MedicineInsight

General Practice Insights Report

July 2020–June 2021

August 2022 | v1.0

NPS MEDICINEWISE

Disclaimer: Views expressed in this report/working paper are those of the authors and do not necessarily represent the views of the organisations represented on the working group.

This report should be cited as follows:

NPS MedicineWise, General Practice Insights Report July 2020–June 2021. Sydney: NPS MedicineWise, 2022.

For more information about MedicineInsight contact *medicineinsight@nps.org.au*

Contents

Foreword

We are pleased to publish the fifth NPS MedicineWise General Practice Insights Report (GPIR) providing insights into what happens when a patient visits their general practitioner (GP).

Including data up until December 2021, the report shows the COVID-19 pandemic continued to present GPs with challenges, including additional lockdowns, the ongoing strong uptake of telehealth consultations and the roll-out of COVID-19 vaccines. At the end of 2021, almost 11,000 patients had a recorded diagnosis of COVID-19 infection and references to 'long-COVID' were beginning to appear.

MedicineInsight also contains a great deal of information on care provided by mainstream general practice to Aboriginal and Torres Strait Islander patients. For the first time this year, we have included a chapter specifically devoted to describing the care GPs provide to Aboriginal and Torres Strait Islander patients – how often they visit, the medicines they are prescribed and the conditions with which they present.

As always, this report has been a collaborative effort. In addition to thanking our usual collaborators, we particularly appreciated the input of the National Aboriginal Community Controlled Health Organisation (NACCHO) this year. As always, we thank all of the patients, general practices and general practice staff whose data make this report possible.

We hope that this report provides patients, GPs, policymakers and researchers with an accurate picture of the enormous amount of work undertaken in primary care.

Katherine Burchfield

CEO, NPS MedicineWise

- Dr Natalie Pink, GP registrar and Aboriginal research representative
- Mrs Janelle Speed, Aboriginal community representative
- Mr John Stubbs, consumer representative

At a glance

The data

The GPIR uses 2020–21 data from:

- 423 general practice sites, comprised of 471 individual general practices
- 4110 unique GP providers
- 2,478,670 patients with 14,333,943 clinical encounters
- just over 10 million issued prescriptions and 33.1 million total prescriptions (issued plus repeats)
- just over 70 million recorded pathology test results.

Condition management in 2020–21

- To estimate GP workload, using diagnoses recorded in 2020–21 as a minimum and the patient's entire medical history as a maximum, of every 100 GP clinical encounters[A] during 2020–21:
  - 11 to 30 were with a patient with a history of hypertension
  - 10 to 23 were with patients with a history of anxiety
  - 9 to 26 were with a patient with a history of gastro-oesophageal reflux disease (GORD)
  - 9 to 25 were with a patient with a history of depression
  - 9 to 28 were with a patient with a history of low back pain.

Prescribing and testing in 2020–21

- GPs issued 67.5 prescriptions for every 100 GP clinical encounters during 2020–21.
- Medicines for the nervous system (ATC N) accounted for the largest proportion of issued prescriptions (29.5%).
- Cardiovascular medicines (ATC C) accounted for the largest proportion of total prescriptions (issued plus repeats; 32.2%).
- 44.8% of patients had at least one pathology test recorded in 2020–21.

Care provided to Aboriginal and Torres Strait Islander patients

During 2020–21, 65,262 patients that were seen at least once by a GP were recorded as being Aboriginal and Torres Strait Islander patients.

The diagnoses most commonly recorded among these patients were skin infections, depression and anxiety, reflecting socioeconomic disadvantage and intergenerational trauma. Antidepressants accounted for 12.4% of total prescriptions prescribed to Aboriginal and Torres Strait Islander patients. Just under one-third of Aboriginal and Torres Strait Islander patients had at record of at least one full blood count, liver function or kidney function test result.

COVID-19 and telehealth

By 30 December 2021, 10,996 MedicineInsight patients had a recorded diagnosis of COVID-19 infection. While only 77 patients were recorded as having 'long COVID', approximately 4% reported symptoms of anxiety or depression and 2.1% reported sleep problems.

In general, patients visited their GP more often during the pandemic years (2020 and 2021) than in than in 2019. There were slightly higher rates of mental illness presentations in 2020 than in 2019 or 2021.

[A] Note: conditions and prescriptions are not directly linked to GP encounters but to patients.

Rates of prescribing spiked at the beginning of the pandemic for many medicines including cardiovascular and glucose lowering medicines, antidepressants and respiratory medicines. Prescribing of beta-lactam antibiotics and oral prednisolone was lower than in the pre-pandemic period, reflecting lower rates of respiratory infections

Rates of COVID-19 vaccination peaked in August and September 2021.Telehealth consultations peaked in April 2020 before rising and falling in line with new COVID-19 outbreaks and corresponding lockdowns. Females, patients aged 65 years or older or with health concession cards, and those with chronic kidney disease (CKD) had higher rates of telehealth consultations compared with other patients.

Executive summary

MedicineInsight was established by NPS MedicineWise in 2011, with core funding from the Australian Government Department of Health and Aged Care. MedicineInsight collects general practice data to support quality improvement in Australian primary care and post-market surveillance of medicines and tests. It continues to be a valuable resource for Australian longitudinal general practice research.

This report is funded by the Department of Health and Aged Care, with advice from representatives of general practice, the Department of Health and Aged Care, academia, Australian Bureau of Statistics (ABS), Australian Institute of Health and Welfare (AIHW), National Aboriginal Community Controlled Health Organisation (NACCHO), and the Royal Australian College of General Practitioners (RACGP).

This year, the General Practice Insights Report (GPIR) 2020–21 provides the following:

▷ An overview of care provided to patients by general practitioners (GPs) working in general practice during the 2020–21 financial year, including pathology testing and prescribing of medicines.
▷ An overview of care provided to Aboriginal and Torres Strait Islander patients.
▷ Patient prevalence of selected conditions.
▷ Information on telehealth consultations.
▷ Information on the ongoing impact of the COVID-19 pandemic.

Practices, providers and patients

This report includes nationwide data from 471 general practices and 4110 GPs. This corresponds to 5.8% of all Australian general practices and 10.8% of all Australian GPs.

Approximately 2.48 million patients were seen at least once by GPs in the participating practices during 2020–21. This represents 11.4% of all patients seen by GPs nationally. MedicineInsight patients were similar in age, sex and socioeconomic status as determined by patient postcode when compared with Medicare Benefits Schedule (MBS) data on all Australians visiting their GPs during 2020–21.

Encounters

During 2020–21, 14.3 million GP clinical encounters[B] were recorded in eligible MedicineInsight practices. The average number of GP clinical encounters per patient during 2020–21 was 5.8.

Non-communicable conditions

Hypertension was the most common selected condition recorded during 2020–21 for patients seen by GPs in MedicineInsight practices (6.0% of patients), followed by anxiety (5.5%) and depression (5.1%).

Patient prevalence in 2020–21 was also explored by identifying patients who were recorded as having a particular condition at any time in their medical record. Hypertension was the most commonly reported of the selected non-communicable conditions (16.1% of patients), followed by low back pain (15.9%) and depression (15.0%). The patient prevalence of colorectal cancer, reported in the GPIR for the first time, was 0.6%.

Rates of conditions per 100 encounters were calculated to get an overview of GP workload.[C] This indicated that, of every 100 GP clinical encounters during 2020–21, on average (Table 4.3):

▷ 11 were with a patient with a recent record of hypertension and 30 were with a patient with hypertension ever recorded

---

[B] Clinical encounters are those in which the record in the medical record was created by a GP, the visit type is not an administrative term and in which at least one of the encounter reasons provided is not an administrative term.
[C] Note: conditions are not linked directly to GP clinical encounters but to patients.

- ▷ 10 were with a patient with a recent record of anxiety disorder and 23 were with a patient with anxiety disorder ever recorded
- ▷ 9 were with a patient with a recent record of depression and 25 were with a patient with depression ever recorded
- ▷ 9 were with a patient with a recent record of gastro-oesophageal reflux disease (GORD) and 26 were with a patient with GORD ever recorded
- ▷ 9 were with a patient with a recent record of low back pain and 28 were with a patient with low back pain ever recorded.

A recent record indicates patients where the condition was recorded during 2020–21; ever recorded indicates the condition was recorded at any time, including 2020–21.

Prescriptions

Prescription data can be reported in one of two ways:

- ▷ Issued prescriptions handed to the patient, which may or may not include repeat prescriptions.
- ▷ Total prescriptions, which include all prescriptions that are generated as a result of an issued prescription, including repeats.

In 2020–21, just over 10 million issued prescriptions, and 33.1 million total prescriptions with unique Anatomical Therapeutic Chemical (ATC) codes, were written by GPs in MedicineInsight practices. Almost two-thirds of MedicineInsight patients were prescribed a medicine at least once.

The average number of issued prescriptions recorded per patient was 3.8, while the average number of total (issued plus repeat) prescriptions recorded per patient was 12.3. On average, every 100 GP clinical encounters resulted in 67.5 issued prescriptions and 218.7 total prescriptions.

MedicineInsight captures prescriptions that have been written, whether they are private, subsidised on the Pharmaceutical Benefits Scheme (PBS) or under co-payment. In contrast, PBS data capture prescriptions when the medicine is dispensed on the PBS or is under co-payment. This report shows that an overwhelming majority of medicines (85.1%) were subsidised by the Australian Government under the PBS or the Repatriation Schedule of Pharmaceutical Benefits (RPBS).

Pathology testing

Each component of a pathology test result is recorded separately (atomised) in MedicineInsight, so a request from the GP for a test such as a full blood count (FBC) can generate up to a dozen individual test results.

Bearing this in mind, 44.8% of patients had one or more atomised pathology test results recorded in 2020–21 and there were just over 70 million atomised pathology test results recorded. Rates of testing increased with age and were higher for women than men.

The proportion of patients who had at least one test result that fell outside the relevant reference range[D] during the year was examined. There was no attempt to collect information on follow-up tests or the conditions diagnosed for these patients so we cannot comment upon the appropriateness of subsequent management decisions. However:

- ▷ among patients with diagnosed diabetes who had their glycated haemoglobin (HbA_{1c}) level checked during the year (115,475), 54.6% had at least one result that was higher than the generally accepted target of 53 mmol/mol (7.0%)
- ▷ approximately 10% of patients who had at least one thyroid-stimulating hormone (TSH) test (567,956), had a result that fell outside the reference range
- ▷ one-third of patients who had a vitamin D test (339,027) had a result that fell outside the reference range.

[D] As defined by the Royal College of Pathologists of Australasia Manual

Risk factors

In 2020–21, 82.8% of patients over 18 years of age had their smoking status recorded at least once in their medical history and 27.7% had their alcohol use recorded at least once.

In the 24-month period from 1 July 2019 to 30 June 2021, body mass index (BMI) or both height and weight was recorded for 35.3% of patients of all ages. Weight was recorded for 42.8% of patients of all ages.

Some GPs may record BMI, smoking or alcohol use in different sections in the medical record that are not available to MedicineInsight, such as progress notes, and it is possible that these figures may underestimate recording of risk factors. Alternatively, increasing use of telehealth during the pandemic may have impacted upon the recording of risk factor information.

Care provided to Aboriginal and Torres Strait Islander patients

During 2020–21, 65,262 patients that were seen at least once by a GP were recorded as being Aboriginal and Torres Strait Islander patients. Almost half (49%) lived in NSW, 42% lived in major cities, and 56% were from disadvantaged socioeconomic areas.

On average, Aboriginal and Torres Strait Islander patients had 6.1 GP clinical encounters during the year. The average number of GP clinical encounters was lower in the Northern Territory (NT; 4.2 per patient) than in other states, possibly because patients in the NT also accessed Indigenous-specific primary health services more often.[1]

Approximately one-fifth of Aboriginal and Torres Strait Islander patients had a history of skin infections (21.5%), depression (21.0%) or anxiety (18.3%). The conditions most commonly recorded during 2020–21 were depression (7.8%) and anxiety (7.6%).

Of every 100 GP clinical encounters with Aboriginal and Torres Strait Islander patients, on average:

▷ 15 were with a patient with depression recorded during the year (ie, a recent record) and 36 were with a patient with depression ever recorded in the medical record
▷ 14 were with a patient with a recent record of anxiety disorder and 30 were with a patient with anxiety disorder ever recorded.

Medicines to treat the nervous system were the prescriptions most commonly prescribed to Aboriginal and Torres Strait patients in 2020–21. Opioids accounted for 14.1% of prescriptions issued while antidepressants accounted for 12.4% of total (issued and repeat) prescriptions.

Just under one-third of Aboriginal and Torres Strait Islander patients had a record of at least one FBC, liver function or kidney function test result.

Smoking status and alcohol use were recorded at least once in 2020–21 for 86.9% and 24.3% of patients aged 18 years or older. BMI (or both height and weight) was recorded at least once in the 24-month period from 1 July 2019 to 30 June 2021 for 51.2% of patients of all ages.

Telehealth

Between 1 January 2020 and 31 December 2021, 95% of telehealth consultations were via telephone rather than video. National telehealth use was highest in April 2020 (269 per 1000 clinical encounters) then rose and fell in line with new COVID-19 outbreaks and corresponding lockdowns.

GPs in major cities recorded higher telehealth consultation rates than GPs in remote areas. While rates of telehealth were higher among patients living in metropolitan areas than in the corresponding regional areas of individual states, patterns of use were similar.

Females, patients aged 65 years or older or with health concession cards, and those with chronic kidney disease (CKD) had higher rates of telehealth consultations compared with other patients. However, this may reflect their higher use of healthcare services in general – not just higher use of telehealth in particular.

COVID-19

There were 10,996 patients with a recorded diagnosis of COVID-19 infection during calendar years 2020 and 2021. Among these:

▷ 73% lived in a major city and 86% were from NSW or Victoria
▷ 77 patients had a record of 'long COVID'
▷ 20.1% also had a record of anxiety; 19.5% had a record of depression; and 18.3% had a record of hypertension
▷ 4.2% reported symptoms of anxiety; 3.7% reported symptoms of depression; and 2.1% reported sleep problems.

Among the general patient population (ie, all patients who were seen at least once in 2019, 2020 or 2021):

▷ the average number of clinical encounters per patient was higher in 2020 and 2021 (6.4 and 6.3 clinical encounters, respectively) than in 2019 (5.8)
▷ rates of mental illness presentations were slightly higher in 2020 than in 2019, before falling slightly in 2021
▷ rates of sexually transmitted infection testing were lower in 2020 and 2021 compared with 2019. Rates of faecal occult blood tests (FOBTs) were similar in all years
▷ rates of prescribing spiked at the beginning of the pandemic for most of the specified medicine groups (cardiovascular, glucose lowering, antidepressants, respiratory, beta-lactams and oral prednisolone). Prescribing of beta-lactam antibiotics and oral prednisolone was lower than in the pre-pandemic period, reflecting lower rates of respiratory infections
▷ rates of COVID-19 vaccination peaked in August and September 2021.

1. Introduction

1.1. Aims and objectives

The General Practice Insights Report (GPIR) 2020–21 provides an overview of the key features of general practice patients and activity in Australia for the period 1 July 2020 to 30 June 2021.

In addition, the report compares general practice activity in the 2019, 2020 and 2021 calendar years to explore telehealth and the impact of the COVID-19 pandemic.

1.2. Report overview

Each chapter explores a different aspect of the clinical and sociodemographic information collected in MedicineInsight. This includes:

▷   the number and geographical distribution of practices and general practitioner (GP) providers in the program, compared with national data
▷   patient characteristics such as sex, age, Aboriginal and Torres Strait Islander status and location of residence (state or territory, remoteness and Australian Bureau of Statistics [ABS] Socio-Economic Indexes for Areas [SEIFA]), compared with national data where available
▷   differences in the frequency of GP encounters by patient characteristics
▷   information on selected common non-communicable and mental health conditions
▷   the provision of services such as pathology testing and prescribing
▷   a chapter on Aboriginal and Torres Strait Islander patient care
▷   information on use of telehealth consultations
▷   the ongoing impact of COVID-19.

Information on conditions is collected from three fields in the clinical information systems (CISs): 'diagnosis'; 'reason for encounter'; and 'reason for prescription' (see Appendix 1). Information on the prevalence of conditions is presented in two ways:

▷   Patient prevalence, which is the proportion of patients with the condition recorded at any time in their medical record ('ever recorded').
▷   Conditions recorded during 2020–21.

Depending on individual GP recording practices, a GP may provide ongoing management for a condition that has been recorded historically, but not routinely record that condition at each subsequent visit. For example, a GP may have recorded that a patient has type 2 diabetes many years ago but, because they know the patient's history, they may not record this as being the reason for the visit, despite continuing to actively manage the condition. Therefore, relying solely on diagnoses recorded during 2020–21 may underestimate the prevalence of conditions that are being actively managed.

Patient prevalence can be considered the most accurate way of estimating prevalence of chronic conditions, such as diabetes and chronic obstructive pulmonary disease (COPD). However, it might overestimate the current prevalence of conditions that can resolve over time, such as depression and anxiety disorder, or with age, such as asthma and eczema.

Reporting on both the patient prevalence (ever recorded) and conditions recorded in 2020–21 is a way to describe the maximum and minimum estimates of GP management of patients with these conditions, respectively.

Further details about the methodology for this report are provided in Appendix 1.

1.3. Advisory group

The scope, rationale and methodology for this report were developed by NPS MedicineWise, with expert input from a specially convened Advisory Group. This Advisory Group included representatives from NPS MedicineWise and:

▷ Australian Government Department of Health and Aged Care
▷ Royal Australian College of General Practitioners (RACGP)
▷ National Aboriginal Community Controlled Health Organisation (NACCHO)
▷ Australian Institute of Health and Welfare (AIHW)
▷ Australian Bureau of Statistics (ABS)
▷ consumers, Aboriginal community representatives and academia.

1.4. The MedicineInsight program

NPS MedicineWise is an independent, not-for-profit and evidence-based organisation that works to improve the use of health technologies, medicines and medical tests. MedicineInsight was established by NPS MedicineWise in 2011, with core funding from the Department of Health and Aged Care, to collect general practice data to support quality improvement in primary care and post-market surveillance of medicines.

MedicineInsight uses third-party data extraction tools to de-identify, extract and securely transmit data from within each participating general practice's CIS. This includes patient demographic and clinical data entered by GPs and practice staff directly into the system or collected in the CIS from external sources (eg, pathology test results). However, data are not extracted from fields that may contain identifying information such as the progress notes.

Regular national-level MedicineInsight study reports are provided to the Department of Health and Aged Care to support quality use of health technologies in Australia. MedicineInsight data are also used for quality improvement activities in general practice by comparing practice activity with all other participating practices and with best practice clinical guidelines. This allows practice staff to reflect on practice and identify potential areas for improvement. MedicineInsight data are also available to support research aligned with the NPS MedicineWise mission and approved by the independent Data Governance Committee.

Further details about MedicineInsight are available at www.nps.org.au/medicine-insight. Further information on projects that have used MedicineInsight data can be found at www.nps.org.au/approved-projects-using-medicineinsight-data.

1.5. Data governance and ethics

Rigorous governance processes mitigate risk to participants and ensure the MedicineInsight program is run lawfully, ethically and for the public good. Data use is subject to a robust data governance framework, including approval by an independent Data Governance Committee. The committee comprises consumer advocates, data privacy and security experts, GPs and researchers, and approved the use of data for this report.

The pilot MedicineInsight program was approved by the RACGP National Research and Evaluation Ethics Committee in January 2013. In December 2017, the same committee granted NPS MedicineWise ethics approval for the MedicineInsight program. This approval covers the standard operations and uses of the MedicineInsight database, including this report.

In May 2022, Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) Ethics Committee exempted the project from ethics review because it uses routinely collected non-identifiable data. The RACGP NREEC granted approval for the telehealth and COVID-19 chapters in May 2022 (NREEC 22-111).

1.6. Methodology used in this report

Full details about the methodology used in this report can be found in [Appendix 1](#).

2. Practices, providers and patients

> ### *In summary*
>
> ▷ Data from 471 general practices and 4110 GPs were available during 2020–21. This represents 5.8% of general practices and 10.8% of practising GPs nationally.
> ▷ Approximately 2.48 million patients were seen at least once by GPs. This represents 11.4% of all patients seen by GPs nationally.
> ▷ MedicineInsight patients have a similar age, sex and socioeconomic profile to all Australians who visited their GP in 2020–21.
> ▷ 2.6% of patients were recorded as being of Aboriginal or Torres Strait Islander background. Information on Aboriginal and Torres Strait Islander status was missing for 21.5% of patients.

This chapter describes:

▷ the characteristics of the general practices in the cohort, compared to all practices nationally
▷ the distribution of GP providers in the cohort and all providers nationally by state and geographical location using the Modified Monash Model (MMM)
▷ the characteristics of the patient cohort, compared to all patients nationally.

2.1. General practice sites

MedicineInsight extracts data from two general practice CISs – Best Practice and MedicalDirector. Where multiple general practices share a CIS, this is a general practice site. A site may consist of several geographically and administratively distinct practices with discrete patient lists, or it may consist of a collection of practices with shared staff and patients. Patients' electronic files from each general practice are amalgamated within the site's CIS. It is not possible for MedicineInsight to distinguish which general practice a specific patient's record comes from within a site.

Data are included for 471 general practices from 423 general practice sites, representing 5.8% of all practices nationally (Table 2.1).

Table 2.1   General practices and general practice sites, MedicineInsight 2020–21

Number of general practices within each site	General practice sites		Total number of general practices
	No.	%	
1	388	91.7	388
2	30	7.1	60
3	1	0.2	3
4 or more	4	0.9	20
Total	**423**	**100**	**471**

Table 2.2 presents data on MedicineInsight general practices compared with national data, by state/territory and rurality. Table 2.3 presents data by Primary Health Network (PHN), including both the proportional geographical representation and the differences in relative coverage of MedicineInsight practices compared with national data.

There is high coverage of practices from Tasmania (21.2% coverage) and the Hunter New England and Central Coast PHN (20.0% coverage) in NSW. This reflects previous active campaigns to recruit practices from these areas. In contrast, practices from South Australia (2.0% coverage) are underrepresented, and there are no MedicineInsight practices in the Western Queensland PHN.

Statistical weighting of the data by age, sex and PHN has largely addressed differences in area-level representativeness of MedicineInsight practices (see Appendix 1).

Table 2.2   Geographical representation of MedicineInsight general practices 2020–21, compared to national data, 2019

General practice location	MedicineInsight 2020–21	National practices 2019[a]	% coverage by MedicineInsight practices
	No. (%) practices	No. (%) practices	%
Australian total	471	8147	5.8
State/territory			
ACT	9 (1.9)	109 (1.3)	8.3
NSW	170 (36.1)	2800 (34.4)	6.1
NT	6 (1.3)	161 (2.0)	3.7
QLD	102 (21.7)	1629 (20.0)	6.3
SA	11 (2.3)	542 (6.7)	2.0
TAS	36 (7.6)	170 (2.1)	21.2
VIC	83 (17.6)	1985 (24.4)	4.2
WA	54 (11.5)	751 (9.2)	7.2
Rurality[b]			
Major city	281 (59.7)	5503 (68.2)	5.1
Inner regional	111 (23.6)	1396 (17.3)	8.0
Outer regional	64 (13.6)	779 (9.7)	8.2
Remote/very remote	15 (3.2)	379 (4.7)	4.0
Modified Monash Model[c]			
Metropolitan (MM1)	285 (60.5)	5526 (67.8)	5.2
Regional centre (MM2)	71 (15.1)	635 (7.8)	11.2
Large rural town (MM3)	39 (8.3)	516 (6.3)	7.6
Medium rural town (MM4)	24 (5.1)	353 (4.3)	6.8
Small rural town (MM5)	37 (7.9)	612 (7.5)	6.0
Remote/very remote communities (MM6–7)	15 (3.2)	312 (3.8)	4.8

a Productivity Commission. Report on Government Services 2021: 10 Primary and community health www.pc.gov.au/research/ongoing/report-on-government-services/2021/health/primary-and-community-health.[2] Due to COVID-19 resource constraints, the DoH was not able to provide the total number of general practices for 2020 or 2021.

b The Report on Government Services does not report on practice numbers by remoteness. Practice numbers by remoteness (n = 8057) relies upon historical numbers from National Health Services Directory, 2017.

c The Report on Government Services does not report on practice numbers by MMM. Practice numbers by MMM (n = 7954) were collected using Health Map (https://healthmap.com.au/) in December 2021 and so differ slightly from the Australian total reported in Report on Government Services.

Table 2.3   Geographical representation of MedicineInsight general practices 2020–21 by PHN, compared to national data 2021

General practice location	MedicineInsight 2020–21	National practices 2021[a]	% coverage by MedicineInsight practices
	No. (%) practices	No. (%) practices	%
Australian Capital Territory			
Australian Capital Territory	9 (1.9)	108 (1.3)	8.3
New South Wales			
Central and Eastern Sydney	17 (3.6)	567 (7.0)	3.0
Hunter New England and Central Coast	81 (17.2)	406 (5.0)	20.0
Murrumbidgee	4 (0.9)	88 (1.1)	4.5
Nepean Blue Mountains	7 (1.5)	127 (1.6)	5.5
North Coast	12 (2.6)	184 (2.3)	6.5
Northern Sydney	9 (1.9)	278 (3.4)	3.2
South Eastern NSW	13 (2.8)	201 (2.5)	6.5
South Western Sydney	9 (1.9)	393 (4.8)	2.3
Western NSW	7 (1.5)	120 (1.5)	5.8
Western Sydney	11 (2.3)	322 (4.0)	3.4
Northern Territory			
Northern Territory	6 (1.3)	115 (1.4)	5.2
Queensland			
Brisbane North	23 (4.9)	325 (4.0)	7.1
Brisbane South	21 (4.5)	348 (4.3)	6.0
Central Queensland, Wide Bay, Sunshine Coast	22 (4.7)	284 (3.5)	7.7
Darling Downs and West Moreton	9 (1.9)	172 (2.1)	5.2
Gold Coast	16 (3.4)	212 (2.6)	7.5
Northern Queensland	11 (2.3)	225 (2.8)	4.9
Western Queensland	0	51 (0.6)	0.0
South Australia			
Adelaide	10 (2.1)	354 (4.3)	2.8
Country SA	1 (0.2)	177 (2.2)	0.6
Tasmania			
Tasmania	36 (7.6)	159 (2.0)	22.6
Victoria			
Eastern Melbourne	15 (3.2)	450 (5.5)	3.3
Gippsland	4 (0.9)	98 (1.2)	4.1
Murray	11 (2.3)	207 (2.5)	5.3
North Western Melbourne	36 (7.6)	542 (6.7)	6.6
South Eastern Melbourne	11 (2.3)	484 (5.9)	2.3
Western Victoria	6 (1.3)	219 (2.7)	2.7
Western Australia			
Country WA	18 (3.8)	201 (2.5)	9.0

General practice location	MedicineInsight 2020–21	National practices 2021[a]	% coverage by MedicineInsight practices
Perth North	17 (3.6)	272 (3.3)	6.3
Perth South	19 (4.0)	265 (3.3)	7.2

a The Report on Government Services does not report on practice numbers by PHN. Practice numbers by PHN have been collected using Health Map (https://healthmap.com.au/) in December 2021 and so differ slightly from the Australian total reported in Report on Government Services. The Productivity Commission. Report on Government Services 2021: 10 Primary and community health, was not updated with total practices for 2020 or 2021 due to COVID-19 resource constraints. When a PHN is equivalent to an entire state, values may vary slightly compared to Table 2.2.

2.2. GP providers

There were 4110 unique GP providers in MedicineInsight for 2020–21, representing 10.8% of practising GPs in Australia. Table 2.4 shows the geographical location of MedicineInsight GPs compared to national coverage. The proportional distribution of GPs was similar to that of general practices, with the highest rate of coverage in Tasmania (35.3%), and the lowest in South Australia (3.2%).

Table 2.4   Geographical distribution of MedicineInsight GPs compared to national data, 2019–20

GP location	MedicineInsight GPs 2020–21	National GPs 2019–20[a]	% coverage by MedicineInsight GPs
Australian total	**4110**	**38,221**	**10.8**
	No. (%)	No. (%)	
State/territory			
ACT	115 (2.8)	606 (1.6)	19.0
NSW	1441 (35.1)	11,695 (30.6)	12.3
NT	26 (0.6)	475 (1.2)	5.5
QLD	841 (20.5)	8324 (21.8)	10.1
SA	89 (2.2)	2805 (7.3)	3.2
TAS	341 (8.3)	965 (2.5)	35.3
VIC	797 (19.4)	9411 (24.7)	8.5
WA	460 (11.2)	3931 (10.3)	11.7
Modified Monash Model			
MM1	2515 (61.2)	26,596 (69.6)	9.5
MM2	633 (15.4)	3456 (9.0)	18.3
MM3	388 (9.4)	2899 (7.6)	13.4
MM4	222 (5.4)	2010 (5.3)	11.0
MM5	269 (6.6)	2166 (5.7)	12.4
MM6-7	83 (2.0)	1094 (2.9)	7.6

a Data source: Australian Government Department of Health. General Practice Primary Care Statistics – 2014-15 to 2019–20: Canberra: DoH, 2021. https://hwd.health.gov.au/resources/data/gp-primarycare.html
State-based numbers of GPs are based upon single-state figures and differ slightly from the national number of GPs.
b As GPs can work across multiple sites, the total number of GPs by remoteness is higher than the number of GPs Australia wide.

2.3. Patients

There were 2.48 million patients eligible for inclusion in this report, representing 11.4% of all patients who visited a GP in 2020–21. MedicineInsight patients are broadly similar when compared to national MBS information for patients who visited a GP during 2020–21, in terms of age, sex and socioeconomic status (Table 2.5).

Aboriginal and Torres Strait Islander status was missing for 21.5% of the MedicineInsight population. However, a similar proportion of MedicineInsight patients were recorded as Aboriginal or Torres Strait Islander as in the MBS patient population.

Consistent with MBS patient data, MedicineInsight patients were more likely to be female (54.6%). Women between the ages of 20 and 39 years accounted for the largest proportion of MedicineInsight patients (Figure 2.1). Only 0.05% of patients were recorded as being intersex or indeterminate sex. These patients have not been included in further analyses because of their small numbers.

Consistent with the higher coverage of general practices from Tasmania in MedicineInsight, the proportion of MedicineInsight patients from Tasmania was higher (6.8%) when compared with national figures (2.1%). Consistent with the lower coverage of general practices from South Australia, the proportion of MedicineInsight patients from South Australia was lower (2.1%) than national figures (7.0%). Patients residing in inner regional areas are overrepresented in MedicineInsight (22.9%) compared with national data (12.5%) (Table 2.5).

Statistical weighting of the data by age, sex and PHN has largely addressed differences in area-level representativeness of MedicineInsight practices (see Appendix 1). Information on patient distribution by PHN is provided in Table A1 of the supplementary tables.

Table 2.5   Sociodemographic distribution of MedicineInsight patients 2020–21 (unweighted) compared to MBS national data, 2020–21

Patient sociodemographic characteristic	MedicineInsight patients 2020–21	Australian national data (MBS)[a] 2020–21	% coverage by MedicineInsight patients
	No. (%)	No. (%)	%
TOTAL	**2,478,670**	**21,827,606**	**11.4**
Sex			
Male	1,123,682 (45.3)	10,379,100 (47.5)	10.8
Female	1,353,866 (54.6)	11,459,870 (52.5)	11.8
Other	1122 (0.05)	-	-
Age group (years)			
0–9	282,750 (1.14)	2,566,596 (11.8)	11.0
10–19	238,957 (9.6)	2,304,879 (10.6)	10.4
20–29	302,219 (12.2)	2,540,658 (11.6)	11.9
30–39	341,309 (13.8)	3,056,362 (14.0)	11.2
40–49	306,411 (12.4)	2,854,026 (13.1)	10.7
50–59	317,171 (12.8)	2,873,347 (13.2)	11.0
60–69	303,524 (12.2)	2,607,333 (11.9)	11.6
70–79	241,923 (9.8)	1,916,237 (8.8)	12.6
80–89	113,171 (4.6)	894,437 (4.1)	12.7
90+	31,235 (1.3)	225,095 (1.0)	13.9
Aboriginal and Torres Strait Islander status[b]			
Aboriginal and/or Torres Strait Islander	65,279 (2.6)	- (2.9)	-
Neither Aboriginal nor Torres Strait Islander	1,880,533 (75.9)	- (97.1)	-
Not recorded	532,858 (21.5)	-	-
State/territory			
ACT	73,392 (3.0)	370,641 (1.7)	19.8
NSW	910,885 (36.7)	6,984,469 (32.0)	13.0

Patient sociodemographic characteristic	MedicineInsight patients 2020–21	Australian national data (MBS)[a] 2020–21	% coverage by MedicineInsight patients
	No. (%)	No. (%)	%
NT	25,962 (1.0)	184,138 (0.8)	14.1
QLD	502,028 (20.3)	4,475,640 (20.5)	11.2
SA	52,082 (2.1)	1,530,807 (7.0)	3.4
TAS	168,233 (6.8)	464,867 (2.1)	36.2
VIC	445,562 (18.0)	5,545,661 (25.4)	8.0
WA	300,526 (12.1)	2,282,747 (10.5)	13.2
Rurality			
Major city	1,627,142 (65.6)	15,605,411 (71.5)	10.4
Inner regional	567,950 (22.9)	2,726,436 (12.5)	20.8
Outer regional	249,911 (10.1)	2,680,074 (12.3)	9.3
Remote/very remote	33,667 (1.4)	823,579 (3.7)	4.1
Missing	-	2,843	-
Socioeconomic status			
1 (most disadvantaged)	377,721 (15.2)	3,394,227 (15.5)	11.1
2	440,666 (17.8)	3,517,717 (16.1)	12.5
3	539,395 (21.8)	4,331,066 (19.8)	12.5
4	538,059 (21.7)	4,571,882 (21.0)	11.8
5 (most advantaged)	582,829 (23.5)	6,017,101 (27.6)	9.7
Missing	-	6,977	-
Concession cards			
Health care card (non-veteran)[c]	686,557 (31.7)	6,424,605[3]	10.7
Veteran health card	5,521 (0.3)	179,803[4]	3.1
Non-concessional patient	1,474,062 (68.1)	-	-
Not recorded	312,530	-	-

a MBS data from Department of Health and Aged Care
b AIHW, Aboriginal and Torres Strait Islander Health Performance Framework 2020 online tables: Table D3.14.20: VII adjusted, selected MBS services and patients, 2003–04 to 2017–18 https://indigenoushpf.gov.au/measures/3-14-access-services-compared-with-need/data#DataTablesAndResources
c Includes Health Care Card, Pensioner Concession Card and Commonwealth Seniors Health Card

AIHW: Australian Institute of Health and Welfare; MBS: Medicare Benefits Schedule

	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+
■ Male	6.0	4.6	5.0	5.7	5.5	5.8	5.7	4.6	2.0	0.5
■ Female	5.4	5	7.2	8	6.8	7	6.6	5.2	2.5	0.8

Age group (years)
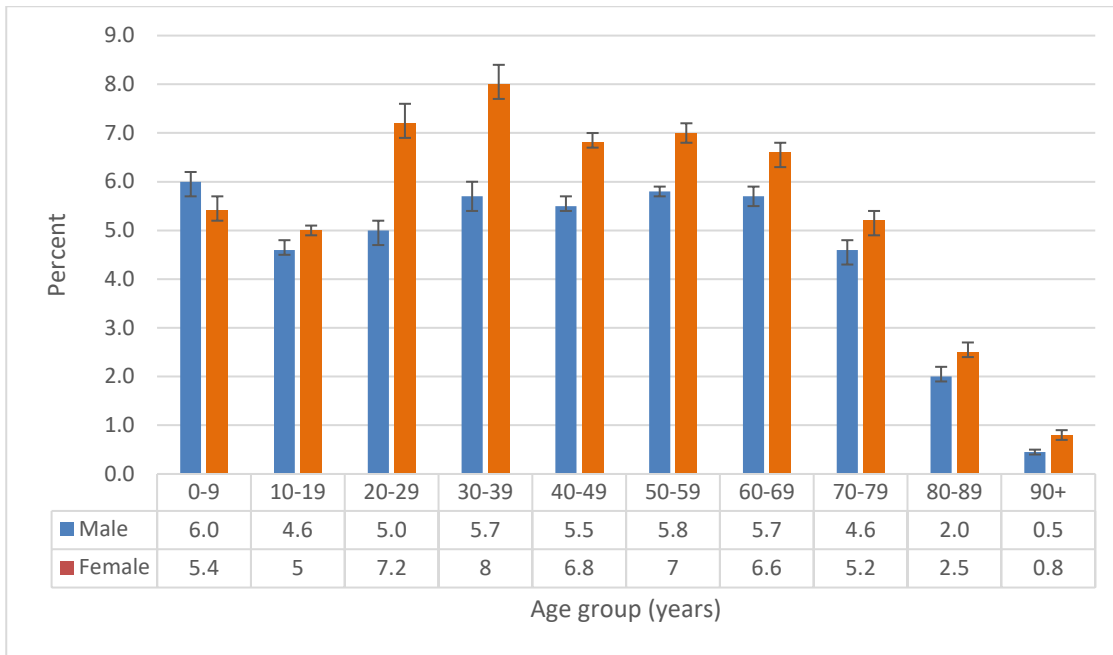
Figure 2.1   Age and sex distribution of MedicineInsight patients, 2020–21* (unweighted)

*Excludes 1122 patients with indeterminate sex

3. Encounters

<div style="border: 2px solid orange;">

In summary

▷ During 2020–21 there were 14.3 million clinical encounters with GPs recorded in the 471 eligible MedicineInsight practices.

▷ The average number of GP clinical encounters per patient in 2020–21 was 5.8. This is slightly higher than the 5.4 encounters per year reported in 2019–20.

▷ More than half of the patients (51.0%) had 1–3 GP clinical encounters during the year.

▷ Female patients attend general practices more often than male patients in most age groups.

▷ The average number of encounters per year significantly increases with age to an average of 14.0 encounters per patient aged 90 years or over.

▷ Patients in remote and very remote regions had on average fewer clinical encounters than patients living in regional and city areas.

▷ The number of encounters each year increased with increasing socioeconomic disadvantage.

</div>

This chapter describes the characteristics of GP clinical encounters in the MedicineInsight cohort, compared to all MBS-billed GP clinical encounters nationally.

Identifying GP clinical encounters in MedicineInsight is challenging. Every time a patient record is opened it is recorded as an encounter, regardless of whether it was opened for clinical or administrative reasons.

An NPS MedicineWise algorithm is used to define whether a patient has had at least one clinical encounter[E] with a GP on a particular day (see footnote and Appendix 1, Box 1). This definition is used to count and describe characteristics of clinical encounters in this report. For the purposes of counting clinical encounters, the number of encounters per patient per day is capped at one. However, all clinical data about a patient (eg, diagnoses and prescriptions) recorded on any date during the financial year 2020–21 are used, even if associated with an administrative encounter.

3.1. GP clinical encounter rate per patient

There were 14,333,943 GP clinical encounters recorded in MedicineInsight in 2020–21 for 2.48 million patients. Each patient had an average of 5.8 GP clinical encounters during the year (Table 3.1). This is slightly higher than the 5.4 encounters per year reported in the 2019–20 report.

More than half of the patients (51.0%) had 1–3 GP clinical encounters during the year and 13.6% of patients had 12 or more (Figure 3.1). National data showed 53.8% of patients who saw a GP in 2020–21 reported attending 1–3 times and 11.1% reported attending 12 or more times.[5]

[E] Clinical encounters are those in which the record in the medical record was created by a GP, the visit type is not an administrative term and in which at least one of the encounter reasons provided is not an administrative term.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25+
■ %	26	15	10	8.1	6.4	5.3	4.4	3.6	3	2.6	2.2	1.8	1.6	1.3	1.2	1	0.9	0.7	0.6	0.6	0.5	0.4	0.4	0.3	2.2

Number of encounter dates per patient
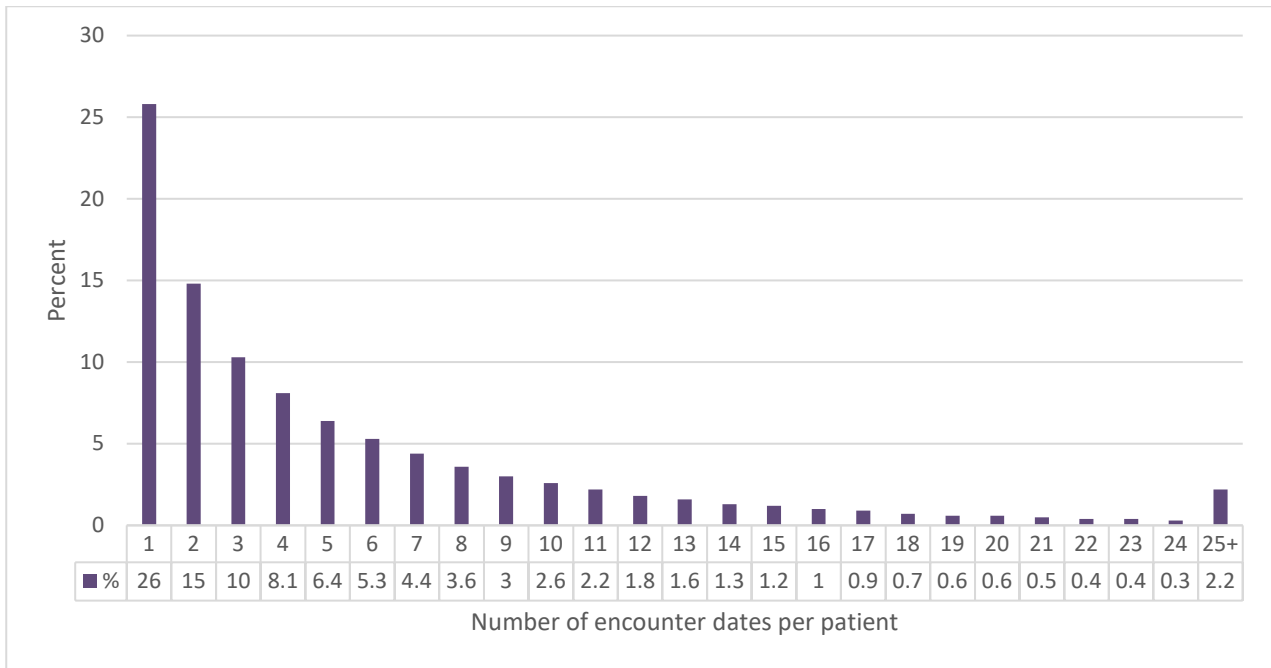
Figure 3.1   Frequency distribution of the number of GP clinical encounters per patient (unweighted), MedicineInsight 2020–21

In the 2019–20 GPIR report, using patient loyalty data provided by the Department of Health and Aged Care, NPS MedicineWise modelled that an estimated 1.6% of patients in the cohort had two or more unique patient ID numbers because of visiting more than one MedicineInsight practice site. A linkage pilot project completed by NPS MedicineWise with a sample from the 2019–20 patient cohort, found 3.8% of included patients were identified as duplicates. In this 3.8%, 10% were identified as the same patient within a practice site and 90% were identified as the same patient between practice sites.[6]

Table 3.1   Average number of GP clinical encounters per patient by sociodemographic characteristic in MedicineInsight 2020–21 (unweighted) compared to MBS national data,[a] 2020–21

Patient characteristic	MedicineInsight average number of encounters per patient	95% CI	MBS average number of encounters per patient[a]
All patients[b]	5.8	(5.7, 5.9)	7.9
Sex			
Male	5.3	(5.1, 5.4)	6.7
Female	6.2	(6.1, 6.3)	8.3
Age group (years)			
0–9	3.6	(3.5, 3.7)	4.9
10–19	3.4	(3.3, 3.5)	4.2
20–29	4.2	(4.1, 4.3)	6.4
30–39	4.7	(4.6, 4.8)	6.7
40–49	5.1	(5.0, 5.3)	6.8
50–59	5.8	(5.7, 5.9)	7.6
60–69	6.9	(6.8, 7.0)	9.0
70–79	9.4	(9.1, 9.6)	12.0
80–89	12.6	(12.3, 12.9)	15.8
90+	14.0	(13.4, 14.6)	17.9
State/territory			
ACT	5.2	(4.8, 5.6)	6.2
NSW	5.8	(5.5, 6.0)	7.8
NT	4.4	(3.8, 5.0)	5.8
QLD	5.7	(5.4, 5.9)	7.6
SA	6.4	(5.9, 7.0)	7.4
TAS	6.7	(6.2, 7.1)	6.9
VIC	6.0	(5.8, 6.3)	7.8
WA	5.4	(5.0, 5.8)	6.9
Rurality			
Major city	5.7	(5.5, 5.8)	7.7
Inner regional	6.1	(5.9, 9.4)	7.5
Outer regional	6.0	(5.6, 6.4)	7.1
Remote/very remote	4.8	(3.9, 5.7)	6.2
Socioeconomic status[c]			
1 (most disadvantaged)	6.6	(6.3, 6.8)	8.1
2	6.0	(5.7, 6.2)	7.7
3	5.8	(5.6, 6.1)	7.7
4	5.5	(5.4, 5.7)	7.6
5 (most advantaged)	5.3	(5.1, 5.5)	7.1

a National encounters are based upon MBS data from Australian Government Department of Health and Aged Care Total GP Non-Referred Attendances (Broad Type of Service codes A, M and B) excluding services provided by practice nurses and Aboriginal health workers 2020–21.
b 1122 patients of indeterminate sex are not included in this table or for the rest of the report.

MBS: Medicare Benefits Schedule

The average number of GP encounters increased to 5.8 from 5.4 in 2019–20 (Table 3.1). Female patients have a higher average number of GP encounters than male patients in most age groups (Figure 3.2). The exception is children aged 0–9, where boys attended the practice an average of 3.6 times during the year compared to an average of 3.5 times for girls. The average number of encounters per year significantly increases with age to 14.0 encounters per patient aged 90+ years (Table 3.1 and Figure 3.2). Comparable trends were seen in the national MBS data (Table 3.1).

Additional information about telehealth encounters can be found in chapter 9.

