Coordination of Health Care Study: Use of Health Services and Medicines, Australia

2015-16

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COORDINATION OF HEALTH CARE STUDY: USE OF HEALTH SERVICES AND MEDICINES, AUSTRALIA, 2015-16

CONTENTS

ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ASGS	Australian Statistical Geographical Standard
Aust.	Australia
CHC	Coordination of Health Care
DHS	Department of Human Services
ED	hospital emergency department
GP	general practitioner
MBS	Medicare Benefits Schedule
MEDB	Medicare Enrolment Database
MoE	Margin of Error
NHS	National Health Survey
NSW	New South Wales
NT	Northern Territory
PBS	Pharmaceutical Benefits Scheme
PEx	Patient Experience Survey
PHN	Primary Health Network
Qld	Queensland
RPBS	Repatriation Pharmaceutical Benefits Scheme
RSE	relative standard error
SA	South Australia
SEIFA	Socio-Economic Indexes for Areas
SHC	Survey of Health Care
Tas.	Tasmania
TIS	Translation and Interpreting Service
Vic.	Victoria
WA	Western Australia

Australian Bureau of Statistics

Australian Government
Australian Institute of Health and Welfare

INTRODUCTION

Australia's health system includes a complex mix of health professionals and service providers from a range of organisations—across all levels of government and the non-government sector. Collectively, they work to meet the health care needs of all Australians[1].

The Australian Government in particular funds a range of subsidised health services and medicines through the Medicare Benefits Schedule (MBS), the Pharmaceutical Benefits Scheme (PBS) and the Repatriation Pharmaceutical Benefits Scheme (RPBS); for example, appointments with general practitioners (GPs), diagnostic tests and the supply of subsidised prescription medicines.

Understanding patient experiences and interactions with the health system is critical to ensure that services delivered are appropriate and are meeting the needs of all Australians. High quality health care leads to better health outcomes, while access to well-coordinated and good quality health care is crucial to enhancing patients' understanding, control and self-management of their illness[2, 3]. Timely access to GPs and other health services as well as coordinated, patient centred care are essential components of a high quality health care system.

This publication presents findings from the second stage of the Coordination of Health Care Study (the Study) which links MBS and PBS data to the 2016 Survey of Health Care.

The first stage of the Study, the 2016 Survey of Health Care, collected information on respondents' experiences with a range of health care professionals (for example, GPs and specialists) and the broader health care system (for example, diagnostic tests, hospital admissions and emergency department visits).

The second stage of the Study provides an opportunity to understand patient experiences of coordinated care with health care providers in the context of their actual use of MBS subsidised services and PBS subsidised medicines.

The Coordination of Health Care Study is funded by the Australian Institute of Health and Welfare (AIHW) and is jointly conducted by the Australian Bureau of Statistics (ABS) and the AIHW. This publication was jointly prepared and released by the ABS and the AIHW.

THE STUDY COHORT

Results in this publication are based on a sample of around 18,000 Australians aged 45 years or over who had at least one GP visit between November 2014 and November 2015. This sample has been weighted to represent the 8.8 million people in Australia who had at least one GP visit in this period (the Study cohort).

These 18,000 Study participants consented to linking of their 2016 Survey of Health Care responses to information about the health services they used between 1 January 2014 and 30 June 2018 obtained from the Medicare Benefits Schedule and the Pharmaceutical Benefits Scheme.

All linkage is approved by appropriate ethics committees and follows strict confidentiality procedures to ensure Study participants' personal information is protected.

This publication focusses on participants' use of MBS services and PBS medicines in 2015-16 to coincide with the Survey of Health Care reference period of 2016.

DATA CONSIDERATIONS

There are a number of factors that should be considered when interpreting information presented in this publication.

Data presented relate to people who used MBS subsidised services or PBS subsidised medicines in 2015-16. People may obtain other health services from a range of providers not subsidised through these schemes, such as:

- state and territory government funded services (for example, salaried doctor arrangements)
- services provided to public patients in public hospitals
- some private sector health services, including some allied health services
- medicines supplied to clients of eligible remote area Aboriginal Health Services under the provisions of section 100 of the National Health Act 1953[4].

While people who used MBS services and PBS medicines may have also used these and other services, their use and experiences with these services are not captured in this Study.

Additionally, variation in the use of health services across geographies may reflect the different demographic characteristics of these areas (for example, their age structures) as well as other factors such as the availability of particular health services. It is important to note that while results presented in this publication may indicate relationships between use of health services and reported experiences of health care, these do not necessarily imply a cause and effect association.

NEXT STEPS

Data on the use of medicines subsidised through the Repatriation Pharmaceutical Benefits Scheme will be added to the Study in early 2019. Further analysis, including for Primary Health Networks, will be undertaken by the Australian Institute of Health and Welfare in 2019.

The third stage of the Study will link state and territory hospital admissions and emergency department data to Survey of Health Care data. This will facilitate further exploration of the impact of coordination and continuity of care on health outcomes and health system usage.

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[3] Jeon Y, Kraus S, Jowsey T & Glasgow N 2010. The experience of living with chronic heart failure: a narrative review of qualitative studies. BMC Health Services Research 10:77

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COORDINATION OF HEALTH CARE STUDY: USE OF HEALTH SERVICES AND MEDICINES, AUSTRALIA, 2015-16

KEY FINDINGS

This publication presents findings from the second stage of the Coordination of Health Care Study (the Study), which links Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS) to the 2016 Survey of Health Care. Analysis focusses on use of and experiences with MBS subsidised services and PBS subsidised medicines in 2015-16 by people aged 45 years and over who had at least one general practitioner (GP) visit between November 2014 to November 2015 (the Study cohort).

Use of MBS services

Almost all people (96%) in the Study cohort had at least one GP visit in 2015-16, while:

- 9% had at least one practice nurse visit
- 50% had at least one specialist visit
- 55% used diagnostic imaging services
- 81% used pathology services (pathology collection or tests)
- 19% used other allied health services.

Experiences with GP services

Use of GP services varied across the Study cohort. Of people who saw a GP in 2015-16:

- 6% saw a GP once
- 35% saw a GP 2 to 5 times
- 33% saw a GP 6 to 11 times
- 17% saw a GP 12 to 19 times
- 9% saw a GP 20 or more times.

- people who had more GP visits were more likely to use after hours GP services – 23% of people who had 20 or more GP visits saw a GP after hours compared with 3% of people who had one GP visit

- people who had more GP visits were more likely to have reported experiencing a time when they felt they needed to see a GP but did not go (29% of people who had 20 or more GP visits) compared with people who had fewer GP visits (19% of people who saw a GP once)

- cost was reported as a barrier to visiting a GP for those people who saw a GP less frequently – of people who did not go to a GP when they felt they had needed to, cost of appointment was reported as a reason for not going by 31% of people who had seen a GP once compared with 9% of people who had seen a GP 20 times or more

- more frequent use of GP services was associated with talking about emotional and psychological health – 39% of people who had 20 or more GP visits had spoken to a GP about their emotional and psychological health, compared with 11% for people who had one GP visit

Usual GP and usual place of care

Of people in the Study cohort who saw a GP in 2015-16, almost all (95%) those who had 20 or more GP visits in 2015-16 had a usual GP, compared with 77% of people who had one GP visit.

Of people in the Study cohort who saw a GP in 2015-16 and had a usual place of care:

- 49% of people who had 12-19 or 20 or more GP visits indicated their usual place of care was a clinic with GPs and other health professionals, while 59% of people who had one GP visit indicated their usual place of care was a clinic with GPs only.

Of people in the Study cohort who saw a GP in 2015-16 and had a usual GP or a usual place of care:

- seven in ten people (70%) who had 20 or more GP visits reported that their usual GP or others in their usual place of care always seemed aware of their health care history, compared with around six in ten people (59%) who had one GP visit
- 61% of people with 20 or more GP visits reported that they felt completely comfortable talking with their usual GP or others in their usual place of care about personal problems related to their health, compared with 47% of people who had one GP visit.

Experiences with specialist services

Of all people in the Study cohort, half (50%) saw a specialist in 2015-16. Of these people who saw a specialist:

- 27% saw a specialist once
- 43% saw a specialist 2-4 times
- 30% saw a specialist 5 or more times.

In general, experiences with specialist services did not vary greatly according to the number of times a person saw a specialist in 2015-16, however:

- 10% of people who had 5 or more specialist visits reported their specialist did not have their medical information or test results at least once, compared with 6% for people who had one specialist visit
- 83% of people who had 5 or more specialist visits reported that their usual GP or others in their usual place of care seemed informed about the care they received at their most recent specialist visit, compared with around three quarters of people who had one specialist visit (73%) or 2-4 specialist visits (74%).

Use of PBS medicines

Almost nine in ten people (87%) in the Study cohort had at least one script for a PBS subsidised medicine filled in 2015-16.

CHAPTER 1: OVERVIEW OF USE OF MBS SERVICES

The Medicare Benefits Schedule (MBS) is a key component of the Medicare system. It lists a range of subsidised health care services that, in broad terms, include consultation and procedural/therapeutic (including surgical) services, as well as diagnostic services[1].

This chapter provides an overview of the use of selected MBS subsidised health services in 2015-16 by persons aged 45 years and over who had at least one GP visit between November 2014 to November 2015 (the Study cohort). Almost all people (98%) in the Study cohort therefore used at least one MBS subsidised service in 2015-16, and almost all (96%) had at least one GP visit. Given this high proportion, analysis in the remainder of this chapter excludes discussion of GP services.

Amongst the Study cohort, around one in ten people (9%) saw a practice nurse in 2015-16. Half (50%) saw a specialist while 55% used diagnostic imaging services. Around four in five people (81%) used pathology services (collection and tests), while around one in five people (19%) used other allied health services. See the Glossary for more information on the MBS services presented in this publication.

PERSONS AGED 45 YEARS AND OVER WHO USED MBS SUBSIDISED SERVICES IN 2015-16

Type of service(a)

	Number of persons	Proportion	Number of services used	Average number of services used(b)
	'000	%	million	no. per person
General practitioner	8 430.2	95.6	76.5	8.7
Practice nurse	805.5	9.1	1.5	0.2
Specialist	4 418.1	50.1	20.4	2.3
Diagnostic imaging	4 837.2	54.9	15.6	1.8
Pathology collection(c)	7 134.3	80.9	26.3	3.0
Pathology tests(c)	7 172.1	81.3	59.8	6.8
Other allied health services(d)	1 696.1	19.2	6.7	0.8
All other services	6 355.8	72.1	26.0	3.0
Total persons who used at least one MBS service in 2015-16	8 624.7	97.8	232.8	26.4
Total persons aged 45 years and over who had at least one GP visit between November 2014 and November 2015	**8,818.7**	**100.0**	**. .**	**. .**

(a) See Appendix 1 – MBS items for a detailed list of MBS item codes for each type of service. See the Glossary for more information on each type of service.

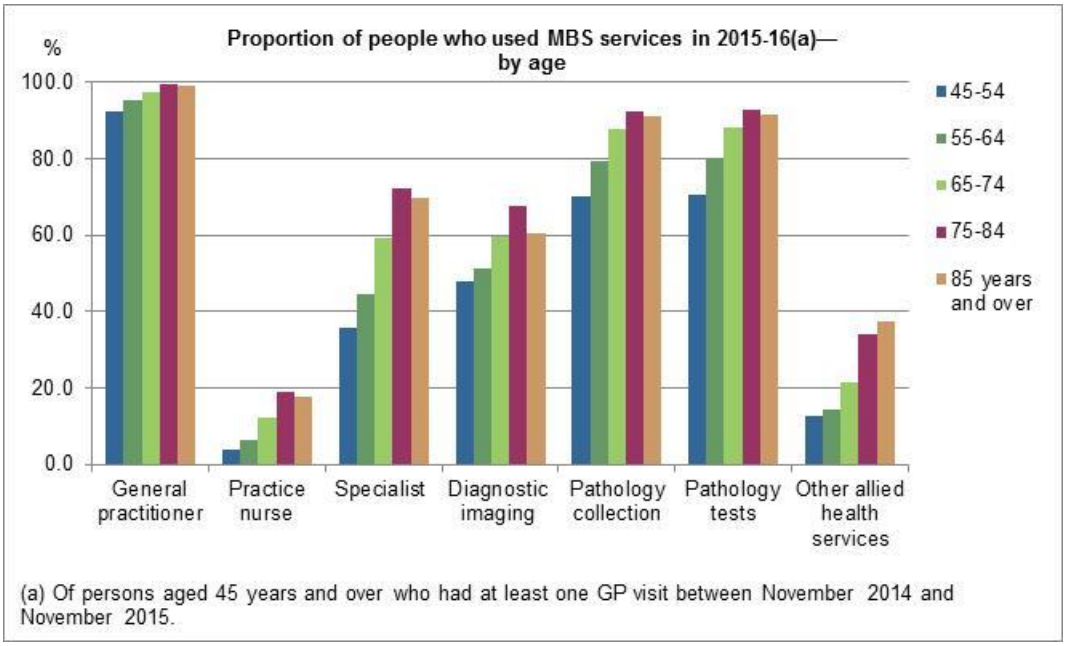
(b) Average number of services per person in the Study cohort (8.8 million people).

