MedicineInsight

General practice insights report

July 2019– June 2020

Including analysis related to the impact of COVID-19

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FOREWORD

Over the last year or so, catastrophic bushfires and the COVID-19 pandemic have changed the day-to-day lives of all Australians, including the ways that patients seek and receive health care. Through it all, general practice has continued to provide regular ongoing care for all.

Every year, the NPS MedicineWise General Practice Insights Report provides a snapshot of what happens when a patient visits their general practitioner (GP). Once again, this year's report highlights the important role primary care plays in the management of chronic illness and mental health. However, this year the report also explores the impact the pandemic has had upon the day-to-day provision of care.

Practices adapted quickly to the introduction of telehealth consultations and patients consulted their GPs more often in 2020 than in 2019. Patients were less likely to present with acute infections but more likely to present with acute anxiety as the pandemic persisted. Flu vaccine rates doubled. Prescribing rates for medicines for chronic conditions jumped substantially at the start of the pandemic as GPs ensured patients would have sufficient medicines prior to the first lockdowns. In short, the report highlights the remarkable response of GPs and patients to challenging and unique circumstances and we hope it helps policymakers and others understand the impact of events of the past 18 months.

This report has been a collaborative effort with the Department of Health (DoH), the Royal Australian College of General Practitioners (RACGP), the Australian Bureau of Statistics (ABS), the Australian Institute of Health and Welfare (AIHW) and academic general practitioners. We appreciate their support and the efforts of NPS MedicineWise staff in producing this report.

We thank all the patients, general practices and general practice staff whose data make this report possible. We hope that this document provides patients, GPs, policymakers and researchers with an accurate picture of the enormous amount of work undertaken in primary care and enhances understanding of primary health.

Katherine Burchfield

CEO, NPS MedicineWise

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AT A GLANCE

The data

The GPIR uses 2019–20 data from:

- 406 general practice sites, comprised of 458 individual general practices
- 4026 unique GP providers
- 2,470,950 patients with 13,312,048 clinical encounters
- almost 10 million issued prescriptions and 31.6 million total prescriptions (issued plus repeats)
- just over 60 million recorded pathology test results.

Condition management in 2019–20

- To estimate GP workload, using diagnoses recorded in 2019–20 as a minimum and the patient's entire medical history as a maximum, of every 100 GP clinical encounters[A] during 2019–20:
    - 11 to 29 were with patients with a history of hypertension
    - 9 to 24 were with patients with a history of depression
    - 9 to 22 were with patients with a history of anxiety disorder
    - 8 to 27 were with patients with a history of low back pain
    - 8 to 23 were with patients with a history of gastro-oesophageal reflux disease (GORD)
    - 5 to 23 were with patients with a history of dyslipidaemia
    - 5 to 16 were with patients with a history of asthma
    - 5 to 12 were with patients with a history of type 2 diabetes
    - 2 to 9 were with patients with a history of non-melanoma skin cancer
    - 1 to 2 were with patients with a history of dementia
    - up to 1 was with a patient with a history of coeliac disease.

Prescribing and testing in 2019–20

- GPs issued 73 prescriptions for every 100 GP clinical encounters during 2019–20.
- Medicines for the nervous system (ATC N), which include the analgesics and psychotropic medicines, accounted for the largest proportion of issued prescriptions (27.7%).
- Cardiovascular medicines (ATC C) accounted for the largest proportion of total prescriptions (issued plus repeats; 31.0%).
- Approximately 2 in 5 patients (41.2%) had at least one pathology test recorded in 2019–20.

Impact of COVID-19 and telehealth

- Patients visited their general practices more often during the COVID-19 pandemic in 2020 than in 2019, probably due to the introduction of telehealth consultations.
- Telehealth consultations accounted for 29.3% of all consultations from March to December 2020.
- At the beginning of the pandemic, medical testing rates and prescribing of medicines for chronic conditions fell sharply but returned to pre-pandemic levels from mid-2020.
- Prescribing rates for medicines for acute conditions such as antibiotics and oral prednisone remained significantly lower throughout the pandemic. This was consistent with a fall in presentations of flu-like illness and acute upper respiratory tract infections during the pandemic.

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

EXECUTIVE SUMMARY

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

This report has been funded by the DoH with advice from representatives of general practice, DoH, academia, Australian Bureau of Statistics (ABS), Royal Australian College of General Practitioners (RACGP), and the Australian Institute of Health and Welfare (AIHW).

This year, the General Practice Insights Report (GPIR) 2019–20 provides the following:

- an overview of care provided to patients by GPs working in general practice during financial year 2019–20, including pathology testing and prescribing of medicines
- patient prevalence of selected conditions
- information on the uptake of MBS items for telehealth consultations between March and December 2020
- information on the impact of the COVID-19 pandemic.

Practices, providers and patients

This report includes nationwide data from 458 general practices and 4026 GPs. This corresponds to 5.6% of all Australian general practices and 10.7% of all Australian GPs. The distribution of these GPs between state and territories is similar to that seen for GPs nationally.

Approximately 2.47 million patients were seen at least once by GPs in the participating practices during 2019–20. This represents 11.1% of all patients seen by GPs nationally. MedicineInsight patients were similar in age, sex and socioeconomic status when compared with Medicare Benefits Schedule (MBS) data on all Australians visiting their GPs during 2019–20.

Encounters

During 2019–20 there were 13.3 million GP clinical encounters[B] recorded in eligible MedicineInsight practices. The average number of GP clinical encounters per patient during 2019–20 was 5.4.

Telehealth consultations

In response to the COVID-19 pandemic, new MBS items were introduced in March 2020 allowing patients to use telehealth services instead of face-to-face consultations. Of the 8.6 million MBS consultation items recorded in MedicineInsight practices from March to December 2020, 70.7% were face-to-face and 29.3% were telehealth consultations. More than 95% of all telehealth consultations were undertaken by telephone rather than by video.

Face-to-face MBS consultations in March to December 2020 were lower than in the same months in 2019. However, when telehealth MBS consultations were included, the number of all MBS billed consultations was 11% higher in March to December 2020 than in the same months of 2019.

There was a rapid increase in the use of telehealth MBS items after their introduction. After the initial peak, patterns of telehealth use varied across different states and territories. A substantial increase in use occurred in Victoria during the second wave of COVID-19. Smaller corresponding peaks were seen in NSW and Queensland but not in other states. An increase in use in SA corresponded with a small COVID-19 outbreak in November 2020.

[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.

Non-communicable diseases

As in previous reports, hypertension was the most common selected condition recorded during 2019–20 for patients seen by GPs in MedicineInsight practices (5.8% of patients). Other commonly recorded conditions were anxiety disorder (5.0% of patients), depression (4.8% of patients) and low back pain (3.9%).

Patient condition prevalence in 2019–20 was explored by identifying patients who were recorded as having a particular condition at any time before or during 2019–20. Hypertension was the most prevalent of the selected non-communicable conditions in that year, 15.7% of patients, followed by low back pain (14.8%) and depression (14.3%). The patient prevalence of three new conditions included in this report was 4.3% for non-melanoma skin cancer, 1.2% for melanoma and 0.4% for coeliac disease.

Patients with schizophrenia and bipolar disorder ever recorded in their medical record had the highest average number of clinical encounters during 2019–20, at 11.6 and 10.4 respectively. The average number of clinical encounters in 2019–20 for patients with depression or anxiety disorder was 8 per patient.

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 2019–20, on average:

- 11 were with a patient with hypertension recorded during the year (ie, a recent record) and 29 were with a patient with hypertension ever recorded in the medical record
- 9 were with a patient with a recent record of depression and 24 were with a patient with depression ever recorded
- 9 were with a patient with a recent record of anxiety disorder and 21 were with a patient with anxiety disorder ever recorded
- 8 were with a patient with a recent record of low back pain and 26 were with a patient with low back pain ever recorded.

Patients with a history of schizophrenia, bipolar disorder, heart failure, chronic kidney disease (CKD), osteoporosis or chronic obstructive pulmonary disease (COPD) had on average at least 10 clinical encounters during 2019–20, double that of the general population (5.4 per patient).

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 includes all prescriptions that are generated as a result of an issued prescription, including repeats.

In 2019–20, almost 9.9 million issued prescriptions and 31.5 million total prescriptions with unique Anatomical Therapeutic Chemical (ATC) codes were written by GPs in MedicineInsight practices. Two thirds of MedicineInsight patients were prescribed a medicine at least once. Another 30.7% of patients only had one or two prescriptions issued but 6.2% of patients had 15 or more issued prescriptions.

The average number of issued prescriptions recorded per patient was 3.9 while the average number of total (issued plus repeat) prescriptions recorded per patient was 12.2. The average number of prescriptions per patient increased with age and with socioeconomic disadvantage, consistent with higher disease burdens in these populations. On average, every 100 GP clinical encounters result in 72.9 issued prescriptions and 231.1 total prescriptions.

Medicines to treat the nervous system (ATC N; antidepressants, analgesics, antiepileptics) were the most commonly issued prescriptions but cardiovascular medicines (ATC C; lipid-modifying medicines, antihypertensives) were the most commonly prescribed total prescriptions. Opioids (N02A) accounted

[C] Note: conditions are not linked directly to GP clinical encounters but to patients.

for 10.1% of all issued prescriptions while lipid-lowering medicines (C10A) accounted for 9.6% of 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 (84.4%) 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 and 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, 41.2% of patients had at least one atomised test result recorded in 2019–20 and there were just over 60 million atomised pathology test results recorded. Rates of testing increased with age and were higher for women that for men. Patients in the top 10% of tested patients were more likely to have chronic conditions.

Using haemoglobin, creatinine and alanine aminotransferase as proxy measures, of patients aged 20 years or older, 40.1% had an FBC, 40.1% a kidney function test and 39.1% a liver function test (LFT), respectively.

The proportion of patients who had at least one test result that fell outside the relevant reference range[D] at least once during the year was examined. There was no attempt to collect information on follow-up tests or the conditions diagnosed for these patients and 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, 52.2% had at least one result which 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 had a result that fell outside the reference range
- just under a third of patients (31.6%) who had a vitamin D test had a result that fell outside the reference range.

Risk factors

Recording of smoking status has improved slightly. In 2019–20, 84.5% of patients had their smoking status recorded at least once in their medical history (ie, ever recorded), compared with 82.9% in 2017–18.

Alcohol use had been recorded at least once in their medical history for 27.4% of patients over 18 years of age.

In the 24-month period from 1 July 2018 to 30 June 2020, body mass index (BMI) or both height and weight was recorded for 34.9% of patients of all ages. Weight was recorded for 43.0% of patients of all ages.

Some GPs may record information on 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.

COVID-19

During the pandemic, patients visited their general practices (in person or virtually) more regularly than in 2019. The average patient visited their practice 5.2 times during 2019 compared with 5.7 times in

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

2020. This increase in the frequency of clinical encounters was seen regardless of sex, age, socioeconomic status or remoteness. The one exception was in children aged 0–9 years who visited the general practice less frequently, possibly due to reduced transmissions of childhood illnesses as a result of restrictions on social movement.

Presentation rates for acute upper respiratory tract infections more than halved during the pandemic but presentations for anxiety increased slightly in the second half of 2020.

Monthly prescribing rates of medicines for many chronic conditions (cardiovascular, diabetes and respiratory medicines and antidepressants) increased rapidly during March 2020 as patients ensured they had adequate supplies of their medicines ahead of the first lockdown. However, prescribing for medicines for chronic conditions was similar to pre-pandemic levels from June 2020 onwards. In contrast, prescribing rates for beta-lactam antibiotics and oral prednisone were significantly lower throughout the pandemic period. Influenza vaccine rates peaked higher and earlier in 2020 than in 2019, corresponding with government messaging for Australians to get their flu vaccines early during the pandemic.

Test requests and receipt of pathology results per 1000 clinical encounters fell sharply in March and April 2020, corresponding to the first national lockdowns.

1. INTRODUCTION

1.1. Aims and objectives

The General Practice Insights Report (GPIR) 2019–20 provides an overview of the key features of general practice patients and activity in Australia for the period 1 July 2019 to 30 June 2020.

In addition, the report compares general practice activity in the 2019 and 2020 calendar years to explore the impact of the COVID-19 pandemic and the 2019–20 bushfires on a state-by-state basis.

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 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 uptake of telehealth consultations
- information on selected common non-communicable and mental health conditions
- the provision of services such as pathology testing and prescribing
- the impact of COVID-19 and the 2019–20 bushfires on key aspects of general practice activity.

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 2019–20.

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 visit despite continuing to actively manage the condition. Therefore, relying solely on diagnoses recorded during 2019–20 may underestimate the prevalence of conditions that are currently 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 for 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 2019–20 is a way to describe both 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 (DoH)
- Royal Australian College of General Practitioners (RACGP)
- Australian Institute of Health and Welfare (AIHW)
- Australian Bureau of Statistics (ABS)
- academia and consumers.

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 DoH, 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 DoH to support quality use of health technologies for 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 in Appendix 2 and 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, general practitioners 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.

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

- This report collected data from 458 general practices and 4026 GPs during 2018–19. This represents 5.6% of general practices and 10.7% of GPs nationally.
- Approximately 2.47 million patients were seen at least once by GPs in the participating practices. This represents 11.1% 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 2019–20.
- 2.9% of MedicineInsight patients were recorded as being of Aboriginal or Torres Strait Islander background. Information on Aboriginal and Torres Strait Islander status was missing for 19.7% of MedicineInsight patients.

This chapter describes:

- the characteristics of the general practices in the cohort, compared to all practices nationally, including:
  - the number of practices within each practice site
  - the distribution of practices in the cohort and all practices nationally
  - percentage of practices covered by state, rurality, and PHN
- the distribution of GP providers in the cohort and all providers nationally by state and rurality
- the characteristics of the patient cohort, compared to all patients nationally, including:
  - the distribution of patients in the cohort and all patients nationally, and
  - percentage of patients by sociodemographic characteristics and location.

2.1. General practice sites

MedicineInsight extracts data from two general practice CISs – Best Practice (BP) and MedicalDirector (MD). 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. Patient electronic files from each general practice are amalgamated within the site's CIS, and it is not possible for MedicineInsight to distinguish within a site which general practice a specific patient's record comes from.

Data are included for 458 general practices from 406 general practice sites, representing 5.6% of all practices nationally (Table 2.1).

TABLE 2.1 GENERAL PRACTICES AND GENERAL PRACTICE SITES, MEDICINEINSIGHT 2019–20

Number of general practices within each site	General practice sites		Total number of general practices
	No.	%	
1	371	91.4	371
2	27	6.7	54
3	3	0.7	9
4 or more	5	1.2	24
Total	**406**	**100**	**458**

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 (18.8% coverage) and the Hunter New England and Central Coast PHN (19.7% 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 2019–20, COMPARED TO NATIONAL DATA, 2019

General practice location	MedicineInsight 2019–20		National practices 2019[a]		% coverage of MedicineInsight practices
Australian total	458		8147		5.6
	No.	% practices	No.	% practices	%
State/Territory					
ACT	10	2.2	109	1.3	9.2
NSW	166	36.2	2800	34.4	5.9
NT	8	1.8	161	2.0	5.0
QLD	98	21.4	1629	20.0	6.0
SA	11	2.4	542	6.7	2.0
TAS	32	7.0	170	2.1	18.8
VIC	81	17.7	1985	24.4	4.1
WA	52	11.4	751	9.2	6.9
Rurality[b]					
Major city	269	58.7	5503	68.2	4.9
Inner regional	108	23.6	1396	17.3	7.7
Outer regional	66	14.4	779	9.7	8.5
Remote/very remote	15	3.3	379	4.7	4.0
Modified Monash Model[c]					
Metropolitan (MM1)	271	59.2	5666	69.5	4.8
Regional centre (MM2)	75	16.4	650	8.0	11.5
Large rural town (MM3)	36	7.9	530	6.5	6.8
Medium rural town (MM4)	23	5.0	361	4.4	6.4
Small rural town (MM5)	38	8.3	614	7.5	6.2
Remote/very remote communities (MM6–7)	15	3.3	331	4.1	4.5

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[1]. Due to COVID-19 resource constraints, the DoH was not able to provide the number of general practices for 2020.
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=8152) were collected using Health Map (https://healthmap.com.au/) in April 2021 and so differ slightly from the Australian total reported in Report on Government Services.

TABLE 2.3 GEOGRAPHICAL REPRESENTATION OF MEDICINEINSIGHT GENERAL PRACTICES 2019–20 BY PHN, COMPARED TO NATIONAL DATA 2020

General practice location	MedicineInsight 2019–20		National practices 2019[a]		% coverage of MedicineInsight practices
	No.	% practices	No.	% practices	%
Australian Capital Territory					
Australian Capital Territory	10	2.2	110	1.3	9.1
New South Wales					
Central and Eastern Sydney	15	3.3	579	7.0	2.6
Hunter New England and Central Coast	81	17.7	411	5.0	19.7
Murrumbidgee	< 5	< 1	86	1.0	< 5
Nepean Blue Mountains	7	1.5	133	1.6	5.3
North Coast	13	2.8	191	2.3	6.8
Northern Sydney	10	2.2	286	3.5	3.5
South Eastern NSW	14	3.1	204	2.5	6.9
South Western Sydney	9	2.0	415	5.0	2.2
Western NSW	< 5	< 1	126	1.5	< 5
Western Sydney	11	2.4	330	4.0	3.3
Northern Territory					
Northern Territory	8	1.8	118	1.4	6.8
Queensland					
Brisbane North	17	3.7	338	4.1	5.0
Brisbane South	17	3.7	346	4.2	4.9
Central Queensland, Wide Bay, Sunshine Coast	25	5.5	283	3.4	8.8
Darling Downs and West Moreton	10	2.2	176	2.1	5.7
Gold Coast	12	2.6	216	2.6	5.6
Northern Queensland	17	3.7	235	2.9	7.2
Western Queensland	0	-	60	0.7	0.0
South Australia					
Adelaide	10	2.2	362	4.4	2.8
Country SA	< 5	< 1	180	2.2	< 5
Tasmania					
Tasmania	32	7.0	167	2.0	19.2
Victoria					
Eastern Melbourne	14	3.1	451	5.5	3.1
Gippsland	< 5	< 1	100	1.2	< 5
Murray	10	2.2	205	2.5	4.9
North Western Melbourne	36	7.9	558	6.8	6.5
South Eastern Melbourne	12	2.6	592	7.2	2.0
Western Victoria	6	1.3	216	2.6	2.8

General practice location	MedicineInsight 2019–20		National practices 2019[a]		% coverage of MedicineInsight practices
Western Australia					
Country WA	15	3.3	203	2.5	7.4
Perth North	19	4.2	272	3.3	7.0
Perth South	18	3.9	274	3.3	6.6

a The Report on Government Services does not report on practice numbers by PHN. Practice numbers by PHN have been collected using Health Map in April 2021 and so differ slightly from the Australian total reported in Report on Government Services.

2.2. GP providers

There were 4026 unique GP providers in MedicineInsight for 2019–20, representing 10.7% 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 (29.8%), and the lowest in SA (3.0%). Most MedicineInsight GPs were based in major cities (61.9%), but this proportion is lower than the proportion observed in the national data (72.9%).

TABLE 2.4 GEOGRAPHICAL DISTRIBUTION OF MEDICINEINSIGHT GPS COMPARED TO NATIONAL DATA, 2018–19

GP location	MedicineInsight GPs 2019–20		National GPs 2018–19[a]		% coverage of MedicineInsight GPs
Australian total	**4026**		**37,642**		**10.7**
	No.	**%**	**No.**	**%**	
State/Territory					
ACT	108	2.7	593	1.6	18.2
NSW	1470	36.5	11,516	30.6	12.8
NT	45	1.1	493	1.3	9.1
QLD	818	20.3	8167	21.7	10.0
SA	85	2.1	2794	7.4	3.0
TAS	281	7.0	944	2.5	29.8
VIC	780	19.4	9240	24.5	8.4
WA	439	10.9	3895	10.3	11.3
Remoteness (16 missing)					
Major city	2480	61.9	27,448[b]	72.9	9.0
Inner regional	943	23.5	8617[b]	22.9	10.9
Outer regional	494	12.3	4201[b]	11.2	11.8
Remote	93	2.3	2264[b]	6.0	4.1

a Australian Government Department of Health. General Practice Primary Care Statistics – 2014-15 to 2018–19: Canberra: DoH, 2020.
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 2.47 million patients eligible for inclusion in this report, representing 11.1% of all patients who visited a GP in 2019–20. MedicineInsight patients are broadly similar when compared to national MBS information for patients who visited a GP during 2019–20, in terms of age, sex and socioeconomic status (Table 2.5).

Aboriginal and Torres Strait Islander status was missing for 19.7% 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 (54.7%). Women between the ages of 20 and 39 years account for the largest proportion of MedicineInsight patients (Figure 2.1). Only 0.02% 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 (5.5%) 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 (21.0%) compared with national data (12.3%) (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 Appendix 6.

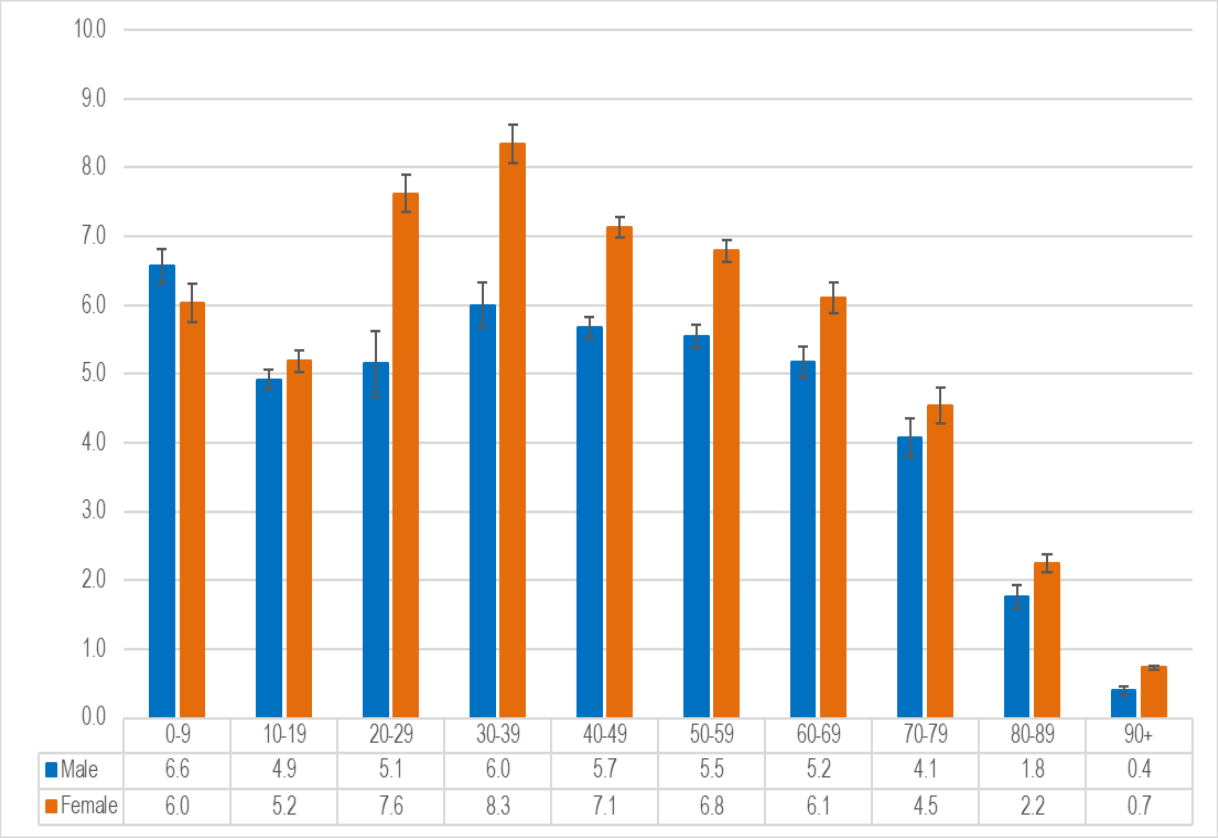
TABLE 2.5 SOCIODEMOGRAPHIC DISTRIBUTION OF MEDICINEINSIGHT PATIENTS 2019–20 (UNWEIGHTED) COMPARED TO MBS NATIONAL DATA, 2019–20

Patient sociodemographic characteristic	MedicineInsight patients 2019–20		Australian national data (MBS)[a] 2019–20		% coverage of MedicineInsight patients
	No.	%	No.	%	%
TOTAL	**2,470,950**		**22,178,760**		**11.1**
Sex					
Male	1,118,331	45.3	10,583,503	47.7	10.6
Female	1,352,189	54.7	11,595,257	52.3	11.7
Other	430	0.02	-	-	-
Age group (years)					
0–9	311,321	12.6	2,763,081	12.5	11.3
10–19	249,761	10.1	2,419,160	10.9	10.3
20–29	315,654	12.8	2,646,230	11.9	11.9
30–39	354,687	14.4	3,117,218	14.1	11.4
40–49	316,399	12.8	2,914,753	13.1	10.9
50–59	304,725	12.3	2,843,363	12.8	10.7
60–69	278,798	11.3	2,558,260	11.5	10.9
70–79	212,725	8.6	1,841,556	8.3	11.6
80–89	99,141	4.0	864,260	3.9	11.5
90+	27,739	1.1	210,879	1.0	13.2
Aboriginal and Torres Strait Islander status[b]					
Aboriginal and/or Torres Strait Islander	72,603	2.9	-	2.9	-
Neither Aboriginal nor Torres Strait Islander	1,912,595	77.4	-	97.1	-
Not recorded	485,752	19.7	-	-	-
State/Territory					
ACT	74,059	3.0	372,196	1.7	19.9
NSW	949,693	38.4	7,090,958	32.0	13.4
NT	38,312	1.6	187,140	0.8	20.5
QLD	481,701	19.5	4,509,281	20.3	10.7

Patient sociodemographic characteristic	MedicineInsight patients 2019–20		Australian national data (MBS)[a] 2019–20		% coverage of MedicineInsight patients
	No.	%	No.	%	%
SA	52,805	2.1	1,551,787	7.0	3.4
TAS	135,719	5.5	467,265	2.1	29.0
VIC	456,714	18.5	5,700,158	25.7	8.0
WA	281,947	11.4	2,299,975	10.4	12.3
Rurality					
Major city	1,657,124	67.1	15,888,344	71.6	10.4
Inner regional	517,978	21.0	2,737,905	12.3	18.9
Outer regional	253,346	10.3	2,707,665	12.2	9.4
Remote/very remote	42,502	1.7	841,681	3.8	5.0
Missing	-	-	2546	-	-
Socioeconomic status (SEIFA IRSAD quintile)					
1 (most disadvantaged)	373,878	15.1	3,467,086	15.6	10.8
2	427,639	17.3	3,563,822	16.1	12.0
3	549,432	22.2	4,378,392	19.7	12.5
4	528,015	21.4	4,626,996	20.9	11.4
5 (most advantaged)	591,986	23.9	6,135,506	27.7	9.6
Missing	-	-	6958	-	-
Concession cards					
Health care card (non-veteran)[c]	676,230	31.7	6,915,637[2]	-	9.8
Veteran health card	5721	0.3	189,248[3]	-	3.0
Non-concessional patient	1,454,343	68.1	-	-	-
Not recorded	334,656	-	-	-	-

a MBS data from DoH
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 [4]
c Includes Health Care Card, Pensioner Concession Card and Commonwealth Seniors Health Card

FIGURE 2.1 AGE AND SEX DISTRIBUTION OF MEDICINEINSIGHT PATIENTS, 2019–20* (UNWEIGHTED)



	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+
Male	6.6	4.9	5.1	6.0	5.7	5.5	5.2	4.1	1.8	0.4
Female	6.0	5.2	7.6	8.3	7.1	6.8	6.1	4.5	2.2	0.7

*Excludes 430 patients with indeterminate sex

3. ENCOUNTERS

In summary

- During 2019–20 there were 13.3 million clinical encounters with GPs recorded in the 458 eligible MedicineInsight practices.
- The average number of GP clinical encounters per patient in 2019–20 was 5.4.
- More than half of the patients (53.2%) had 1–3 GP clinical encounters during the year.
- Female patients attend general practices more often than male patients in most age groups.
- Of the 8.6 million GP consultation services billed to the MBS between March and December 2020, 2.5 million (29.3%) were telehealth services. There was a rapid rise in the uptake of telehealth MBS items after their introduction in March 2020.
- Almost all telehealth services were provided by telephone rather than video.
- After the initial peak, patterns of telehealth use varied across different states and territories. A substantial increase in use occurred in Victoria during the second wave of COVID-19. Smaller corresponding peaks were seen in NSW and Queensland but not in other states. An increase in use in SA corresponds with a small COVID-19 outbreak in November 2020.
- The number of MBS items billed for mental health treatment plans appears to have increased, possibly due an increased need during the bushfire and pandemic periods.