	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+
Male	3.6	3.1	3.3	3.8	4.5	5.3	6.6	9.1	12.2	13.6
Female	3.5	3.7	4.8	5.4	5.6	6.2	7.1	9.6	12.9	14.3
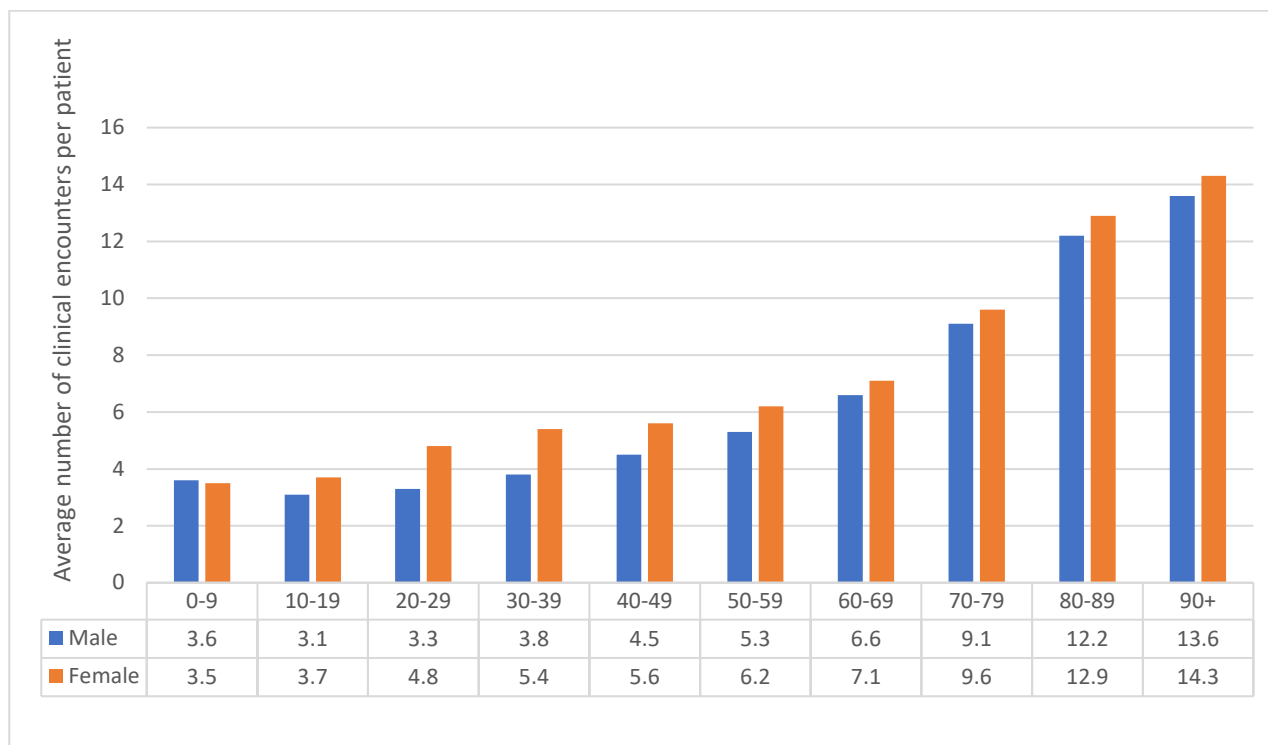
Figure 3.2   Average number of GP clinical encounters per patient by sex and age group (unweighted), MedicineInsight 2020–21

Encounter rates were similar between most states. Tasmanians visited their GP more often than patients in most of the other states, and patients in the Northern Territory less often. ABS data indicate that Tasmania has a higher proportion of residents 65 years and older than the national average.[7] This may account for their higher average yearly number of GP clinical encounters.

Patients in remote and very remote regions had the fewest clinical encounters. This is consistent with previous years and with MBS data (Table 3.1). Over 40% of the population of the Northern Territory live in remote or very remote areas. This may impact their average number of GP clinical encounters.[8]

The number of encounters each year increased with increasing socioeconomic disadvantage (Table 3.1 and Figure 3.3).

	1 - most disadvantaged	2	3	4	5 - most advantaged
Male	6.1	5.4	5.3	5.0	4.8
Female	7.0	6.4	6.3	6.0	5.7

Socioeconomic status (SEIFA IRSAD) quintile
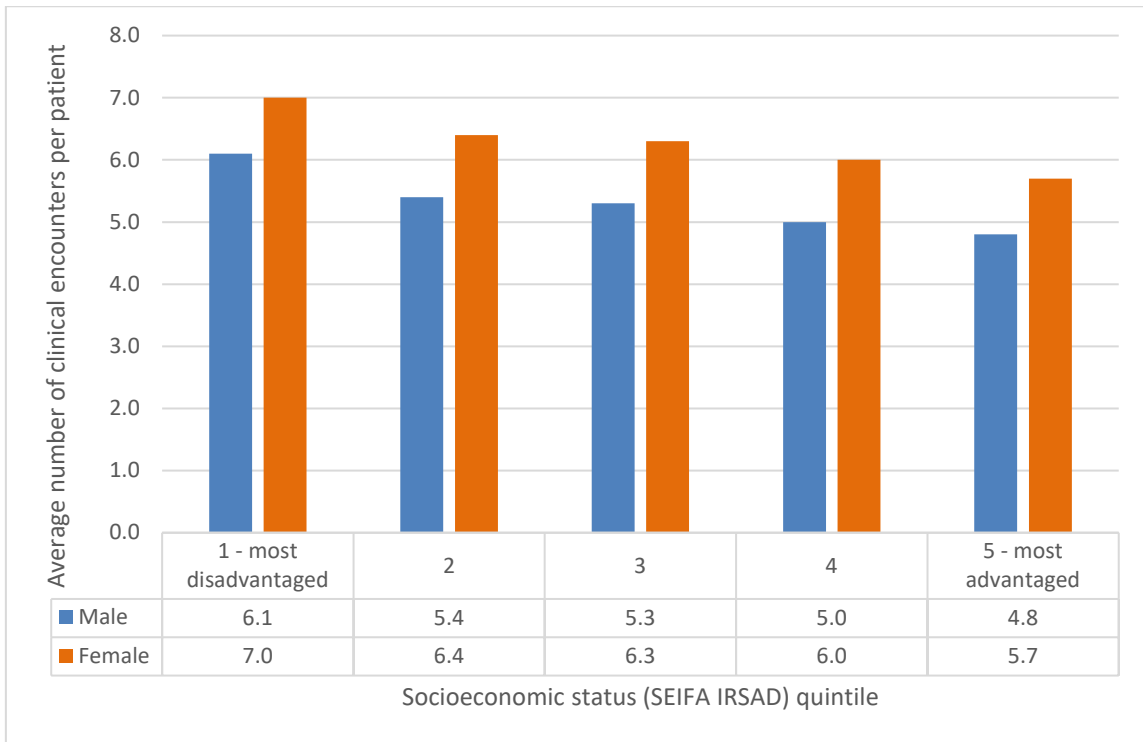
Figure 3.3   **Average number of GP clinical encounters per patient by SEIFA quintile and sex (unweighted), MedicineInsight 2020–21**

The distribution of encounters by age group was similar in MedicineInsight practices and MBS national data (Figure 3.4). In both datasets there was a peak in the number of encounters during childhood (0–9 years), which then fell substantially during adolescence and early adulthood. Encounter rates were highest in both datasets among the 60–79 age group.

	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
MedicineInsight	7.1	5.7	8.9	11.2	11.0	12.8	14.6	15.8	9.9	3.1
MBS	7.7	5.9	9.8	12.4	11.8	13.2	14.3	14.0	8.5	2.4

Age group (years)
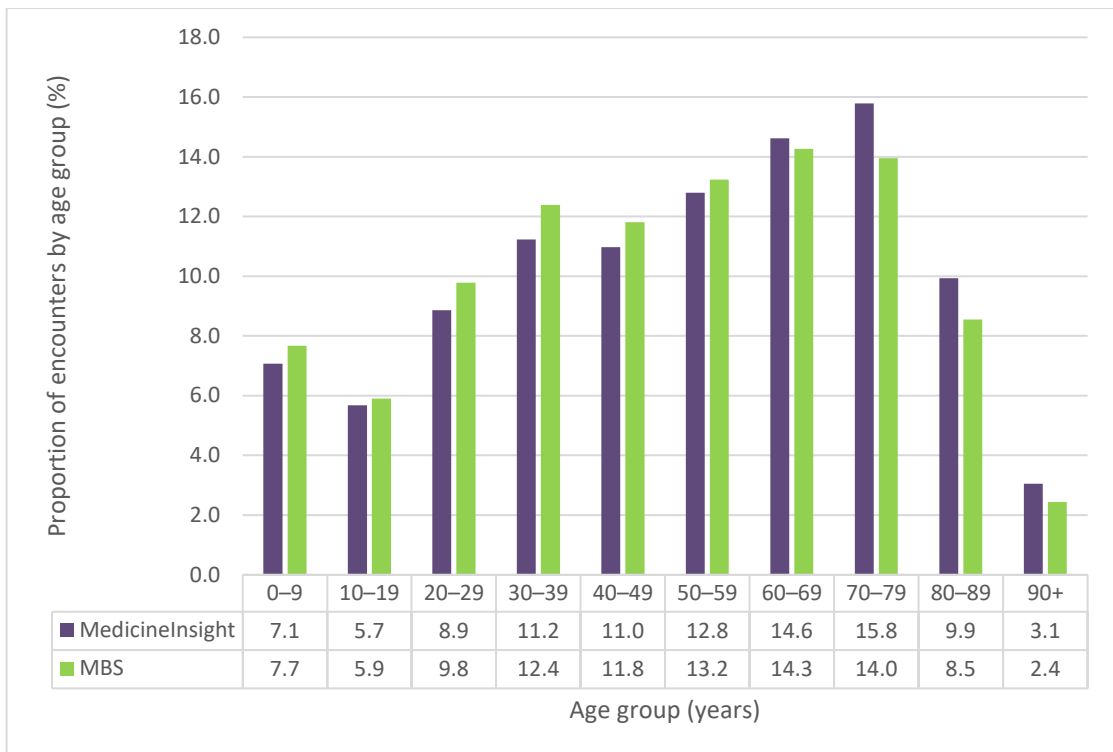
Figure 3.4   **Distribution of GP clinical encounters by patient age group in MedicineInsight (unweighted) compared to MBS data, 2020–21**

4. Non-communicable and mental health conditions

In summary

▷ Hypertension was the most common condition recorded during 2020–21 for patients seen by GPs in MedicineInsight practices (6.0% of patients), followed by anxiety (5.5%) and depression (5.1%).

▷ Patient prevalence in 2020–21 was also explored by identifying patients who were recorded as having a particular condition at any time in their medical record. Hypertension was the most commonly reported of the selected non-communicable conditions (16.1% of patients), followed by low back pain (15.9%) and depression (15.0%).

▷ Of every 100 GP clinical encounters during 2020–21, on average:

– 11 were with a patient with a recent record of hypertension and 30 were with a patient with hypertension ever recorded

– 10 were with a patient with a recent record of anxiety disorder and 23 were with a patient with anxiety disorder ever recorded.

▷ Patients with heart failure had, on average, at least 13 clinical encounters during 2020–21; more than double the average for the general population (5.8 per patient).

This chapter describes the conditions seen in MedicineInsight patients.

Detailed definitions of the conditions included in this report and how they are identified are provided in Appendices 1 and 4.

4.1. Patient prevalence

A diagnosis for a current condition may have been recorded historically and not routinely recorded at subsequent encounters because the GP already knows the patient's history. This can lead to an underestimation of the prevalence of conditions, particularly chronic conditions. For this reason, we use the proportion of patients with the condition recorded at any time in their medical record (referred to as 'ever recorded') to estimate patient prevalence. It represents the maximum estimate of GP management of patients with these conditions.

Hypertension was the most common condition, with 16.1% of patients having a diagnosis of hypertension ever recorded (at any time in their medical record; Table 4.1). The next most prevalent conditions were low back pain (15.9%), depression (15.0%) and anxiety disorder (14.6%).

Table 4.1   **Proportion of MedicineInsight patients (unweighted and weighted) with selected non-communicable conditions ever recorded in 2020–21 compared with GPIR 19–20**

Condition[a]	MedicineInsight unweighted (condition ever recorded; N = 2477548) % (95% CI) patients	MedicineInsight weighted (condition ever recorded) % (95% CI) patients	GPIR 2019–20 (weighted) % (95% CI) patients
Hypertension	17.3 (16.5, 18.1)	16.1 (15.3, 17.0)	15.7 (14.9, 16.6)
Low back pain	16.3 (15.7, 17.0)	15.9 (15.1, 16.7)	14.8 (14.1, 15.5)
Depression	16.0 (15.4, 16.7)	15.0 (14.3, 15.8)	14.3 (13.6, 15.1)
Anxiety disorder	15.3 (14.7, 15.9)	14.6 (13.9, 15.3)	13.3 (12.6, 14.0)
Dyslipidaemia	14.3 (13.7, 14.9)	14.0 (13.3, 14.6)	13.2 (12.5, 13.9)
GORD	14.2 (13.7, 14.8)	13.6 (12.9, 14.2)	12.1 (11.4, 12.8)
Asthma	11.5 (11.1, 11.9)	11.4 (10.9, 11.8)	11.1 (10.6, 11.6)

Condition[a]	MedicineInsight unweighted (condition ever recorded; N = 2477548)	MedicineInsight weighted (condition ever recorded)	GPIR 2019–20 (weighted)
	% (95% CI) patients	% (95% CI) patients	% (95% CI) patients
Osteoarthritis	10.2 (9.6, 10.8)	9.3 (8.6, 9.9)	9.0 (8.4, 9.7)
Dermatitis/eczema	7.4 (7.0, 7.8)	7.6 (7.2, 8.1)	7.2 (6.7, 7.7)
Diabetes (type 2/NOS)	5.8 (5.5, 6.1)	5.6 (5.3, 5.9)	5.5 (5.2, 5.9)
CVD[b]	5.1 (4.8, 5.5)	4.7 (4.3, 5.0)	4.7 (4.3, 5.0)
Osteoporosis	5.3 (4.9, 5.6)	4.7 (4.4, 5.1)	4.5 (4.1, 4.8)
Skin cancer (excluding melanoma)	5.0 (4.6, 5.5)	4.4 (4.0, 4.8)	4.3 (3.9, 4.8)
Migraine	4.8 (4.6, 5.0)	4.6 (4.4, 4.8)	4.3 (4.1, 4.5)
COPD	2.7 (2.5, 2.9)	2.4 (2.2, 2.6)	2.4 (2.2, 2.6)
Atrial fibrillation	2.4 (2.3, 2.6)	2.2 (2.0, 2.3)	2.1 (1.9, 2.3)
Melanoma	1.4 (1.3, 1.6)	1.3 (1.1, 1.4)	1.2 (1.1, 1.3)
Breast cancer	1.2 (1.2, 1.3)	1.1 (1.1, 1.2)	1.1 (1.0, 1.2)
Chronic kidney disease	1.4 (1.2, 1.5)	1.1 (1.0, 1.3)	1.1 (1.0, 1.2)
Heart failure	1.2 (1.1, 1.3)	1.1 (1.0, 1.1)	1.0 (0.9, 1.1)
Stroke	1.1 (1.0, 1.1)	1.0 (0.9, 1.0)	1.0 (0.9, 1.0)
Bipolar disorder	1.0 (1.0, 1.1)	0.9 (0.9, 1.0)	0.9 (0.8, 1.0)
Prostate cancer	0.9 (0.8, 1.0)	0.8 (0.8, 0.9)	0.8 (0.8, 0.9)
Rheumatoid arthritis	0.8 (0.8, 0.9)	0.7 (0.7, 0.8)	0.7 (0.7, 0.8)
Diabetes (gestational)	0.7 (0.6, 0.7)	0.7 (0.6, 0.7)	0.6 (0.6, 0.7)
Dementia	0.6 (0.6, 0.7)	0.6 (0.5, 0.6)	0.6 (0.5, 0.6)
Schizophrenia	0.6 (0.6, 0.7)	0.6 (0.5, 0.7)	0.6 (0.5, 0.7)
Diabetes (type 1)	0.5 (0.5, 0.6)	0.5 (0.5, 0.5)	0.5 (0.5, 0.6)
Coeliac disease	0.5 (0.5, 0.5)	0.5 (0.4, 0.5)	0.4 (0.4, 0.5)
Colorectal cancer	0.6 (0.6, 0.6)	0.5 (0.5, 0.6)	-

a As information about the status of the condition is not regularly updated in the CIS, conditions are included whether they are marked as 'active' or 'inactive'.

b Includes coronary artery disease, peripheral vascular disease, atrial fibrillation, heart failure, stroke and transient ischaemic attack.

CI: confidence interval; COPD: chronic obstructive pulmonary disease; CVD: cardiovascular disease; GORD: gastro-oesophageal reflux disease; GPIR: General Practice Insights Report; NOS: not otherwise specified; nr: not recorded.

4.2. Conditions recorded for patients in 2020–21

To estimate the minimum level of active management of patient conditions by GPs, we restricted our searches to diagnoses recorded in 2020–21 only. We refer to this as recent management.

The most commonly recorded conditions in 2020–21 were similar to conditions ever recorded (at any time in the medical record; Table 4.2). Hypertension was the most commonly recorded condition during 2020–21 (6.0%), followed by anxiety (5.5%) and depression (5.1%).

Table 4.2 Proportion of MedicineInsight patients with selected non-communicable conditions recorded during 2020–21 (unweighted and weighted) compared with 2019–20 (weighted)

Condition[a]	Unweighted (N = 2477548) % (95% CI) patients	Weighted % (95% CI) patients	GPIR 2019–20 (weighted) % (95%CI) patients
Hypertension	6.3 (6.0, 6.6)	6.0 (5.6, 6.3)	5.8 (5.5, 6.2)
Anxiety disorder	5.8 (5.5, 6.1)	5.5 (5.2, 5.8)	5.0 (4.7, 5.3)
Depression	5.4 (5.1, 5.6)	5.1 (4.8, 5.4)	4.8 (4.5, 5.1)
Low back pain	4.3 (4.1, 4.5)	4.2 (4.0, 4.4)	3.9 (3.7, 4.1)
GORD	4.4 (4.3, 4.6)	4.3 (4.1, 4.6)	3.7 (3.6, 3.9)
Asthma	3.2 (3.0, 3.3)	3.1 (3.0, 3.3)	3.5 (3.4, 3.7)
Dyslipidaemia	3.7 (3.5, 3.9)	3.7 (3.5,3.9)	3.2 (3.0, 3.4)
Diabetes (type 2/NOS)	2.8 (2.7, 3.0)	2.7 (2.6, 2.9)	2.6 (2.4, 2.8)
Osteoarthritis	2.4 (2.3, 2.6)	2.2 (2.0, 2.3)	2.1 (1.9, 2.2)
Dermatitis/eczema	1.6 (1.5, 1.7)	1.7 (1.6, 1.8)	1.6 (1.5, 1.7)
Osteoporosis	1.6 (1.5, 1.8)	1.5 (1.4, 1.6)	1.4 (1.2, 1.5)
Migraine	1.3 (1.2, 1.4)	1.3 (1.2, 1.3)	1.1 (1.1, 1.2)
CVD[b]	1.2 (1.1, 1.3)	1.1 (1.0, 1.2)	1.1 (1.0, 1.2)
Skin cancer	1.1 (1.0, 1.2)	1.0 (0.8, 1.1)	1.0 (0.8, 1.1)
COPD	0.9 (0.8, 0.9)	0.8 (0.7, 0.8)	0.9 (0.8, 1.0)
Atrial fibrillation	0.8 (0.7, 0.8)	0.7 (0.6, 0.7)	0.7 (0.7, 0.8)
Heart failure	0.4 (0.4, 0.5)	0.4 (0.3, 0.4)	0.4 (0.3, 0.4)
Chronic kidney disease	0.4 (0.4, 0.5)	0.4 (0.3, 0.4)	0.4 (0.3, 0.4)
Bipolar disorder	0.4 (0.4, 0.5)	0.4 (0.4, 0.4)	0.4 (0.3, 0.4)
Schizophrenia	0.3 (0.3, 0.3)	0.3 (0.3, 0.3)	0.3 (0.2, 0.3)
Dementia	0.3 (0.3, 0.3)	0.3 (0.2, 0.3)	0.2 (0.2, 0.3)
Rheumatoid arthritis	0.3 (0.2, 0.3)	0.2 (0.2, 0.3)	0.2 (0.2, 0.3)
Breast cancer	0.2 (0.2, 0.3)	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)
Prostate cancer	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)
Diabetes (type 1)	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)
Stroke	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)
Melanoma	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)
Diabetes (gestational)	0.1 (0.1, 0.1)	0.1 (0.1, 0.1)	0.1 (0.1, 0.1)
Coeliac disease	0.1 (0.1, 0.1)	0.1 (0.1, 0.1)	0.1 (0.1, 0.1)
Colorectal cancer	0.1 (0.1, 0.1)	0.1 (0.1, 0.1)	-

a As information about the status of the condition is not regularly updated in the CIS, conditions are included whether they are marked as 'active' or 'inactive'.
b Includes coronary artery disease, peripheral vascular disease, atrial fibrillation, heart failure, stroke and transient ischaemic attack.CI: Confidence interval; COPD: chronic obstructive pulmonary disease; CVD: cardiovascular disease; GORD: gastro-oesophageal reflux disease; 2019–20 data obtained from General Practice Insights Report, 2018–19; NOS: not otherwise specified; nr: not recorded.

4.3. Conditions per 100 GP clinical encounters

This section provides important information about GP workload during 2020–21. It describes both the number of encounters with patients with a condition recorded recently (during 2020–21) and the number of encounters with patients with a condition ever recorded (recently or historically).

Of every 100 GP clinical encounters during 2020–21, on average (Table 4.3):

▷ 11 were with a patient with a recent record of hypertension and 30 were with a patient with hypertension ever recorded

▷ 10 were with a patient with a recent record of anxiety disorder and 23 were with a patient with anxiety disorder ever recorded

▷ 9 were with a patient with a recent record of depression and 25 were with a patient with depression ever recorded

▷ 9 were with a patient with a recent record of GORD and 26 were with a patient with GORD ever recorded

▷ 9 were with a patient with a recent record of low back pain and 28 were with a patient with low back pain ever recorded.

Table 4.3   Patients with selected conditions per 100 GP clinical encounters (weighted) in MedicineInsight 2020–21[a]

Condition[b]	Condition recorded in 2020–21	Condition ever recorded
	Encounters with patients with condition (recorded in 2020–21) per 100 encounters[c] (95% CI)	Encounters with patients with condition (ever recorded) per 100 encounters[c] (95% CI)
Hypertension	10.8 (10.2, 11.4)	29.6 (28.4, 30.9)
Anxiety	9.7 (9.2, 10.3)	23.0 (22.1, 24.0)
Depression	9.4 (8.9, 9.9)	25.3 (24.3, 26.2)
GORD	8.9 (8.5, 9.3)	25.6 (24.6, 26.6)
Low back pain	8.8 (8.4, 9.3)	28.2 (27.1, 29.3)
Diabetes (type 2/NOS)	6.1 (5.7, 6.4)	12.0 (11.4, 12.6)
Dyslipidaemia	5.8 (5.5, 6.2)	24.2 (23.2, 25.1)
Osteoarthritis	5.1 (4.8, 5.5)	19.9 (18.8, 21.0)
Asthma	4.9 (4.7, 5.1)	16.2 (15.6, 16.7)
Osteoporosis	3.6 (3.4, 3.9)	11.1 (10.4, 11.8)
CVD[d]	2.8 (2.6, 3.0)	11.1 (10.4, 11.8)
Skin cancer (excl melanoma)	2.4 (2.1, 2.6)	9.0 (8.3, 9.8)
Dermatitis/eczema	2.3 (2.2, 2.5)	10.0 (9.4, 10.6)
Migraine	2.2 (2.1, 2.3)	7.4 (7.2, 7.7)
COPD	2.0 (2.0, 2.3)	6.0 (5.6, 6.4)
Atrial fibrillation	1.9 (1.7, 2.0)	5.5 (5.2, 5.9)
Heart failure	1.4 (1.2, 1.5)	3.3 (3.1, 3.6)
Chronic kidney disease	1.1 (1.0, 1.3)	3.1 (2.8, 3.6)
Bipolar disorder	0.9 (0.9, 1.0)	2.0 (1.8, 2.1)
Dementia	0.7 (0.7, 0.9)	1.5 (1.4, 1.7)
Schizophrenia	0.7 (0.6, 0.8)	1.4 (1.2, 1.6)
Rheumatoid arthritis	0.6 (0.5, 0.6)	1.6 (1.5, 1.7)
Prostate cancer	0.5 (0.4, 0.5)	1.8 (1.7, 1.9)
Stroke	0.5 (0.5, 0.5)	2.4 (2.2, 2.5)

Condition[b]	Condition recorded in 2020–21	Condition ever recorded
	Encounters with patients with condition (recorded in 2020–21) per 100 encounters[c] (95% CI)	Encounters with patients with condition (ever recorded) per 100 encounters[c] (95% CI)
Breast cancer	0.4 (0.4, 0.5)	2.2 (2.1, 2.3)
Diabetes (type 1)	0.4 (0.3, 0.4)	0.9 (0.9, 1.0)
Melanoma	0.4 (0.3, 0.4)	2.3 (2.1, 2.5)
Coeliac disease	0.2 (0.1, 0.2)	0.7 (0.6, 0.7)
Colorectal cancer	0.2 (0.2, 0.2)	1.2 (1.1, 1.2)
Diabetes (gestational)	0.2 (0.2, 0.2)	0.9 (0.8, 1.0)

a The second column from left of Table 4.3 describes the rate at which patients with selected conditions recorded in 2020–21 were managed per 100 encounters, calculated by dividing the number of encounters with patients with the condition recorded in 2020–21 by the total number of encounters for all patients multiplied by 100. The right-hand column of Table 4.3 describes the rate at which patients with selected conditions ever recorded (at any time in their medical records) were managed per 100 encounters, calculated by dividing the number of encounters with patients with the condition ever recorded by the total number of encounters for all patients multiplied by 100.

b As information about the status of the condition is not regularly updated within the CIS, conditions are included irrespective of whether they are marked as 'active' or 'inactive'.

c While patients may have a history of a condition, it may not necessarily be managed at every encounter. In addition, patients may present with more than one condition at each encounter. The number of patients with each specified condition either during 2020–21 or 'ever-recorded' are averaged over 100 GP clinical encounters in 2020–21.

d Includes coronary artery disease, peripheral vascular disease, atrial fibrillation, heart failure, stroke and transient ischaemic attack.

CI: confidence interval; CIS: clinical information system; COPD: chronic obstructive pulmonary disease; CVD: cardiovascular disease; GORD: gastro-oesophageal reflux disease; NOS: not otherwise specified.

4.4. Annual GP clinical encounter rate for patients with selected conditions (ever recorded)

During 2020–21, patients with each selected medical condition had a significantly higher average number of GP clinical consultations compared to the 5.8 average for patients in the entire cohort. Table 4.4 presents the mean number of GP clinical encounters in 2020–21 for patients with a selected condition ever recorded in the CIS, adjusted for age and sex.

While patients with a record of heart failure were only managed at an average of 3.3 out of every 100 GP clinical encounters (Table 4.3; right-hand columns) they had the highest average adjusted GP clinical encounter rate in 2020–21 at 13.8 (Table 4.4).

Patients with a record of schizophrenia and bipolar disorder also had high average adjusted GP clinical encounter rates in 2020–21 at 12.7 and 11.5 respectively, despite being managed at 2.0 or fewer per 100 GP clinical encounters.

Patients with chronic kidney disease (CKD) were seen at 3.1 out of every 100 encounters but had an average adjusted GP clinical encounter rate in 2020–21 of 11.4.

Note that patients may have more than one of the selected conditions and so may be included more than once in Table 4.4.

Table 4.4   Average number of GP clinical encounters in 2020–21 per patient with a selected condition, age- and sex- adjusted, MedicineInsight 2020–21

	Average number of GP clinical encounters in 2020–21 adjusted for age and sex[a] (95% CI)	Average number of GP clinical encounters in 2020–21 (unadjusted) (95% CI)
All patients	-	5.8
Patient condition (ever recorded)[b]		
Heart failure	13.8 (12.9, 14.7)	17.8 (14.5, 18.2)
Schizophrenia	12.7 (12.3, 13.1)	12.8 (12.4, 13.2)
Bipolar disorder	11.5 (11.2, 11.8)	11.6 (11.3, 11.9)
Chronic kidney disease	11.4 (10.8, 12.0)	15.5 (15.2, 15.8)

	Average number of GP clinical encounters in 2020–21 adjusted for age and sex[a] (95% CI)	Average number of GP clinical encounters in 2020–21 (unadjusted) (95% CI)
COPD	11.3 (10.8, 11.7)	14.2 (14.0, 14.5)
Osteoporosis	11.2 (10.9, 11.6)	13.5 (13.2, 13.7)
CVD[d]	10.5 (10.1, 10.8)	13.6 (13.4, 13.8)
Diabetes (type 2/NOS)	10.5 (10.2, 10.7)	12.3 (12.1, 12.5)
Stroke	10.5 (10.0, 10.9)	14.2 (13.9, 14.5)
Dementia	10.4 (9.7, 11.1)	15.1 (14.5, 15.7)
Atrial fibrillation	10.1 (9.5, 10.7)	14.7 (14.4, 51.0)
Osteoarthritis	10.0 (9.7, 10.2)	12.1 (11.9, 12.3)
Rheumatoid arthritis	9.8 (9.5, 10.1)	12.4 (12.1, 12.7)
Diabetes (type 1)	9.6 (9.2, 9.9)	10.4 (10.0, 10.7)
Colorectal cancer	9.3 (8.7, 9.8)	5.8 (5.7, 5.9)
GORD	9.2 (9.0, 9.4)	10.8 (10.6, 11.0)
Depression	8.9 (8.8, 9.1)	9.5 (9.3, 9.7)
Low back pain	8.9 (8.7, 9.1)	10.1 (9.9, 10.3)
Migraine	8.8 (8.7, 9.0)	9.1 (8.9, 9.2)
Hypertension	8.6 (8.4, 8.7)	10.5 (10.4, 10.7)
Anxiety	8.5 (8.6, 9.0)	5.9 (8.7, 9.1)
Dyslipidaemia	8.5 (8.3, 8.8)	10.0 (9.8, 10.2)
Breast cancer	8.2 (7.5, 8.9)	11.1 (10.9, 11.3)
Prostate cancer	8.2 (7.1, 9.4)	12.1 (11.8, 12.3)
Skin cancer (excluding melanoma)	8.2 (7.8, 8.6)	11.7 (11.5, 12.0)
Asthma	8.1 (7.9, 8.2)	8.2 (8.1, 8.4)
Diabetes (gestational)	8.1 (7.8, 8.4)	7.5 (7.3, 7.7)
Coeliac disease	7.9 (7.7, 8.2)	8.2 (8.0, 8.4)
Melanoma	7.9 (7.6, 8.1)	10.6 (10.3, 10.8)

a To adjust for confounding by age and sex the GPIR 2020–21 all patient cohort was used as the reference population for age and sex standardisation of encounter rates for patients with selected conditions (using direct standardisation).

b While patients may have a history of a condition, it may not necessarily be managed at every encounter. In addition, patients may present with more than one condition at each encounter. The average (mean) number of GP clinical encounters in 2020–21 is calculated for each group of patients with each selected condition ever recorded.

c Figures for prostate cancer include male patients only. Figures for gestational diabetes include female patients only.

5. Prescriptions

In summary

▷ MedicineInsight captures prescriptions that have been issued – whether they are private, PBS subsidised or under co-payment. In contrast, PBS data captures prescriptions when the medicine has been dispensed on the PBS (including under co-payment).

▷ Just over 10 million issued prescriptions, and 33.1 million total prescriptions (issued plus repeats), were written by GPs in MedicineInsight practices during 2020–21.

▷ 64.9% of MedicineInsight patients were prescribed a medicine at least once during 2020–21.

▷ Medicines to treat the nervous system (ATC N: antidepressants, analgesics, antiepileptics) were the most commonly issued prescriptions. However, cardiovascular medicines (ATC C: lipid-modifying medicines, antihypertensives) were the most commonly prescribed total (issued plus repeat) medicines.

▷ The overwhelming majority of medicines are subsidised by the Australian Government under the PBS or the RPBS (85.1%).

▷ On average, 100 MedicineInsight encounters result in 67.5 issued prescriptions and 218.7 total prescriptions.

This chapter describes prescribing during 2020–21. All prescriptions ordered by general practice staff in the CIS – private, PBS and RPBS – that could be assigned to a unique ATC code have been included. There were an additional 539,703 issued prescriptions recorded in the database which could not be assigned an ATC code by NPS MedicineWise because they either did not have an active ingredient recorded or had an active ingredient that could be assigned to multiple ATC codes. Prescriptions without an assigned unique ATC code were not included in the analyses below. For reference, the list of the 20 most common medicines where an active ingredient was recorded, but for which an ATC code has not yet been assigned in our dataset, are included in the supplementary data table. The single most commonly ordered medicine that could not be assigned a unique ATC code was metronidazole (0.17% of all issued prescriptions).

MedicineInsight captures prescribing data, not dispensing data. Thus, a medicine may be recorded as having been prescribed, but there is no guarantee that the medicine was dispensed by a pharmacist to the patient or that the patient took the medicines as advised.

The data is reported by issued prescriptions, which are prescriptions provided to the patient and which may or may not include repeat prescriptions. In contrast, total prescription data provide information on the total number of prescriptions that are generated as a result of an issued prescription – that is the issued prescription and the repeat prescriptions written for a patient to fill over the following months before returning to the GP to be issued another prescription.

Data on total prescriptions are most informative with regards to cost to the PBS, and overall use of a particular medicine by the population. In contrast, data on issued prescriptions provides insights into the impact that writing prescriptions has upon GP workload.

5.1. Prescription numbers

During 2020–21, just over 10 million issued prescriptions and 33.1 million total (issued plus repeat) prescriptions with an assigned ATC code were recorded in MedicineInsight. Among eligible patients, 64.9% (n =1,607,438) had at least one recorded prescription during 2020–21 and 35.1% (n = 870,110) had no record of a prescription.

The average number of issued prescriptions recorded per patient was 3.8 (95% CI 3.6 to 4.0) while the average number of total prescriptions (issued plus repeats) per patient was 12.3 (95% CI 11.7 to 12.9; Table 5.1).

Table 5.1 Average number of issued prescriptions recorded by patient characteristic during 2020–21 (unweighted and weighted) compared with 2019–20

Characteristic	MedicineInsight unweighted data 2020–21 Average[a] (95% CI)	MedicineInsight weighted data 2020–21 Average[a] (95% CI)	GPIR 2019–20 (weighted) Average[a] (95% CI)
All patients	4.1 (3.9, 4.2)	3.8 (3.6, 4.0)	3.9 (3.7, 4.0)
Sex			
Male	3.7 (3.6, 3.9)	3.5 (3.3, 3.6)	3.6 (3.4, 3.7)
Female	4.4 (4.2, 4.5)	4.1 (3.9, 4.2)	4.1 (4.0, 4.3)
Age group (years)			
0–9	1.0 (1.0, 1.1)	1.0 (1.0, 1.0)	1.1 (1.1, 1.2)
10–19	1.3 (1.3, 1.3)	1.2 (1.2, 1.3)	1.3 (1.3, 1.3)
20–29	2.0 (2.0, 2.1)	1.9 (1.8, 2.0)	2.0 (1.9, 2.0)
30–39	2.5 (2.4, 2.6)	2.4 (2.3, 2.5)	2.4 (2.3, 2.5)
40–49	3.5 (3.4, 3.6)	3.3 (3.2, 3.5)	3.3 (3.2, 3.4)
50–59	4.5 (4.4, 4.7)	4.4 (4.2, 4.5)	4.5 (4.3, 4.7)
60–69	6.1 (5.9, 6.3)	5.9 (5.7, 6.1)	6.2 (6.0, 6.4)
70–79	8.5 (8.2, 8.7)	8.2 (7.9, 8.5)	8.7 (8.4, 9.0)
80–89	11.2 (10.9, 11.5)	10.9 (10.6, 11.3)	11.5 (11.2, 11.9)
90+	11.6 (11.1, 12.1)	11.4 (10.8, 11.9)	12.1 (11.6, 12.7)
Rurality			
Major city	3.8 (3.6, 3.9)	3.6 (3.4, 3.8)	3.6 (3.4, 3.8)
Inner regional	4.7 (4.4, 5.0)	4.4 (4.1, 4.6)	4.6 (4.3, 4.9)
Outer regional	4.7 (4.3, 5.1)	4.3 (3.9, 4.7)	4.3 (4.0, 4.7)
Remote/very remote	3.8 (3.1, 4.5)	2.9 (2.4, 3.5)	3.0 (2.5, 3.4)
State/territory			
ACT	3.9 (3.5, 4.3)	3.7 (3.3, 4.1)	3.9 (3.4, 4.3)
NSW	4.1 (3.9, 4.4)	3.6 (3.4, 3.9)	3.7 (3.5, 4.0)
NT	2.9 (2.2, 3.7)	2.5 (2.0, 3.1)	2.5 (2.2, 2.9)
QLD	3.8 (3.6, 4.1)	3.7 (3.4, 3.9)	3.8 (3.5, 4.1)
SA	4.3 (3.5, 5.1)	4.3 (3.6, 5.1)	4.4 (3.6, 5.2)
TAS	5.4 (4.9, 5.9)	5.2 (4.7, 5.6)	5.2 (4.6, 5.8)
VIC	4.1 (3.8, 4.4)	4.0 (3.6, 4.3)	4.0 (3.6, 4.3)
WA	3.6 (3.2, 4.0)	3.7 (3.3, 4.1)	3.5 (3.2, 3.8)
Socioeconomic status			
1 (most disadvantaged)	5.4 (5.1, 5.7)	4.9 (4.6, 5.3)	5.0 (4.6, 5.3)
2	4.6 (4.3, 4.8)	4.3 (1.0, 4.6)	4.2 (3.9, 4.5)
3	4.1 (3.9, 4.3)	3.9 (3.7, 4.2)	4.0 (3.8, 4.2)
4	3.5 (3.4, 3.7)	3.4 (3.3, 3.6)	3.5 (3.3, 3.7)
5 (most advantaged)	3.3 (3.1, 3.5)	3.2 (3.0, 3.4)	3.3 (3.1, 3.5)

a The average was based on all patients including those who did not have a prescription recorded
2019–20 data obtained from General Practice Insights Report, 2019–20.

One-fifth of MedicineInsight patients had six or more issued prescriptions recorded during the year and 6.1% had 15 or more issued prescriptions recorded (Figure 5.1).

	0	1–2	3–5	6–8	9–11	12–14	15+
% of patients	36.4	28.3	15.2	7.2	4.1	2.6	6.1

Number of issued prescriptions
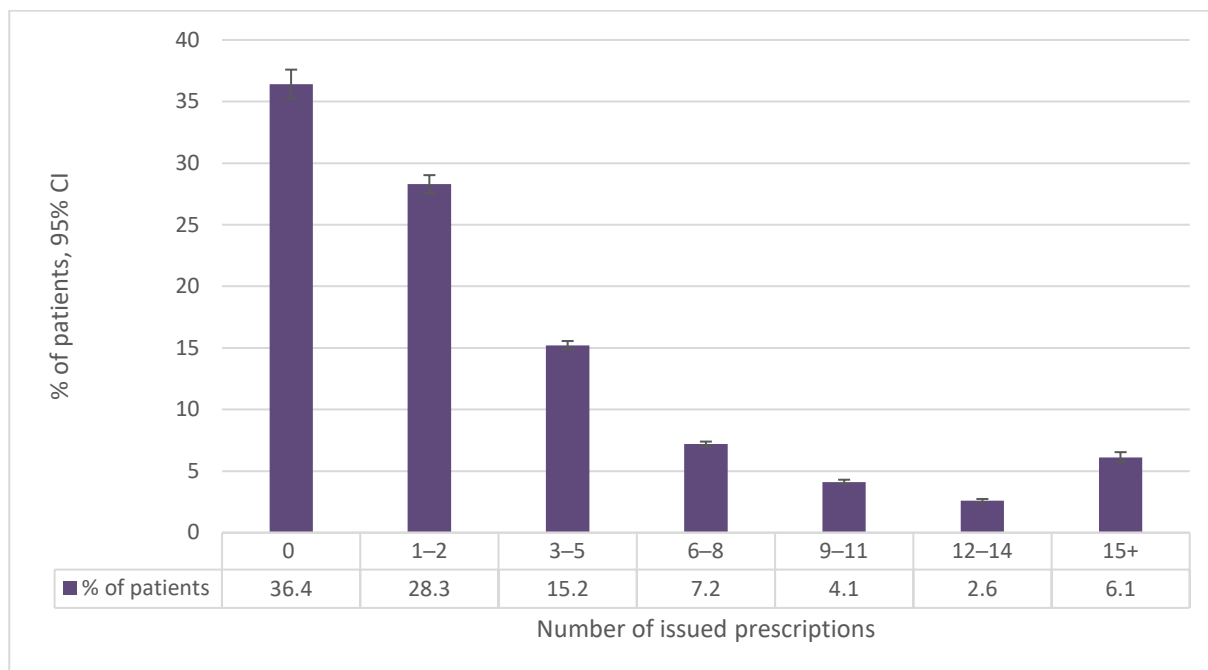
Figure 5.1   Number of issued prescriptions recorded per patient (weighted), MedicineInsight 2020–21

The average number of recorded prescriptions per annum for an individual patient increases with age (Table 5.1, Figure 5.2), rising from 1.2 (95% CI 1.2 to 1.3) for patients aged 10–19 years to 11.4 (95% CI 10.8 to 11.9) in the 90+ years age group. This is likely to reflect higher disease burden among older people.

MedicineInsight patients from the Northern Territory had an average number of recorded prescriptions (2.5, 95% CI 2.0 to 3.1) significantly lower than the national average (Table 5.1). In contrast, the number of prescriptions was significantly higher among patients from Tasmania, compared to the national average. This may reflect the different age profiles of each state. The Northern Territory has a lower median age (33.8 years), and Tasmania has a higher median age (42.6 years) than the national median age of 38.2 years.[9]

The average number of recorded prescriptions increases with socioeconomic disadvantage (Table 5.1). The average number of medicines prescribed for patients in the most advantaged group is 3.2 (95% CI 3.0 to 3.4) compared with 4.9 (95% CI 4.6 to 5.3) for the most disadvantaged group. This is likely to reflect higher disease burden in more disadvantaged communities.[10]

Over all age groups, the recorded number of prescriptions for women is higher than for men (Figure 5.2).

	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	1.0	1.0	1.4	2.1	3.1	4.2	5.8	7.9	10.1	10.5
Female	1.0	1.5	2.3	2.6	3.6	4.5	6.0	8.5	11.6	11.8

Age group (years)
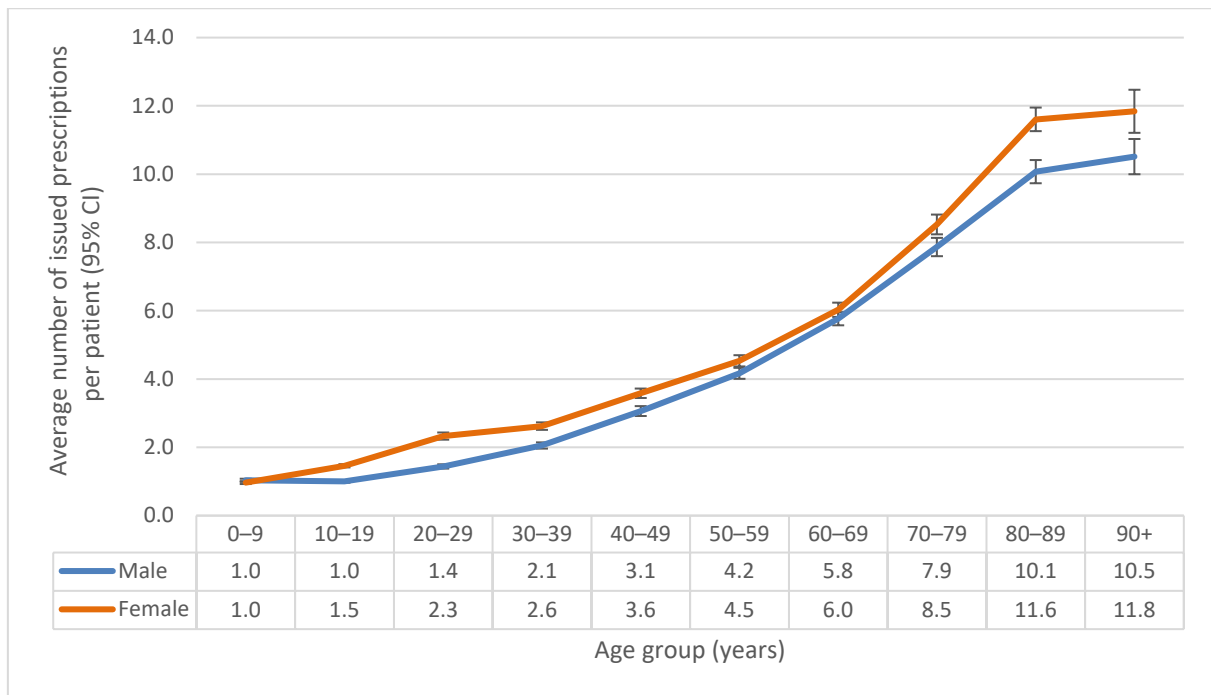
Figure 5.2   Average number of issued prescriptions recorded per patient by age group and sex (weighted), MedicineInsight 2020–21

5.2.   Prescriptions per medicine type

Just over 10 million issued prescriptions with assigned ATC codes were prescribed in 2020–21 (Table 6.2). If total prescriptions – issued and repeat prescriptions – are included, then there were 33.1 million prescriptions recorded. During the same period, approximately 213.4 million prescriptions were dispensed on the PBS (ATC Level 1 including under co-payment prescriptions).[11]

At ATC level 1, medicines for the nervous system (which include analgesics, antidepressants and medicines to treat epilepsy and Parkinson disease) accounted for the largest proportion of medicines prescribed for MedicineInsight patients in terms of issued prescriptions (29.5%). However, cardiovascular medicines accounted for the largest proportion of medicines ordered for MedicineInsight patients in terms of the total volume of prescriptions (32.2%; Table 5.2). The differences between the proportions of medicines seen when comparing issued prescription data with total prescription data may be due to:

- the nature of the condition being treated. A higher total of prescriptions will be recorded for a chronic condition requiring regular, ongoing medicines (antihypertensives or lipid-lowering medicines) than for acute or intermittent conditions (such as antibiotics for infections or medicines for acute pain).
- PBS restrictions, which limit the number of repeats that can be written. For example, prescribers must seek permission from Services Australia to prescribe repeats for many opioids and benzodiazepines, whereas PBS prescriptions for antidepressants may allow for 3 or 6 months (one issued prescription and two or five repeats) of treatment before the patient needs to return to the GP for another prescription.

