and ACF visits and funds transports for patients who cannot access the clinic. Home and ACF visits and funded transport comprised an insignificant component of its services (a total of 230 home and ACF visits and funded transports in 2013-14), its main activity is triaging phone calls and clinic appointments.

2.3.6 After Hours Home and ACF Visits

After hours home and ACF visits provide patients with access to after hours primary care through visits to the patient at their location (at home or

²⁴ Ibid

ACF), although clinic and telephone services are also utilised. The term deputising refers to the service delivery model whereby access to a GP is provided when the patient's regular GP is not available due to the timing of the episode. After hours home and ACF visits are not considered an alternative to a patient's regular GP during the in hours periods, but instead a temporary substitute. After a patient has been seen, a clinical report is provided back to the patient's regular GP in order to facilitate continuity of care. There are almost 2,000 doctors employed by after hours home and ACF visit providers with over 4,000 contractual relationships between them and general practices to facilitate such care.

There are characteristics that are unique to after hours home and ACF visits that do not necessarily apply to other after hours primary care pathways. For instance after hours home and ACF visits:

- Must provide home and ACF visits and access in the 'unsociable hours' between 11pm and 7am on weekdays and also the majority of hours on the weekend. In many cases after hours home and ACF visits represent the only primary care option in the unsociable hours other than EDs.
- After hours home and ACF visits can also only be provided to patients where urgent care is required and initiated by, or on behalf of, the patient. Regular appointments are not permitted.

After hours home and ACF visits have grown over the past decade, predominately through expansion of service areas for after hours home and ACF visits, although some triage and clinic appointments are undertaken. This is estimated to be a small amount of the total services provided.

Demand management protocols

Whilst workforce participation trends and the 24/7 global nature of many enterprises drive the utilisation of after-hour services, there are a number of industry-lead proposed protocols that can manage demand. During November 2016 NAMDS agreed a suite of policy measures, some of which address demand management, continuity and quality.

Some of the measures approved by NAMDS include:

- An industry wide code of conduct covering guidelines for:
 - Triage protocols for emergency conditions that will not warrant a home or ACF visit.
 - Triage protocols for non-urgent and non-episodic referrals to the GP that will not warrant a home or ACF visit
 - Monthly monitoring of frequent users and follow-up steps with the patient's regular GP
 - Protocols to address inappropriate drug seeking behaviour
 - Protocols to encourage patients without a regular GP to establish one
 - Agreed language in awareness campaigns
 - Protocols for informing patients when clinics are open in the after hours
- A new guideline for clarification of the meaning of urgency
- Training and assessment of Doctors in MBS rules and billing requirements
- Establishment of appropriate Medicare peer groups for after hours
- Standard protocols to improve continuity of care and clinical handover
- Work-force supply arrangements to strengthen the available Doctor workforce for after hours and aged care facilities.
- A collaborative working party to examine ways to improve palliative care in the home arrangements in the after hours

3 Patient Pathway Analysis

The purpose of this analysis is to understand the costs associated with each pathway available to patients seeking after-hours care. Each pathway is designed to play a different role by dealing with different kinds of patient needs and are resourced accordingly, which is important context for interpreting the quantum of the financial cost.

Pathways such as emergency departments and ambulance services are primarily designed to facilitate access to emergency care and be able to deal with the full range of episodes that occur. Other pathways such as GP clinics are designed to deal with episodes that require attention or advice, but also prevention, regular healthcare needs (e.g. prescription renewals) and early intervention of deteriorating health conditions, but will refer, where appropriate more complex or urgent cases to the emergency department.

The role of primary health care is to be the first point of contact for patients with a health concern and important for assisting patients to navigate the health system in the most clinically appropriate way. Continuity of care resting with the regular GP is a cornerstone of Australian health policy. Ensuring that access to primary care exists is important because it assists in patients being treated in the most clinically appropriate setting.

Appendices A and B provide the detailed costing methodology and data used in this analysis.

3.1 Comparison context

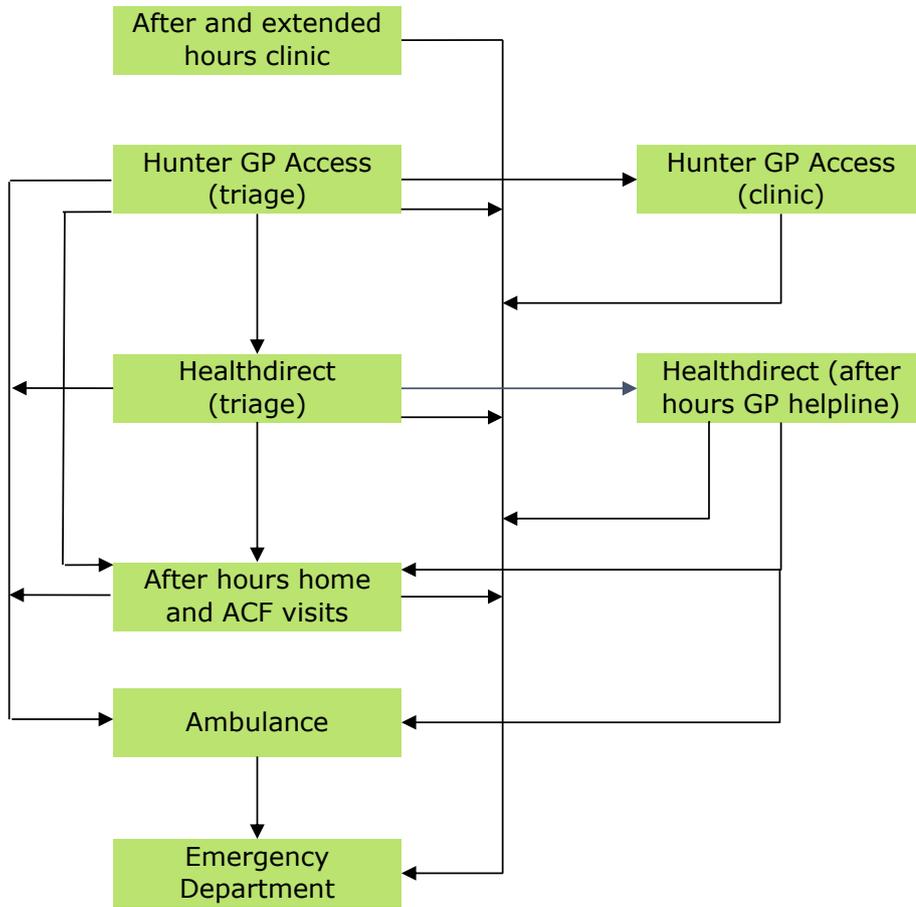
The comparison undertaken sought to examine the options for dealing with patients seeking after-hours primary care, specifically determining the costs incurred per patient using each alternative pathway, as well as the respective qualitative advantages and disadvantages to patients and the wider health system.

The pathways analysed within this report were:

- Emergency department (self referred)
- Ambulance (and subsequent treatment in ED)
- Extended and after hours only clinics
- Healthdirect
- Hunter GP Access Scheme
- After hours home and ACF visits

The analysis has also considered the flow on effects of the linkages between each of the pathways. For example, a patient may be referred to the emergency department from a GP. The cost of both occasions has been quantified as part of this analysis. Figure 3.1: presents the linkages between the pathways. As can be seen only the emergency department is delivered as a 'standalone' service that does not often refer back to other services.

Figure 3.1: Patient pathway connections



Additionally, where possible, analysis has been considered in the context of four patient cohorts to understand the unique impact on each. The patient cohorts are described in Table 3.1:

Table 3.1: Patient cohorts considered in this analysis

Patient cohort	Age group	Description
 Baby / small child	Less than 5 years old	<ul style="list-style-type: none"> Often small children whose parents and/or guardians make decisions regarding the most appropriate care pathway required
 Typical adult	Between 20 and 60 years old	<ul style="list-style-type: none"> Average adult that represents the majority of the Australian population
 Elderly person living at home	Over 75 years old	<ul style="list-style-type: none"> Elderly people living at home These patients often require support to obtain care in settings outside of home
 Elderly person living in a ACF	Over 75 years old	<ul style="list-style-type: none"> Elderly people living in ACFs often require more care (e.g. feeding, rehabilitation) than those living at home These patients often require support to obtain care in settings outside of their ACF

In comparing each pathway, the unique role each pathway plays in offering services to specific patient groups should be considered. For example, whilst accessing primary care at home may be the most appropriate service for an elderly person living alone, they may not be able to access this care and instead utilise an emergency department or ambulance.²⁵

3.2 Financial evaluation

Each pathway above is compared against a similar framework: the cost of each pathway for patients seeking after-hours primary care. That is, patients who require urgent care – where care is required on a timely basis, or a patient is unable to access a GP outside of their residence (e.g. disability).

There are several complicating factors in determining which patients fall into this category. For example, only considering lower acuity (category 4 or 5) patients presenting at emergency departments fails to take into account the complexity of a patient with comorbidities, mental health issues, substance abuse related issues, or reasons a patient may deteriorate quickly and may therefore not be a primary care type patient.

There is no consistent data definition that identifies these patients uniformly across all care pathways. However, the AIHW defines an emergency department patient that could have been treated by a GP as a patient triaged as a category 4 or 5 that did not arrive by ambulance, was not admitted, and was not transferred to another hospital. The cost related to a patient *subsequently* admitted is also included for the purposes of illustration given the potential for improved primary care access contribution to avoiding unnecessary admissions (no quantitative assessment of the aggregate potential impact is included).

²⁵ AIHW (2016), Ageing, available at <<http://www.aihw.gov.au/ageing/>>

The detailed technical methodology used to determine the outcomes of this section can be seen in Appendices A and B.

3.3 Financial evaluation results

Table 3.2: summarises the total cost per patient of each of the pathways compared in this analysis. This includes, where relevant, the cost to the patient, the State and Territory Governments, and the Commonwealth Government. As can be seen, regardless of whether the analysis includes subsequently admitted patients or not, the ambulance pathway (which includes the emergency department) is considerably more costly than the other pathways (\$1,351), followed by those who self-present to an emergency department (\$368).

Costing over \$250 when either excluding (\$256) or including (\$293) patients that are subsequently admitted, Healthdirect is the next most expensive pathway. Given that Healthdirect is an information and triage service the majority of the associated cost relates to its function referring on to other health services. For patients that only require the nurse triage service and no further care the cost is estimated at \$45 per service, however this is only the case for 16% of callers, signifying the fact that the service has little impact in deferring patients from other services.