(c) Pathology collection refers to the collection of pathology specimens (e.g. a blood specimen), while pathology tests refer to laboratory tests that analyse pathology specimens (e.g. measuring levels of cholesterol in a person's blood). Multiple tests may be performed on a single pathology specimen.

(d) Other allied health services refer to a range of services provided by health professionals who are not doctors, nurses or dentists; e.g. Aboriginal and Torres Strait Islander health practitioners, occupational therapists, psychologists and physiotherapists.

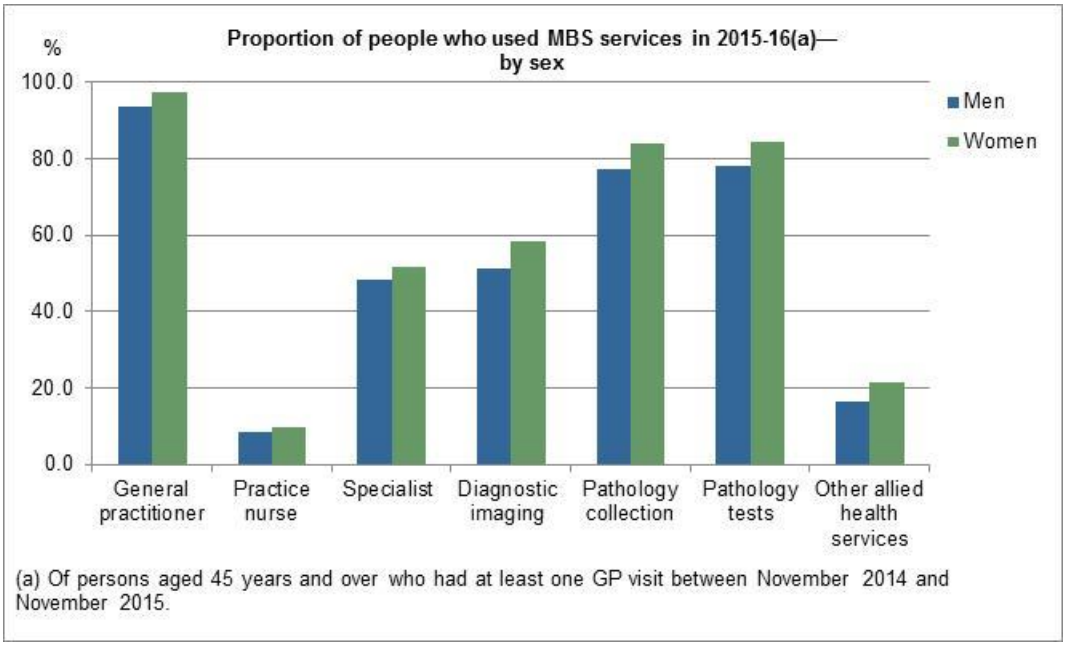
AGE AND SEX

In general, the proportion of people who used MBS services in 2015-16 increased with age. More than nine in ten people in the Study cohort aged 75-84 years used pathology services (92% and 93% for collection and tests respectively), while around three quarters (72%) saw a specialist and around two thirds (68%) used diagnostic imaging services.



Proportionally more women in the Study cohort than men used individual MBS services in 2015-16, with the largest differences being for diagnostic imaging services (58% of women compared with 51% of men) and pathology collection and tests (both 84% for women, and 77% and 78% respectively for men). Slightly more than half (52%) of women saw a specialist compared with slightly less than half (48%) of men. These differences can be attributed to:

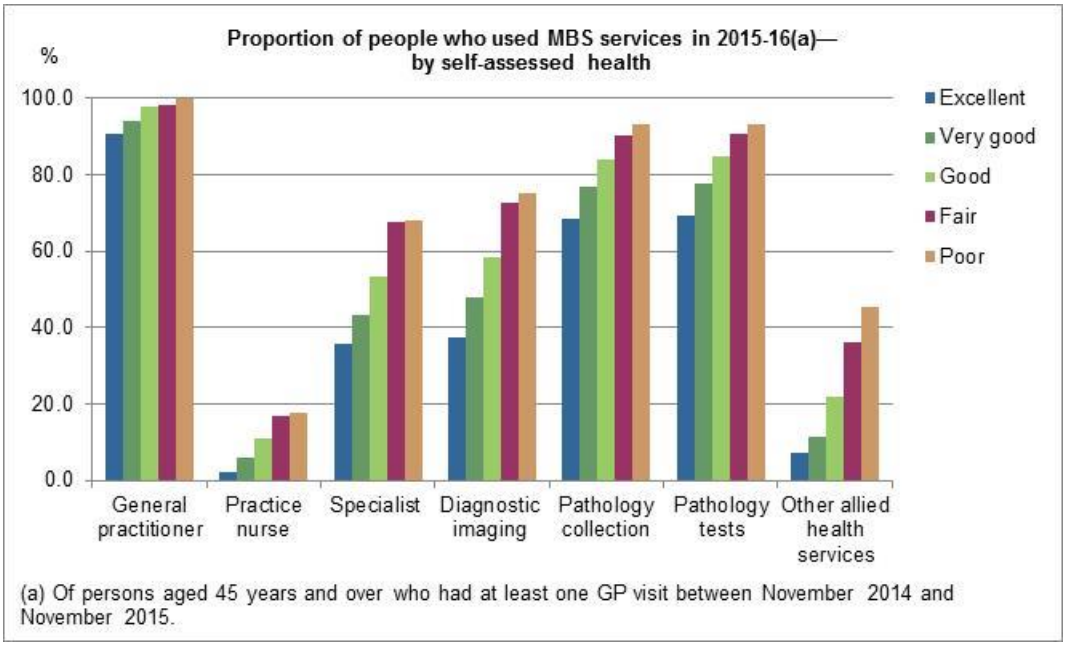
- women aged 45-64 years in the Study cohort being more likely to use these services than men of the same age, and
- to a lesser extent, the slightly higher proportion of women aged 75 years and over than men of the same age in the Study cohort, given older people were more likely to use these services.



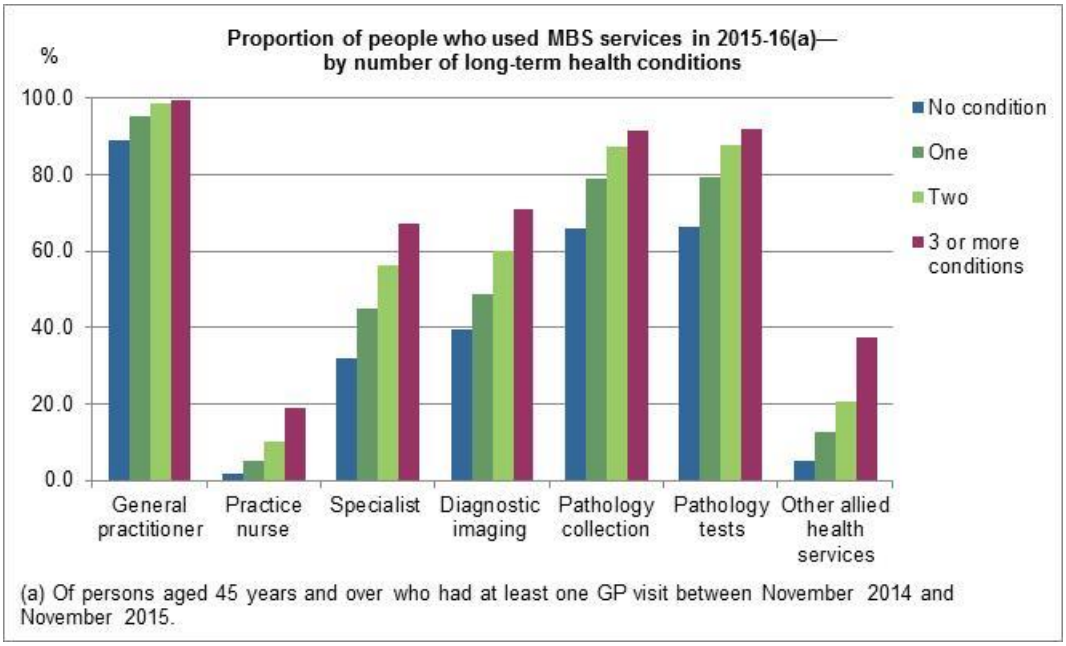
COORDINATION OF HEALTH CARE STUDY: USE OF HEALTH SERVICES AND MEDICINES, AUSTRALIA, 2015-16

SELF-ASSESSED HEALTH AND NUMBER OF LONG-TERM HEALTH CONDITIONS

Study participants were asked to rate their health on a 5-point scale ranging from excellent to poor, and to identify particular health conditions they had (for example, diabetes or heart disease). Proportionally more people who rated their health as being fair or poor used MBS services in 2015-16 than people who rated their health more favourably. Similarly, proportionally more people with 3 or more health conditions used individual MBS services than people with fewer health conditions.



(a) Of persons aged 45 years and over who had at least one GP visit between November 2014 and November 2015.



(a) Of persons aged 45 years and over who had at least one GP visit between November 2014 and November 2015.

GEOGRAPHY

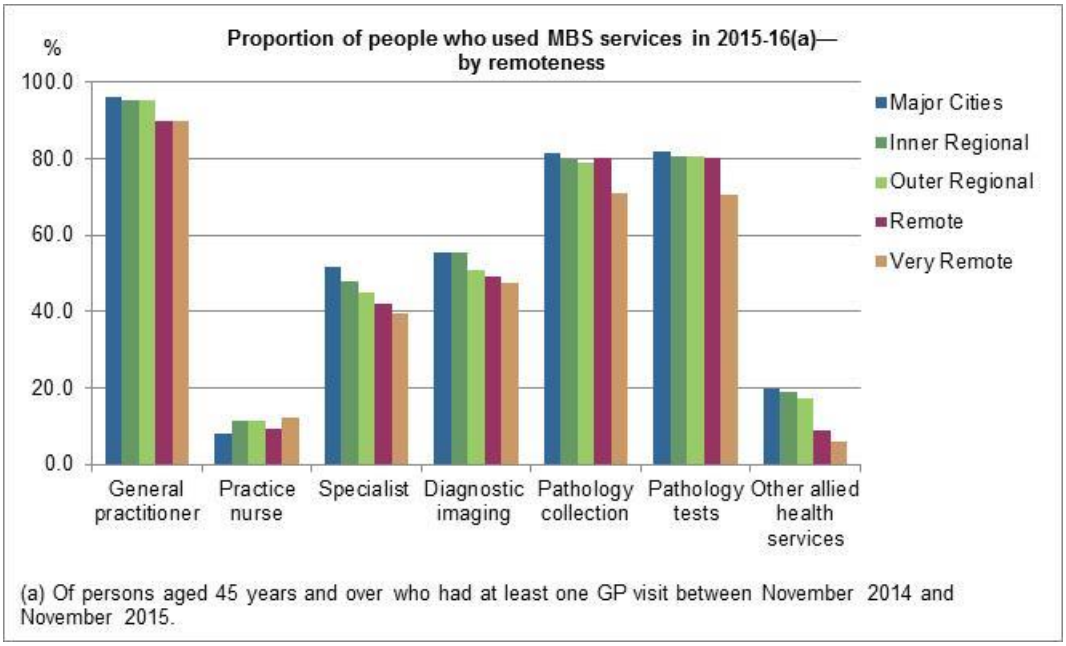
Variation in the use of health services across geographies may reflect the different demographic characteristics of these areas (for example, their age structures) as well as other factors such as the availability of particular health services. For example, in the absence of MBS subsidised specialist services a person may access specialist services as a public patient in a public hospital. Similarly a person may obtain treatment from a hospital emergency department if a GP service is not available.