At ATC level 1, the proportions of total prescriptions ordered in MedicineInsight practices closely match the proportions of those dispensed on the PBS (Table 5.2). Cardiovascular medicines accounted for 32% of total prescriptions prescribed to MedicineInsight patients and of prescriptions dispensed on the PBS. Medicines for the nervous system are the next most common prescriptions, accounting for 23.2% of total MedicineInsight prescriptions and of 21.9% of PBS dispensed prescriptions. Differences between the datasets are likely to reflect the nature of prescribing for patients seen in primary care compared with the medicines dispensed on prescriptions from all types

of prescribers (including specialists, other health professionals and medicines dispensed under the PBS from a hospital). For example, medicines from the ATC G group (genitourinary system and sex hormones) account for 4.5% of total prescriptions prescribed for MedicineInsight patients but only 2.1% of dispensed PBS medicines. This is most likely to be because this group includes contraceptives, many of which are not listed on the PBS. In contrast, medicines to treat cancer (ATC L group), which are most likely to be prescribed in a specialist setting, are less commonly ordered for MedicineInsight patients (0.4%) than dispensed on the PBS (2.2%).

Other possible explanations for differences between the datasets are:

▷ MedicineInsight includes private prescriptions, which are not captured by the PBS
▷ MedicineInsight captures information on all prescriptions that are written, but these may not necessarily all be dispensed.

Table 5.2 **Number and proportion (%) of MedicineInsight issued and total prescriptions for ATC level 1 (unweighted and weighted) compared to number and proportion (%) of all PBS medicines dispensed, 2020–21[11]**

ATC Level 1 Medicine Class	System	Issued prescriptions Unweighted data	Issued prescriptions Weighted data	Total prescriptions Unweighted data	Total prescriptions Weighted data	PBS 2020–21[a]
		No. (%)	% (95% CI)	No. (%)	% (95% CI)	No. (%)
C	Cardiovascular system	1,962,273 (19.4)	19.1 (18.6, 19.6)	10,684,144 (32.2)	32.2 (31.7, 32.8)	68,233,130 (32.0)
N	Nervous system	2,990,907 (29.6)	29.5 (28.7, 30.4)	7,740,911 (23.4)	23.2 (22.7, 23.8)	46,810,989 (21.9)
A	Alimentary tract and metabolism	1,240,382 (12.3)	12.1 (11.9, 12.4)	5,050,743 (15.2)	15.2 (14.9, 15.4)	34,751,691 (16.3)
R	Respiratory system	494,100 (4.9)	4.9 (4.8, 5.0)	2,175,069 (6.6)	6.5 (6.3, 6.6)	11,761,504 (5.5)
J	Anti-infectives for systemic use	1,167,119 (11.6)	12.0 (11.5, 12.5)	1,600,917 (4.8)	5.1 (4.8, 5.3)	10,197,108 (4.8)
G	Genitourinary system and sex hormones	438,356 (4.3)	4.3 (4.2, 4.5)	1,457,584 (4.4)	4.5 (4.3, 4.6)	4,461,561 (2.1)
M	Musculoskeletal system	494,375 (4.9)	4.9 (4.8, 5.1)	1,229,800 (3.7)	3.7 (3.6, 3.8)	7,071,229 (3.3)
B	Blood and blood-forming organs	324,979 (3.2)	3.1 (3.0, 3.2)	1,221,052 (3.7)	3.6 (3.5, 3.7)	10,798,520 (5.1)
D	Dermatologicals	486,459 (4.8)	5.1 (4.9, 5.3)	890,789 (2.7)	2.8 (2.7, 3.0)	3,131,548 (1.5)
H	Systemic hormonal preparations, excl. sex hormones and insulins	293,117 (2.9)	2.9 (2.8, 3.0)	589,089 (1.8)	1.7 (1.7, 1.8)	3,558,069 (1.7)
S	Sensory organs (eye/ear)	118,774 (1.2)	1.2 (1.2, 1.3)	288,601 (0.9)	0.9 (0.8, 0.9)	7,615,611 (3.6)
L	Antineoplastic and immunomodulating agents	44,594 (0.4)	0.4 (0.4, 0.4)	147,984 (0.4)	0.4 (0.4, 0.5)	4,801,041 (2.2)
P	Antiparasitic products, insecticides and repellents	32,952 (0.3)	0.3 (0.3, 0.4)	51,379 (0.2)	0.2 (0.1, 0.2)	65,069 (0.0)
V	Various	1225 (0.01)	0.0 (0.0, 0.0)	3090 (0.0)	0.0 (0.0, 0.0)	191,743 (0.1)
	Total	**10,089,612 (100.0)**		**33,131,152 (100.0)**		**213,448,813[b] (100.0)**

a Excludes under co-payment prescriptions. These accounted for another 96,374,185 prescriptions but these are not reported according to ATC class. There were approximately 304.8 million prescriptions dispensed if under co-payment prescriptions are also counted.
b Excludes 119,242 prescriptions that do not have an ATC code and are designated as 'unless otherwise classified'.

Table 5.3 includes the top 15 ATC 3 medicines as ranked by unweighted total prescriptions. At ATC level 3,[F] opioids accounted for the largest proportion of medicines ordered for MedicineInsight patients in terms of issued prescriptions (10.8%). The high proportion of issued prescriptions compared with total prescriptions for opioids (4.0%) is due to PBS restrictions, which largely limit opioid prescriptions to a single supply without any repeats.[G] It may also be related to their use in the short-term management of acute pain. Antidepressant medicines accounted for the largest proportion of medicines prescribed for MedicineInsight patients in terms of total prescriptions (10.6%; Table 5.3).

Prescription numbers (issued and total) for all ATC level 3 drug classes prescribed in MedicineInsight practices during 2020–21 are included in Table A1 of the supplementary data tables.

Table 5.3 Number and proportion (%) of issued and total prescriptions for top 15 ATC level 3 classes recorded (unweighted and weighted), MedicineInsight 2020–21 and 2019–20

ATC level 3	Medicine class	Issued prescriptions Unweighted data[a]	Issued prescriptions Weighted data	Issued prescriptions GPIR 2019–20 (weighted)	Total (issued plus repeat) prescriptions[b] Unweighted data[a]	Total (issued plus repeat) prescriptions[b] Weighted data	Total (issued plus repeat) prescriptions[b] GPIR 2019–20 (weighted)
		No. (%)	% (95% CI)	% (95% CI)	No. (%)	% (95% CI)	% (95% CI)
N06A	Antidepressants	765,906 (7.6)	7.4 (7.2, 7.6)	6.6 (6.4, 6.8)	3,579,164 (10.8)	10.6 (10.3, 10.9)	9.8 (9.5, 10.1)
C10A	Lipid-modifying agents, single agent	550,603 (5.5)	5.5 (5.3, 5.6)	5.1 (4.9, 5.2)	3,314,863 (10.0)	10.2 (10.0, 10.4)	9.6 (9.4, 9.8)
A02B	Drugs for peptic ulcer and GORD	573,804 (5.7)	5.6 (5.5, 5.7)	5.5 (5.3, 5.6)	2,639,453 (8.0)	7.8 (7.7, 8.0)	7.8 (7.6, 7.9)
A10B	Blood glucose-lowering drugs, excluding insulins	301,248 (3.0)	3.0 (2.9, 3.1)	2.8 (2.7, 2.9)	1,630,924 (4.9)	5.0 (4.8, 5.3)	4.8 (4.6, 5.0)
R03A	Adrenergics, inhalants	301,736 (3.0)	2.9 (2.9, 3.0)	3.4 (3.3, 3.4)	1,549,541 (4.7)	4.6 (4.5, 4.7)	5.3 (5.1, 5.4)
C09C	Angiotensin II receptor blockers, single agent	248,958 (2.5)	2.4 (2.3, 2.5)	2.2 (2.2, 2.3)	1,417,905 (4.3)	4.3 (4.1, 4.4)	4.0 (3.9, 4.1)
N02A	Opioids	1,104,018 (10.9)	10.8 (10.4, 11.2)	10.1 (9.7, 10.5)	1,307,273 (3.9)	4.0 (3.8, 4.1)	4.2 (4.1, 4.4)
C09A	ACE inhibitors, single ingredient	219403 (2.2)	2.1 (2.0, 2.2)	2.1 (2.0, 2.2)	1,245,740 (3.8)	3.7 (3.6, 3.8)	3.7 (3.6, 3.8)
C07A	Beta-blocking agents	208,783 (2.1)	2.0 (1.9, 2.1)	1.9 (1.8, 2.0)	1,111,455 (3.4)	3.3 (3.2, 3.4)	3.2 (3.1, 3.3)
B01A	Antithrombotic agents	232,944 (2.3)	2.2 (2.1, 2.3)	2.2 (2.1, 2.3)	1,096,364 (3.3)	3.2 (3.1, 3.3)	3.2 (3.1, 3.3)
C09D	Angiotensin II receptor blockers, combinations	163,033 (1.6)	1.6 (1.6, 1.7)	1.5 (1.5, 1.6)	932,985 (2.8)	2.9 (2.8, 3.0)	2.7 (2.6, 2.8)
N03A	Antiepileptics	204,427 (2.0)	2.0 (1.9, 2.0)	1.8 (1.8, 1.9)	889,259 (2.7)	2.6 (2.6, 2.7)	2.5 (2.4, 2.6)
C08C	Selective calcium channel blockers with mainly vascular effects	149,000 (1.5)	1.4 (1.4, 1.5)	1.3 (1.3, 1.4)	838,184 (2.5)	2.5 (2.4, 2.6)	2.4 (2.3, 2.5)
M01A	Anti-inflammatory and anti-	293,048 (2.9)	3.0 (2.9, 3.2)	2.8 (2.7, 3.0)	740,070 (2.2)	2.3 (2.2, 2.4)	2.2 (2.1, 2.3)

[F] At level 3, the ATC classification system indicates the therapeutic or pharmacological subgroup a medicine falls into. For example, N06A indicates that the medicine works on the nervous system (N), from the psychoanaleptic therapeutic subgroup (N06) and is an antidepressant.
[G] Applications for increased quantities and/or repeats must be authorised by the Department of Human Services.

ATC level 3	Medicine class	Issued prescriptions Unweighted data[a] No. (%)	Issued prescriptions Weighted data % (95% CI)	Issued prescriptions GPIR 2019–20 (weighted) % (95% CI)	Total (issued plus repeat) prescriptions[b] Unweighted data[a] No. (%)	Total (issued plus repeat) prescriptions[b] Weighted data % (95% CI)	Total (issued plus repeat) prescriptions[b] GPIR 2019–20 (weighted) % (95% CI)
	rheumatic products, non-steroids						
D07A	Corticosteroids, single agent	289,442 (2.9)	3.0 (2.9, 3.2)	3.0 (2.8, 3.1)	592,196 (1.8)	1.9 (1.8, 2.0)	1.8 (1.7, 1.9)
	Subtotal[c]	**5,606,353 (55.7)**	-		**22,885,376 (69.1)**	-	

a Proportions (%) are given for the top 15 ATC level 3 classes only.
b Total prescriptions include issued and repeat prescriptions.
c Subtotal for the top 15 ATC level 3 classes.
2019–20 data obtained from General Practice Insights Report, 2019–20.

5.3. Private and government-subsidised issued prescriptions

Medicines prescribed by GPs may be subsidised by the PBS or RPBS, or they may be private prescriptions, in which case the consumer pays full price. As can be seen in Table 5.4, 85.1% of issued prescriptions with an assigned ATC code are subsidised by the PBS or RPBS. However, there are four ATC level 1 medicine classes in which more than one-third of issued prescriptions are privately prescribed. These are:

▷ dermatological medicines (ATC D), which include medicines for cold sores, topical antifungals and corticosteroids
▷ genitourinary system and sex hormones (ATC G), which include hormonal contraceptives and medicines for erectile dysfunction
▷ antineoplastic and immunomodulating agents (ATC L), which include medicines to treat cancer, and immunostimulant and immunosuppressant medicines
▷ sensory organs (eye/ear; ATC S) which include ear and eye drops.

Table 5.4   Number and proportion (%) of PBS/RPBS and private issued prescriptions for ATC level 1 (unweighted and weighted), MedicineInsight 2020–21

ATC level 1	Medicine class	PBS/RPBS Unweighted data No. (%) within class	PBS/RPBS Weighted data % (95% CI) within class	Private Unweighted data No. (%) within class	Private Weighted data % (95% CI) within class
A	Alimentary tract and metabolism	1,033,153 (83.3)	83.1 (82.1, 84.2)	207,229 (16.7)	16.9 (15.8, 17.9)
B	Blood and blood-forming organs	285,652 (87.9)	87.9 (87.1, 88.7)	39,327 (12.1)	12.1 (11.3, 12.9)
C	Cardiovascular system	1,938,010 (98.8)	98.7 (98.6, 98.8)	24,263 (1.2)	1.3 (1.2, 1.4)
D	Dermatologicals	274424 (56.4)	56.7 (55.2, 58.2)	212,035 (43.6)	43.3 (41.8, 44.8)
G	Genitourinary system and sex hormones	268,120 (61.2)	59.4 (58.3, 60.6)	170,236 (38.8)	40.6 (39.4, 41.7)
H	Systemic hormonal preparations, excl. sex hormones and insulins	282,955 (96.5)	96.4 (95.9, 96.9)	10,162 (3.5)	3.6 (3.1, 4.1)
J	Anti-infectives for systemic use	1,035,667 (88.7)	88.6 (87.8, 89.4)	131,452 (11.3)	11.4 (10.6, 12.2)
L	Antineoplastic and immunomodulating agents	26,991 (60.5)	62.9 (60.4, 65.4)	17,603 (39.5)	37.1 (34.6, 39.6)
M	Musculoskeletal system	454,101 (91.9)	91.4 (90.5, 92.3)	40,274 (8.1)	8.6 (7.7, 9.5)
N	Nervous system	2,484,650 (83.1)	82.5 (81.7, 83.3)	506,257 (16.9)	17.5 (16.7, 18.3)
P	Antiparasitic products, insecticides and repellents	28,732 (87.2)	87.4 (86.3, 88.5)	4220 (12.8)	12.6 (11.5, 13.7)
R	Respiratory system	39,1179 (79.2)	77.7 (76.4, 79.1)	10,2921 (20.8)	22.3 (20.9, 23.6)
S	Sensory organs (eye/ear)	79,046 (66.6)	65.9 (64.1, 67.7)	39,728 (33.4)	34.1 (32.3, 35.9)
V	Various	1173 (95.8)	95.7 (93.9, 97.5)	52 (4.2)	4.3 (2.5, 6.1)

ATC level 1	Medicine class	PBS/RPBS Unweighted data	PBS/RPBS Weighted data	Private Unweighted data	Private Weighted data
		No. (%) within class	% (95% CI) within class	No. (%) within class	% (95% CI) within class
	Total all classes	8,583,853 (85.1)	84.6 (84.0, 85.2)	1,505,759 (14.9)	15.4 (14.8, 16.0)

Among the top 15 ATC level 3 classes for issued prescriptions, the most likely to be prescribed privately were the hypnotics and sedatives, which include benzodiazepines, barbiturates and melatonin (N05C; 52.1%), and dermatological topical corticosteroids (D07A; 20.1%) (Table 5.5).

A breakdown of PBS/RPBS-subsidised and private prescriptions (issued only) for all ATC level 3 drug classes prescribed in MedicineInsight practices during 2020–21 is included in Table A2 of the supplementary data tables.

Table 5.5   **Number and proportion (%) of PBS/RPBS and private issued prescriptions for top 15 ATC level 3 classes recorded (unweighted and weighted), MedicineInsight 2020–21**

ATC level 3[a]	Medicine class	PBS/RPBS Unweighted data	PBS/RPBS Weighted data	Private Unweighted data	Private Weighted data
		No. (%) within class	% (95% CI) within class	No. (%) within class	% (95% CI) within class
N02A	Opioids	910179 (82.4)	81.8 (80.9, 82.8)	193839 (17.6)	18.2 (17.2, 19.2)
N06A	Antidepressants	738415 (96.4)	96.3 (96.0, 96.6)	27491 (3.6)	3.7 (3.4, 4.0)
A02B	Drugs for peptic ulcer and GORD	552838 (96.3)	96.2 (95.8, 96.5)	20966 (3.7)	3.8 (3.5, 4.2)
C10A	Lipid-modifying agents, single agent	546535 (99.3)	99.2 (99.1, 99.3)	4068 (0.7)	0.8 (0.7, 0.9)
J01C	Beta-lactam antibacterials, penicillins	451474 (98.2)	98.2 (97.9, 98.6)	8303 (1.8)	1.8 (1.4, 2.1)
R03A	Adrenergics, inhalants	299099 (99.1)	99.0 (98.9, 99.2)	2637 (0.9)	1.0 (0.8, 1.1)
A10B	Blood glucose-lowering drugs, excluding insulins	288473 (95.8)	95.8 (95.3, 96.2)	12775 (4.2)	4.2 (3.8, 4.7)
J01D	Other beta-lactam antibacterials	295036 (99.0)	99.0 (98.8, 99.3)	2901 (1.0)	1.0 (0.7, 1.2)
M01A	Anti-inflammatory and anti-rheumatic products, non-steroids	257652 (87.9)	87.6 (86.3, 88.8)	35396 (12.1)	12.4 (11.2, 13.7)
D07A	Corticosteroids, single agent	231329 (79.9)	80.1 (78.9, 81.3)	58113 (20.1)	19.9 (18.7, 21.1)
N05C	Hypnotics and sedatives	122906 (47.9)	48.1 (46.3, 49.9)	133940 (52.1)	51.9 (50.1, 53.7)
N05B	Anxiolytics	215371 (85.7)	86.0 (84.9, 87.1)	35948 (14.3)	14.0 (12.9, 15.1)
C09C	Angiotensin II receptor blockers, single agent	247926 (99.6)	99.5 (99.4, 99.6)	1032 (0.4)	0.5 (0.4, 0.6)
B01A	Antithrombotic agents	211254 (90.7)	90.6 (90.0, 91.3)	21690 (9.3)	9.4 (8.7, 10.0)
C09A	ACE inhibitors, single ingredient	218831 (99.7)	99.7 (99.6, 99.8)	572 (0.3)	0.3 (0.2, 0.4)

[a] Descending order by unweighted sum of PBS and private issued prescriptions

5.4.   Prescriptions per 100 encounters

On average, for every 100 GP clinical encounters, 67.5 issued prescriptions are generated (Table 5.6). The overall prescribing rate per 100 encounters appears to have decreased slightly from 72.9 in 2019–20. Similarly, the rate of prescribing appears to have fallen for both sexes and for almost every age groups. This may have been due to the COVID-19 pandemic – more information about prescribing over this period is available in Chapter 10.

The likelihood a prescription will be issued increases as patients get older (Table 5.6). For patients aged 60–89 years, 86–89 out of every 100 encounters were associated with a prescription being written. In comparison, less than one-third of encounters involving children 0–9 years are associated with a prescription being written.

Table 5.6 Rate of issued prescriptions per 100 encounters by patient characteristic (unweighted and weighted), MedicineInsight 2020–21 compared with 2019–20

Characteristic	Unweighted data 2020–21 Rate per 100 encounters (95% CI)	Weighted data 2020–21 Rate per 100 encounters (95% CI)	GPIR 2019–20 (weighted) Rate per 100 encounters (95% CI)
All patients	70.4 (68.8, 72.0)	67.5 (65.7, 69.3)	72.9 (70.9, 74.9)
Sex			
Male	70.8 (69.2, 72.4)	68.0 (66.1, 69.8)	72.8 (70.8, 74.9)
Female	70.1 (68.5, 71.8)	67.1 (65.4, 68.9)	73.0 (71.0, 75.0)
Age group (years)			
0–9	28.3 (27.3, 29.3)	27.7 (26.7, 28.8)	29.8 (28.8, 30.9)
10–19	38.0 (36.9, 39.0)	36.2 (35.2, 37.3)	40.9 (39.9, 41.9)
20–29	48.3 (47.1, 49.6)	46.5 (45.2, 47.8)	51.9 (50.6, 53.2)
30–39	52.2 (50.7, 53.8)	50.5 (48.9, 52.1)	55.5 (53.8, 57.2)
40–49	67.8 (66.0, 69.6)	65.3 (63.2, 67.3)	69.6 (67.5, 71.6)
50–59	78.5 (76.7, 80.3)	75.7 (73.9, 77.6)	82.6 (80.4, 84.7)
60–69	88.6 (86.8, 90.3)	86.1 (84.3, 87.9)	93.8 (91.5, 96.0)
70–79	90.6 (89.0, 92.2)	88.6 (86.9, 90.3)	97.2 (95.0, 99.3)
80–89	88.9 (87.3, 90.5)	87.5 (85.8, 89.2)	95.1 (92.8, 97.3)
90+	83.0 (80.7, 85.3)	81.3 (78.7, 84.0)	89.1 (85.9, 92.3)
Rurality			
Major city	66.6 (64.7, 68.5)	64.4 (62.3, 66.5)	70.1 (67.8, 72.4)
Inner regional	76.4 (73.6, 79.2)	73.6 (70.5, 76.7)	79.6 (75.4, 83.7)
Outer regional	79.1 (75.4, 82.8)	76.3 (72.6, 80.1)	78.2 (73.2, 83.2)
Remote/very remote	79.2 (68.2, 90.2)	73.9 (66.6, 81.2)	76.7 (69.6, 83.7)
State/territory			
ACT	74.6 (69.8, 79.5)	73.8 (69.0, 78.5)	79.3 (72.4, 86.2)
NSW	71.9 (69.2, 74.6)	66.2 (63.0, 69.4)	72.4 (68.9, 75.9)
NT	66.3 (56.2, 76.2)	62.5 (53.4, 71.6)	57.1 (46.5, 67.7)
QLD	67.5 (64.5, 70.4)	67.4 (64.5, 70.3)	71.8 (67.5, 76.0)
SA	67.0 (59.1, 74.8)	68.2 (61.3, 75.1)	76.3 (65.3, 87.4)
TAS	81.2 (75.7, 86.7)	80.1 (74.6, 85.6)	83.1 (76.8, 89.5)
VIC	68.0 (63.9, 72.0)	67.3 (63.2, 71.3)	73.6 (69.7, 77.6)
WA	67.4 (62.9, 71.8)	68.1 (63.6, 72.6)	69.8 (65.0, 74.6)
Socioeconomic status			
1 (most disadvantaged)	82.1 (79.3, 84.9)	78.3 (74.7, 81.9)	83.1 (78.6, 87.6)
2	76.6 (74.4, 78.8)	74.1 (71.8, 76.5)	80.2 (76.0, 84.5)
3	70.2 (68.1, 72.3)	68.5 (66.1, 70.9)	73.2 (70.7, 75.7)
4	64.2 (61.8, 66.6)	62.8 (60.2, 65.4)	67.4 (64.7, 70.2)
5 (most advantaged)	61.9 (59.7, 64.2)	60.7 (58.5, 62.8)	67.0 (64.6, 69.4)

5.5. Prescriptions per 100 encounters by ATC codes

The three most frequently prescribed medicine classes for issued prescriptions per 100 encounters were medicines for the nervous system (which include the analgesics; 19.9 per 100 encounters), medicines for the cardiovascular system (12.9 prescriptions per 100 encounters) and alimentary tract and metabolism medicines (8.2 per 100 encounters; Table 5.7).

The most frequently recorded medicine classes for total prescriptions were cardiovascular medicines (70.4 prescriptions per 100 encounters), medicines for the nervous system (50.8 per 100 encounters) and medicines for the alimentary tract and metabolism (33.2 per 100 encounters). These data align with the observed findings for the most commonly managed conditions in 2020–21 (Tables 4.3 and 5.3).

The rate of prescriptions per 100 encounters was calculated individually for each ATC level 1 and ATC level 3 class of medicines by dividing the number of prescriptions (issued or total) recorded at any time during 2020–21, by the total number of encounters for all patients multiplied by 100, with the caveat that prescriptions are not linked directly to an encounter in MedicineInsight but to patients.

When compared to the previous year, prescribing rates for this year were significantly lower for anti-infectives for systemic use (ATC-J). Total prescriptions per 100 encounters were 15.7 (95% CI 14.2–17.3) in 2019–20 compared to 11.1 (95% CI 10.0–12.1) this year. This is consistent with reductions in antibiotic use reported in PBS data, which was driven by reductions in antibiotics indicated for treatment of respiratory infections. This suggests that COVID-19 restrictions such as social distancing, working from home and hotel quarantine have resulted in reductions in detections of other respiratory illnesses such as influenza and respiratory syncytial virus (RSV).[12]

Table 5.7   Issued and total prescriptions recorded per 100 encounters, ATC level 1 (weighted), MedicineInsight 2020–21

ATC level 1[a]	Medicine class	Issued prescriptions Rate per 100 encounters (95% CI)	Issued prescriptions Rank	Total (issued plus repeat) prescriptions[b] Rate per 100 encounters (95% CI)	Total (issued plus repeat) prescriptions[b] Rank
C	Cardiovascular system	12.9 (11.7, 14.1)	2	70.4 (63.9, 77.0)	1
N	Nervous system	19.9 (18.1, 21.8)	1	50.8 (46.2, 55.3)	2
A	Alimentary tract and metabolism	8.2 (7.5, 8.9)	3	33.2 (30.2, 36.2)	3
R	Respiratory system	3.3 (3.0, 3.6)	7	14.2 (12.9, 15.4)	4
J	Anti-infectives for systemic use	8.1 (7.3, 8.9)	4	11.1 (10.0, 12.1)	5
G	Genitourinary system and sex hormones	2.9 (2.7, 3.2)	8	9.8 (8.9, 10.6)	6
M	Musculoskeletal system	3.3 (3.0, 3.7)	6	8.2 (7.4, 8.9)	7
B	Blood and blood-forming organs	2.1 (1.9, 2.3)	9	7.8 (7.1, 8.6)	8
D	Dermatologicals	3.4 (3.1, 3.8)	5	6.2 (5.6, 6.8)	9
H	Systemic hormonal preparations, excl. sex hormones and insulins	2.0 (1.8, 2.1)	10	3.8 (3.5, 4.2)	10
S	Sensory organs (eye/ear)	0.8 (0.7, 0.9)	11	1.9 (1.7, 2.1)	11
L	Antineoplastic and immunomodulating agents	0.3 (0.3, 0.3)	12	1.0 (0.9, 1.0)	12
P	Antiparasitic products, insecticides and repellents	0.2 (0.2, 0.2)	13	0.3 (0.3, 0.4)	13
V	Various	0.0 (0.0, 0.0)	14	0.0 (0.0, 0.0)	14
	Total	**67.5 (61.5, 73.5)**		**218.7 (199.3, 238.0)**	

a Descending order by rate per 100 encounters for total prescriptions
b Total prescriptions – issued and repeat prescriptions.

As expected, when ranked by issued prescription rate or total prescription rate at ATC level 3, medicines for long-term conditions such as depression, dyslipidaemia and GORD were the most frequently prescribed total prescriptions (Table 5.8).

Table 5.8   Issued and total prescriptions recorded per 100 encounters (weighted), ATC level 3, MedicineInsight 2020–21

ATC level 3[a]	Medicine class	Issued prescriptions Rate per 100 encounters (95% CI)	Issued prescriptions Rank	Total (issued plus repeat) prescriptions[b] Rate per 100 encounters (95% CI)	Total (issued plus repeat) prescriptions[b] Rank
N06A	Antidepressants	5.0 (4.5, 5.4)	2	23.2 (21.1, 25.2)	1
C10A	Lipid-modifying agents, single agent	3.7 (3.4, 4.0)	4	22.2 (20.2, 24.2)	2
A02B	Drugs for peptic ulcer and GORD	3.8 (3.4, 4.1)	3	17.1 (15.5, 18.7)	3
A10B	Blood glucose-lowering drugs, excluding insulins	2.0 (1.8, 2.2)	8	11.0 (10.0, 12.1)	4
R03A	Adrenergics, inhalants	2.0 (1.8, 2.2)	10	10.0 (9.1, 10.9)	5
C09C	Angiotensin II receptor blockers, single agent	1.6 (1.5, 1.8)	13	9.3 (8.5, 10.2)	6
N02A	Opioids	7.3 (6.5, 8.0)	1	8.6 (7.8, 9.5)	7
C09A	ACE inhibitors, single agent	1.4 (1.3, 1.6)	15	8.1 (7.3, 8.9)	8
C07A	Beta blocking agents	1.4 (1.2, 1.5)	16	7.2 (6.5, 7.9)	9
B01A	Antithrombotic agents	1.5 (1.4, 1.6)	14	7.1 (6.4, 7.8)	10
C09D	Angiotensin II receptor blockers, combinations	1.1 (1.0, 1.2)	19	6.3 (5.7, 6.9)	11
N03A	Antiepileptics	1.3 (1.2, 1.5)	17	5.7 (5.2, 6.3)	12
C08C	Selective calcium channel blockers with mainly vascular effects	1.0 (0.9, 1.1)	22	5.5 (4.9, 6.1)	13
M01A	Anti-inflammatory and antirheumatic products, non-steroids	2.0 (1.8, 2.3)	9	5.0 (4.5, 5.5)	14
D07A	Corticosteroids, single agent	2.0 (1.8, 2.3)	7	4.1 (3.7, 4.5)	15

a Descending order by rate per 100 encounters for total prescriptions, therefore issued prescriptions rate rankings are not reflective of the top 15.
b Total prescriptions – issued and repeat prescriptions

6. Pathology testing

In summary

▷ More than 68 million atomised pathology test results were recorded in 2020–21.

▷ There was an average of 27.7 atomised test results per patient, although 55.2% of patients had no pathology tests recorded.

▷ Age- and sex-specific rates showed an increase in the number of tests with age, and a higher average number of tests for women compared to men.

▷ Among patients with diagnosed diabetes who had their HbA$_{1c}$ level checked during the year, 54.6 had at least one result that was higher than 53 mmol/mol (7.0%).

▷ Approximately 10% of patients who had at least one TSH test had a result outside the range of test results considered to be normal.

▷ One-third of patients who had a vitamin D test had a result outside the range of test results considered to be normal.

This chapter reports on atomised pathology test results recorded in MedicineInsight in 2020–21.

6.1. Pathology test results by patient

There were 68,696,832 separate pathology test results recorded in MedicineInsight for 2020–21, or an average of 27.7 atomised test results per patient using unweighted data. In 2019–20 there were an average of 24.3 atomised test results per patient.

Only 44.8% of patients (1,110,790) had one or more atomised pathology test result recorded in 2020–21, and the remaining 55.2% of patients had no pathology tests recorded. In 2019–20, 41.2% of patients (1,018,367) had one or more atomised pathology test result recorded.

Pathology test results may come into the CIS from sources outside of the general practice, and the results may not reflect tests ordered by each patient's GP, for example if the patient is being tested routinely as an inpatient, and the results are copied directly to the GP by the pathology laboratory. It is also important to note that each component of a pathology test result is recorded separately (atomised) in MedicineInsight. For example, an FBC would generate up to a dozen individual test results, such as white cell count and haemoglobin concentration. Using proxy measures, such as haemoglobin as a measure of an FBC, can give an indication of the volume per patient of particular panels of commonly ordered tests. This is shown in Table 6.1, which gives the proportions of patients who had results for selected pathology tests, and the average number of these test results per 100 patients.

Table 6.1   Selected pathology test results per patient, MedicineInsight 2020–21

Pathology test result	% patients with result recorded, unweighted (N =2,477,548)	Average number of tests per 100 patients, unweighted (95% CI)	% patients with result recorded, weighted	Average number of tests per 100 patients, weighted (95% CI)
Full blood count (FBC)[a]	38.1	65.0 (62.6, 67.4)	36.6	61.0 (58.4, 63.5)
Liver function test (LFT)[b]	36.1	59.0 (56.7, 61.2)	35.0	55.9 (53.6, 58.3)
Kidney function test (urea, electrolytes and creatinine; UECs)[c]	33.2	56.5 (53.3, 59.7)	30.3	50.2 (46.6, 53.8)
Lipids[d]	29.5	41.1 (39.0, 43.3)	30.1	40.1 (37.8, 42.4)
TSH	24.4	31.2 (29.8, 32.5)	23.0	29.1 (27.4, 30.7)
Ferritin	24.3	32.4 (23.5, 25.1)	23.3	30.8 (29.5, 32.1)

Vitamin B$_{12}$	15.2	17.2 (16.3, 18.0)	15.3	16.3 (15.3, 17.2)
Vitamin D	14.4	17.0 (16.2, 17.9)	15.1	16.7 (15.7, 17.8)
HbA$_{1c}$	15.3	20.6 (19.6, 21.6)	14.0	19.8 (18.7, 20.8)

a Haemoglobin was used as a proxy for FBC
b ALT was used as a proxy for LFTs
c Sodium was used as a proxy for UECs
d Total cholesterol was used as a proxy for lipids

Figure 6.1 shows the average number of pathology test results per patient by age and sex. There was a steady increase in the average number of test results with age, peaking for both men and women aged 80–89 years. There was also an increased number of test results for women of reproductive age compared to men of the same age.

Figure 6.1 shows (weighted) average number of test results. Axis "Average number fo test results" (0.0–70.0). X axis "Age group".

Male	2.1	6.3	10.3	15.2	21.9	29.7	40.8	53.4	64.3	60.9
Female	2.1	12.5	21.1	26.5	29.0	33.4	40.8	52.7	62.4	55.8
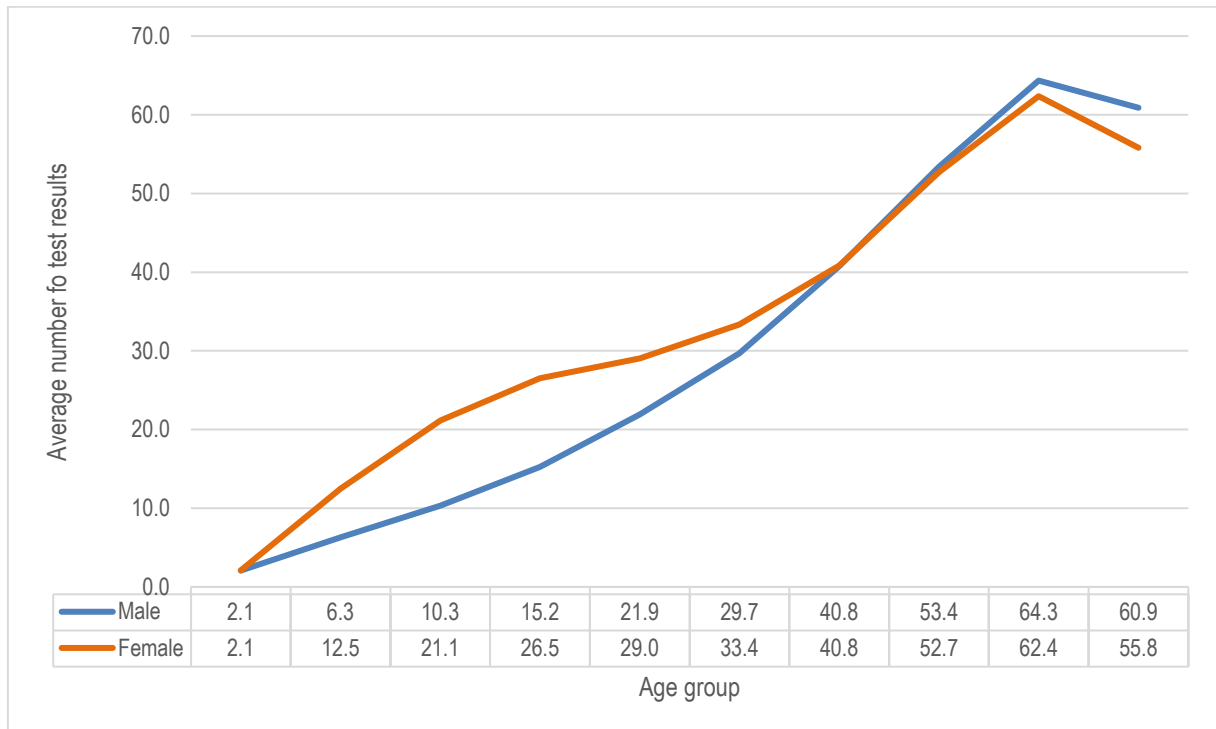
Figure 6.1 Average number of pathology test results per patient by age group and sex (weighted), MedicineInsight 2020–21

Females had significantly more pathology test results than males (28.9 versus 23.5). This is due to the higher testing numbers for women of reproductive age when compared to men of the same age. Average test numbers are similar between men and women in older age groups (Figure 6.1). As would be expected given the increasing prevalence of health conditions with increasing age, the proportion of testing increased with increasing age (Table 6.2).

The Northern Territory had the fewest average number of pathology test results per patient (14.1 per patient), and SA (32.8) and the ACT (32.9) the highest (Table 6.2).

Table 6.2 Average number of pathology test results by patient demographics (unweighted and weighted), MedicineInsight 2020–21

Patient characteristics	Average number of test results per patient, unweighted (95% CI)	Average number of test results per patient, weighted (95% CI)
All patients	**27.7 (26.7, 28.8)**	**26.4 (25.2, 27.5)**
Sex		
Male	24.7(23.7, 25.8)	23.5 (22.4, 24.6)
Female	30.2 (29.2, 31.3)	28.9 (27.7, 30.1)
Age group (years)		
0–9	2.2 (2.0, 2.3)	2.1 (1.9, 2.2)
10–19	9.8 (9.4, 10.1)	9.4 (9.0, 9.9)

Patient characteristics	Average number of test results per patient, unweighted (95% CI)	Average number of test results per patient, weighted (95% CI)
20–29	17.1 (16.2, 17.9)	16.3 (15.4, 17.2)
30–39	22.2 (21.2, 23.3)	21.4 (20.4, 22.5)
40–49	26.2 (25.3, 27.1)	25.7 (24.7, 26.6)
50–59	32.2 (31.2, 33.2)	31.6 (30.5, 32.7)
60–69	41.5 (40.3, 42.8)	40.8 (39.5, 42.1)
70–79	54.0 (52.2, 55.8)	53.0 (51.1, 55.0)
80–89	64.5 (62.3, 66.7)	63.2 (61.1, 65.4)
90+	57.5 (54.7, 60.3)	57.6 (55.1, 60.1)
Rurality		
Major cities	27.0 (25.7, 28.3)	25.8 (24.4, 27.2)
Inner regional	29.8 (27.9, 31.6)	28.2 (26.5, 29.8)
Outer regional	28.4 (26.1, 30.7)	27.6 (24.8, 30.4)
Remote/very remote	22.3 (19.2, 25.3)	18.2 (15.1, 21.4)
State/territory		
ACT	34.5 (29.8, 39.1)	32.9 (28.6, 37.2)
NSW	29.6 (27.8, 31.4)	27.2 (25.2, 29.3)
NT	16.2 (11.4, 21.0)	14.1 (10.1, 18.0)
QLD	29.5 (27.6, 31.3)	28.2 (26.5, 29.9)
SA	33.3 (29.0, 7.6)	32.8 (29.1, 36.4)
TAS	27.5 (24.8, 30.2)	26.4 (23.8, 29.0)
VIC	23.7 (21.3, 26.2)	22.9 (20.6, 25.2)
WA	23.7 (21.5, 25.9)	24.0 (21.9, 26.2)
Socioeconomic status		
1 (most disadvantaged)	31.0 (29.1, 32.9)	28.9 (36.4, 31.3)
2	29.2 (27.2, 31.1)	27.8 (36.6, 30.1)
3	27.4 (25.9, 28.9)	25.9 (36.5, 27.4)
4	25.7 (24.4, 27.1)	25.1 (36.6, 26.5)
5 (most advantaged)	26.6 (25.0, 28.3)	25.8 (36.3, 27.2)

6.2. Test results that are outside reference ranges

Table 6.3 shows:

▷ the proportion of patients aged 20 years or older who have been tested at least once for the specified pathology tests
▷ the proportion of patients who had at least one result that was outside the reference range for a specified test as a proportion of all patients
▷ the proportion of patients who had at least one result that was outside the range of test results that are considered to be normal (ie, the reference range) for a specified test, as a proportion of the patients who underwent that particular pathology test.

The thresholds for determining whether results were outside reference ranges were taken from the Royal College of Pathologists of Australasia's Manual (https://www.rcpa.edu.au/Manuals/RCPA-Manual) and RACGP and Diabetes Australia's General practice management of type 2 diabetes: 2016–18.[13],[14]

We included patients if they had a result outside the reference range at least once during the year but did not attempt to collect information on follow-up tests. It is possible that repeat testing may have shown improvements as a result of changes made by the patient or the GP in response to the results.

Just over 70% of patients diagnosed with diabetes had a HbA$_{1c}$ result recorded during 2020–21. For 54.6% of these, at least one result was ≥ 53 mmol/mol (7.0%) suggesting that they may benefit from clinical review. However, information about follow-up review or testing was not collected. In addition,

while HbA$_{1c}$ levels of 53 mmol/mol or below are generally recommended for people with type 2 diabetes, individual targets take into account the circumstances of individual patients.

Most patients who had at least one TSH test during the year did not have any results that fell outside the reference range. Just under 30% patients had their TSH levels tested and almost 90% of those tested had results entirely within the reference range. As we did not investigate whether any of these people had been diagnosed with a thyroid condition, it is unclear whether these tests were undertaken to monitor these conditions and the low rate of abnormal results represents successful treatment.

Among the 17.3% of MedicineInsight patients who had a vitamin D test, one-third had at least one result outside the reference range.

Table 6.3   Proportion of patients (20 years and older) with at least one test result and with at least one test result outside the reference range during 2020–21 for specified tests, MedicineInsight 2020–21

Pathology test result (test reference range)	Number of tested patients* (unweighted) Number of all eligible male or female patients aged 20+ years (N_{tot}) = 1,956,022.	Patients with ≥ 1 result(s) for the specified test as a percentage (95% CI) of all patients (N_{tot}); unweighted	Patients with ≥ 1 test result(s) outside the reference range for the specified test as a percentage (95% CI) of all patients (N_{tot}); unweighted	Patients with ≥ 1 test result(s) outside the reference range for the specified test as a percentage (95% CI) of tested patients, unweighted
Haemoglobin (< 130 g/L in men < 120 g/L in women†)[13]	884,911	45.2 (44.0, 46.5)	5.3 (5.1, 5.5)	11.7 (11.4, 12.0)
Alanine aminotransferase (ALT; > 40 U/L in men and > 30 U/L in women)[13]	846,469	43.3 (42.0, 44.6)	9.8 (9.5, 10.1)	22.6 (22.2, 23.0)
Creatinine (> 110 umol/L in men and > 90 umol/L in women)[13]	869,823	44.5 (43.2, 45.8)	4.1 (3.9, 4.4)	9.3 (8.9, 9.7)
HbA$_{1c}$ in patients with diagnosed diabetes of any kind (N = 163,884; ≥ 53 mmol/mol [7.0%]))[13,14]	115,475	70.5 (69.4, 71.5)	38.5 (37.6, 39.2)	54.6 (54.0, 55.3)
HbA$_{1c}$ in patients with no recorded diagnosis of diabetes (N = 1,792,138; ≥ 48 mmol/mol [6.5%])[13,14]	257,873	14.4 (13.5, 15.3)	0.4 (0.3, 0.4)	2.5 (2.3, 2.7)
Low thyroid-stimulating hormone (TSH; < 0.4 mIU/L)[13]	567,956	29.0 (27.8, 30.3)	1.3 (1.3, 1.4)	4.6 (4.5, 4.7)
High thyroid-stimulating hormone (TSH; > 4.0 mIU/L)[13]	567,956	29.0 (27.8, 30.3)	1.9 (1.8, 2.0)	6.6 (6.4, 6.8)
Vitamin D (< 50 nmol/L)[13]	339,027	17.3 (16.4, 18.2)	5.6 (5.1, 6.1)	32.6 (30.8, 34.4)
Ferritin (< 20 µg/L in women of childbearing age and < 30 in post-menopausal women and in men)[13]	555,408	28.4 (27.4, 29.4)	4.0 (3.8, 4.2)	14.1 (13.6, 14.6)

* Number of tested patients is the number of MedicineInsight patients (males and females) aged 20 years or older who have a record of at least one of the specified pathology tests. The percentage of patients with a record of a pathology test will be higher than that reported in Table 8.1 because patients aged 0–19, who are less likely to be tested, have been excluded.
†For this analysis the threshold of < 110 g/L for women who are pregnant was not used. Instead, the general threshold for women of < 120 g/L was applied to all women within the sample.

7. Risk factors

> **In summary**
>
> ▷ Smoking status was recorded ever for 82.8% of patients as of 2020–21.
> ▷ Alcohol use was recorded ever for 27.7% of patients over 18 years of age as of 2020–21. Alcohol use was more frequently recorded for males than females (32.8% vs 23.9%).
> ▷ In the 24-month period from 1 July 2019 to 30 June 2021, BMI (or both height and weight) was recorded for 35.3% of patients of all ages. Weight was recorded for 42.8% of patients of all ages.

This chapter reports on the completeness of data on three important health risk factors:

▷ smoking status ever recorded in the MedicineInsight 'patient' data table for patients aged 18 years and over
▷ alcohol use ever recorded in the MedicineInsight 'alcohol status' data table for patients aged 18 years and over
▷ BMI or both height and weight recorded, as well as weight recorded separately, in the past 24 months (since 1 July 2019) in the MedicineInsight 'observations' data table for patients of all ages.

7.1. Smoking status recorded

The last recorded entry in the data field for 'smoking status' was used in this analysis. Smoking status was recorded at least once for 82.8% of patients (Table 7.1). Patients aged 18–19 years had the lowest rates of recorded smoking status: 64.1% for males and 69.5% for females.