The Hunter GP Access Scheme, after hours home and ACF visits and extended and after hours only clinics pathways are the most cost effective of this analysis (\$169, \$128 and \$93 respectively), this being representative of the fact that these services primarily exist to provide the actual primary care. Despite this, the Hunter GP Access Scheme still refers 38% of patients on to other health services, this, along with the initial telephone triage cost, accounts for the difference between that and the other two pathways. The primary reason after hours home and ACF visits is more expensive than extended and after hours only clinics is that a premium is paid to incentivise doctors and takes into account the additional cost of a home or ACF visit (chaperones, vehicle expenses, patient reporting etc.).

Table 3.2: Comparison of patient pathway costs that include and exclude admitted patient costs

Pathway	Weighted average patient pathway cost, excluding ED costs of admitted patients	Weighted average patient pathway cost, including ED costs of admitted patients
Emergency department	\$368	\$458
Ambulance	\$1,351	\$1,548
Extended and after hours only Clinics	\$93	\$97
Healthdirect	\$256	\$293
Hunter GP Access Scheme	\$169	\$215
After hours home and ACF visits	\$128	\$128

The two most costly pathways (ambulance services and emergency departments) are established to predominantly deal with emergency and urgent incidents, and as such they require more costly capital and

workforce resources than are typically needed to deliver general primary care services. Where access to primary care alternatives is limited these become pathways of last resort. Providing access to primary care alternatives allows patients to be treated in alternatives to these pathways, which can be more clinically appropriate where the care need is not an emergency, and at a lower cost to the health system.

Access to primary care service options has a significant cost impact on the health system as the less costly primary care alternatives of extended and after hours only clinics and After hours home and ACF visits are \$93 and \$128 or 25% and 36% of the cost of emergency departments. The AIHW estimated that in 2012-13 there were 2.12 million presentations in emergency departments categorised as avoidable GP-type presentations. 1.3 million (63%) of these presentations occurred in the after hours period, as defined in section 2.1. The estimated direct financial cost of this activity was \$0.8 billion, not including the related costs associated with ambulance transport. It is important to acknowledge that there is no consistent and agreed definition of GP-type presentations in ED and estimating the number of these patients is problematic due to data limitations. However, if a quarter of the AIHW’s estimated number of avoidable GP-type patients avoided the emergency department through improved access to extended or after hours clinics or the after hours home and ACF visit the benefit to the health system would be \$80.8 to \$93.5 million nationally relating to emergency department costs.

The benefit to the health system of utilising one pathway over another is significant. For example, in 2015-16 there were 2.8 million home and ACF visit item numbers. A survey of 50,000 patients who accessed home and ACF visits revealed what alternative pathway would have been access if they did not utilise after hours home and ACF visits, as seen in Table 3.3:. The majority of patients would have delayed seeking care or gone to a hospital emergency department. The cost of each of these pathways has been quantified in this report and used here to determine the cost per patient that would have been incurred if they did not receive a home or ACF visit through after hours home and ACF visits.

Table 3.3: Cost per patient of accessing alternative pathways

Alternative	Proportion of patients	Cost
Called an ambulance	4%	\$1,351
Gone to the hospital emergency department	27%	\$368
Gone to an after or extended hours clinic	18%	\$93
Delayed seeking medical care	44%	\$47
Gone without medical care	6%	Not costed
Total	100%	\$192

Source: NAMDS

The weighted average cost of alternative after hours care is \$192. This is \$64 per patient higher than the after hours home and ACF visits (\$128 in

Table i:). Over 2.8 million home or ACF visit item numbers occurred in 2015-16, meaning that the total estimated additional cost to the health system of accessing alternative pathways based on preferences surveyed was \$181.0 million. This estimate is conservative on two basis: first, it does not include the costs of potential higher downstream care associated with patients delaying access to care, particularly for those groups that have trouble accessing primary care due to personal circumstances (e.g. disabilities, family responsibilities). Second, this estimate only pertains to patients in a home environment (who can elect other options); if ACF residents were included then the total estimated cost to the health system would be higher as, in the absence of a ACF visit, operators of aged care facilities have no alternative than to arrange an ambulance carry for a sick resident.

The majority of these costs are borne by governments; however there are increased out of pocket expenses for patients, particularly where ambulance services, extended and after hours only clinics and in hours GP clinics are used. In total, government (State and Commonwealth) would incur an additional \$61.70 per patient (for MBS items, emergency department and ambulance costs) while patients would be required to pay an additional \$5.30 (for gap and ambulance payments) per patient.

Case study – after hours home and ACF visits and emergency department presentations

The Commonwealth Government’s policy objective to expand access to after hours primary care, including home and ACF visits, was to facilitate care in more appropriate settings and divert primary care type activity from more expensive emergency departments that are established to provide emergency care. While the differences in patient preferences in access care pathways is complex and is influenced by a range of different factors, in order to understand the relationship an analysis of two discrete regions with similar population characteristics but with markedly different access to after hours after hours home and ACF visits has been undertaken.

A comparison was conducted of the per capita rate of after hours home and ACF visits and low acuity emergency department presentations for two geographic areas with similar population characteristics: Central Coast, NSW versus Gold Coast, Queensland:

- Both areas are of a similar size in terms of population, have similar demographic characteristics and cover a similar sized geographic catchment
- Both regions have similar access to general practice services, with GP consultations at 1,348 per 1,000 people in Central Coast and 1,370 per 1000 in the Gold Coast (July to September 2015)
- However both regions have different profiles in terms of accessing after-hours home and clinic visits, and low acuity emergency department presentations
- Central Coast has significantly lower rates of after hours home and ACF visits (2 per 1,000) and clinic visits (67 per 1,000) than Gold Coast (at 82 home and ACF visits per 1,000; and 104 clinic visits per 1,000)
- Central Coast has higher rates of low acuity ED presentations than Gold Coast at 52 per 1,000; compared with 19 per 1,000 at Gold Coast
- Daytime presentation rates to GPs were virtually identical across the two areas at 1,348 in Central Coast and 1,370 for the Gold Coast

Overall the case study shows for two similar regions, Central Coast has lower rates of after-hours home and clinic visits and higher rates of low acuity emergency department presentations than Gold Coast.

3.4 Other impacts

In addition to the financial costs, there are wider system impacts, both positive and negative, resulting from the use of each pathway. Although each pathway serves a fundamental purpose there are negative outcomes

associated when they are used inappropriately, or as a replacement for a more effective and efficient service already provided, such as an in hours GPs, extended and after hours only clinics or after hours home and ACF visits.

As previously mentioned, emergency departments and ambulance services are last resort services to treat the most emergent and complex patients that could otherwise not be treated in primary or community care settings. When used to treat more primary care type patients these services become strained, emergency departments become overcrowded and ambulance services reach capacity, negatively impacting patient outcomes in several ways, including:

- Longer wait times
- Increased hospital length of stay
- Higher mortality rates
- Poorer patient experience

As identified, Healthdirect is a highly expensive pathway when factoring in the costs associated in referring patients to other services. In addition to this it can often end up being an unnecessary additional step in a patient pathway. A Medical Journal of Australia study with the Royal Perth Hospital indicated that fewer referrals from Healthdirect to the emergency department were appropriate (72.9%) compared to self-referred patients (73.7%). This highlights the fact that the additional extra step in the patient pathway can add little value to the patient's decision.

Extended and after hours only clinics provide an efficient and effective pathway to those patients that can access them. They are often the most appropriate place for primary care type patients to be treated after hours, particularly for non-urgent requirements.

However, unlike after hours home and ACF visits, extended and after hours only clinics provide limited alternatives to those patients that are unable to access services outside of their place of residence and none at all during the unsociable hours. There are a number of instances where patients may not be able to access primary care, particularly in after hours periods:

- Parents with young children: Families with multiple children and structured working requirements report difficulties in seeking care during in hours periods.²⁶ Parents with young children are also one of the most frequent users of after hours services.
- People living with disabilities: People living with disabilities and at ACFs also report difficulties in seeking primary care. Approximately 800,000 million people in 2012 were living with a disability and needed to see a GP but did not go as either the waiting time was too long or services were not available when required.²⁷
- Elderly patients living in ACFs: Elderly patients living in ACFs are often transported to hospital by ambulance because they are unable to obtain care at their place of residence, particularly with the decline of home visits and access to care in the after hours. Ambulance transport is the most expensive patient pathway at \$1,351 per patient and can be avoided in many cases if care is provided at the place of residence.

²⁶ Comino EJ, Zwar NA, Hermiz O. (2007). The Macarthur GP After-hours Service: a model of after-hours care for Australia

²⁷ AIHW (2012), Access to health services by Australians with disability 2012

These scenarios highlight a role for increasing access to after hours primary care, particularly for home visits through After hours home and ACF visits where patients would otherwise access clinically less appropriate and more costly services such as ambulances and emergency departments. Access to home visits facilitates access to primary care for these patients and prevents patients going without care and potentially deteriorating.

3.5 Summary

There are a number of alternatives for patients seeking after hours primary care in Australia ranging from emergency departments to after hours clinics and home visit services. Each of the patient pathways has a role in delivering after hours primary care to the community and ultimately patients should be treated in the most clinically appropriate setting where access is available.

This analysis has considered the cost per patient of each pathway and shows that the most costly pathways for treating a primary care patient are the ambulance service (\$1,351) and emergency department (\$368). The least costly pathways are extended and after hours only clinics (\$93) and after hours home and ACF visits (\$128). Given the significant difference in cost, there is a strong argument for patients requiring primary care to be treated in after hours clinics or through after hours home and ACF visits.

There are significant differences in the cost of the various pathways and where there is poor access to after hours clinics and in home primary care services the cost to the system is greater where those patients emergency departments either self-presenting or by ambulance for primary care type attendances. In addition to the clear differences in financial cost of each pathway, there are additional benefits to patients, particularly the elderly, families with young children and those living with disabilities and other individuals and groups who would have difficulty leaving their homes. Improving access to after hours primary care avoids health issues escalating and higher downstream costs.

Appendix A: Patient pathway analysis

The purpose of this analysis is to understand the costs associated with each pathway available to patients seeking after hours care. Each pathway is designed to play a different role by dealing with different kinds of patient needs and are resourced accordingly, which is important context for interpreting the quantum of the financial cost.

Pathways such as emergency departments and ambulance services are primarily designed to facilitate access to emergency care and be able to deal with the full range of episodes that occur. Other pathways such as GP clinics are designed to deal with episodes that require attention or advice but also prevention and early intervention of deteriorating health conditions but will refer more complex or urgent cases to the emergency department.

The role of primary health is to be the first point of contact for patients with a health concern and important for assisting patients to navigate the health system in the most clinically appropriate way. Ensuring that access to primary care exists is important as it assists patients in being treated in the most appropriate setting, which is also often at a lower cost to the health system.