State/territory

Use of MBS services across the states and territories broadly reflected that of Australia overall. Across jurisdictions, the proportion of people in the Study cohort who used pathology services in 2015-16 ranged between 73% and 83%, followed by diagnostic imaging (49%-58%) and specialist visits (41%-55%). Use of specialists amongst the Study cohort was highest in New South Wales (with 55% of people having at least one specialist visit in 2015-16) and lowest in Western Australia and the Northern Territory (both 41%).

Remoteness Areas

Across Remoteness Areas, use of individual MBS services was generally highest in Major Cities and lowest in remote areas of Australia. Of people in the Study cohort living in Major Cities, just over one half (52%) had seen a specialist in 2015-16, compared with two in five people in Very Remote areas (40%). Similarly, differences were apparent for diagnostic imaging and other allied health services. People in more remote areas often have poorer access to health care services[2] and may receive primary health care services that are not captured by MBS.



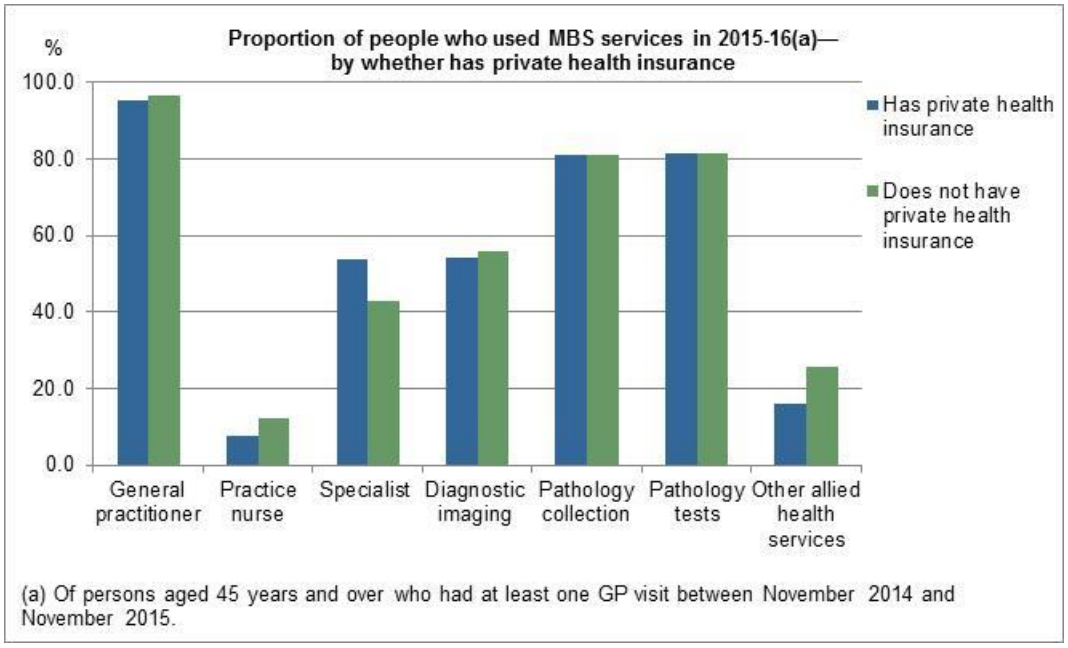
(a) Of persons aged 45 years and over who had at least one GP visit between November 2014 and November 2015.

Index of Relative Socio-Economic Disadvantage

While patterns of use of MBS services in 2015-16 were broadly consistent across areas of disadvantage in Australia, people in the Study cohort living in areas of least disadvantage (quintile 5; see Socio-Economic Indexes for Areas in the Glossary) had slightly higher use of specialist services (55%) compared with the rest of Australia (between 48% and 49% for quintiles 1-4). Conversely, people living in areas of greater disadvantage (quintile 1) had higher use of other allied health services than people living in areas of least disadvantage (24% compared with 15% respectively) as well as higher use of practice nurses (12% compared with 5% respectively).

PRIVATE HEALTH INSURANCE

Study participants were asked whether they had private health insurance. More than half (54%) of people with private health insurance had seen a specialist in 2015-16 compared with 43% of people who did not have private health insurance. Conversely, proportionally fewer people with private health insurance used other allied health services than people who did not have private health insurance (16% compared with 25% respectively).



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[2] Australian Institute of Health and Welfare 2016. Australia's health 2016. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW.

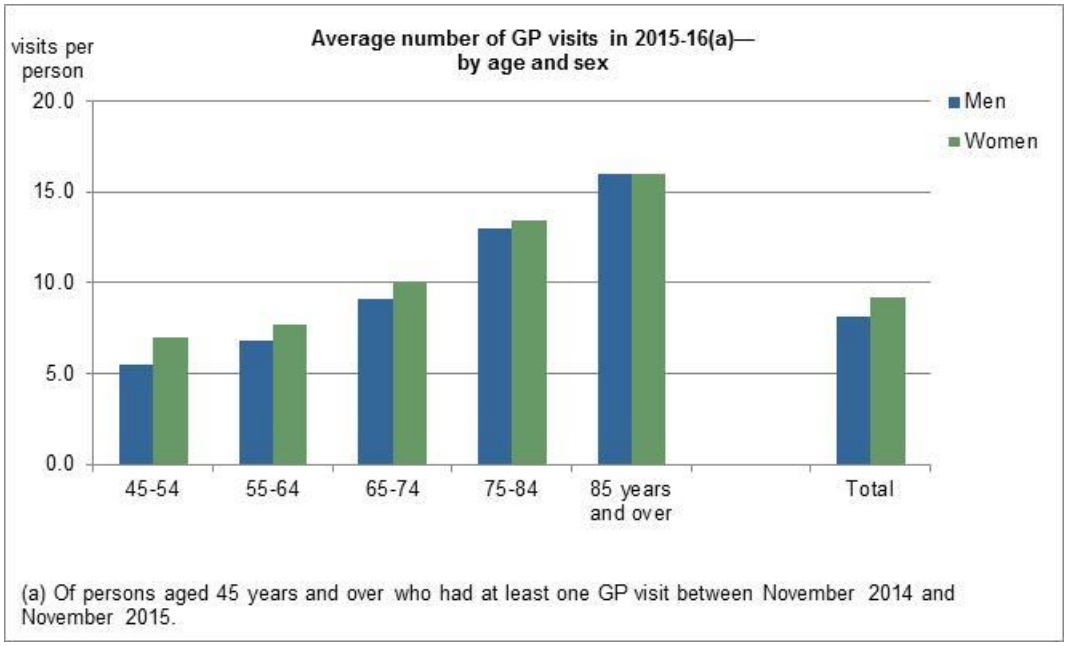
CHAPTER 2: EXPERIENCES WITH GP SERVICES

General practitioners (GPs) are many Australians' first point of contact for health issues, and, as such, play a crucial role in delivering coordinated care across a person's life[1]. People use GP services for a variety of reasons including short-term illnesses, preventive health practices and management of long-term health conditions. It is therefore important that people are able to access a GP in a timely manner and receive quality care that meets their needs.

This chapter presents data on the experiences of persons aged 45 years and over who had at least one GP visit between November 2014 to November 2015 (the Study cohort) who saw a GP in 2015-16.

Of the 8.8 million people in the Study cohort, almost all (8.4 million people, or 96%) had at least one GP visit in 2015-16. On average, people in the Study cohort had 8.7 GP visits per person in 2015-16, with women having slightly more visits than men (9.2 and 8.1 visits respectively).

Across age groups the average number of GP visits differed significantly, with people aged 85 years and over having an average of 16.0 GP visits per person in 2015-16 compared with 6.3 GP visits per person aged 45-54 years.



FREQUENCY OF GP USE

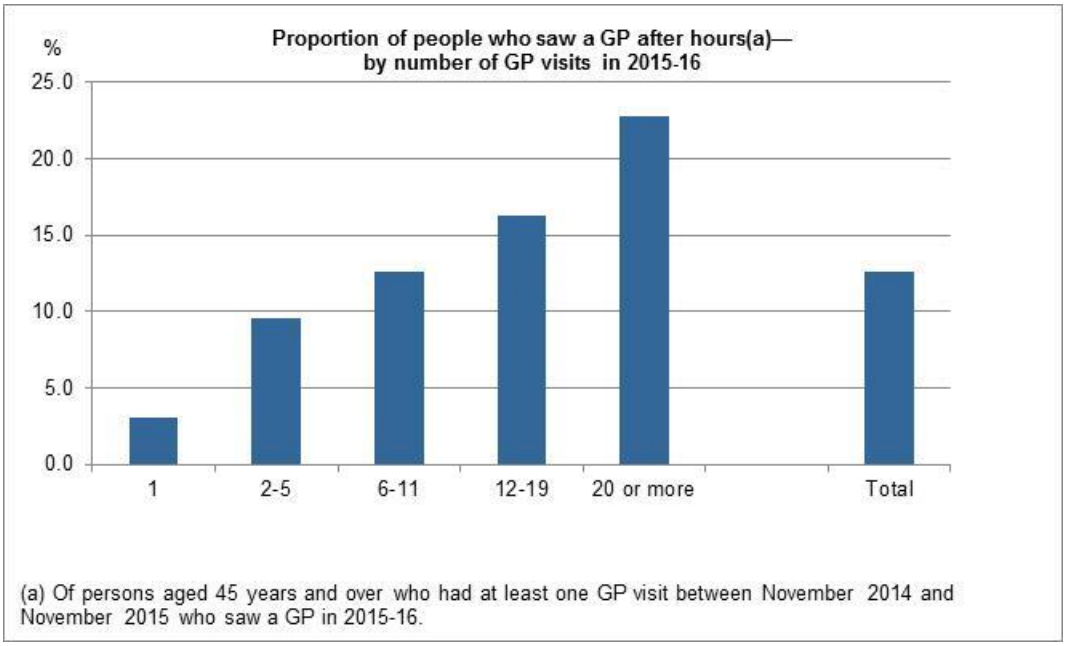
The frequency of use of GP services amongst the 8.4 million people in the Study cohort who saw a GP in 2015-16 varied considerably:

- 6% saw a GP once
- 35% saw a GP 2 to 5 times
- 33% saw a GP 6 to 11 times
- 17% saw a GP 12 to 19 times
- 9% saw a GP 20 or more times.

WAITING TIMES

Study participants were asked whether they had waited longer than they felt was acceptable to get their most recent appointment with a GP. The proportion who reported they had waited longer than they felt was acceptable was relatively consistent irrespective of the number of GP visits they had in 2015-16, ranging between 15% (for people who had 6-11 GP visits) and 17% (for people who had one GP visit).