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

- number of encounters per patient for encounters in the cohort and all encounters nationally
- average number of encounters per patient for encounters in the cohort and all encounters nationally, grouped by sex, age, state, rurality, and socioeconomic status
- average number of encounters by age and sex, and by socioeconomic status and sex
- proportion of encounters by age group, compared to encounters nationally
- proportion of encounters according to reason for encounter.

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.

NPS MedicineWise has developed an algorithm 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 2019–20 are used, even if associated with an administrative encounter.

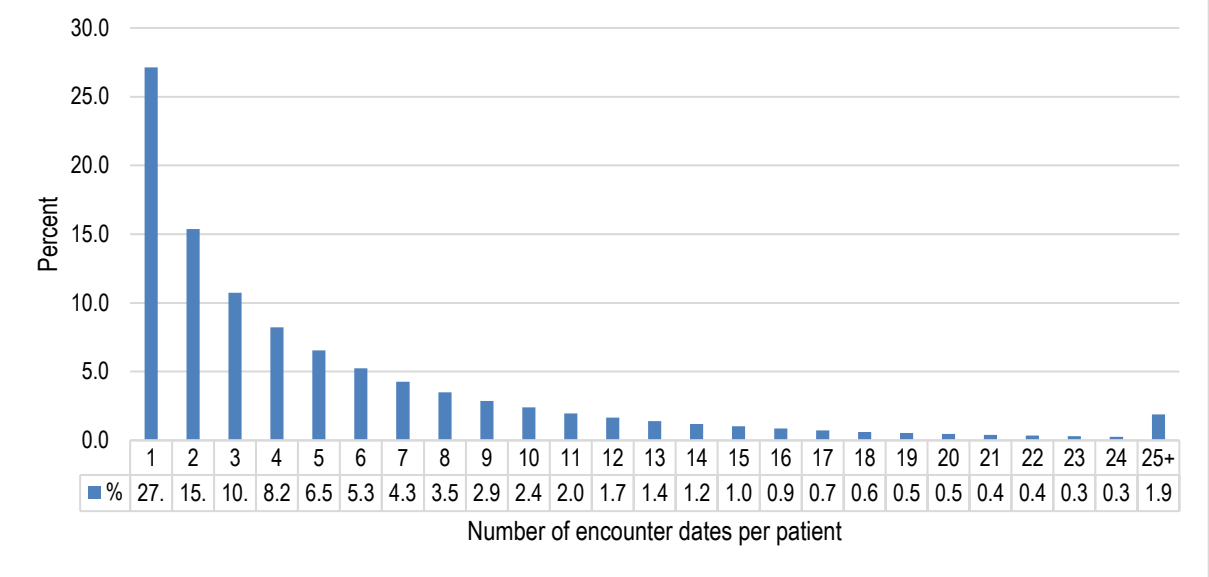
3.1. GP clinical encounter rate per patient

There were 13,312,048 GP clinical encounters recorded in MedicineInsight in 2019–20 for 2.47 million patients. Each patient had an average of 5.4 GP clinical encounters during the year (Table 3.1). This is slightly higher than the 5.1 encounters per year reported in the 2018–19 report.

More than half of the patients (53.2%) had 1–3 GP clinical encounters during the year. Just over 10% of patients had 12 or more clinical encounters over the year (Figure 3.1).

[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.

FIGURE 3.1 FREQUENCY DISTRIBUTION OF THE NUMBER OF GP CLINICAL ENCOUNTERS PER PATIENT (UNWEIGHTED), MEDICINEINSIGHT 2019–20



Patient loyalty data provided by the DoH 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 1.6% of patients in the cohort have two or more unique patient ID numbers, as a result of visiting more than one MedicineInsight practice site.

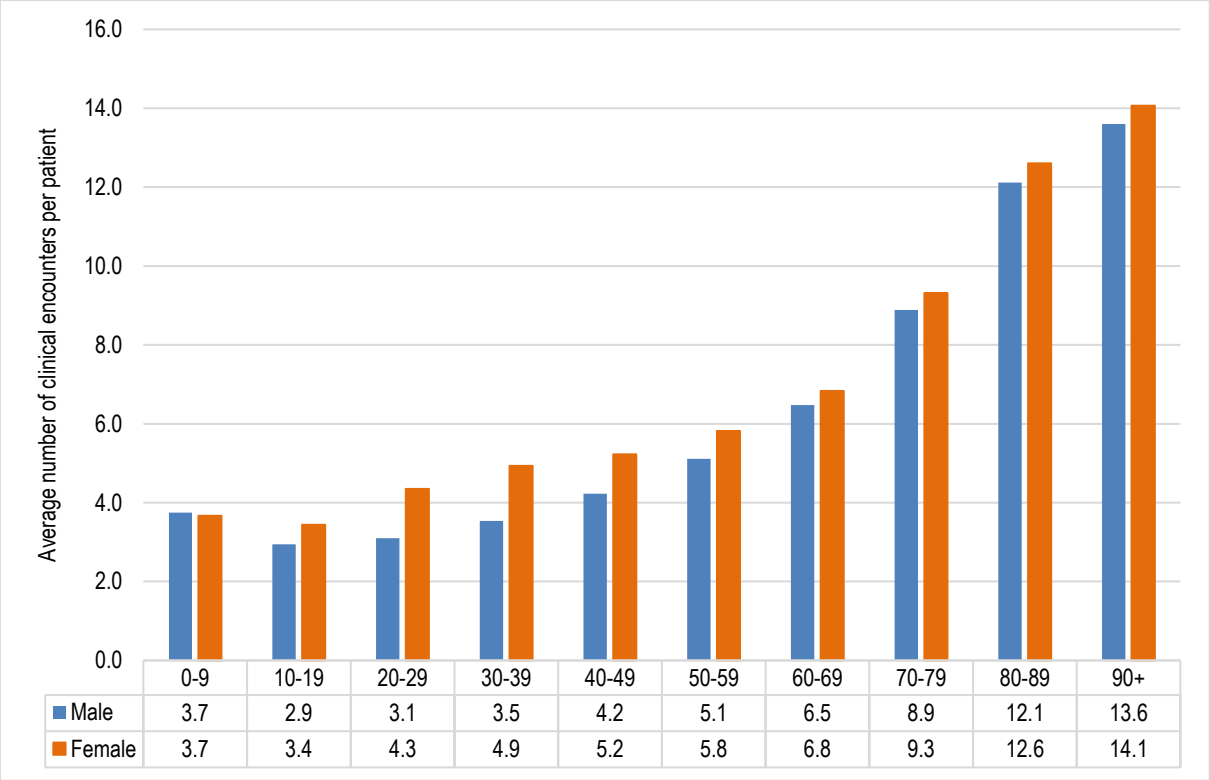
TABLE 3.1 AVERAGE NUMBER OF GP CLINICAL ENCOUNTERS PER PATIENT BY SOCIODEMOGRAPHIC CHARACTERISTIC IN MEDICINEINSIGHT 2019–20 (UNWEIGHTED) COMPARED TO MBS NATIONAL DATA,[A] 2019–20

Patient characteristic	MedicineInsight average number of encounters per patient	95% CI	MBS average number of encounters per patient[a]
All patients[b]	**5.4**	**(5.3, 5.5)**	**7.1**
Sex			
Male	5.0	(4.9, 5.1)	6.4
Female	5.7	(5.6, 5.9)	7.8
Age group (years)			
0–9	3.7	(3.6, 3.8)	5.3
10–19	3.2	(3.1, 3.2)	4.1
20–29	3.8	(3.7, 4.0)	6.0
30–39	4.4	(4.3, 4.4)	6.3
40–49	4.8	(4.7, 4.9)	6.5
50–59	5.5	(5.4, 5.6)	7.1
60–69	6.7	(6.5, 6.8)	8.4
70–79	9.1	(8.9, 9.3)	11.1
80–89	12.4	(12.0, 12.7)	14.7
90+	13.9	(13.3, 14.5)	17.0
State/Territory			
ACT	5.0	(4.6, 5.3)	5.8
NSW	5.3	(5.1, 5.5)	7.3
NT	5.0	(4.1, 5.9)	5.7
QLD	5.3	(5.1, 5.5)	7.2
SA	5.9	(5.3, 6.4)	7.1
TAS	6.4	(5.9, 6.9)	6.5
VIC	5.5	(5.2, 5.7)	7.2
WA	5.1	(4.8, 5.5)	6.5
Rurality			
Major city	5.2	(5.1, 5.3)	7.2
Inner regional	5.9	(5.7, 6.1)	7.0
Outer regional	5.7	(5.4, 6.1)	6.7
Remote/very remote	4.3	(3.7, 4.9)	6.0
Socioeconomic status (SEIFA IRSAD quintile)			
1 (most disadvantaged)	6.1	(5.9, 6.4)	7.7
2	5.5	(5.2, 5.7)	7.3
3	5.5	(5.3, 5.7)	7.2
4	5.1	(5.0, 5.3)	7.1
5 (most advantaged)	5.0	(4.8, 5.1)	6.5

a National encounters are based upon MBS data from Australian Government DoH Total GP Non-Referred Attendances (Broad Type of Service codes A, M and B) excluding services provided by practice nurses and Aboriginal health workers 2019–20.
b 430 patients of indeterminate sex are not included in this table or for the rest of the report.

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 both girls and boys attended the practice an average of 3.7 times during the year. The average number of encounters per year significantly increases with age to 13.9 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).

FIGURE 3.2 AVERAGE NUMBER OF GP CLINICAL ENCOUNTERS PER PATIENT BY SEX AND AGE GROUP (UNWEIGHTED), MEDICINEINSIGHT 2019–20

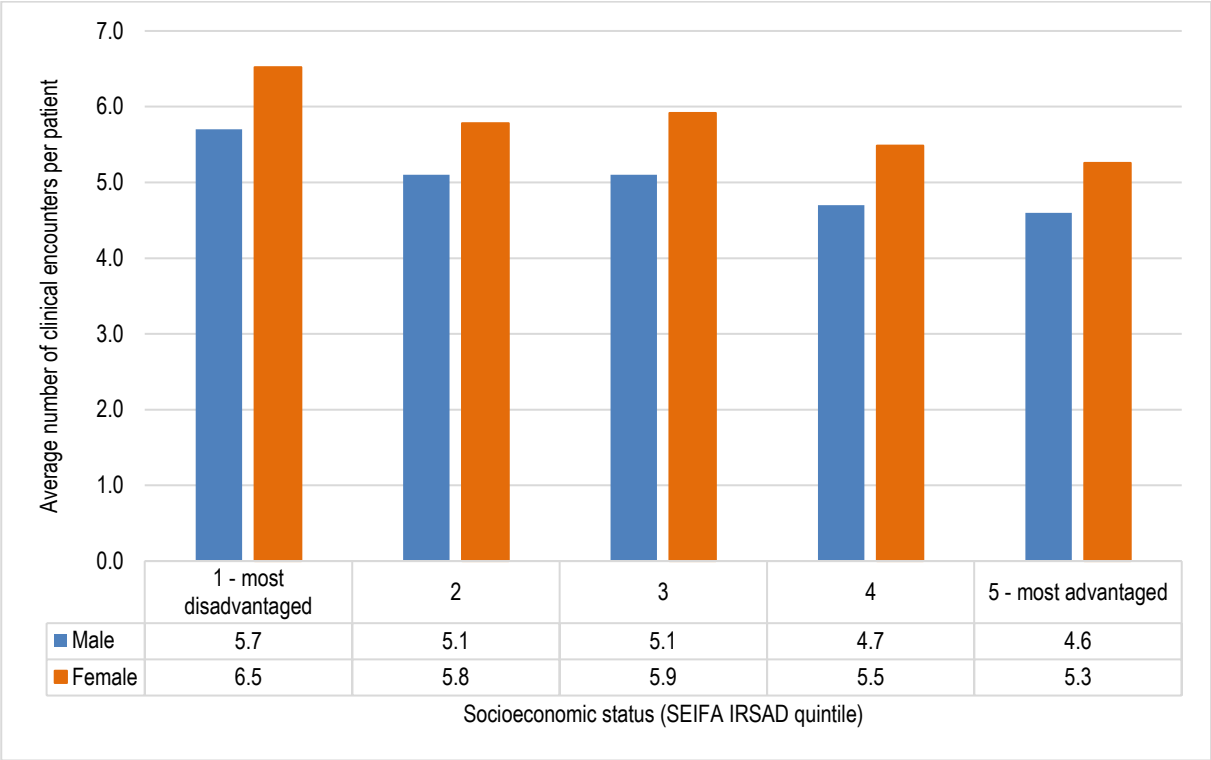


	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+
Male	3.7	2.9	3.1	3.5	4.2	5.1	6.5	8.9	12.1	13.6
Female	3.7	3.4	4.3	4.9	5.2	5.8	6.8	9.3	12.6	14.1

Encounter rates were similar between most states. However, Tasmanians visited their general practices significantly more often than patients in most of the other states. 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).

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

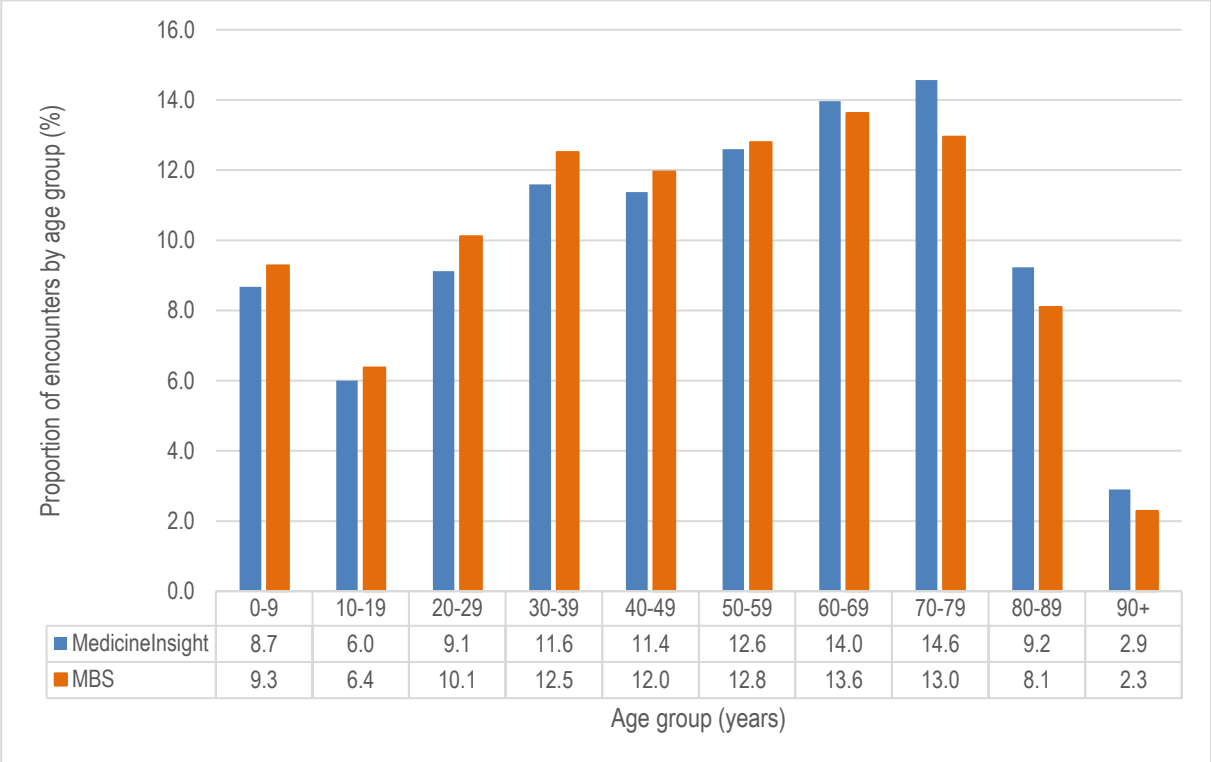
FIGURE 3.3 AVERAGE NUMBER OF GP CLINICAL ENCOUNTERS PER PATIENT BY SEIFA QUINTILE AND SEX (UNWEIGHTED), MEDICINEINSIGHT 2019–20



	1 - most disadvantaged	2	3	4	5 - most advantaged
Male	5.7	5.1	5.1	4.7	4.6
Female	6.5	5.8	5.9	5.5	5.3

The distribution of encounters by age groups 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. From age 20 until 69, the number of encounters rose again before falling again in the oldest age groups.

FIGURE 3.4 DISTRIBUTION OF GP CLINICAL ENCOUNTERS BY PATIENT AGE GROUP IN MEDICINEINSIGHT (UNWEIGHTED) COMPARED TO MBS NATIONAL DATA, 2019–20



	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+
MedicineInsight	8.7	6.0	9.1	11.6	11.4	12.6	14.0	14.6	9.2	2.9
MBS	9.3	6.4	10.1	12.5	12.0	12.8	13.6	13.0	8.1	2.3

3.2. Telehealth consultations

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 addition, prior restrictions limiting the use of telehealth consultations to non-metropolitan patients were lifted.[1, 2] GPs were able to use the new MBS telehealth items immediately but after 20 July 2020 the GP had to already have an established clinical relationship with the patient.

This section of the report investigates the use of face-to-face and telehealth MBS items in MedicineInsight practices after their introduction.

3.2.1. Methods

The practices and clinical encounters included in this analysis differ from those included in section 3.1. This is because:

- the study period is March 2020 to December 2020, not financial year 2019–20.
- MBS item numbers (Table 3.2) are used to identify clinical encounters, not the MedicineInsight algorithm. This allowed easy categorisation of telehealth encounters and face-to-face encounters.
- MBS billing information is not received from all participating general practices. This is because some general practices have billing systems which are separate from their CISs.

The information included in this analysis is from 341 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 MBS items of particular relevance to GPs that were recorded as having been finalised were included in this analysis. They have been categorised as shown in Table 3.2. Telehealth MBS items claimed by other health professionals (specialists, allied health) and urgent after-hours MBS items are excluded. MBS items for eating disorders and health assessments for Aboriginal and Torres Strait Islander patients have been excluded due to concerns that the numbers of these items would be too low to preserve patient privacy.

All geographical comparisons are based upon the postcode of the practice, not the patient.

TABLE 3.2: MBS BILLING ITEMS FOR STANDARD AND TELEHEALTH CONSULTATIONS

	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
Chronic disease management plan	721, 723, 729,731 and 732 229, 230, 231, 232, 233	92024, 92025, 92026, 92027, 92028, 92055, 92056, 92057, 92058, 92059	92068, 92069, 92070, 92071, 92072, 92099, 92100, 92101, 92102, 92103
Mental health treatment plan (excluding eating disorder item numbers)	2700, 2701, 2712, 2713, 2715 and 2717 272, 276, 277, 279, 281 and 282	92112, 92113, 92114, 92115, 92116, 92117, 92118, 92119, 92120, 92121, 92122, 92123	92124, 92125, 92126, 92127, 92128, 92129, 92130, 92131, 92132, 92133, 92134, 92135
Focussed psychological strategies	2721, 2725, 2729 and 2731 283, 286, 371 and 372	91818, 91819, 91820, 91821	91842, 91843, 91844, 91845
All services	All of the above	All of the above	All of the above

3.2.2. Absolute number of GP telehealth MBS items

Of the 8.6 million finalised MBS items recorded in MedicineInsight practices from March to December 2020, 70.7% were face-to-face MBS items (Table 3.3). Telehealth MBS items accounted for 29.3% of all recorded MBS consultation items.

For context, the number of face-to-face MBS items for GP consultations during the same time period in 2019 is also shown in Table 3.3. As expected, the number of face-to-face MBS consultations in 2020 was lower than in 2019. However, when telehealth MBS consultations were included, the number of all billed consultations was 11% higher in 2020 than in 2019.

TABLE 3.3 NUMBER AND PROPORTION OF MBS BILLED ENCOUNTERS THAT WERE TELEHEALTH CONSULTATIONS, MARCH 2020 TO DECEMBER 2020

	Number of face-to-face MBS items Mar–Dec 2019	All MBS billed items Mar–Dec 2020	Number of face-to-face MBS items Mar–Dec 2020		Number of telehealth MBS items Mar–Dec 2020	
	Number	Number	Number	%	Number	%
Standard GP attendance	6,888,522	7,683,455	5,391,095	70.2	2,292,360	29.8
Chronic disease management plan	629,055	686,691	514,341	74.9	172,350	25.1
Mental health treatment plan (excluding eating disorders)	219,191	233,055	176,184	75.6	56,871	24.4
Focussed psychological strategies	1604	2191	1339	61.1	852	38.9
All services	7,738,372	8,605,392	6,082,959	70.7	2,522,433	29.3

3.2.3. Number of billed MBS items by month

Table 3.4 and Figure 3.5 show the recorded number of all included face-to-face and telehealth MBS items on a monthly basis from March to December 2020. Figure 3.5 also shows the number of face-to-face MBS items billed by MedicineInsight practices for each corresponding month in 2019.

While the number of face-to-face billed MBS items fell overall in 2020, telehealth MBS items increased. There was rapid uptake of telehealth items after their introduction in March 2020. Telehealth MBS items accounted for 39.4% of all recorded MBS items reported in MedicineInsight practices in April 2020. There was another increase in use in July 2020, probably driven by the second wave of infections in Victoria. However, the proportion of recorded MBS telehealth items fell to 23.0% in December 2020. The pattern seen in MedicineInsight practices is similar to that seen in analyses using national MBS statistics. AIHW reported that the proportion of telehealth GP consultations billed to the MBS per month ranged from 36% at the beginning of the pandemic period to 25% at the end of 2020.[5]

Table 3.4 and Figure 3.6 show the recorded number of MBS billed items for chronic disease management plans. There was a rapid rise in the use of telehealth MBS items soon after their introduction, at the expense of face-to-face items. However, use of telehealth MBS items plateaued in May and fell steadily until December 2020. In contrast, use of face-to-face chronic disease management plans rose again to almost the same levels seen in March 2020.