Table 7.1   Completeness rates of smoking status recorded by patient age and sex (unweighted), MedicineInsight 2020–21 compared with GPIR 2019–20

Age group	2020–21 number	2020–21 (%)	GPIR 2019–20 (%)
Females 18-19	28,913	69.5	72.4
Females 20-29	179,111	80.1	80.9
Females 30-39	199,270	83.4	84.4
Females 40-49	169,699	86.1	86.6
Females 50-59	173,429	85.8	87.5
Females 60-69	162,810	84.9	87.2
Females 70-79	127,947	84.3	87.9
Females 80-89	63,105	84.4	87.1
Females 90+	20,070	78.6	80.3
Total females	**1,124,354**	**83.6**	**85.1**
Males 18-19	21,923	64.1	66.1
Males 20-29	122,833	74.1	75.4
Males 30-39	141,719	79.3	81.1
Males 40-49	136,584	84.2	85.1
Males 50-59	143,665	85.3	87.6
Males 60-69	140,652	84.7	87.8
Males 70-79	113,930	84.2	87.8
Males 80-89	50,048	84.6	87.3
Males 90+	11,160	81.5	82.4
Total males	**882,504**	**81.7**	**83.7**
Total patients	**2,006,858**	**82.8**	**84.5**

Information about smoking status was only reported for two-thirds of patients in the AIHW report on the 2020–21 Practice Incentives Program Quality Improvement (PIPQI) Measures.[15] These differences may be due to differing data collection rules. The PIPQI collection only gathers data for patients that have attended a practice at least three times in the previous 2 years (regular patients), whereas this report includes patients who have visited at least once. In addition, the PIPQI Measures only include patients aged 15–29 years if their smoking status has been recorded in the previous year.

7.2. Alcohol use recorded

The last recorded entries in the data fields for alcohol use were used in this analysis. Alcohol use was reported for 27.7% of patients aged 18 years and over (Table 7.2).

Table 7.2 Completeness rates of alcohol use recorded by patient age and sex (unweighted), MedicineInsight 2020–21 compared with GPIR 2019–20

Age group	2020–21 number	2020–21 (%)	GPIR 2019–20 (%)
Females 18-19	28,913	5.9	7.5
Females 20-29	179,111	18.8	18.9
Females 30-39	199,270	22.2	21.7
Females 40-49	169,699	26.3	26.1
Females 50-59	173,429	28.6	28.4
Females 60-69	162,810	27.7	27.3
Females 70-79	127,947	25.6	25.8
Females 80-89	63,105	21.2	20.7
Females 90+	20,070	15.8	15.0
Total females	**1,124,354**	**23.9**	**23.6**
Males 18-19	21,923	5.8	7.4
Males 20-29	122,833	22.4	22.8
Males 30-39	141,719	31.5	31.1
Males 40-49	136,584	35.9	35.2
Males 50-59	143,655	37.6	37.3
Males 60-69	140,652	36.8	36.7
Males 70-79	113,930	35.8	36.2
Males 80-89	50,048	33.1	33.0
Males 90+	11,160	27.6	26.0
Total males	**882,504**	**32.8**	**32.4**
Total patients	**2,006,858**	**27.7**	**27.4**

7.3.   BMI and weight recorded

BMI (or both height and weight) was recorded for 35.3% of patients of all ages in the 24-month period from 1 July 2019 to 30 June 2021 (Table 7.3).

Overall BMI recording rates were similar for males and females. Children under 10 years of age had higher rates of BMI completeness than patients aged between 10 and 49 years. The highest rates of recording of BMI (or height and weight) were seen in male and female patients aged 80–89 years.

Table 7.3   Completeness rates of BMI or equivalent recorded by patient age and sex (unweighted), MedicineInsight 2020–21 compared with GPIR 2019–20

Age group	2020–21 number	2020–21 (%)	GPIR 2019–20 (%)
Females 0-9	134,500	42.2	39.7
Females 10-19	123,925	24.5	23.8
Females 20-29	179,111	31.5	29.5
Females 30-39	199,270	33.3	31.4
Females 40-49	169,699	32.6	32.3
Females 50-59	173,429	34.4	35.3
Females 60-69	162,810	36.6	38.4
Females 70-79	127,947	43.9	47.1
Females 80-89	63,105	51.3	54.4
Females 90+	20,070	36.7	39.0
Total females	**1,353,866**	**35.5**	**35.1**
Males 0-9	148,172	42.0	39.8
Males 10-19	114,929	22.2	22.5
Males 20-29	122,833	23.5	22.3
Males 30-39	141,719	28.9	27.1
Males 40-49	136,584	34.6	33.4
Males 50-59	143,655	37.2	37.7
Males 60-69	140,652	39.1	41.0
Males 70-79	113,930	44.1	47.6
Males 80-89	50,048	51.5	55.1
Males 90+	11,160	42.3	44.8
Total males	**1,123,682**	**35.1**	**34.7**
Total patients	**2,477,458**	**35.3**	**34.9**

Note: BMI records were assessed in the period 1 July 2019 to 30 June 2021.

In the 24-month period from 1 July 2019 to 30 June 2021, weight was recorded more frequently than BMI for 42.8% of patients of all ages (Table 7.4). Weight was recorded for 58% of patients aged under 10 years of age, and similarly to BMI recording, the highest rates of recording of weight was for male and female patients aged 80–89 years (~60%).

Information about height and weight and derived BMI was reported for 23.6% of regular patients in the PIPQI collections.[15]

Table 7.4 Completeness rates of weight recorded by patient age and sex (unweighted), MedicineInsight 2020–21 compared with GPIR 2019–20

Age group	2020–21 number	2020–21 (%)	GPIR 2019–20 (%)
Females 0-9	134,500	57.8	58.2
Females 10-19	123,925	30.8	34.3
Females 20-29	179,111	26.1	34.7
Females 30-39	199,270	32.4	38.1
Females 40-49	169,699	39.1	37.6
Females 50-59	173,429	43.3	41.3
Females 60-69	162,810	46.6	45.3
Females 70-79	127,947	52.2	54.9
Females 80-89	63,105	60.4	63.7
Females 90+	20,070	53.5	51.3
Total females	**1,353,866**	**43.1**	**43.2**
Males 0-9	148,172	57.8	58.0
Males 10-19	114,929	30.8	32.4
Males 20-29	122,833	26.1	25.1
Males 30-39	141,719	32.4	30.8
Males 40-49	136,584	39.1	38.1
Males 50-59	143,655	43.3	44.2
Males 60-69	140,652	46.6	49.0
Males 70-79	113,930	52.2	56.0
Males 80-89	50,048	60.4	64.0
Males 90+	11,160	53.5	56.0
Total males	**1,123,682**	**42.4**	**42.7**
Total patients	**2,477,548**	**42.8**	**43.0**

Note: Weight records were assessed in the period 1 July 2019 to 30 June 2021.

8. Care provided to Aboriginal and Torres Strait Islander patients

In summary

▷ During 2020–21, 65,262 Aboriginal and Torres Strait Islander patients had at least one clinical encounter recorded.

▷ Fifty-five per cent of patients were female and 55% were younger than 30 years of age.

▷ Almost half (49%) of patients lived in NSW, 42% lived in major cities, and 56% were from disadvantaged socioeconomic areas.

▷ The average number of GP clinical encounters per patient during 2020–21 was 6.1.

▷ Skin infections (21.5%) were the most common condition ever recorded, followed by depression (21.0%), anxiety (18.3%) and asthma (17.3%). During 2020–21, depression (7.8%), anxiety (7.6%) and asthma (5.4%) were the most prevalent conditions recorded.

▷ Of every 100 GP clinical encounters with Aboriginal and Torres Strait Islander patients, on average:

– 15 had a recent record of depression and 36 were with a patient with depression ever recorded

– 14 had a recent record of anxiety and 30 were with a patient with anxiety ever recorded.

▷ Approximately 320,000 issued medicine prescriptions, and 953,000 total (issued and repeat) prescriptions, were written for Aboriginal and Torres Strait Islander patients during 2020–21. Medicines to treat the nervous system (ATC N: analgesics, antidepressants, antiepileptics) were the most commonly prescribed. Opioids (N02A) accounted for 14.1% of all prescriptions issued to Aboriginal and Torres Strait Islander patients while antidepressants (N06A) accounted for 12.4% of total prescriptions.

▷ Just under one-third of Aboriginal and Torres Strait Islander patients had a record of at least one FBC, liver function or kidney function test result.

▷ Smoking status was recorded at least once in 2020–21 for 86.9% of patients aged 18 years or older.

▷ Alcohol use was recorded at least once for 24.3% of patients aged 18 years or older.

▷ BMI (or both height and weight) was recorded at least once in the 24-month period from 1 July 2019 to 30 June 2021 for 51.2% of patients of all ages.

▷ Aboriginal and Torres Strait Islander status was not recorded for 21.4% of all patients.

This chapter reports on aspects of care provided to patients who identify as being Aboriginal and Torres Strait Islander, where recorded in the CIS. All analyses use unweighted data.

Only patients recorded as being Aboriginal and Torres Strait Islander were included in this analysis. Not all Aboriginal and Torres Strait Islander patients may be identified or recorded as being Aboriginal and Torres Strait Islander – in 2020–21, this field was incomplete for 21.4% of all patients (see section 8.8).

Information about care provided to Aboriginal and Torres Strait Islander people in Indigenous-specific primary health care services[H] is available from two data collections held by the AIHW: the Online Services Report (OSR) and the national Key Performance Indicators (nKPI).[1] However, there is limited information about Aboriginal and Torres Strait Islander people visiting mainstream general practices. This chapter aims to fill some of this information gap.

[H] Aboriginal Community Controlled Health Organisations (ACCHOs) and non-Community Controlled Health Organisations (non-ACCHOs)

8.1. Sociodemographics of Aboriginal and Torres Strait Islander patients

Among the 65,262 MedicineInsight patients recorded as being Aboriginal and Torres Strait Islander, 45% were male and 55% were younger than 30 years of age (Table 8.1).

Almost half of the Aboriginal and Torres Strait patients lived in NSW (49.0%), followed by Queensland (21.4%), whereas South Australia had the lowest number (0.8%). Many resided in major cities (41.6%), whereas 3.9% lived in remote and very remote areas. More than half (56%) of Aboriginal and Torres Strait patients lived in the more disadvantaged areas (SEIFA IRSAD quintiles 1 and 2).

Table 8.1   Sociodemographic distribution of Aboriginal and Torres Strait Islander patients, 2020–21

Patient sociodemographic characteristic	Aboriginal and Torres Strait Islander MedicineInsight patients 2020–21
	N (%)
Total	65,262[a] (100.0)
Sex[a]	
Male	29,358 (45.0)
Female	35,904 (55.0)
Age	
0–9	13,954 (21.4)
10–19	11,107 (17.0)
20–29	10,635 (16.3)
30–39	8447 (12.9)
40–49	6863 (10.5)
50–59	6416 (9.8)
60–69	4662 (7.1)
70–79	2255 (3.5)
80–89	772 (1.2)
90+	151 (0.2)
State/territory	
ACT	806 (1.2)
NSW	31,968 (49.0)
NT	1412 (2.2)
QLD	13,982 (21.4)
SA	548 (0.8)
TAS	6009 (9.2)
VIC	4127 (6.3)
WA	6410 (9.8)
Rurality	
Major city	27,166 (41.6)
Inner regional	20,284 (31.1)
Outer regional	15,295 (23.4)
Remote/very remote	2517 (3.9)
Socioeconomic status (SEIFA IRSAD quintile)	
1 (most disadvantaged)	18,104 (27.7)
2	18,449 (28.3)
3	16,337 (25.0)

Patient sociodemographic characteristic	Aboriginal and Torres Strait Islander MedicineInsight patients 2020–21
	N (%)
4	7913 (12.1)
5 (most advantaged)	4459 (6.8)

a 17 patients of indeterminate sex are not included in this table or for the rest of the chapter.

It is possible that some patients who are Aboriginal and Torres Strait Islanders may not have this status recorded. However, the cohort of patients for whom Aboriginal and Torres Strait Islander status is not recorded differs substantially from the Aboriginal and Torres Strait Islander cohort (Table A3 of supplementary data table). This suggests most patients with this information missing are unlikely to be of Aboriginal and Torres Strait Islander status. Further information about variation in the non-recording of Aboriginal and Torres Strait Islander status by region can be found in Section 8.8.

8.2.   Number of GP encounters by patient

There were 397,544 GP clinical encounters[I] recorded during 2020–21 for the 65,262 Aboriginal and Torres Strait patients. More than half of patients (51.1%) had one to three GP clinical encounters during the year. Approximately 19% of patients had 10 or more clinical encounters during the year (Figure 8.1).

%	25.8	14.7	10.6	7.9	6.2	5.0	4.3	3.4	3.0	19.2
Encounters per patient	1	2	3	4	5	6	7	8	9	10+
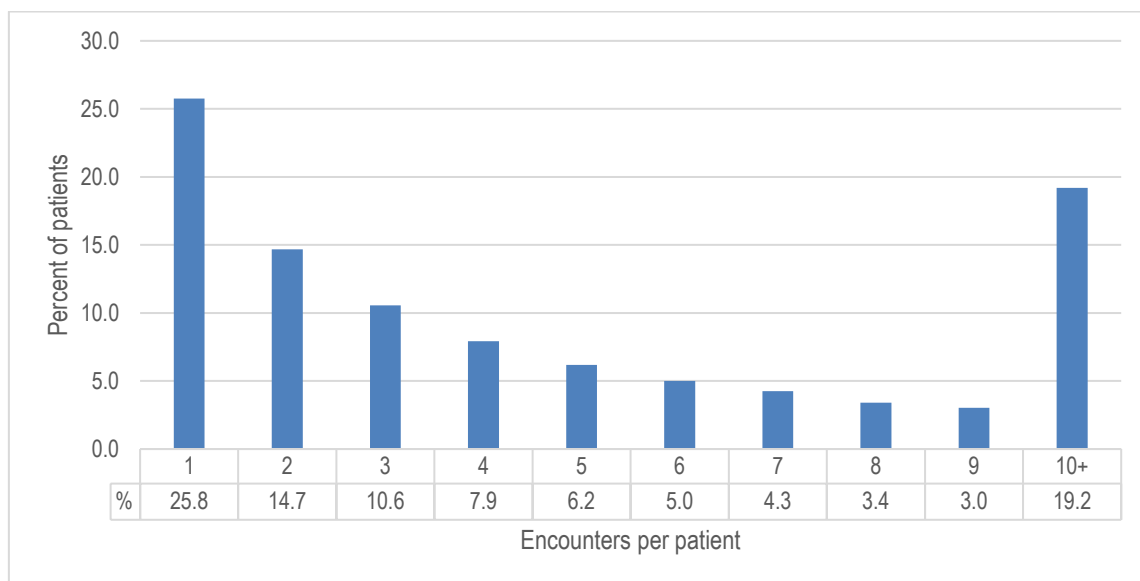
Figure 8.1 Frequency distribution of the number of encounters per Aboriginal and Torres Strait Islander patient (unweighted), MedicineInsight 2020–21

Aboriginal and Torres Strait Islander patients had an average of 6.1 GP clinical encounters during the year, slightly higher than the 5.8 recorded for the whole study population (Table 8.1).

On average, female patients (6.7) had a higher number of GP clinical encounters than male patients (5.4; Table 8.2). This was seen in all age groups except for children aged 0–9 years (Figure 8.2). The average number of encounters per year increased with age to 14.0 encounters per patient aged 80+ years.

Patients in the Northern Territory had a significantly lower average number of visits (4.2 per patient) than in all other states and territories. The largest number of Indigenous-specific primary health care organisations is found in the Northern Territory and the proportion of Aboriginal and Torres Strait Islander residents in the Northern Territory using these services is very high.[1] If Aboriginal and Torres

---

I A maximum of 1 clinical encounter counted per patient per day

Strait Islander patients in the Northern Territory are using both mainstream and Indigenous-specific services, this may explain the lower encounter rate seen in MedicineInsight.

Patients in the most socioeconomic disadvantaged areas (SEIFA IRSAD quintile 1), on average, had the most visits (6.5), while those in the most advantaged areas (SEIFA 5) had the fewest visits (5.7).

Table 8.2   Average number of GP encounters for Aboriginal and Torres Strait Islander patients by sociodemographic characteristic in MedicineInsight 2020–21 (unweighted data)

Patient characteristic	Average number of encounters per patient	(95% CI)
Total Aboriginal and Torres Strait Islander patients	6.1	(5.8, 6.3)
Sex		
Male	5.4	(5.1, 5.6)
Female	6.7	(6.4, 7.0)
Age group (years)		
0–9	3.8	(3.7, 3.9)
10–19	3.7	(3.5, 3.8)
20–29	5.4	(5.1, 5.6)
30–39	6.2	(5.9, 6.5)
40–49	7.3	(6.9, 7.8)
50–59	8.7	(8.1, 9.2)
60–69	10.2	(9.6, 10.7)
70–79	12.4	(11.8, 13.1)
80–89	14.0	(13.0, 15.0)
90+	14.0	(11.7, 16.4)
State/territory		
ACT	5.9	(4.8, 7.0)
NSW	6.0	(5.7, 6.2)
NT	4.2	(3.8, 4.6)
QLD	5.7	(5.5, 6.0)
SA	7.2	(6.4, 8.1)
TAS	7.4	(6.6, 8.1)
VIC	8.0	(6.9, 9.2)
WA	5.3	(4.7, 6.0)
Rurality		
Major city	6.1	(5.8, 6.4)
Inner regional	6.4	(5.9, 6.8)
Outer regional	5.8	(5.4, 6.2)
Remote/very remote	5.5	(3.4, 7.6)
Socioeconomic status (SEIFA IRSAD quintile)		
1 (most disadvantaged)	6.5	(6.1, 6.9)
2	5.9	(5.6, 6.2)
3	6.1	(5.7, 6.5)
4	5.9	(5.5, 6.3)
5 (most advantaged)	5.7	(5.3, 6.1)
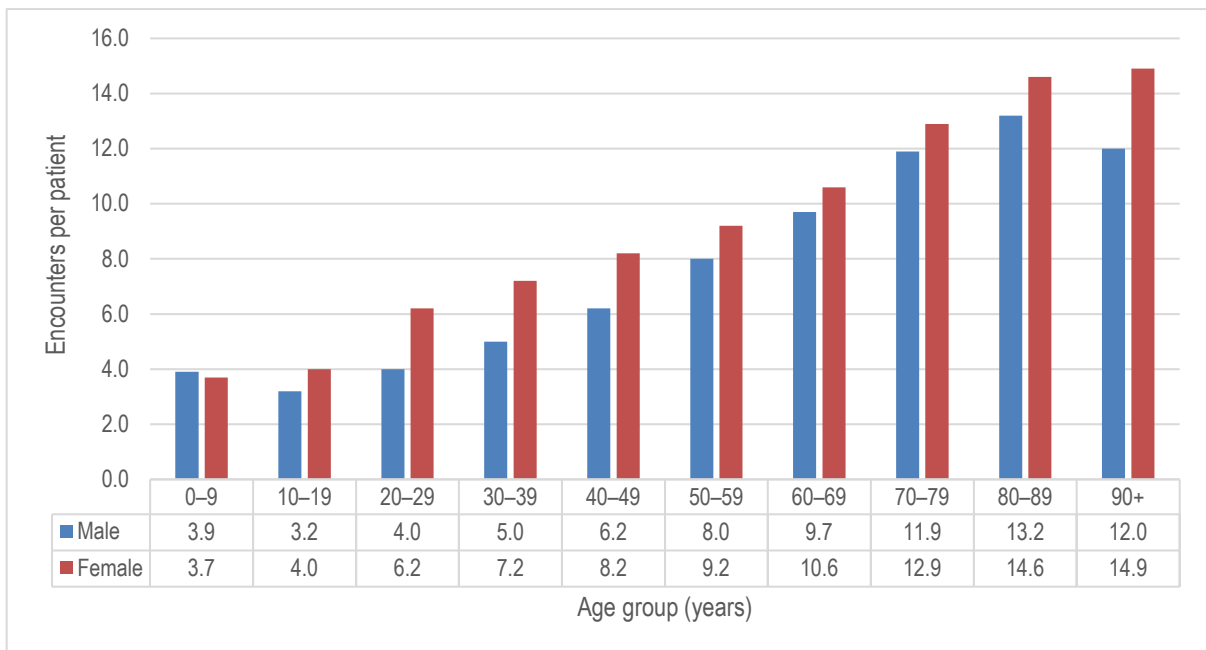
Figure 8.2 **Average number of encounters per Aboriginal and Torres Strait Islander patient by sex and age group (unweighted data), MedicineInsight 2020–21**

8.3.   Prevalence of selected conditions

This section presents information on the prevalence of each condition according to whether it has ever been recorded in the clinical record ('ever recorded') or whether it has been recorded during 1 July 2020–30 June 2021. More information about how conditions are recorded can be found in Chapter 4.

Skin infections were the most common condition recorded, with 21.5% of patients diagnosed with skin infections at least once in the medical record (Table 8.3). Aboriginal and Torres Strait Islander people experience a high burden of skin infections, particularly in remote communities and among children.[16-18] A number of social and environmental factors contribute to the high rates and spread of skin infections in these communities, including poor housing conditions and overcrowding.[18-20]

The next most prevalent conditions were depression (21.0%) and anxiety (18.3%). Higher rates of mental health conditions in Aboriginal and Torres Strait Islander communities have been linked to socioeconomic disadvantage and intergenerational trauma.[21,22]

Rheumatic heart disease was recorded for 0.1% of patients. The prevalence of rheumatic heart disease may be underestimated in MedicineInsight because patients with the condition present and are diagnosed in services outside of primary care, such as hospitals. Therefore, the proportion of records in MedicineInsight data might not be representative of the burden of rheumatic heart disease in Aboriginal and Torres Strait Islander people.[23,24]

For recent management of patients, we looked at conditions recorded in 2020–21. Depression was the most commonly recorded condition during this period (7.8%), closely followed by anxiety (7.6%). Other common prevalent conditions during this period were asthma (5.4%) and skin infections (5.2%). Otitis media was recorded for 2.2% of patients during the year.

Table 8.3   Proportion of Aboriginal and Torres Strait Islander patients (n=65,262) with selected conditions (unweighted)

Condition[a]	% patients with selected conditions (recorded in 2020-21)	Patients with selected conditions (recorded in 2020–21) 95% CI	% patients with selected conditions (ever recorded)	Patients with selected conditions (ever recorded) 95% CI
Skin infections	5.20	(4.73, 5.67)	21.49	(20.19, 22.80)
Depression	7.76	(7.29, 8.23)	20.97	(19.98, 21.96)

Condition[a]	% patients with selected conditions (recorded in 2020-21)	Patients with selected conditions (recorded in 2020–21) 95% CI	% patients with selected conditions (ever recorded)	Patients with selected conditions (ever recorded) 95% CI
Anxiety	7.58	(7.04, 8.11)	18.27	(17.24, 19.30)
Asthma	5.39	(5.03, 5.74)	17.28	(16.30, 18.25)
Low back pain	4.90	(4.58, 5.22)	16.15	(15.34, 16.95)
Otitis media	2.19	(1.98, 2.40)	13.39	(12.54, 14.24)
GORD	4.39	(4.10, 4.68)	13.11	(12.36, 13.86)
Hypertension	4.12	(3.82, 4.43)	12.15	(11.45, 12.85)
Dyslipidaemia	2.60	(2.35, 2.84)	9.95	(9.32, 10.58)
Diabetes (type 2/NOS)	3.73	(3.40, 4.06)	7.35	(6.85, 7.84)
Dermatitis/eczema	1.62	(1.47, 1.77)	6.98	(6.37, 7.60)
Osteoarthritis	1.77	(1.61, 1.92)	6.73	(6.22, 7.23)
Migraine	1.50	(1.37, 1.62)	5.25	(4.95, 5.56)
CVD[b]	1.07	(0.95, 1.19)	4.34	(4.00, 4.68)
COPD	1.55	(1.39, 1.72)	3.95	(3.59, 4.31)
Osteoporosis	0.65	(0.56, 0.74)	1.90	(1.70, 2.09)
Skin cancer (excluding melanoma)	0.34	(0.26, 0.42)	1.56	(1.36, 1.75)
Atrial fibrillation	0.42	(0.36, 0.47)	1.28	(1.16, 1.39)
Hepatitis C	0.28	(0.21, 0.36)	1.23	(0.96, 1.50)
Chronic kidney disease	0.35	(0.27, 0.42)	1.21	(1.03, 1.40)
Heart failure	0.37	(0.32, 0.43)	1.06	(0.95, 1.17)
Stroke	0.17	(0.14, 0.21)	0.90	(0.80, 1.00)
Diabetes (gestational)	0.16	(0.11, 0.21)	0.82	(0.69, 0.94)
Diabetes (type 1)	0.26	(0.22, 0.31)	0.70	(0.62, 0.77)
Rheumatoid arthritis	0.26	(0.22, 0.30)	0.69	(0.61, 0.77)
Breast cancer	0.12	(0.09, 0.14)	0.58	(0.52, 0.65)
Melanoma	0.04	(0.02, 0.06)	0.38	(0.32, 0.44)
Coeliac disease	0.08	(0.05, 0.10)	0.35	(0.29, 0.40)
Dementia	0.13	(0.10, 0.16)	0.33	(0.28, 0.38)
Prostate cancer	0.07	(0.05, 0.09)	0.30	(0.25, 0.36)
Colorectal cancer	0.08	(0.05, 0.10)	0.30	(0.25, 0.34)
Hepatitis B	0.04	(0.02, 0.06)	0.20	(0.15, 0.24)
Lung cancer	0.06	(0.04, 0.08)	0.14	(0.11, 0.17)
Rheumatic heart disease	0.04	(0.01, 0.06)	0.10	(0.06, 0.14)

a As information about the status of the condition is not regularly updated in the CIS, conditions are included whether they are marked as 'active' or 'inactive'.
b Includes coronary artery disease (including myocardial infarction and angina), peripheral vascular disease, atrial fibrillation, heart failure, stroke and transient ischaemic attack.
CI: Confidence interval; COPD: chronic obstructive pulmonary disease; CVD: cardiovascular disease; GORD: gastro-oesophageal reflux disease; NOS: not otherwise specified.

8.4.   Conditions per 100 GP clinical encounters

When GPs were providing care to Aboriginal and Torres Strait Islander patients during 2020–21, on average, for every 100 GP clinical encounters (Table 8.4):

- 15 were with a patient with a recent record of depression and 36 were with a patient with depression ever recorded
- 14 were with a patient with a recent record of anxiety and 30 were with a patient with anxiety ever recorded
- 11 were with a patient with a recent record of low back pain and 30 were with a patient with low back pain ever recorded
- 9 were with a patient with a recent record of type 2 diabetes and 16 were with a patient with type 2 diabetes ever recorded
- one was with a patient with a recent record of CKD and four were with a patient with CKD ever recorded.

Table 8.4   Patients with selected conditions per 100 GP clinical encounters (unweighted) in MedicineInsight 2020–21

Condition[b]	Encounters with patients with condition (recorded in 2020–21) per 100 encounters[a]	Encounters with patients with condition (recorded in 2020–21) 95% CI	Encounters with patients with condition (ever recorded) per 100 encounters[a]	Encounters with patients with condition (ever recorded) 95% CI
Depression	14.91	(13.74, 16.09)	35.64	(34.01, 37.28)
Anxiety	14.26	(13.14, 15.37)	30.01	(28.32, 31.69)
Low back pain	10.99	(10.14, 11.84)	29.93	(28.60, 31.25)
GORD	9.76	(9.05, 10.47)	26.40	(24.97, 27.83)
Asthma	9.23	(8.53, 9.94)	25.72	(24.20, 27.24)
Diabetes (type 2/NOS)	8.74	(7.88, 9.60)	16.08	(15.07, 17.10)
Skin infections	8.20	(7.52, 8.88)	28.53	(27.07, 29.99)
Hypertension	8.07	(7.43, 8.71)	24.18	(22.99, 25.38)
Dyslipidaemia	4.73	(4.28, 5.19)	19.63	(18.41, 20.85)
Osteoarthritis	4.63	(4.16, 5.10)	15.53	(14.45, 16.61)
COPD	4.13	(3.68, 4.58)	9.46	(8.58, 10.34)
Migraine	3.39	(3.03, 3.76)	10.08	(9.38, 10.77)
CVD[d]	3.06	(2.66, 3.45)	10.64	(9.88, 11.41)
Otitis media	2.94	(2.63, 3.25)	14.49	(13.57, 15.41)
Dermatitis/eczema	2.31	(2.04, 2.57)	8.92	(8.04, 9.79)
Osteoporosis	1.82	(1.54, 2.10)	5.00	(4.50, 5.50)
Heart failure	1.38	(1.13, 1.64)	3.38	(2.98, 3.78)
Atrial fibrillation	1.27	(1.08, 1.46)	3.37	(3.04, 3.71)
Chronic kidney disease	1.17	(0.89, 1.46)	3.50	(2.91, 4.10)
Skin cancer (excluding melanoma)	0.88	(0.68, 1.09)	3.49	(3.04, 3.93)
Rheumatoid arthritis	0.65	(0.53, 0.76)	1.58	(1.37, 1.78)
Hepatitis C	0.54	(0.36, 0.71)	2.47	(1.76, 3.17)
Stroke	0.48	(0.35, 0.62)	2.30	(2.00, 2.61)
Dementia	0.35	(0.25, 0.45)	0.81	(0.64, 0.98)
Diabetes (gestational)	0.34	(0.19, 0.49)	1.29	(1.06, 1.51)
Breast cancer	0.27	(0.19, 0.34)	1.24	(1.06, 1.42)
Colorectal cancer	0.17	(0.10, 0.24)	0.71	(0.56, 0.85)
Lung cancer	0.17	(0.10, 0.24)	0.38	(0.28, 0.48)
Prostate cancer	0.16	(0.11, 0.21)	0.66	(0.53, 0.80)
Melanoma	0.13	(0.06, 0.20)	0.84	(0.70, 0.99)

Condition[b]	Encounters with patients with condition (recorded in 2020–21) per 100 encounters[a]	Encounters with patients with condition (recorded in 2020–21) 95% CI	Encounters with patients with condition (ever recorded) per 100 encounters[a]	Encounters with patients with condition (ever recorded) 95% CI
Coeliac disease	0.11	(0.07, 0.15)	0.58	(0.46, 0.70)
Hepatitis B	0.09	(0.04, 0.13)	0.40	(0.28, 0.51)
Rheumatic heart disease	0.09	(0.03, 0.14)	0.22	(0.12, 0.32)

a The second column from left describes the rate of encounter with Aboriginal or Torres Strait Islander patients with selected conditions recorded in 2020–21 per 100 encounters, calculated by dividing the number of encounters with patients with the condition recorded in 2020–21 by the total number of encounters for Aboriginal or Torres Strait Islander patients multiplied by 100. The right-hand column of Table 8.4 describes the rate at which patients with selected conditions ever recorded (at any time in their medical records) were managed per 100 encounters with an Aboriginal or Torres Strait Islander patient, calculated by dividing the number of encounters with patients with the condition ever recorded by the total number of encounters for Aboriginal or Torres Strait Islander patients multiplied by 100.

b As information about the status of the condition is not regularly updated within the CIS, conditions will be included irrespective of whether they are marked as 'active' or 'inactive'.

c While patients may have a history of a condition, it may not necessarily be managed at every encounter. In addition, patients may present with more than one condition at each encounter. The number of patients with each specified condition either during 2020–21 or 'ever-recorded' are averaged over 100 GP clinical encounters in 2020–21.

d Includes coronary artery disease, peripheral vascular disease, atrial fibrillation, heart failure, stroke and transient ischaemic attack.

CI: confidence interval; CIS: clinical information system; COPD: chronic obstructive pulmonary disease; CVD: cardiovascular disease; GORD: gastro-oesophageal reflux disease; NOS: not otherwise specified.

8.5.   Prescriptions per medicine type

Data is reported by issued prescriptions and total prescriptions – see Chapter 5 for further details.

There were 319,705 issued prescriptions and 953,186 total prescriptions written for Aboriginal and Torres Strait Islander patients in 2020–21 (Table 8.5).

At ATC level 1, medicines for the nervous system (which included analgesics, antidepressants, and medicines to treat epilepsy and Parkinson disease) accounted for the largest proportion of medicines prescribed in terms of both issued (37.4%) and total prescriptions (30.5%).

Medicines for cardiovascular diseases accounted for 13.1% of issued, and 23.3% of total, prescriptions.

Table 8.5   Number and proportion (%) of MedicineInsight issued and total prescriptions for ATC level 1 (unweighted data) for Aboriginal and Torres Strait Islander patients, 2020–21

ATC level 1	Medicine class	Issued prescriptions n	Issued prescriptions %	Total (issued plus repeat) prescriptions n	Total (issued plus repeat) prescriptions %
N	Nervous system	119,575	37.4	290,281	30.5
C	Cardiovascular system	41,772	13.1	222,019	23.3
A	Alimentary tract and metabolism	39,545	12.4	151,748	15.9
R	Respiratory system	21,104	6.6	98,879	10.4
J	Anti-infectives for systemic use	39,068	12.2	51,392	5.4
G	Genitourinary system and sex hormones	11,205	3.5	31,563	3.3
M	Musculoskeletal system	11,922	3.7	29,812	3.1
B	Blood and blood-forming organs	9603	3.0	28,763	3.0
D	Dermatologicals	12,281	3.8	22,071	2.3
H	Systemic hormonal preparations, excluding sex hormones and insulins	8447	2.6	15,357	1.6
S	Sensory organs	3015	0.9	5974	0.6
L	Antineoplastic and immunomodulating agents	762	0.2	3043	0.3
P	Antiparasitic products, insecticides and repellents	1361	0.4	2127	0.2
V	Various	45	0.0	157	0.0
Total		319,705	100.0	953,186	100.0

Table 8.6 includes the top 15 ATC 3 medicines ranked by total prescriptions. At ATC level 3, opioids accounted for the largest proportion of issued prescriptions (14.1%), and antidepressants for the largest proportion of total prescriptions (12.4%).

Table 8.6 Number and proportion (%) of issued and total prescriptions for the top 15 ATC level 3 classes recorded (unweighted), for Aboriginal and Torres Strait Islander patients, 2020–21

ATC level 3	Medicine class	Issued prescriptions[a] n	Issued prescriptions[a] %	Total (issued plus repeat) prescriptions[a] n	Total (issued plus repeat) prescriptions[a] %
N06A	Antidepressants	26,753	8.4	118,655	12.4
R03A	Adrenergics, inhalants	14,862	4.6	76,399	8.0
C10A	Lipid-modifying agents, single agent	11,896	3.7	71,608	7.5
A02B	Drugs for peptic ulcer and GORD	14,492	4.5	62,981	6.6
A10B	Blood glucose-lowering drugs, excluding insulins	11,343	3.5	60,858	6.4
N02A	Opioids	45,146	14.1	50,559	5.3
N03A	Antiepileptics	8564	2.7	35,256	3.7
C09A	ACE inhibitors, single agent	5687	1.8	31,735	3.3
N05A	Antipsychotics	9176	2.9	26,514	2.8
C07A	Beta-blocking agents	4788	1.5	24,771	2.6
B01A	Antithrombotic agents	6109	1.9	23,854	2.5
C09C	Angiotensin II antagonists, single agent	3970	1.2	22,219	2.3
J01C	Beta-lactam antibacterials, penicillins	18,767	5.9	20,792	2.2
M01A	Anti-inflammatory and antirheumatic products, non-steroids	8570	2.7	20,324	2.1
R03B	Other inhaled drugs for obstructive airway diseases	3398	1.1	16,805	1.8
Subtotal[a]		**193,521**	**60.5**	**663,330**	**69.6**

a Proportions (%) are given for the top 15 ATC level 3 classes only.

8.6. Pathology testing

Table 8.7 presents the proportions of MedicineInsight Aboriginal and Torres Strait Islander patients during 2020–21 who had a result for nine selected pathology tests, and the average number of these test results per 100 patients. For more information about how pathology testing is reported in MedicineInsight see Chapter 6.

Only 33% of patients (21,535) had a record of at least one of the nine selected pathology tests results.

FBCs, liver function and kidney function tests were the most commonly recorded pathology test results among Aboriginal and Torres Strait Islander patients. On average, these tests were requested in half of all encounters with Aboriginal and Torres Strait Islander patients.

Table 8.7 Selected pathology test results for Aboriginal and Torres Strait Islander patients, 2020–21

Pathology test result	% patients with result recorded	Average number of tests per 100 patients, including those without test results recorded (95% CI)	Average number of tests per 100 patients with at least one test result record (95% CI)
Full blood count (FBC)[a]	31.2	53.7 (50.7, 56.8)	172.2 (169.4, 174.9)
Liver function test (LFT)[b]	28.8	47.0 (44.3, 49.6)	162.9 (160.8, 164.7)
Kidney function test (urea, electrolytes and creatinine; UECs)[c]	28.6	48.7 (45.4, 52.1)	170.2 (168.1, 172.1)

Lipids[d]	22.1	30.7 (28.3, 33.0)	138.5 (135.6, 141.2)
TSH	19.8	25.2 (23.5, 26.8)	126.9 (126.6, 127.2)
Ferritin	19.6	26.3 (24.8, 27.7)	133.8 (133.4, 134.2)
HbA$_{1c}$	14.3	19.9 (18.3, 21.5)	114.3 (113.5, 114.9)
Vitamin B$_{12}$	12.9	14.7 (13.5, 15.9)	115.6 (115.3, 115.7)
Vitamin D	10.1	11.7 (10.6, 12.8)	139.0 (139.1, 139.0)

a Haemoglobin was used as a proxy for FBC
b ALT was used as a proxy for LFTs
c Sodium was used as a proxy for UECs
d Total cholesterol was used as a proxy for lipids

8.7 Risk factors recorded

Smoking status was recorded at least once for 86.9% of Aboriginal and Torres Strait Islander patients aged 18 years and over (Table 8.8). MedicineInsight data uses the last entry collected from general practices, regardless of when it was recorded. The recording rate was slightly higher for females (87.8%) than males (85.8%). Patients aged 18–19 years had the lowest rates of recorded smoking status.

Alcohol use was recorded at least once for 24.3% of Aboriginal and Torres Strait Islander patients aged 18 years and over. The recording rate was higher for males (30.0%) than for females (20.2%). Patients aged 50–59 years were the most likely to have their alcohol use recorded.

BMI (or both height and weight) was recorded for 51.2% of Aboriginal and Torres Strait Islander patients of all ages in the 24-month period from 1 July 2019 to 30 June 2021. Children aged 0–9 years had higher rates of BMI completeness than patients aged between 10 and 49 years. The highest rates of recording of BMI (or height and weight) were seen in male patients aged 60–69 years (61.8%) and female patients aged 70–79 years (63.9%).

Table 8.8 Completeness of risk factor recording among Aboriginal and Torres Strait Islander patients by age and sex (unweighted), MedicineInsight 2020–21

Age group	Percentage (%) of patients with smoking status recorded [aged 18+]	Percentage (%) of patients with alcohol use recorded [aged 18+]	Percentage (%) of patients with BMI or equivalent recorded
	2020–21	2020–21	2020–21
Total patients	86.9	24.3	51.2
Females 0-9	-		56.6
Females 10-19*	75.4	7.7	42.6
Females 20-29	85.6	17.4	48.5
Females 30-39	87.6	21.8	49.9
Females 40-49	90.3	23.3	53.4
Females 50-59	90.7	24.2	56.3
Females 60-69	90.4	22.4	60.5
Females 70-79	90.0	18.1	63.9
Females 80-89	92.4	18.3	60.4
Females 90+	85.7	18.1	45.7
Total females	87.8	20.2	52.1
Males 0-9	-		55.2
Males 10-19*	74.4	10.6	44.5
Males 20-29	82.8	27.2	40.4
Males 30-39	84.3	31.5	45.8
Males 40-49	87.1	33.2	49.3
Males 50-59	88.9	34.1	54.6
Males 60-69	90.7	32.9	61.8
Males 70-79	88.7	27.0	61.4

Males 80-89	89.9	27.5	56.7
Males 90+	84.8	28.3	43.5
Total males	85.8	30.0	50.2

*For recording of smoking and alcohol use, this includes patients aged 18–19 years only.

8.8 Aboriginal and Torres Strait Islander status not recorded

Information on Aboriginal and Torres Strait Islander status was not recorded for 21.4% of all patients in 2020–21 (Table 8.9).

Recording was more complete for female (20.7% not recorded) than male (22.4% not recorded) patients. Older adults aged 70–89 years were more likely to have their Aboriginal and Torres Strait Islander status recorded than patients aged 0–29 years.

Recording of Aboriginal and Torres Strait Islander status was most complete in the Northern Territory (14.1% not recorded) and least complete in Victoria (31.2% not recorded). The most advantaged socioeconomic areas also had high proportions of incomplete records (30.0% not recorded).

Table 8.9 **Completeness of Aboriginal and Torres Strait Islander status recordings for patients (unweighted) by sociodemographic characteristics, MedicineInsight 2020–21**

Patient sociodemographic characteristic	Aboriginal and Torres Strait Islander status not recorded 2020–21 *n*	Aboriginal and Torres Strait Islander status not recorded 2020–21 %
Total	532,209	21.4
Sex		
Male	251,836	22.4
Female	280,373	20.7
Age		
0–9	65,967	23.3
10–19	54,854	23.0
20–29	69,298	23.0
30–39	75,119	22.0
40–49	64,653	21.1
50–59	67,402	21.3
60–69	61,387	20.2
70–79	45,819	18.9
80–89	20,730	18.3
90+	6,980	22.3
State/territory		
ACT	14,924	20.4
NSW	178,279	19.6
NT	3,663	14.1
QLD	95,524	19.0
SA	9,567	18.4
TAS	36,378	21.6
VIC	138,787	31.2
WA	55,087	18.3
Rurality (Nil missing)		
Major city	370,012	22.8
Inner regional	117,310	20.7
Outer regional	39,188	15.7

Patient sociodemographic characteristic	Aboriginal and Torres Strait Islander status not recorded 2020–21 *n*	Aboriginal and Torres Strait Islander status not recorded 2020–21 %
Remote / very remote	5,699	16.9
Socioeconomic status		
1 (most disadvantaged)	76,037	20.1
2	75,352	17.1
3	87,555	16.2
4	118,559	22.0
5 (most advantaged)	174,706	30.0

9. Telehealth

In summary

▷ Between 1 January 2020 and 31 December 2021, 95% of telehealth consultations were via telephone rather than video.
▷ Telehealth use was highest in April 2020 (269 per 1000 clinical encounters) and afterwards rose and fell in line with new COVID-19 outbreaks and corresponding lockdowns.
▷ Over the whole study period:
  − GPs in major cities recorded higher telehealth consultation rates than GPs in remote area
  − female patients had higher rates of telehealth use than males
  − patients older than 65 years had the highest telehealth consultation rates, and those aged 0–17 years the lowest
  − patients with a health care concession card had higher quarterly rates of telehealth consultations than those without
  − patients with CKD had the highest recorded telehealth consultation rates among the seven conditions investigated. Patients with asthma had the lowest telehealth consultation rates.

In response to the COVID-19 pandemic, the Australian Government introduced new MBS telehealth items on 13 March 2020. These allowed patients to consult health professionals by telephone or video, reducing the risk of viral transmission. In July 2021, most of the original telephone MBS items were removed from the schedule and replaced with MBS telephone items for short straightforward care lasting less than 6 minutes, longer more complex consults lasting longer than 6 minutes and consults provided to patients living in a COVID-19 'hotspot'.[25] These changes may have impacted different demographic groups differently.

This chapter investigates the use of telehealth MBS items. The practices and clinical encounters included in this analysis differ from those included in Chapters 2 to 8 because:

▷ the study period is 1 January 2020 to 31 December 2021, not financial year 2020–21
▷ MBS item numbers (Table 9.1) are used to identify clinical encounters, not the MedicineInsight algorithm
▷ MBS billing information is not received from all participating general practices. This is because some general practices have billing systems that are separate from their CISs.

The information included in this analysis is from 326 practice sites that:

▷ had at least some billing data available
▷ ranked in the top 95% of practices by total encounter numbers
▷ ranked in the top 90% by the ratio of face-to-face GP attendance consultations (MBS items 3, 23, 36 and 44) to total encounters.

Only telehealth MBS items corresponding to standard attendances recorded as finalised were included in this analysis (Table 9.1). Telehealth MBS items related to chronic disease and mental health management plans, focused psychological strategies, urgent after-hours attendances or telehealth items claimed by other health professionals (specialists, allied health) were excluded.

Table 9.1   **MBS billing items for face-to-face and telehealth GP attendances**

	Corresponding face-to-face MBS items	Video MBS items	Telephone MBS items
Standard GP attendance	3, 23, 36, 44 and 599 52, 53, 54, 57, 179, 185, 189, 203 and 600	91790, 91792, 91794, 91800, 91801, 91802, 91803, 91804, 91805, 91806, 91807, 91808, 92210, 92211	91795, 91797, 91799, 91809, 91810, 91811, 91812, 91813, 91814, 91815, 91816, 91817, 92216, 92217 (deleted from MBS 1 July 2021) 91890, 91891, 91892 & 91893 (added to MBS 1 July 2021) 92746 & 92747 (Added to MBS 16 July 2021)

Localised lockdowns and 'stay at home' orders were introduced in some parts of the country. These are likely to have changed the proportion of GP clinical encounters that were conducted via telehealth at different times in different parts of the country. Longer periods of 'stay at home orders' in 2020–21 included:

▷ 8 July – 27 October 2020 and 5 August – 21 October 2021 in Victoria
▷ 26 June – 11 October 2021 in New South Wales
▷ 12 August – 14 October 2021 in Australian Capital Territory.[26]

A timeline of all stay at home orders can be seen in Figure 9.1, and listed in Appendix 6.[26] Additionally, despite moving to a 'living with COVID-19' phase, there was a significant outbreak of Omicron variant in the later part of 2021. There were 14,234 active cases nationally on 30 November 2021 and 137,752 on 31 December 2021.[27,28] This may have increased demand for telehealth consultations during December.