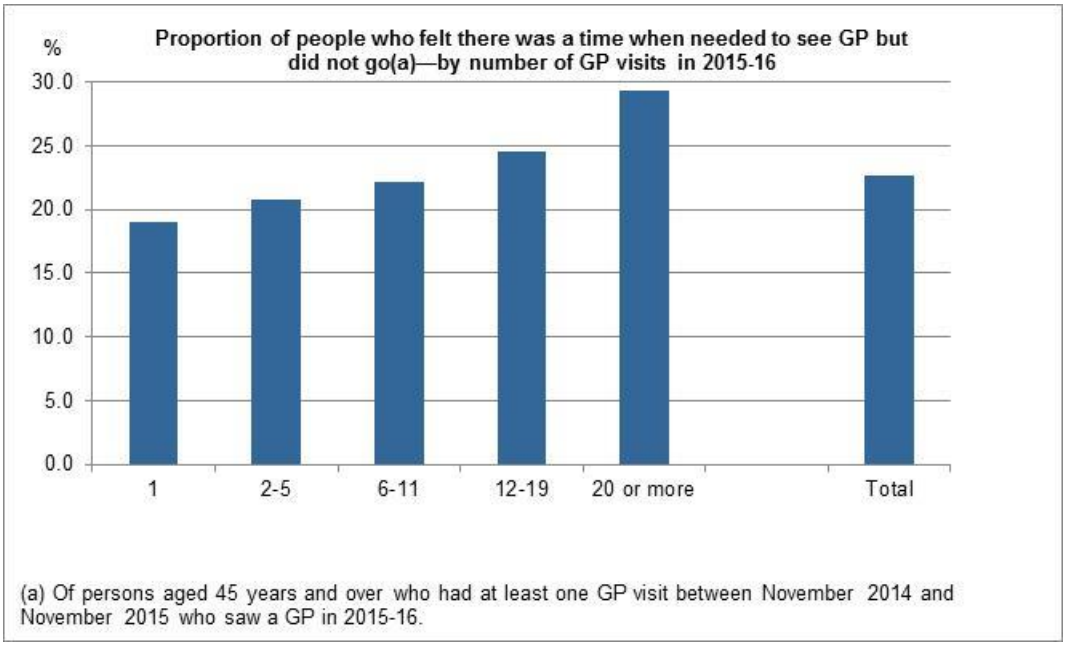
People who had greater numbers of GP visits were more likely to have accessed after hours GP care than people who had fewer GP visits (23% of people who had 20 or more GP visits accessed after hours GP care compared with 3% of people who had one GP visit).



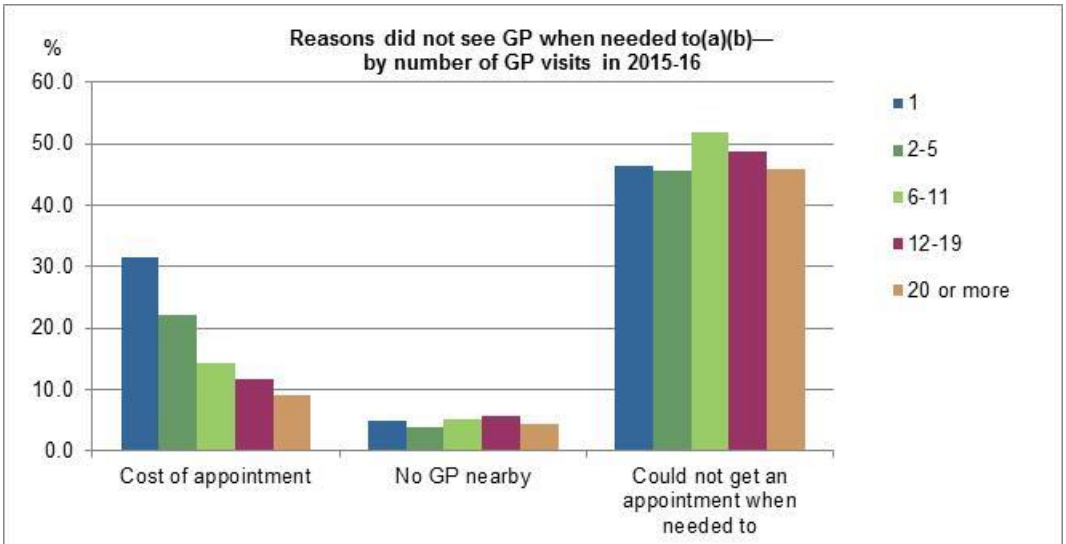
BARRIERS

Access to services is an important contributor to good health. Timely access to GPs may decrease burden on other parts of the health system and potentially prevent hospitalisations[2].

Study participants were asked whether there was a time in the last 12 months when they felt they had needed to see a GP but did not go, and reasons why they did not go. Those who had more GP visits were more likely to have reported experiencing a time when they felt they needed to see a GP but did not go (29% of people who had 20 or more GP visits) compared with people who had fewer GP visits (19% of people who saw a GP once).



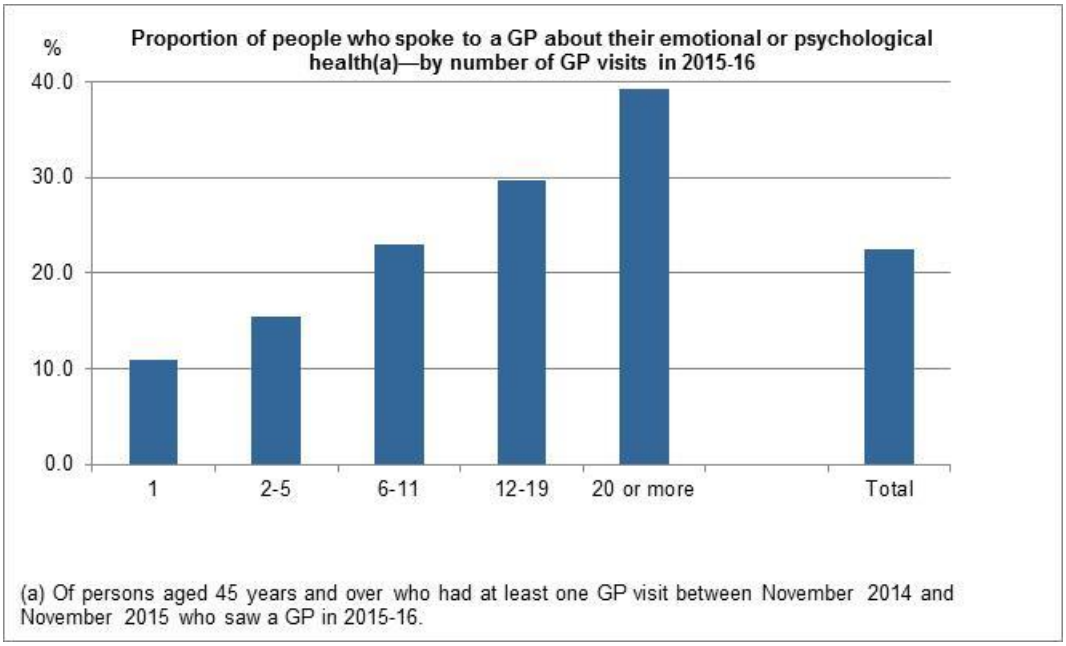
Of Study participants who indicated that there was a time in the last 12 months when they felt they had needed to see a GP but did not go, cost of appointment reported as a reason for not going differed considerably across frequency of use of GPs, with 31% of people who had seen a GP once indicating this was a reason they did not go to a GP, compared with 9% of people who had seen a GP 20 times or more.



(a) Of persons aged 45 years and over who had at least one GP visit between November 2014 and November 2015 who saw a GP in 2015-16, who felt they had needed to see a GP but did not go.
(b) Respondents were able to indicate multiple reasons why they did not see a GP when they needed to.

EMOTIONAL OR PSYCHOLOGICAL HEALTH

The consideration and management of patients' emotional and psychological health is an important component of health care. Study participants were asked whether they had spoken with a GP about their emotional or psychological health in the last 12 months. Those who had greater numbers of GP visits were more likely to have spoken to a GP about their emotional and psychological health than people who had fewer GP visits (39% compared with 11% respectively).



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

[2] Australian Institute of Health and Welfare, 'Admitted patient care 2015–16: Australian hospital statistics', viewed 20 November 2018, http://www.aihw.gov.au/publication-detail/?id=60129559537

CHAPTER 3: USUAL GP AND USUAL PLACE OF CARE

Ongoing relationships between patients and their health care providers allow GPs to get to know their patients over time, facilitating patient-focussed care. Ongoing relationships can also encourage patient trust in professional judgements and advice, thereby improving the uptake of preventive care, enhanced adherence to treatment and increased satisfaction with care.[1]

Participants in the Study were asked, in addition to questions about their general use of GP services, about their experiences with:

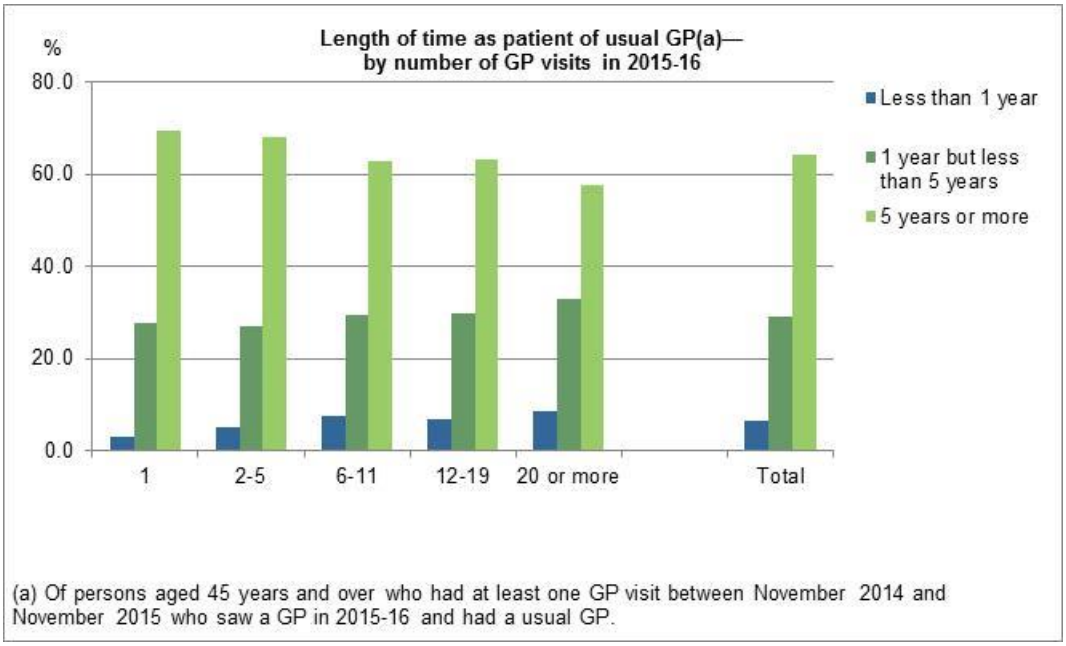
- their usual GP; that is, the GP they go to for most of their health care
- their usual place of care; that is, the place they usually go to if they are sick or need advice about their health—for example, a clinic with GPs only, a clinic with GPs and other health professionals, a community health centre, or an Aboriginal medical service.

This chapter presents data on persons aged 45 years and over who had at least one GP visit between November 2014 to November 2015 (the Study cohort) and who saw a GP in 2015-16, in relation to their experiences with their usual GP and usual place of care.

People who had more GP visits in 2015-16 were more likely to report having a usual GP than people with fewer visits (with 95% of people who had 20 or more GP visits having a usual GP, compared with 77% of people who had one GP visit). However, the proportion of people who reported having a usual place of care was relatively consistent irrespective of how many GP visits they had (at 90%-92%).

Length of time as patient of usual GP

People who had more GP visits were less likely to have been going to their usual GP for five years or more than those who had fewer visits. More than half (57%) of people who had 20 or more GP visits had been going to their usual GP for five years or more compared with around two thirds (69%) of people who had one GP visit.