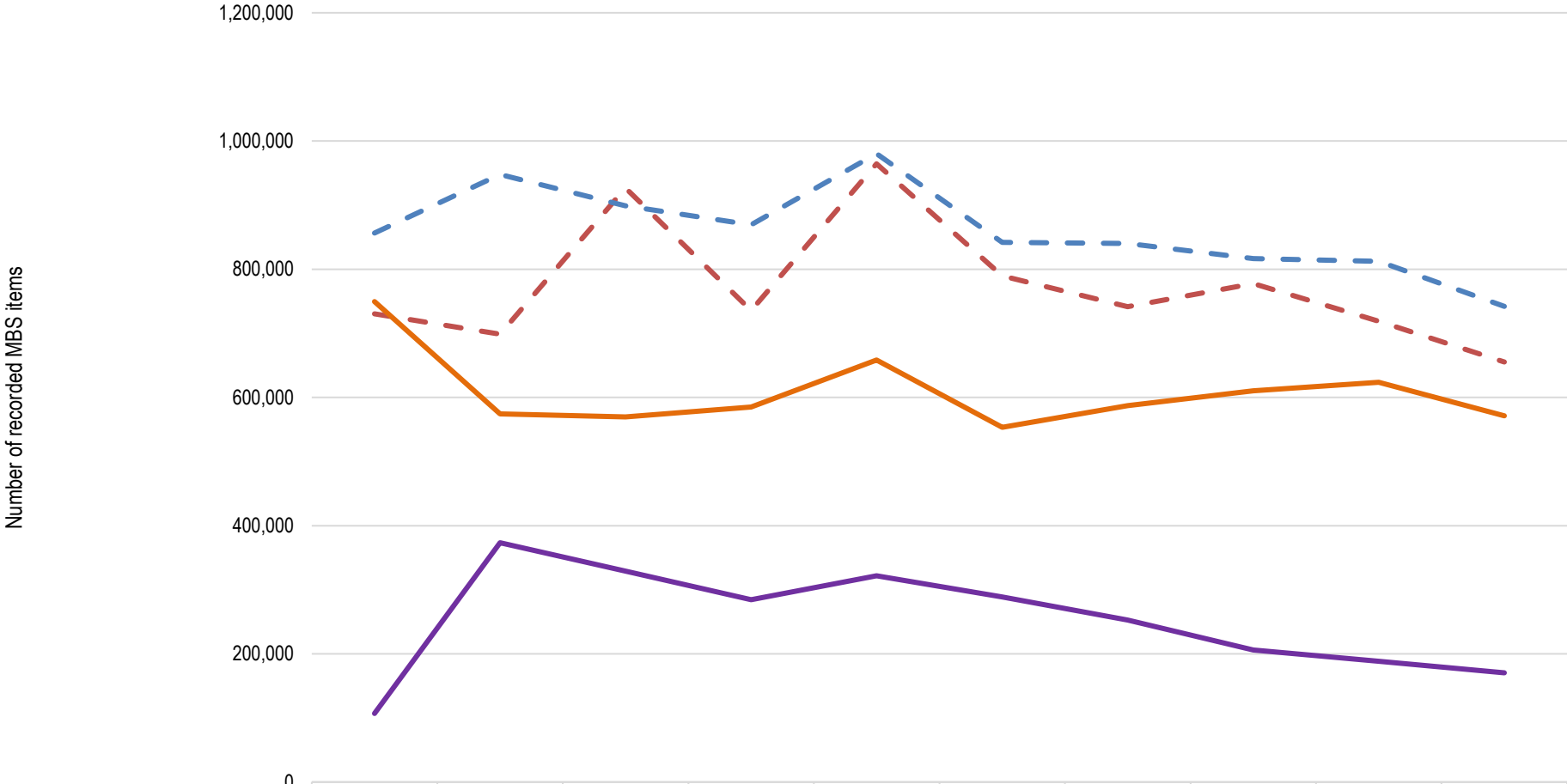
The recorded numbers of MBS billed items for mental health consultations and mental health treatment plans are presented in Table 3.4 and Figure 3.7. Overall, rates of billing for mental health treatment plan MBS items appear to have increased. The total number of MBS items for these services was highest in July 2020, which was during the peak of the second wave in Victoria. This is consistent with data reporting an increase in reported mental health problems among Australians due

to the impact of the COVID-19 pandemic.[6-8] It may also reflect higher use of plans for people adversely affected by the 2019–20 bushfire season. While the use of the telehealth MBS items has fallen from the peak observed in April 2020, it may be that the introduction of telehealth items for mental health treatment plans has improved access to care for the historically underserved population of patients with mental illness.[9]

TABLE 3.4 NUMBER OF FACE-TO-FACE AND TELEHEALTH MBS BILLED ITEMS PER MONTH, MARCH TO DECEMBER 2020

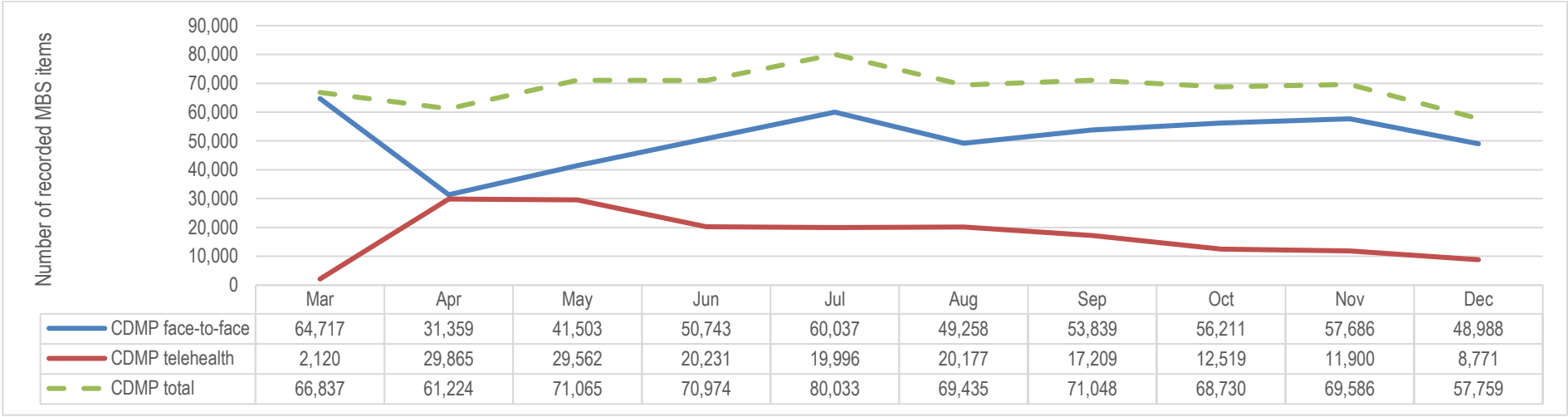
Type of MBS item		March	April	May	June	July	August	September	October	November	December
Standard GP attendance	Face-to-face	664,109 (86.5)	534,133 (61.5)	513,691 (63.9)	515,219 (66.7)	577,479 (66.2)	485,703 (65.0)	514,677 (69.2)	534,028 (73.9)	545,481 (76.0)	506,575 (76.1)
	Telehealth	104,058 (13.5)	334,123 (38.5)	290,682 (36.1)	257,593 (33.3)	295,394 (33.8)	261,434 (35.0)	229,318 (30.8)	188,377 (26.1)	172,550 (24.0)	158,831 (23.9)
Chronic disease management plan (CDMP)	Face-to-face	64,717 (96.8)	31,359 (51.2)	41,503 (58.4)	50,743 (71.5)	60,037 (75.0)	49,258 (70.9)	53,839 (75.8)	56,211 (81.8)	57,686 (82.9)	48,988 (84.8)
	Telehealth	2,120 (3.2)	29,865 (48.8)	29,562 (41.6)	20,231 (28.5)	19,996 (25.0)	20,177 (29.1)	17,209 (24.2)	12,519 (18.2)	11,900 (17.1)	8,771 (15.2)
Mental health treatment plan (MHTP)	Face-to-face	20,516 (96.6)	8,873 (49.2)	14,399 (62.1)	18,810 (73.7)	20,691 (76.3)	18,275 (72.7)	18,663 (75.5)	19,989 (79.6)	20,187 (83.1)	15,781 (84.5)
	Telehealth	715 (3.4)	9155 (50.8)	8803 (37.9)	6712 (26.3)	6435 (23.7)	6876 (27.3)	6044 (24.5)	5132 (20.4)	4112 (16.9)	2887 (15.5)
Focussed psychological services	Face-to-face	146 (65.2)	78 (31.2)	102 (43.4)	104 (53.3)	106 (52.7)	129 (64.8)	187 (71.6)	171 (71.5)	167 (83.9)	149 (79.3)
	Telehealth	78 (34.8)	172 (68.8)	133 (56.6)	91 (46.7)	95 (47.3)	70 (35.2)	74 (28.4)	68 (28.5)	32 (16.1)	39 (20.7)
All of the above services	**Face-to-face**	**749,488 (87.5)**	**574,443 (60.6)**	**569,695 (63.4)**	**584,876 (67.3)**	**658,313 (67.2)**	**553,365 (65.7)**	**587,366 (69.9)**	**610,399 (74.8)**	**623,521 (76.8)**	**571,493 (77.0)**
	Telehealth	**106,971 (12.5)**	**373,315 (39.4)**	**329,180 (36.6)**	**284,627 (32.7)**	**321,920 (32.8)**	**288,557 (34.3)**	**252,645 (30.1)**	**206,096 (25.2)**	**188,594 (23.2)**	**170,528 (23.0)**

FIGURE 3.5 NUMBER OF ALL RECORDED MBS BILLED ITEMS PER MONTH, MARCH TO DECEMBER 2020



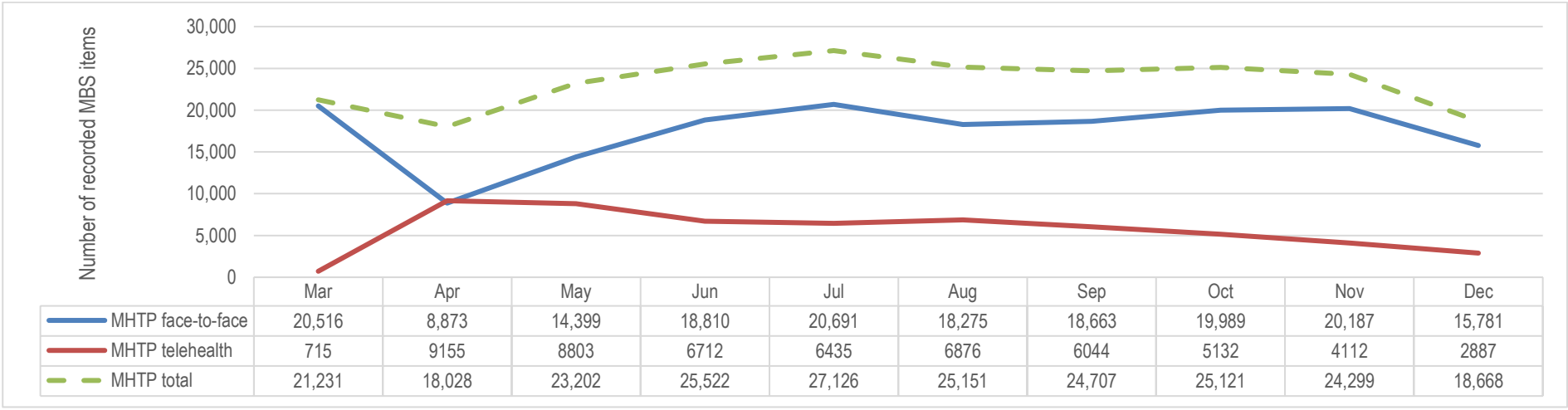
	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec
All services total 2019 (ref)	730,310	698,746	926,685	735,592	964,423	789,360	741,656	777,674	718,671	655,255
All services total 2020	856,459	947,758	898,875	869,503	980,233	841,922	840,011	816,495	812,115	742,021
All services face-to-face 2020	749,488	574,443	569,695	584,876	658,313	553,365	587,366	610,399	623,521	571,493
All services telehealth 2020	106,971	373,315	329,180	284,627	321,920	288,557	252,645	206,096	188,594	170,528

FIGURE 3.6 NUMBER OF FACE-TO-FACE AND TELEHEALTH CHRONIC DISEASE MANAGEMENT PLAN (CDMP) MBS ITEMS, MARCH TO DECEMBER 2020



	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CDMP face-to-face	64,717	31,359	41,503	50,743	60,037	49,258	53,839	56,211	57,686	48,988
CDMP telehealth	2,120	29,865	29,562	20,231	19,996	20,177	17,209	12,519	11,900	8,771
CDMP total	66,837	61,224	71,065	70,974	80,033	69,435	71,048	68,730	69,586	57,759

FIGURE 3.7 NUMBER OF FACE-TO-FACE AND TELEHEALTH MENTAL HEALTH CONSULTATION OR MENTAL HEALTH TREATMENT PLAN (MHTP) MBS ITEMS, MARCH TO DECEMBER 2020



	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MHTP face-to-face	20,516	8,873	14,399	18,810	20,691	18,275	18,663	19,989	20,187	15,781
MHTP telehealth	715	9155	8803	6712	6435	6876	6044	5132	4112	2887
MHTP total	21,231	18,028	23,202	25,522	27,126	25,151	24,707	25,121	24,299	18,668

3.2.4. Video versus telephone telehealth MBS billed items

Tables 3.5 and 3.6 show the breakdown of MBS telehealth items according to whether they were provided by telephone or by video. The overwhelming majority of all telehealth services provided during March to December 2020 were provided by telephone. Only 2.6% of all MBS telehealth consultations were via video.

TABLE 3.5 NUMBER OF MBS TELEHEALTH SERVICES ACCORDING PROVIDED BY TELEPHONE OR VIDEO, MARCH TO DECEMBER 2020

Service	All video telehealth MBS items		All telephone telehealth MBS items	
	Number	%	Number	%
Standard GP attendance	55,655	2.4	2,236,705	97.6
Chronic disease management plan	4827	2.8	167,523	97.2
Mental health treatment plan (excluding eating disorders)	3506	6.2	53,365	93.8
Focussed psychological strategies	516	60.6	336	39.4
All services	64,504	2.6	2,457,929	97.4

Every month, with the exception of March 2020, video telehealth consultations accounted for less than 5% of all telehealth consultations (Table 3.6).

TABLE 3.6 NUMBER OF MBS TELEHEALTH SERVICES[A] PER MONTH PROVIDED BY VIDEO AND BY TELEPHONE, MARCH TO DECEMBER 2020

Type of telehealth	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sept 20	Oct 20	Nov 20	Dec 20
Number of all telehealth MBS services (%)										
Video	7291 (6.8)	14,194 (3.8)	9053 (2.8)	6243 (2.2)	6323 (2.0)	5689 (2.0)	5236 (2.1)	4012 (1.9)	3459 (1.8)	3004 (1.8)
Telephone	99,680 (93.2)	359,121 (96.2)	320,127 (97.2)	278,384 (97.8)	315,597 (98.0)	282,868 (98.0)	247,409 (97.9)	202,084 (98.1)	185,135 (98.2)	167,524 (98.2)
Number of telehealth standard GP attendance MBS services (%)										
Video	7015 (6.7)	11921 (3.6)	7450 (2.6)	5285 (2.1)	5407 (1.8)	4875 (1.9)	4542 (2.0)	3472 (1.8)	3003 (1.7)	2685 (1.7)
Telephone	97,043 (93.3)	322,202 (96.4)	283,232 (97.4)	252,308 (97.9)	289,987 (98.2)	256,559 (98.1)	224,776 (98.0)	184,905 (98.2)	169,547 (98.3)	156,146 (98.3)
Number of telehealth chronic disease management plan MBS services (%)										
Video	160 (7.5)	1379 (4.6)	925 (3.1)	501 (2.5)	497 (2.5)	445 (2.2)	305 (1.8)	235 (1.9)	229 (1.9)	151 (1.7)
Telephone	1960 (92.5)	28,486 (95.4)	28,637 (96.9)	19,730 (97.5)	19,499 (97.5)	19,732 (97.8)	16,904 (98.2)	12,284 (98.1)	11,671 (98.1)	8620 (98.3)
Number of telehealth mental health treatment plan MBS services (%)										
Video	63 (8.8)	800 (8.7)	589 (6.7)	394 (5.9)	354 (5.5)	332 (4.8)	347 (5.7)	266 (5.2)	213 (5.2)	148 (5.1)
Telephone	652 (91.2)	8355 (91.3)	8214 (93.3)	6318 (94.1)	6081 (94.5)	6544 (95.2)	5697 (94.3)	4866 (94.8)	3899 (94.8)	2739 (94.9)

a MBS telehealth items for focussed psychological strategies have been omitted due to small monthly numbers

3.2.5. Rate of GP telehealth MBS items per 1000 encounters

Table 3.7 and Figures 3.8–3.10 show the rate of recorded MBS telehealth items per 1000 clinical encounters per month stratified by state/territory, remoteness and socioeconomic status. This includes all of the included MBS telehealth items listed above.

In the early stage of the pandemic, there was a substantial rise in the rate of telehealth encounters seen in every state and territory, and in all practices regardless of their remoteness or the socioeconomic status of the area they served. However, in later months there were differences in the rates of use.

The pattern of use of telehealth items differed by state and territory (Table 3.7 and Figure 3.8).

- The rate of telehealth use was lowest in the NT and remained largely stable at around 60–70 recorded MBS items per 1000 clinical encounters for most of the year.
- After an April peak of 289 recorded MBS items per 1000 clinical encounters in WA, rates declined steadily throughout the year. A similar pattern was seen in Tasmania. The borders of these states were closed for much of this period and COVID-19 case numbers were low.
- After an April peak of 334 recorded MBS items per 1000 clinical encounters in the ACT, the rate of use steadily declined throughout the year as case numbers remained low.
- There was sustained increase in the rate of use of telehealth MBS items in Victoria from July to October 2020. This corresponds with the second wave of infections that was most pronounced in this state and resulted in the strict lockdown of households in the Melbourne and Mitchell shire from June to October.
- There was a modest increase in the rate of telehealth use in NSW and Queensland in July 2020 as the second wave of infections affected the eastern states.
- There was a substantial increase in the rate of use of telehealth MBS items in SA in November 2020. This corresponds with a small COVID-19 outbreak that month and an associated short lockdown.

Patterns of use of telehealth MBS items were similar between different remoteness regions (Figure 3.9). As expected, the areas hardest hit by the pandemic (major city and inner regional postcodes) were the most likely to have higher rates of telehealth use. Interestingly, rates of telehealth use were often higher in inner regional practices than in major city practices which may reflect the greater access to health care among major city patients compared with inner regional patients.

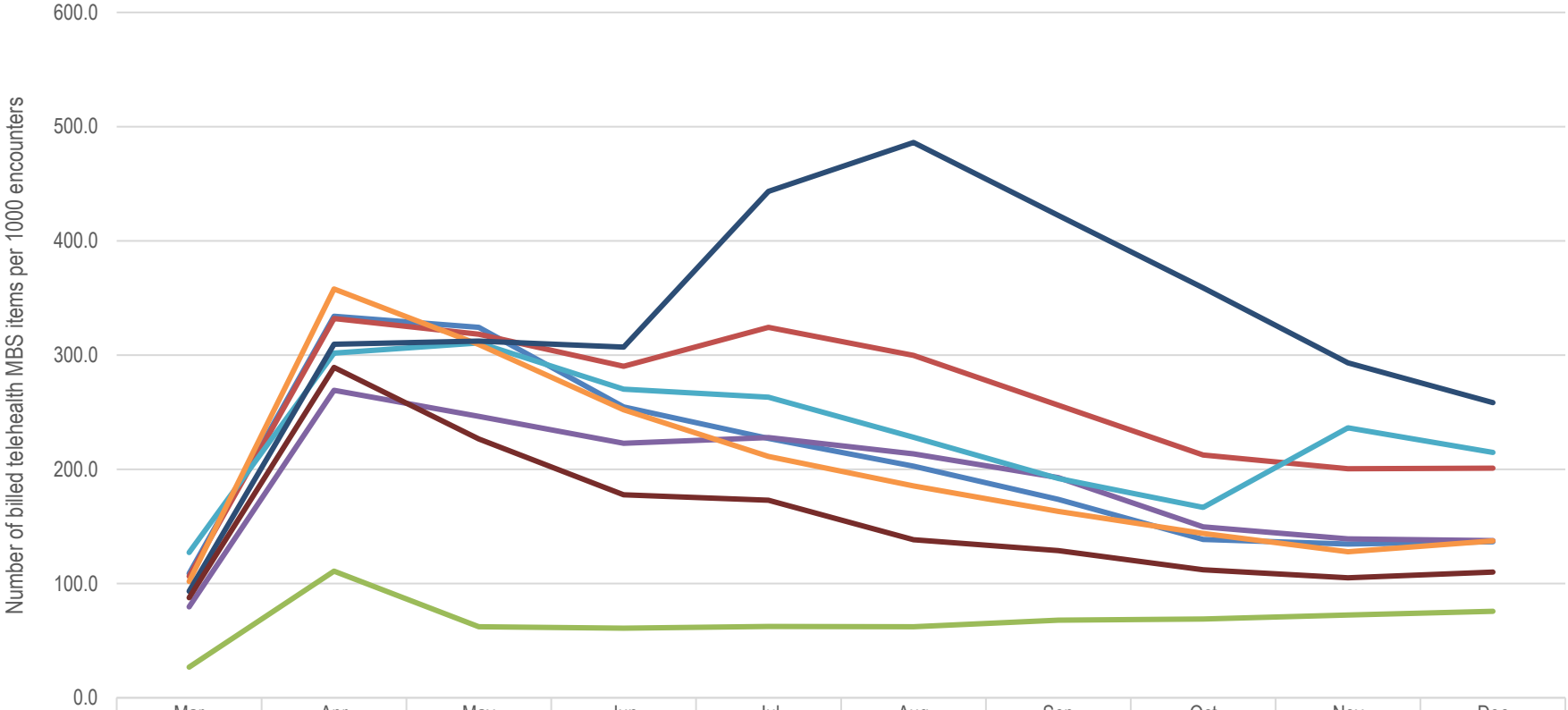
At the beginning of the pandemic, the highest rate of telehealth use was seen in practices serving the most disadvantaged communities in Australia (Figure 3.10). This might be a reflection of the requirement that all telehealth services had to be bulk billed when first introduced.[F] After this, rates of use were largely similar when comparing the most and least disadvantaged areas.

[F] This requirement was removed in April 2020. However, until October 2020 telehealth services provided to children, concession card holders and patients more vulnerable to COVID-19 infection still had to be bulk billed.

TABLE 3.7 RATE OF TELEHEALTH BILLED ITEMS PER 1000 CLINICAL ENCOUNTERS BY MONTH AND GEOGRAPHICAL OR SOCIOECONOMIC STATUS OF THE PRACTICE, MARCH TO DECEMBER 2020

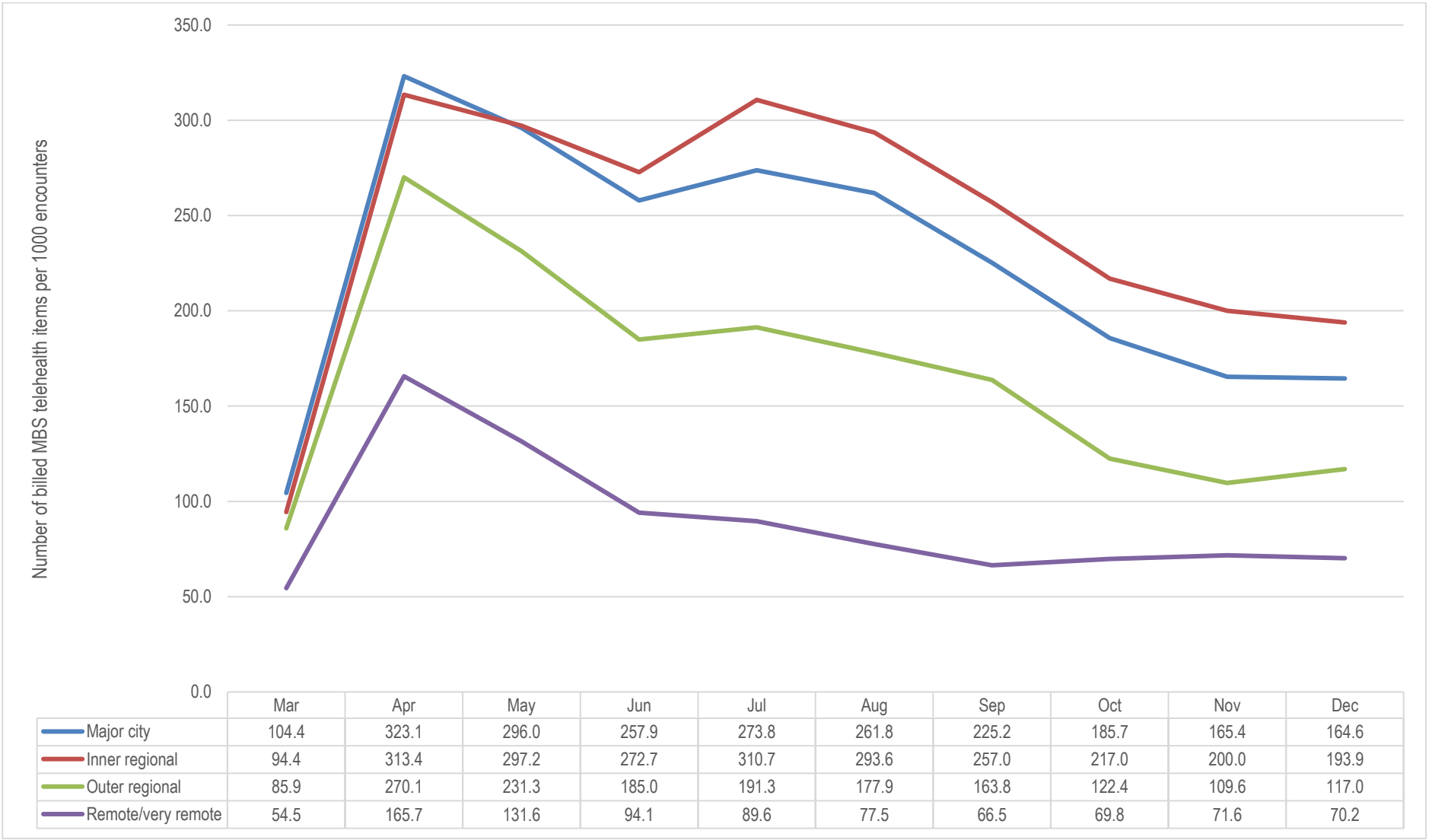
	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
State or territory of practice										
ACT	108.8	334.0	324.3	254.7	227.2	202.8	173.6	138.7	134.6	136.7
NSW	106.3	332.0	318.2	290.1	324.3	299.7	256.1	212.5	200.5	201.0
NT	26.8	110.8	62.2	61.0	62.4	62.1	68.0	69.0	72.5	75.8
QLD	79.6	269.2	246.4	222.9	227.7	213.5	192.9	149.6	139.2	137.7
SA	127.2	301.7	310.7	270.1	263.3	228.0	192.0	166.7	236.3	214.8
TAS	101.8	357.9	309.3	252.2	211.2	185.5	163.2	143.9	127.8	137.3
VIC	93.2	309.5	312.2	307.0	443.2	486.1	422.4	358.8	293.1	258.3
WA	87.6	289.2	226.5	177.8	173.0	138.4	128.9	112.1	104.9	110.1
Remoteness of practice										
Major city	104.4	323.1	296.0	257.9	273.8	261.8	225.2	185.7	165.4	164.6
Inner regional	94.4	313.4	297.2	272.7	310.7	293.6	257.0	217.0	200.0	193.9
Outer regional	85.9	270.1	231.3	185.0	191.3	177.9	163.8	122.4	109.6	117.0
Remote/very remote	54.5	165.7	131.6	94.1	89.6	77.5	66.5	69.8	71.6	70.2
Socioeconomic status of practice										
1 (most disadvantaged)	96.2	337.6	305.2	268.3	294.9	287.7	256.1	208.5	194.6	187.6
2	90.1	314.3	269.4	228.1	243.2	240.1	205.8	171.4	159.4	159.4
3	105.7	313.4	307.6	273.7	291.2	274.9	240.4	200.4	179.0	174.5
4	83.1	271.1	244.1	229.7	257.9	240.8	216.0	176.7	165.7	156.8
5 (most advantaged)	97.6	305.6	298.3	271.6	319.9	290.1	252.3	216.4	192.5	193.8