9.1 Rates of telehealth use in 2020 and 2021

Figure 9.2 and supplementary data table A4.1 present a breakdown of monthly rates of mode of telehealth consultations – video or telephone. Over 95% of monthly telehealth services from March 2020 to December 2021 were provided by telephone. Telehealth use was highest in April 2020 (269 per 1000 clinical encounters) immediately after its introduction. Rates of use remained high in the 6 months following its introduction before falling steadily until May 2021. With the Delta variant outbreak from June 2021, most Australian states and territories went into lockdown and the use of telehealth rose from 130 in June to 183 per 1000 encounters in August 2021, before a modest decline until the end of the year. Rates rose again (158 per 1000 patients) as the Omicron variant spread throughout December.
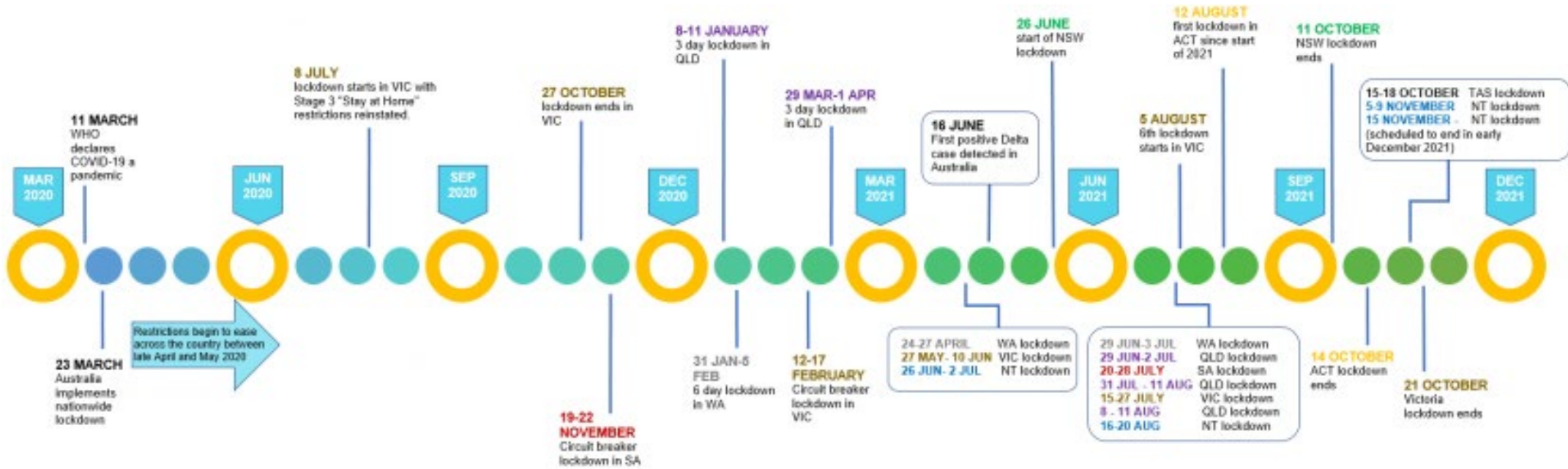
Figure 9.1 Timeline of Australian lockdowns during 2020 and 2021 (Source: ABS)[26]

	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Telehealth	0	0	89	269	247	226	254	233	206	174	158	158	145	152	139	115	112	130	156	183	170	154	145	158
Video	0	0	6	11	7	5	5	5	4	3	3	3	2	3	2	2	2	2	6	8	7	6	5	6
Phone	0	0	83	259	240	220	249	228	202	171	156	155	143	150	137	113	110	128	149	175	162	149	140	152

- - Telehealth   — Video   — Phone

Figure 9.2   National rate of telehealth billed items per 1000 clinical encounters by month (total telehealth, video and telephone), January 2020 to December 2021

Figures 9.3–9.5 and supplementary table A4.2 present the monthly rate of recorded telehealth consultations per 1000 clinical encounters by state or territory, remoteness and socioeconomic status. Note that for this section, all geographical comparisons are based on the postcode of the practice, not the patient.

At the start of the pandemic, telehealth use rose rapidly regardless of state or territory, remoteness or socioeconomic status. However, patterns of telehealth use changed over time, corresponding to new outbreaks or spikes due to community transmission or border re-openings.

Figure 9.3 presents the pattern of telehealth use by states and territories.

▷ Victoria recorded the highest rate per 1000 telehealth use in June (419) and July 2020 (431) in line with the July 2020 Victorian lockdown. Rates decreased from September 2020 before rising again during July to October 2021 following the Delta variant outbreak and further lockdowns.

▷ In the ACT, after a steady decline in monthly rates of telehealth use after the initial spike in April 2020, the next increase in rate was recorded in August (286) and September 2020 (357), corresponding with the first lockdown in the territory (from 12 August to 14 October 2021).

▷ Telehealth use increased in Queensland and NSW recorded in July 2020 during the second wave of COVID in the eastern states. It increased again in August 2021 during the Delta outbreak.

▷ SA has had three substantial increases in the use of telehealth since May 2020. The first in November 2020 aligns with a small outbreak and lockdown in the state. The second was during the Delta variant outbreak in June and July 2021. The third was in November and December 2021 after the state opened borders to other states and territories.

▷ For a large part of the pandemic, the WA border was closed and COVID numbers were low. Monthly rates of telehealth consultations increased in February 2021 corresponding to its short 6-day lockdown, and again in June and July 2021 with the state's second lockdown due to Delta.

▷ Like WA, Tasmania had a closed border for most of 2020 and 2021. Rates of telehealth use consistently decreased after April 2020. An increase (from 86 to 110 per 1000 encounters) in telehealth use seen in December 2021 corresponds with a rise in the number of COVID cases once the border to other states and territories reopened.

▷ Consistently, the Northern Territory recorded low monthly rates of telehealth in the 2 years compared with other states. In 2020, the monthly rate of telehealth use was stable after April, ranging from 60 to 72. In 2021, a slight rate increase was seen, ranging from 67 to 97 with the highest rates in November (90) and December (97) with stay-at-home requirements enforced in several parts of the territory.

In general, GPs in the major cities recorded higher rates of telehealth consultations than those in remote areas. However, the pattern of rises and falls in the monthly rates of telehealth consultations was similar in major cities, regional and remote areas (Figure 9.4).

The pattern of rises and falls in the monthly rates of telehealth consultations were also similar among advantaged and disadvantaged socioeconomic areas (Figure 9.5). GP services in the most advantaged socioeconomic areas (SEIFA 5) had slightly higher monthly rates than other areas, while SEIFA 2 recorded the lowest monthly rates. There was, however, no obvious linear association between socioeconomic status and telehealth consultation rates.

	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
ACT	0	0	107	298	288	234	217	193	169	140	138	138	127	139	133	98	107	112	129	286	357	228	178	170
NSW	0	0	100	282	265	246	277	245	213	186	174	178	163	152	150	119	119	139	190	246	228	200	183	197
NT	0	0	27	115	66	66	60	60	71	69	72	71	75	86	78	67	66	85	81	67	69	66	90	97
QLD	0	0	79	245	221	203	213	196	177	136	124	127	126	115	126	104	96	112	122	152	115	105	109	130
SA	0	0	101	257	265	247	239	209	171	146	192	174	134	131	122	96	102	118	194	124	122	112	131	170
TAS	0	0	89	302	262	204	186	159	146	125	112	122	105	100	96	83	82	87	86	86	85	84	86	110
VIC	0	0	86	279	284	292	419	431	372	314	257	232	214	226	203	163	166	190	204	220	218	232	215	217
WA	0	0	84	259	204	168	166	137	127	112	107	112	103	183	103	102	91	118	127	97	93	84	88	94

Figure 9.3 Rate of MBS telehealth billed items per 1000 clinical encounters by state (total telehealth), January 2020 to December 2021

	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Major city	0	0	90	275	256	241	281	256	225	192	175	173	160	174	154	128	124	146	180	217	202	180	164	176
Inner regional	0	0	92	264	242	215	231	220	193	158	142	143	131	126	126	103	101	114	126	149	135	127	127	142
Outer regional	0	0	80	254	214	167	165	144	137	112	100	110	98	93	92	79	78	86	94	90	84	83	85	106
Remote/very remote	0	0	88	220	187	144	134	106	95	95	92	98	84	80	71	55	50	60	68	65	72	59	56	72

Figure 9.4   Rate of MBS telehealth billed items per 1000 clinical encounters by abs remoteness areas (total telehealth), January 2020 to December 2021

	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
1 (most disadvantaged)	0	0	90	302	275	240	261	250	227	192	178	175	163	155	153	119	115	132	158	177	166	163	154	171
2	0	0	84	255	217	186	202	195	168	140	128	132	120	123	109	91	89	103	112	139	127	114	109	120
3	0	0	99	275	257	236	246	228	204	174	157	155	140	146	138	119	115	133	159	194	173	154	143	164
4	0	0	78	245	220	210	250	220	194	159	145	142	136	148	132	117	111	132	159	205	187	171	152	166
5 (most advantaged)	0	0	93	271	267	255	311	270	238	205	183	183	170	186	164	131	129	150	187	203	196	174	167	174

Figure 9.5 **Rate of MBS telehealth billed items per 1000 clinical encounters by ABS SEIFA quintile socioeconomic categories (total telehealth), January 2020 to December 2021**

9.2 Telehealth use by patient characteristics

Note that for this section, all geographical comparisons are based on the postcode of the patient, not the practice.

National

Table 9.2 presents telehealth use per 1000 patients by quarters and patient characteristics. Telehealth consultation rates were higher among females than males. The highest quarterly rate per 1000 patients for both sexes corresponds to the first wave of COVID-19 in calendar Quarter 2 of 2020 (male: 243; female: 347). Rates steadily decreased until the end of Quarter 2 2021 (male:124; female: 183) before an increase in Quarter 3 2021 (male: 189; female: 274), corresponding to Delta variant outbreak when many states and territories went into lockdown.

There appears to be a roughly linear association, based on the point estimates, between age and the rate of telehealth use per 1000 patients: the oldest age group (65+ years) had the highest quarterly rates; the youngest had the lowest (Figure 9.6). Because these are telehealth rates per 1000 patients (not telehealth per 1000 clinical encounters), these age (and sex, see above) associations could simply reflect the known relationship between age (and sex) and the rate of all clinical encounters.

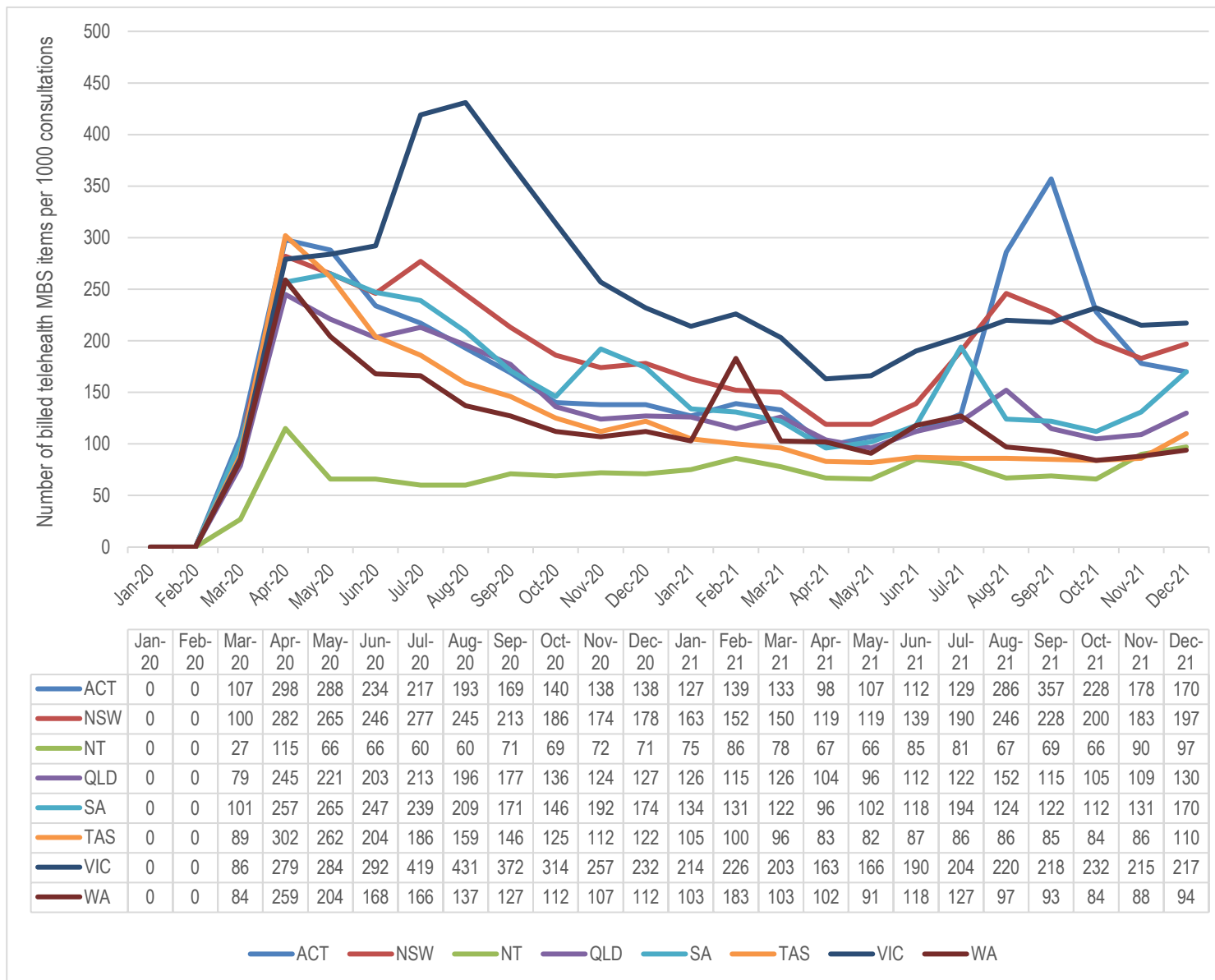|	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021
0-17 Years	13	139	132	81	79	79	111	80
18-44 Years	22	234	223	146	139	134	212	163
45-64 years	37	329	293	199	181	178	265	212
65+ years	77	543	442	301	261	245	360	293

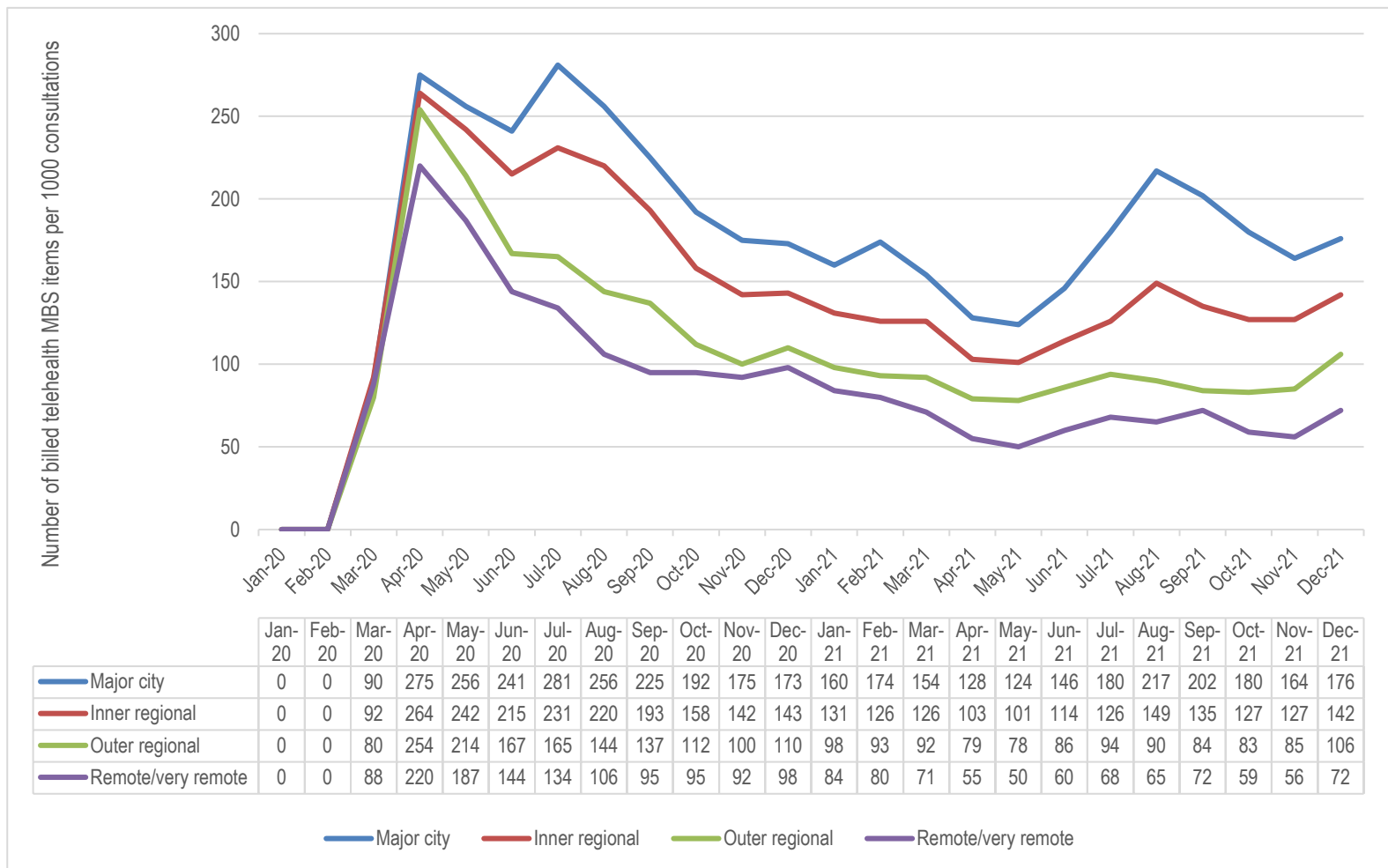**Figure 9.6**   **Rate of MBS telehealth billed items per 1000 clinical encounters by age group (total telehealth), January 2020 to December 2021**

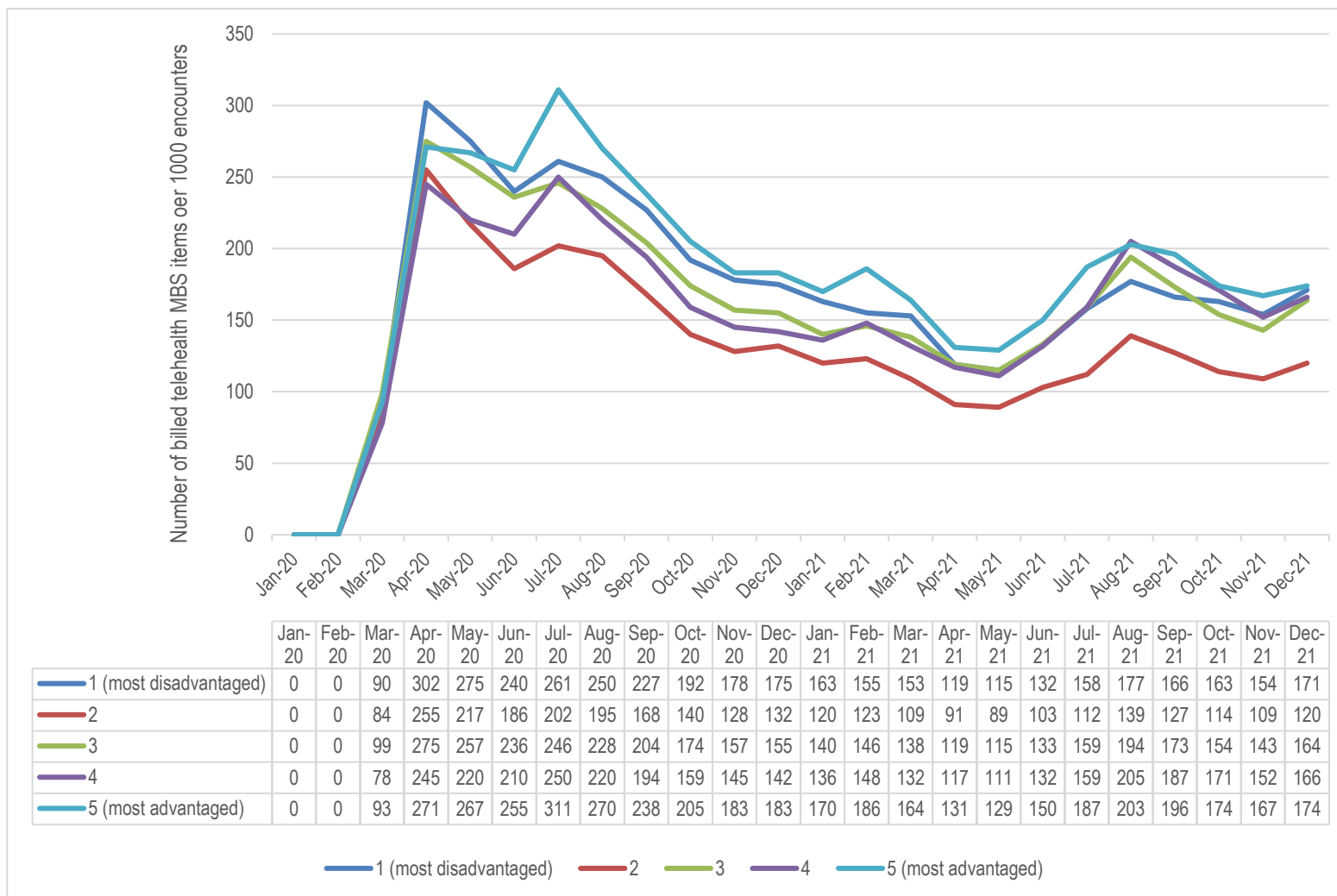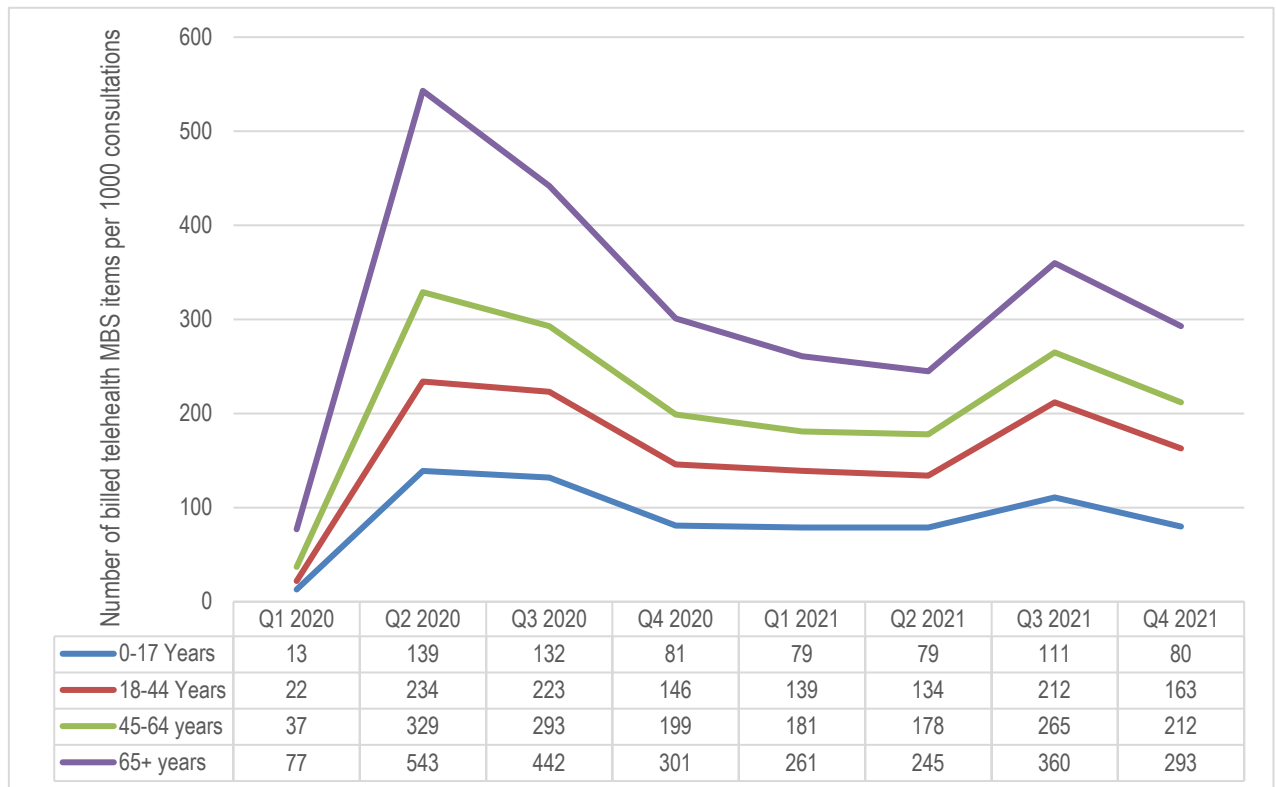There did not appear to be major consistent differences in the telehealth rate per 1000 patients based on patient socioeconomic status. Patients with a concession card, however, did consistently record higher rates than those without.

Table 9.2 Rate of telehealth billed items per 1000 patients by patient characteristics (sex, age, SEIFA quintile, concession card status)

	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021
Male	28	243	214	142	129	124	189	147
Female	41	347	310	207	189	183	274	216
0–17 years	13	139	132	81	79	79	111	80
18–44 years	22	234	223	146	139	134	212	163
45–64 years	37	329	293	199	181	178	265	212
65+ years	77	543	442	301	261	245	360	293
Aboriginal and Torres Strait Islander	35	286	242	168	159	159	237	187
Not Aboriginal or Torres Strait Islander*	35	299	266	177	162	156	234	184
SEIFA 1–2	37	317	263	176	157	150	217	177
SEIFA 3–5	34	290	266	177	164	159	243	188
Concession card	66	523	436	300	267	252	364	299
No concession card	25	223	206	133	125	123	192	145

*Includes patients where Aboriginal and Torres Strait Islander status is not recorded

Table 9.3 shows the rate of telehealth consultations per 1000 patients for chronic conditions ('ever-recorded' for each patient). Of the selected conditions, on average, CKD appears to have had the highest rates, and asthma the lowest.

Table 9.3 Rate of telehealth billed items per 1000 patients by recorded chronic conditions (ever) (all telehealth consultations)

	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021
Anxiety	75	674	601	407	369	354	521	416
Asthma/COPD	84	621	536	359	323	310	456	360
Cancer (breast, colorectal, melanoma, prostate and skin)	98	702	565	382	333	315	457	368
Chronic kidney disease	163	1076	830	569	490	452	633	510
CVD	129	900	737	506	439	406	589	478
Depression	80	694	607	413	370	356	522	418
Diabetes (except gestational)	105	756	629	440	383	363	538	433

Variation by region

To investigate whether rate of telehealth use varied by patient characteristics in areas affected and not affected by COVID-19 lockdowns, patients were categorised by their residential postcode as follows:

▷ Sydney: Central and Eastern Sydney PHN, Northern Sydney PHN, South Western Sydney PHN, Western Sydney PHN.
▷ Melbourne: Eastern Melbourne PHN, North Western Melbourne PHN, South Eastern Melbourne PHN.
▷ Brisbane: Brisbane North PHN, Brisbane South PHN, Gold Coast PHN.
▷ Perth: Perth North PHN, Perth South PHN.
▷ Regional NSW, Victoria, Queensland or WA were defined by the ASGS Remoteness status of their residence (ie, not living in a major city).

Quarterly rates of telehealth consultations per 1000 patients by patient characteristics and region are presented in Table 9.4. Rates per region for patient characteristics (other than SEIFA) show trends, based on the point estimates, similar to those in the national patient characteristics (Table 9.2).

Results by residential socioeconomic status are mixed (eg, lower telehealth rates for SEIFA 1–2 in metropolitan Sydney and regional WA, but higher rates for SEIFA 1–2 in metro Brisbane) and may be of uncertain significance.

While rates of telehealth consultations were higher in the metropolitan regions of states when compared with their corresponding regional areas, patterns of use were similar.

Rates of telehealth use per quarter were often higher among Aboriginal and Torres Strait Islander patients in Victoria and New South Wales than among patients who were not identified as Aboriginal or Torres Strait Islander. In Perth, Aboriginal and Torres Strait Islander patients had higher rates of telehealth use, while in regional WA, rates were higher among patients who were not identified as Aboriginal or Torres Strait Islander.

Table 9.4   Rate of telehealth billed items per 1000 patients by patient characteristic and area of patient residence (all telehealth consultations)

	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021
Metropolitan Sydney								
Male	22	218	213	155	143	137	280	185
Female	35	323	315	226	211	202	394	266
0–17 years	14	184	191	123	107	116	176	122
18–44 years	19	211	222	153	147	139	318	193
45–64 years	28	274	275	203	190	181	361	249
65+ years	70	516	446	350	321	298	556	402
Aboriginal and Torres Strait Islander	35	273	296	228	200	182	404	286
Not Aboriginal or Torres Strait Islander*	29	275	268	193	180	172	341	228
SEIFA 1–2	18	143	160	124	116	109	216	117
SEIFA 3–5	30	286	277	200	185	178	352	238
Concession card	68	531	465	364	333	307	638	430
No concession card	22	233	234	160	148	145	295	194
Metropolitan Melbourne								
Male	23	256	365	246	201	186	241	233
Female	37	364	525	349	280	266	343	328
0–17 years	13	158	190	148	147	113	144	141
18–44 years	20	239	353	240	204	189	257	248
45–64 years	31	354	508	342	271	268	341	330
65+ years	74	602	885	557	400	393	489	460
Aboriginal and Torres Strait Islander	32	374	544	391	369	369	398	361
Not Aboriginal or Torres Strait Islander*	30	313	450	301	242	228	295	283
SEIFA 1–2	23	267	426	311	260	226	312	304
SEIFA 3–5	32	322	455	299	239	229	292	280
Concession card	60	545	804	535	414	395	499	477
No concession card	24	265	374	250	205	194	257	243
Metropolitan Brisbane								
Male	27	224	203	116	117	112	146	112
Female	38	322	294	179	175	170	221	172
0–17 years	14	134	144	68	79	73	103	63
18–44 years	21	223	221	130	132	131	173	136
45–64 years	33	304	278	172	166	166	210	168
65+ years	82	538	419	265	244	225	283	229

Aboriginal and Torres Strait Islander	33	267	244	158	157	164	216	171
Not Aboriginal or Torres Strait Islander*	31	278	253	150	148	143	186	144
SEIFA 1–2	37	343	303	184	182	172	222	168
SEIFA 3–5	32	260	239	141	140	136	178	139
Concession card	66	510	416	262	251	238	296	241
No concession card	23	206	206	117	119	116	154	115
Metropolitan Perth								
Male	24	196	123	90	109	101	111	86
Female	35	283	188	138	166	154	162	131
0–17 years	10	102	65	43	52	55	60	38
18–44 years	21	207	147	107	127	123	133	106
45–64 years	34	292	193	148	172	164	174	141
65+ years	76	461	267	199	247	203	213	178
Aboriginal and Torres Strait Islander	28	309	201	154	180	169	188	139
Not Aboriginal or Torres Strait Islander*	30	242	157	116	139	129	138	110
SEIFA 1–2	35	275	162	121	141	126	130	107
SEIFA 3–5	29	235	157	115	139	131	141	111
Concession card	63	461	285	217	262	226	236	197
No concession card	22	183	124	90	107	105	114	89
Regional NSW								
Male	32	248	202	138	123	121	204	148
Female	47	354	283	195	175	171	285	208
0–17 years	14	127	129	75	71	79	120	74
18–44 years	27	235	205	135	124	122	217	154
45–64 years	42	327	264	187	167	161	278	202
65+ years	75	510	367	262	230	219	350	271
Aboriginal and Torres Strait Islander	36	291	259	178	160	157	276	212
Not Aboriginal or Torres Strait Islander*	40	305	244	167	150	147	245	178
SEIFA 1–2	38	303	248	165	151	146	247	183
SEIFA 3–5	43	307	239	173	149	149	245	172
Concession card	68	503	380	272	245	230	365	285
No concession card	29	229	195	128	113	113	205	139
Regional Victoria								
Male	35	332	394	227	175	174	223	218
Female	46	443	529	317	250	246	310	294
0–17 years	9	134	181	104	94	97	117	111
18–44 years	25	297	374	216	180	173	223	212
45–64 years	40	419	503	309	240	244	300	289
65+ years	74	605	685	400	295	288	373	361
Aboriginal and Torres Strait Islander	71	472	526	349	274	273	346	308
Not Aboriginal or Torres Strait Islander*	40	389	464	273	213	211	267	257
SEIFA 1–2	43	392	461	255	197	186	240	236
SEIFA 3–5	36	387	472	312	248	262	324	301
Concession card	67	591	686	411	305	291	376	368
No concession card	25	279	345	203	169	175	217	203

Regional Queensland								
Male	25	195	139	88	85	83	100	83
Female	36	272	204	132	125	128	153	132
0–17 years	13	103	78	40	50	46	62	42
18–44 years	20	184	143	88	89	88	112	98
45–64 years	33	272	205	137	124	129	155	131
65+ years	63	414	283	191	172	174	189	166
Aboriginal and Torres Strait Islander	25	158	128	85	93	99	106	91
Not Aboriginal or Torres Strait Islander*	31	243	177	114	108	108	130	110
SEIFA 1–2	28	224	173	122	109	109	118	104
SEIFA 3–5	32	244	174	104	104	106	136	112
Concession card	51	374	275	187	173	175	193	167
No concession card	22	174	125	74	75	75	99	81
Regional WA								
Male	22	149	93	67	68	63	67	63
Female	34	219	138	106	111	107	109	98
0–17 years	10	67	46	31	31	32	33	24
18–44 years	17	125	87	66	74	70	69	64
45–64 years	32	209	125	94	101	94	99	92
65+ years	66	397	240	180	166	160	170	156
Aboriginal and Torres Strait Islander	27	167	90	70	74	62	64	58
Not Aboriginal or Torres Strait Islander*	28	184	117	87	90	86	89	81
SEIFA 1–2	21	153	97	76	85	84	85	70
SEIFA 3–5	34	209	131	95	94	86	91	89
Concession card	57	368	230	177	179	170	172	162
No concession card	15	104	74	57	64	58	62	53

*Includes patients where Aboriginal and Torres Strait Islander status is not recorded

10. COVID-19

<div style="border:1px solid orange">

In summary

▷ There were 10,996 patients with a recorded diagnosis of COVID-19 infection during calendar years 2020 and 2021. Among these:

  – 73% lived in a major city and 86% were from New South Wales or Victoria

  – 77 patients had a record of 'long COVID'

  – 20.1% also had a history of anxiety; 19.5% had a history of depression; and 18.3% had a history of hypertension

  – 4.2% reported symptoms of anxiety, 3.7% reported symptoms of depression, and 2.1% sleep problems.

▷ Among the general patient population (ie, all patients who were seen at least once in 2019, 2020 or 2021):

  – The average number of clinical encounters per patient was higher in 2020 and 2021 (6.4 and 6.3 clinical encounters, respectively) than in 2019 (5.8).

  – Rates of mental illness presentations appear to be slightly higher in 2020 than in 2019, before falling slightly in 2021.

  – Rates of STI testing were lower in 2020 and 2021 when compared to 2019. Rates of FOBTs appeared to be similar in all years.

  – For almost all the specified medicine groups (cardiovascular glucose lowering, antidepressants, respiratory, beta-lactams and oral prednisolone), rates of prescribing spiked at the beginning of the pandemic. Prescribing of beta-lactam antibiotics and oral prednisolone was lower than in the pre-pandemic period, reflecting lower rates of respiratory infections.

  – Rates of COVID-19 vaccine administration peaked in August and September 2021.

</div>

This section of the report describes demographic characteristics of patients with a recorded diagnosis of COVID-19 and explores the nature and extent of changes in utilisation of GP services pre-COVID (2019) and during the COVID-19 pandemic (2020 and 2021).

The analyses in this chapter are based on data from calendar years 2019, 2020 and 2021. This includes a 12-month pre-pandemic period (defined as 1 January 2019 to 31 December 2019) and the COVID-19 pandemic period (defined as 1 January 2020 to 31 December 2021).

The patient cohort for this chapter includes patients who had at least one clinical encounter in the period 1 January 2019 to 31 December 2021 and fulfilled our quality criteria.

All analyses for this chapter use **unweighted data** only.

10.1 Patients with a recorded diagnosis of COVID-19

10.1.1 Sociodemographic characteristics of patients

In the 2-year period January 2020 to December 2021, 10,996 patients (0.26%) of 4.25 million patients included in this study period had a recorded diagnosis of COVID-19 (Table 10.1).

Of these, 55% were female, 34% were aged 20 to 39, 73% lived in a major city, 86% were from New South Wales or Victoria, and 0.7% (77 patients) had a record of 'long COVID'.

The patient prevalence of at least one record of COVID-19 disease during this period was 0.26% for the whole study population. There was a trend towards lower prevalence among young children and those in remote communities, however, confidence intervals overlapped for many groups, suggesting these differences are not significant.

There was a trend towards a higher period prevalence of a recorded COVID-19 diagnosis in NSW and Victoria than in other states less affected during the first 2 years of the pandemic.

Table 10.1 Sociodemographic distribution of patients with a recorded diagnosis of COVID-19, and COVID-19 prevalence, January 2020 to December 2021 (unweighted)

Patient characteristic	Patient number	Relative frequency distribution (%)	Prevalence of COVID-19 record (% [95% CI])
Australian total	10,996	100.0	0.26 (0.18, 0.34)
Sex			
Male	4,973	45.2	0.25 (0.16, 0.34)
Female	6,023	54.8	0.27 (0.20, 0.34)
Age group (years)			
0–9	642	5.8	0.13 (0.08, 0.18)
10–19	1,084	9.9	0.25 (0.16, 0.33)
20–29	2,014	18.3	0.32 (0.18, 0.47)
30–39	1,750	15.9	0.27 (0.17, 0.37)
40–49	1,405	12.8	0.26 (0.19, 0.33)
50–59	1,389	12.6	0.27 (0.20, 0.34)
60–69	1,178	10.7	0.26 (0.19, 0.33)
70–79	901	8.2	0.27 (0.18, 0.36)
80–89	480	4.4	0.30 (0.17, 0.44)
90+	153	1.4	0.31 (0.14, 0.48)
Aboriginal and Torres Strait Islander status			
Aboriginal and/or Torres Strait Islander	459	4.2	0.39 (0.08, 0.69)
Neither Aboriginal nor Torres Strait Islander	7,647	69.5	0.25 (0.18, 0.32)
Not recorded	2,890	26.3	0.27 (0.09, 0.45)
State/territory			
ACT	110	1.0	0.11 (0.07, 0.15)
NSW	4,878	44.4	0.36 (0.23, 0.48)
NT	12	0.1	0.02 (0.00, 0.05)
QLD	809	7.4	0.09 (0.03, 0.15)
SA	98	0.9	0.11 (0.00, 0.26)
TAS	338	3.1	0.14 (0.03, 0.25)
VIC	4,588	41.7	0.49 (0.19, 0.79)
WA	163	1.5	0.03 (0.01, 0.05)
Rurality			
Major city	8,023	73.0	0.30 (0.20, 0.40)
Inner regional	2,125	19.3	0.20 (0.05, 0.36)
Outer regional	814	7.4	0.17 (0.06, 0.29)
Remote/very remote	34	0.3	0.06 (0.00, 0.11)

Socioeconomic status (SEIFA quintile)			
1 (most disadvantaged)	1,481	13.5	0.22 (0.15, 0.29)
2	1,332	12.1	0.17 (0.12, 0.22)
3	3,320	30.2	0.35 (0.18, 0.53)
4	2,574	23.4	0.28 (0.15, 0.42)
5 (most advantaged)	2,289	20.8	0.24 (0.18, 0.31)
Long COVID-19			
No	10,919	99.3	0.26 (0.18, 0.34)
Yes	77	0.7	100 (100, 100)

10.1.2. Clinical conditions

The COVID-19 outbreak has led to a significant health burden for infected patients, especially in those with underlying health conditions.[29] While having an underlying condition increases vulnerability to COVID-19, worsened health outcomes of patients during the pandemic could likely be associated with preventive measures such as lockdowns,[29] augmenting existing mental health problems, including anxiety, loneliness and depression.[30]

Table 10.2 shows the patient prevalence of selected clinical conditions among the 10,996 patients with a record of COVID-19. Patients were considered to have the condition if there was any record of the diagnosis up until 31 December 2021 – this may overestimate the prevalence of these conditions if they have been previously resolved before the patient was recorded as having been diagnosed with COVID-19.

The most commonly recorded conditions among COVID-19 patients were anxiety (20.1%), depression (19.5%) and hypertension (18.3%).

Table 10.2   Prevalence of specified clinical conditions ('ever-recorded' up until 31 December 2021) among COVID-19 patients (n=10,996)

Clinical conditions	No.	% (95% Confidence Interval)
Anxiety	2,208	20.1 (15.5-24.6)
Asthma	1,606	14.6 (11.9-17.3)
Breast cancer	134	1.2 (0.9-1.6)
Colorectal cancer	63	0.6 (0.4-0.8)
Cardiovascular disease	719	6.5 (4.7-8.4)
Chronic kidney disease	212	1.9 (1.2-2.7)
COPD	371	3.4 (2.4-4.4)
Depression	2,149	19.5 (15.5-23.6)
Diabetes – Type 1 & Type 2	882	8.0 (6.4-9.7)
Hypertension	2,014	18.3 (13.9-22.8)
Melanoma	132	1.2 (0.8-1.6)
Prostate cancer	97	0.9 (0.5-1.3)
Skin cancer	557	5.1 (3.1-7.1)

10.1.3. Post-COVID and associated symptoms

Table 10.3 shows the period prevalence of selected post-COVID symptoms (recorded on or after each patient's first recorded date of COVID-19) among the 10,996 patients. The most common symptoms

reported include anxiety, depression, cough and sleep problems, which may or may not be directly related to each patient's COVID-19 diagnosis.

Reported persistent and debilitating symptoms, such as fatigue, headache, breathlessness and neurocognitive difficulties, are associated with a condition known as 'long COVID' [31-33] There were 77 patients (0.7%) with 'long COVID' recorded in MedicineInsight.

Table 10.3   **Prevalence of post-COVID symptoms among patients with recorded COVID-19 (N = 10,996), January 2020 to December 2021**

	Number of patients	% (95% Confidence Interval)
Long COVID	77	0.7 (0.4, 1.0)
Anxiety	460	4.2 (2.6, 5.7)
Breathless	93	0.8 (0.7, 1.0)
Palpitations	45	0.4 (0.3, 0.5)
Cough	227	2.1 (1.5, 2.6)
Depression	403	3.7 (2.2, 5.1)
Sleep problems	236	2.1 (1.4, 2.9)
Fatigue	225	2.0 (1.6, 2.5)

10.1.4. COVID-19 testing in primary care

During 2019 to 2021, 1417 (12.9%) patients with a record of COVID-19 infection also had a record of having a COVID-19 test requested (Table 10.4). Of these, 580 had a COVID-19 test request in the 2 weeks prior to their first record of COVID infection suggesting that the COVID-19 diagnosis may have been made by their MedicineInsight GP. This small number of patients potentially diagnosed with COVID-19 by their GP is to be expected, given that before the 2022 introduction of rapid antigen tests, most patients visited testing centres, respiratory clinics or hospital testing clinics for COVID-19 testing.

Table 10.4   **Number of patients with a COVID test request from 2019 to 2021, and in the 2 weeks prior to patient's first COVID infection record**

	Number of patients	% (95% CI) (N = 10,996)
Record of having had a COVID-19 test requested by GP ever (January 2019 – December 2021)	1,417	12.9 (10.9–14.9)
Record of a COVID-19 test requested in the 2 weeks (0–14 days) prior to the first record of COVID-19 infection (proxy for GP-diagnosed COVID-19)	580	5.3 (3.9–6.7)

Table 10.5 presents the median number (and quartiles) of MedicineInsight clinical encounters per eligible patient in the 3 months following the first record of COVID-19 infection in MedicineInsight, both (i) for all 'COVID patients' (regardless of the identity of the diagnosing clinician) and (ii) for the subset who were diagnosed by their MedicineInsight GP. The number of encounters was similar in both groups.

Table 10.5   **Median number (and quartiles) of clinical encounters per patient in the 3 months after their first record of COVID-19 infection**

	Number of eligible* patients with recorded COVID-19 infection	Median (Q1, Q3) number of encounters per patient in the 3 months after COVID-19 diagnosis
All patients with COVID-19	5,205	2.8 (1.3, 5.3)

	430	2.9 (1.3, 5.6)
Patients with COVID-19 diagnosed by their MedicineInsight GP		

*Eligible patients had their first record of COVID infection in the period 19/1/20 to 30/9/21 and had at least one recorded clinical encounter on the day of diagnosis or in the next 91 days.

10.2 Impact of the pandemic on primary care

While the section above looked specifically at MedicineInsight patients with a diagnosis of COVID-19, sections 10.2 to 10.8 look at the impact of the pandemic on care provided to all primary care patients in general. Patients included in these analyses are those with at least one clinical encounter in the calendar year(s) of interest (2019 to 2021) unless otherwise specified.

10.2.1   Sociodemographics of patients in each year

The characteristics of patients seen in each year are presented in Table 10.6. While there were fewer patients seen in 2020 than in 2019 and 2021, the demographic characteristics were similar in all 3 years.