A.1. Analytical framework

There are numerous pathways available to patients seeking after hours primary care. The pathways considered in this analysis are:

1. Emergency departments
2. Ambulance service
3. After hours and extended hours GP clinics
4. Healthdirect
5. Hunter GP Access scheme
6. After hours

Each pathway above is being compared against a similar framework: the cost of the pathway for patients seeking after hours care that could have been treated by a GP. That is, patients who require urgent care – where care is required in a timely basis or a patient has issues that prevent access to a GP outside of their residence (e.g. disability).

The analysis is also being considered in the context of the outcomes for four patient cohorts, as described in Table A.1:

Table A.1: Descriptions of patient cohorts

Patient cohort	Age group	Description
 Baby / small child	Less than 5 years old	<ul style="list-style-type: none"> Often small children whose parents and/or guardians make decisions regarding the most appropriate care pathway required
 Typical adult	Between 20 and 60 years old	<ul style="list-style-type: none"> Average adult that represents the majority of the Australian population
 Elderly person living at home	Over 75 years old	<ul style="list-style-type: none"> Elderly people living at home These patients often require support to obtain care in settings outside of home
 Elderly person living in a ACF	Over 75 years old	<ul style="list-style-type: none"> Elderly people living in ACFs often require more care (e.g. feeding, rehabilitation) than those living at home These patients often require support to obtain care in settings outside of their ACF

The significance of considering each alternative pathways by age cohort primarily relates to the impact that seeking care in after hours has on other people and services. For example, babies and small children are accompanied by parents and/or guardians, which has impacts outside of those on the health system and patient. Elderly patients living at home may also require assistance from a family during an episode, particularly in making decisions about the most appropriate care that may be required during and post hospital.

Where possible, the costs and benefits of each cohort have been considered separately; however, data were not available for some pathways and cohorts. Where this is the case, the cost is considered as one that impacts all age cohorts similarly.

A.2. Emergency department

The emergency department is a commonly used pathway for patients seeking after hours care. An emergency department is considered one of the most expensive pathways for treating lower acuity patients as they are primarily designed and equipped to deal with life-threatening emergencies.

When a patient arrives at an emergency department, clinical staff triage the patient and assign a triage category based on their assessment of the patient's condition; the triage score determines how quickly the patient requires care. Australian emergency departments use the Australasian Triage Scale (ATS), which consists of five categories:

- ATS category 1 – Resuscitation: Immediate care is required
- ATS category 2 – Emergency: Care is required within 10 minutes
- ATS category 3 – Urgent: Care is required within 30 minutes
- ATS category 4 – Semi-urgent: Care is required within 60 minutes
- ATS category 5 – Non-urgent: Care is required within 120 minutes.

The focus of this analysis is to consider the outcomes of patients that potentially could have sought after hours care from other pathways such as

GPs. Patients assigned an ATS category between 1 and 3 are likely to have required care in the emergency department environment. Patients triaged as either category 4 or 5 are lower acuity patients that may have been more appropriately treated outside of the emergency department by a GP. This is consistent with definitions used by the AIHW in determining the number of low acuity and potentially preventable presentations at emergency departments.²⁸ The AIHW definition also includes other parameters, namely the patient did not arrive by ambulance, was not admitted or transferred to another hospital or died.

Therefore, for the first component of this analysis the patient-level emergency department data containing the details of emergency department presentations in Australia has been used to determine the outcomes of patients that:

- Self-present at emergency departments in after hours periods
- Are triaged as category 4 or 5
- Are not transferred.

The analysis presented below separately reports the cost of patients that are admitted and not admitted. The AIHW definition excludes patients admitted however it is acknowledged that a proportion of admitted activity is potentially avoidable where adequate access to primary care existed.

A.2.1. Financial cost

Applying the AIHW definition to emergency department presentations means that the cost of a patient arriving at the emergency department is equal to the cost of a non-admitted patient as classified by the Independent Hospital Pricing Authority (IHPA).

The IHPA publishes a series of emergency department costs based on a classification system known as Urgency Disposition Groups (UDG). UDGs group patient presentations based on the type of visit, episode end status and triage.²⁹ These UDGs allow for an estimate of the cost of each triage category to be determined for non-admitted patients. UDGs have been used to determine the cost of patients presenting to emergency departments who have been triaged as category 4 or 5. IHPA also provides costs by UDG for three separate age cohorts:

- Under 65 years old;
- 65 to 79 years old; and
- Over 79 years old.

The cost associated with two of IHPA's age cohorts have been utilised to align to the patient cohorts being considered in this analysis:

- The 'Under 65 years old' category has been applied to the baby / small child and typical adult cohorts
- The 'Over 79 years old' category has been applied to the remaining two cohorts: elderly people living at home and in ACFs.

²⁸ AIHW (2016), National Healthcare Agreement: PI 19–Selected potentially avoidable GP-type presentations to emergency departments, 2016

²⁹ IHPA (2016), *Urgency Related Groups and Urgency Disposition Groups*, available at: <https://www.ihpa.gov.au/what-we-do/urgency-related-groups-and-urgency-disposition-groups>

The IHPA age cohorts do not align exactly with the description of the patient cohorts in this analysis. However, they do provide data points that are more relevant compared with an average cost across all age cohorts. Presented in Table A.2: is the relevant UDG cost for triage categories 4 and 5 and patient cohort.

Table A.2: Cost of emergency department presentations by triage category and age cohort

Age cohort	Category 4	Category 5
Under 65 years old	\$369	\$240
Over 79 years old	\$447	\$291

Source: Independent Hospital Pricing Authority (2016), Emergency Department costs

As would be expected, patients in the 'Over 79 years old' cohort cost 21% more in category 4 and 5 than patients who present 'Under 65 years old'. This is because elderly patients are often more complex to treat than younger patients as they are more likely to present with multiple conditions and take a longer time to respond to treatment.

These costs have been applied in proportion to the number of emergency department presentations occur for each patient cohort between category 4 and 5. Table A.3: shows the cost of the emergency patient pathway by patient cohort. An elderly person living in an ACF is the highest cost of the patient pathways. These patients require transport back to their ACF, which often requires an ambulance transfer at a cost of \$332. The difference between the weighted average cost of \$358 calculated in Table A.3: and the \$368 in Table A.3: is the higher cost of elderly patients living in ACFs as they are assumed to transport back to the ACF – the \$10 difference represented the cost per patient on this transport.

Table A.3: Emergency department cost by patient cohort (non-admitted)

Patient cohort	Cost	Proportion
Baby / small child	\$359	23.0%
Typical adult	\$367	60.0%
Elderly person living at home	\$324	14.9%
Elderly person living in a ACF	\$804	2.0%
Weighted average (incl. transports to ACFs)	\$368	100.0%

Note The cost of the 'Elderly, living in a ACF' includes the cost of an ambulance transport back to the ACF'

A.2.2. Other costs

Emergency departments also have a number of other costs aside from the direct financial impact on hospital expenditure.

One of the main impacts is overcrowding in emergency departments – where too many people present and are admitted, which compromises

access and care in the emergency department. There are a number of sources of access block in emergency departments. One study showed that patients who could have sought care from a GP and a lack of bed capacity within inpatient wards were two main reasons for access block. It is acknowledged that there are a complex set of factors that impact on access block and overcrowding. Increasing access to alternative care pathways for primary care type presentations is one of a number of strategies to improve access to care for patients requiring emergency care.

As more people present and are admitted to the emergency department, access to beds becomes limited and patients remain waiting. This has a number of impacts, including:

- More time spent waiting for care
- Increased hospital length of stay
- Higher mortality rates: A number of studies has shown that access block in the emergency department, combined with a lack of capacity in inpatient wards can increase mortality rates by 30%
- Ambulance handover times and diversion: As emergency department capacity becomes unavailable, ambulances must either spending longer waiting to handover over patients or divert to another site. Both can result in tying up ambulance resources.

A.3. Ambulance

Separate ambulance services operate in each jurisdiction and are funded differently with a combination of user-pay fees and government funding. This pathway considers the cost associated with triaging, responding and treating patients.

A.3.1. Financial cost

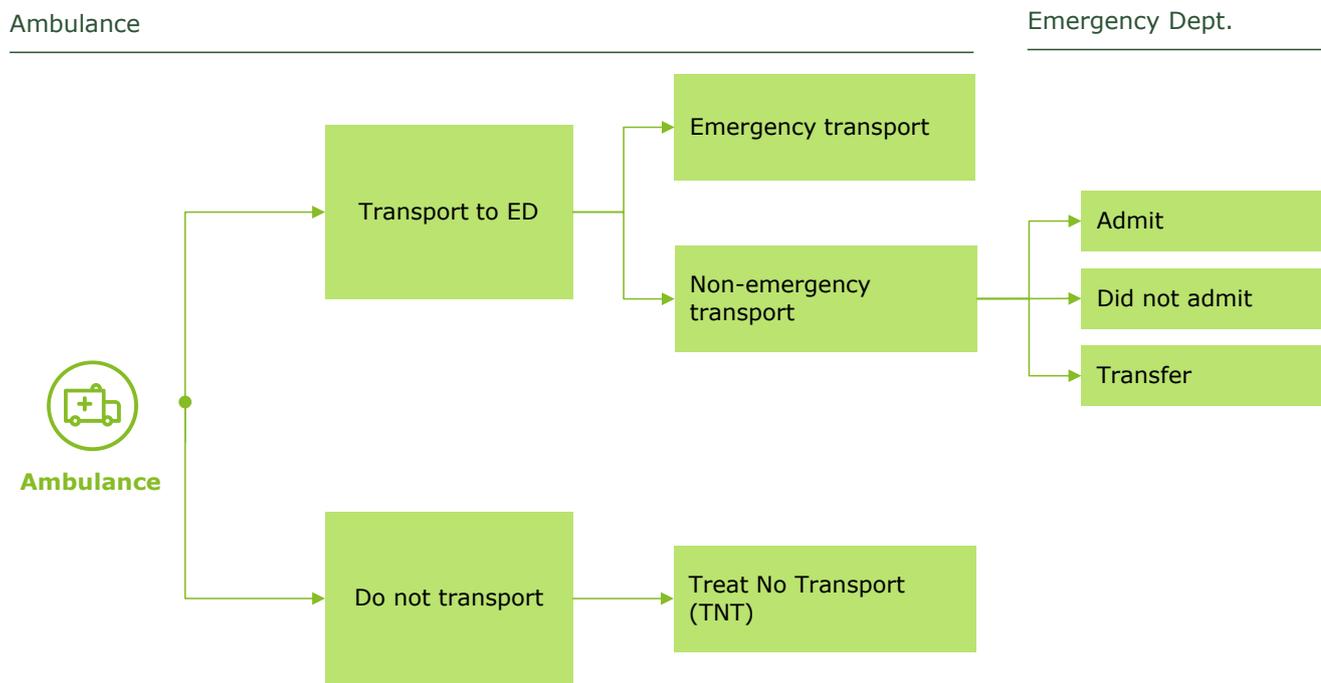
As seen in Figure A.1: the cost of the ambulance pathway comprises the cost incurred by:

- Ambulance services: Transporting patients or providing care at the place of the episode
- Hospital emergency departments: Many requests for an ambulance end in a patient being transported to an emergency department – the cost of the patient being admitted, treated or transferred occurs because of the ambulance arrival.