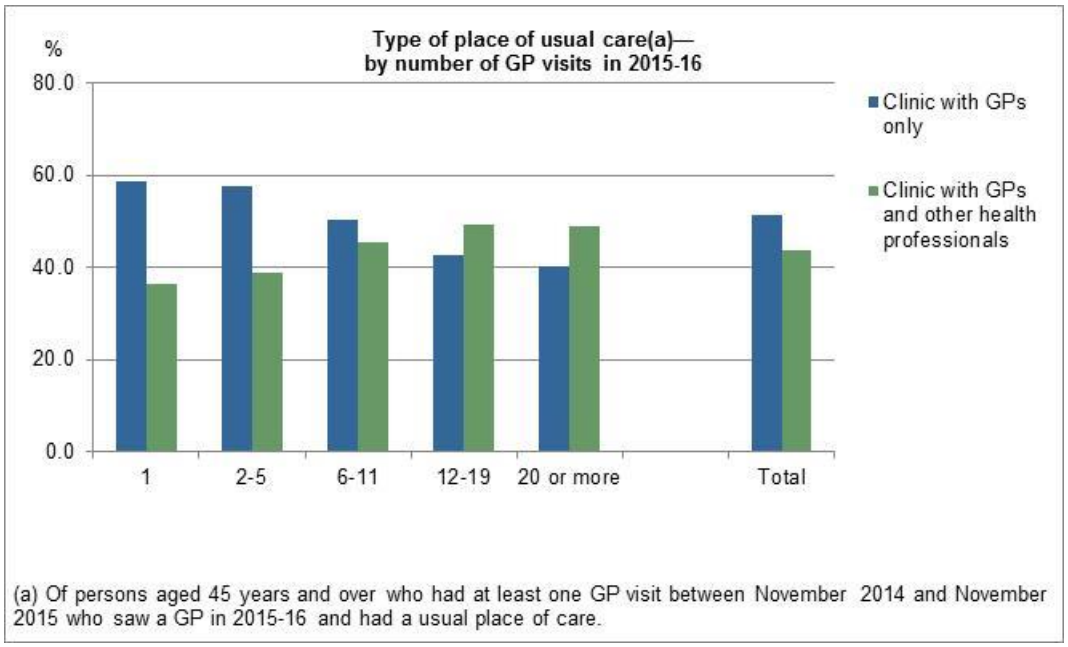


(a) Of persons aged 45 years and over who had at least one GP visit between November 2014 and November 2015 who saw a GP in 2015-16 and had a usual GP.

Type of usual place of care

A usual place of care is the place that a person typically goes to if they are sick or need advice about their health. Examples include clinics with GPs only, clinics with GPs and other health professionals, community health centres or Aboriginal medical services. Most people in the Study cohort had a usual place of care.

People who had more GP visits were more likely to have a clinic with GPs and other health professionals as their usual place of care (49% of people who had 12-19 or 20 or more GP visits), while people with fewer visits were more likely to have a clinic with GPs only as their usual place of care (59% and 58% for people with 1 or 2-5 GP visits respectively).

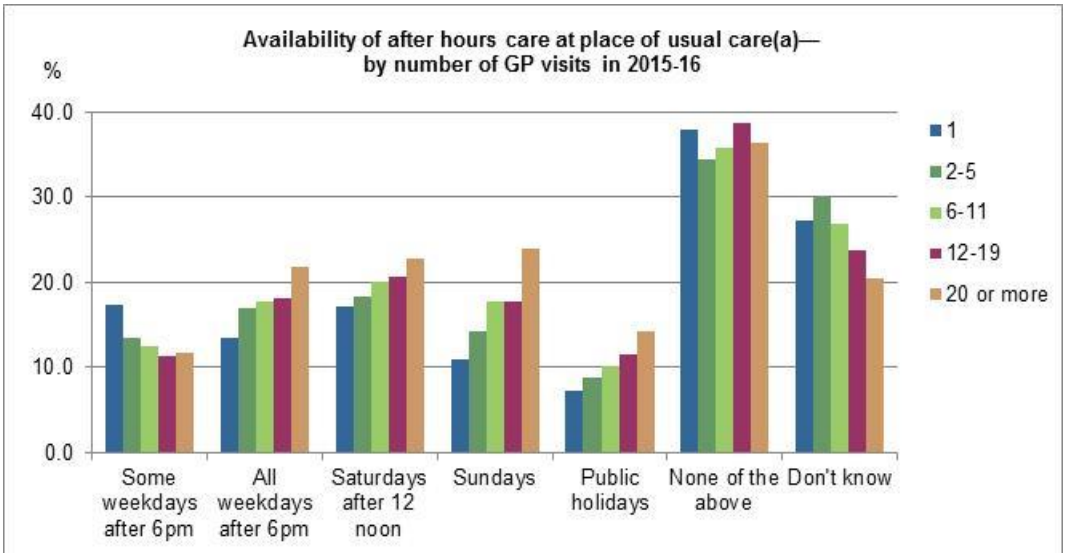


(a) Of persons aged 45 years and over who had at least one GP visit between November 2014 and November 2015 who saw a GP in 2015-16 and had a usual place of care.

Availability of after hours care at place of usual care

After hours care refers to a person's place of usual care having a GP available to visit or talk with on some or all weekdays after 6pm, Saturdays after 12pm, Sundays or public holidays.

People who had more GP visits were in general more likely to report having a usual place of care that provides after hours care. For example, after hours care was available on Sundays for around one quarter (24%) of people who had 20 or more GP visits, compared with 11% for people who had one GP visit. Concurrently, the proportion of people who did not know whether after care was available decreased with increasing numbers of GP visits.

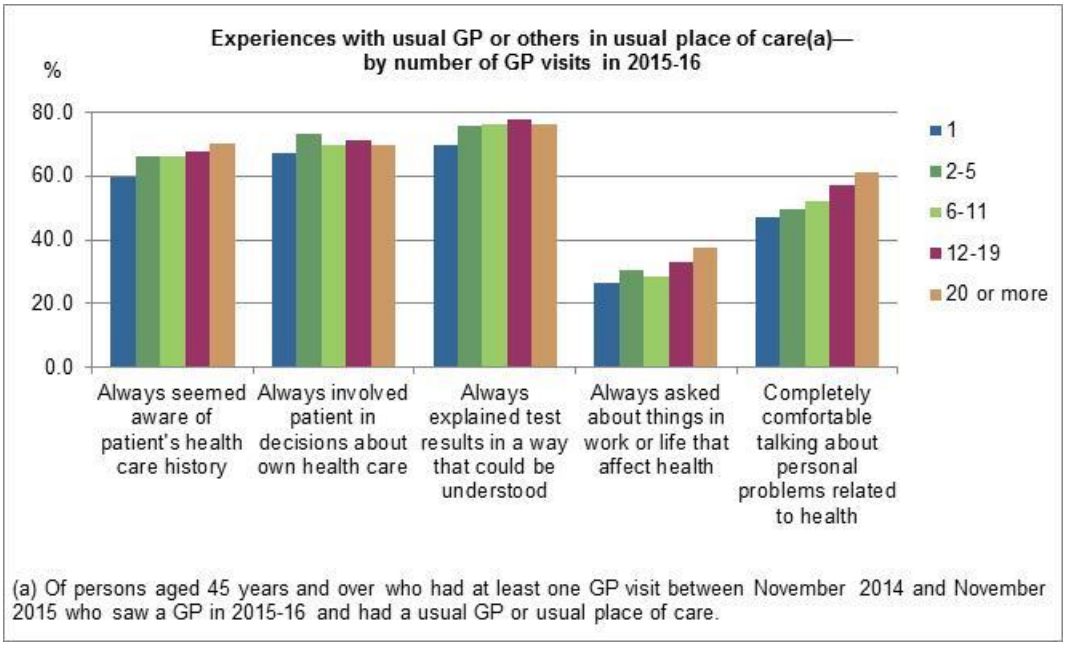


(a) Of persons aged 45 years and over who had at least one GP visit between November 2014 and November 2015 who saw a GP in 2015-16 and had a usual place of care.

EXPERIENCES WITH USUAL GP OR OTHERS IN USUAL PLACE OF CARE

Study participants who had a usual GP and/or usual place of care were asked about their perceptions of a range of aspects associated with their health care, such as whether their usual GP or others in their usual place of care seemed aware of their health care history.

In general, having a greater number of GP visits was associated with a higher proportion of people reporting that their usual GP or others in their usual place of care always engaged in these aspects of health care. Seven in ten people (70%) who had 20 or more GP visits reported that their usual GP or others in their usual place of care always seemed aware of their health care history, compared with around six in ten people (59%) who had one GP visit. Similarly, 61% of people with 20 or more GP visits reported that they felt completely comfortable talking with their usual GP or others in their usual place of care about personal problems related to their health, compared with 47% of people who had one GP visit.



Self-assessed quality of health care

Study participants were asked to assess the quality of health care received from their usual GP or usual place of care in the last 12 months. People who had more GP visits were more likely to report that the quality was excellent than people with fewer GP visits (55% for people who had 20 or more GP visits compared with 45% for people who had one GP visit).

REFERENCES

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

CHAPTER 4: EXPERIENCES WITH SPECIALIST SERVICES

Medical specialists play a crucial role in the management and treatment of health conditions for which they have specialist knowledge and skills. Examples of specialists include dermatologists, cardiologists, neurologists and gynaecologists. Visits to specialists require a referral from a GP or other doctors. This chapter presents data on persons aged 45 years and over who had at least one GP visit between November 2014 to November 2015 (the Study cohort) who used MBS subsidised specialist services in 2015-16.

Of the 8.8 million people in the Study cohort, half (4.4 million people, or 50%) saw a specialist at least once in 2015-16.

FREQUENCY OF SPECIALIST USE

Of the 4.4 million people in the Study cohort who saw a specialist in 2015-16:

- 27% saw a specialist once
- 43% saw a specialist 2-4 times
- 30% saw a specialist 5 or more times.

WAITING TIMES

Study participants were asked whether they had waited longer than they felt was acceptable to see a specialist in the last 12 months. The proportion who reported they had waited longer than they felt was acceptable was relatively consistent irrespective of the number of specialist visits people had, ranging between 21% and 22%.

BARRIERS

Waiting times, costs and availability of specialist services may act as barriers to people requiring access to this care, thereby impeding effective health outcomes. Study participants were asked whether there was a time in the last 12 months when they felt they had needed to see a specialist but did not go, and reasons why they did not go.

The proportion who indicated that there was a time in the last 12 months when they felt they needed to see a specialist but did not go was relatively consistent irrespective of the number of specialist visits they had in 2015-16, ranging between 11% (for people who had 5 or more specialist visits) and 12% (for people who had 2-4 specialist visits).

Of those who reported there was a time in the last 12 months when they felt they needed to see a specialist but did not go, the reasons for not doing so were relatively consistent irrespective of the number of specialist visits people had.

EXPERIENCES WITH SPECIALISTS

Study participants who reported they had seen a specialist in the last 12 months were asked about their experiences with specialists, such as whether their specialist had access to their test results, explained treatment choices and involved them in decisions about their health care. These are important components in establishing cooperative ongoing relationships between patients and health care providers such as specialists, which are crucial if patients are to receive consistent, cohesive and appropriate care[1].

Whether there was a time when specialist did not have medical information or test results

Having a higher number of specialist visits was associated with a small increase in the proportion of people reporting there was at least one time when their specialist did not have their medical information or test results. Around 10% of people who had 5 or more specialist visits reported their specialist did not have their medical information or test results at least once, compared with 6% for people who had one specialist visit.