Table 10.6   Baseline sociodemographic characteristics for each year's study population (unweighted), 2019–2021

Patient characteristics	Number (%) of patients for calendar year 2019	Number (%) of patients for calendar year 2020	Number (%) of patients for calendar year 2021
All patients	2,602,295 (100.0)	2,469,039 (100.0)	2,711,559 (100.0)
Gender			
Male	1,184,467 (45.5)	1,126,993 (45.6)	1,253,769 (46.2)
Female	1,417,828 (54.5)	1,342,046 (54.4)	1,457,790 (53.8)
Age group (year)			
0–9	285,227 (11.0)	273,869 (11.1)	289,083 (10.7)
10–19	264,510 (10.2)	244,923 (9.9)	273,339 (10.1)
20–29	335,202 (12.9)	312,706 (12.7)	346,884 (12.8)
30–39	372,090 (14.3)	352,016 (14.3)	384,022 (14.2)
40–49	330,598 (12.7)	313,798 (12.7)	343,899 (12.7)
50–59	321,749 (12.4)	309,493 (12.5)	351,890 (13.0)
60–69	298,750 (11.5)	289,698 (11.7)	325,915 (12.0)
70–79	236,720 (9.1)	229,026 (9.3)	252,688 (9.3)
80–89	118,388 (4.5)	110,850 (4.5)	114,810 (4.2)
90+	39,061 (1.5)	32,660 (1.3)	29,029 (1.1)
Indigenous status			
Aboriginal and Torres Strait Islander	73,049 (2.8)	69,093 (2.8)	73,546 (2.7)
Non-Aboriginal and Torres Strait Islander	2,047,082 (78.7)	1,903,168 (77.1)	1,964,741 (72.5)
Unknown/not recorded	482,164 (18.5)	496,778 (20.1)	673,272(24.8)
State/territory			
ACT	58,245 (2.2)	58,002 (2.3)	66,310 (2.4)
NSW	848,024 (32.6)	817,960 (33.1)	891,373 (32.9)

NT	27,079 (1.0)	25,146 (1.0)	28,802 (1.1)
QLD	534,192 (20.5)	510,578 (20.7)	569,152 (21.0)
SA	54,584 (2.1)	53,711 (2.2)	59,050 (2.2)
TAS	140,195 (5.4)	143,849 (5.8)	173,604 (6.4)
VIC	603,752 (23.2)	537,449 (21.8)	562,130 (20.7)
WA	336,224 (12.9)	322,344 (13.1)	361,138 (13.3)
Remoteness			
Major city	1,631,061 (62.7)	1,548,306 (62.7)	1,683,045 (62.1)
Inner regional	642,039 (24.7)	615,583 (24.9)	689,599 (25.4)
Outer regional	294,597 (11.3)	273,924 (11.1)	305,217 (11.3)
Remote/very remote	34,598 (1.3)	31,226 (1.3)	33,698 (1.2)
SEIFA Quintile			
1 (Most disadvantaged)	424,824 (16.3)	401,368 (16.3)	435,515 (16.1)
2	484,433 (18.6)	460,073 (18.6)	512,432 (18.9)
3	575,938 (22.1)	543,331 (22.0)	605,152 (22.3)
4	549,851 (21.1)	520,294 (21.1)	556,092 (20.5)
5 (Most advantaged)	567,249 (21.8)	543,973 (22.0)	602,368 (22.2)

10.2.2　　Total number of clinical encounters per month

Figures 10.1 (total clinical encounters per month, stratified by calendar year) and 10.2 to 10.5 (total clinical encounters by demographic values, stratified by calendar year) should be assessed in light of the information presented in Tables 10.6 and 10.7. The overall trends, by month and for each of the demographic values, appear to be broadly similar each year, but, among MedicineInsight practices, there has probably been a true slight increase in encounters per patient (overall and among female patients), when comparing 2020 with 2019. The absolute number of patients was lower in the 2020 cohort than in 2019. The 2021 'encounters per patient' rate was similar to that in 2020, and the absolute numbers of both patients and encounters had increased.

Figure 10.1 shows a consistent pattern in the monthly number of clinical encounters from 2019 to 2021. Patients were included if they had at least one clinical encounter in 2019 or 2020 or 2021. The total number of clinical encounters increased from 15,201,255 in 2019 to 15,759,419 in 2020 to 17,211,110 in 2021. There was a general increase during winter from June to August (except for 2020) and a decrease during school holidays from November to January.

The months of May to September 2021 had a higher number of clinical encounters compared to corresponding months in 2019 and 2020. The monthly number of encounters in 2021 was highest in August during the Delta variant outbreak.

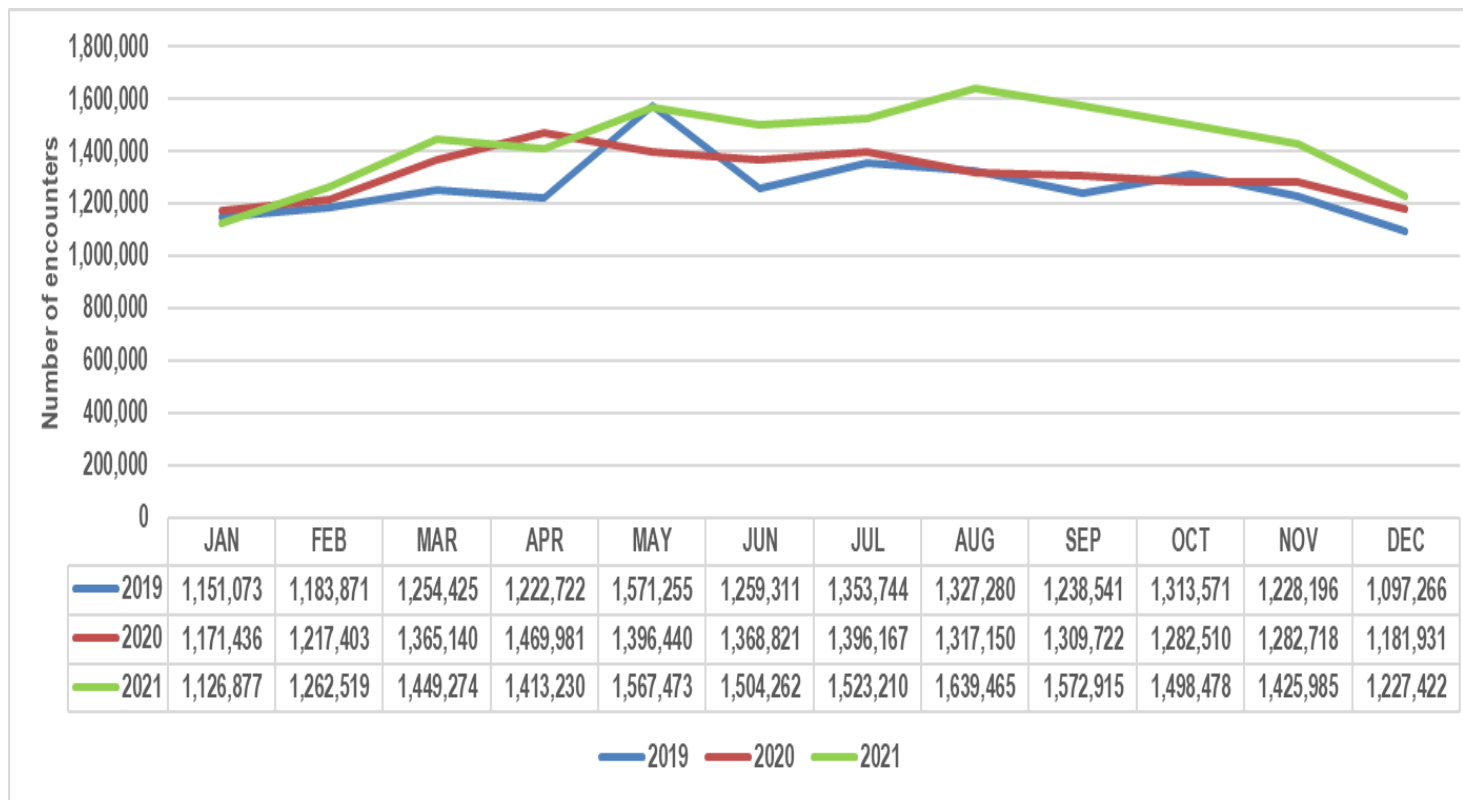|	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2019	1,151,073	1,183,871	1,254,425	1,222,722	1,571,255	1,259,311	1,353,744	1,327,280	1,238,541	1,313,571	1,228,196	1,097,266
2020	1,171,436	1,217,403	1,365,140	1,469,981	1,396,440	1,368,821	1,396,167	1,317,150	1,309,722	1,282,510	1,282,718	1,181,931
2021	1,126,877	1,262,519	1,449,274	1,413,230	1,567,473	1,504,262	1,523,210	1,639,465	1,572,915	1,498,478	1,425,985	1,227,422

Figure 10.1   **Total number of clinical encounters per month, January 2019 to December 2021**

10.2.3 Total number of clinical encounters by sex and age

Although the patterns of annual clinical encounters were the same for males and females, more clinical encounters were with females than males in each year of 3-year study period (Figure 10.2).

Figure 10.3 presents the number of clinical encounters by different age groups from 0 to 90+ years in the 3-year period. Consistently across all age groups, the total number of clinical encounters was slightly lower in 2020 compared to 2019. This observed decrease could be due to the restrictions on movement implemented in response to the pandemic during 2020.[34,35] The number of clinical encounters increased in 2021 compared to the previous 2 years for all age categories except in the 90+ age group. A number of factors might have contributed to the increase in 2021, with a number of states and territories moving in and out of lockdown, and potentially higher use of telehealth consultation.[36-38]

	2019	2020	2021
Male	1184467	1126993	1253769
Female	1417828	1342046	1457790
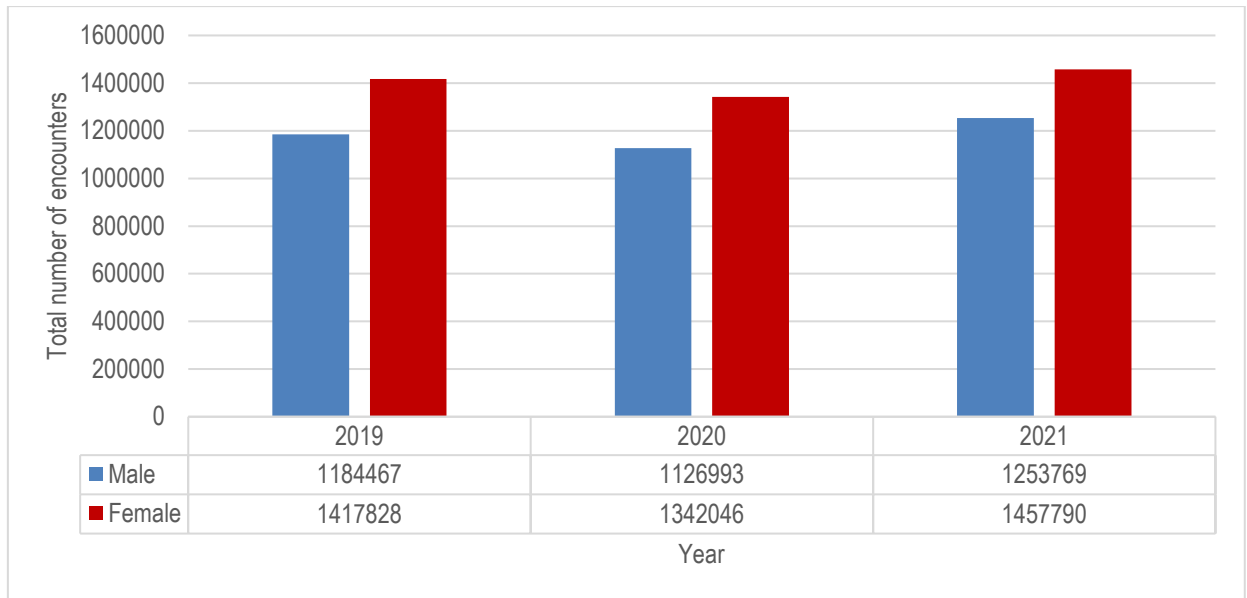
Figure 10.2 Total number of clinical encounters by sex in 2019 to 2021

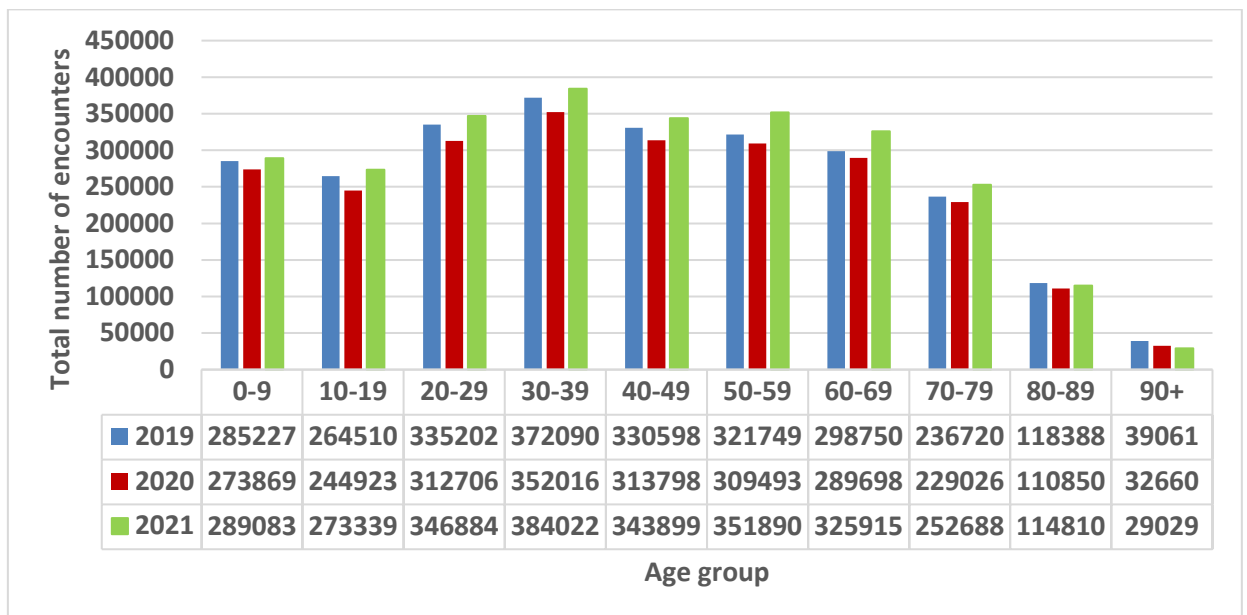|	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+
2019	285227	264510	335202	372090	330598	321749	298750	236720	118388	39061
2020	273869	244923	312706	352016	313798	309493	289698	229026	110850	32660
2021	289083	273339	346884	384022	343899	351890	325915	252688	114810	29029

Figure 10.3 Total number of clinical encounters by age group in 2019 to 2021

10.2.4　Number of clinical encounters by geographical location

Figures 10.4 and 10.5 show annual number of clinical encounters by state or territory and remoteness respectively. The patterns are similar, with a decrease in clinical encounters in 2020 compared with 2019, and higher encounters in 2021 compared with 2019 and 2020. As the MedicineInsight data has a considerable number of patients based in metropolitan areas compared to regional and remote areas, the total number of encounters was highest in major cities and lowest in remote and very remote areas.
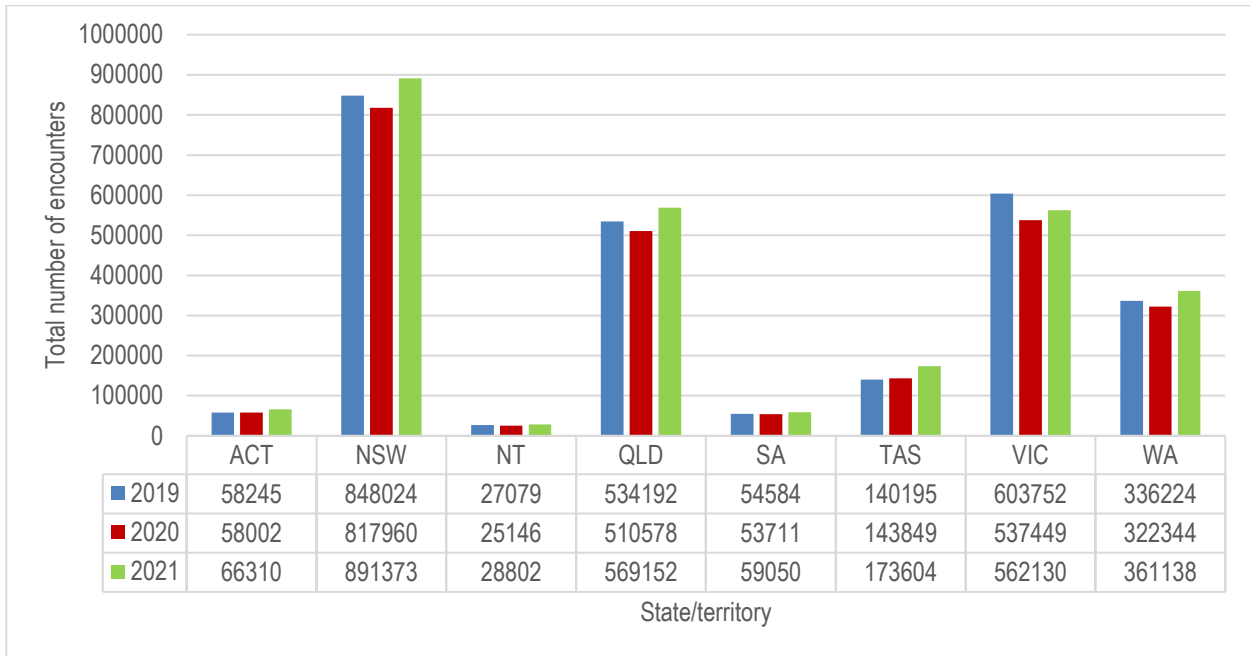

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
■ 2019	58245	848024	27079	534192	54584	140195	603752	336224
■ 2020	58002	817960	25146	510578	53711	143849	537449	322344
■ 2021	66310	891373	28802	569152	59050	173604	562130	361138

State/territory

Figure 10.4　Number of clinical encounters by state/territory in 2019 to 2021

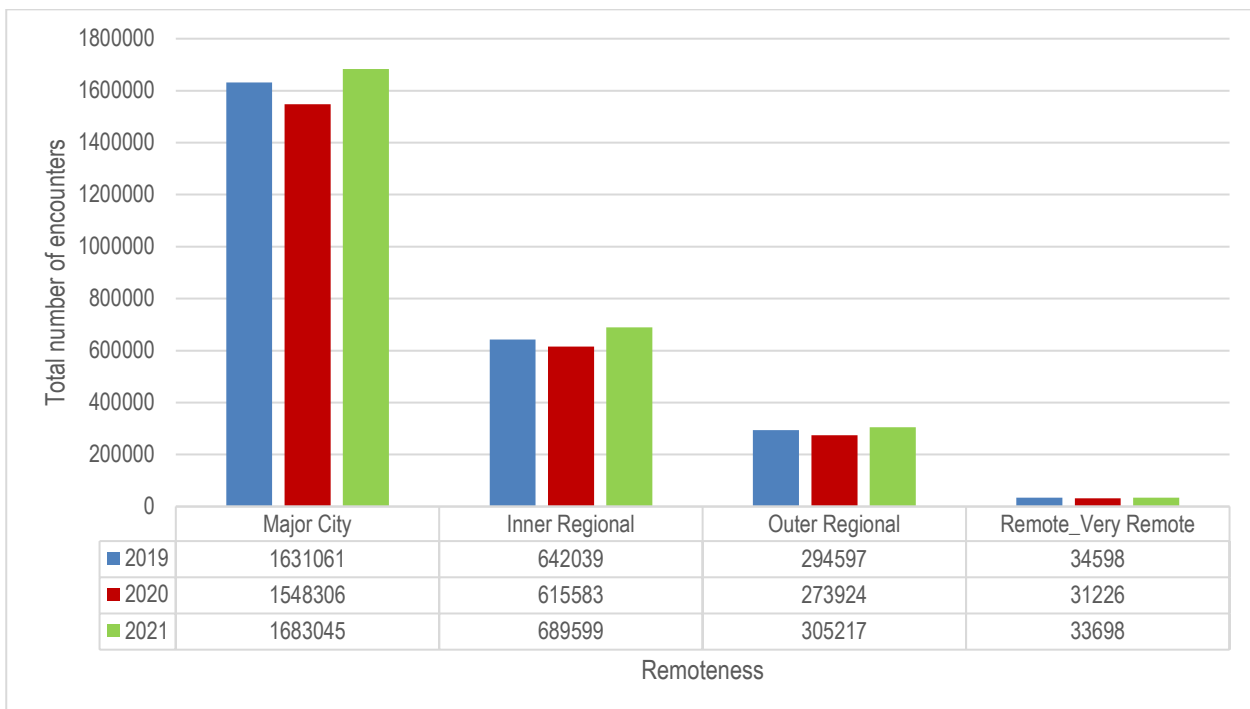|	Major City	Inner Regional	Outer Regional	Remote_Very Remote
■ 2019	1631061	642039	294597	34598
■ 2020	1548306	615583	273924	31226
■ 2021	1683045	689599	305217	33698

Remoteness

Figure 10.5　Number of clinical encounters by remoteness in 2019 to 2021

10.3 Average number of clinical encounters per patient in 2021 compared with 2020 and 2019

The average number of clinical encounters per patient was higher in 2020 (6.4 encounters per patient) and 2021 (6.3 encounters) than in 2019 (5.8 encounters; Table 10.7).

10.3.1 Sociodemographics

There was an increase in the average number of encounters per patient per year from 2019 to 2020, which was statistically significant for patients overall, female patients, and residents in major cities (Table 10.7). However, the average number of encounters per patient in 2021 was similar to that in 2020 for all groups.

There was a reduction in average number of encounters per patient in the 0–9-year age group between 2019 and 2020/2021. A possible explanation for this reduction is the school closures and remote learning in most parts of Australia, which reduced physical distancing and the risk of communicable diseases such as acute respiratory infections. However, the average number of encounters per patient increased from 2019 levels for the other age groups in 2020 and 2021 with the exception of the 90+ age group.

The average number of clinical encounters per patient increased from 2019 levels in major cities during 2020 and 2021.

Table 10.7 Average number of clinical encounters per patient per year, by patient demographic (unweighted), 2019–2021

Patient characteristics	Average number (95% CI) of clinical encounters per patient in 2019 N = 2,602,295 patients	Average number (95% CI) of clinical encounters per patient in 2020 N = 2,469,039 patients	Average number (95% CI) of clinical encounters per patient in 2021 N = 2,711,559 patients
All patients	5.8 (5.6-6.1)	6.4 (6.2-6.6)	6.3 (6.2-6.5)
Gender			
Male	5.4 (5.2-5.7)	5.9 (5.7-6.1)	5.8 (5.7-6.0)
Female	6.2 (5.9-6.4)	6.8 (6.6-7.0)	6.8 (6.6-7.0)
Age group (year)			
0–9	4.5 (4.3-4.7)	4.2 (4.1-4.4)	4.1 (4.0-4.2)
10–19	3.3 (3.2-3.4)	3.6 (3.5-3.7)	3.7 (3.7-3.8)
20–29	3.9 (3.8-4.1)	4.5 (4.3-4.6)	4.4 (4.3-4.5)
30–39	4.5 (4.3-4.7)	5.1 (4.9-5.2)	4.9 (4.8-5.1)
40–49	4.9 (4.8-5.1)	5.5 (5.4-5.6)	5.4 (5.3-5.5)
50–59	5.7 (5.5-5.8)	6.3 (6.2-6.5)	6.3 (6.1-6.4)
60–69	6.9 (6.7-7.1)	7.7 (7.5-7.9)	7.9 (7.7-8.1)
70–79	9.7 (9.4-10.0)	10.8 (10.4-11.1)	11.1 (10.7-11.4)
80–89	13.8 (13.3-14.3)	14.8 (14.3-15.2)	14.8 (14.3-15.3)
90+	15.8 (15.1-16.6)	16.3 (15.6-17.1)	15.9 (15.2-16.6)
Indigenous status			
Aboriginal and Torres Strait Islander	6.2 (5.8-6.5)	6.8 (6.5-7.2)	6.7 (6.5-7.0)
Non- Aboriginal and Torres Strait Islander	6.2 (5.9-6.4)	6.8 (6.6-7.1)	7.0 (6.8-7.2)
Unknown/not recorded	4.4 (4.1-4.7)	4.6 (4.3-4.9)	4.4 (4.1-4.7)

State/territory			
ACT	5.6 (5.1-6.1)	6.1 (5.6-6.5)	5.9 (5.5-6.4)
NSW	5.9 (5.6-6.2)	6.5 (6.2-6.7)	6.5 (6.2-6.7)
NT	6.1 (4.4-7.9)	5.4 (5.1-5.7)	4.7 (4.2-5.2)
QLD	6.1 (5.8-6.3)	6.6 (6.3-7.0)	6.5 (6.2-6.8)
SA	6.1 (5.4-6.9)	6.9 (6.3-7.5)	6.7 (6.0-7.4)
TAS	6.6 (5.8-7.3)	7.0 (6.1-8.0)	6.8 (5.7-7.9)
VIC	5.4 (4.9-5.9)	6.1 (5.6-6.5)	6.2 (5.8-6.6)
WA	5.7 (5.3-6.2)	6.1 (5.6-6.5)	5.9 (5.5-6.3)
Remoteness			
Major city	5.7 (5.5-5.9)	6.2 (6.0-6.4)	6.2 (6.0-6.4)
Inner regional	6.1 (5.6-6.6)	6.8 (6.3-7.2)	6.7 (6.3-7.1)
Outer regional	6.2 (5.6-6.7)	6.5 (6.0-7.0)	6.5 (6.1-7.0)
Remote/very remote	4.7 (3.7-5.6)	5.4 (4.2-6.6)	5.2 (4.1-6.4)
SEIFA Quintile			
1 (Most disadvantaged)	6.3 (5.8-6.9)	7.0 (6.5-7.5)	7.0 (6.6-7.4)
2	6.0 (5.6-6.3)	6.5 (6.2-6.9)	6.5 (6.2-6.8)
3	6.1 (5.9-6.4)	6.7 (6.4-7.0)	6.6 (6.3-6.9)
4	5.6 (5.3-5.9)	6.1 (5.9-6.3)	6.1 (5.8-6.3)
5 (Most advantaged)	5.3 (5.0-5.5)	5.7 (5.5-5.9)	5.8 (5.5-6.0)

10.4 Monthly rates of mental illness presentations

COVID-19 public health measures, including lock downs, and the impact of the pandemic on employment, education and social interaction could increase risk of mental illness.[39] This section presents reports on mental illnesses as recorded by GPs, per month from 2019 to 2021. This is to evaluate if there are changes to the rates of patients presenting with a mental health condition before and during the pandemic.

While rates of each of the mental illnesses appear to have been slightly higher in 2020 than in 2019, they seem to have fallen again in 2021. Crisis and support services such as Lifeline and Beyond Blue reported a large rise in call volumes during the pandemic,[40,41] so the small increase in encounters with patients presenting with mental health conditions from July to December 2020 may reflect that patients were also using these services (Figures 10.6–10.9).
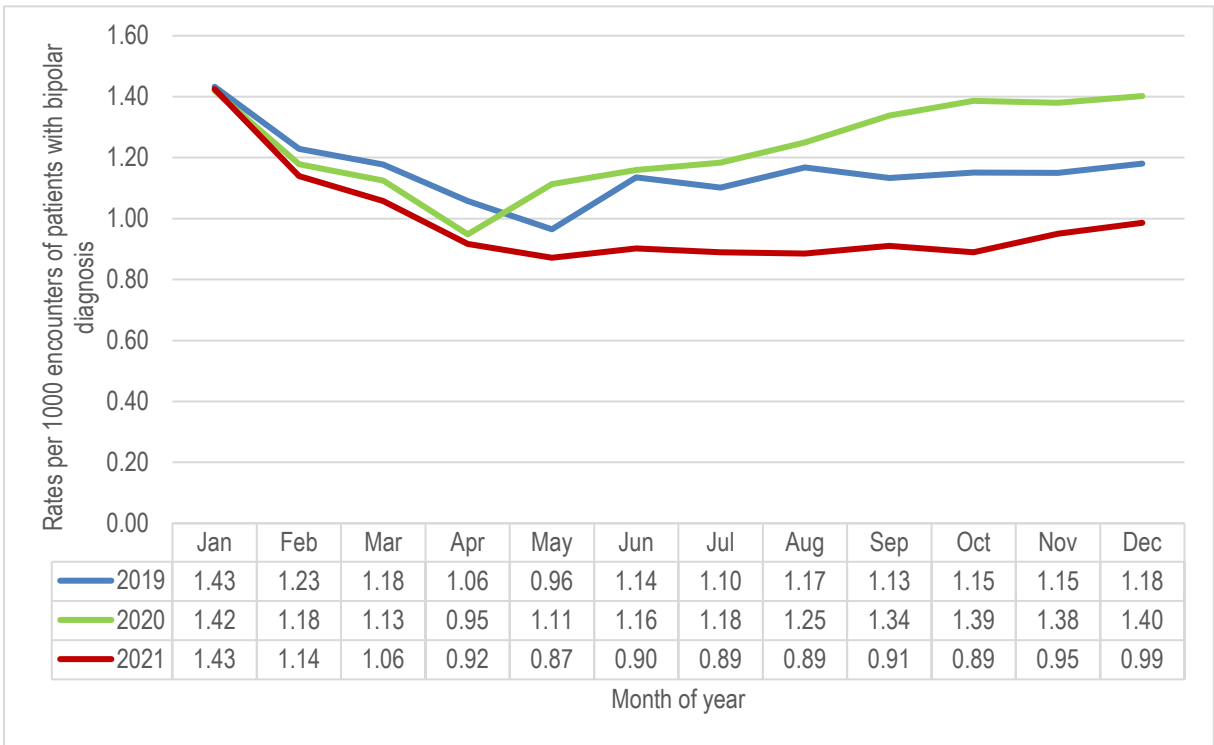
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	1.43	1.23	1.18	1.06	0.96	1.14	1.10	1.17	1.13	1.15	1.15	1.18
2020	1.42	1.18	1.13	0.95	1.11	1.16	1.18	1.25	1.34	1.39	1.38	1.40
2021	1.43	1.14	1.06	0.92	0.87	0.90	0.89	0.89	0.91	0.89	0.95	0.99

Month of year

Figure 10.6   Monthly rates per 1000 clinical encounters of patients with at least one bipolar disorder diagnosis, January 2019 to December 2021
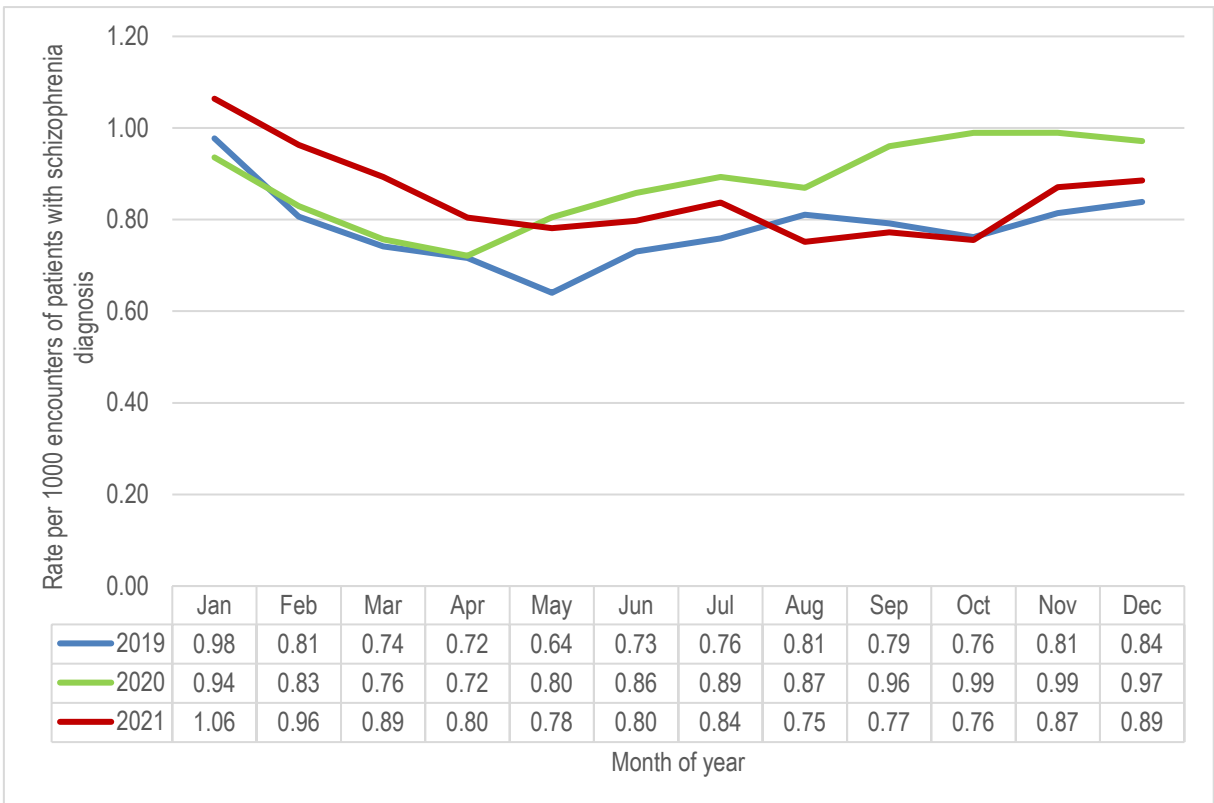

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	0.98	0.81	0.74	0.72	0.64	0.73	0.76	0.81	0.79	0.76	0.81	0.84
2020	0.94	0.83	0.76	0.72	0.80	0.86	0.89	0.87	0.96	0.99	0.99	0.97
2021	1.06	0.96	0.89	0.80	0.78	0.80	0.84	0.75	0.77	0.76	0.87	0.89

Month of year

Figure 10.7   Monthly rates per 1000 clinical encounters of patients with at least one schizophrenia diagnosis, January 2019 to December 2021

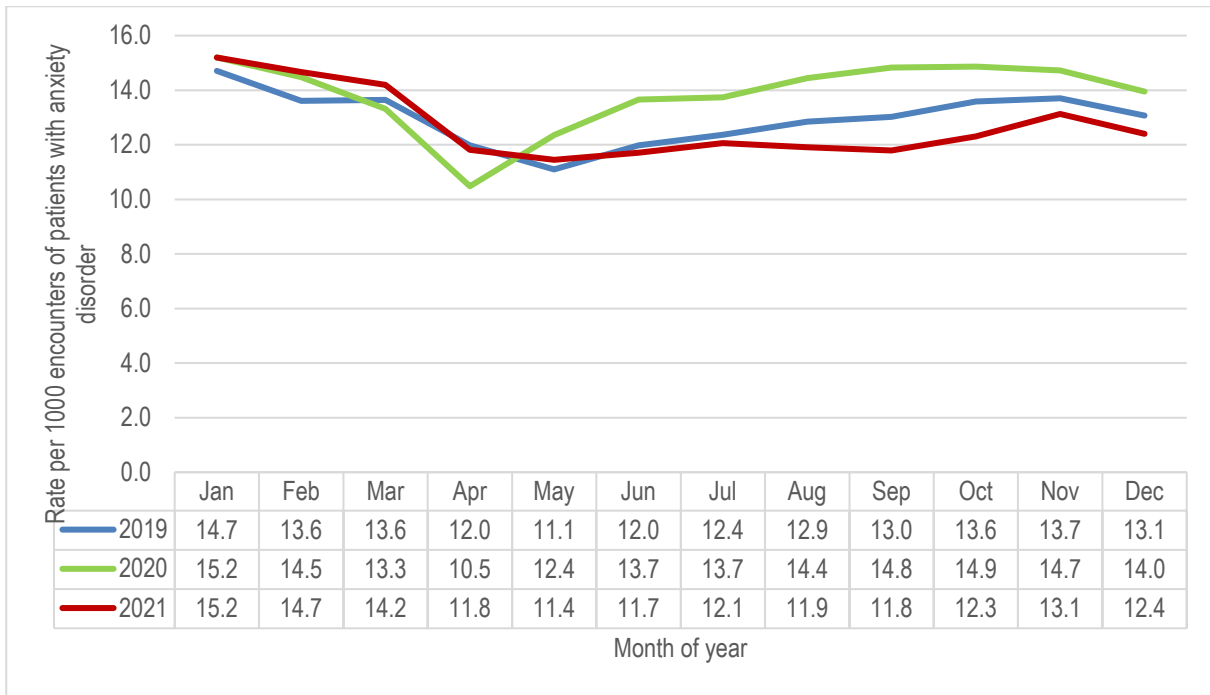|	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	14.7	13.6	13.6	12.0	11.1	12.0	12.4	12.9	13.0	13.6	13.7	13.1
2020	15.2	14.5	13.3	10.5	12.4	13.7	13.7	14.4	14.8	14.9	14.7	14.0
2021	15.2	14.7	14.2	11.8	11.4	11.7	12.1	11.9	11.8	12.3	13.1	12.4

Month of year

Figure 10.8   **Monthly rates per 1000 clinical encounters of patients with at least one anxiety disorder diagnosis, January 2019 to December 2021**
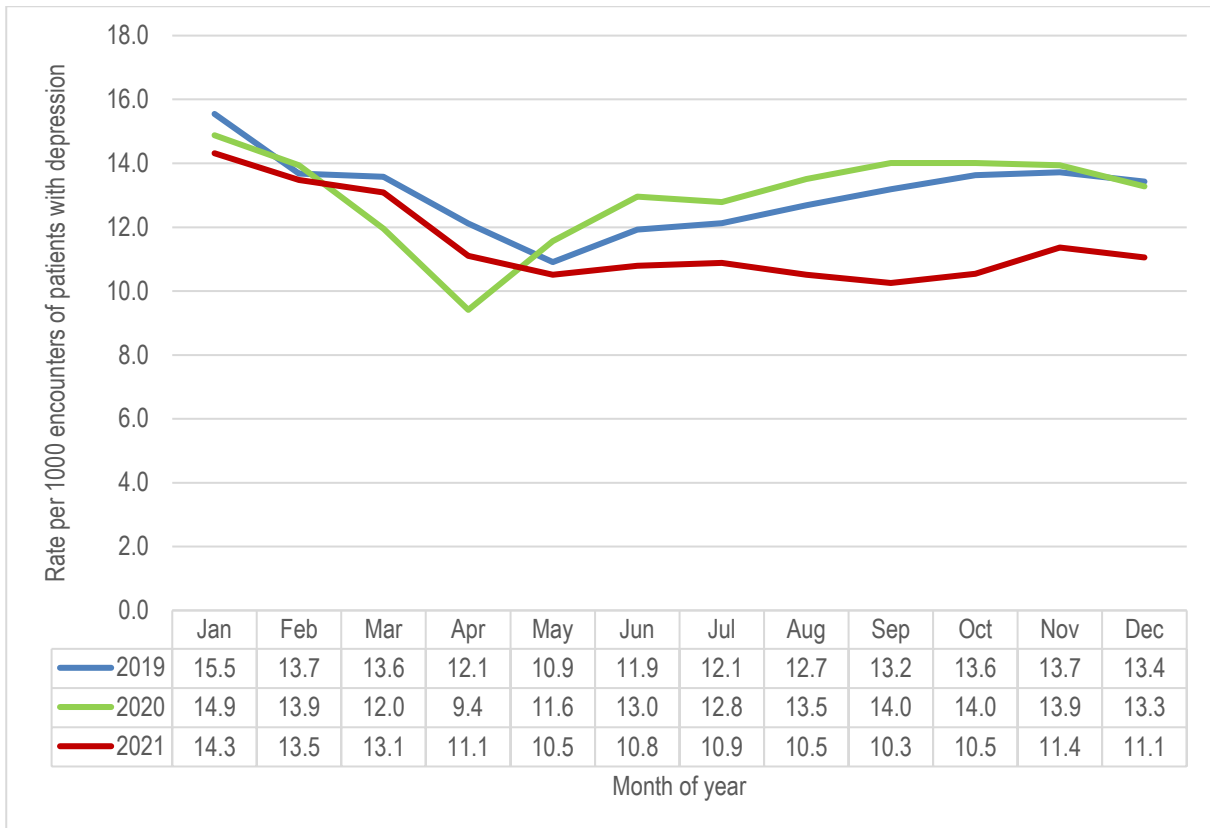

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	15.5	13.7	13.6	12.1	10.9	11.9	12.1	12.7	13.2	13.6	13.7	13.4
2020	14.9	13.9	12.0	9.4	11.6	13.0	12.8	13.5	14.0	14.0	13.9	13.3
2021	14.3	13.5	13.1	11.1	10.5	10.8	10.9	10.5	10.3	10.5	11.4	11.1

Month of year

Figure 10.9   **Monthly rates per 1000 clinical encounters of patients with at least one depression diagnosis, January 2019 to December 2021**

10.5 Quarterly rates of preventive health checks

This section of the report looks at the potential impact of COVID-19 on some preventive health checks: FOBTs for bowel cancer screening, STI screening, cervical screening, and Aboriginal and Torres Strait Islander health assessments. It compares quarterly rates (of test requests per 1000 encounters) in the pre-pandemic (2019) and COVID-pandemic (2020 and 2021) periods (Table 10.8). Where differences in the point estimates are seen, their significance remains uncertain and may be due to random variation.

The rate (per 1000 encounters) of general practice FOBT requests recorded in calendar Quarter 2 [Q2] 2020 was lower than in Q2 2019. This might relate to the initial period of COVID-19 lockdown. Otherwise, request rates for FOBT appeared stable. Note that these rates do not include FOBT tests undertaken as part of the National Bowel Cancer Screening Program.

There was a slight decrease in the estimated rate of STI test requests in the 2020–21 period compared to 2019, which might relate to reduced social activity.

The number of cervical screening tests requested was consistently lower in 2020 compared with 2019. Rates in every quarter were lower than the corresponding quarter in 2020. However, this is most likely due to the changes to the National Cervical Screening Program, with screening frequencies changing from 2-yearly pap tests to 5-yearly cervical screening tests from December 2017.[42] The AIHW also reported a decrease in cervical screening tests in 2020 compared with 2019, which it attributed to the cervical screening program changes, independent of any impact of COVID-19.[43]

There did not appear to be significant differences between rates of Aboriginal and Torres Strait Islander health assessments in 2019 and the 2020–21 pandemic period. The number of health assessments identified was low. This is likely because we identified assessments using the 'test requests' field, not by searching MBS billing data for MBS item 715 (Aboriginal Health Check). Therefore, the number of assessments identified is likely to be an underestimate.

Table 10.8   Quarterly rate of pathology requests per 1000 GP encounters, January 2019 to December 2021

	Number of requests in 2019	Rate per 1000 encounters in 2019	Number of requests in 2020	Rate per 1000 encounters in 2020	Number of requests in 2021	Rate per 1000 encounters in 2021
Faecal occult blood test						
Quarter 1	11,102	3.1	10,865	2.9	12,850	3.3
Quarter 2	10,842	2.7	9,220	2.2	11,777	2.6
Quarter 3	11,312	2.9	11,661	2.9	12,103	2.6
Quarter 4	10,614	2.9	11,806	3.2	11,185	2.7
Sexually transmitted infection						
Quarter 1	1,994	0.6	1,919	0.5	1,937	0.5
Quarter 2	1,879	0.5	1,471	0.3	1,726	0.4
Quarter 3	1,984	0.5	1,626	0.4	1,768	0.4

Quarter 4	1,932	0.5	1,575	0.4	1,727	0.4
Cervical screening test						
Quarter 1	36,471	28.2	22,151	16.3	15,493	11.0
Quarter 2	31,986	22.7	14,109	9.2	13,736	8.5
Quarter 3	33,101	23.9	16,303	10.9	14,292	8.0
Quarter 4	30,096	23.0	15,647	11.3	12,965	8.5
Aboriginal and Torres Strait Islander health assessment						
Quarter 1	33	0.3	25	0.2	52	0.4
Quarter 2	38	0.3	31	0.2	40	0.3
Quarter 3	37	0.3	53	0.4	47	0.4
Quarter 4	22	0.2	44	0.4	30	0.2

The whole study population (1+ clinical encounter in each relevant calendar year) for all analyses except (i) cervical screening tests [only females aged 18–74 years] and (ii) Aboriginal and Torres Strait Islander health assessments [status recorded as Aboriginal or Torres Strait Islander only].

10.6 Issued prescription rates per month

The first few months of the pandemic changed the pattern of healthcare delivery, with Australia adapting to the use of telehealth to deliver care to patients. With the announcement of the lockdown in March 2020, and containment measures, GPs experienced an increased demand for prescription medicines. This led to the Australian Government implementing a range of policies to protect medicine supplies.[44]

This section assessed the impact of COVID-19 on prescribing rates for selected medicines. The medicines chosen include:

▷ lipid-lowering medicines
▷ antihypertensives
▷ blood glucose-lowering medicines
▷ asthma and COPD medicines
▷ antidepressants
▷ beta-lactam antibiotics for acute infections
▷ influenza vaccine
▷ oral prednisolone.