A.3.1.1. Ambulance services

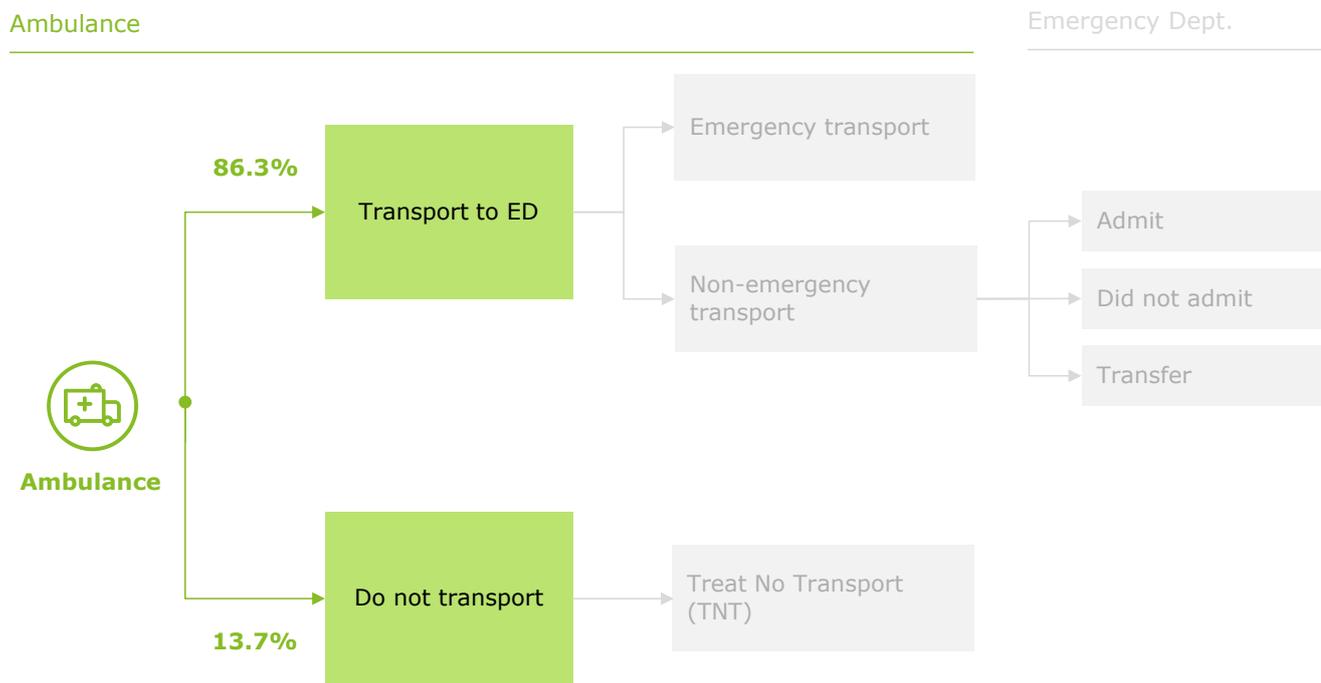
This pathway starts at the point of an ambulance being requested and therefore excludes any cost incurred before that point.

Figure A.1: Ambulance pathway



Ambulances transport the majority of patients. In 2015-16, the Productivity Commission's *Report on Government Services* reported that across Australia 86.3% of patients receive either emergency or non-emergency transport, as seen in Figure A.1: The proportion of patients requiring transport varies across each jurisdiction.

Figure A.2: Ambulance transports by jurisdiction



Jurisdiction	Transported to ED	Do not transport
NSW	81.5%	18.5%
Vic	87.1%	12.9%
Qld	89.9%	10.1%
WA	87.7%	12.3%
SA	88.6%	11.4%
Tas	81.2%	18.8%
ACT	81.8%	18.2%
NT	79.0%	21.0%
Australia	86.3%	13.7%

Source: Productivity Commission (2016), 2015-16 Report on Government Services

Understanding the number of patients transported is important as it contributes to the overall cost to the ambulance service and determines whether patients are transported to an emergency department. On average, patients transported incur higher fees (and ambulance services incur a higher cost) and are transported to the emergency department in the majority of cases.

The exact cost of the various transport options is not publicly available; however, all ambulance services publish a schedule of fees that the user of the service is liable to pay.³⁰ Table A.4: shows the scheduled fees by jurisdiction. These fees have been used to indicate the cost incurred by the ambulance service in delivering transport and non-transport services in the ambulance pathway analysis.

³⁰ The user of the service is different depending on the circumstances. These arrangements vary by jurisdiction.

Table A.4: Scheduled ambulance service fees

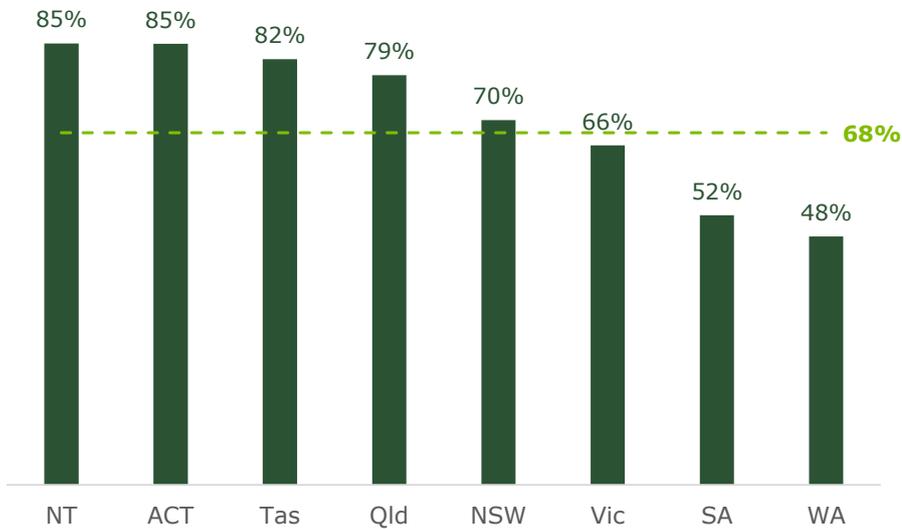
Jurisdiction	Emergency		Non-emergency		Treat no transport	
	Fixed fee	Variable	Fixed fee	Variable	Fixed fee	Variable
NSW	\$364	\$3.3/km	\$287	\$1.8/km	-	-
Vic	\$1,341	-	\$383	-	\$507	-
Qld	\$1,214	-	\$450	\$1.9/km	\$124	\$16.9/km
WA	\$932	-	\$500	-	-	-
SA	\$934	\$5.4/km	\$208	\$5.4/km	\$205	-
Tas	\$833	\$5.6/km	-	\$5.6/km	\$575	-
ACT	\$918	-	\$656	-	\$637	-
NT	\$745	\$4.8/km	\$340	\$4.8/km	-	-

Source: NSW: <http://www.ambulance.nsw.gov.au/Accounts--Fees/Fees-and-Charges.html>, Vic: <https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/ambulance-and-nept/ambulance-fees>, Qld: <https://www.legislation.qld.gov.au/LEGISLTN/CURRENT/A/AmbulServR15.pdf>, WA: <http://www.stjohnambulance.com.au/ambulance-and-health-services/metro-ambulance-service/metro-ambulance-fees>, SA: <http://www.saambulance.com.au/ProductsServices/Ambulancefees.aspx>, Tas: http://www.gazette.tas.gov.au/editions/2014/april_2014/21422_-_Gazette_23_April_2014.pdf, ACT: <http://esa.act.gov.au/actas/fees-and-charges/>, NT: <http://www.stjohnnt.org.au/ambulance-services-introduction>

These arrangements are different in each jurisdiction and depend on the circumstances in which a patient requires assistance. For example, patients in Queensland, Tasmania and the Northern Territory are not directly liable for the cost of ambulance transports – the government in each jurisdiction funds these services using general taxation revenues.

Additionally, each State and Territory Government makes significant contributions to the cost of delivering ambulance services and the costs recovered through the user-pays fees do not cover the entire cost. In 2014-15, Government grants and contributions comprised 68% or \$1.9 billion of total ambulance revenue as seen in Chart A.1: – Government grants and contributions are higher in jurisdictions where the general community is not often liable for the cost of ambulance transport.

Chart A.1: Proportion of Government grants and contributions to ambulance revenue



Source: Productivity Commission (2016), Report on Government Services

Given this analysis focuses on the *cost* of each after hours care pathway, the ambulance fees have been increased to reflect the component of the fee that is being funded by Government through grants and contributions. This results in the cost per patient in Table A.5: – non-emergency transport costs on average \$937 and treat no transport \$897. The emergency fee has been excluded from Table A.5: as it has been assumed that patients requiring out of hours care from a GP would not require emergency ambulance. The total weighted average cost per patient is \$957.

Table A.5: Cost per patient – non-emergency and treat no transport

	Proportion	Cost
Non-emergency transport	86.3%	\$932
Treat no transport	13.7%	\$980
Weighted average cost	100%	\$957

A.3.1.2. Emergency departments

The cost of an emergency department presentation was calculated in Section A at \$358 per patient. This calculation was based on non-admitted emergency department costs of patients self-presenting to emergency departments, and the relative proportions of patients in each age cohort.

The cost of an emergency department relating to an ambulance arrival has been calculated here using the same IHPA emergency department costs in Table A.6: however the proportion of each patient cohort has changed to reflect the number of patients who arrive by ambulance. This has been determined using the AIHW’s patient-level emergency department data and is summarised in Table A.6: alongside the IHPA emergency department costs.

Table A.6: Non-admitted patient costs by age cohort and triage category (arrived by ambulance)

Age cohort	Category 4		Category 5	
	Cost	Proportion	Cost	Proportion
Under 65 years old	\$369	76.2%	\$240	24.2%
Over 79 years old	\$447	23.8%	\$291	75.8%
Weighted average cost / Total	\$388	100.0%	\$279	100.0%

Source: IHPA, AIHW

Table A.7: presents the non-admitted patient costs of each triage category and the total weighted average cost.