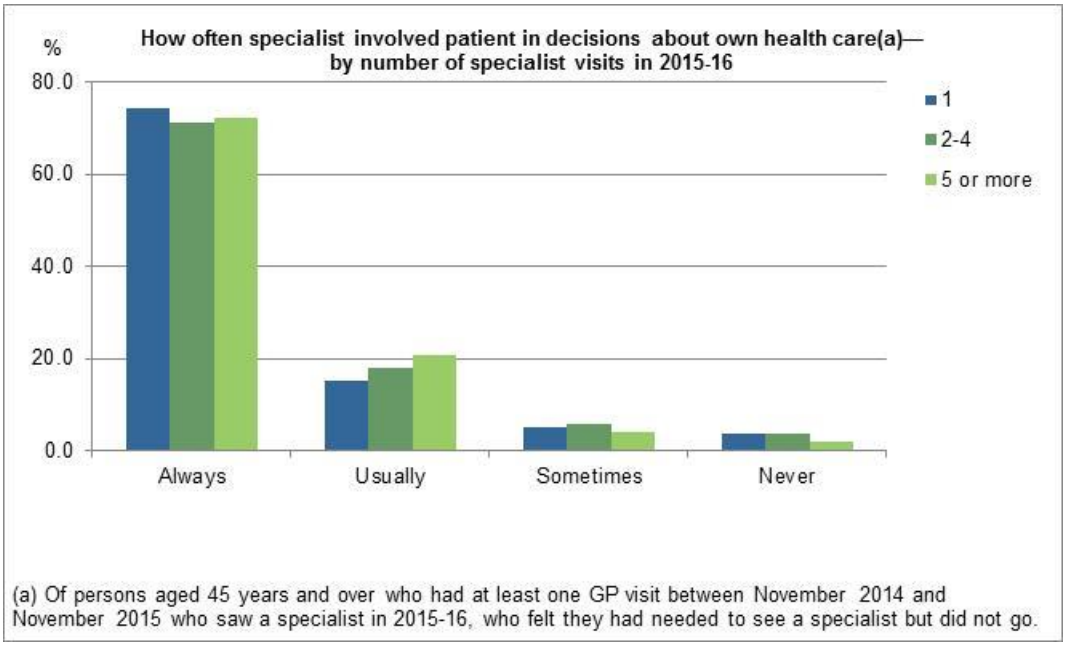
Whether specialist explained treatment choices

The proportion of people who reported that, in their most recent visit, their specialist explained treatment choices so that they could be understood was consistent irrespective of the number of specialist visits a person had, at 95%.

How often specialist involved patient in decisions about health care

Involving patients in decisions about their health care is an important component of the quality of that care, and is associated with improved health outcomes[2].

The proportion of people who reported that their specialist always involved them in decisions about their health care was relatively consistent irrespective of the number of specialist visits a person had (between 71% and 74%).



(a) Of persons aged 45 years and over who had at least one GP visit between November 2014 and November 2015 who saw a specialist in 2015-16, who felt they had needed to see a specialist but did not go.

Whether usual GP or others in usual place of care seemed informed about care received from most recent specialist visit

Communication and information sharing between specialists and a patient's usual GP or place of care can result in benefits for the patient[3]. Participants in the Study who had seen a specialist were asked whether their usual GP or others in their usual place of care seemed informed about the care they received at their most recent visit to a specialist.

Having more specialist visits was associated with a higher proportion of people reporting that their usual GP or others in their usual place of care seemed informed about the care that people received at their most recent specialist visit. Around four in five people (83%) who had 5 or more specialist visits reported that their usual GP or others in their usual place of care seemed informed about the care they received at their most recent specialist visit, compared with around three quarters of people who had one specialist visit (73%) or 2-4 specialist visits (74%).

REFERENCES

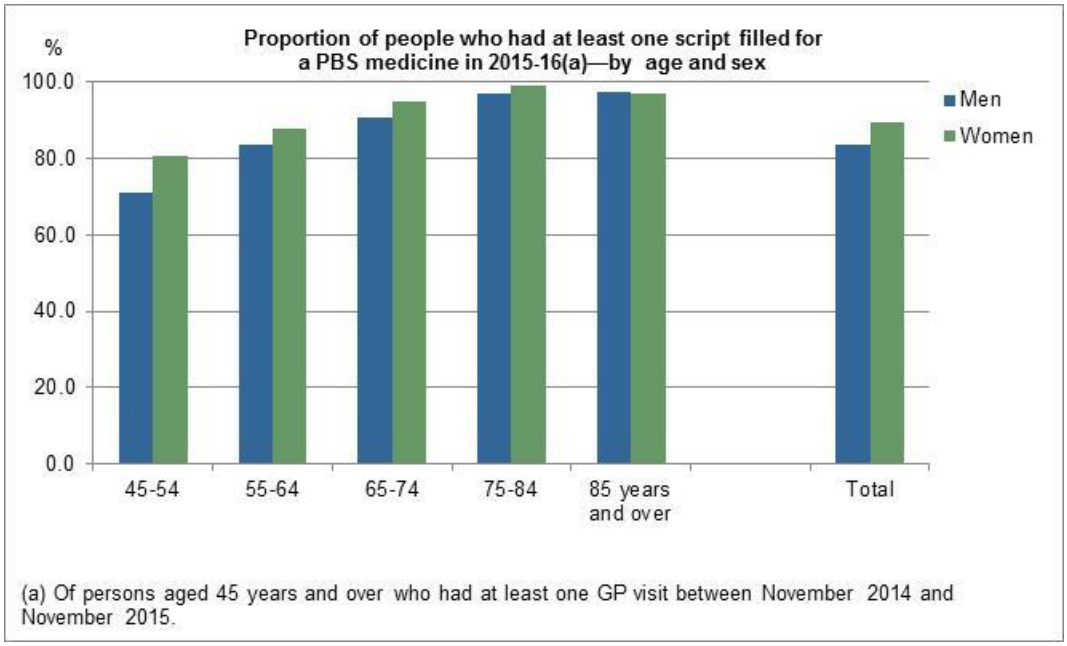
[1] Australian Institute of Health and Welfare 2018. Healthy Communities: coordination of health care – experiences with GP care among patients aged 45 and over, 2016. Cat. no. CHC 2. Canberra: AIHW.
[2] Longtin Y, Sax H, Leape L, Sheridan S, Donaldson L, & Pittet D 2010. Patient participation: current knowledge and applicability to patient safety. Mayo Clinic Proceedings 85(1): 53–62.
[3] Sampson R, Barbour R, & Wilson P 2016. The relationship between GPs and hospital consultants and the implications for patient care: a qualitative study. BMC Family Practice 17(45).

CHAPTER 5: PBS MEDICINES

The Pharmaceutical Benefits Scheme (PBS) is part of the Australian Government's National Medicines Policy which aims to meet medication and related service needs so that optimal health outcomes and economic objectives are achieved. Under the PBS the government subsidises the cost of prescription medicines for most medical conditions[1]; for example, cholesterol lowering medicines (statins) recommended for people who have or are at high risk of cardiovascular disease[2].

This chapter provides foundational statistics on the use of PBS subsidised medicines in 2015-16 by persons aged 45 years and over who had at least one GP visit between November 2014 to November 2015 (the Study cohort). Detailed analysis is expected to be undertaken by the Australian Institute of Health and Welfare as part of their future reporting on results of the Coordination of Health Care Study.

Almost nine in ten people (87%) in the Study cohort had at least one script filled for a PBS subsidised medicine in 2015-16, with women having a higher rate of use than men (89% compared with 84% respectively).



REFERENCES

[1] Australian Government Department of Health, 2018, 'The Pharmaceutical Benefits Scheme: About the PBS', viewed 5 November 2018, http://www.pbs.gov.au/info/about-the-pbs#What_is_the_PBS

[2] Healthdirect Australia, 2018, 'Statins', viewed 20 November 2018, https://www.healthdirect.gov.au/statins

COORDINATION OF HEALTH CARE STUDY: USE OF HEALTH SERVICES AND MEDICINES, AUSTRALIA, 2015-16

EXPLANATORY NOTES

INTRODUCTION

1 This publication contains results from the second stage of the Coordination of Health Care Study (the Study) which links Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS) data to the 2016 Survey of Health Care.

2 The Coordination of Health Care Study is funded by the Australian Institute of Health and Welfare (AIHW) and being jointly conducted by the ABS and the AIHW.

3 The first stage of the Study, the Survey of Health Care, was conducted throughout Australia in April-June 2016 and presented information on participants' experiences with health care professionals (for example, general practitioners and specialists) and the broader health care system (for example, emergency departments and hospitals). The scope of the Survey was people aged 45 years and over who had at least one general practitioner (GP) visit in the 12 months prior to selection in the Survey (that is, from 24 November 2014 to 24 November 2015).

4 For the second stage of the Study, consent was sought from participants for the release of their Medicare and/or Pharmaceutical Benefits Scheme information (for the period 1 January 2014 to 30 June 2018) to the Australian Bureau of Statistics for the purpose of linkage to Survey results.

5 Results in this publication include Study participants' use of MBS services and PBS medicines in 2015-16, and their experiences of selected aspects of health care as measured in the Survey of Health Care. More detailed analysis, including data for Primary Health Networks, will be undertaken by the Australian Institute of Health and Welfare as part of their future reporting of results of the Study.

6 A third stage of the Study will integrate state and territory hospital admissions and emergency department data for consenting respondents to Survey of Health Care results. Data on the use of medicines subsidised through the Repatriation Pharmaceutical Benefits Scheme will also be added to the Study in early 2019.

SCOPE AND COVERAGE

7 The scope of the Study is people aged 45 years and over who had at least one GP visit in the 12 months prior to selection in the Survey of Health Care (that is, from 24 November 2014 to 24 November 2015). A GP visit means having a claim against any one of a defined set of MBS item numbers (see Appendix 1 – MBS items).

8 The scope of the Study is people in all states and territories. The scope includes:

- people who were registered to receive Medicare benefits at any time prior to November 2015
- people who live in private and non-private dwellings
- visitors and diplomats from countries where there is a reciprocal Medicare arrangement
- people who received services through Aboriginal Medical Services.

9 The scope excludes:

- people who were not registered with Medicare
- people who did not have a GP visit in the period 24 November 2014 to 24 November 2015
- people who had only had GP transactions which were not billed through Medicare (for example through doctors who draw a salary and do not bill to Medicare)
- people who were in active military service and obtained all their medical services through the military.

10 The sample frame for the Study was the Medicare Enrolment Database (MEDB). The sample was selected from this frame by the Department of Human Services (DHS) in accordance with a stratification and allocation specified by the ABS.

11 As people were in scope of the Study if they saw a GP at least once in the 12 months prior to selection (that is, from 24 November 2014 to 24 November 2015), there may have been people who saw a GP at least once in the 12 months prior to the enumeration period of the Survey of Health Care (that is, April 2016 to June 2016) who were not in scope as they did not visit a GP between 24 November 2014 and 24 November 2015. Similarly, there may have been people who visited a GP in the 12 months prior to selection but did not visit a GP in the 12 months prior to enumeration who were in scope.

SAMPLE DESIGN

12 The Study sample was designed to support estimates at the Primary Health Network (PHN) area level. A stratified random sample was used where the strata were based on the following variables:

- age groups (five-year groups from 45-79 years of age, then 80 years and over)
- sex (male and female)
- PHN area (31 PHNs plus an extra category for unknown PHN)
- socio-economic category (people were divided into three socio-economic strata 'low', 'medium' and 'high' based on their postcode's score on the Index of Relative Socio-Economic Advantage and Disadvantage, 'low' and 'high' being the bottom and top two deciles respectively)
- number of GP visits in the 12 months prior to selection (number of GP visits was split into users with 1-11 visits and users with 12 visits or more).

13 People on the frame were assigned a PHN based on the postcode of their postal address as recorded on the MEDB. A correspondence between postal areas and PHNs was used to do this. As not every postcode is included in the ABS postal area classification, there were around 100,000 people who could not be allocated a PHN. At the sample design stage, these people were allocated to an unknown PHN category.

14 There were 8.8 million people in scope on the MEDB. A total sample of around 124,000 people was selected by sorting within stratum by number of GP visits and then applying a skip using a random start.

15 Also incorporated into the overall sample design was a requirement to oversample people who saw a GP more than 12 times such that the resulting sample consisted of approximately half people who saw a GP 12 or more times and half who saw a GP 1-11 times.

RESPONSE RATES

16 There were around 124,000 people selected for the Study.

17 From the people selected for the Study, 35,495 people responded to the Survey of Health Care, giving a response rate of 28.6%. In this survey it is not possible to distinguish between non-response and sample loss. For example, a person may have been selected to participate, but will not have received any survey materials due to an out-of-date address on the MEDB.

18 Of people who responded to the survey, around 18,100 provided consent for the release of their MBS information to the ABS. The effective MBS response rate from the 124,000 people initially selected for the Study is therefore 14.6%.

19 Of people who responded to the survey, around 16,700 provided consent for the release of their PBS information to the ABS. The effective PBS response rate from the 124,000 people initially selected for the Study is therefore 13.5%.