FIGURE 3.8 RATE OF MBS TELEHEALTH ITEMS PER 1000 CLINICAL ENCOUNTERS BY STATE, MARCH TO DECEMBER 2020



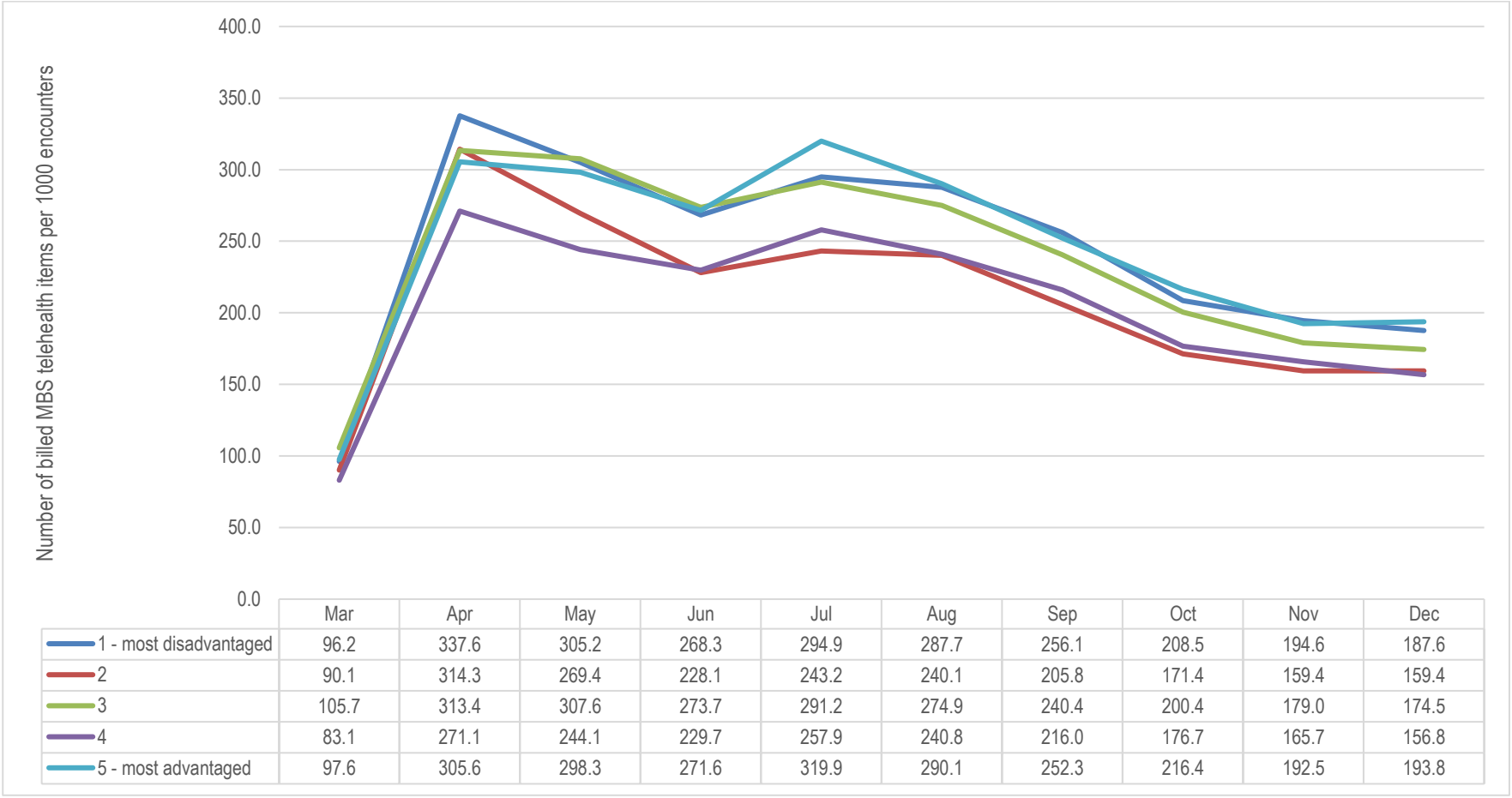
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ACT	108.8	334.0	324.3	254.7	227.2	202.8	173.6	138.7	134.6	136.7
NSW	106.3	332.0	318.2	290.1	324.3	299.7	256.1	212.5	200.5	201.0
NT	26.8	110.8	62.2	61.0	62.4	62.1	68.0	69.0	72.5	75.8
QLD	79.6	269.2	246.4	222.9	227.7	213.5	192.9	149.6	139.2	137.7
SA	127.2	301.7	310.7	270.1	263.3	228.0	192.0	166.7	236.3	214.8
TAS	101.8	357.9	309.3	252.2	211.2	185.5	163.2	143.9	127.8	137.3
VIC	93.2	309.5	312.2	307.0	443.2	486.1	422.4	358.8	293.1	258.3
WA	87.6	289.2	226.5	177.8	173.0	138.4	128.9	112.1	104.9	110.1

FIGURE 3.9 RATE OF MBS TELEHEALTH ITEMS PER 1000 CLINICAL ENCOUNTERS BY ABS REMOTENESS AREAS, MARCH TO DECEMBER 2020



	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Major city	104.4	323.1	296.0	257.9	273.8	261.8	225.2	185.7	165.4	164.6
Inner regional	94.4	313.4	297.2	272.7	310.7	293.6	257.0	217.0	200.0	193.9
Outer regional	85.9	270.1	231.3	185.0	191.3	177.9	163.8	122.4	109.6	117.0
Remote/very remote	54.5	165.7	131.6	94.1	89.6	77.5	66.5	69.8	71.6	70.2

FIGURE 3.10 RATE OF MBS TELEHEALTH ITEMS PER 1000 CLINICAL ENCOUNTERS BY ABS SOCIOECONOMIC CATEGORIES, MARCH TO DECEMBER 2020



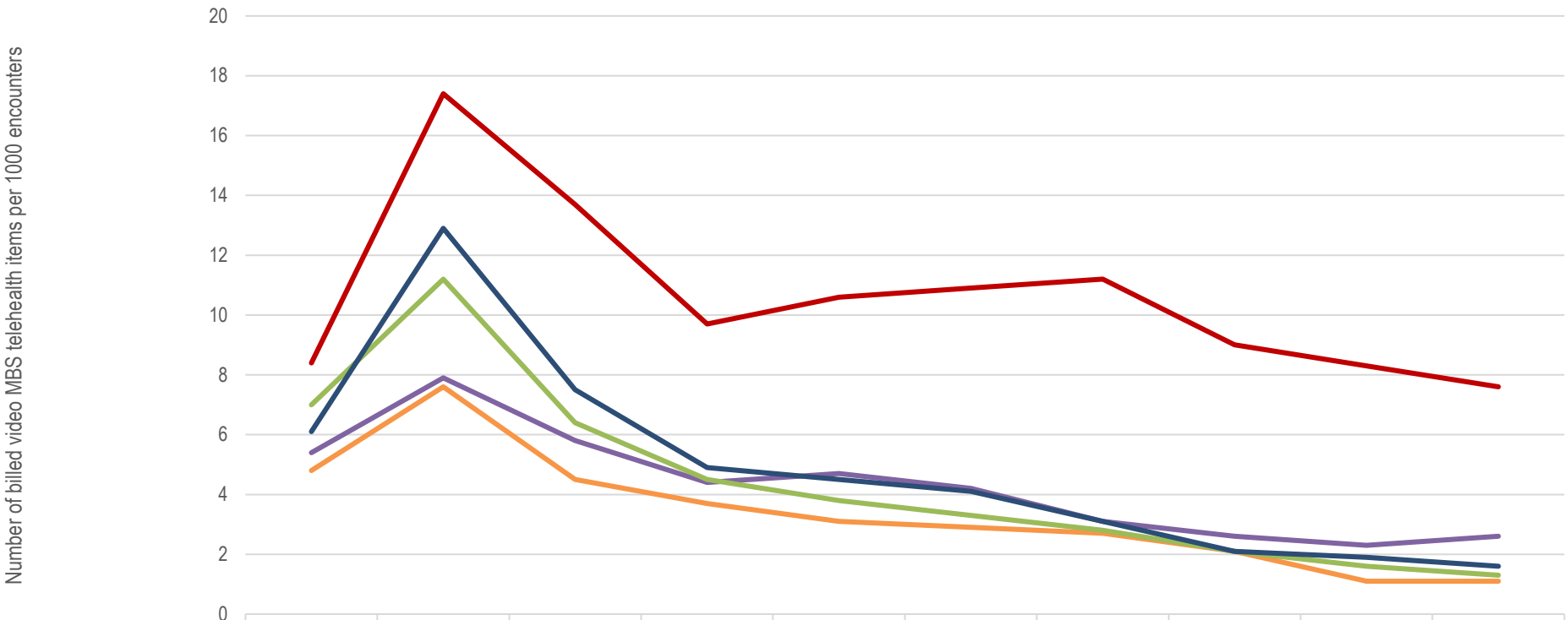
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 - most disadvantaged	96.2	337.6	305.2	268.3	294.9	287.7	256.1	208.5	194.6	187.6
2	90.1	314.3	269.4	228.1	243.2	240.1	205.8	171.4	159.4	159.4
3	105.7	313.4	307.6	273.7	291.2	274.9	240.4	200.4	179.0	174.5
4	83.1	271.1	244.1	229.7	257.9	240.8	216.0	176.7	165.7	156.8
5 - most advantaged	97.6	305.6	298.3	271.6	319.9	290.1	252.3	216.4	192.5	193.8

Table 3.8 shows the rate of telehealth billed items per 1000 clinical encounters separated according to whether they were provided by telephone or video. The rate of telephone telehealth consultations was far greater in all locations and socioeconomic levels than rates of video telehealth consultations. While generally low in comparison to telephone telehealth use, video telehealth use was highest in April 2020. Video telehealth use was consistently higher throughout the year in the most socioeconomically advantaged area than in other areas (Figure 3.11).

TABLE 3.8 RATE OF TELEHEALTH BILLED ITEMS PER 1000 CLINICAL ENCOUNTERS BY MONTH AND GEOGRAPHICAL OR SOCIOECONOMIC STATUS OF THE PRACTICE, MARCH 2020 TO DECEMBER 2020

		March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
State or territory of practice											
ACT	Video	9.9	19.0	12.4	9.1	7.5	7.1	5.5	6.5	6.5	4.4
	Phone	98.9	315.0	311.8	245.6	219.7	195.7	168.1	132.2	128.1	132.3
NSW	Video	7.2	12.3	9.2	6.6	6.1	5.8	5.8	4.9	3.6	4.0
	Phone	99.1	319.8	309.0	283.5	318.1	293.8	250.3	207.6	197.0	197.0
NT	Video	3.2	1.4	2.0	2.3	1.9	0.2	0.3	0.2	0.3	0.4
	Phone	23.6	109.5	60.2	58.6	60.5	61.9	67.7	68.7	72.3	75.5
QLD	Video	6.3	14.4	8.2	6.0	6.1	5.7	4.1	2.4	2.3	1.7
	Phone	73.3	254.7	238.2	216.9	221.6	207.8	188.8	147.2	136.9	135.9
SA	Video	5.4	3.9	3.5	1.9	1.7	0.8	0.8	0.8	2.1	1.0
	Phone	121.8	297.8	307.1	268.2	261.5	227.2	191.3	165.9	234.2	213.8
TAS	Video	6.5	12.3	6.6	5.0	3.8	3.2	1.7	1.2	0.7	0.6
	Phone	95.2	345.6	302.8	247.2	207.4	182.2	161.5	142.7	127.1	136.6
VIC	Video	3.1	6.1	6.4	3.9	5.4	7.1	8.2	5.8	6.1	5.1
	Phone	90.1	303.3	305.8	303.1	437.8	479.0	414.2	353.0	287.1	253.2
WA	Video	7.9	11.1	5.8	4.2	4.7	3.2	2.8	2.5	2.3	2.3
	Phone	79.7	278.2	220.7	173.5	168.3	135.2	126.0	109.6	102.7	107.8
Remoteness of practice											
Major city	Video	6.7	12.2	8.1	5.8	6.1	5.8	5.1	4.2	3.7	3.7
	Phone	87.7	301.2	289.2	266.9	304.5	287.8	252.0	212.8	196.3	190.2
Inner regional	Video	6.8	11.2	7.5	4.5	4.2	4.8	5.0	3.6	3.2	2.5
	Phone	97.7	311.9	288.6	253.4	269.6	257.1	220.2	182.1	162.2	162.0
Outer regional	Video	5.4	10.6	8.1	6.6	5.5	4.3	3.6	2.4	1.6	1.4
	Phone	80.4	259.5	223.3	178.4	185.9	173.7	160.1	120.0	108.0	115.6
Remote/very remote	Video	3.1	10.9	5.1	6.7	5.2	3.1	6.0	3.6	2.5	1.8
	Phone	51.4	154.7	126.5	87.4	84.3	74.4	60.5	66.2	69.2	68.4
Socioeconomic status of practice											
1 (most disadvantaged)	Video	5.4	7.9	5.8	4.4	4.7	4.2	3.1	2.6	2.3	2.6
	Phone	90.9	329.7	299.4	263.9	290.2	283.6	253.0	205.9	192.3	185.0
2	Video	4.8	7.6	4.5	3.7	3.1	2.9	2.7	2.1	1.1	1.1
	Phone	85.4	306.7	264.9	224.5	240.1	237.3	203.2	169.3	158.4	158.3
3	Video	7.0	11.2	6.4	4.5	3.8	3.3	2.8	2.1	1.6	1.3
	Phone	98.7	302.3	301.2	269.2	287.5	271.6	237.6	198.3	177.4	173.1
4	Video	6.1	12.9	7.5	4.9	4.5	4.1	3.1	2.1	1.9	1.6
	Phone	76.9	258.2	236.5	224.8	253.3	236.8	212.8	174.6	163.8	155.1
5 (most advantaged)	Video	8.4	17.4	13.7	9.7	10.6	10.9	11.2	9.0	8.3	7.6
	Phone	89.1	288.2	284.6	261.9	309.3	279.3	241.1	207.4	184.1	186.2

FIGURE 3.11 RATE OF VIDEO MBS TELEHEALTH ITEMS PER 1000 CLINICAL ENCOUNTERS BY ABS SOCIOECONOMIC CATEGORIES, MARCH TO DECEMBER 2020



	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 (most disadvantaged)	5.4	7.9	5.8	4.4	4.7	4.2	3.1	2.6	2.3	2.6
2	4.8	7.6	4.5	3.7	3.1	2.9	2.7	2.1	1.1	1.1
3	7	11.2	6.4	4.5	3.8	3.3	2.8	2.1	1.6	1.3
4	6.1	12.9	7.5	4.9	4.5	4.1	3.1	2.1	1.9	1.6
5 (most advantaged)	8.4	17.4	13.7	9.7	10.6	10.9	11.2	9	8.3	7.6

4. NON-COMMUNICABLE DISEASES

In summary

- Hypertension was the most common selected condition recorded during 2019–20 for patients seen by GPs in MedicineInsight practices (5.8% of patients). Other than depression and anxiety (presented in the next chapter), other commonly recorded conditions included low back pain (3.9%), GORD (3.7%), asthma (3.5%) and dyslipidaemia (3.2%).
- Patient prevalence in 2019–20 was further explored by identifying patients who were recorded as having a particular condition at any time in their medical record. Once again hypertension was the most commonly reported of the selected non-communicable conditions (15.7% of patients), followed by low back pain (14.8%) and dyslipidaemia (13.2%).
- The patient prevalence estimates for most of the selected conditions align with the population prevalence estimates from the 2017–18 ABS National Health Survey.
- Consistent with national data, the proportions of patients with hypertension, CVD, type 2 diabetes, CKD and dementia increased with age in both males and females.
- Of every 100 GP clinical encounters during 2019–20, on average:
  - 11 were with a patient with a recent record of hypertension and 29 were with a patient with hypertension ever recorded
  - 8 were with a patient with a recent record of low back pain and 26 were with a patient with low back pain ever recorded.
- Patients with heart failure, CKD, osteoporosis and COPD ever recorded in their medical record had on average at least 10 clinical encounters during 2019–20, which is almost double the average for the general population (5.4 per patient).

This chapter describes:

- the proportion of patients with selected conditions reported at encounters in 2019–20
- the age and sex-specific proportions of patients with a subset of the most common or selected non-communicable conditions of public health importance
- the proportions of patients with selected non-communicable conditions ever recorded (including comparisons with the ABS National Health Survey where available)
- the number of encounters with selected non-communicable conditions recorded per 100 encounters
- the average number of encounters during 2019–20 for patients with selected conditions.

New conditions added this year include melanoma, non-melanoma skin cancer and coeliac disease. Information about dementia has been moved into this chapter this year. Detailed definitions of the conditions included in this report are provided in Appendix 5.

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.

As in previous years, hypertension was the most common condition with 15.7% of patients having a diagnosis of hypertension ever recorded (at any time in their medical record; Table 4.1). Excluding depression and anxiety disorder (presented in the next chapter), the next most prevalent conditions were low back pain (14.8%), dyslipidaemia (13.2%) and GORD (12.1%).

This year's report includes information on the patient prevalence of three new conditions: skin cancer (excluding melanoma: 4.3%), melanoma (1.2%) and coeliac disease (0.4%).

TABLE 4.1 PROPORTION OF MEDICINEINSIGHT PATIENTS (UNWEIGHTED AND WEIGHTED) WITH SELECTED NON-COMMUNICABLE CONDITIONS EVER RECORDED IN 2019–20 COMPARED WITH GPIR 2018–19

Condition[a]	MedicineInsight unweighted (condition ever recorded; N = 2,470,520)		MedicineInsight weighted (condition ever recorded)		GPIR 2018–19 (weighted)	
	% patients	95% CI	% patients	95% CI	% patients	95% CI
Hypertension	16.1	(15.3, 16.9)	15.7	(14.9, 16.6)	16.3	(15.5, 17.1)
Low back pain	15.0	(14.4, 15.6)	14.8	(14.1, 15.5)	14.5	(13.8, 15.2)
Dyslipidaemia	13.0	(12.4, 13.6)	13.2	(12.5, 13.9)	13.7	(13.0, 14.4)
GORD	12.4	(11.7, 13.0)	12.1	(11.4, 12.8)	12.1	(11.5, 12.7)
Asthma	11.2	(10.8, 11.6)	11.1	(10.6, 11.6)	12.1	(11.6, 12.7)
Osteoarthritis	9.4	(8.8, 10.0)	9.0	(8.4, 9.7)	9.4	(8.7, 10.0)
Dermatitis/eczema	7.0	(6.6, 7.4)	7.2	(6.7, 7.7)	7.4	(6.9, 7.8)
Diabetes (type 2/NOS)	5.4	(5.2, 5.7)	5.5	(5.2, 5.9)	5.4	(5.1, 5.7)
CVD[b]	4.9	(4.5, 5.2)	4.7	(4.3, 5.0)	4.8	(4.4, 5.1)
Osteoporosis	4.7	(4.3, 5.0)	4.5	(4.1, 4.8)	4.5	(4.1, 4.9)
Skin cancer (excluding melanoma)	4.8	(4.3, 5.2)	4.3	(3.9, 4.8)	nr	nr
Migraine	4.4	(4.2, 4.6)	4.3	(4.1, 4.5)	4.5	(4.3, 4.7)
COPD	2.6	(2.4, 2.8)	2.4	(2.2, 2.6)	2.5	(2.3, 2.7)
Atrial fibrillation	2.2	(2.1, 2.4)	2.1	(1.9, 2.3)	2.2	(2.0, 2.3)
Melanoma	1.3	(1.2, 1.5)	1.2	(1.1, 1.3)	nr	nr
Breast cancer	1.1	(1.1, 1.2)	1.1	(1.0, 1.2)	1.1	(1.0, 1.2)
Chronic kidney disease	1.2	(1.1, 1.4)	1.1	(1.0, 1.2)	1.1	(0.9, 1.2)
Heart failure	1.1	(1.0, 1.2)	1.0	(0.9, 1.1)	1.0	(1.0, 1.1)
Stroke	1.0	(0.9, 1.1)	1.0	(0.9, 1.0)	1.0	(0.9, 1.1)
Prostate cancer	0.8	(0.8, 0.9)	0.8	(0.8, 0.9)	0.9	(0.8, 0.9)
Rheumatoid arthritis	0.8	(0.7, 0.8)	0.7	(0.7, 0.8)	0.7	(0.7, 0.8)
Diabetes (gestational)	0.6	(0.6, 0.7)	0.6	(0.6, 0.7)	0.7	(0.6, 0.7)
Dementia	0.6	(0.5, 0.7)	0.6	(0.5, 0.6)	0.5	(0.5, 0.6)
Diabetes (type 1)	0.5	(0.5, 0.5)	0.5	(0.5, 0.6)	0.5	(0.5, 0.6)
Coeliac disease	0.5	(0.4, 0.5)	0.4	(0.4, 0.5)	nr	nr

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.
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.

4.1.1. Comparisons with the 2017–18 National Health Survey

The patient prevalence estimates for many conditions were similar to population estimates from the 2017–18 ABS National Health Survey (ABS NHS).[10] Asthma was recorded for 11.1% of MedicineInsight patients and 11.2% of ABS NHS participants. Osteoarthritis was recorded for 9.3% of MedicineInsight patients and 9.0% of ABS NHS participants. Other conditions with similar estimates included CVD, type 1 diabetes, COPD, osteoporosis, atrial fibrillation, CKD and stroke.

Patient prevalence estimates were higher in MedicineInsight than in the ABS NHS for hypertension, dyslipidaemia, heart failure and dermatitis/eczema. In MedicineInsight, the proportion of patients with hypertension ever recorded was 15.7% while 10.6% of ABS NHS participants reporting current hypertension. The proportion of MedicineInsight patients with dyslipidaemia ever recorded was 13.2%, compared with 6.1% of ABS NHS participants reporting current high cholesterol.

The differences in prevalence are partly a reflection of the different populations from which the data are drawn (general practice patients compared with the general population), the different collection methods (self-reported data compared with secondary use of electronic health records) and the method of defining a 'current condition'. There is also the possibility that patients taking medicines that adequately control their hypertension and lipid levels may no longer self-report having these conditions when asked as part of the NHS survey.

4.2. Conditions recorded for patients in 2019–20

To estimate the minimum level of active management by GPs of patient conditions we restricted our searches to diagnoses recorded in 2019–20 only. We refer to this as recent management.

The most commonly recorded conditions in 2019–20 were similar to conditions recorded ever (at any time in the medical record) (Table 4.1) and conditions recorded in 2018–19 (Table 4.2). Once again, hypertension was the most commonly recorded condition during the 2019–20 study period, affecting 5.8% of patients (Table 4.2). In addition to depression and anxiety disorder (presented in the next chapter), low back pain (3.9%), GORD (3.7%), asthma (3.5%) and dyslipidaemia (3.2%) were also commonly recorded.

These findings are consistent with data presented by the RACGP in the 2020 Health of the Nation report.[11] In this survey of 1,782 respondents, GPs identified psychological (eg, depression, anxiety disorder), preventive healthcare (eg, vaccinations and health screening), respiratory (eg, asthma, common cold, suspected COVID-19) and musculoskeletal (eg back pain, arthritis) issues as those they most commonly managed, while circulatory conditions were ranked sixth.[11]

TABLE 4.2 PROPORTION OF MEDICINEINSIGHT PATIENTS WITH SELECTED NON-COMMUNICABLE CONDITIONS RECORDED DURING 2019–20 (UNWEIGHTED AND WEIGHTED) COMPARED WITH 2018–19 (WEIGHTED)

Condition[a]	Unweighted (N = 2,470,520)		Weighted		2018–19 (weighted)	
	% patients	(95% CI)	% patients	(95% CI)	% patients	(95% CI)
Hypertension	5.9	(5.6, 6.2)	5.8	(5.5, 6.2)	5.7	(5.3, 6.0)
Low back pain	4.0	(3.8, 4.2)	3.9	(3.7, 4.1)	4.0	(3.8, 4.2)
GORD	3.8	(3.6, 4.1)	3.7	(3.6, 3.9)	2.9	(2.7, 3.0)
Asthma	3.6	(3.5, 3.7)	3.5	(3.4, 3.7)	3.2	(3.1, 3.4)
Dyslipidaemia	3.1	(2.9, 3.3)	3.2	(3.0, 3.4)	3.2	(3.0, 3.4)
Diabetes (type 2/NOS)	2.6	(2.4, 2.7)	2.6	(2.4, 2.8)	2.5	(2.3, 2.6)
Osteoarthritis	2.2	(2.1, 2.4)	2.1	(1.9, 2.2)	2.2	(2.0, 2.3)
Dermatitis/eczema	1.6	(1.5, 1.7)	1.6	(1.5, 1.7)	1.6	(1.5, 1.7)
Osteoporosis	1.4	(1.3, 1.5)	1.4	(1.2, 1.5)	1.4	(1.2, 1.5)
Migraine	1.2	(1.1, 1.2)	1.1	(1.1, 1.2)	1.2	(1.1, 1.2)
CVD[b]	1.2	(1.1, 1.3)	1.1	(1.0, 1.2)	1.1	(1.1, 1.2)
Skin cancer	1.1	(0.9, 1.3)	1.0	(0.8, 1.1)	nr	nr
COPD	0.9	(0.9, 1.0)	0.9	(0.8, 1.0)	0.9	(0.8, 1.0)
Atrial fibrillation	0.8	(0.7, 0.8)	0.7	(0.7, 0.8)	0.7	(0.7, 0.8)
Heart failure	0.4	(0.4, 0.4)	0.4	(0.3, 0.4)	0.4	(0.3, 0.4)

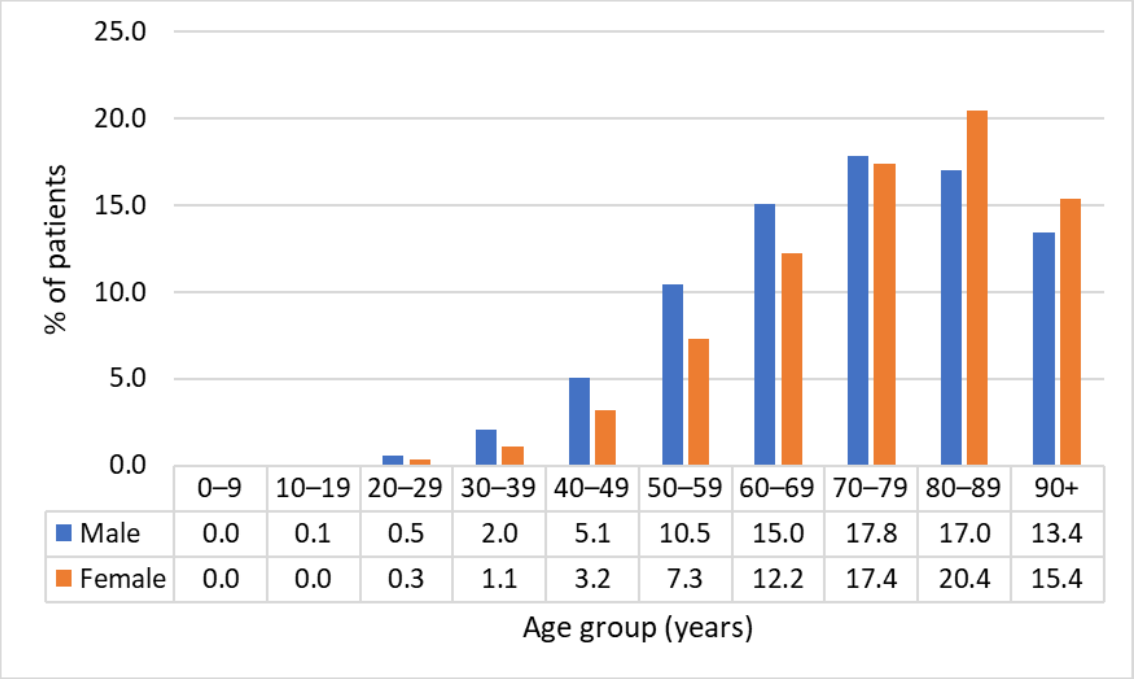
Condition[a]	Unweighted (N = 2,470,520)		Weighted		2018–19 (weighted)	
	% patients	(95% CI)	% patients	(95% CI)	% patients	(95% CI)
Chronic kidney disease	0.4	(0.3, 0.4)	0.4	(0.3, 0.4)	0.3	(0.3, 0.3)
Dementia	0.3	(0.2, 0.3)	0.2	(0.2, 0.3)	nr	nr
Rheumatoid arthritis	0.3	(0.2, 0.3)	0.2	(0.2, 0.3)	0.2	(0.2, 0.2)
Breast cancer	0.2	(0.2, 0.2)	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)	nr	nr
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)	nr	nr

CI: Confidence interval; COPD: chronic obstructive pulmonary disease; CVD: cardiovascular disease; GORD: gastro-oesophageal reflux disease; 2018–19 data obtained from General Practice Insights Report, 2018–19; NOS: not otherwise specified; nr: not recorded.
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.

Figures 4.1 to 4.5 show the age- and sex-specific rates for some commonly recorded and selected conditions of public health importance recorded during 2019–20.