Table A.7: Total non-admitted patient costs (arrived by ambulance)

Triage category	Cost	Proportion
Category 4	\$388	93.6%
Category 5	\$279	6.4%
Weighted average cost	\$381	100.0%

Source: IHPA, AIHW

The proportions are different to the ones used to calculate the emergency department cost of \$358 – the proportion of patients to apply to the 'Over 79 years old' category is 10.2% higher, meaning that the higher cost for elderly patients is likely to be incurred more often and the overall cost increases by \$23 to \$381.

A.3.1.3. Summary: Ambulance and emergency department costs

The total cost of the ambulance service includes both the ambulance and emergency department components calculated above. Table A.8: shows the combined cost of the two components which equates to \$1,338 per patient.

Table A.8: Weighted average cost of ambulance pathway

Triage category	Cost
Ambulance	\$957
Emergency department	\$381
Weighted average cost	\$1,338

By patient cohort, the analysis shows the cost for elderly patients is significantly higher than for the other two cohorts as seen in Table A.9:

Table A.9: Ambulance and emergency department per patient costs

Cohort	ED Component	Ambulance Component	Total
Baby / small child	\$365	\$957	\$1,322
Typical adult	\$366	\$957	\$1,323
Elderly, living at home	\$419	\$957	\$1,376
Elderly, living in a ACF	\$819	\$957	\$1,776
Total / weighted average	\$394	\$957	\$1,351

Note: The ED component for 'Elderly, living in a ACF' include the cost of an ambulance transport back to the ACF

The difference between \$1,338 in Table A.8: and \$1,351 in Table A.9: is due to the cost of ACF patients requiring transport back from the emergency department.

A.3.2. Other costs

Using ambulance services for low acuity patients ties up valuable resources. Ambulance services are required to respond to incidents 24 hours a day and 7 days a week within a specified time based on the urgency of the situation. Using ambulance resources on low acuity patients means that additional resources are required to respond to any emergencies that may occur. This can mean that ambulances require more resources and therefore cost – in an absolute sense – significantly more.

As ambulances often take people to emergency departments the costs associated with emergency departments noted above (e.g. access block and the impact on carers) also applies in this pathway.

A.4. Extended and after hours only clinics

Extended and after hours only clinics provide typical GP services to patients outside of normal operating hours. The key difference between the two types of clinics is that after hours clinics specifically cater for after hours periods while extended care clinics are regular GP clinics that remain open into the after hours periods.

A.4.1. Financial costs

Patients presenting at an after hours or extended hours clinics are either:

- Treated and released: patients that are treated and released from the clinic; or
- Hospital emergency departments: Those patients are assessed and then referred to an emergency department – this cost has been factored in as it is as a direct result of an after hours or extended hours clinics referral.

According to the *Hunter Research Foundations Cost Study of GP Access After Hours*, 96% of extended and after hours only clinic appointments result in a patient being treated and released from the clinic in that single episode of care, whilst the other 4% are referred on to an emergency department.

Determining these proportions enables us to calculate the per patient cost of extended and after hours only clinics by factoring in the proportionate

cost of the emergency department. The cost of an emergency department presentation has been quantified above in the emergency department pathway (\$368 per patient), and used in determining the total weighted average cost of this pathway. The cost by patient cohort have not been separated due to data limitations.

The average cost of extended and after hours only clinics appointments has been calculated using 2015-16 activity and cost data for all relevant Medicare Benefits Schedule items supplied. This included all commonly used after-hours Medicare Benefit Schedule items for GPs, as can be seen in Appendix C. In order to determine the gap payment of each clinic appointment the bulk billed rate of each state provided by Medicare Statistics has been used. Finally the after-hours bulk billing incentive of \$6.2 was included after the gap payment as it is an incentive to bulk billing appointments only. It should be noted that in certain rural locations the incentive is \$9.3 instead of \$6.2. Table A.10: shows the total Medicare expenditure, total activity, Medicare cost per appointment, and gap payment.

Table A.10: Extended and after hours only clinics cost by State and Territory

Jurisdiction	Total Medicare expenditure (\$)	Total activity	Medicare cost per appointment	Gap cost per appointment (\$)
NSW	\$151,013,934	2,885,762	\$52.3	\$13.6
Vic	\$155,235,763	2,947,695	\$52.7	\$27.3
Qld	\$72,876,451	1,369,176	\$53.2	\$13.8
WA	\$31,872,383	603,354	\$52.8	\$27.3
SA	\$27,633,526	520,812	\$53.1	\$14.6
Tas	\$3,081,572	56,992	\$54.1	\$18.3
ACT	\$5,152,791	100,462	\$51.3	\$26.5
NT	\$3,863,063	72,436	\$53.3	\$13.8
Total	\$450,729,483	8,556,689	\$52.7	\$18.9

Source: Medicare

The average cost per appointment in Australia is \$52.7, with a gap payment averaging \$18.9. After adding the after-hours bulk billing incentive of \$6.2 the total weighted average cost of the clinic appointment is \$77.8.

A.4.1.2. Summary: Extended and after hours only clinics cost

The proportion of Australia's total population in each jurisdiction has been used to calculate the weighted average cost of a single clinic appointment of \$92.5. This cost has been determined for each outcome: referral to the emergency department and treat and release, as well as between who bears the cost; the patient, State Government, and Commonwealth Government. Figure A.3: presents the breakdown.

Figure A.3: Per patient cost of after hours and extended hours clinics



Note: The cost of an assessment has been assumed to be the same as the treat and release cost

Table A.11: Total per patient cost of extended and after hours only clinics

Category	Total cost	Proportion of patients	Weighted Average Cost
Emergency department	\$368	4%	\$14.7
Treat and release	\$71.60	100%	\$71.6
After-hours bulk bill incentive	\$9.30	100%	\$6.2
Total weighted average patient cost			\$92.5

The Commonwealth Government is predominately responsible for primary care and its funding through the MBS, including for consultations at extended and after hours only clinics. However, State and Territory Governments bare a proportion of the total weighted average patient cost (\$14.70) as a proportion of patients are referred to emergency departments, which State and Territory Governments are responsible for funding. Additionally, this analysis identifies that patients also contribute \$18.90 per appointment on average relating to the gap payment.

A.4.2. Other costs

In terms of financial costs, after hours and extended hours clinics offer a relatively inexpensive way to treat patients seeking care in after hours periods. However, there are a range of other costs outside of the direct financial cost to the Commonwealth Government, State and Territory Governments and patients. These costs range from preferences regarding

where care is provided to the ability of patients to visit clinics and the impact on doctors.

Firstly, extended and after hours only clinics offer GP services to those patients that can attend they do not provide a solution to many patient groups. For example, people with disabilities, parents and guardians with multiple young children, or carers of frail elderly patients may find it difficult to attend clinics for numerous reasons. Access Economics calculated the 'replacement value' of informal caregivers to be \$31 per hour in 2010. This cost could reasonably be factored in to the travel and waiting time taken up by a clinic appointment.

Across Australia 17% of general practices provide 24-hour care through phone triage services, in practice consultations, after hours home and ACF visits, or home visits.³¹ This means that there is significantly less access to GP services in after hours periods compared with in hours periods.

Finally, extended and after hours only clinics provide services to all patient groups, not just those that are urgent. In some instances this will result in patients seeking non urgent GP consultations, for example for a script renewal, preventative check-ups or other convenience requests. The result of this would be an increased cost to the health system given the additional cost of the clinic when compared to an in hours GP. This reflects the trend in preferences to access care out of normal business hours to match their availability.

A.5. Healthdirect Helpline

Healthdirect Australia is a national organisation that provides 24/7 access to health professionals and health information via a nurse triage helpline and a range of online services. Callers to the Healthdirect Helpline speak with a registered nurse who assesses their situation and advises next steps. The service however does not diagnose and are not a replacement for face-to-face care, as such referrals to other services are high.

Healthdirect connects people with other services in the community by:

- Taking non-emergency calls referred from ambulance services
- Referring people to visit their doctor, pharmacist or other health service
- Connecting people to the after hours GP helpline
- Allowing people to locate their nearest services using the National Health Services Directory.

A.5.1. Financial Costs

The first cost in the Healthdirect pathway is the Nurse Telephone triage. There is limited publicly available data regarding the per call cost of a nurse triage service. As such a proxy calculated by the Royal Australian College of General Practitioners for the My Aged Care Hotline of \$45 has been used.

Healthdirect's annual report 2014-15 shows that a number of patients are referred from the nurse triage to the after hours GP helpline. For these patients, Healthdirect incurs a second cost, as a GP discusses the patient's issue and provides advice over the phone. Although the cost of a GP is higher than a nurse, the same cost per call applied in the nurse triage has

³¹ Jackson, C. (2015), *Review of after hours primary health care*

been applied due to a lack of data. This is considered a conservative assumption.

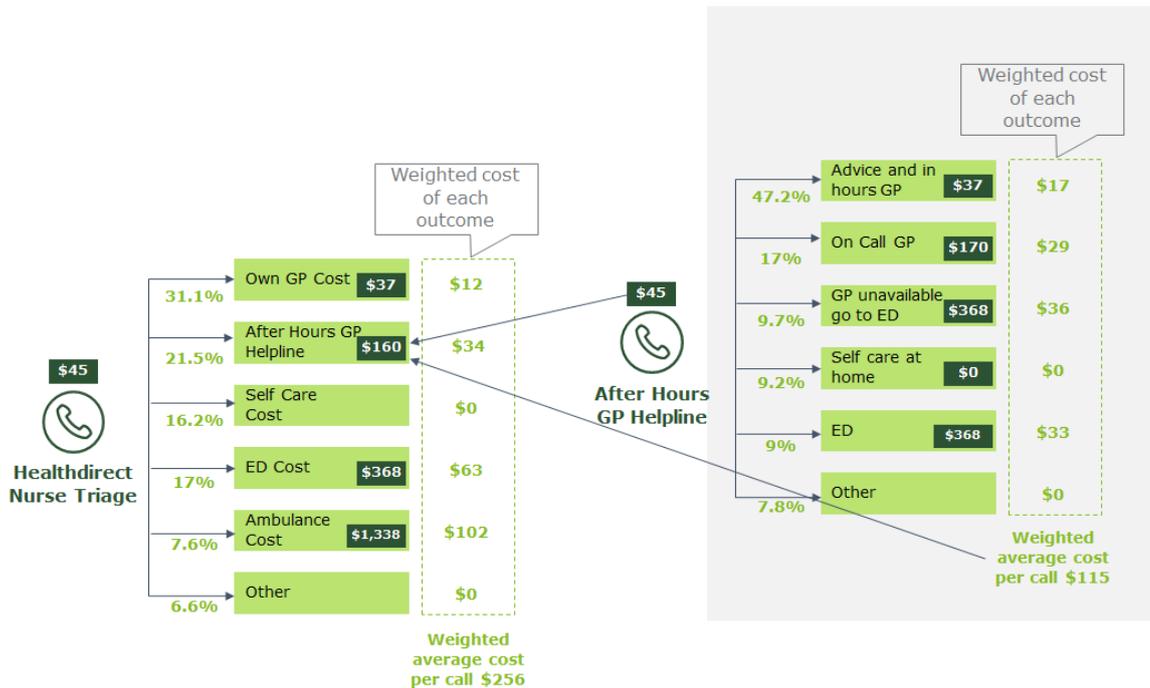
Healthdirect Australia’s Annual Report 2014-15 also highlights the proportion of out-of-hours callers that were advised to take each respective pathway following conversation with a GP, through the After Hours GP Helpline.