20 The table below contains response rates by the state or territory that the person was selected in. Persons selected in the unknown PHN category have unknown state for selection. In outputs from the Study, respondents are placed into the geographic regions (e.g. state, PHN) and SEIFA decile that correspond to their reported home postcode.

COORDINATION OF HEALTH CARE STUDY RESPONSE RATES

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Unknown	Aust.
Approached sample (no.)	38,248	22,892	27,415	7,825	11,161	3,940	3,411	3,843	5,337	124,072
Survey of Health Care										
Responding sample (no.)	10,738	6,983	7,755	2,632	3,351	1,384	651	1,305	696	35,495
Response rate (%)	28.1	30.5	28.3	33.6	30.0	35.1	19.1	34.0	13.0	28.6
Medicare Benefits Schedule(a)										
Consenting sample (no.)	5,852	3,394	4,142	1,182	1,687	689	361	839	0	18,146
Response rate (%)	15.3	14.8	15.1	15.1	15.1	17.5	10.6	21.8	0.0	14.6
Pharmaceutical Benefits Scheme(a)										
Consenting sample (no.)	5,394	3,125	3,810	1,085	1,541	639	333	776	0	16,703
Response rate (%)	14.1	13.7	13.9	13.9	13.8	16.2	9.8	20.2	0.0	13.5

(a) For MBS and PBS data included in the Study, persons with an unknown PHN category for selection were allocated to a state or territory based on their home postcode.

DATA COLLECTION

21 Survey of Health Care data and MBS, PBS and hospital consent information was collected by mail. In order to facilitate maximum response, a four stage mail-out approach was used. The four stages consisted of:

- a DHS cover letter, a Primary Approach Letter and a translated paper introducing respondents to the study in 10 languages
- a DHS cover letter, the SHC, a Consent Form for Release of Hospital Data, a Consent Form for Release of Department of Human Services Data, a translation paper, a brochure and a reply paid envelope
- a DHS cover letter, a reminder/thank you postcard and a translation paper. This wave was only despatched to people who had not returned a survey form, or who had not contacted the ABS to refuse participating in the study as of the 26th of April 2016.
- a replication of stage 2, despatched only to those who had not returned a survey form nor made contact with the ABS as of the 26th of April 2016.

22 In each phase of the mail out, a cover letter from the DHS was included, explaining that the DHS had not provided the ABS with any personal details of the selected person.

23 People with low English proficiency, or who had a disability which prevented them from completing the survey on their own, were able to complete the survey over the phone. People with low English proficiency were offered the option of an interpreter from the Translation and Interpreting Service (TIS National) who could facilitate a phone call with the ABS and translate as an ABS officer provided information or collected the participant's data over the phone.

24 For consenting participants, de-identified MBS and PBS information was provided to the ABS by the DHS. The ABS provided a list of MBS and/or PBS consenting participants to the DHS who then extracted MBS and/or PBS data for these participants. The DHS then returned de-identified MBS and PBS data to the ABS.

WEIGHTING, BENCHMARKS AND ESTIMATION

Weighting

25 Weighting is the process of adjusting results from a sample survey to infer results for the total 'in scope' population. To do this, a 'weight' is allocated to each enumerated person. The weight is a value which indicates the number of people in the population represented by the sample person.

26 For information on calculation of weights for the Survey of Health Care component of the Study, see paragraphs 18-22 of the Explanatory Notes of Survey of Health Care, Australia, 2016 (cat. no. 4343.0). Weights for MBS and PBS data were calculated in a similar manner to the Survey of Health Care component, with additional benchmarks as specified in paragraph 29 below.

Benchmarks

27 Weights are calibrated against population benchmarks such that estimates conform to the distribution of the MEDB population rather than the distribution within the sample itself. Calibration to population benchmarks helps to compensate for over or under-enumeration of particular categories of people/households which may occur due to either the random nature of sampling or non-response.

28 The Survey of Health Care includes weights benchmarked to counts of the in-scope population at November 2015 from the MEDB for PHNs (based on postal address postcode) by sex by 10 year age groups (to age 75 and over).

29 For MBS and PBS information integrated to the Survey of Health Care, additional benchmarks are included in calibration to improve estimates of the use of MBS services and PBS medicines. These benchmarks were the:

- counts of the in-scope population at November 2015 from the MEDB for PHNs by sex by 10 year age groups (to age 75 and over) by number of GP services in the 12 months prior to sample selection (1-11, 12 or more)
- counts of the in-scope population by number of GP services in 2015-16 – 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 or more
- counts of the in-scope population by number of specialist services in 2015-16 – 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or more
- counts of the in-scope population by number of other allied health services in 2015-16 – 0, 1, 2, 3, 4, 5, 6, 7 or more
- counts of the in-scope population by number of operations services in 2015-16 – 0, 1, 2, 3, 4, 5, 6 or more.

Estimation

30 Estimates of counts of people are obtained by summing the weights of people with the characteristic of interest. For the Study the different responding/consenting sample groups (see paragraph 20 above) each weight up to the in scope population of 8.8 million people aged 45 years and over who had at least one GP visit in the 12 months between November 2014 and November 2015.

31 The Survey of Health Care weights sum the responding survey sample of 35,495 people to the 8.8 million in scope population.

32 The MBS weights sum the consenting MBS sample of 18,146 people to the 8.8 million in scope population.

33 The PBS weights sum the consenting PBS sample of 16,703 people to the 8.8 million in scope population.

Confidentiality

34 The Census and Statistics Act, 1905 provides the authority for the ABS to collect statistical information, and requires that statistical output shall not be published or disseminated in a manner that is likely to enable the identification of a particular person or organisation. The requirement means that the ABS must take care and make assurances that any statistical information about individual respondents cannot be derived from published data.

35 Perturbation is used in this publication to minimise the risk of identifying individuals in aggregate statistics. Perturbation involves a small random adjustment of the statistics and is considered the most satisfactory technique for avoiding the release of identifiable statistics while maximising the range of information that can be released. These adjustments have a negligible impact on the underlying pattern of the statistics. After perturbation, a given published cell value will be consistent across all tables. However, adding up cell values to derive a total will not necessarily give the same result as published totals.

RELIABILITY OF ESTIMATES

36 All sample surveys are subject to error which can be broadly categorised as either:

- sampling error
- non-sampling error.

37 Sampling error is the difference between the estimate derived from a sample of people, and the value that would have been produced if all people in scope of the survey had been included. For more information refer to the Technical Note.

38 In this publication, estimates with an RSE of 25% to 50% are preceded by an asterisk (e.g. *3.4) to indicate that the estimate has a high level of sampling error relative to the size of the estimate, and should be used with caution. Estimates with an RSE over 50% are indicated by a double asterisk (e.g. **0.6) and are generally considered too unreliable for most purposes.

39 Margins of Error are provided for proportions to assist users in assessing the reliability of these data. The proportion combined with the MoE defines a range which is expected to include the true population value with a given level of confidence. This is known as the confidence interval. This range should be considered by users to inform decisions based on the proportion. Proportions with an MoE of greater than 10 percentage points are preceded by a hash (e.g. #40.1) to indicate the range in which the true population value is expected is relatively wide.

40 Non-sampling error may occur in any collection, whether it is based on a sample or a full count of the population such as a census. Sources of non-sampling error include: non-response; errors in reporting by respondents or recording of answers by interviewers; and errors in coding and processing data. Every effort was made to reduce the non-sampling error by: careful design and testing of the questionnaire; follow-up of respondents; and extensive editing and quality control procedures at all stages of data processing.

41 Non-response bias occurs where non-respondents may have different characteristics from those who did respond. While the Study is potentially affected by non-response bias, it is not possible to reliably quantify this. The magnitude of any bias depends on the rate of non-response and the extent of the differences in characteristics between those people who responded to the survey and those who did not. See Table 1.2 of the Explanatory Notes of Survey of Health Care, Australia, 2016 (cat. no. 4343.0) for an assessment of results from the Survey of Health Care component of the Study with other ABS collections.

DATA QUALITY

Medicare Benefits Schedule and Pharmaceutical Benefits Scheme data

42 The Department of Human Services collects data on the activity of all persons making claims through the Medicare Benefits Schedule and provides this information to the Department of Health. Information collected includes the type of service provided (MBS item number) and the benefit paid by Medicare for the service. Item numbers and benefits paid by Medicare are based on the Medicare Benefits Schedule which is a listing of the Medicare services subsidised by the Australian Government.

43 The Department of Human Services provides data on prescriptions funded through the Pharmaceutical Benefits Scheme/Repatriation Pharmaceutical Benefits Scheme to the Department of Health. The PBS/RPBS lists all of the medicines available to be dispensed to patients at a Government-subsidised price.

44 The scope of MBS and PBS data is restricted to persons who were in the in scope population (people aged 45 years and over who had at least one GP visit in the 12 months between November 2014 and November 2015) and accessed subsidised items listed on the MBS or PBS between 1 January 2014 and 30 July 2018, and excludes:

- persons who received services provided by hospital doctors to public patients in public hospitals
- persons who were supplied medications or accessed services through programs that do not use the Medicare processing system; for example, Aboriginal and Torres Strait Islander health programs
- persons accessing private prescription drugs or over the counter drugs.

CLASSIFICATIONS

45 Geographic classifications were applied to the survey data based on the respondent's reported home postcode, using correspondences between the geography of interest and ABS Postal Area geography.

46 Standard ABS Geographies were classified according to the Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2016 (cat. no. 1270.0.55.001).

47 Remoteness areas are classified according to the Australian Statistical Geography Standard (ASGS): Volume 5 - Remoteness Structure, July 2016 (cat. no. 1270.0.055.005).

48 Primary Health Networks (PHNs) are a classification developed by the Department of Health; see Primary Health Networks in the Glossary. The correspondence between PHN and ABS Postal Area geography was used to relate a person's postcode as listed on the MEDB to a PHN.

49 Where a postcode crossed a PHN boundary the entire postcode was allocated to the PHN with largest proportion of people living in it. There was a slight exception where a postcode crossed a state boundary; in this case individuals were manually coded to the state they reported as their address.

50 In this publication MBS data is reported on groups based on Broad Type of Service groups (see Appendix 1 – MBS items).

PRODUCTS AND SERVICES

Data cubes

51 Data cubes containing tables in Excel spreadsheet format can be found on the ABS website (from the Downloads tab). The spreadsheets present tables of estimates and proportions, and their corresponding relative standard errors (RSEs) and margin of error (MoE).

Customised data requests

52 Special tabulations of the data are available on request. Subject to confidentiality and sampling variability constraints, tabulations can be produced from the survey incorporating data items, populations and geographic areas (including state and territory level data), tailored to individual requirements. These are provided in electronic form.

53 For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070, or email client.services@abs.gov.au. The ABS Privacy Policy outlines how the ABS will handle any personal information that you provide to us.

ACKNOWLEDGEMENTS

54 ABS surveys draw extensively on information provided by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated and without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the Census and Statistics Act 1905.

55 The Coordination of Health Care Study is funded by the AIHW, and jointly conducted by the ABS and AIHW. This publication was jointly prepared and released by the ABS and the AIHW.

56 The ABS and AIHW also acknowledge and thank the DHS for its assistance in the sample selection and postage process of the study.

57 The Study uses variations of questions sourced from other national and international non-ABS surveys (see Table 1.3 of the Explanatory Notes of Survey of Health Care, Australia, 2016, cat. no. 4343.0, for more information). The ABS and AIHW would like to acknowledge the following organisations:

- Harvard Medical School, Boston
- Department of Health & Human Services, Victoria
- The Commonwealth Fund, New York
- Statistics Canada, Ottawa.

COORDINATION OF HEALTH CARE STUDY: USE OF HEALTH SERVICES AND MEDICINES, AUSTRALIA, 2015-16

TECHNICAL NOTE

RELIABILITY OF ESTIMATES

1 Two types of error are possible in an estimate based on a sample survey: sampling error and non-sampling error. The sampling error is a measure of the variability that occurs by chance because a sample, rather than the entire population, is surveyed. Since the estimates in this publication are based on information obtained from a sample of persons in scope of the survey they are subject to sampling variability; that is, they may differ from the figures that would have been produced if all in-scope persons had been included in the survey. One measure of the likely difference is given by the standard error (SE). There are about two chances in three that a sample estimate will differ by less than one SE from the figure that would have been obtained if all persons had been included, and about 19 chances in 20 that the difference will be less than two SEs.