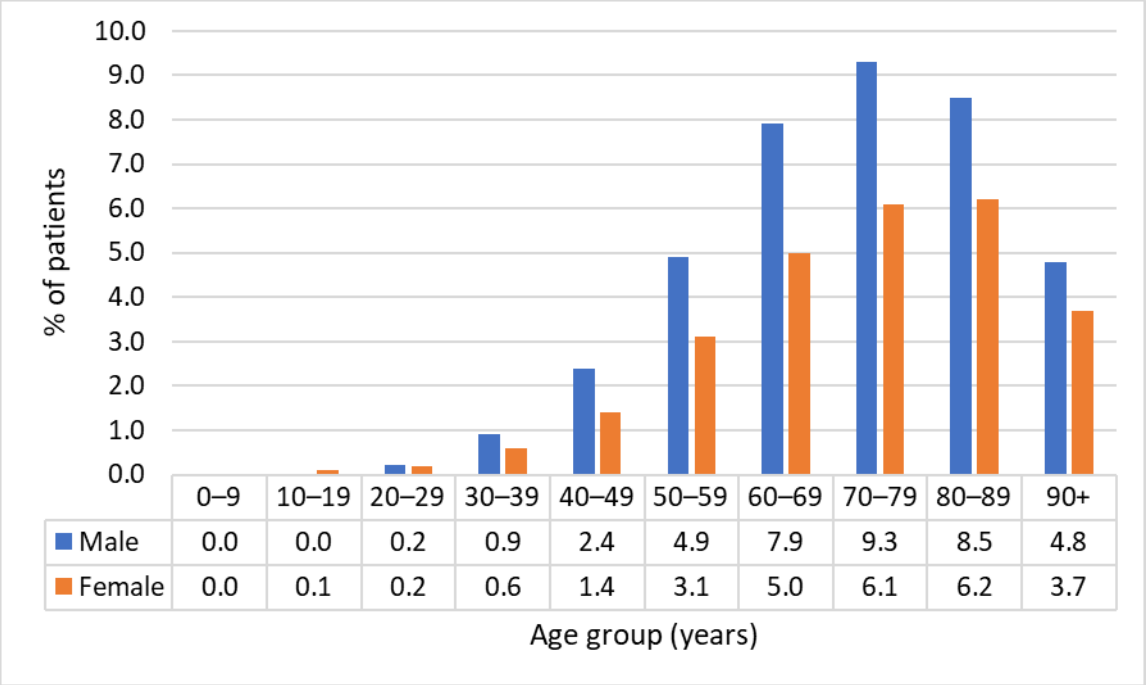
Hypertension remains a major public health challenge and was the most recorded condition during 2019–20. As expected, recorded diagnoses of hypertension in 2019–20 increased with age for both men and women until age 70–79 years for men and 80–89 years for women (Figure 4.1). Hypertension was more commonly recorded for men until age 70–79 and was more commonly reported for women at 80 years and above.

FIGURE 4.1 AGE- AND SEX-SPECIFIC RATES FOR PATIENTS WITH HYPERTENSION RECORDED (WEIGHTED), MEDICINEINSIGHT 2019–20



The rate of diabetes type 2 recorded in 2019–20 increased with age for both men and women and was greatest at age 80–89 years for women and 70–79 years for men (Figure 4.2). Diabetes type 2 was more commonly recorded for men than women from the age of 30 years onwards.

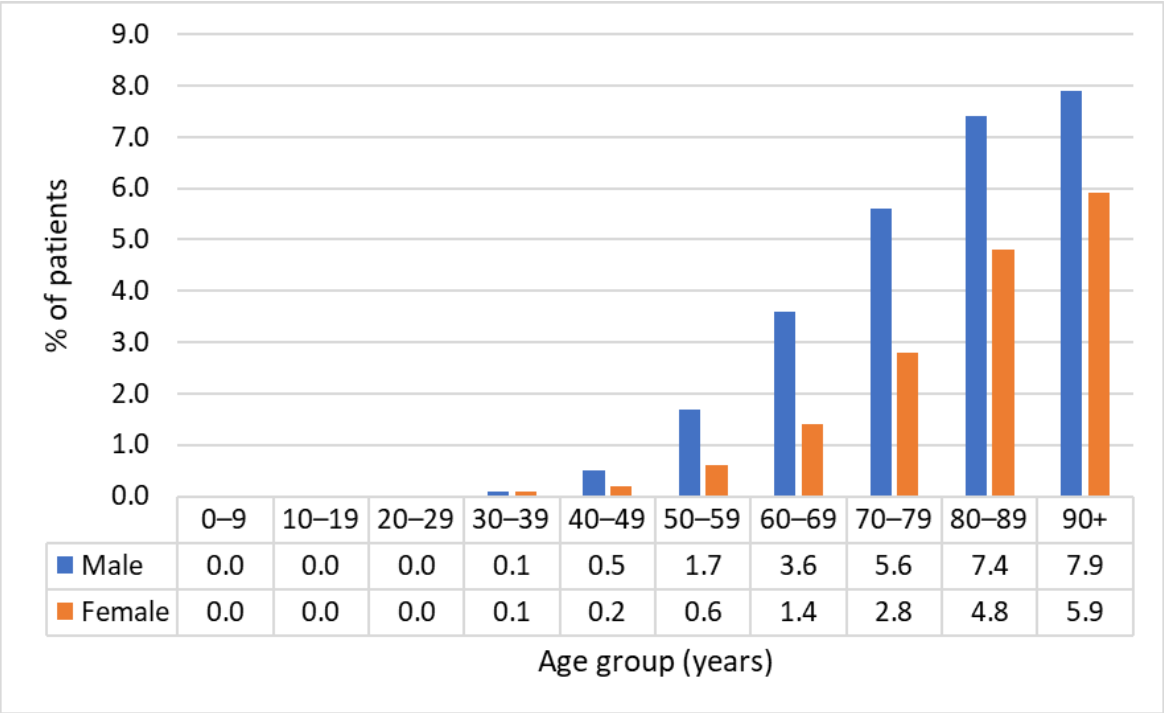
FIGURE 4.2 AGE- AND SEX-SPECIFIC RATES FOR PATIENTS WITH TYPE 2 DIABETES RECORDED (WEIGHTED), MEDICINEINSIGHT 2019–20



	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	0.0	0.2	0.9	2.4	4.9	7.9	9.3	8.5	4.8
Female	0.0	0.1	0.2	0.6	1.4	3.1	5.0	6.1	6.2	3.7

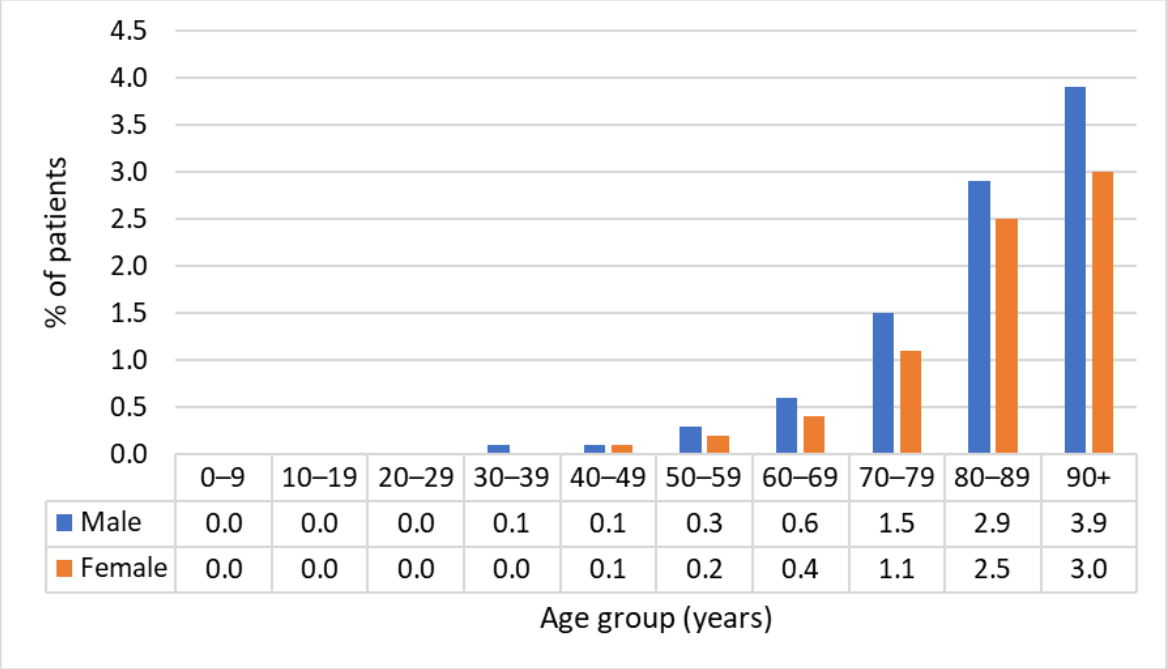
Rates for CVD and CKD increased with age for both males and females (Figures 4.3–4.4). Both males and females younger than 30 years were less likely to have CVD or CKD recorded in 2019–20. However, for most patients aged over 29 years, men were more likely to have both CVD and CKD recorded compared to women.

FIGURE 4.3 AGE- AND SEX-SPECIFIC RATES FOR PATIENTS WITH CARDIOVASCULAR DISEASE RECORDED (WEIGHTED), MEDICINEINSIGHT 2019–20



	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	0.0	0.0	0.1	0.5	1.7	3.6	5.6	7.4	7.9
Female	0.0	0.0	0.0	0.1	0.2	0.6	1.4	2.8	4.8	5.9

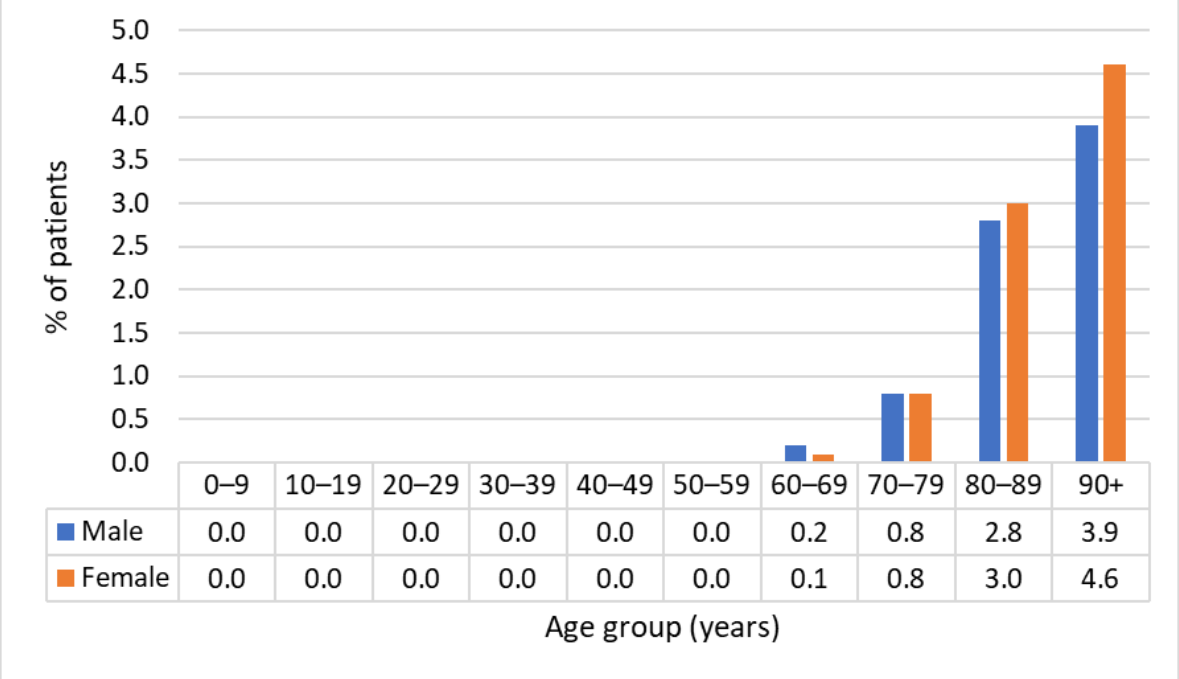
FIGURE 4.4 AGE- AND SEX-SPECIFIC RATES FOR PATIENTS WITH CHRONIC KIDNEY DISEASE RECORDED (WEIGHTED), MEDICINEINSIGHT 2019–20



	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	0.0	0.0	0.1	0.1	0.3	0.6	1.5	2.9	3.9
Female	0.0	0.0	0.0	0.0	0.1	0.2	0.4	1.1	2.5	3.0

The patient prevalence of dementia in 2019–20 was less than 0.1% for patients aged below 60 years and increased with age for both sexes from age 60 years onwards (Figure 4.5). The rate was relatively similar among males and females of younger ages, but from 80 years onwards was more common among females than males. The highest rate of dementia was recorded for patients aged ≥ 90 years: 4.6% of women and 3.9% of men in this age group had a record of dementia in 2019–20.

FIGURE 4.5 AGE- AND SEX-SPECIFIC RATES FOR PATIENTS WITH DEMENTIA RECORDED (WEIGHTED), MEDICINEINSIGHT 2019–20



	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	2.8	3.9
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	3.0	4.6

4.3. Conditions per 100 GP clinical encounters

Consistent with the data shown above, patients with a record of hypertension, low back pain and GORD were among the most frequently seen at GP consultations in 2019–20 (Table 4.3). These

results provide important information about GP workload during 2019–20 by describing both the number of encounters with patients with a condition recorded recently (during 2019–20) and the number of encounters with patients with a condition ever recorded (recently or historically).

Of every 100 GP clinical encounters during 2019–20, on average (Table 4.3):

- 11 were with a patient with a recent record of hypertension and 29 were with a patient with hypertension ever recorded
- 8 were with a patient with a recent record of low back pain and 26 were with a patient with low back pain ever recorded
- 8 were with a patient with a recent record of GORD and 23 were with a patient with GORD ever recorded
- 6 were with a patient with a recent record of diabetes type 2 (including not otherwise specified) and 12 were with a patient with diabetes type 2 (including not otherwise specified) ever recorded.

TABLE 4.3 PATIENTS WITH SELECTED CONDITIONS PER 100 GP CLINICAL ENCOUNTERS (WEIGHTED) IN MEDICINEINSIGHT 2019–20[a]

Condition[b]	Condition recorded in 2019–20		Condition ever recorded	
	Encounters with patients with condition (recorded in 2019–20) per 100 encounters[c]	95% CI	Encounters with patients with condition (ever recorded) per 100 encounters[c]	95% CI
Hypertension	10.7	(10.0, 11.3)	28.9	(27.6, 30.3)
Low back pain	8.2	(7.8, 8.7)	26.3	(25.2, 27.4)
GORD	8.1	(7.6, 8.5)	22.9	(21.9, 24.0)
Diabetes (type 2/NOS)	5.8	(5.4, 6.2)	11.8	(11.1, 12.4)
Asthma	5.6	(5.4, 5.9)	15.8	(15.2, 16.4)
Dyslipidaemia	5.2	(4.8, 5.6)	23.0	(22.0, 24.1)
Osteoarthritis	5.0	(4.7, 5.4)	19.4	(18.2, 20.6)
Osteoporosis	3.4	(3.1, 3.7)	10.6	(9.8, 11.4)
CVD[d]	2.9	(2.7, 3.1)	11.2	(10.5, 11.9)
COPD	2.5	(2.3, 2.7)	6.2	(5.7, 6.6)
Skin cancer	2.4	(2.1, 2.8)	8.9	(8.1, 9.7)
Dermatitis/eczema	2.3	(2.2, 2.5)	9.6	(9.0, 10.2)
Migraine	2.0	(1.9, 2.1)	6.8	(6.5, 7.0)
Atrial fibrillation	2.0	(1.8, 2.2)	5.5	(5.1, 5.8)
Heart failure	1.4	(1.2, 1.5)	3.3	(3.0, 3.6)
Chronic kidney disease	1.1	(1.0, 1.2)	3.0	(2.7, 3.3)
Dementia	0.8	(0.7, 0.9)	1.6	(1.4, 1.7)
Rheumatoid arthritis	0.6	(0.5, 0.6)	1.5	(1.5, 1.6)
Stroke	0.5	(0.4, 0.5)	2.4	(2.2, 2.5)
Prostate cancer	0.5	(0.4, 0.5)	1.7	(1.6, 1.9)
Breast cancer	0.4	(0.4, 0.5)	2.1	(2.0, 2.3)
Melanoma	0.4	(0.3, 0.4)	2.2	(2.0, 2.4)
Diabetes (type 1)	0.4	(0.3, 0.4)	0.9	(0.9, 1.0)
Diabetes (gestational)	0.2	(0.2, 0.2)	0.8	(0.8, 0.9)
Coeliac disease	0.1	(0.1, 0.1)	0.6	(0.6, 0.7)

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

a The second column from left of Table 4.3 describes the rate at which patients with selected conditions recorded in 2019–20 were managed per 100 encounters, calculated by dividing the number of encounters with patients with the condition recorded in 2019–20 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 recorded ever (at any time in their medical records) were managed per 100 encounters, calculated by dividing the number of encounters with patients with the condition recorded ever 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 2019–20 or 'ever-recorded' are averaged over 100 GP clinical encounters in 2019–20.

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

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

Unsurprisingly, the average number of GP clinical encounters in 2019–20 for patients with each selected condition was significantly greater than the average annual GP clinical encounter number for the entire study cohort (5.4). Table 4.4 presents the mean number of GP clinical encounters in 2019–20 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 2019–20 at 12.0. Although patients with CKD and stroke were less commonly seen by GPs per 100 clinical encounters than those with heart failure, they had some of the highest average encounter rates per person in 2019–20 (Table 4.4). Patients with CKD were seen at 3.0 out of every 100 encounters (Table 4.3; right-hand columns) but had an average adjusted GP clinical encounter rate in 2019–20 of 10.6 (Table 4.4). Other conditions with high annual GP clinical encounter rates were osteoporosis and COPD with 10.5, each, followed by CVD (9.9) and stroke (9.7).

The severity of a condition, coupled with recommended management guidelines, may require regular monitoring of patients, leading to frequent visits to the GP. For example, the Australian guidelines for management of CKD recommend regular monitoring of patients 1–3 monthly, 3–6 monthly or yearly, depending on the severity of the disease.[12] Additionally, these findings may partly reflect the impact of multimorbidity where patients with these conditions tend to have two or more diagnosed chronic conditions, thus are likely to have more medical appointments.[11] Using data from the Bettering the Evaluation And Care of Health (BEACH) program, Taylor *et al* demonstrated that 99.1% of patients with heart failure had at least one and 53.4% had six or more other chronic conditions.[13] The AIHW's 2016 report about the health of Australians shows that 90% of people with COPD had two or more chronic diseases.[14]

Although these results have been corrected for age and sex, they may include instances of multimorbidity, which may lead to an overestimation of the average encounters for some groups of patients with selected conditions.

TABLE 4.4 AVERAGE NUMBER OF GP CLINICAL ENCOUNTERS IN 2019–20 PER PATIENT WITH A SELECTED CONDITION, AGE- AND SEX-ADJUSTED, MEDICINEINSIGHT 2019–20

	MedicineInsight 2019–20, unweighted (N = 2,470,520)			
	Average number of GP clinical encounters in 2019–20 adjusted for age and sex[a]	(95% CI)	Average number of GP clinical encounters in 2019–20 (unadjusted)	(95% CI)
All patients	-	-	5.4	(5.3, 5.5)
Patient condition (ever recorded)[b]				
Heart failure	12.0	(11.4, 12.7)	17.1	(16.7, 17.5)
Chronic kidney disease	10.6	(10.1, 11.1)	14.8	(14.4, 15.1)
Osteoporosis	10.5	(10.2, 10.9)	12.8	(12.5, 13.0)
COPD	10.5	(10.1, 10.9)	13.5	(13.2, 13.8)
CVD	9.9	(9.6, 10.2)	12.9	(12.7, 13.2)
Stroke	9.7	(9.3, 10.1)	13.5	(13.2, 13.9)
Diabetes (type 2/NOS)	9.6	(9.4, 9.9)	11.5	(11.3, 11.8)
Dementia	9.6	(8.9, 10.4)	15.3	(14.2, 16.3)
Osteoarthritis	9.2	(9.0, 9.4)	11.5	(11.3, 11.7)
Atrial fibrillation	9.1	(8.8, 9.4)	14.1	(13.8, 14.4)
Rheumatoid arthritis	9.0	(8.7, 9.3)	11.6	(11.3, 11.9)
Diabetes (type 1)	8.7	(8.4, 9.1)	9.7	(9.3, 10.0)
GORD	8.5	(8.3, 8.7)	10.2	(10.0, 10.4)
Low back pain	8.2	(8.0, 8.4)	9.5	(9.3, 9.7)
Migraine	8.2	(8.0, 8.4)	8.4	(8.2, 8.6)
Dyslipidaemia	8.0	(7.8, 8.2)	9.4	(9.2, 9.6)
Breast cancer	8.0	(7.2, 8.8)	10.3	(10.1, 10.6)
Prostate cancer[c]	8.0	(6.4, 9.6)	11.3	(11.0, 11.5)
Hypertension	7.9	(7.8, 8.1)	9.9	(9.7, 10.1)
Gestational diabetes[c]	7.8	(7.4, 8.1)	7.1	(6.9, 7.3)
Skin cancer	7.7	(7.4, 7.9)	11.0	(10.7, 11.4)
Asthma	7.5	(7.3, 7.6)	7.6	(7.5, 7.8)
Melanoma	7.4	(7.1, 7.6)	9.9	(9.6, 10.2)
Coeliac disease	7.3	(7.1, 7.5)	7.7	(7.4, 7.9)
Dermatitis/eczema	7.2	(7.1, 7.4)	7.1	(6.9, 7.3)

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

a To adjust for confounding by age and sex the GPIR 2019–20 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 2019–20 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. MENTAL HEALTH CONDITIONS

In summary

- Among patients who visited a MedicineInsight practice in 2019–20, anxiety disorder was the most commonly recorded mental health condition (5.0% of patients). This was followed by depression (4.8%), bipolar disorder (0.4%) and schizophrenia (0.3%).
- The patient prevalence (ever recorded in the medical record) estimate for depression was 14.3%, anxiety disorder 13.3%, bipolar disorder 0.9% and schizophrenia 0.6%.
- Compared to males, female patients were more likely to have a record of depression and anxiety disorder, across most age groups.
- Patients with schizophrenia and bipolar disorder ever recorded in their medical record had the highest average number of clinical encounters during 2019–20, at 11.6 and 10.4 respectively. The average number of clinical encounters in 2019–20 for patients with depression or anxiety disorder was 8 per patient.
- Of every 100 GP clinical encounters during 2019–20, on average:
    - 9 were with a patient with a recent record of depression and 24 were with a patient with depression ever recorded
    - 9 were with a patient with a recent record of anxiety disorder and 21 were with a patient with anxiety disorder ever recorded
    - 1 was with a patient with a recent record of bipolar disorder or a recent record of schizophrenia.

This chapter describes:

- the proportion of patients with mental illness (anxiety disorder, bipolar disorder, depression or schizophrenia) reported in 2019–20
- the proportion of patients with mental illness ever recorded
- the number of encounters with people with mental illness recorded per 100 encounters
- the average number of encounters during 2019–20 for patients with mental illness.

Note that information about the prevalence of dementia is now reported in Chapter 4.

5.1. Patient prevalence

Among the assessed mental health conditions, depression was the most common condition with 14.3% of patients having a diagnosis of depression ever recorded (at any time in their medical record; Table 5.1). Anxiety disorder (13.3%) was the next most prevalent condition followed by bipolar disease and schizophrenia accounting for less than 1% of the patients each.

TABLE 5.1 PROPORTION OF MEDICINEINSIGHT PATIENTS (UNWEIGHTED AND WEIGHTED) WITH A MENTAL ILLNESS EVER RECORDED IN 2019–20 COMPARED WITH 2018–19

	MedicineInsight unweighted (condition ever recorded) (N = 2,470,520)		MedicineInsight weighted (condition ever recorded)		2018–19 (weighted)	
	% patients	95% CI	% patients	95% CI	% patients	95% CI
Depression	15.1	(14.4, 15.7)	14.3	(13.6, 15.1)	13.9	(13.2, 14.6)
Anxiety disorder	13.9	(13.3, 14.5)	13.3	(12.6, 14.0)	12.3	(11.7, 12.9)
Bipolar disorder	0.9	(0.9, 1.0)	0.9	(0.8, 1.0)	0.9	(0.8, 0.9)
Schizophrenia	0.6	(0.5, 0.6)	0.6	(0.5, 0.7)	0.5	(0.5, 0.6)

2018–19 data obtained from General Practice Insights Report, 2018–19.

5.2. Conditions recorded for patients in 2019–20

Anxiety disorder (5.0%) and depression (4.8%) were the most commonly recorded mental health conditions in 2019–20 (Table 5.2). Unlike in 2018–19 where depression was the most commonly recorded among the selected mental health illnesses, during 2019–20 anxiety disorder was more commonly recorded than depression.

TABLE 5.2 PROPORTION OF MEDICINEINSIGHT PATIENTS WITH A MENTAL ILLNESS RECORDED DURING 2019–20 (UNWEIGHTED AND WEIGHTED) COMPARED WITH 2018–19

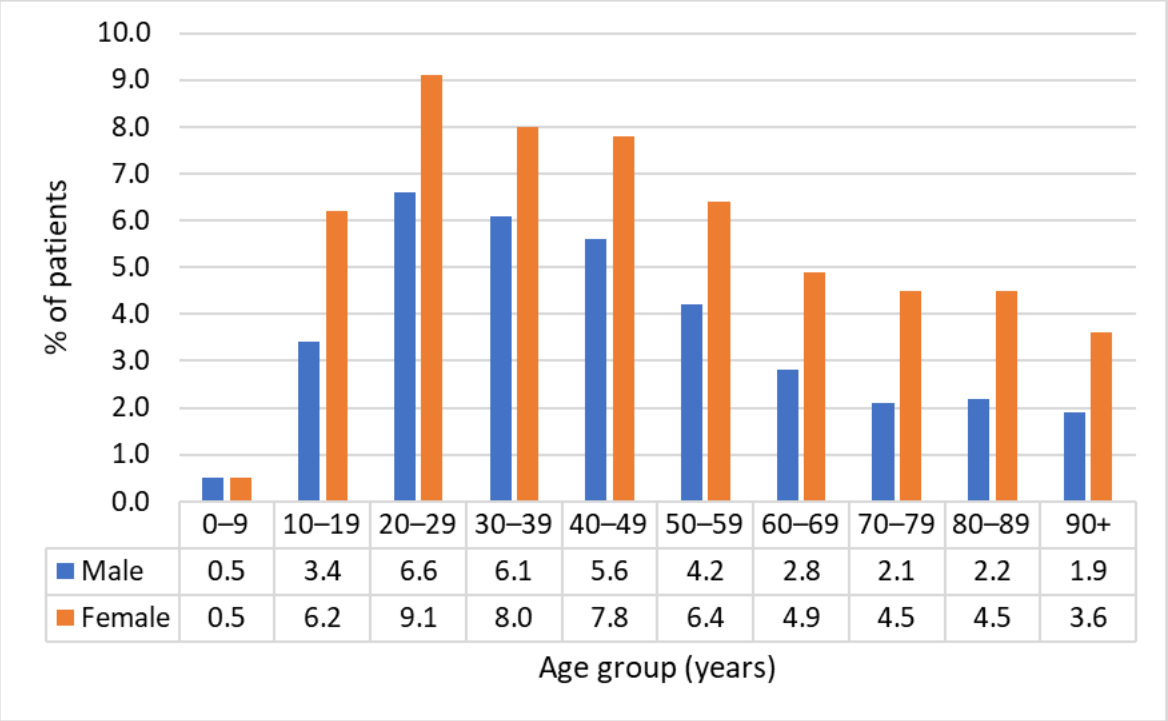
	MedicineInsight 2019–20, unweighted (N = 2,470,520)		MedicineInsight 2019–20, weighted		2018–19 (weighted)	
	% patients	(95% CI)	% patients	(95% CI)	% patients	95% CI
Anxiety disorder	5.3	(5.1, 5.6)	5.0	(4.7, 5.3)	4.6	(4.4, 4.9)
Depression	5.1	(4.9, 5.4)	4.8	(4.5, 5.1)	4.7	(4.4, 5.0)
Bipolar disorder	0.4	(0.4, 0.4)	0.4	(0.3, 0.4)	-	-
Schizophrenia	0.2	(0.2, 0.3)	0.3	(0.2, 0.3)	-	-

2018–19 data obtained from General Practice Insights Report, 2018–19.