Patients are advised to take one of the following six pathways:

- Self-care advice and see a doctor / health provider within normal operating hours
- On Call GP
- On Call GP (no GP available – go to emergency department)
- Self-care at home
- Emergency department immediately
- Other

Figure A.4: represents this pathway, the proportion of patients advised to take each resultant pathway following the nurse triage call in 2014-15, in addition to the respective cost of each pathway as previously calculated in this analysis. For self-care and other, no cost has been assigned given the limited information available. This means the result calculated is conservative.

Figure A.4: Healthdirect Helpline pathway³²



Note: The emergency department cost of \$1,338 has been applied as this excludes ACF patients transport cost, given it is unlikely that ACFs would be using the Healthdirect system.

Each of the pathways identified generates a cost proportionate to the number of patients taking that pathway. Table A.12: shows the cost of the

³² On call GP cost is calculated using the relevant MBS urgent after hours attendance item numbers and scaled up to include the gap payment and bulk billing incentive.

initial telephone consult, the weighted cost of each resultant pathway, and the total weighted average cost of the service.

A.5.1.2. Summary: Healthdirect Cost

Table A.12: Healthdirect Helpline costs

Pathway	Weighted Average Cost
Nurse triage	\$45
Own GP	\$12
Telephone GP consult	\$34
Self-care	Not costed
Emergency department	\$63
Ambulance	\$102
Other	Not costed
Total	\$256

The total weighted average cost of the Healthdirect pathway has been calculated as \$256. As seen in Table A.12: despite the relatively low proportion of patients referred to them this cost is largely comprised of ambulance services and emergency departments. This is because of the high cost of those pathways.

The Commonwealth Government funds the Healthdirect Helpline service. However the total cost of the service incorporating all follow-on pathways takes into account costs passed on to the State and Territory Governments and patients as identified in the analysis of each individual pathway.

A.5.2. Other Costs

A Medical Journal of Australia study into the Healthdirect phone service revealed that many callers do not comply with the advice provided to them. "More than half of those who attended Royal Perth Hospital's ED after contacting Healthdirect did so despite being given advice not to attend". This raises the issue that the service becomes an additional cost to the health system in adding an extra step to those patients with the outcome, i.e. an emergency department presentation, being the same. It should be noted that this additional cost has not been factored into the analysis and therefore assumes that patients comply with the advice provided.

A.6. Hunter GP Access

Hunter GP Access After Hours provides free after hours medical care and advice to people of the Newcastle, Lake Macquarie and Maitland areas on weeknights, weekends and public holidays. Whilst the clinics are located within hospitals it is similar to other out of hours services in that the first step is a telephone triage and advice system, the Patient Streaming Service (PSS).

Following a call to the PSS a patient will be redirected to 1 of 7 alternative pathways:

- Hunter GP Access Clinic Appointment
- Emergency department
- Healthdirect

- Visit own GP in hours
- Other (including ambulance)
- Self-care
- On call GP.

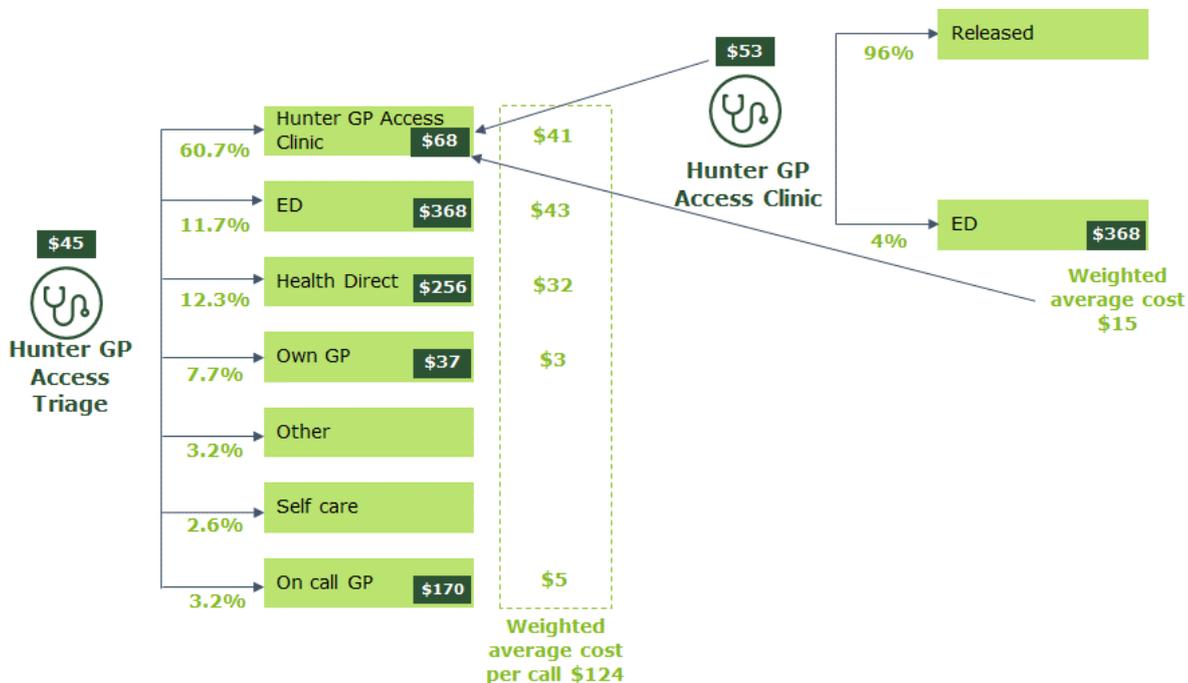
In addition to the 7 outcomes listed a proportion of the patients that are referred on to the Hunter GP Access Clinic, 4%, will then be redirected to the emergency department.

A.6.1. Financial Costs

The cost of the Hunter GP Access Pathway is created by the initial telephone consult as well as the potential resultant Hunter GP Access Clinic appointment. As with the Healthdirect pathway a proxy of \$45 has been used for the telephone consultation given the limited data available to calculate this. Similarly the clinic cost of \$53 (rounded) has been pulled from the calculation made in the After Hours Clinic pathway given the clinics will generate fees from the same MBS item numbers.

The Hunter GP Access service pathway resulting from the telephone consult is shown in Figure A.5. The diagram also highlights the proportion of patients that were redirected to each pathway according to a *May 2015 Cost Study of GP Access After Hours conducted by Hunter Research Foundation*, and the corresponding cost of the next pathway.

Figure A.5: Hunter GP Access pathway



Summary: Hunter GP Access

Once the respective costs and proportionate representations are applied to one another, a weighted average cost to each of the other services generated by the Hunter GP Access can be determined. Table A.13: shows the average cost of one patient calling the initial PSS system, as well as the weighted cost of each of the resultant pathways from it.

Table A.13: Hunter GP Access costs

Pathway	Weighted Average Cost
Telephone Consult	\$45
Clinic appointment	\$32
Emergency department portion of a clinic appointment	\$9
Emergency department	\$43
Health Direct	\$32
Own GP in hours	\$3
Other	Not costed
Self-care	Not costed
On call GP	\$5
Total	\$169

The total weighted average cost of the Hunter GP Access service is \$169. As can be seen Table A.13: this cost is largely made up by cost of the telephone consult and the clinic itself. The main other services it generates a cost to are the emergency department, \$52 (\$9 + \$43), and Healthdirect, \$32. This outcome is slightly conservative as the 'other' and 'self care' components are too vague to be quantified, although these do only make up 5.8% of the referral outcomes and would therefore likely be minimal.

A.7. After hours home and ACF visits

After hours home and ACF visits provide fully bulk billed after-hours home visits to urgent primary care patients. Following the home visit a clinical report is sent to the patient's primary GP to ensure continuity of care.

A.7.1. Financial cost

Patients that receive after-hours home visits are either treated and released at the end of that episode of care or are referred to a hospital emergency department. The cost of the emergency department has been factored in as it is a direct result of the home visit referral.

According to the National Home Doctor Service 97% of its home visits result in a patient being released from care, with 3% being referred on to a hospital emergency department. Determining these proportions enables us to calculate the per patient cost of After hours home and ACF visits by factoring in the proportionate cost of the emergency department. The cost of an emergency department presentation has been quantified below in the emergency department pathway (\$368 per patient), and used in determining the total weighted average cost of this pathway. The cost by patient cohort have not been separated due to data limitations.

The average cost of After hours home and ACF visits has been calculated using 2015-16 activity and cost data for all relevant Medicare Benefits Schedule items supplied. This included all commonly used after-hours Medicare Benefit Schedule items for GPs, as can be seen in Appendix C. The after-hours bulk billing incentive of \$6.2 was added as it is an incentive to bulk billing appointments only. Table A.14: shows the total Medicare expenditure, total activity, and Medicare cost per appointment.

Table A.14: After hours home and ACF visits cost by State and Territory

Jurisdiction	Total Medicare expenditure (\$)	Total activity	Medicare cost per appointment
NSW	\$72,597,432	695,715	\$104.35
Vic	\$75,277,630	697,654	\$107.9
Qld	\$88,953,508	762,198	\$116.71
WA	\$27,288,371	231,177	\$118.04
SA	\$42,431,746	367,908	\$114.79
Tas	\$4,365,473	39,040	\$111.82
ACT	\$3,491,377	29,990	\$116.42
NT	\$1,264,592	15,638	\$80.87
Total	\$315,470,129	2,839,320	\$111.12

Source: Medicare

The average cost per appointment in Australia is \$111.1, after adding the after-hours bulk billing incentive of \$6.2 the total weighted average cost of the home visit is \$117.2.

A.7.1.2. Summary: After hours home and ACF visits cost

When factoring in the additional \$11.04 to account for the proportion of patients that are referred on to an emergency department (\$368 x 3%) the total cost a single home visit of \$128.36 is determined. Table A.15: shows the breakdown of cost.