2 Another measure of the likely difference is the relative standard error (RSE), which is obtained by expressing the SE as a percentage of the estimate. The RSE is a useful measure in that it provides an immediate indication of the percentage errors likely to have occurred due to sampling, and thus avoids the need to refer also to the size of the estimate.

$$RSE\% = \left(\frac{SE}{Estimate}\right) \times 100$$

3 RSEs for published estimates are supplied in Excel data tables, available via the Downloads page.

4 The smaller the estimate the higher is the RSE. Very small estimates are subject to such high SEs (relative to the size of the estimate) as to detract seriously from their value for most reasonable uses. In the tables in this publication, only estimates with RSEs less than 25% are considered sufficiently reliable for most purposes. However, estimates with larger RSEs, between 25% and less than 50% have been included and are preceded by an asterisk (eg *3.4) to indicate they are subject to high SEs and should be used with caution. Estimates with RSEs of 50% or more are preceded with a double asterisk (eg**0.6). Such estimates are considered unreliable for most purposes.

5 The imprecision due to sampling variability, which is measured by the SE, should not be confused with inaccuracies that may occur because of imperfections in reporting by interviewers and respondents and errors made in coding and processing of data. Inaccuracies of this kind are referred to as the non-sampling error, and they may occur in any enumeration, whether it be in a full count or only a sample. In practice, the potential for non-sampling error adds to the uncertainty of the estimates caused by sampling variability. However, it is not possible to quantify the non-sampling error.

STANDARD ERRORS OF PROPORTIONS AND PERCENTAGES

6 Proportions and percentages formed from the ratio of two estimates are also subject to sampling errors. The size of the error depends on the accuracy of both the numerator and the denominator. For proportions where the denominator is an estimate of the number of persons in a group and the numerator is the number of persons in a sub-group of the denominator group, the formula to approximate the RSE is given below. The formula is only valid when x is a subset of y.

$$RSE\left(\frac{x}{y}\right) = \sqrt{RSE(x)^2 - RSE(y)^2}$$

COMPARISON OF ESTIMATES

7 Published estimates may also be used to calculate the difference between two survey estimates. Such an estimate is subject to sampling error. The sampling error of the difference between two estimates depends on their SEs and the relationship (correlation) between them. An approximate SE of the difference between two estimates (x-y) may be calculated by the following formula:

$$SE(x-y) = \sqrt{[SE(x)]^2 + [SE(y)]^2}$$

8 While the above formula will be exact only for differences between separate and uncorrelated (unrelated) characteristics of sub-populations, it is expected that it will provide a reasonable approximation for all differences likely to be of interest in this publication.

9 Another measure is the Margin of Error (MOE), which describes the distance from the population value that the sample estimate is likely to be within, and is specified at a given level of confidence. Confidence levels typically used are 90%, 95% and 99%. For example, at the 95% confidence level the MOE indicates that there are about 19 chances in 20 that the estimate will differ by less than the specified MOE from the population value (the figure obtained if all dwellings had been enumerated). The 95% MOE is calculated as 1.96 multiplied by the SE.

10 The 95% MOE can also be calculated from the RSE by:

$$MOE(y) \approx \frac{RSE(y) \times y}{100} \times 1.96$$

11 The MOEs in this publication are calculated at the 95% confidence level. This can easily be converted to a 90% confidence level by multiplying the MOE by:

$$\frac{1.645}{1.96}$$

or to a 99% confidence level by multiplying by a factor of:

$$\frac{2.576}{1.96}$$

12 A confidence interval expresses the sampling error as a range in which the population value is expected to lie at a given level of confidence. The confidence interval can easily be constructed from the MOE of the same level of confidence by taking the estimate plus or minus the MOE of the estimate.

SIGNIFICANCE TESTING

13 For comparing estimates between surveys or between populations within a survey it is useful to determine whether apparent differences are 'real' differences between the corresponding population characteristics or simply the product of differences between the survey samples. One way to examine this is to determine whether the difference between the estimates is statistically significant. This is done by calculating the standard error of the difference between two estimates (x and y) and using that to calculate the test statistic using the formula below:

$$\frac{|x-y|}{SE(x-y)}$$

where

$$SE(y) = \frac{RSE(y) \times y}{100}$$

14 If the value of the statistic is greater than 1.96 then we may say there is good evidence of a statistically significant difference at 95% confidence levels between the two populations with respect to that characteristic. Otherwise, it cannot be stated with confidence that there is a real difference between the populations.

GLOSSARY

Administrative data

Information that is collected for purposes other than that of a statistical nature. This type of information is often obtained from records or transactional data from government agencies, businesses or non-profit organisations which use the information for the administration of programs, policies or services.

Broad Type of Service

Broad Type of Service groups MBS items into a classification. See Appendix 1 – MBS items for a detailed list of MBS codes mapped to Broad Type of Service.

Data integration

Statistical data integration involves combining information from different administrative and/or statistical sources to provide new datasets for statistical and research purposes. Data integration can help policy makers and researchers gain a much better understanding of Australian families, communities, industry, and the economy. This better understanding can help to improve the development and delivery of government services in areas such as health, education, infrastructure, and other community services. Further information on data integration is available on the ABS website.

Date of service

The date on which a health provider performed the provided service.

Date of supply

The date on which a PBS item was supplied.

De-identified data/records

Data that have had any identifiers removed. May also be referred to as unidentified data. The Survey of Health Care, MBS and PBS records used by the Coordination of Health Care Study were de-identified and did not include person name, address or Medicare number.

Diagnostic imaging

Diagnostic imaging procedures help to diagnose, treat and monitor an extensive range of illnesses and conditions. Diagnostic imaging services include ultrasound, computed tomography, nuclear medicine, radiography (x-ray), magnetic resonance imaging and positron emission tomography. MBS items used to define diagnostic imaging services in this publication are listed in Appendix 1 – MBS items.

General practitioner

A general practitioner (GP) is a doctor who has completed training in general practice. GPs are many Australians' first point of contact for health issues, and play a crucial role in delivering coordinated care across a person's life. People use GP services for a variety of reasons including short-term illnesses, preventive health practices and management of long-term health conditions. MBS items used to define general practitioner services in this publication are listed in Appendix 1 – MBS items.

Index of Relative Socio-Economic Advantage and Disadvantage

See Socio-Economic Indexes for Areas.

Index of Relative Socio-Economic Disadvantage

See Socio-Economic Indexes for Areas.

Long-term health condition

A long-term health condition is a health condition that is expected to last or has lasted 6 months or more and has been diagnosed by a health professional. Respondents to the Survey of Health Care were asked whether they had any of the following conditions:

- diabetes
- heart disease (including angina or past heart attack)
- high blood pressure or hypertension
- effects of a stroke
- cancer (including melanoma but not other skin cancers)
- asthma
- chronic lung disease (including Chronic Obstructive Pulmonary Disease)
- osteoporosis or low bone density
- arthritis (including osteoarthritis, rheumatoid arthritis or lupus)
- mental health condition (including anxiety disorder, depression or bipolar disorder)
- Alzheimer's disease or dementia
- moderate or severe pain lasting longer than six months
- other long-term health condition/long-term injury.

Medicare Benefits Schedule

The Department of Human Services collects data on the activity of all persons making claims through the Medicare Benefits Scheme and provides this information to the Department of Health. Information collected includes the type of service provided (MBS item number) and the benefit paid by Medicare for the service. The item numbers and benefits paid by Medicare are based on the Medicare Benefits Schedule (MBS) which is a listing of the Medicare services subsidised by the Australian Government. See Appendix 1 – MBS items for a mapping of MBS items used in this publication.

Medicare Enrolment Database

The Medicare Enrolment Database (MEDB) includes listings of people who are registered to receive Medicare benefits in Australia.

Other allied health services

Other allied health services refer to a range of services provided by health professionals who are not doctors, nurses or dentists, and include those provided by:

- Aboriginal and Torres Strait Islander health practitioners
- Aboriginal health workers
- audiologists
- chiropractors
- diabetes educators
- dieticians
- exercise physiologists
- mental health workers
- occupational therapists
- osteopaths
- physiotherapists
- podiatrists
- psychologists
- speech pathologists.

MBS items used to define other allied health services in this publication are listed in Appendix 1 – MBS items. Other allied health services not subsidised through the MBS are not included in this publication.

Pathology collection

Pathology collection services refer to the actual collection of specimens (e.g. a blood specimen) on which pathology tests are performed. MBS items used to define pathology collection services in this publication are listed in Appendix 1 – MBS items.

Pathology tests

Pathology tests refer to laboratory tests that analyse pathology specimens. They are used in the diagnosis of disease and to assist in preventive health, acute care and the management of chronic health conditions. Multiple tests may be performed on a single pathology specimen.

Pharmaceutical Benefits Scheme

The Department of Human Services provides data on prescriptions funded through the Pharmaceutical Benefits Scheme (PBS) to the Department of Health. The PBS lists all of the medicines available to be dispensed to patients at a Government-subsidised price.

Practice nurse

A practice nurse is someone who is either a registered nurse or enrolled as a nurse, and employed (or services are retained) by a medical practitioner. Practice nurses are able to deliver some services on behalf of and under the supervision of medical practitioners. MBS items used to define practice nurse services in this publication are listed in Appendix 1 – MBS items.

Primary Health Networks

Primary Health Networks have been established with the key objectives of increasing the efficiency and effectiveness of medical services for patients, particularly those at risk of poor health outcomes, and improving coordination of care to ensure patients receive the right care in the right place at the right time. Each Primary Health Network has a corresponding geographic area. See Primary Health Networks on the Australian Government Department of Health website for more information.

Remoteness Areas

Broad geographical regions that share common characteristics of remoteness based on the Remoteness Structure of the ABS's Australian Statistical Geographical Standard. The classification includes a Remoteness Structure which divides Australia into six broad regions called Remoteness Areas. The purpose of the Remoteness Structure is to provide a classification for the release of statistics that inform policy development by classifying Australia into large regions that share common characteristics of remoteness, based on physical distance from services.

Self-assessed health

A person's general assessment of their own health against a five point scale comprising excellent, very good, good, fair and poor.

Socio-Economic Indexes for Areas

Socio-Economic Indexes for Areas is a product developed by the ABS that ranks areas in Australia according to relative socio-economic advantage and disadvantage. There are four indexes, each focusing on a different aspect of socio-economic advantage and disadvantage, based on different subsets of information from the five-yearly Census.

The 2011 Census-based Index of Relative Socio-Economic Advantage and Disadvantage was used in sample design for the 2016 Survey of Health Care.

Data included in this publication use the 2016 Census-based Index of Relative Socio-Economic Disadvantage. A lower Index of Disadvantage quintile (e.g. quintile 1) indicates relatively greater disadvantage and a lack of advantage in general. A higher Index of Disadvantage (e.g. quintile 5) indicates a relative lack of disadvantage and greater advantage in general.

For more information see Census of Population and Housing: Socio-Economic Indexes for Areas, Australia, 2016.

Specialists

A specialist is a medical doctor who is an expert in a specific area of medicine. Examples include dermatologists, cardiologists, neurologists and gynaecologists. Visits to specialists require a referral from a GP or other doctor. MBS items used to define specialist services in this publication are listed in Appendix 1 – MBS items. Specialist services delivered to public patients in public hospitals, not subsidised through the MBS, are not included in this publication.

Usual GP

A usual GP is defined as the GP that people go to for most of their health care.

Usual place of care

Usual place of care is defined as the place that people usually go if they are sick or need advice about their health. Examples of a usual place of care include a clinic with GPs only, a clinic with GPs and other health professionals, a community health centre, an Aboriginal medical service or, for some patients, a hospital emergency department.

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www.abs.gov.au the ABS website is the best place for data from our publications and information about the ABS.

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