Consistent with PBS data, there is an increase in the number of issued scripts at the end of each calendar year (Figure 10.10). This is the effect of the safety net, which reduces the amount that patients pay per prescription and results in patients stockpiling medicines at a cheaper rate before the new year.[45]

As reported in the previous GPIR, there was a spike in prescription rates for all selected medicine classes (except the influenza vaccine) in March 2020. This is like due to stockpiling of medicines, in anticipation of COVID-related lockdowns and/or exacerbation of existing conditions, such as asthma/COPD, by COVID-19 infection. Otherwise, patterns of prescribing rates were similar between years.
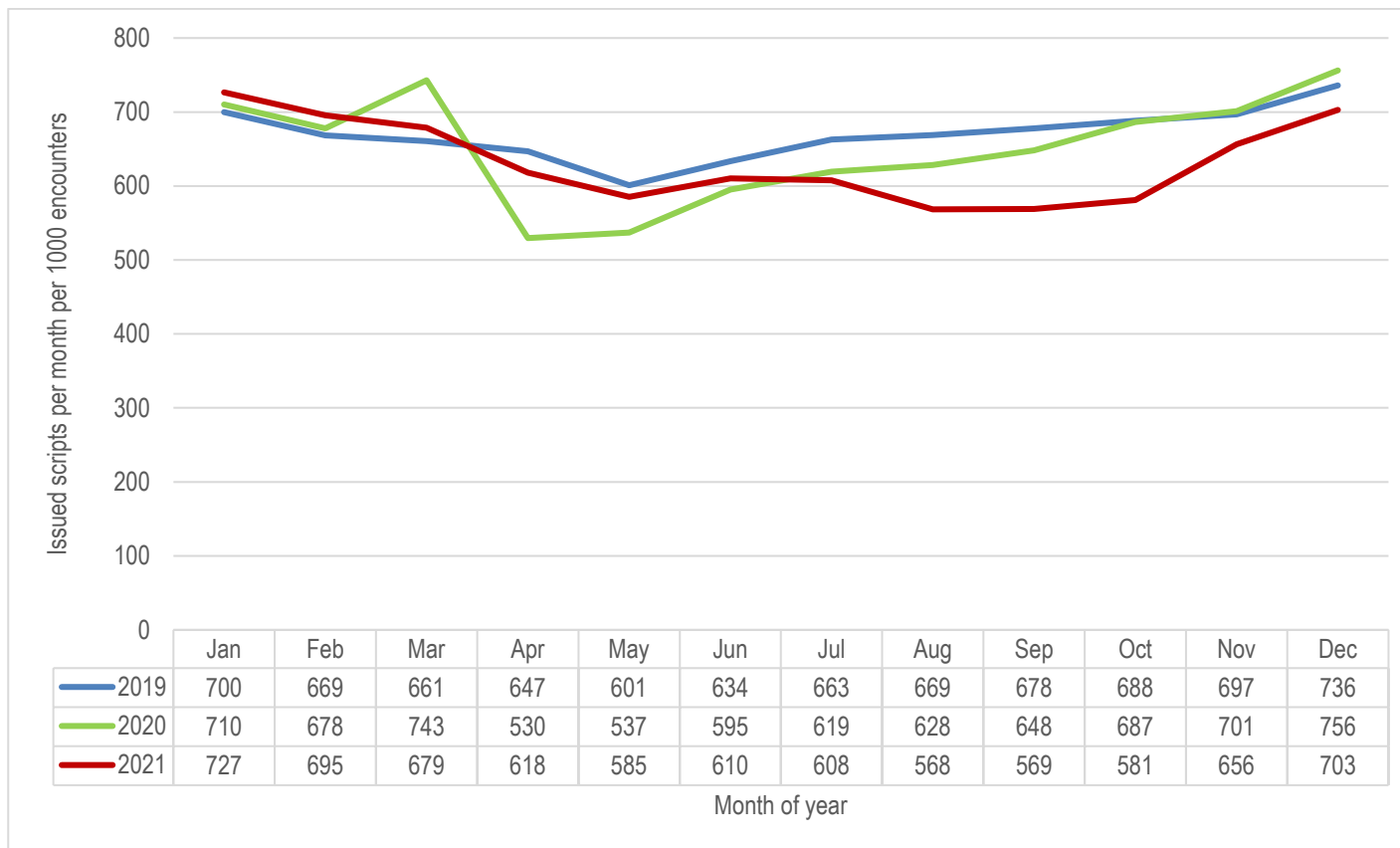
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	700	669	661	647	601	634	663	669	678	688	697	736
2020	710	678	743	530	537	595	619	628	648	687	701	756
2021	727	695	679	618	585	610	608	568	569	581	656	703

Month of year

Figure 10.10   All issued prescription scripts per month per 1000 encounters, January 2019 to December 2021

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
							2019											2020												2021						
ACT	769	775	778	728	669	728	767	754	800	781	774	825	831	772	833	489	578	660	665	680	700	733	745	824	770	742	742	644	609	653	660	632	588	638	744	755
NSW	759	727	711	703	653	693	720	725	726	747	746	786	755	716	777	552	554	627	655	658	684	718	717	774	743	722	694	631	598	625	601	540	530	575	700	748
NT	443	403	383	382	376	394	404	404	374	385	423	458	467	468	552	469	456	531	539	546	574	576	642	742	765	727	699	589	596	584	544	490	546	594	584	663
QLD	664	631	620	589	567	599	621	627	646	650	654	700	671	655	702	509	534	568	595	606	624	656	652	704	684	650	639	584	558	578	587	562	576	563	599	643
SA	709	679	664	648	580	637	668	685	682	691	687	719	719	642	750	492	510	565	590	584	625	630	668	710	693	675	667	578	550	580	637	604	599	636	633	671
Tas	867	815	839	831	745	800	823	809	795	847	864	901	859	830	927	667	640	724	755	761	791	810	837	873	860	811	766	698	646	671	670	649	668	688	746	797
VIC	608	581	579	563	522	565	587	585	598	603	637	670	649	607	675	497	481	525	543	557	567	648	707	770	734	693	690	625	591	614	622	581	573	562	660	716
WA	694	669	658	679	593	583	639	672	686	684	672	706	687	663	744	506	535	605	622	640	651	668	668	707	673	641	632	590	554	583	592	582	599	580	593	627

Figure 10.11   All issued prescriptions per month per 1000 encounters, by state and territory, January 2019 to December 2021

10.6.1. Cardiovascular and blood glucose-lowering medicines

This section contains lipid-lowering medicines (ATC code C10), antihypertensives (C02, C03, C07, C08 and C09) and blood glucose-lowering medicines (A10) prescribed by GPs per month in 2019 to 2021.

Generally, prescribing rates were similar for each of these medicine groups in 2019. Except for March 2020, monthly prescribing rates were mostly higher in 2021 than 2019 and 2020 with very little difference in months where rates were less (Figure 10.12).
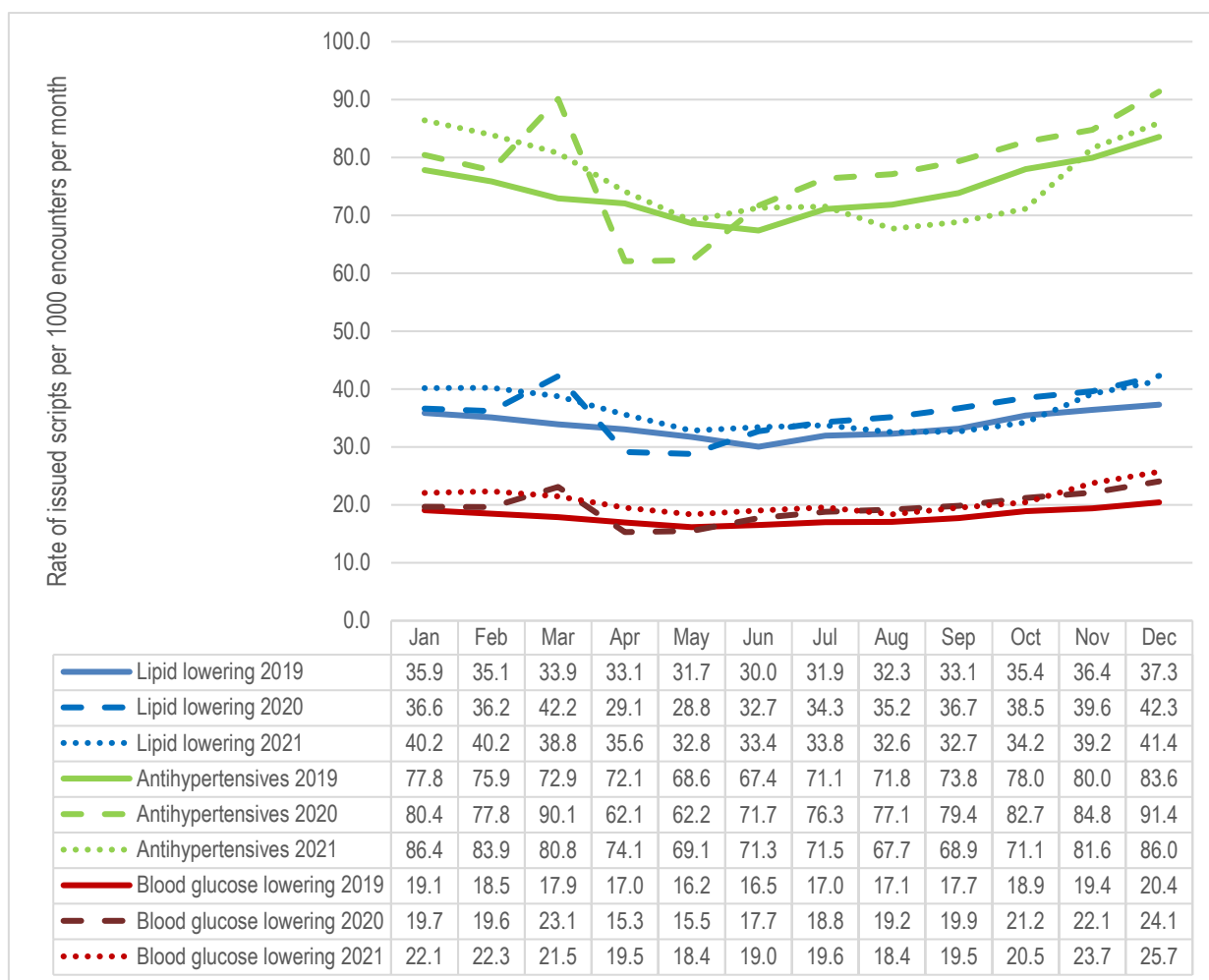

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lipid lowering 2019	35.9	35.1	33.9	33.1	31.7	30.0	31.9	32.3	33.1	35.4	36.4	37.3
Lipid lowering 2020	36.6	36.2	42.2	29.1	28.8	32.7	34.3	35.2	36.7	38.5	39.6	42.3
Lipid lowering 2021	40.2	40.2	38.8	35.6	32.8	33.4	33.8	32.6	32.7	34.2	39.2	41.4
Antihypertensives 2019	77.8	75.9	72.9	72.1	68.6	67.4	71.1	71.8	73.8	78.0	80.0	83.6
Antihypertensives 2020	80.4	77.8	90.1	62.1	62.2	71.7	76.3	77.1	79.4	82.7	84.8	91.4
Antihypertensives 2021	86.4	83.9	80.8	74.1	69.1	71.3	71.5	67.7	68.9	71.1	81.6	86.0
Blood glucose lowering 2019	19.1	18.5	17.9	17.0	16.2	16.5	17.0	17.1	17.7	18.9	19.4	20.4
Blood glucose lowering 2020	19.7	19.6	23.1	15.3	15.5	17.7	18.8	19.2	19.9	21.2	22.1	24.1
Blood glucose lowering 2021	22.1	22.3	21.5	19.5	18.4	19.0	19.6	18.4	19.5	20.5	23.7	25.7

Figure 10.12 **Monthly rate of issued prescriptions for cardiovascular and blood glucose-lowering medicines per 1000 clinical encounters, 2019–2021**

Lipid-lowering medicines (ATC code C10), antihypertensives (C02, C03, C07, C08 and C09) and blood glucose-lowering medicines (A10)

10.6.2. Antidepressants

Figure 10.13 shows a sharp increase in the rate of issued scripts for antidepressants (ATC N064) in March 2020 and a sharp drop in April 2020 and steadily increased until January 2021 where it continued a decline till May 2021. Average prescription rate in the pandemic period overall was similar to 2019. There was a steady decline in number of issued script in the first half of 2021 with rates consistently higher than in the first half of 2019 and 2020.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	44.3	42.9	41.6	39.8	36.8	37.6	40.1	40.7	41.6	43.8	44.2	46.1
2020	46.9	45.2	48.1	33.9	36.6	41.2	42.9	43.9	45.6	48.8	48.8	52.3
2021	52.7	50.1	48.3	43.2	40.8	42.2	42.6	40.5	41.0	42.9	47.5	50.6
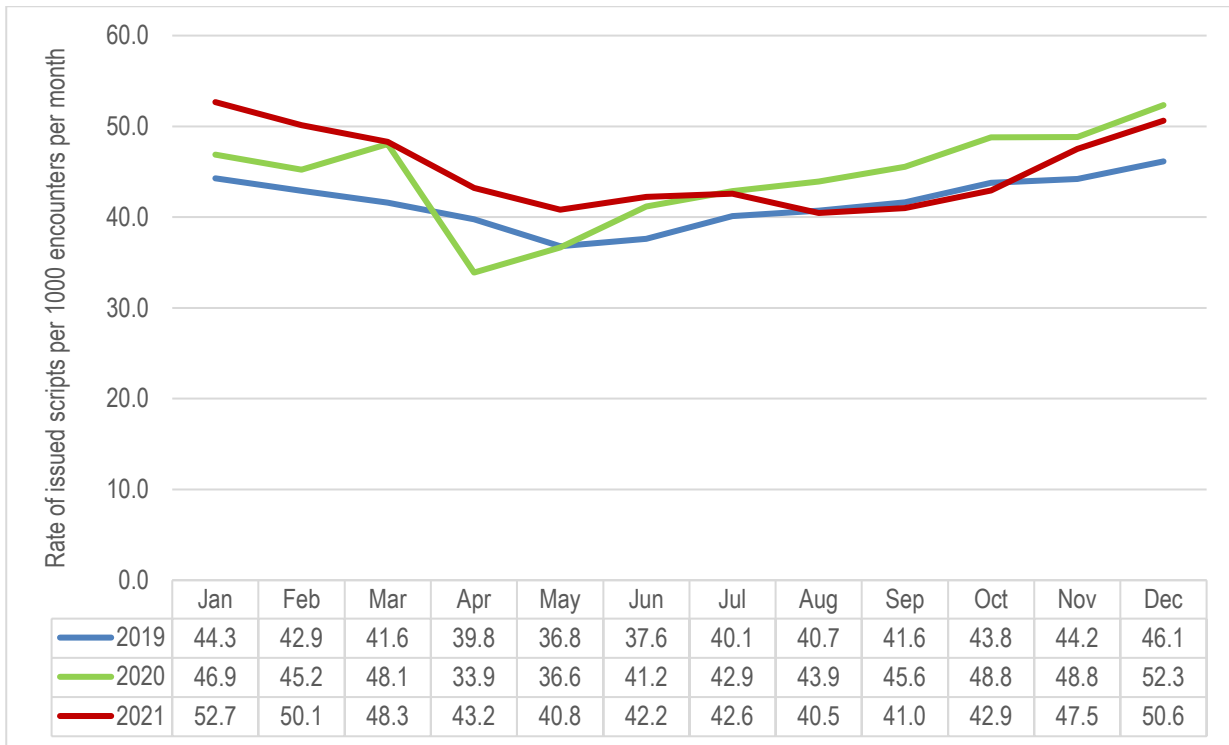
Figure 10.13   **Monthly rate of issued prescriptions for antidepressants per 1000 clinical encounters from 2019 to 2021**

10.6.3 Asthma and COPD

Similar to the pattern seen for cardiovascular and antidepressant medicines, there was a sharp increase in the GP prescribing rate for asthma and COPD management (ATC R03) in March 2020. This is likely due to the bushfires that impacted several parts of Australia and stockpiling of medicines as a result of COVID-related lockdown in March 2020. Rates in the first 5 months of 2021 were like those months in 2019. However, there was a decrease in rates from August to December 2021, lower than rates in corresponding months in the previous 2 years (Figure 10.14).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	22.4	22.2	22.3	23.2	23.9	26.7	26.3	25.9	25.0	24.5	26.6	27.4
2020	25.4	22.9	47.5	25.9	19.3	21.1	22.5	23.1	22.3	23.3	25.6	25.7
2021	23.9	24.0	23.8	23.5	24.2	24.7	23.8	21.5	20.4	20.3	23.2	24.2
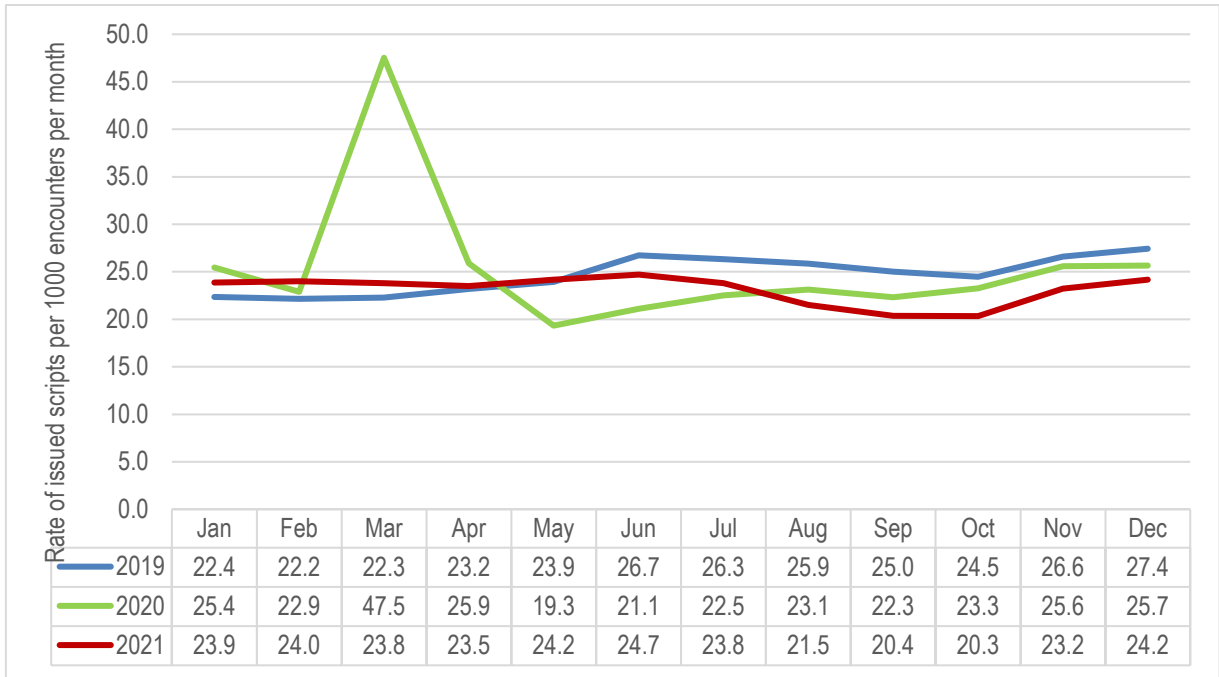
Figure 10.14   Monthly rate of issued prescriptions for asthma and COPD medicines per 1000 clinical encounters from 2019 to 2021

10.6.4 Beta-lactam antibiotics and penicillin

Penicillin and beta-lactam antibiotics are commonly used to manage and treat a wide range of bacterial infections such as urinary tract infection, whooping cough and strep throat.

Figure 10.15 shows that rates of antibiotic prescribing increased during the winter of 2019, which differed from the pattern seen in 2020 where a substantial reduction in prescriptions was observed from April to December. In the winter months of 2021, a similar pattern of increased prescribing was seen to that in 2019, higher than the same months in 2020. The drop in prescribed antibiotics during the winter of 2020 might be due to the decrease in reported respiratory tract infections as a result of the public health measures implemented during the COVID-19 lockdown.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	33.9	33.1	34.5	35.1	31.8	42.5	45.0	45.4	44.8	38.3	36.9	40.4
2020	34.2	33.2	37.1	20.6	19.3	23.5	24.7	26.2	24.9	25.8	28.1	32.0
2021	28.3	28.1	31.0	27.8	29.3	33.2	31.6	28.5	24.4	22.2	25.2	28.5
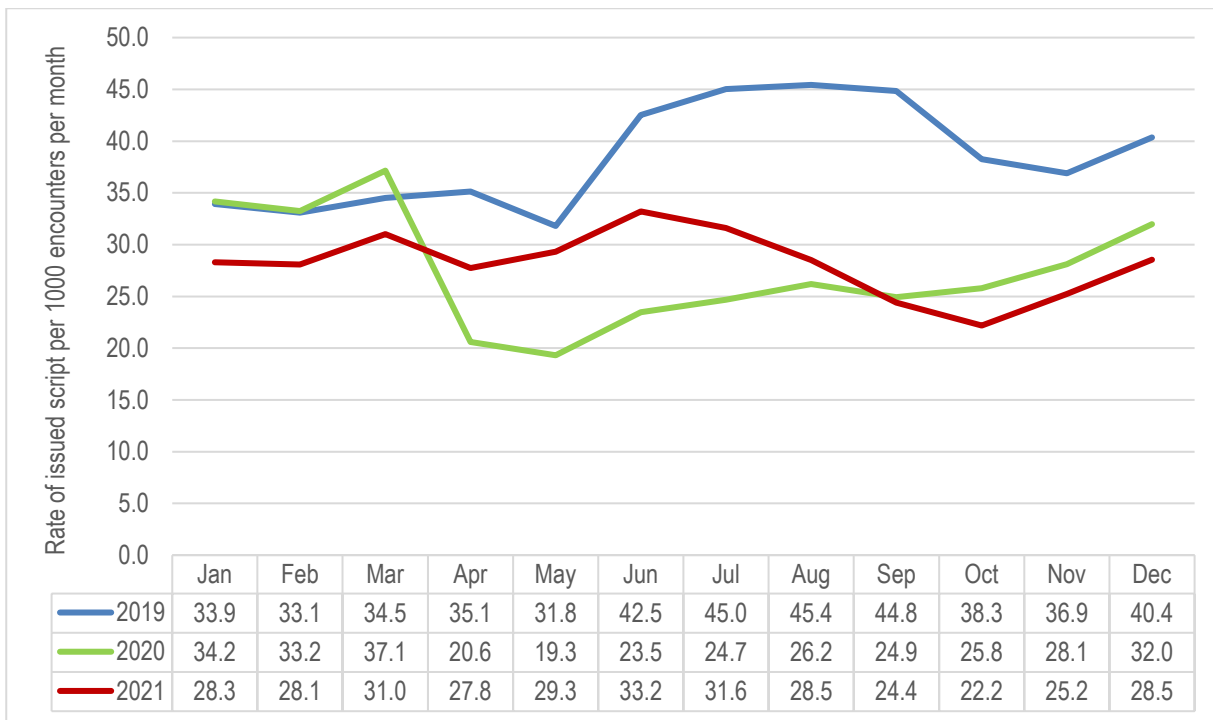
Figure 10.15   **Monthly rate of issued prescriptions for beta-lactam antibiotics per 1000 clinical encounters, 2019 to 2021**

10.6.5 Influenza vaccine

In Australia, the influenza vaccine is available in April and May of every year before the winter months. Early in April 2020, the Australian Government encouraged all Australians to be vaccinated against seasonal influenza to reduce the likelihood of co-infection. This led to a large number of doses made available across the country (17.6 million), which resulted in a surge in demand for the influenza vaccine from the general public.[46]

In Figure 10.16, the peak prescribing period in 2019 was in the month of May (8.7 issued prescriptions per 1000 clinical encounters). In 2020, the peak prescribing period for the influenza vaccine was April, with 16 issued prescriptions per 1000 clinical encounters, almost twice the peak period in 2019. However, in 2021, April and May were the peak prescribing periods (2.9 issued prescriptions per 1000 encounters). Low levels of influenza in Australia in 2020 after the introduction of public health measures in March, and more focused attention on COVID-19, might have led to reduced uptake of the influenza vaccine in 2021.[47]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	0.1	0.1	1.0	4.8	8.7	6.1	2.0	0.7	0.3	0.1	0.1	0.2
2020	0.1	0.2	3.3	16.0	7.5	2.2	0.8	0.3	0.2	0.1	0.1	0.2
2021	0.1	0.1	0.6	2.9	2.9	1.7	0.7	0.2	0.1	0.1	0.1	0.1
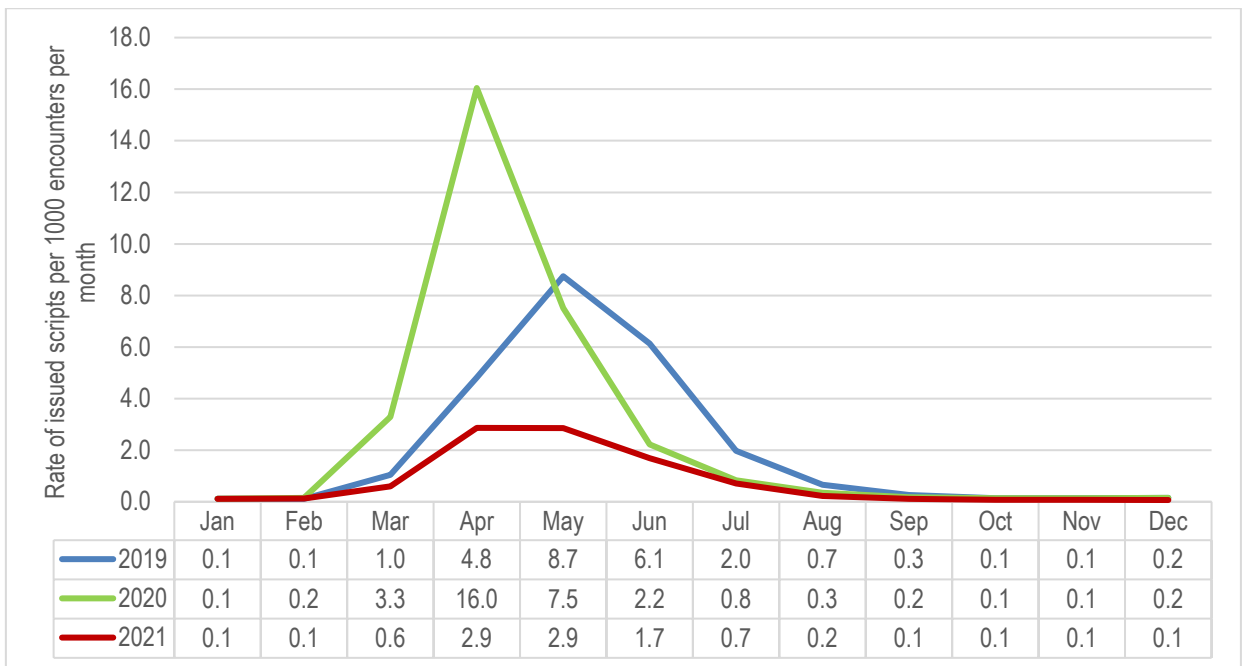
Figure 10.16   **Monthly rate of issued prescriptions for influenza vaccine per 1000 clinical encounters, 2019 to 2021**

10.6.6. Oral prednisolone/prednisone

Prednisolone is a medicine available on a doctor's prescription for the treatment of a wide range of health conditions, such as inflammation, infections, allergies and skin diseases.

Figure 10.17 shows a spike in the rate of prednisolone prescribed in March 2020 (13.4 per 1000 encounters) before a sharp drop in April 2020 (6.8). Rates in April to December 2020 were lower than rates in those months in 2019. In 2019, the rates of prednisolone prescribed increased during the winter months. However, the rates in same months in 2020 were lower than 2019. The pattern in 2020 continued in 2021, with monthly rates consistently lower than in 2019.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	10.0	10.2	10.6	11.0	10.4	13.5	13.4	13.4	13.3	11.6	12.1	12.7
2020	11.1	11.0	13.4	6.8	6.4	8.0	8.0	8.4	8.4	9.0	9.9	10.4
2021	9.4	9.5	10.1	9.2	9.8	10.5	10.3	9.4	8.0	7.6	8.6	9.2
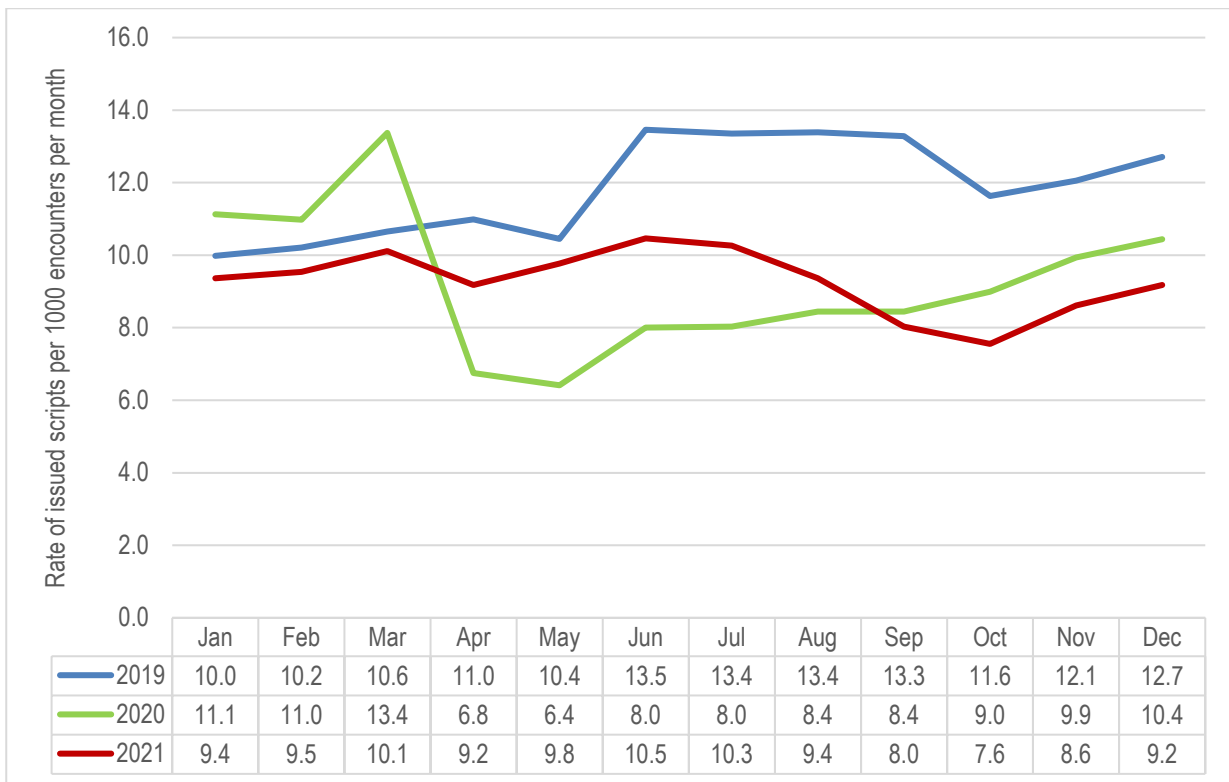
Figure 10.17   **Monthly rate of issued prescriptions for prednisolone per 1000 clinical encounters, 2019 to 2021**

10.7 Medical test request rates per month

This section explores the impact of the COVID-19 pandemic on the number of test results recorded for a selection of tests. The included test results are:

▷ full blood counts
▷ thyroid function tests
▷ HbA_{1c} X-rays
▷ histology tests.

Figure 10.18 shows similar patterns for all selected tests. Test requests dropped sharply in April 2020, corresponding to the first lockdowns in March 2020. There was a sharp increase in November 2021. The monthly request rate per 1000 encounters for histology tests was consistent throughout the 3 years, with very minimal changes from month to month.
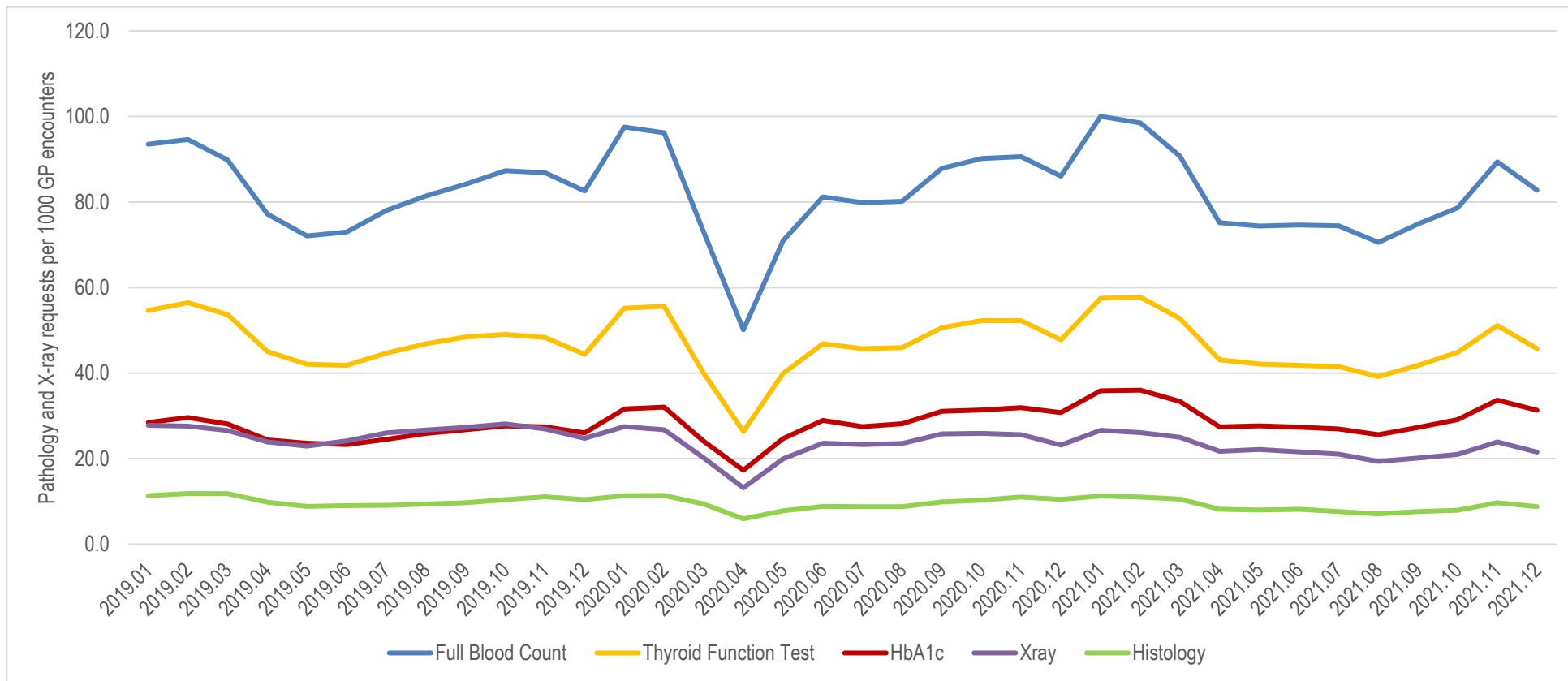
Figure 10.18 Monthly pathology and X-ray request rate per 1000 GP encounters, January 2019 to December 2021

10.8 COVID-19 vaccinations

The Australian Government COVID-19 vaccination program commenced in February 2021, prioritising groups such as frontline healthcare workers, aged care and disability staff and residents, and hotel quarantine and border workers. COVID-19 vaccines approved for use in Australia by the Therapeutic Goods Administration agency (TGA) are Comirnaty (Pfizer), Spikevax (Moderna) and Vaxzevria (AstraZeneca).

Figure 10.19 shows rates of COVID-19 vaccine administration within MedicineInsight practices – vaccines administered in other settings are not included. Rates of COVID-19 vaccine administered (number per 1000 clinical encounters) were similar in general practices across states and territories in 2021. There was a consistent increase across all states from March 2021, peaking in August and September 2021 for most states and territories. This increase corresponds with the Delta variant outbreak.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ACT	0	1	23	72	80	101	128	199	221	183	61	52
NSW	0	0	22	78	86	115	179	256	255	210	55	64
NT	0	0	19	63	91	115	236	303	204	128	116	109
QLD	0	0	17	69	69	92	118	152	143	151	97	103
SA	0	0	34	76	83	129	129	161	147	149	117	121
TAS	0	1	53	96	104	145	167	198	189	178	112	101
VIC	0	0	20	72	83	119	127	174	186	175	69	61
WA	0	0	20	66	74	81	109	134	140	162	122	108
National	0	0	23	74	81	109	145	196	196	180	83	82

Month of 2021

Figure 10.19 **Rate of COVID-19 vaccines administered (number per 1000 clinical encounters) by states and territories, January 2021 to December 2021**

11 Interpretation of the data

MedicineInsight is an important source of national longitudinal general practice data. This report provides information on activities that occur in general practices, including details of encounters, the conditions patients present with and how they are managed.

MedicineInsight contains a huge volume of data, providing countless opportunities to analyse general practice activity, and measure the health outcomes and quality of general practice care. While some data may be incomplete, and a proportion of encounters may be missing when patients attend other general practices, analysis of the MedicineInsight dataset offers many important findings. It is possible to continue to draw significant inferences about the treatment, risk factors and potential outcomes for different patient cohorts.

There are recognised limitations to MedicineInsight data, as they are real-world data entered by clinicians into CISs for the purposes of providing patient care. When interpreting the information presented in this report, the following limitations or caveats related to the MedicineInsight data should be noted:

▷ Information in the CIS is collected to provide clinical care to a patient, not for research purposes. All analyses are therefore dependent upon on the accuracy and completeness of data recorded in, and available for extraction from, the general practice CISs.

▷ Once chronic conditions are recorded in the medical record, and the patient is known to the GP, the GP may not routinely record the reason for prescribing, or the reason for the visit, at each visit.

▷ Conditions may be underreported in MedicineInsight data, depending on recording practices. A validation study has found the accuracy of condition definitions in MedicineInsight to be good.[48]

▷ Calculation of the relative proportions of different conditions assumes that non-recording of conditions occurs at random.

▷ Selection criteria were applied to maximise the likelihood that included GP encounters were for clinical reasons, however, there may be remaining misclassification of clinical versus administrative encounters, as these are sometimes difficult to distinguish in CISs. A validation study is currently underway to help improve the clinical encounter definition in MedicineInsight.

▷ Although patients can have more than one encounter in a day, due to the nature of the information available in CISs, only one clinical GP encounter per day per patient has been counted.

▷ The rates of conditions and prescriptions per 100 encounters were calculated with the caveat that conditions and prescriptions are not linked directly to GP clinical encounters in MedicineInsight but to patients. Therefore, our findings reflect all activity conducted by GPs when managing their patients, not just the activity on the days when a clinical encounter occurred.

▷ MedicineInsight prescriptions relate to records of GP prescribing, and therefore differ in several important ways from national PBS dispensing data. Not all prescriptions and repeats will be dispensed, so prescription counts are an overestimate of dispensed prescription counts. There may be a delay of up to 12 months between prescribing and dispensing. Specialist and hospital prescriptions are not included.

▷ Practices were recruited to MedicineInsight using non-random sampling, and systematic sampling differences between regions cannot be ruled out. Behaviour of MedicineInsight practices may not be reflective of non-MedicineInsight practices. Comparisons between regions should be interpreted with caution, although we have weighted the data to improve national representativeness.

▷ While the 2020–21 population of patients with at least one MBS-billed GP visit was used as the reference population for weighting, the MedicineInsight cohort may include patients not covered under the MBS (eg, foreign citizens, workers compensation patients).

▷ For confidentiality reasons we do not have access to progress notes, which may contain further information on reasons for prescriptions, reasons for encounters and diagnoses.

▷ Patients are free to visit multiple other practices. We do not have data on patients from non-MedicineInsight clinics. Currently we cannot identify patients who have attended multiple MedicineInsight practices.

References

1. Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander specific primary health care: results from the nKPI and OSR collections. Canberra: AIHW, 2022. https://www.aihw.gov.au/reports/indigenous-australians/indigenous-primary-health-care-results-osr-nkpi/contents/about (accessed 10 May 2022).

2. Productivity Commission. Report on government services 2021 (part E: Health). Canberra: Productivity Commission, 2020. https://www.pc.gov.au/research/ongoing/report-on-government-services/2021/health (accessed 15 April 2021).

3. Department of Social Services. DSS payment demographic data June 2021. Canberra: Australian Government, 2021. https://data.gov.au/data/dataset/dss-payment-demographic-data (accessed 28 January 2022).

4. Department of Veterans' Affairs. DVA pensioner summary - June 2021. Canberra: Australian Government, 2021. https://www.dva.gov.au/sites/default/files/2021-09/pensumm_june2021.pdf (accessed 10 May 2021).

5. Australian Bureau of Statistics. Patient experiences in Australia: summary of findings. Canberra: ABS, 2021. https://www.abs.gov.au/statistics/health/health-services/patient-experiences-australia-summary-findings/latest-release#key-statistics (accessed 15 April 2022).

6. Myton R, Pollack A, Harvard A, et al. MedicineInsight report: Validation of the MedicineInsight database: the accuracy of death recording in the MedicineInsight general practice data compared with the National Death Index in Australia. Sydney: NPS MedicineWise, 2021. https://www.nps.org.au/assets/NPS/pdf/MedicineInsight-NDI-death-validation-study.pdf (accessed 28 June 2022).

7. Australian Bureau of Statistics. 3101.0 - Australian demographic statistics, June 2019. Canberra: ABS, 2019. https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3101.0Main+Features1Jun%202019?OpenDocument (accessed 15 April 2021).

8. Australian Bureau of Statistics. 3218.0 - Regional population growth, Australia, 2017-18. Canberra: ABS, 2019. https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3218.02017-18 (accessed 15 April 2021).

9. Australian Bureau of Statistics. National, state and territory population (June 2021). Canberra: ABS, 2021. https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/latest-release (accessed 28 January 2022).

10. Australian Institute of Health and Welfare. Australia's health snapshots 2020. Canberra: AIHW, 2020. https://www.aihw.gov.au/reports-data/australias-health/australias-health-snapshots (accessed 11 May 2021).

11. Department of Health. PBS expenditure and prescriptions report 1 July 2020 to 30 June 2021. Canberra: Australian Government, 2021. https://www.pbs.gov.au/info/statistics/expenditure-prescriptions/pbs-expenditure-and-prescriptions-report-30-june-2021 (accessed 20 January 2022).

12. Bruggink LD, Garcia-Clapes A, Tran T, et al. Decreased incidence of enterovirus and norovirus infections during the COVID-19 pandemic, Victoria, Australia, 2020. Commun Dis Intell (2018) 2021;45. https://www.ncbi.nlm.nih.gov/pubmed/33573536

13. Royal College of Pathologists of Australasia. Manual of use and interpretation of pathology tests (RCPA Manual) 7th edition. Sydney: RCPA, 2015. https://www.rcpa.edu.au/Manuals/RCPA-Manual (accessed 15 April 2021).

14. Royal Australian College of General Practitioners, Diabetes Australia. Management of type 2 diabetes: a handbook for general practice. East Melbourne: RACGP, 2020. https://www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/diabetes/introduction (accessed 15 April 2021).

15. Australian Institute of Health and Welfare. Practice Incentives Program Quality Improvement Measures: National report on the first year of data 2020-21. Canberra: AIHW, 2021. https://www.aihw.gov.au/reports/primary-health-care/pipqi-measures-national-report-2020-21/contents/about (accessed 10 May 2022).

16. Marquardt T. Managing skin infections in Aboriginal and Torres Strait Islander children. Aust J General Practice 2014;43:16-9. https://www.racgp.org.au/afp/2014/january-february/managing-skin-infections

17. Davidson L, Knight J, Bowen A. Skin infections in Australian Aboriginal children: a narrative review. Med J Aust 2020 2020;212:231-7. https://pubmed.ncbi.nlm.nih.gov/31630410/

18. Hendrickx D, Bowen AC, Marsh JA, et al. Ascertaining infectious disease burden through primary care clinic attendance among young Aboriginal children living in four remote communities in Western Australia. PLoS One 2018;13:e0203684. https://pubmed.ncbi.nlm.nih.gov/30222765/

19. Bailie RS, Stevens MR, McDonald E, et al. Skin infection, housing and social circumstances in children living in remote Indigenous communities: testing conceptual and methodological approaches. BMC Public Health 2005;5:128. https://doi.org/10.1186/1471-2458-5-128

20. National Aboriginal Community Controlled Health Organisation. NACCHO policy position paper: Aboriginal housing for Aboriginal health. https://wwwnacchoorgau/naccho-policy-position-paper-aboriginal-housing-for-aboriginal-health/ (accessed 8 June 2022).

21. Eade sAM, Hackett M, Raven M, et al. The impact of vicarious trauma on Aboriginal and/or Torres Strait Islander health researchers. Public Health Res Pract 2021;31:e30012000. https://pubmed.ncbi.nlm.nih.gov/33690786/

22. Australian Indigenous Health*info*Net. Trauma. https://healthinfonetecueduau/learn/health-topics/healing/trauma/ (accessed 8 June 2022).

23. Rheumatic Heart Disease Australia. The 2020 Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease (3.2 edition, March 2022). https://wwwrhdaustraliaorgau/arf-rhd-guideline (accessed 8 June 2022).

24. Rheumatic Heart Disease Australia. Burden of disease: ARF and RHD in Australia. End RHD in Australia: Study of Epidemiology (ERASE). https://wwwrhdaustraliaorgau/burden-disease Last Updated: 18 May 2022.

25. Department of Health. COVID-19 Temporary MBS Telehealth Services. Canberra: Australian Government, 2021. http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/Factsheet-TempBB (accessed 5 May 2022).

26. Australian Bureau of Statistics. Impact of lockdowns on household consumption - insights from alternative data sources. Canberra: ABS, 2022. https://www.abs.gov.au/articles/impact-lockdowns-household-consumption-insights-alternative-data-sources#edit-group-image (accessed 5 May 2022).

27. Department of Health. Coronovirus (COVID-19) at a glance infographics (30 November 2021). Canberra: Australian Government, 2021. https://www.health.gov.au/sites/default/files/documents/2021/12/coronavirus-covid-19-at-a-glance-30-november-2021.pdf (accessed 12 May 2022).

28. Department of Health. Coronovirus (COVID-19) at a glance infographics (31 Decemeber 2021). Canberra: Australian Government, 2021. https://www.health.gov.au/sites/default/files/documents/2022/01/coronavirus-covid-19-at-a-glance-31-december-2021.pdf (accessed 12 May 2022).

29. Yadav UN, Rayamajhee B, Mistry SK, et al. A syndemic perspective on the management of non-communicable diseases amid the COVID-19 pandemic in low- and middle-income countries. Front Public Health 2020;8:508. https://www.ncbi.nlm.nih.gov/pubmed/33102414

30. Duan L, Zhu G. Psychological interventions for people affected by the COVID-19 epidemic. Lancet Psychiatry 2020;7:300-2. https://www.ncbi.nlm.nih.gov/pubmed/32085840

31. Centers for Disease Control and Prevention. Long COVID or post-COVID conditions. Atlanta: CDC, 2022. https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/ (accessed 10 May 2022).

32. de Leeuw E, Yashadhana A, Hitch D. Long COVID: sustained and multiplied disadvantage. Med J Aust 2022;216:222-4. https://www.ncbi.nlm.nih.gov/pubmed/35249215

33. Crook H, Raza S, Nowell J, et al. Long COVID-mechanisms, risk factors, and management. BMJ 2021;374:n1648. https://www.ncbi.nlm.nih.gov/pubmed/34312178

34. Dawel A, Shou Y, Smithson M, et al. The effect of COVID-19 on mental health and wellbeing in a representative sample of Australian adults. Front Psychiatry 2020;11:579985. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7573356/pdf/fpsyt-11-579985.pdf

35. Bhoyroo R, Chivers P, Millar L, et al. Life in a time of COVID: a mixed method study of the changes in lifestyle, mental and psychosocial health during and after lockdown in Western Australians. BMC Public Health 2021;21:1947. https://www.ncbi.nlm.nih.gov/pubmed/34702238

36. Desborough J, Hall Dykgraaf S, de Toca L, et al. Australia's national COVID-19 primary care response. Med J Aust 2020;213:104-6 e1. https://www.ncbi.nlm.nih.gov/pubmed/32623740

37. Duckett S. What should primary care look like after the COVID-19 pandemic? Aust J Prim Health 2020;26:207-11. https://www.ncbi.nlm.nih.gov/pubmed/32454003

38. James S, Ashley C, Williams A, et al. Experiences of Australian primary healthcare nurses in using telehealth during COVID-19: a qualitative study. BMJ Open 2021;11:e049095. https://www.ncbi.nlm.nih.gov/pubmed/34362804

39. Rohr S, Muller F, Jung F, et al. [Psychosocial impact of quarantine measures during serious coronavirus outbreaks: a rapid review]. Psychiatr Prax 2020;47:179-89. https://www.ncbi.nlm.nih.gov/pubmed/32340047

40. Beyond Blue. Victorians turn to Beyond Blue during pandemic. https://wwwbeyondblueorgau/media/media-releases/media-releases/victorians-turn-to-beyond-blue-during-pandemic 06 August 2020.