Table A.15: Total per patient cost of After hours home and ACF visits

Category	Total cost	Proportion of patients	Weighted Average Cost
Emergency department	\$368	3%	\$11.0
Treat and release	\$111.1	100%	\$111.1
After-hours bulk bill incentive	\$6.2	100%	\$6.2
Total weighted average patient cost			\$128.4

Note: After hours bulk billing incentive has been applied consistently as a conservative estimate.

Since the Commonwealth Government is predominately responsible for primary care and its funding through the MBS, including for After hours home and ACF visits consultations it funds \$117.3 of the \$128.4 cost (\$111.1 + \$6.2). However, State and Territory Governments bare a proportion of the total weighted average patient cost (\$11.04) as a proportion of patients are referred to emergency departments, which State and Territory Governments are responsible for funding

A.7.2. Other costs

As with all care pathways a proportion of patients that use After hours home and ACF visits do so inappropriately. A criticism aimed at this

pathway is that there is an element of cost increase to the overall system as some patients use the service when they were able to access an alternative pathway in hours, or visit an Extended and after hours only Clinics at a lower cost, however they choose to use After hours home and ACF visits for the convenience provided.

Appendix B: Patient pathways analysis including admitted patient costs

The patient pathway analysis in Appendix A has considered the cost to emergency departments of patients self-presenting or arriving by ambulance who are not admitted. A proportion of patients in each pathway either directly or indirectly present at emergency departments, meaning that including the cost of admitted patients will change the cost of all patient pathways. This Appendix quantifies the average cost of an emergency department presentation (admitted) and then applies it to the other pathways to determine its impact.

The cost of each pathway including the cost of admitted patients has been calculated separately in Appendix B to understand the potential overall quantum of cost associated with each pathway. Appendix A is consistent with AIHW's definition of a potentially preventable GP-type patient.

It is important to note that the actual cost of the admission is not included in the cost presented below – the cost of admission is in addition. The emergency department cost for admitted patients represents the cost of care in the emergency department for patients who are subsequently admitted.

B.1. Emergency department (with admitted patients)

Patient-level emergency department data containing the details of emergency department presentations in Australia has been used to determine the outcomes of patients that:

- Seek care in after hours periods
- Are triaged as category 4 or 5
- Did not arrive by ambulance – these patients are considered in the ambulance pathway analysis.

At a high-level, the outcomes of patients presenting at emergency departments can be classified into three categories:

- Admitted into the hospital
- Not admitted into the hospital: received treatment and sent home, they did not wait, were seen and left at their own risk, or died before being admitted
- Transferred to another care facility (e.g. hospital).³³

³³ A small number of patients die before arriving at the emergency department

The cost and likelihood of each of these outcomes is different for each cohort. Admitted patients usually require more emergency department resources (e.g. medical supplies and time from doctors and nurses), which costs more than patients who are not admitted. Some type of patients are, on average, more likely to be admitted than others. The higher the proportion of patients in a certain cohort that are admitted, the higher the overall cost that patient cohort imposes on emergency departments. This means it is important to consider admitted and non-admitted costs by patient cohort.

The same costs used to calculate the cost of an emergency department presentation in Section A1 have been used. Presented in Table B.1: below is the relevant UDG costs for triage categories 4 and 5 and patient cohort, along with the transfer cost, which has been calculated by taking the average patient transfer cost of each State and Territory.

Table B.1: Financial cost of emergency department outcomes by triage and age cohort

Triage category	0 – 65 years		79+ years		Transfer (all age cohorts)
	Admit	Did not admit	Admit	Did not admit	
Category 4	\$763	\$369	\$923	\$447	\$382
Category 5	\$577	\$240	\$698	\$291	\$382

Source: Independent Hospital Pricing Authority (2016), Emergency Department costs

The second component of this analysis is to determine how often patients in each cohort are admitted. The patient-level emergency data provided by the AIHW has been used to determine the proportion of each patient cohort that is admitted. The data set isolates presentations during after hours periods for triage categories 4 and 5. The results of the analysis are in Table B.2:.

Table B.2: Proportion of patients admitted and transferred by triage category and cohort

Triage category	Cohort	Admit	Did not admit	Transfer
Category 4	Baby / small child	6.0%	93.7%	0.3%
	Typical adult	11.4%	88.1%	0.5%
	Elderly, living at home	27.1%	71.8%	1.1%
	Elderly, living in a ACF			
Category 5	Baby / small child	3.0%	96.8%	0.2%
	Typical adult	10.2%	89.4%	0.4%
	Elderly, living at home	4.0%	95.8%	0.2%
	Elderly, living in a ACF			

Source: 2014/15 AIHW emergency department presentation data

Note: Data were not available to determine the difference between patients aged 75+ and those who arrived from ACFs so the same figures have been applied for the purpose of this analysis.

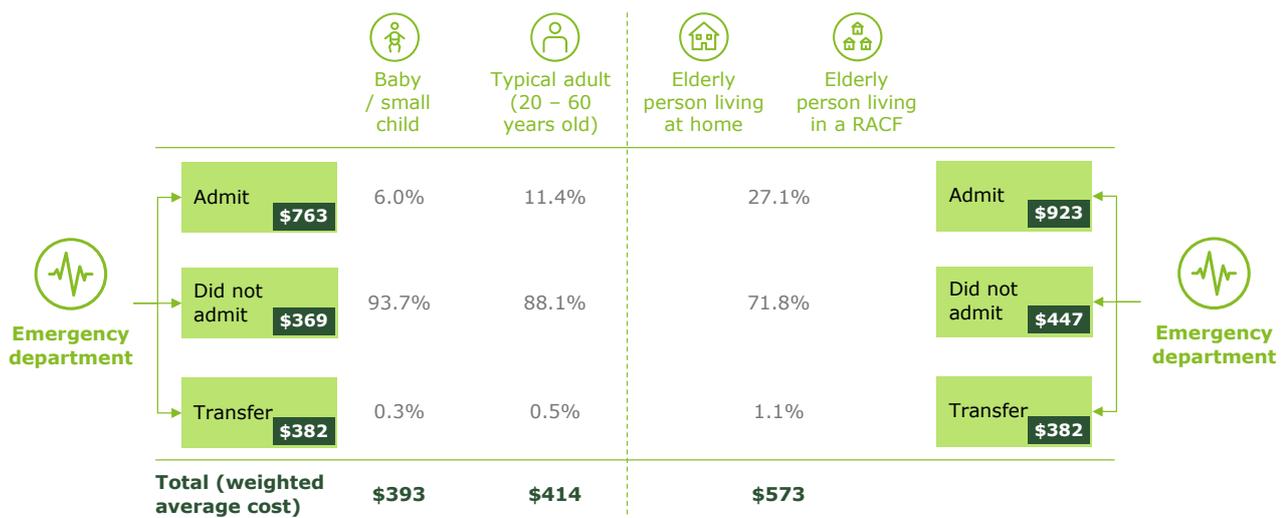
As would be expected, the cohorts relating to elderly patients have substantially higher admission rates when presenting with a category 4 condition. However, the typical adult cohort (i.e. patients aged between 20 and 60 years old) had a higher admission rate than elderly patients living at home or in ACFs when triaged as category 5. Conversely, when considering non-admitted patients 8% of the typical adult cohort either did not wait to be seen, or left at their own risk, this is in contrast to 15% of elderly patients living at home or in ACFs. This has contributed to the admitted rate being higher for typical adults relative to elderly patients for triage category 5.

B.1.2. Summary: Emergency department presentation costs, including admitted patient costs

Figure B.1: and Figure B.2: summarise the analysis undertaken for triage categories 4 and 5 respectively. The costs for admitted and non-admitted category 4 patients differ greatly between the patient cohorts. The baby / small child and typical adult cohorts are \$160 and \$78 less per patient than the two elderly patient cohorts respectively. Figure B.2: provides a similar outcome for category 5 patients whereby admitted patients cost \$121 less for the baby / small child and typical adult cohorts, and non-admitted patients \$51 less.

The cost differences identified between cohorts are attributable to various factors. Firstly, elderly patients often present with multiple co-morbidities. Such patient types cost disproportionately more than those presenting with one illness. For example, a 2015 study in the United States of America concluded that the average cost of treating patients with five illness complexities is ten times higher than those with one illness complexity.³⁴

Figure B.1: Emergency department triage category 4 presentation cost



³⁴ Acumen (2014), Challenges in controlling Medicare spending: Treating high complexity patients

Figure B.2: Emergency department triage category 5 presentation cost

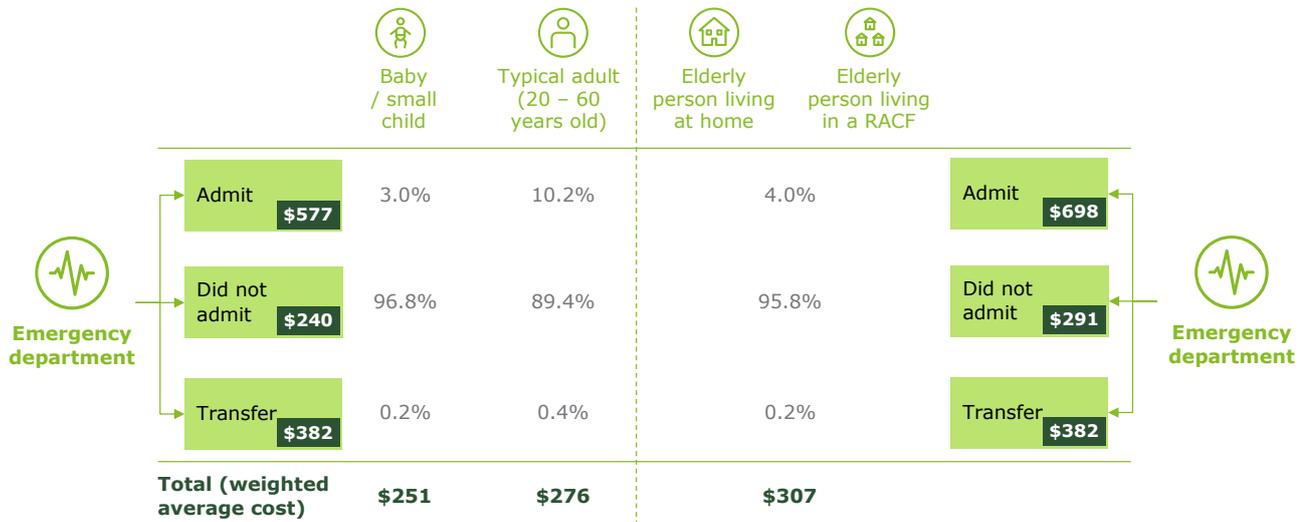


Figure B.1:and Figure B.2: also identify the (weighted) average cost per patient for triage categories 4 and 5. By weighting this by the proportionate activity of each patient cohort an overall (weighted) average for each category is found:

- Category 4: \$573
- Category 5: \$307.