Figures 5.1 to 5.4 show the age- and sex-specific rates for the mental health conditions recorded during 2019–20.

Consistent with other data sources, including the 2017–18 ABS NHS,[10] female patients were more likely to have a record of anxiety disorder than males across almost every age group (Figure 5.1). Among patients with a recorded diagnosis of anxiety disorder in 2019–20, the highest rate was recorded for women and men aged 20–29 years (9.1% and 6.6%, respectively).

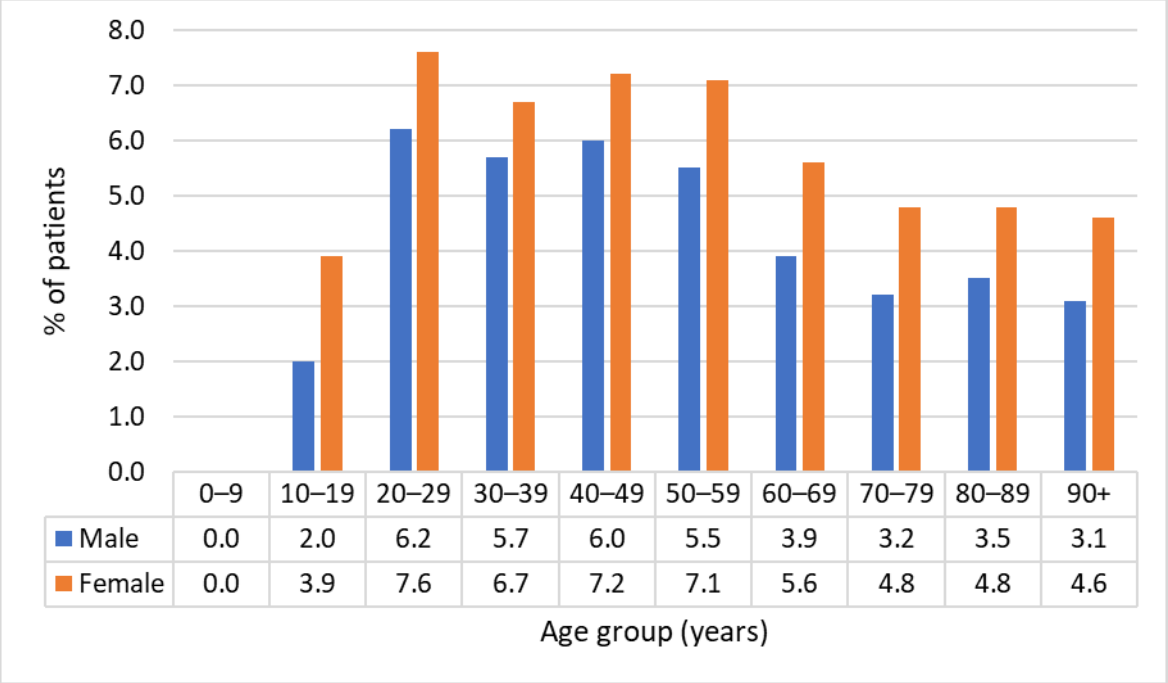
FIGURE 5.1 AGE- AND SEX-SPECIFIC RATES FOR PATIENTS WITH ANXIETY DISORDER RECORDED (WEIGHTED), MEDICINEINSIGHT 2019–20



As with anxiety disorder, and similar to the 2017–18 ABS NHS,[10] female patients were more likely to have a record of depression than males across most age groups (Figure 5.2). The rate of depression among adolescent girls was almost twice that of adolescent boys (3.9% vs 2.0%, respectively). Like anxiety disorder, the highest rates of depression were recorded for people aged 20–29 years: 7.6% of

women and 6.2% of men in this age group had a record of depression in 2019–20. This finding is different from that reported in the previous GPIR report where the highest rate of depression recorded in 2018–19 was among females and males aged 40–49 years (7.4% vs 6.0%, respectively).

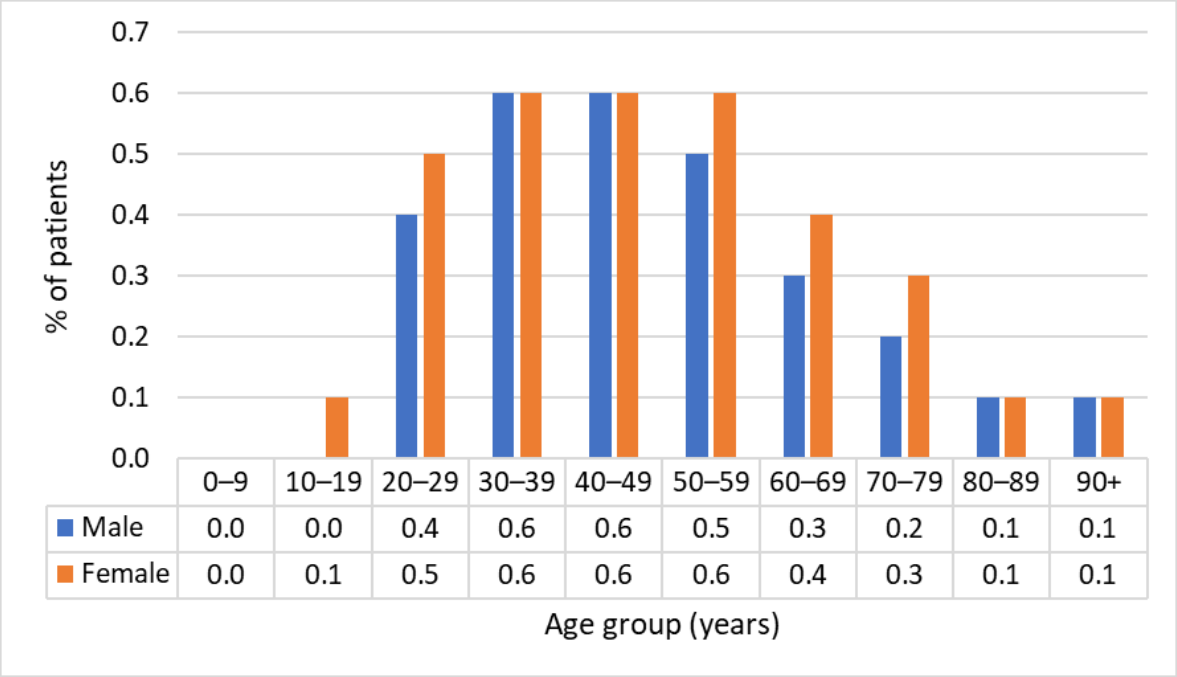
FIGURE 5.2 AGE- AND SEX-SPECIFIC RATES FOR PATIENTS WITH DEPRESSION RECORDED (WEIGHTED), MEDICINEINSIGHT 2019–20



	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	2.0	6.2	5.7	6.0	5.5	3.9	3.2	3.5	3.1
Female	0.0	3.9	7.6	6.7	7.2	7.1	5.6	4.8	4.8	4.6

Bipolar disorder was only slightly more common among females than males, increasing from 0.1% of female adolescents aged 10–19 years to 0.6% of females aged 30–59 years then decreasing with age (Figure 5.3). Among males, the rates for bipolar disorder peaked among the 30–49 years age group and then decreased with age.

FIGURE 5.3 AGE- AND SEX-SPECIFIC RATES FOR PATIENTS WITH BIPOLAR DISORDER RECORDED (WEIGHTED), MEDICINEINSIGHT 2019–20

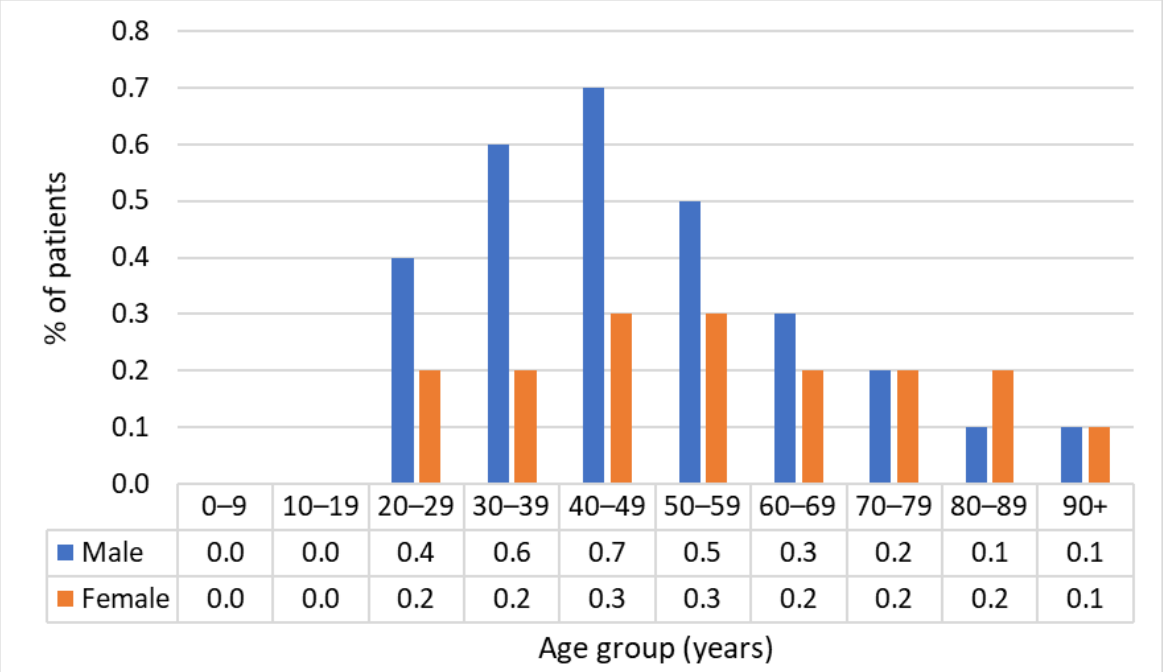


	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	0.0	0.4	0.6	0.6	0.5	0.3	0.2	0.1	0.1
Female	0.0	0.1	0.5	0.6	0.6	0.6	0.4	0.3	0.1	0.1

Overall, schizophrenia was more common among males than females, but was slightly more common among females than males in the 80–89 years age group (0.2% vs 0.1%, respectively) (Figure 5.4).

The proportion of patients with schizophrenia increased from zero for those aged 0–19 to 0.7% of males aged 40–49 years and to 0.3% of females aged 40–59 years, before decreasing with age.

FIGURE 5.4 AGE- AND SEX-SPECIFIC RATES FOR PATIENTS WITH SCHIZOPHRENIA RECORDED (WEIGHTED), MEDICINEINSIGHT 2019–20



	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	0.0	0.4	0.6	0.7	0.5	0.3	0.2	0.1	0.1
Female	0.0	0.0	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.1

5.3. Conditions per 100 GP clinical encounters

After hypertension (see Table 4.1), patients with a record of depression and anxiety disorder were among the most frequently seen at GP consultations in 2019–20 (Table 5.3).[G]

Of every 100 GP clinical encounters during 2019–20, on average (Table 5.3):

- 9 were with a patient with a recent record of depression and 24 were with a patient with depression ever recorded
- 9 were with a patient with a recent record of anxiety disorder and 21 were with a patient with anxiety disorder ever recorded
- 1 was with a patient with a recent record of bipolar disorder and 2 were with a patient with bipolar disorder ever recorded
- 1 was with a patient with a recent record of schizophrenia or ever recorded schizophrenia.

[G] The second column from left of Table 5.3 describes the rate at which patients with selected conditions recorded in 2019–20 were managed per 100 encounters, calculated by dividing the number of encounters with patients with the condition recorded in 2019–20 by the total number of encounters for all patients multiplied by 100. The right-hand column of Table 5.3 describes the rate at which patients with selected conditions recorded ever (at any time in their medical records) were managed per 100 encounters, calculated by dividing the number of encounters with patients with the condition recorded ever by the total number of encounters for all patients multiplied by 100.

TABLE 5.3 PATIENTS WITH A RECORD OF SELECTED MENTAL HEALTH CONDITIONS PER 100 GP CLINICAL ENCOUNTERS (WEIGHTED), MEDICINEINSIGHT 2019–20

	Condition recorded in 2019–20		Condition ever recorded in CIS	
	Patients with condition recorded in 2019–20 per 100 encounters[a]	95% CI	Patients with condition ever recorded per 100 encounters[a]	95% CI
Depression	9.0	(8.5, 9.5)	24.0	(23.0, 25.0)
Anxiety disorder	9.0	(8.4, 9.5)	21.1	(20.2, 22.0)
Bipolar disorder	0.8	(0.7, 0.9)	1.8	(1.7, 1.9)
Schizophrenia	0.6	(0.5, 0.7)	1.3	(1.1, 1.5)

a 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.

5.4. Average number of encounters in 2019–20 for patients with selected mental health conditions (ever recorded)

Table 5.4 shows the average number of GP clinical encounters in 2019–20 for patients with each selected mental health condition was significantly greater than the average annual GP clinical encounter rate for the general patient population (5.4). Patients with a record of schizophrenia had the highest mean annual encounter rate (11.6) followed by bipolar disorder (10.4), depression (8.2) and anxiety (8.1). These findings align with the SHIP survey,[15,16] which found that patients with psychosis consulted a GP on average 8.9 times over a year.

Although patients with schizophrenia have a comparatively high average yearly encounter rate (11.6 encounters per year; Table 5.4), they attend 1.3 out of every 100 GP clinical encounters (Table 5.3). Similarly, patients with bipolar disorder have an average annual encounter rate of 10 but account for 1.8 per 100 GP clinical encounters.

TABLE 5.4 AVERAGE NUMBER OF GP CLINICAL ENCOUNTERS IN 2019–20 FOR PATIENTS WITH SELECTED MENTAL HEALTH CONDITIONS, AGE- AND SEX-ADJUSTED, MEDICINEINSIGHT 2019–20

	MedicineInsight 2019–20, unweighted (N = 2,470,520)			
	Average number of GP clinical encounters in 2019–20 adjusted for age and sex[a]	(95% CI)	Average number of GP clinical encounters in 2019–20 (unadjusted)	(95% CI)
All patients	-	-	5.4	(5.3, 5.5)
Patient condition (ever recorded)[a]				
Schizophrenia	11.6	(11.2, 11.9)	11.7	(11.4, 12.1)
Bipolar disorder	10.4	(10.2, 10.7)	10.6	(10.3, 10.8)
Depression	8.2	(8.1, 8.4)	8.9	(8.7, 9.0)
Anxiety disorder	8.1	(8.0, 8.3)	8.4	(8.2, 8.6)

a 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 2019–20 is calculated for each group of patients with each selected mental health condition ever recorded.

6. 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).
- Approximately 9.9 million issued prescriptions, and 31.5 million total prescriptions (issued plus repeats) were written by GPs in MedicineInsight practices during 2019–20.
- 66.7% of MedicineInsight patients were prescribed a medicine at least once during 2019–20.
- While almost a third of patients only had one or two prescriptions issued, 6.2% of patients had 15 or more prescriptions issued during 2019–20.
- The average number of prescriptions increases with patient age and is higher in areas of socioeconomic disadvantage.
- Medicines to treat the nervous system (ATC N; antidepressants, analgesics, antiepileptics) were the most commonly issued prescriptions in 2019–20. However, cardiovascular medicines (ATC C; lipid-modifying medicines, antihypertensives) were the most commonly prescribed total (issued plus repeat) medicines.
- Opioids (N02A) accounted for 10.1% of all issued prescriptions while lipid-lowering medicines (C10A) accounted for 9.6% of total prescriptions.
- The overwhelming majority of medicines are subsidised by the Australian Government under the PBS or the RPBS (84.4%).
- On average, 100 MedicineInsight encounters result in 72.9 issued prescriptions and 231.1 total prescriptions.
- Prescribing of anti-infectives, antidepressants, opioids and cardiovascular medicines increases with patient age.

This chapter describes:

- the distribution of numbers of prescriptions per patient in 2019–20
- the average number of issued prescriptions according to patient demographics
- the number and proportion of prescriptions in 2019–20, issued and total, by ATC Level 1 (anatomical subgroup), compared to national PBS data
- the number and proportion of prescriptions in 2019–20 for the top 30 ATC Level 3 (pharmacological subgroup) categories, issued and total
- the number and proportion of PBS/RPBS prescriptions and private prescriptions in 2019–20, by ATC Level 1 and ATC Level 3
- issued and total prescriptions by ATC Level 1 per 100 encounters
- issued and total prescriptions by ATC Level 3 (top 30 only) per 100 encounters
- the average number of prescriptions per patient by sex and age for two high volume ATC level 1 categories and two high volume ATC level 3 categories.

All prescriptions ordered by general practice staff in the clinical information system – private, PBS and RPBS – that could be assigned to a unique ATC code have been included. There were an additional 513,791 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 which 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 Appendix 6 (Table A6.1). The single most commonly ordered medicine which could not be assigned a unique ATC code was hydrocortisone (0.2% 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 provides 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.

6.1. Prescription numbers

There were almost 10 million issued prescriptions and just under 31.6 million total (issued plus repeat) prescriptions with an assigned ATC code recorded in MedicineInsight during 2019–20 for ~2.5 million patients. Among the eligible patients, 66.7% (n =1,648,484) had at least one recorded prescription during 2019–20 and 33.3% (n = 822,801) had no record of a prescription.

The average number of issued prescriptions recorded per patient was 3.9 (95% CI 3.7 to 4.0) while the average number of total prescriptions (issued plus repeats) per patient was 12.2 (95% CI 11.6 to 12.9) (Table 6.1).

TABLE 6.1 AVERAGE NUMBER OF ISSUED PRESCRIPTIONS RECORDED BY PATIENT CHARACTERISTIC DURING 2019–20 (UNWEIGHTED AND WEIGHTED) COMPARED WITH 2018–19

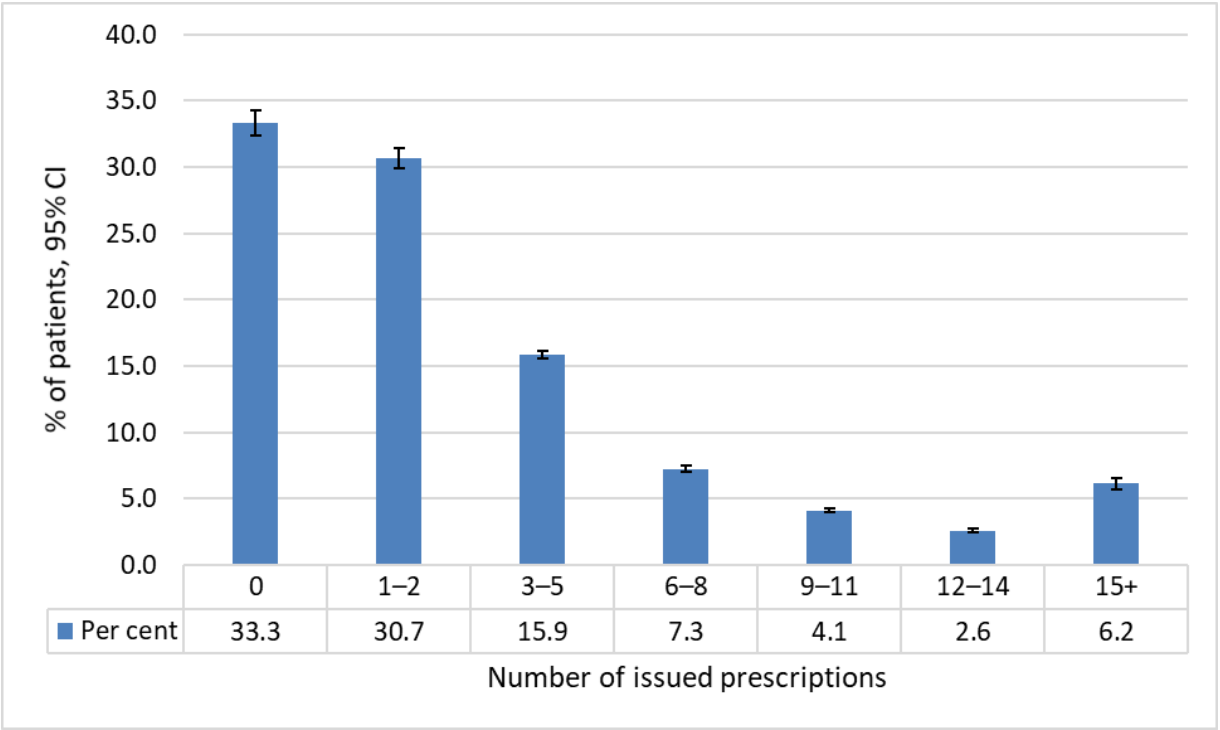
Characteristic	MedicineInsight unweighted data 2019–20		MedicineInsight weighted data 2019–20		MedicineInsight weighted data 2018–19	
	Average[a]	(95% CI)	Average[a]	(95% CI)	Average[a]	(95% CI)
All patients	4.0	(3.8, 4.2)	3.9	(3.7, 4.0)	3.9	(3.8, 4.0)
Sex						
Male	3.7	(3.5, 3.8)	3.6	(3.4, 3.7)	3.6	(3.4, 3.7)
Female	4.3	(4.1, 4.4)	4.1	(4.0, 4.3)	4.2	(4.0, 4.4)
Age group (years)						
0–9	1.1	(1.1, 1.2)	1.1	(1.1, 1.2)	1.3	(1.2, 1.3)
10–19	1.3	(1.3, 1.4)	1.3	(1.3, 1.3)	1.4	(1.3, 1.4)
20–29	2.1	(2.0, 2.1)	2.0	(1.9, 2.0)	2.0	(1.9, 2.1)
30–39	2.5	(2.4, 2.5)	2.4	(2.3, 2.5)	2.4	(2.3, 2.5)
40–49	3.4	(3.3, 3.5)	3.3	(3.2, 3.4)	3.3	(3.2, 3.5)
50–59	4.6	(4.5, 4.8)	4.5	(4.3, 4.7)	4.5	(4.4, 4.7)
60–69	6.4	(6.2, 6.6)	6.2	(6.0, 6.4)	6.3	(6.1, 6.4)
70–79	8.9	(8.6, 9.2)	8.7	(8.4, 9.0)	8.9	(8.7, 9.2)
80–89	11.9	(11.5, 12.2)	11.5	(11.2, 11.9)	12.0	(11.7, 12.3)
90+	12.4	(11.9, 12.9)	12.1	(11.6, 12.7)	12.8	(12.2, 13.3)
Rurality						
Major city	3.7	(3.5, 3.8)	3.6	(3.4, 3.8)	3.6	(3.5, 3.8)
Inner regional	4.8	(4.5, 5.1)	4.6	(4.3, 4.9)	4.7	(4.4, 5.0)
Outer regional	4.5	(4.2, 4.9)	4.3	(4.0, 4.7)	4.4	(4.1, 4.7)
Remote/very remote	3.5	(2.9, 4.2)	3.0	(2.5, 3.4)	3.6	(3.1, 4.1)

Characteristic	MedicineInsight unweighted data 2019–20		MedicineInsight weighted data 2019–20		MedicineInsight weighted data 2018–19	
	Average[a]	(95% CI)	Average[a]	(95% CI)	Average[a]	(95% CI)
State/Territory						
ACT	3.9	(3.5, 4.4)	3.9	(3.4, 4.3)	3.6	(3.2, 4.1)
NSW	4.0	(3.8, 4.3)	3.7	(3.5, 4.0)	3.8	(3.5, 4.1)
NT	2.9	(2.4, 3.3)	2.5	(2.2, 2.9)	2.7	(2.3, 3.0)
QLD	3.8	(3.5, 4.1)	3.8	(3.5, 4.1)	3.9	(3.6, 4.1)
SA	4.6	(3.6, 5.6)	4.4	(3.6, 5.2)	4.1	(3.6, 4.7)
TAS	5.4	(4.8, 5.9)	5.2	(4.6, 5.8)	4.5	(4.5, 5.7)
VIC	4.0	(3.7, 4.4)	4.0	(3.6, 4.3)	4.0	(3.7, 4.3)
WA	3.6	(3.3, 3.9)	3.5	(3.2, 3.8)	3.6	(3.3, 4.0)
Socioeconomic status (SEIFA IRSAD quintile)						
1 (most disadvantaged)	5.3	(5.0, 5.6)	5.0	(4.6, 5.3)	4.8	(4.6, 5.1)
2	4.4	(4.1, 4.6)	4.2	(3.9, 4.5)	4.4	(4.1, 4.7)
3	4.1	(3.9, 4.4)	4.0	(3.8, 4.2)	4.1	(3.8, 4.3)
4	3.5	(3.3, 3.6)	3.5	(3.3, 3.7)	3.7	(3.5, 3.9)
5 (most advantaged)	3.3	(3.1, 3.5)	3.3	(3.1, 3.5)	3.3	(3.1, 3.5)

a The average was based on all patients including those who did not have a prescription recorded 2018–19 data obtained from General Practice Insights Report, 2018–19.

Approximately a fifth of MedicineInsight patients had six or more issued prescriptions recorded during 2019–20 and 6.2% had 15 or more issued prescriptions recorded (Figure 6.1).