41. ABC News. In COVID lockdown record numbers are turning to Lifeline, these are the people picking up the call. https://wwwabcnetau/news/2021-08-21/the-people-answering-covid-19-lockdown-lifeline-calls/100367532 21 August 2021.

42. Smith MA, Gertig D, Hall M, et al. Transitioning from cytology-based screening to HPV-based screening at longer intervals: implications for resource use. BMC Health Serv Res 2016;16:147. https://www.ncbi.nlm.nih.gov/pubmed/27112193

43. Australian Institute of Health and Welfare. Cancer screening and COVID-19 in Australia. Canberra: AIHW, 2021. https://www.aihw.gov.au/reports/cancer-screening/cancer-screening-and-covid-19-in-australia-inbrief/contents/what-was-the-impact-of-covid-19-in-australia (accessed 10 May 2022).

44. Mian M, Sreedharan S, Giles S. Increased dispensing of prescription medications in Australia early in the COVID-19 pandemic. Med J Aust 2021;214:428-9. https://www.ncbi.nlm.nih.gov/pubmed/33884634

45. Mellish L, Karanges EA, Litchfield MJ, et al. The Australian Pharmaceutical Benefits Scheme data collection: a practical guide for researchers. BMC Res Notes 2015;8:634. https://www.ncbi.nlm.nih.gov/pubmed/26526064

46. Ernst & Young Australia. Evaluation of the 2020 influenza season and assessment of system readiness for a COVID-19 vaccine (final report for the Australian Government Deaprtment of Health). Canberra: Ernst & Young, 2021. https://www.health.gov.au/sites/default/files/documents/2021/11/foi-request-2519-covid-19-report-of-2020-influenza-evaluation-and-covid-vaccine-system-readiness-review-evaluation-of-the-2020-influenza-season-and-assessment-of-system-readiness-for-a-covid-19-vaccine.pdf (accessed 10 May 2022).

47. Morris T, Tate J. Influenza vaccination during the COVID-19 pandemic: planning and delivering vaccination programs to protect the most vulnerable people. London, 2021. https://www.ifpma.org/wp-content/uploads/2021/09/IFPMA_HPP_Influenza_vaccination_during_COVID-19_pandemic.pdf (accessed 10 May 2022).

48. Havard A, Manski-Nankervis JA, Thistlethwaite J, et al. Validity of algorithms for identifying five chronic conditions in MedicineInsight, an Australian national general practice database. BMC Health Serv Res 2021;21:551. https://www.ncbi.nlm.nih.gov/pubmed/34090424

49. Krzywinski M, Altman N. Significance, P values and t-tests. Nat Methods 2013;10:1041-2. https://www.ncbi.nlm.nih.gov/pubmed/24344377

50. Australian Bureau of Statistics. Indigenous status standard, 2014 (version 1.5). Canberra: ABS, 2015. https://www.abs.gov.au/statistics/standards/indigenous-status-standard/latest-release (accessed 15 April 2021).

51. Australian Bureau of Statistics. Socio-Economic Indexes for Areas. Canberra: ABS, 2018. https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa (accessed 15 April 2021).

52. Australian Bureau of Statistics. Australian statistical geography standard (ASGS): volume 5 - remoteness structure, July 2016. Canberra: ABS, 2018. https://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.005 (accessed 15 April 2021).

53.   Australian Digital Health Agency. SNOMED CT-AU and Australian Medicines Terminology
       August 2019 release. Sydney: ADHA, 2019.
       https://www.digitalhealth.gov.au/newsroom/product-releases/snomed-ct-au-and-australian-
       medicines-terminology-august-2019-release (accessed 15 April 2021).
54.   Australian Digital Health Agency. National Clinical Terminology Service. Sydney: ADHA, 2020.
       https://www.healthterminologies.gov.au/ (accessed 15 April 2021).

Appendix 1. Methodology

This report is based upon MedicineInsight data extracted from the data warehouse in August 2021 and January 2022 and includes encounters from 1 January 2019 to 31 December 2021. Decisions on sample selection and scope were guided by the following objectives:

▷ Ensuring our methodology follows an accepted, rigorous scientific process.
▷ Using a single set of assumptions and quality criteria to ensure data included were from a consistent cohort of patients and their GP clinical encounters.
▷ Including as much data as possible while maintaining data selection and quality criteria.

Sample selection

Consistent with the purpose of this report being to provide an overview of key features of general practice patients and activity in Australia for the period January 2019 to December 2021, patients and GP clinical encounters are the units of analysis used in the report.

Characteristics of the associated general practice sites (referred to here as sites) and GPs have been provided as background information only. Only GPs who delivered more than three clinical encounters during financial year 2020–21 were included in these tables and, if they had clinical encounters at more than one practice, they were only counted in the practice in which they had the most clinical encounters.

To be eligible for inclusion, practice sites needed to meet the following data quality criteria:

▷ Established as a practice for at least 2 years, to ensure adequate longitudinal data on patients.
▷ No gaps of more than 1 month in the previous 2 years in data entry into key data tables (patients, diagnoses or patient history, encounters, observations, prescriptions, pathology test requests and results), and
▷ Data available for at least 50 patients in the 2 years prior to the database build, to exclude practices that did not record clinical data in their CISs.

Financial year analyses

A multi-step hierarchical selection process was used to identify a cohort of eligible patients who had at least one GP clinical encounter in the period July 2020 to June 2021 and had high-quality data recorded. The GP clinical encounters associated with these patients between July 2020 and June 2021 were identified through the same selection process. Table A1.1 outlines the selection criteria for patients and their GP clinical encounters, and further detail on these selection criteria is provided below.

Table A1.1   Summary of MedicineInsight patient and GP clinical encounter selection criteria and sample size, 2020–21

	Inclusion/exclusion criteria	Number included
Patients with at least one clinical encounter during the study period and high-quality data	Inclusions: - Patient with valid age and sex recorded - Patient identified as such in the patient status field - Patient associated with at least one clinical encounter in the study period (defined as below)	2,478,670 (2,477,548 excluding patents with indeterminate or intersex sex)
GP clinical encounters associated with included patients during the study period	Inclusions - Encounters where provider is consistently recorded as a GP Exclusions - Encounters with a non-GP or administrative visit type - Encounters with an administrative reason for encounter (RFE)	14,333,943 (for the purposes of counting GP clinical encounters)

COVID analyses

Patients and clinical encounters included in the COVID analyses were identified in a similar fashion to the financial year cohort above. However, rather than restricting this analysis to patients with at least one encounter in the 2020–21 financial year, patients were included if they had at least one clinical encounter in either 2019, 2020 or 2021.

Telehealth analyses

Practices included in the telehealth analyses were included if they provided billing information to MedicineInsight, were ranked in the top 95% of practices by total encounters and were ranked in the top 90% of practices by the ratio of standard GP attendance MBS items (MBS items 3, 23, 36 and 44) to total encounters.

Patients

Patient information is entered in the CIS at the practice site and each patient is given a unique digital number at each site visited. Patient loyalty data previously provided by the Commonwealth Department of Health indicates that 72% of all patients attend only one practice. Another 22% attend two practices and 6% attend three or more practices (data on file, Australian Government Department of Health).

Using this patient loyalty data, in combination with the estimates of the proportion of practices in MedicineInsight (5.6%), we can also model the likely number of duplicate patient-ID numbers in MedicineInsight. Assuming no change in patient behaviour, we estimate that less than 2.0% of patients in the MedicineInsight GPIR 2020–21 cohort have two or more unique patient ID numbers, due to visiting more than one practice site.

Patients included in the sample were those recorded as having a valid age (0–112 years calculated as the difference between 1 July 2020 and 1 July in the patient's year of birth) and sex (male, female or intersex/indeterminate). Patients recorded as either active, inactive, visitor (ie, not usual practice) or deceased (but not emergency contact, next of kin or missing) within the patient status field and who had at least one eligible clinical encounter in the study period were included.

Clinical encounters

Identifying GP clinical encounters in MedicineInsight data is a particular challenge. This is because the CIS creates an encounter whenever a patient record is opened, whether it was opened for clinical reasons (such as a consultation) or for administrative purposes (such as reviewing or updating a patient record). Additionally, there is no identifier recorded alongside all the clinical records (eg,

diagnoses or prescriptions) to indicate which encounter record they relate to. However, a date is recorded alongside all diagnoses and prescriptions allowing records to be linked to a patient on that date.

This report focuses on GP activity relating to general practice patients. For this reason, only encounters where the provider is consistently identified as a GP or GP registrar were counted. Note that, although we only included encounters with GPs when calculating encounter rates, all the other information associated with non-GP encounters was retained and used in the analyses.

The selection criteria in Box 1 were applied in order to maximise the likelihood that included encounters were for clinical reasons and with a doctor.

Box 1: Algorithm for identifying clinical encounters with a GP

An encounter was defined as clinical if at least one encounter record on a particular date met all of the following criteria:

The clinical user[J] who created the contact record is consistently identified as a doctor (GP or GP registrar) and the encounter is not an 'imported' record from another practice. To meet this criterion both the 'provider type' and the 'doctor indicator' fields (which requires a complete prescriber number) had to indicate the provider was a doctor.

AND

The visit type nominated for the encounter record does not clearly indicate the activity was administrative and was clearly related to GP activity (not with another health professional). A pre-defined list of administrative terms is consulted to determine whether the activity is administrative eg, 'email', 'practice admin', 'non-visit'.

AND

The encounter reason on the encounter record does not clearly indicate the activity was administrative. Another pre-defined list of administrative terms is consulted to determine whether the activity is administrative eg, 'forms', 'prescription – no consult'.

If there is no encounter record on the encounter date that meets all of these criteria, the encounter is considered non-clinical.

Capping GP clinical encounters at one per day

Only one GP clinical encounter per day per patient was counted because of the difficulty in distinguishing true multiple encounters on the same day. Although the number of GP clinical encounters was capped at one, all the other information associated with encounters on that day was retained and analysed. Previous analysis suggested this strategy does not substantially underestimate the count of GP clinical encounters, as only 1.9% of clinical GP encounter dates have more than a single clinical encounter. Although certain encounters are identified as 'clinical' in order to select patients and describe the characteristics of GP clinical encounters, all patient-relevant information on any date during the study period was used, even if associated with an administrative encounter.

Conditions

Conditions were selected for inclusion based on burden of disease, if they were likely to be treated in primary care, and under advice from the Advisory Group.

MedicineInsight condition flags are developed by clinical coders and reviewed by medical advisors. The flags indicate records where conditions of interest, or their relevant synonyms, are reported in

---

J The CIS records the clinical user associated with each encounter and this includes any staff member who logged information in the CIS, including clinical (GP, nurse, allied health) and administrative staff.

MedicineInsight. Both coded conditions (entered by GPs using drop-down lists in the CIS) and non-coded conditions (free text) are searched for in all three of the 'Diagnosis', 'Reason for visit' or 'Reason for prescription' fields. The condition flags are defined in Appendix 5.

Records identified by a free text string alone are not automatically flagged. Instead, a clinical coder individually reviews them to determine whether the text string refers to the condition indicated or is present in another context (eg, a search for 'cancer' may identify 'partner died from cancer'). Each record is flagged accordingly. Records indicating 'suspected', 'query' or '?' records of the condition are not flagged as the condition, unless otherwise specified.

Records of medicines and tests can also be used to identify patients with a particular condition in MedicineInsight, although this strategy was not used in this report.

Patient prevalence vs recently recorded management

Depending on individual GP recording practices, a diagnosis for a current condition may have been recorded historically but is not routinely recorded at subsequent GP clinical encounters. For example, a GP may have recorded that a patient has type 2 diabetes many years ago. At subsequent visits they may not record diabetes as being the reason for the visit, even if they are actively managing the condition, because the GP knows the patient's history. This can lead to an underestimate of recent management of conditions in patients. For this reason, information on conditions by patient is presented in one of two ways throughout this report.

Information on the proportion of patients with the condition recorded at any time in their medical record (referred to as 'ever recorded') is referred to as patient prevalence. While this method is considered the most accurate way of estimating patient prevalence for chronic conditions, such as diabetes and COPD, it might overestimate the current prevalence for conditions that can resolve over time, such as depression and anxiety disorder, or with age, such as asthma and eczema.

Information on the recent management of conditions includes:

▷ the proportion of patients with a condition recorded at least once during the study period
▷ the number of encounters with a patient with the condition recorded at least once during the study period per 100 or 1000 clinical GP encounters
▷ the average number of encounters during the study period for patients with selected conditions.

The patient prevalence (ever recorded) and recent management (recorded in 2020–21) of conditions presented in this report, can be used as way of describing both the maximum, and minimum, estimates of GP management of patients with these conditions, respectively.

Medical test requests

There are three potential sources of information about medical tests within the CIS:

▷ Tests requested – these are recorded by the GP using free text or prepopulated menus. However, no information about test results (including collection dates) is recorded.
▷ Test result summaries (ie, test result headers) – this includes general information about the test results received back from pathology laboratories. It includes the request date and the collection date, but not the individual (atomised) results, and
▷ The atomised test result details – each component of a pathology test result, including the result date, is recorded separately (atomised) in this table.

To explore tests requested we used the REQUESTED_TESTS field. It was necessary to re-classify entries from this field because it often has more than one medical test listed on the same row and data are mostly entered as free text. In addition, GPs use variations on a test name when requesting or reporting on a test. For example, a liver function test may be written as LFT.

There is no standardised classification system for tests in MedicineInsight and so a pragmatic approach was used to classify the test requests into relevant groups. Data for test requests, often containing requests for multiple tests, were arranged from the most to the least common. Using SAS

algorithms in an iterative process including quality checks, test-request flags were defined. The test-request flag definitions were based on common groupings of request (eg, blood test request for electrolytes, urea, creatinine: the 'EUC' flag) or of individual tests (eg, HbA$_{1c}$) where appropriate. Requests for isolated tests that were already covered by a common relevant group flag were assigned to that flag (eg, blood test request for 'creatinine' was assigned to the 'EUC' flag). Test requests that had non-specific entries such as 'serology' or 'histology' were grouped broadly as recorded.

Non-overlap of 95% confidence intervals

We consider a statistically significant difference between comparable groups exists when 95% CIs do not overlap,[49] or when otherwise formally tested. However, some of these differences may be due to random variation or bias (false positive). Conversely, some true differences may not be flagged (false negative). Statistically significant differences are not necessarily clinically significant.

Weighting

Weighting is a process of adjusting results from a sample survey to infer results for the in-scope total population. To do this, a weight is allocated to each sample unit, for example, a patient or an encounter. The weight is a value that indicates how many population units are represented by the sample unit. As MedicineInsight data is more robust at the patient level than at the encounter level, and as we have access to relevant MBS patient reference data, we chose to weight to national MBS data regarding patients who have each had at least one MBS-billed GP encounter in the 2020–21 financial year (Table A1.2). The procedure is detailed below.

GPIR cohort and MBS reference population

Table A1.2   GPIR cohort and MBS reference population definitions

GPIR 2020–21 patient cohort	Includes all patients with at least one clinical encounter, with a GP, recorded at a MedicineInsight general practice site in 2020–21 financial year.
MBS 2020–21 patient population	Includes all patients with at least one MBS-billed GP attendance in 2020–21 financial year. MBS encounters were defined by the Medicare claim groups listed in Table A1.3.

The broad type of service (BTOS) codes used to define the MBS population are shown in Table A1.3. The GP consultations included GP non-referred attendances, other non-referred attendances and Enhanced Primary Care services. Practice Nurse and Aboriginal Health Worker services were excluded.

Table A1.3   Medicare claim groups used to define the MBS patient population

BTOS code	BTOS name	Group/sub-group/item
A	Non-referred attendances GP/VR GP	A1, A7 (193,195,197), A11 (597, 599), A18, A22
M	Non-referred attendances – Enhanced Primary Care	A14, A15 (721-758), A17, A20 (subgroup 1)
B	Non-referred attendances – Other	A2, A5, A6, A7 (173), A11 (598, 600), A19, A20 (subgroup 2), A23, A27, A30

BTOS: broad type of service; VR: vocationally registered

Weighting procedure

Due to the differences in sex and PHN distributions between the GPIR cohort and the chosen MBS reference population, and to mitigate potential confounding by age, sex and PHN, results were weighted by age, sex and PHN. This step improved the state, remoteness and SEIFA differences in representativeness.

The formula used to calculate patient weights is described below:

$$w_{patient\ i, age*sex*PHN\ j} = \frac{Reference\ population\ patient\ \%\ in\ [age*sex*PHN]_j}{Sample\ patient\ \%\ in\ [age*sex*PHN]_j}$$

where *'w'* is the weight applied to patient *'i'* from group *'j'* defined by age-sex-PHN; *Reference population %* is the proportion of the MBS patient population within the *'j'* age-sex-PHN group; and *Sample patient %* is the proportion of the MedicineInsight patient cohort within the *'j'* age-sex-PHN group.

All patients included in the GPIR cohort had valid age and sex. The age groups (in years) used for weighting are: 0–9, 10–19, 20–29, 30–39, 40–49, 50–59, 60–69, 70–79, 80–89 and 90+. Patients with indeterminate sex or intersex were included to describe the baseline (unweighted) study population but were excluded from all other analyses due to statistical reasons ie, small cell counts for sex stratification leading to unreliable inference and potential concerns for patient confidentiality.

All patients were assigned to a PHN on the basis of their residential postcode. The exceptions were patients with a missing residential postcode who were reassigned to their practice site postcode.

Data that are not weighted

MedicineInsight is a collection of patient-centred datasets in which we can uniquely identify individual patients within each MedicineInsight 'practice site' (a collection of one or more associated general practices).

GPIR practices within this report were not weighted to a national practice dataset, because (i) a definitive national practice reference dataset is not publicly available and (ii) patients can be linked only to the postcode of their 'practice site', which may occasionally differ from the postcode of some of its constituent practices.

Analyses of the use of telehealth (Chapter 9) and the impact of COVID (Chapter 10 were not weighted as they involved internal comparisons within MedicineInsight practice over time.

Caveats

Although MedicineInsight patients may visit non-MedicineInsight and/or other MedicineInsight practices during the financial year, we estimate, based on MBS patient loyalty data, that there are no more than two extra patient IDs generated on average for every 100 individual patients. It is unlikely that the activities of MedicineInsight patients recorded at non-MedicineInsight practices will become available and no weighting enhancement can address this issue.

While the MBS 2020–21 population of patients with at least one billed GP visit was used as the reference population for weighting, the MedicineInsight cohort may include patients not covered under the MBS (eg, foreign citizens, worker's compensation patients).

Appendix 2. Definitions of variables used in this report

Demographics

Age

To preserve privacy, MedicineInsight does not collect a patient's full date of birth, only year of birth. Age is calculated assuming all patients were born on 1 July of the year of their birth and age calculated as of 1 July 2019. However, patients whose age was calculated to be more than 112 years were not considered valid and were removed from analysis.

Sex

Information on patient sex (male, female, intersex or indeterminate) is extracted from the CIS. However, due to the small number of intersex or indeterminate patients, these patients were not included in analyses conducted from Chapter 3 onwards.

Aboriginal and/or Torres Strait Islander patients

Information on patients' Aboriginal or Torres Strait Islander status is extracted from the CIS and imported into MedicineInsight using the ABS standard classification.[50]

Socioeconomic status

Socio-Economic Indexes for Areas (SEIFA) are assigned to patients and practices based on their postcodes. If patient postcode is missing, socioeconomic status can be reported as missing, or can be inferred from the relevant practice site postcode. SEIFA is determined in accordance with the ABS Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) deciles.[51]

Rurality

Rurality is assigned to both practices and patients based on postcode. If patient postcode is missing, rurality can be reported as missing, or can be inferred from the relevant practice site postcode. Rurality is determined in accordance with the ABS geographical framework 'Remoteness Areas'.[52]

Conditions

There is no consistent national classification system used in general practice to code conditions, and each CIS has its own classification system. MedicineInsight extracts Docle- and Pyefinch-coded and free text data from fields including diagnosis and medical history, the reason for encounter (ie, reason for visit or consultation) and the reason for prescription. To maintain patient confidentiality, we are unable to access or extract information from patient progress notes.

In conjunction with medical, pharmaceutical and clinical coding experts, we have developed coding algorithms to identify conditions and symptoms of interest within the MedicineInsight database, using commonly accepted clinical definitions, terms and synonyms from SNOMED CT-AU.[53,54] Both free text and coded data extracted from the fields listed above are used to identify conditions. Please refer to Appendix 5 for more detailed definitions of conditions used in this report.

While clinicians may record in the CIS whether a condition is 'active' or 'inactive', based on experience from delivering practice reports, it appears that this information is not regularly updated in the CIS, thus may not be reliable. For this analysis, conditions are included whether they are marked 'active' or 'inactive' in the CIS.

When reporting data on conditions 'ever' experienced by patients, one or more conditions have been assigned to each patient if the condition was recorded in at least one of the above-listed fields in any encounter record, including records from 2020–21 and from previous years.

Prescriptions

Prescription data are restricted to medicines prescribed by GPs using their CIS to print the prescription. These prescriptions include medicines that are partly or wholly government rebated from the PBS and RPBS, and also private (non-rebated) prescriptions. Private prescriptions are those paid for entirely by the patient or their private health insurer as they do not meet PBS/RPBS requirements related to the medicine prescribed, its indication for use, the amount supplied or the number of repeats. Prescription data do not necessarily indicate whether a medicine was dispensed or used by the patient. Dispensing data for rebatable medicines are available from the PBS.

Prescription data are available for both 'issued' prescriptions and a stated number of repeats recorded in the CIS. Whenever a new (but not necessarily first-time) prescription is recorded, this is counted as an 'issued' prescription. When reporting the volume of prescriptions, the number of issued prescriptions and the total number of prescriptions, including both issued and repeats, are both used. For example, when a prescription for a medicine with five repeats is entered in the CIS it will be counted once when the analysis focuses on issued prescriptions and will be counted six times when the analysis is for the issued-plus-repeat prescriptions, which we refer to here as the total number of prescriptions.

All medicines recorded, whether by generic or brand name, will be grouped to one of the 14 categories of the ATC level 1.

Pathology tests

Most Australian practices receive pathology test results electronically, transferred directly into the CIS from pathology providers. There are three potential sources of pathology information within the CIS – tests requested, result summaries and the associated result details – which are all linked to the patient. This report uses the pathology test result details as not all tests requested are recorded electronically. The result summaries and result details also include data from tests ordered by specialists or doctors outside the practice, when they have requested that a GP receive a copy of a result.

Most of the common pathology test results are recorded using Logical Observation Identifiers Names and Codes (LOINC), and contain the detailed results, often including whether the result is normal or abnormal depending on the normal ranges for that laboratory. Each component of a pathology test result is recorded separately, eg, for a FBC there would be over a dozen separate test results documented, such as white blood cell count, haemoglobin, and so on.

Appendix 3. Exclusion terms for GP clinical encounters

Table A34.1   Summary list of 'visit types' excluded for the purposes of defining a clinical GP encounter

Physio Consultation	Nursing	MBS Session 06/06	ECC Outreach Session
ECC Tertiary Liaison	Nurse consultation	MBS Session 03/06	ATAPs Session 11/12
Administrative (clinical)	Practice Nurse Surgery Consultation	MBS Session 04/06	ATAPs Session 01/06
Allied Health	Practice Nurse Consultation	MBS Session 01/6	ATAPs Session 01/6
Medical Records	Nurse encounter	MBS Session 02/6	ATAPs Session 02/6
Patient Consent	PRACTICE NURSE	MBS Session 07/10	ATAPs Session 03/6
Reception Colleen	Surgery visit – Nurse	MBS Session 05/06	ATAPs Session 04/6
Social Worker	Nursing consultation	MBS Session 03/6	ATAPs Session 05/06
Nurse Consult	Nurse Attendance	MBS Session 08/10	ATAPs Session 05/6
Nursing Consult	Registered Nurse	MBS Session 04/6	ATAPs Session 06/06
Practice Nurse	Nursing Staff consult	MBS Session 05/6	ATAPs Session 06/6
Pathology Recall by RN	Practice Consultation	MBS Session 09/10	ATAPs Session 07/12
Nurse Consultation	Infusion bay – Nurse	MBS Session 10/10	ATAPs Session 08/12
Nursing Visit	Nurse admin	Access Session	ATAPs Session 09/12
Nurse	Tristar Konnect	Engagement Session	ATAPs Session 12/12
Treatment Room - RN	MHIS	Medicare check	ECC Consultation
Nurse Visit	MBS Session 01/06	STEP Session	
Nurse visit	MBS Session 02/06	ECC Session	

Table A3.2   Summary list of 'reasons for encounter' terms excluded (in a single encounter per day, where there were no associated missing or other valid reasons for encounter terms) for the purposes of defining a clinical GP encounter

'aboriginalhealthwork'	'ipsvocationalworker'	'prescriptionnoconsul',
'administrationoffice'	'jvenpeerworker'	'prescriptionrenewaln'
'administrativeproced'	'leftmessage'	'primaryhealthworker'
'ahpaccliasonofficer'	'letterposted'	'psychologist'
'ahpaccworker'	'letterwrittennoconsu'	'recall'
'ain'	'medicalstudent'	'recalladded'
'alliedhealthassistan'	'mentalhealthnurse'	'recallattempt'
'carecoordinator'	'midwife'	'recallcomplete'
'cc'	'nonurgentrecall'	'recallhasbeendealtwi'
'chaperone'	'notesandrecordreview'	'recallpathology'
'chartreview'	'nurse'	'receptionist'
'childhealthworker'	'nurseassistant'	'recordandnotesreview'
'chineseaccesssupport'	'nursepractitioner'	'referralletternocons'
'clinicalservicesmana'	'nursesupportofpatien'	'registerednurse'
'communityhealthworke'	'nursingstudent'	'remindermanagement'
'counsellor'	'occupationaltherapis'	'repeatprescriptionno'
'dermagenconsultant'	'onrecallappointment'	'researchassistant'
'diabeteseducator'	'optometrist'	'researcher'
'didnotattend'	'papremindersent'	'reviewfilenoconsulta'
'dietitian'	'pathologyrequestnoco'	'seniorcasemanager'

'een'	'peerworker'	'socialworker'
'eennurse'	'phonecall'	'telephoneadvice'
'en'	'phonecallfailedattem'	'telephoneconsultatio'
'endorsedenrollednurs'	'phoneresultsconsulta'	'telephoneconversatio'
'enrollednurse'	'physiotherapist'	'telephoneresultscons'
'exercisephysiologist'	'podiatrist'	'triagetelephone'
'failedtoattend'	'practicemanager'	'urgentrecall'
'familyservicesworker'	'practicenurse'	'youthpeerworker'
'filereview'	'practicenurseeen'	
'ftafailedtoattend'	'practicenursern'	

Appendix 4. Condition coding

Patients were defined as having a condition if they had a relevant coded (Docle, Pyefinch) or free text entry recorded in one of the three diagnosis fields ('Diagnosis', 'Reason for visit' or 'Reason for prescription' fields). Relevant terms for each condition are shown below (Table A4.1).

Records identified by a free text string alone are not automatically flagged. Instead, a clinical coder reviews them to determine whether the text string refers to the condition indicated or is present in another context (eg, a search for 'cancer' may identify 'partner died from cancer'). Each record is flagged accordingly. Records indicating 'suspected', 'query' or '?' records of the condition were not flagged as the condition, unless otherwise specified.

Table A4.1   Condition coding

Condition	
Anxiety disorder	Includes: adjustment disorder with anxiety, adjustment disorder with mixed anxiety and depressed mood, anxiety, anxiety (generalised or neurosis or phobia or PTSD or social), anxiety disorder, anxiety with panic attacks, anxiety/depression, depressive anxiety disorder, GAD, generalised anxiety disorder, mixed anxiety depression, nervous anxiety, neurotic anxiety, phobic anxiety disorder, social anxiety disorder, social phobia or substance induced anxiety disorder.
	Excludes (when recorded in isolation): anxiety feeling, adjustment disorder, (parental or performance or separation) anxiety, neurosis, OCD, PTSD, phobias or panic disorders
Asthma	Includes: allergic asthma, allergy induced asthma, asthma, asthma action plan, asthma care plan, asthma cycle of care, asthma exacerbation, asthma review, exercise induced asthma, exertional asthma, occupational asthma, Samter's triad or thunderstorm asthma.
	Excludes (when recorded in isolation): wheezy bronchitis
Atrial fibrillation	Includes: AF, A FIB, atrial f, atrial fibrillation, atrial fibrillation (isolated episode or paroxysmal or ablation or non-valvular or valvular), fibrillation or rapid atrial fibrillation
Bipolar disorder	Includes: bipolar, bipolar disorder, bipolar (affective or spectrum) disorder, bipolar (1 or 2) disorder, manic depressive or manic depressive (illness or psychosis)
Breast cancer	Includes: breast (adenocarcinoma or cancer or carcinoma), breast ca, (colloid or intraductal or lobular) carcinoma, DCIS, disseminated peritoneal adenocarcinoma, ductal carcinoma(in situ or infiltrating), infiltrating lobular carcinoma of breast, lobular ca, lobular carcinoma in-situ, mammary carcinoma, mucinous cystadenocarcinoma, Paget's disease of breast, peritoneal mucinous carcinomatosis, pseudomyxoma peritonei or signet ring cell carcinoma of breast
Cardiovascular disease	Includes: atherosclerosis, coronary heart disease (including myocardial infarction and angina), peripheral vascular disease, stroke and transient ischaemic attack.
Chronic kidney disease	Includes: anaemia - chronic renal failure, capd, catheterisation of peritoneum, chronic kidney disease or CKD (all stages), chronic renal disease (all stages), chronic renal failure, chronic renal failure – hyperparathyroidism, chronic renal insufficiency, continuous ambulatory peritoneal dialysis, CRF, dialysis, haemodialysis, hemodialysis, peritoneal catherisation for dialysis, peritoneal dialysis renal dialysis or surgery - abdomen - dialysis - catheterisation
Coeliac disease	Includes: coeliac disease, gluten enteropathy, intractable coeliac sprue, refractory sprue, (celiac or ceoliac or coeliac)
Colorectal cancer	Includes: (adenocarcinoma or cancer or carcinoma) and (bowel or colon or colonic or rectal or rectum), Ca (bowel or colon or rectum)

Condition	
COPD	Includes: acute exacerbation of copd, cal, chronic airways limitation, chronic bronchitis, chronic obstructive airways disease, chronic obstructive pulmonary disease, coad, copd, emphysema
Dementia	Includes: alzh, alzheimer disease, behavioural and psychological symptoms of dementia, binswanger (disease or encephalopathy), demen, dementia, (early onset or frontotemporal or jakob creutzfeldt or korsakoff or lewy-body or multi infarct or pick or semantic or subcortical or substance-induced or vascular or young onset) dementia, major neurocognitive disorder due to alzheimer disease, parkinson disease with lewy body dementia, psychosis (korsakoff or dementia related), senile dementia with psychosis, subcortical arteriosclerotic encephalopathy
Depression	Includes: adjustment disorder with depressed +/- anxious mood, anxiety/depression, depres, depression, (endogenous or major or melancholic or minor or non melancholic or organic or postnatal or psychotic or reactive or recurrent or subsyndromal) depression or depressive disorder or depressive episode, melancholia
Dermatitis/eczema	Includes (allergic or asteatotic or atopic or chronic or contact or discoid or dyshidrotic or exfoliative or infantile or infected or nummular or varicose or venous) eczema, atopic dermatitis, autoeczematisation, dyshidrosis, eczema, eczema craquele, flexural eczema, gravitational eczema, pompholyx, pompholyx eczema, psoriatic eczema
Diabetes (type 1)	Includes: diabetes mellitus (iddm or type I or type 1), iddm, insulin dependent diabetes mellitus, juvenile onset diabetes
Diabetes (type 2/NOS)	Includes: diabetes, diabetes (controlled or cortisone induced or unstable), diabetes mellitus, diabetes mellitus (niddm, or type ii or type 2 or type 3c), latent autoimmune diabetes of adults, niddm, non insulin dependent diabetes mellitus, pancreatogenic diabetes, t2dm, t11, tii
Diabetes (gestational)	Includes: gestational (diabetes or diabetes mellitus)
Dyslipidaemia	Includes: dyslipidaemia, dyslip, familial (hypercholesterolaemia or hypercholesterolemia), hdl, high cholesterol, high cholest, high lipids, hypercholesterolaemia, hyperlipidaemia, hyperlipoproteinaemia (type 2 or type iv or type iia), hypertriglyceridaemia, hypercho, hyperlip, hypertr
GORD	Includes: acid reflux, acid regurgitation, gastro-oesophageal reflux, gor, gord, heartburn, laryngopharyngeal reflux, non-erosive reflux disease, oesophageal reflux, reflux laringitis, reflux oesophagitis
Heart failure	Includes: acute cardiac failure, biventricular heart failure, cardiac failure, CCF, chronic heart failure, congestive cardiac failure, congestive heart failure, cor pulmonale, diastolic cardiac dysfunction, diastolic heart failure, heart failure, HFmrEF, HFpEF, HFrEF, Hhgh output cardiac failure, high output heart failure, hypertensive heart failure, left heart failure, left ventricular failure, LHF (left heart failure), LVF (left ventricular failure), pulmonary oedema, RHF (right heart failure), right heart failure, right ventricular failure, RVF (right ventricular failure), systolic cardiac dysfunction, systolic heart failure, ventricular diastolic dysfunction
Hepatitis B	Includes: hepatitis B, hepatitis B (carrier or infection or resolved), hep B
Hepatitis C	Includes: hepatitis C, hepatitis C (carrier or chronic or infection or eradicated or treatment), hep C
Hypertension	Includes: antihypertensive agent prescription, (blood pressure or bp) and (labile or review or unstable), hbp, high blood pressure, ht, hypertension, hypertension (controlled or diastolic or essential or isolated systolic or labile or life style management or malignant or pregnancy or primary or renal or renovascular or review or unstable), pih, pregnancy induced hypertension or severe refractory hypertension

Condition	
Low back pain	Includes: back (ache or injury or muscle strain or pain or spasm or strain), back and buttock pain, back and leg pain, back pain, back pain (acute or acute on chronic or buttock or degenerative spine or leg or lumbar or lumbo-sacral or sacral or radiating to buttock or radiating to leg), back pain syndrome, back pain with (radiculopathy or referred leg pain) back pain without leg pain, degenerative lumbar disc disease, foraminal stenosis, lumbar, intervertebral disc prolapse , disc prolapse, nerve root compression, loin pain, low back injury, low back pain, low back strain, lumbago, lumbar back (injury or muscle strain or pain or prolapse), lumbar (radiculopathy or spondylosis or lumbar sprain), lumbosacral back pain, lumbosacral spondylosis, lumbosacral stenosis, mechanical back pain, mechanical low back pain, mononeuropathy - sciatic nerve, sacral spinal pain, sacro-iliac joint pain, sciatic (mononeuropathy or pain), sciatica, spinal disc protrusion, spinal pain, strained back
Lung cancer	Includes: bronchogenic carcinoma, cancer of the lung, carcinoma lung (adenocarcinoma or carcinoma or alveolar cello or large cell or small cell or squamous cell), carcinoma of the lung, cystic mesenchymal hamartoma, lung (adenocarcinoma or cancer), mesenchymal cystic hamartoma, pleuropulmonary blastoma, pneumoblastoma, pulmonary rhabdomyosarcoma
Melanoma	Includes: dermal melanocytoma, dysplastic nevus melanoma syndrome, excision of malignant melanoma, hutchinsons melanotic freckle (hmf), melanofibroma, melanoma, melanoma (acral or acral lentiginous or amelanotic or benign mesenchymal or check or choroidal or desmoplastic or in-situ or invasive or in situ or juvenile or lentigo maligna or metastatic or nodular or prepubertal or retinal or review or spitzoid or subungual or superficial spreading or [wider and deeper excision]), re-excision of malignant melanoma, wide re-excision of malignant melanoma
Migraine	Includes: antimigraine prescription, botox treatment for migraine, cluster headache, migraine, migraine aura, migraineur or vascular headache
Osteoarthritis	Includes: aneurysm-osteoarthritis syndrome, ankylosing spondylitis, generalised osteoarthritis, oa, osteoarthritis, osteoarthritis (ankle or cervical spine or elbow or fingers or foot or glenohumeral joint or hands or hip or knee or lumbar spine or midfoot or neck or patellofemoral joint or sacroiliac joints or shoulder or spine or sternoclavicular joint or thoracic spine or tmj or wrist or 1st carpometacarpal joint or osteoarthritis of 1st metatarsophalangeal joint), osteoarthrosis (hip or knee), spondylosis, wear and tear arthritis
Osteoporosis	Includes: osteoporosis, osteoporosis (corticosteroid induced or no fracture or with fracture or disuse or steroid induced), pathological fracture due to osteoporosis, post menopausal osteoporosis, steroid osteopathy
Otitis media	Includes: bullous myringitis, ear effusion, glue ear, middle ear infection, myringitis (bullosa or viral), otitis media, recurrent otitis media, viral myringitis
Prostate cancer	Includes: prostate or prostatic (adenocarcinoma or ca or cancer or carcinoma or carcinosarcoma), (family history or FH) of prostate cancer, signet ring cell carcinoma of prostate
Rheumatic heart disease	Includes; heart disease (post-streptococcal or rheumatic), post streptococcal (heart or valve) disease, rheumatic (heart disease or myocarditis or pancarditis or valve disease)
Rheumatoid arthritis	Includes: arthritis (juvenile rheumatoid or rheumatoid or seronegative), caplan syndrome, jra, lipoid dermatoarthritis, lipoid rheumatism, multicentric reticulohistiocytosis, RA, rheumatoid arthritis – pneumoconiosis, seronegative rheumatoid arthritis, stills disease
Schizophrenia	Includes: (borderline or brief or brief reactive or catatonic or chronic or disorganised or hebephrenic or para or paranoid) schizophrenia, personality disorder (schizoid or schizotypal), residual schizophrenia, schizoaffective disorder, schizophrenia, schizophreniform disorder, undifferentiated schizophrenia

Condition	
Skin cancer	Includes: basal cell carcinoma, basal cell carcinoma (infiltrative or micronodular or morphoeic or nodular or perineural invasion or pigmented or superficial), BCC, rodent ulcer, SCC, squamous cell carcinoma, screening - for skin cancer, skin cancer, skin cancer (checkup or screening), skin cancer in-situ Excludes: melanoma
Skin infections/scabies	Includes: skin (abcess or athletes foot or bacterial or boils or carbuncle or cellulitis or erysipelas or fungal or furuncle or gangrene or infection or impetigo or molloscum or pustule or pyoderma or ringworm or scabies or sores or staph or strep tinea or viral). Excludes acne and pediculosis
Stroke	Includes: cerebral (haemorrhage or infarction), cerebrovascular accident, cva, haemorrhage intracerebral, haemorrhagic (cva or stroke), intracerebral (bleed or haemorrhage or haemorrhage), ischaemic stroke, lacunar infarct, lacunar stroke, migrainous stroke, migranous stroke, stroke, thrombotic stroke, visual cortex stroke

Appendix 5. Glossary and abbreviations

Term	Definition	Description
95% CI	95% confidence interval	A 95% confidence interval provides information about a range of values that should contain the actual rate 95% of the time (95 times out of 100), as well as information on the direction and strength of the demonstrated effect. Wider confidence intervals reflect less certainty in the estimate of the rate. Confidence intervals enable conclusions to be drawn about the statistical plausibility and clinical relevance of findings.
ABS	Australian Bureau of Statistics	Australia's national statistical agency, providing official statistics on a wide range of economic, social, population and environmental matters of importance to Australia.
ABS National Health Survey (NHS)	Australian Bureau of Statistics National Health Survey	The National Health Survey is designed to collect a range of information about the health of Australians, including: • prevalence of long-term health conditions • health risk factors such as smoking, overweight and obesity, alcohol consumption and exercise • demographic and socioeconomic characteristics.
ACCHS	Aboriginal Community Controlled Health Service	
ACE inhibitor	angiotensin-converting enzyme inhibitor	
ACSQHC	Australian Commission on Safety and Quality in Health Care	This commission is responsible for leading and coordinating national improvements in safety and quality in health care.
ACT	Australian Capital Territory	
ADHD	Attention deficit hyperactivity disorder	
ALT	alanine aminotransferase test	
AIHW	Australian Institute of Health and Welfare	National agency that provides regular information and statistics on Australia's health and welfare.
AMT	Australian Medicines Terminology	A national, standards-based approach to the identification and naming of medicines in clinical systems for Australia.
ASGS	Australian Standard Geographical Classification	Used from 2011 by the Australian Bureau of Statistics (ABS) to calculate geographical statistics. We use ASGS in this report to calculate rurality based on postcode (categorised as in major cities, inner regional, outer regional, remote and very remote areas).
ATC	Anatomical Therapeutic Chemical Classification	System used to classify medicines into groups according to certain characteristics.
AURA	Antimicrobial Use and Resistance in Australia	A national surveillance system for antimicrobial use and resistance in Australia.
Average		Measurement of the 'central' or 'typical' value of a set of values. It is the result obtained by adding together several values and dividing this total by the number of values.
BMI	body mass index	A measure of weight in relation to height.
BP	Best Practice	Clinical management software for GPs.
BTOS	broad terms of service	
CDMP	chronic disease management plan	

Term	Definition	Description
CI	confidence interval	A range of values that's likely to include a population value with a certain degree of confidence.
CIS	clinical information system	A generic term to describe one of several Australian national general practice software programs used by GPs to store patient/consultation/ prescription data (of which Best Practice and Medical Director are two examples).
Condition	An illness or abnormality that interferes with a person's usual activities or wellbeing.	
CKD	chronic kidney disease	
COPD	chronic obstructive pulmonary disease	
COVID	coronavirus	
CVD	cardiovascular disease	A collective term for diseases of the heart and blood vessels.
DVA	Department of Veterans' Affairs (Australia)	Federal department responsible for delivering government programs for war veterans, defence force and federal police members and their dependents.
eGFR	estimated glomerular filtration rate	
FBC	full blood count	
g/L	grams per litre	
GORD	gastro-oesophageal reflux disease	
GP	general practitioner	
GPIR	General Practice Insights Report	
HbA$_{1c}$	glycated haemoglobin	
HDL	high-density lipoprotein	
INR	International Normalised Ratio	A laboratory measurement of how long it takes blood to form a clot.
IRSAD	Index of Relative Socio-Economic Advantage and Disadvantage	A measure of the economic and social conditions of people and households within an area, including both relative advantage and disadvantage.
LDL	low-density lipoprotein	
LFT	liver function test	
LOINC	Logical Observation Identifiers Names and Codes	A universal code system for reporting laboratory and other clinical observations
MBS	Medicare Benefits Schedule	
Median		The number separating the upper and lower half of a sample of values.
MD	MedicalDirector 3	Clinical management software for GPs.
mUI/L	milli-international units per litre	
MMM	Modified Monash Model	An alternative classification of defining whether a location is a city, rural, remote or very remote.
mmol/mol	millimoles per mole	
NCTS	National Clinical Terminology Service	Agency responsible for managing, developing and distributing national clinical terminologies and related tools and services to support the digital health requirements of the Australian healthcare community.
nmol/L	nanomoles per litre	

Term	Definition	Description
NSW	New South Wales	
NT	Northern Territory	
PBS	Pharmaceutical Benefits Schedule	Program providing subsidised prescription medicines to Australians.
PHN	Primary Health Network	
Practice site		The unit of data collection corresponding to either one practice or to several practices that share the same clinical system database. Practices combined into one site are typically under common administration or operating in the same geographical area.
QLD	Queensland	
RACGP	Royal Australian College of General Practitioners	
Rate		Measure or ratio of how two factors are associated with one another; eg, a proportion of patients with a condition.
RFE	reason for encounter	
RPBS	Repatriation Pharmaceutical Benefits Scheme	Program providing subsidised prescription medicines to Australian veterans and their families
SA	South Australia	
SAS	Statistical Analysis Software	Statistical software program.
SEIFA	Socio-Economic Indexes for Areas	An indication of the relative socioeconomic wellbeing of an area. Calculated by ABS index of relative socioeconomic advantage and disadvantage.
SNOMED-CT-AU	Systematized Nomenclature of Medicine – Clinical Terms – Australia	A standardised healthcare terminology including comprehensive coverage of diseases, clinical findings, therapies, procedures and outcomes used in electronic health records.
TAS	Tasmania	
TSH	thyroid stimulating hormone	
UEC	urea electrolytes and creatinine	This test is a measure of kidney function.
U/L	units per litre	
VIC	Victoria	
WA	Western Australia	

Appendix 6. COVID-19 restrictions 2021

On 11 March 2020, the World Health Organization declared COVID-19 a world pandemic and Australia implemented a nationwide lockdown on 23 March, with different restrictions in place. These restrictions began to ease across the country between late April and May 2020.

In 2020, Victoria was placed in Stage 3 'Stay at Home' restrictions from:

▷ 8 July 2020 reinstated and it did not end until 27 October.

South Australia also implemented a circuit breaker lockdown between

▷ 19 and 22 November 2020.

There were multiple localised lockdowns in Australia throughout 2021, a series of state- and territory-based lockdowns took place, including:

▷ 8–11 January Queensland lockdown
▷ 31 January – 5 February Western Australia lockdown
▷ 12–17 February Victoria lockdown
▷ 29 March – 1 April Queensland lockdown
▷ 24–27 April Western Australia lockdown
▷ 27 May – 10 June Victoria lockdown
▷ 26 June – 2 July Northern Territory lockdown
▷ 26 June – 11 October New South Wales lockdown
▷ 12 August – 14 October Australian Capital Territory lockdown
▷ 5 August – 21 October the 6th lockdown in Victoria
▷ 29 June – 3 July Western Australia lockdown
▷ 29 June – 2 July Queensland lockdown
▷ 20–28 July South Australia lockdown
▷ 31 July – 11 August Queensland lockdown
▷ 15–27 July Victoria lockdown
▷ 8–11 August Queensland lockdown
▷ 16–20 August Northern Territory lockdown
▷ 15–18 October Tasmania lockdown
▷ 5–9 November Northern Territory lockdown
▷ 15 November – into 2022 – Northern Territory localised lockdowns

Please note that during these periods, lockdowns were often localised to specific outbreak areas within states.