Patients classified as triage category 4 cost 62% more than patients classified as triage category 5. This is due to higher admission rates, and the higher cost of those patients who are subsequently admitted.

Table B.3: shows the cost per patient presentation by patient cohort. Elderly people pose a greater cost when presenting to emergency departments. As anticipated, the analysis determined that elderly patient cohorts are substantially more expensive than the baby /small child and typical adult cohorts. This is primarily due to the factors previously outlined regarding admission rates and patient complexity, however specifically relevant to elderly patients living in ACFs, is the cost of transporting patients back to ACFs, which has been factored into the cost of the patient cohort. It has been assumed that all elderly patients from ACFs require ambulance assistance from the emergency department back to the ACF.

By weighting these outcomes by the proportionate activity of each triage category, the overall per patient cost of an emergency department presentation is \$468 for the patient cohorts considered in this analysis.

Table B.3: Per patient cost by cohort

Cohort	Per patient cost
Baby / small child	\$371
Typical adult	\$350
Elderly, living at home	\$484
Elderly, living in a ACF	\$823
All cohorts	\$468

B.2. Ambulance

As discussed, the cost of the ambulance pathway comprises two costs:

- Ambulance transport and treatment
- The emergency department, where a transport to the emergency department occurs.

The cost of the ambulance transport and treatment has been quantified in section A2 at \$957 on average. This cost is the same in the context of considering admitted patients as the key difference is the cost between an admitted and non-admitted patient at an emergency department.

As above, the cost of an emergency department has been quantified including admitted patients. That cost excluded the outcomes of patients who arrived by ambulance. This section quantifies the cost associated with patients who arrived by ambulance to emergency departments in after hours periods and includes the outcomes and costs of those patients who were admitted or transferred.

B.2.1. Hospital emergency departments

For those patients transported to emergency departments, there is an additional cost for treating them there. This has been quantified using the same methodology as applied to the emergency department pathway. However, the AIHW emergency department data set was used to isolate the outcomes of those patients who arrived by ambulance in after hours periods. The results are shown for category 4 and 5 in Figure B.1: and Figure B.4: respectively.

Figure B.3: Category 4 ambulance patients

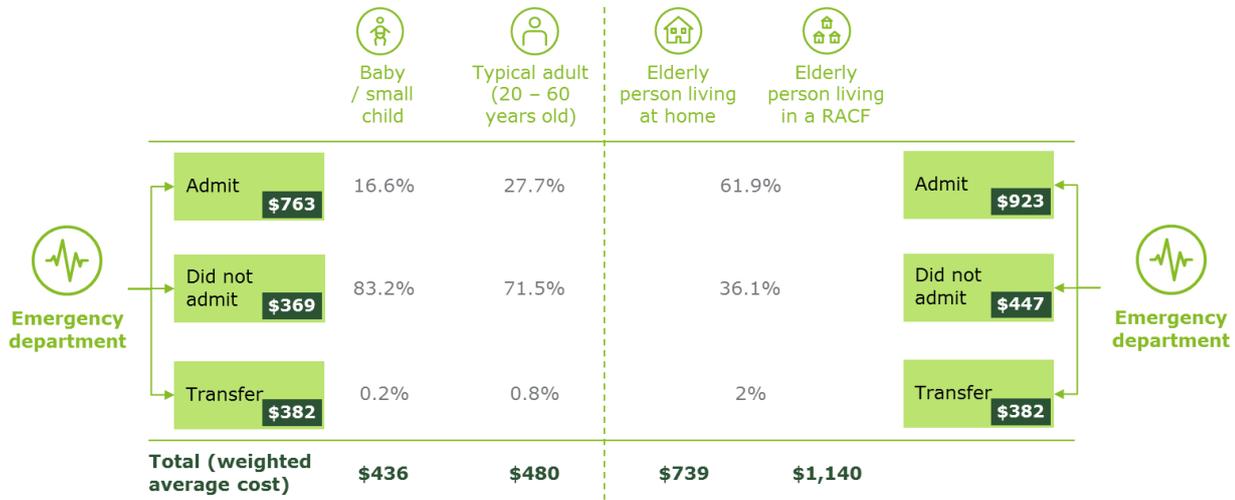
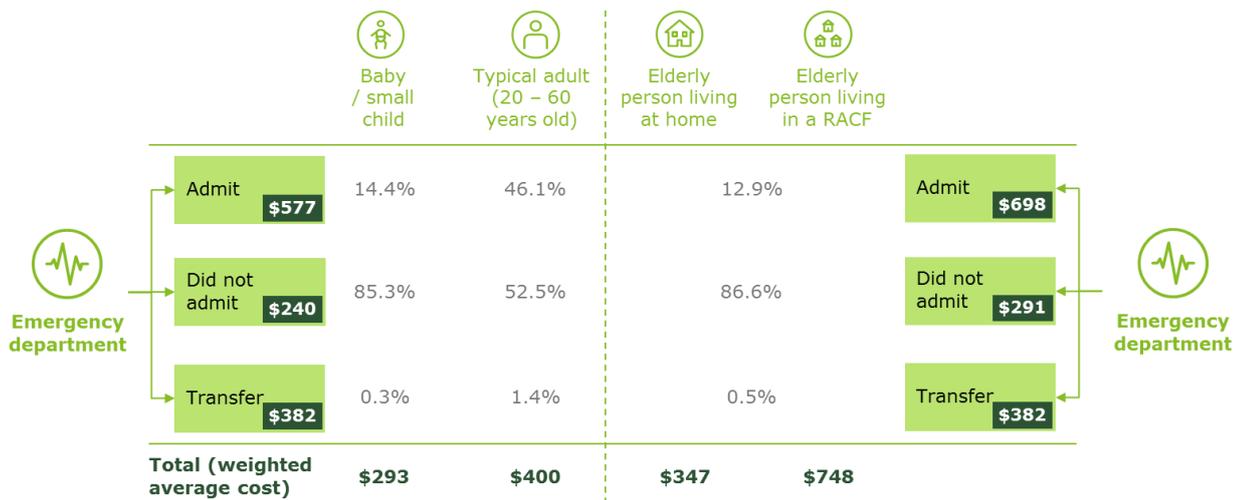


Figure B.4: Category 5 ambulance patients



Regardless of the cohort, triage category 4 patients are more expensive to treat than triage category 5 patients, the largest difference is seen with admitted elderly patients costing \$225 more.

Similarly, category 4 patients would be expected to be admitted more frequently than category 5 patients are. This is the case in cohorts 1, 3 and 4, with the largest increase in admission rate of 49% seen in elderly patients. However, somewhat surprisingly cohort 2 patients were admitted more frequently when presenting as a triage category 5 patient, 46.1% compared to 27.7%.

Table B.4: shows the total weighted cost of the two ambulance components by patient cohort.

Table B.4: Per patient cost by cohort

Triage Category	Cohort	ED Component	Ambulance Component	Total
Category 4	Baby / small child	\$436	\$957	\$1,393
	Typical adult	\$480	\$957	\$1,437
	Elderly, living at home	\$739	\$957	\$1,696
	Elderly, living in a ACF	\$1,140	\$957	\$2,097
Category 5	Baby / small child	\$293	\$957	\$1,250
	Typical adult	\$400	\$957	\$1,357
	Elderly, living at home	\$347	\$957	\$1,304
	Elderly, living in a ACF	\$748	\$957	\$1,705
All cohorts weighted average		\$591	\$957	\$1,548

B.3. Impact on other patient pathways

Adjusting the change in the cost of the emergency department to all the other pathways increases the average cost of those pathways. This is because the cost of admitted patients are higher. Table B.5: compares the cost of each pathway including and excluding admitted patient costs.

Table B.5: Comparison of patient pathway costs that include and exclude admitted patient costs

Pathway	Weighted average patient pathway cost, excluding ED costs of admitted patients	Weighted average patient pathway cost, including ED costs of admitted patients
Emergency department	\$368	\$458
Ambulance	\$1,351	\$1,548
Extended and after hours only clinics	\$93	\$97
Healthdirect	\$256	\$293
Hunter GP Access Scheme	\$169	\$215
After hours home and ACF visits	\$128	\$128

Appendix C: NAMDS members

NAMDS is the industry body representing after hours home and ACF visits organisations in Australia. The NAMDS members are:

- Call the Doctor Pty Ltd
- Canberra After Hours Locum Medical Services
- Dial A Doctor (and related entities)
- DoctorDoctor Pty Ltd (and related entities)
- House Call Doctor Pty Ltd
- National Home Doctor Service (and related entities)
- Newcastle After Hours Medical Service
- Perth After Hours Medical Service
- Sydney Medical Services Co-Operative
- WAMDS
- Wollongong Medical Service Co-Operative

Limitation of our work

General use restriction

This report is prepared solely for the use of the National Association for Medical Deputising Services. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose of description of purpose as per our engagement letter. You should not refer to or use our name or the advice for any other purpose

Deloitte.

Access Economics

Contact us

Deloitte Access Economics

ACN: 149 633 116
8 Brindabella Circuit
Brindabella Business Park
Canberra Airport ACT 2609
Tel: +61 2 6263 7000
Fax: +61 2 6263 7004

Deloitte Access Economics is Australia's pre-eminent economics advisory practice and a member of Deloitte's global economics group. For more information, please visit our website

www.deloitte.com/au/deloitte-access-economics

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see www.deloitte.com/au/about for a detailed description of the legal structure of Deloitte Touche Tohmatsu Limited and its member firms.

The entity named herein is a legally separate and independent entity. In providing this document, the author only acts in the named capacity and does not act in any other capacity. Nothing in this document, nor any related attachments or communications or services, have any capacity to bind any other entity under the 'Deloitte' network of member firms (including those operating in Australia).

About Deloitte

Deloitte provides audit, tax, consulting, and financial advisory services to public and private clients spanning multiple industries. With a globally connected network of member firms in more than 150 countries, Deloitte brings world-class capabilities and high-quality service to clients, delivering the insights they need to address their most complex business challenges. Deloitte's approximately 200,000 professionals are committed to becoming the standard of excellence.

About Deloitte Australia

In Australia, the member firm is the Australian partnership of Deloitte Touche Tohmatsu. As one of Australia's leading professional services firms, Deloitte Touche Tohmatsu and its affiliates provide audit, tax, consulting, and financial advisory services through approximately 6000 people across the country. Focused on the creation of value and growth, and known as an employer of choice for innovative human resources programs, we are dedicated to helping our clients and our people excel. For more information, please visit our web site at www.deloitte.com.au.

Liability limited by a scheme approved under Professional Standards Legislation.

Member of Deloitte Touche Tohmatsu Limited

© 2016 Deloitte Touche Tohmatsu