FIGURE 6.1 NUMBER OF ISSUED PRESCRIPTIONS RECORDED PER PATIENT (WEIGHTED), MEDICINEINSIGHT 2019–20



The average number of recorded prescriptions per annum for an individual patient increases with age (Table 6.1, Figure 6.2), rising from 1.3 (95% CI 1.3 to 1.3) for patients aged 10–19 years to 11.5 (95% CI 11.2 to 11.9) in the 80–89 age group. This reflects the higher disease burden among older people

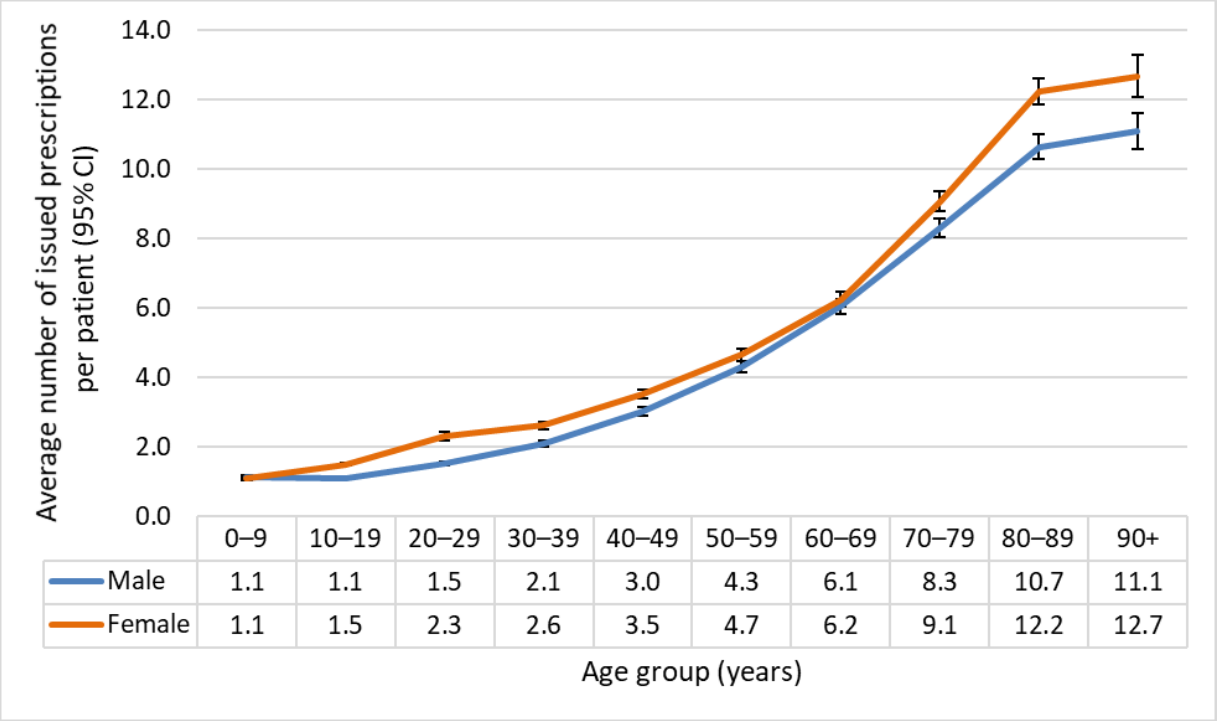
and is consistent with the increasing use of medicines with increasing age reported in the 2016 ABS Survey of Health Care.[17]

MedicineInsight patients from the NT had an average number of recorded prescriptions (2.5, 95% CI 2.2 to 2.9) significantly lower than the national average (Table 6.1). 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 NT has a lower median age (33 years), and Tasmania has a higher median age (42 years) than the national median age of 37 years.[18]

The average number of recorded prescriptions increases with socioeconomic disadvantage (Table 6.1). The average number of medicines prescribed for patients in the most advantaged group is 3.3 (95% CI 3.1 to 3.5) compared with 5.0 (95% CI 4.6 to 5.3) for the most disadvantaged group. This is likely to reflect higher disease burden in more disadvantaged communities.[19]

Over all age groups, the recorded number of prescriptions for women is higher than for men (Figure 6.2).

FIGURE 6.2 AVERAGE NUMBER OF ISSUED PRESCRIPTIONS RECORDED PER PATIENT BY AGE GROUP AND SEX (WEIGHTED), MEDICINEINSIGHT 2019–20



	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	1.1	1.1	1.5	2.1	3.0	4.3	6.1	8.3	10.7	11.1
Female	1.1	1.5	2.3	2.6	3.5	4.7	6.2	9.1	12.2	12.7

6.2. Prescriptions per medicine type

Just under 10 million issued prescriptions with assigned ATC codes were prescribed to MedicineInsight patients in 2019–20 (Table 6.2). If total prescriptions – issued and repeat prescriptions – are included, then there were just under 31.6 million prescriptions recorded for MedicineInsight patients in this cohort. During the same period, there were approximately 204.4 million prescriptions dispensed on the PBS (ATC Level 1 including under co-payment prescriptions).[20] MedicineInsight captures prescriptions that have been written – whether they are private, PBS-subsidised or under co-payment – while the PBS data captures prescriptions when the medicine has been dispensed on the PBS or is under co-payment.

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 (27.7%). However, cardiovascular medicines accounted for the largest proportion of medicines ordered for MedicineInsight patients in terms of the total volume of prescriptions (31.0%; Table 6.2). The

differences between the proportions of medicines seen when comparing issued prescription data with total prescription data may be due to several factors. These include:

- the nature of the condition being treated. A higher total of prescriptions will be recorded for a chronic condition which requires 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 a particular medicine class. 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 three (one issued prescription and two repeats) or six months (one issued and 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 prescriptions dispensed on the PBS (Table 6.2). Cardiovascular medicines accounted for 31% of total prescriptions prescribed to MedicineInsight patients and of prescriptions dispensed on the PBS. Medicines for the nervous system, which include the analgesics, are the next most common prescriptions, accounting for 22% of total MedicineInsight prescriptions and of PBS dispensed prescriptions, while medicines for the alimentary tract and metabolic system accounted for 14.9% and 15.9% of total prescriptions in MedicineInsight and dispensed on the PBS, respectively.

There were some differences between the MedicineInsight and PBS prescribing data (Table 6.2). This is 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 (genitourinary system and sex hormones) group account for 4.2% of total prescriptions prescribed for MedicineInsight patients but only 2.0% 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 MedicineInsight and PBS figures are:

- MedicineInsight includes private prescriptions which are not captured by the PBS (see section 6.3)
- MedicineInsight captures information on all prescriptions that are written, but these may not necessarily all be dispensed.

TABLE 6.2 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, 2019–20[20]

ATC Level 1 Medicine Class		Issued prescriptions			Total prescriptions			PBS 2019–20[a]	
		Unweighted data		Weighted data	Unweighted data		Weighted data		
		No.	%	% (95% CI)	No.	%	% (95% CI)	No.	%
C	Cardiovascular system	1,775,125	17.9	18.0 (17.5, 18.6)	9,649,143	30.6	31.0 (30.4, 31.6)	65,309,786	31.3
N	Nervous system	2,771,426	28.0	27.7 (26.9, 28.4)	7,203,187	22.8	22.4 (21.8, 22.9)	45,444,822	21.8
A	Alimentary tract and metabolism	1,173,944	11.9	11.8 (11.6, 12.1)	4,686,139	14.9	14.9 (14.7, 15.1)	33,040,857	15.9
R	Respiratory system	544,397	5.5	5.5 (5.4, 5.6)	2,332,173	7.4	7.3 (7.2, 7.5)	12,396,771	6.0
J	Anti-infectives for systemic use	1,440,838	14.6	14.9 (14.2, 15.5)	2,102,284	6.7	6.8 (6.5, 7.2)	11,979,502	5.7
G	Genitourinary system and sex hormones	408,764	4.1	4.0 (3.9, 4.1)	1,329,524	4.2	4.2 (4.0, 4.3)	4,148,639	2.0
M	Musculoskeletal system	456,733	4.6	4.6 (4.5, 4.8)	1,136,757	3.6	3.6 (3.5, 3.7)	6,851,278	3.3
B	Blood and blood forming organs	302,524	3.1	3.0 (2.9, 3.1)	1,120,740	3.6	3.5 (3.4, 3.6)	10,388,487	5.0
D	Dermatologicals	477,588	4.8	5.0 (4.8, 5.1)	843,068	2.7	2.7 (2.6, 2.9)	2,982,967	1.4

ATC Level 1 Medicine Class		Issued prescriptions			Total prescriptions			PBS 2019–20[a]	
		Unweighted data		Weighted data	Unweighted data		Weighted data		
		No.	%	% (95% CI)	No.	%	% (95% CI)	No.	%
H	Systemic hormonal preparations, excl. sex hormones and insulins	311,970	3.2	3.2 (3.0, 3.3)	599,403	1.9	1.9 (1.8, 1.9)	3,615,132	1.7
S	Sensory organs (eye/ear)	147,232	1.5	1.5 (1.5, 1.6)	332,080	1.1	1.1 (1.0, 1.1)	7,408,131	3.6
L	Antineoplastic and immunomodulating agents	41,542	0.4	0.4 (0.4, 0.4)	138,986	0.4	0.4 (0.4, 0.4)	4,510,311	2.2
P	Antiparasitic products, insecticides and repellents	40,447	0.4	0.4 (0.4, 0.4)	61,041	0.2	0.2 (0.2, 0.2)	72,937	0.0
V	Various	926	0.0	0.0 (0.0, 0.0)	2,679	0.0	0.0 (0.0, 0.0)	194,230	0.1
	Total	**9,893,456**	**100.0**		**31,537,204**			**204,343,850**	**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 125,822 prescriptions that do not have an ATC code and are designated as 'unless otherwise classified'.

At ATC level 3,[H] opioids accounted for the largest proportion of medicines ordered for MedicineInsight patients in terms of issued prescriptions (10.1%). The high proportion of issued prescriptions compared with total prescriptions for opioids is due to PBS restrictions which largely limit opioids prescriptions to a single supply without any repeats.[I] 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 (9.8%; Table 6.3).

Consistent with high rates of dyslipidaemia seen in general practice (see Chapter 4), the lipid-modifying medicines (C10A and C10B) together accounted for 5.6% of the volume of issued prescriptions and 10.6% of the volume of total prescriptions (Table 6.3). Medicines to treat hypertension appeared six times in the list of the top 30 ATC level 3 drug classes (C07A, C08C, C09A, C09B, C09C, C09D) and together accounted for 9.7% of the volume of issued prescriptions and 17.3% of the volume of total prescriptions.

Table 6.3 includes the top 30 ATC 3 medicines as ranked by unweighted total prescriptions. However, there are a number of classes of medicines that make the top 30 medicines by issued prescriptions but not by total prescriptions. These included the macrolide antibiotics (J01F; 1.3% of all issued prescriptions), thyroid preparations (H03A; 1.2%), medicines typically used for the management of osteoporosis (M05B; 1.0%), vaccines for viral diseases (J07B; 0.8%) and high-ceiling diuretics (C03C; 0.8%). This can be related to their use in the short-term management of acute conditions (antibiotics), one-off use (vaccines) or large pack sizes (thyroid preparations).

Prescription numbers (issued and total) for all ATC level 3 drug classes prescribed in MedicineInsight practices during 2019–20 are included in Appendix 6.

TABLE 6.3 NUMBER AND PROPORTION (%) OF ISSUED AND TOTAL PRESCRIPTIONS FOR TOP 30 ATC LEVEL 3 CLASSES RECORDED (UNWEIGHTED AND WEIGHTED), MEDICINEINSIGHT 2019–20 AND 2018–19

ATC level 3	Medicine class	Issued prescriptions				Total (issued plus repeat) prescriptions[b]			
		Unweighted data[a]		Weighted data	2018–19 (weighted)	Unweighted data[a]		Weighted data	2018–19 (weighted)
		No.	%	% (95% CI)	% (95% CI)	No.	%	% (95% CI)	% (95% CI)
N06A	Antidepressants	683,991	6.9	6.6 (6.4, 6.8)	6.4 (6.3, 6.6)	3,202,629	10.2	9.8 (9.5, 10.1)	9.7 (9.5, 10.0)
C10A	Lipid modifying agents, single agent	490,336	5.0	5.1 (4.9, 5.2)	5.0 (4.9, 5.2)	2,950,501	9.4	9.6 (9.4, 9.8)	9.8 (9.6, 10.0)
A02B	Drugs for peptic ulcer and GORD	543,590	5.5	5.5 (5.3, 5.6)	5.3 (5.2, 5.5)	2,476,138	7.9	7.8 (7.6, 7.9)	7.5 (7.4, 7.6)
R03A	Adrenergics, inhalants	335,896	3.4	3.4 (3.3, 3.4)	2.8 (2.7, 2.9)	1,680,986	5.3	5.3 (5.1, 5.4)	4.5 (4.4, 4.6)

[H] 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.
[I] Applications for increased quantities and/or repeats must be authorised by the Department of Human Services.

ATC level 3	Medicine class	Issued prescriptions				Total (issued plus repeat) prescriptions[b]			
		Unweighted data[a]		Weighted data	2018–19 (weighted)	Unweighted data[a]		Weighted data	2018–19 (weighted)
		No.	%	% (95% CI)	% (95% CI)	No.	%	% (95% CI)	% (95% CI)
A10B	Blood glucose lowering drugs, excluding insulins	267,424	2.7	2.8 (2.7, 2.9)	2.2 (2.1, 2.3)	1,458,476	4.6	4.8 (4.6, 5.0)	3.9 (3.8, 4.0)
N02A	Opioids	1,022,604	10.3	10.1 (9.7, 10.5)	10.6 (10.3, 11.)	1,350,382	4.3	4.2 (4.1, 4.4)	4.6 (4.5, 4.8)
C09C	Angiotensin II receptor blockers, single agent	221,194	2.2	2.2 (2.2, 2.3)	2.2 (2.1, 2.3)	1,260,752	4.0	4.0 (3.9, 4.1)	4.1 (4.0, 4.2)
C09A	ACE inhibitors, single ingredient	204,539	2.1	2.1 (2.0, 2.2)	2.0 (2.0, 2.1)	1,161,748	3.7	3.7 (3.6, 3.8)	3.8 (3.7, 3.9)
C07A	Beta blocking agents	190,017	1.9	1.9 (1.8, 2.0)	1.7 (1.6, 1.8)	1,010,482	3.2	3.2 (3.1, 3.3)	2.9 (2.9, 3.0)
B01A	Antithrombotic agents	220,409	2.2	2.2 (2.1, 2.3)	2.2 (2.1, 2.3)	1,009,248	3.2	3.2 (3.1, 3.3)	3.1 (3.0, 3.2)
C09D	Angiotensin-II receptor blockers, combinations	146,546	1.5	1.5 (1.5, 1.6)	1.4 (1.4, 1.5)	838,807	2.7	2.7 (2.6, 2.8)	2.7 (2.6, 2.8)
N03A	Antiepileptics	185,516	1.9	1.8 (1.8, 1.9)	1.8 (1.8, 1.9)	810,605	2.6	2.5 (2.4, 2.6)	2.6 (2.5, 2.6)
C08C	Selective calcium channel blockers with mainly vascular effects	132,239	1.3	1.3 (1.3, 1.4)	1.3 (1.3, 1.4)	745,218	2.4	2.4 (2.3, 2.5)	2.4 (2.3, 2.5)
J01C	Beta-lactam antibacterials, penicillins	563,930	5.7	5.8 (5.5, 6.2)	6.6 (6.3, 7.0)	714,095	2.3	2.3 (2.2, 2.5)	2.8 (2.7, 3.0)
M01A	Anti-inflammatory and anti-rheumatic products, non-steroids	276,456	2.8	2.8 (2.7, 3.0)	2.9 (2.8, 3.0)	691,984	2.2	2.2 (2.1, 2.3)	2.4 (2.3, 2.5)
D07A	Corticosteroids, single agent	283,294	2.9	3.0 (2.8, 3.1)	3.0 (2.9, 3.1)	551,390	1.7	1.8 (1.7, 1.9)	1.8 (1.7, 1.9)
N05A	Antipsychotics	169,113	1.7	1.7 (1.6, 1.8)	1.6 (1.6, 1.7)	440,515	1.4	1.4 (1.3, 1.5)	1.3 (1.2, 1.4)
R03B	Other drugs for obstructive airway diseases, inhalants	86,968	0.9	0.9 (0.8, 0.9)	0.8 (0.7, 0.8)	413,414	1.3	1.3 (1.2, 1.3)	1.1 (1.1, 1.2)
G03A	Hormonal contraceptives for hormonal use	167,939	1.7	1.5 (1.4, 1.6)	1.6 (1.5, 1.7)	408,620	1.3	1.2 (1.1, 1.3)	1.3 (1.2, 1.3)
J01D	Other beta-lactam antibacterials	301,424	3.0	3.1 (3.0, 3.3)	3.2 (3.1, 3.4)	402,023	1.3	1.3 (1.2, 1.4)	1.5 (1.4, 1.6)
C09B	ACE inhibitors, combinations	69,393	0.7	0.7 (0.7, 0.8)	0.7 (0.7, 0.7)	395,980	1.3	1.3 (1.2, 1.3)	1.3 (1.3, 1.4)
N05C	Hypnotics and sedatives	242,225	2.4	2.6 (2.4, 2.7)	2.7 (2.6, 2.8)	378,663	1.2	1.3 (1.2, 1.3)	1.3 (1.2, 1.3)
H02A	Corticosteroid for systemic use, single agent	187,195	1.9	1.9 (1.8, 2.0)	2.0 (1.9, 2.1)	354,764	1.1	1.1 (1.1, 1.2)	1.2 (1.2, 1.3)
G04B	Urologicals	74,407	0.8	0.8 (0.8, 0.8)	0.8 (0.8, 0.8)	307,301	1.0	1.0 (1.0, 1.1)	1.1 (1.0, 1.1)
J01A	Tetracyclines	122,815	1.2	1.2 (1.2, 1.3)	1.3 (1.3, 1.4)	293,238	0.9	0.9 (0.9, 1.0)	1.0 (1.0, 1.1)
C10B	Lipid modifying agents, combinations	48,905	0.5	0.5 (0.5, 0.6)	0.5 (0.5, 0.6)	285,446	0.9	1.0 (0.9, 1.0)	1.0 (1.0, 1.1)
N05B	Anxiolytics	248,823	2.5	2.6 (2.5, 2.8)	2.8 (2.6, 2.9)	271,651	0.9	0.9 (0.8, 1.0)	1.0 (0.9, 1.0)
G03C	Progestogens	78,308	0.8	0.8 (0.7, 0.8)	0.8 (0.8, 0.9)	253,614	0.8	0.8 (0.7, 0.9)	0.9 (0.8, 0.9)
N02B	Other analgesics and antipyretics	64,773	0.7	0.6 (0.6, 0.7)	0.7 (0.6, 0.7)	239,898	0.8	0.7 (0.6, 0.8)	0.8 (0.7, 0.8)
M04A	Antigout preparations	75,585	0.8	0.7 (0.7, 0.8)	0.7 (0.7, 0.8)	234,679	0.7	0.7 (0.7, 0.8)	0.8 (0.7, 0.8)
	Subtotal[d]	**7,705,854**	**77.9**	**-**		**26,593,247**	**84.6**	**-**	

a Proportions (%) are given for the top 30 ATC level 3 classes only.
b Total prescriptions include issued and repeat prescriptions.
c Both issued and repeat prescriptions.
d Subtotal for the top 30 ATC level 3 classes.
2018–19 data obtained from General Practice Insights Report, 2018–19.

6.3. 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 6.4, 84.4% of

issued prescriptions with an assigned ATC code are subsidised by the PBS or RPBS. However, there were three ATC level 1 medicine classes in which more than a 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, immunostimulant and immunosuppressant medicines.

TABLE 6.4 NUMBER AND PROPORTION (%) OF PBS/RPBS AND PRIVATE ISSUED PRESCRIPTIONS FOR ATC LEVEL 1 (UNWEIGHTED AND WEIGHTED), MEDICINEINSIGHT 2019–20

ATC level 1	Medicine class	PBS/RPBS			Private		
		Unweighted data		Weighted data	Unweighted data		Weighted data
		No.	% within class	% within class (95% CI)	No.	% within class	% within class (95% CI)
A	Alimentary tract and metabolism	984,834	83.9	84.1 (83.1, 85.1)	189,110	16.1	15.9 (14.9, 16.9)
B	Blood and blood forming organs	267,608	88.5	88.6 (87.8, 89.4)	34,916	11.5	11.4 (10.6, 12.2)
C	Cardiovascular system	1,753,467	98.8	98.7 (98.6, 98.8)	21,658	1.2	1.3 (1.2, 1.4)
D	Dermatologicals	260,604	54.6	55.1 (53.5, 56.6)	216,984	45.4	44.9 (43.4, 46.5)
G	Genitourinary system and sex hormones	253,149	61.9	60.3 (59.0, 61.6)	155,615	38.1	39.7 (38.4, 41.0)
H	Systemic hormonal preparations, excl. sex hormones and insulins	302,880	97.1	97.0 (96.6, 97.4)	9,090	2.9	3.0 (2.6, 3.4)
J	Anti-infectives for systemic use	1,203,090	83.5	83.4 (82.3, 84.5)	237,748	16.5	16.6 (15.5, 17.7)
L	Antineoplastic and immunomodulating agents	25,741	62.0	65.1 (61.7, 68.6)	15,801	38.0	34.9 (31.4, 38.3)
M	Musculoskeletal system	418,702	91.7	91.4 (90.4, 92.5)	38,031	8.3	8.6 (7.5, 9.6)
N	Nervous system	2,322,999	83.8	83.4 (82.6, 84.3)	448,427	16.2	16.6 (15.7, 17.4)
P	Antiparasitic products, insecticides and repellents	34,254	84.7	84.7 (83.3, 86.1)	6,193	15.3	15.3 (13.9, 16.7)
R	Respiratory system	437,885	80.4	79.7 (78.4, 80.9)	106,512	19.6	20.3 (19.1, 21.6)
S	Sensory organs (eye/ear)	101,405	68.9	68.7 (67.0, 70.3)	45,827	31.1	31.3 (29.7, 33.0)
V	Various	892	96.3	95.9 (93.8, 98.0)	34	3.7	4.1 (2.0, 6.2)
	Total all classes	**8,367,510**	**84.6**	**84.4 (83.7, 85.1)**	**1,525,946**	**15.4**	**15.6 (14.9, 16.3)**

Table 6.5 and Appendix 6 provide more detail about the private and PBS splits for issued prescriptions within each ATC level 3 category. Among the top 30 ATC level 3 classes for issued prescriptions, the most likely to be prescribed privately (99.9%) were viral vaccines (J07B) which include vaccines for flu, hepatitis, varicella zoster, encephalitis, measles, mumps, etc. Other classes with higher levels of private prescribing were the hypnotics and sedatives which include benzodiazepines, barbiturates, and melatonin (N05C; 47.1%), dermatological topical corticosteroids (D07A; 22.3%) and systemic hormonal contraceptives (G03A; 20.5%). This reflects that many of these medicines, including the oral contraceptives, are not PBS-subsidised.

A breakdown of PBS/RPBS subsidised and private prescriptions (issued only) for all ATC level 3 drug classes prescribed in MedicineInsight practices during 2019–20 is included in Appendix 6.

TABLE 6.5 NUMBER AND PROPORTION (%) OF PBS/RPBS AND PRIVATE ISSUED PRESCRIPTIONS FOR TOP 30 ATC LEVEL 3 CLASSES RECORDED (UNWEIGHTED AND WEIGHTED), MEDICINEINSIGHT 2019–20

ATC level 3	Medicine class	PBS/RPBS			Private		
		Unweighted data		Weighted data	Unweighted data		Weighted data
		No.	% within class	% within class (95% CI)	No.	% within class	% within class (95% CI)
N02A	Opioids	847,024	82.8	82.6 (81.6, 83.6)	175,580	17.2	17.4 (16.4, 18.4)
N06A	Antidepressants	660,131	96.5	96.4 (96.1, 96.7)	23,860	3.5	3.6 (3.3, 3.9)
J01C	Beta-lactam antibacterials, penicillins	552,922	98.0	98.1 (97.7, 98.5)	11,008	2.0	1.9 (1.5, 2.3)
A02B	Drugs for peptic ulcer and GORD	522,366	96.1	95.9 (95.4, 96.3)	21,224	3.9	4.1 (3.7, 4.6)
C10A	Lipid modifying agents, single agent	486,767	99.3	99.2 (99.1, 99.3)	3,569	0.7	0.8 (0.7, 0.9)
R03A	Adrenergics, inhalants	331,339	98.6	98.6 (98.4, 98.8)	4,557	1.4	1.4 (1.2, 1.6)
J01D	Other beta-lactam antibacterials	297,990	98.9	98.9 (98.7, 99.2)	3,434	1.1	1.1 (0.8, 1.3)
D07A	Corticosteroids, single agent	219,410	77.4	77.7 (76.3, 79.1)	63,884	22.6	22.3 (20.9, 23.7)
M01A	Anti-inflammatory and anti-rheumatic products, non-steroids	243,153	88.0	87.8 (86.4, 89.2)	33,303	12.0	12.2 (10.8, 13.6)
A10B	Blood glucose lowering drugs, excluding insulins	259,741	97.1	97.2 (96.9, 97.6)	7,683	2.9	2.8 (2.4, 3.1)
N05B	Anxiolytics	215,842	86.7	86.9 (85.9, 87.9)	32,981	13.3	13.1 (12.1, 14.1)
N05C	Hypnotics and sedatives	127,897	52.8	52.9 (51.1, 54.7)	114,328	47.2	47.1 (45.3, 48.9)
C09C	Angiotensin II receptor blockers, single agent	220,194	99.5	99.6 (99.5, 99.7)	1,000	0.5	0.4 (0.3, 0.5)
B01A	Antithrombotic agents	202,341	91.8	91.8 (91.2, 92.5)	18,068	8.2	8.2 (7.5, 8.8)
C09A	ACE inhibitors, single ingredient	203,957	99.7	99.7 (99.6, 99.8)	582	0.3	0.3 (0.2, 0.4)
C07A	Beta blocking agents	188,662	99.3	99.3 (99.2, 99.4)	1,355	0.7	0.7 (0.6, 0.8)
H02A	Corticosteroid for systemic use, single agent	185,003	98.8	98.8 (98.5, 99.2)	2,192	1.2	1.2 (0.8, 1.5)
N03A	Antiepileptics	163,210	88.0	88.0 (87.2, 88.8)	22,306	12.0	12.0 (11.2, 12.8)
N05A	Antipsychotics	144,554	85.5	86.3 (85.1, 87.6)	24,559	14.5	13.7 (12.4, 14.9)
G03A	Hormonal contraceptives for hormonal use	135,572	80.7	79.5 (78.2, 80.8)	32,367	19.3	20.5 (19.2, 21.8)
C09D	Angiotensin-II receptor blockers, combinations	145,633	99.4	99.4 (99.2, 99.5)	913	0.6	0.6 (0.5, 0.8)
C08C	Selective calcium channel blockers with mainly vascular effects	131,727	99.6	99.6 (99.5, 99.7)	512	0.4	0.4 (0.3, 0.5)
J01F	Macrolides, lincosamides and streptogramins	113,109	85.8	85.7 (84.2, 87.3)	18,780	14.2	14.3 (12.7, 15.8)
J01A	Tetracyclines	110,343	89.8	89.5 (88.4, 90.6)	12,472	10.2	10.5 (9.4, 11.6)
H03A	Thyroid preparations	110,126	94.2	94.0 (93.1, 94.8)	6,723	5.8	6.0 (5.2, 6.9)
M05B	Drugs affecting bone structure and mineralisation	94,195	97.4	97.3 (97.1, 97.6)	2,537	2.6	2.7 (2.4, 2.9)
R03B	Other inhaled drugs for obstructive airway disease	85,735	98.6	98.5 (98.0, 99.0)	1,233	1.4	1.5 (1.0, 2.0)
J07B	Viral vaccines	71	0.1	0.1 (0.0, 0.1)	83,229	99.9	99.9 (99.9, 100.0)
G03C	Oestrogens	65,733	83.9	84.5 (83.5, 85.5)	12,575	16.1	15.5 (14.5, 16.5)
C03C	High-ceiling diuretics	73,272	94.7	94.6 (94.0, 95.2)	4,107	5.3	5.4 (4.8, 6.0)

6.4. Prescriptions per 100 encounters

On average, for every 100 GP clinical encounters, 72.9 issued prescriptions are generated (Table 6.6). The overall prescribing rate per 100 encounters appears to have increased slightly, though not statistically significantly, from 70.0 in 2018–19 to 72.9 in 2019–20.

Unsurprisingly, the likelihood a prescription will be issued increases as patients get older (Table 6.6). For patients aged 60–89 years, almost every encounter is associated with a prescription being written (~94–97 prescriptions per 100 encounters). In comparison, less than a third of encounters involving children 0–9 years are associated with a prescription being written. Compared to 2018–19 the rate of medicine prescribing in 2019–20 significantly decreased for patients aged 0–39 and ≥ 60 years.

The rate of medicine prescribing also increased with increasing socioeconomic disadvantage which may reflect the high burden of disease among people of low socioeconomic position.[19] Medicines are less commonly prescribed during encounters in major cities than in inner or outer regional areas of Australia (Table 6.6). This could reflect easier access to other non-pharmacological interventions and allied health services in major cities.

The rate of prescribing was also significantly higher than the national average in Tasmania, again possibly reflecting its older population. In contrast, prescribing rates per 100 encounters were significantly lower than the national average in the NT.

TABLE 6.6 RATE OF ISSUED PRESCRIPTIONS PER 100 ENCOUNTERS BY PATIENT CHARACTERISTIC (UNWEIGHTED AND WEIGHTED), MEDICINEINSIGHT 2019–20 COMPARED WITH 2018–19

Characteristic	Unweighted data 2019–20		Weighted data 2019–20		Weighted data 2018–19	
	Rate per 100 encounters	(95% CI)	Rate per 100 encounters	(95% CI)	Rate per 100 encounters	(95% CI)
All patients	74.3	(72.5, 76.2)	72.9	(70.9, 74.9)	70.0	(68.3, 71.7)
Sex						
Male	74.2	(72.3, 76.1)	72.8	(70.8, 74.9)	69.2	(67.5, 70.9)
Female	74.4	(72.6, 76.3)	73.0	(71.0, 75.0)	70.7	(69.0, 72.4)
Age group (years)						
0–9	30.1	(29.1, 31.2)	29.8	(28.8, 30.9)	36.6	(35.1, 38.1)
10–19	42.2	(41.2, 43.1)	40.9	(39.9, 41.9)	45.6	(44.3, 46.9)
20–29	53.5	(52.2, 54.8)	51.9	(50.6, 53.2)	58.4	(56.6, 60.2)
30–39	56.5	(54.8, 58.2)	55.5	(53.8, 57.2)	60.0	(58.4, 61.5)
40–49	71.4	(69.5, 73.3)	69.6	(67.5, 71.6)	69.8	(68.1, 71.5)
50–59	84.4	(82.4, 86.3)	82.6	(80.4, 84.7)	83.6	(81.7, 85.4)
60–69	95.3	(93.3, 97.4)	93.8	(91.5, 96.0)	99.8	(97.6, 102.0)
70–79	98.1	(96.1, 100.2)	97.2	(95.0, 99.3)	106.9	(104.3, 109.6)
80–89	95.6	(93.3, 98.0)	95.1	(92.8, 97.3)	108.4	(105.6, 111.2)
90+	89.1	(85.3, 92.8)	89.1	(85.9, 92.3)	103.5	(99.8, 107.2)
Rurality						
Major city	70.7	(68.6, 72.8)	70.1	(67.8, 72.4)	66.8	(65.0, 68.6)
Inner regional	81.7	(78.2, 85.2)	79.6	(75.4, 83.7)	75.3	(72.2, 78.5)
Outer regional	79.1	(74.3, 84.0)	78.2	(73.2, 83.2)	80.8	(76.4, 85.2)
Remote/very remote	82.4	(70.7, 94.1)	76.7	(69.6, 83.7)	86.1	(80.0, 92.2)
State/Territory						
ACT	79.6	(72.5, 86.7)	79.3	(72.4, 86.2)	70.7	(63.4, 78.1)
NSW	75.9	(72.9, 78.8)	72.4	(68.9, 75.9)	69.4	(66.2, 72.6)
NT	57.4	(43.6, 71.2)	57.1	(46.5, 67.7)	65.8	(57.6, 73.9)
QLD	71.3	(67.0, 75.7)	71.8	(67.5, 76.0)	68.7	(65.8, 71.5)

Characteristic	Unweighted data 2019–20		Weighted data 2019–20		Weighted data 2018–19	
	Rate per 100 encounters	(95% CI)	Rate per 100 encounters	(95% CI)	Rate per 100 encounters	(95% CI)
SA	78.4	(65.1, 91.6)	76.3	(65.3, 87.4)	72.9	(66.4, 79.3)
TAS	84.0	(77.6, 90.4)	83.1	(76.8, 89.5)	85.3	(77.3, 93.3)
VIC	73.5	(69.4, 77.5)	73.6	(69.7, 77.6)	71.8	(68.5, 75.0)
WA	70.0	(65.0, 74.9)	69.8	(65.0, 74.6)	64.9	(60.8, 68.9)
Socioeconomic status (SEIFA IRSAD quintile)						
1 (most disadvantaged)	86.6	(83.5, 89.8)	83.1	(78.6, 87.6)	77.3	(74.7, 79.9)
2	80.4	(77.4, 83.3)	80.2	(76.0, 84.5)	76.4	(72.3, 80.4)
3	74.1	(71.6, 76.7)	73.2	(70.7, 75.7)	68.7	(66.1, 71.2)
4	67.5	(64.9, 70.2)	67.4	(64.7, 70.2)	67.8	(65.7, 69.9)
5 (most advantaged)	66.3	(63.7, 69.0)	67.0	(64.6, 69.4)	66.6	(64.6, 68.7)

6.5. Prescriptions per 100 encounters by ATC codes

On average, for every 100 GP clinical encounters, about 73 issued prescriptions are generated (Table 6.7). The prescriptions provided during these encounters are sufficient to generate 231 prescriptions per 100 encounters – ie, each GP-patient encounter on average results in 2.3 issued and repeat prescriptions.

The three most frequently prescribed medicine classes for issued prescriptions per 100 encounters were medicines for the nervous system (which include the analgesics; 20.2 per 100 encounters), medicines for the cardiovascular system (13.1 prescriptions per 100 encounters) and anti-infective medicines for systemic use (10.8 per 100 encounters).

The most frequently recorded medicine classes for total prescriptions were cardiovascular medicines (71.6 prescriptions per 100 encounters), medicines for the nervous system (51.7 per 100 encounters) and medicines for the alimentary tract and metabolism (34.4 per 100 encounters). These data align with the observed findings for the most commonly managed conditions in 2019–20 (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 2019–20, 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.

TABLE 6.7 ISSUED AND TOTAL PRESCRIPTIONS RECORDED PER 100 ENCOUNTERS, ATC LEVEL 1 (WEIGHTED), MEDICINEINSIGHT 2019–20

ATC level 1	Medicine class	Issued prescriptions			Total (issued plus repeat) prescriptions[a]		
		Rate per 100 encounters	(95% CI)	Rank	Rate per 100 encounters	(95% CI)	Rank
C	Cardiovascular system	13.1	(11.9, 14.4)	2	71.6	(64.8, 78.4)	1
N	Nervous system	20.2	(18.3, 22.0)	1	51.7	(47.0, 56.4)	2
A	Alimentary tract and metabolism	8.6	(7.9, 9.4)	4	34.4	(31.3, 37.6)	3
R	Respiratory system	4.0	(3.7, 4.4)	5	16.9	(15.4, 18.4)	4
J	Anti-infectives for systemic use	10.8	(9.7, 12.0)	3	15.7	(14.2, 17.3)	5
G	Genitourinary system and sex hormones	2.9	(2.7, 3.2)	8	9.6	(8.7, 10.5)	6
M	Musculoskeletal system	3.4	(3.1, 3.7)	7	8.4	(7.6, 9.1)	7

ATC level 1	Medicine class	Issued prescriptions			Total (issued plus repeat) prescriptions[a]		
		Rate per 100 encounters	(95% CI)	Rank	Rate per 100 encounters	(95% CI)	Rank
B	Blood and blood forming organs	2.2	(2.0, 2.4)	10	8.1	(7.3, 8.9)	8
D	Dermatologicals	3.6	(3.3, 4.0)	6	6.3	(5.7, 6.9)	9
H	Systemic hormonal preparations, excl. sex hormones and insulins	2.3	(2.1, 2.5)	9	4.4	(3.9, 4.8)	10
S	Sensory organs (eye/ear)	1.1	(1.0, 1.2)	11	2.5	(2.2, 2.7)	11
L	Antineoplastic and immunomodulating agents	0.3	(0.3, 0.3)	12	1.0	(0.9, 1.1)	12
P	Antiparasitic products, insecticides and repellents	0.3	(0.3, 0.3)	13	0.4	(0.4, 0.5)	13
V	Various	0.0	(0.0, 0.0)	14	0.0	(0.0, 0.0)	14
	Total	**72.9**	**(66.5, 79.4)**		**231.1**	**(210.5, 251.7)**	

a 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 6.8).

TABLE 6.8 ISSUED AND TOTAL PRESCRIPTIONS RECORDED PER 100 ENCOUNTERS (WEIGHTED), ATC LEVEL 3, MEDICINEINSIGHT 2019–20

ATC level 3	Medicine class	Issued prescriptions			Total (issued plus repeat) prescriptions[a]		
		Rate per 100 encounters	(95% CI)	Rank	Rate per 100 encounters	(95% CI)	Rank
N06A	Antidepressants	4.8	(4.4, 5.2)	2	22.5	(20.5, 24.6)	1
C10A	Lipid modifying agents, single agent	3.7	(3.4, 4.1)	5	22.2	(20.2, 24.3)	2
A02B	Drugs for peptic ulcer and GORD	4.0	(3.6, 4.3)	4	17.9	(16.2, 19.7)	3
R03A	Adrenergics, inhalants	2.5	(2.2, 2.7)	6	12.2	(11.0, 13.3)	4
A10B	Blood glucose lowering drugs, excluding insulins	2.0	(1.8, 2.2)	10	11.1	(10.0, 12.3)	5
N02A	Opioids	7.4	(6.7, 8.1)	1	9.8	(8.8, 10.8)	6
C09C	Angiotensin II receptor blockers, single agent	1.6	(1.5, 1.8)	13	9.3	(8.4, 10.1)	7
C09A	ACE inhibitors, single agent	1.5	(1.4, 1.7)	15	8.5	(7.7, 9.4)	8
B01A	Antithrombotic agents	1.6	(1.4, 1.8)	14	7.4	(6.6, 8.1)	9
C07A	Beta blocking agents	1.4	(1.2, 1.5)	17	7.3	(6.6, 8.1)	10
C09D	Angiotensin II receptor blockers, combinations	1.1	(1.0, 1.2)	21	6.3	(5.7, 6.9)	11
N03A	Antiepileptics	1.3	(1.2, 1.5)	18	5.8	(5.3, 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
J01C	Beta-lactam antibacterials, penicillins	4.2	(3.8, 4.7)	3	5.4	(4.8, 5.9)	14
M01A	Anti-inflammatory and antirheumatic products, non-steroids	2.1	(1.9, 2.3)	9	5.1	(4.6, 5.6)	15
D07A	Corticosteroids, single agent	2.2	(1.9, 2.4)	8	4.1	(3.7, 4.5)	16
N05A	Antipsychotics	1.2	(1.1, 1.4)	19	3.2	(2.9, 3.6)	17
J01D	Other beta-lactam antibacterials	2.3	(2.0, 2.5)	7	3.0	(2.7, 3.3)	18
C09B	ACE inhibitors, combinations	0.5	(0.5, 0.6)	28	3.0	(2.7, 3.3)	19
R03B	Other inhaled drugs for obstructive airway diseases	0.6	(0.6, 0.7)	24	3.0	(2.7, 3.2)	20
N05C	Hypnotics and sedatives	1.9	(1.7, 2.1)	12	2.9	(2.6, 3.2)	21
G03A	Hormonal contraceptives for systemic use	1.1	(1.0, 1.2)	20	2.7	(2.4, 3.0)	22
H02A	Corticosteroids for systemic use, single agent	1.4	(1.2, 1.6)	16	2.6	(2.3, 2.8)	23

ATC level 3	Medicine class	Issued prescriptions			Total (issued plus repeat) prescriptions[a]		
		Rate per 100 encounters	(95% CI)	Rank	Rate per 100 encounters	(95% CI)	Rank
G04B	Urologicals	0.6	(0.5, 0.6)	25	2.4	(2.1, 2.6)	24
C10B	Lipid modifying agents, combinations	0.4	(0.3, 0.4)	29	2.2	(2.0, 2.5)	25
J01A	Tetracyclines	0.9	(0.8, 1.0)	23	2.2	(1.9, 2.4)	26
N05B	Anxiolytics	1.9	(1.7, 2.1)	11	2.1	(1.9, 2.3)	27
G03C	Oestrogens	0.6	(0.5, 0.6)	26	1.9	(1.7, 2.1)	28
N02C	Antimigraine preparations	0.3	(0.3, 0.4)	30	1.7	(1.5, 1.9)	29
M04A	Antigout preparations	0.5	(0.5, 0.6)	27	1.7	(1.5, 1.8)	30

a Total prescriptions – issued and repeat prescriptions

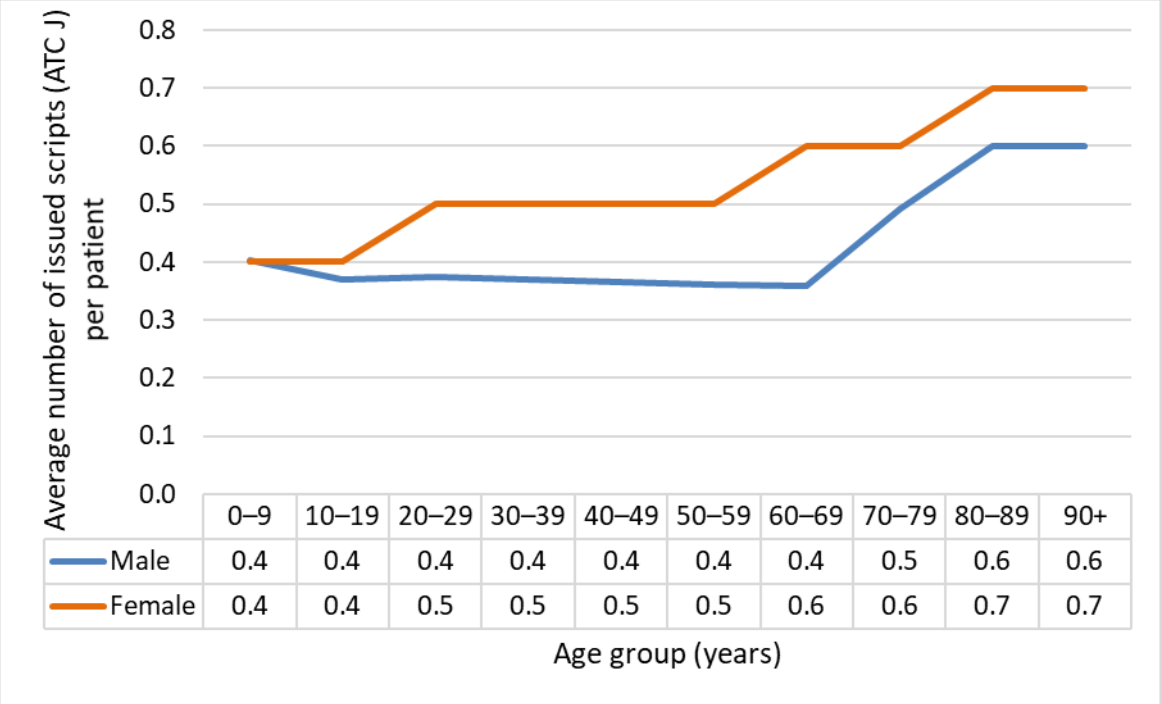
6.6. Patterns of prescribing for selected medicines

Information on the average number of prescriptions per patient, by sex and age, is provided for a number of high-volume medicine classes below. The medicine classes selected are:

- issued prescriptions for anti-infectives for systemic use (ATC J)
- total prescriptions for cardiovascular medicines (ATC C)
- issued prescriptions for opioids (ATC N02A)
- total prescriptions for antidepressants (ATC N06A).

Patterns of prescribing for the systemic anti-infectives followed a similar pattern for both males and females, although rates were slightly higher for females than males from the age of 20 years onwards (Figure 6.3). Rates of prescribing were largely similar across age groups with a slight increase in older patients for both sexes. This could reflect increased rates of infections in the older age groups[14] and/or an increased readiness on the part of GPs to prescribe anti-infectives for older people due to underlying comorbidities. The average number of systemic anti-infectives prescribed per patient in all age groups was lower in 2019–2020 than in 2018–19, possibly due to a reduction in the number of infections seen during the pandemic period (see Chapter 9).

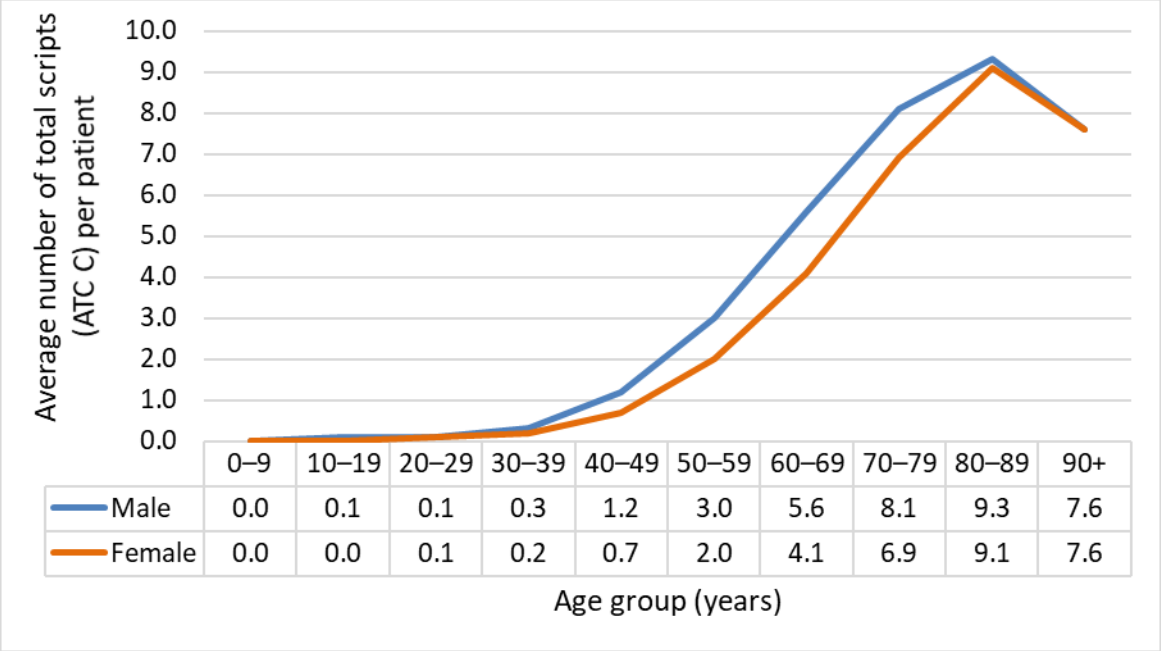
FIGURE 6.3 AVERAGE NUMBER OF ISSUED PRESCRIPTIONS PER PATIENT FOR ANTI-INFECTIVES (ATC J) BY AGE GROUP AND SEX (UNWEIGHTED), MEDICINEINSIGHT 2019–20



Use of cardiovascular medicines increased from ages 40–49 years for both sexes before falling for those aged 90 years or older (Figure 6.4). On average, men are more likely to be prescribed a

cardiovascular medicine between the ages of 30 and 80 years than women – consistent with higher reported rates of CVD in men.[14] The drop in the number of average prescriptions per patient seen in the oldest age group may be related to the health of people who reach their 90s or to health professional decisions to stop medicines due to increased risk of adverse events for older frail people (eg, stopping antihypertensives because of increased risk of falls), or to reduce pill burden for those with a reduced life expectancy.[21,22] It could also be due to fewer people in this age group having a full 12 months of data if they die part way through the study period or are treated in other settings such as hospitals or by specialists.

FIGURE 6.4 AVERAGE NUMBER OF TOTAL PRESCRIPTIONS PER PATIENT FOR CARDIOVASCULAR SYSTEM (ATC C) BY AGE GROUP AND SEX (UNWEIGHTED), MEDICINEINSIGHT 2019–20

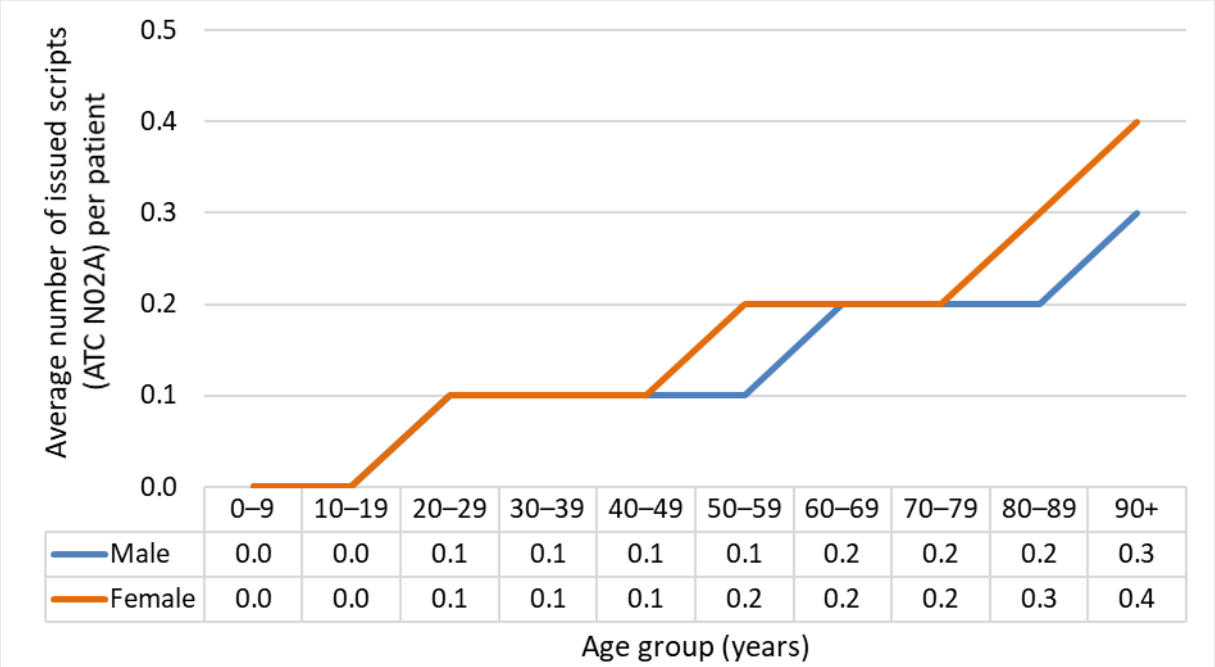


	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	0.1	0.1	0.3	1.2	3.0	5.6	8.1	9.3	7.6
Female	0.0	0.0	0.1	0.2	0.7	2.0	4.1	6.9	9.1	7.6

Patterns of opioid prescribing are similar in both males and females although women aged 50–59 years and women aged 70+ years are slightly more likely to be prescribed opioids than men (Figure 6.5). Increased use in older age groups may reflect the use of opioids for the management of cancer pain, other pain or use during palliative and end-of-life care. The higher use in older women is likely to reflect the higher prevalence of conditions that may result in chronic pain among women than among men, such as osteoporosis, minimal trauma fractures and arthritis.[19]

The average number of opioids prescribed per patient in all age groups ranged from 0.0 to 0.4 per patient in 2019–20. This is lower than in 2018–19 when the average number of issued prescriptions ranged from 0.0 to 2.9 per patient.

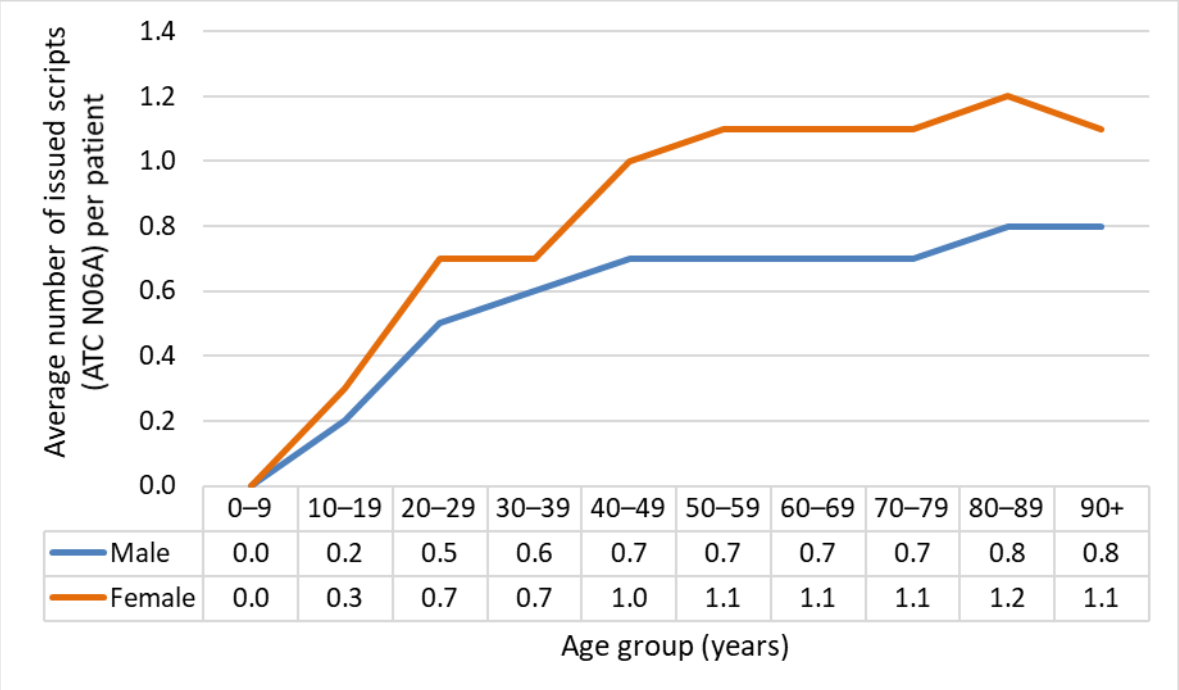
FIGURE 6.5 AVERAGE NUMBER OF ISSUED PRESCRIPTIONS PER PATIENT FOR OPIOIDS (ATC N02A) BY AGE GROUP AND SEX (UNWEIGHTED), MEDICINEINSIGHT 2019–20



	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3
Female	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4

The prevalence of recorded depression in 2019–20 was highest for men and women aged 20–29 followed by those aged 40–49 years (see Figure 5.2 in Chapter 5), and then decreased with increasing age. In contrast, prescription of antidepressants rose with age and was highest among women aged 80–89 years (Figure 6.6). While this may reflect use for treating depression (which has been reported to be highly prevalent among residents of aged care facilities), it may also reflect use of tricyclic antidepressants for other conditions that tend to be more common in older people, such as neuropathic pain, insomnia or incontinence.

FIGURE 6.6 AVERAGE NUMBER OF TOTAL PRESCRIPTIONS PER PATIENT FOR ANTIDEPRESSANTS (ATC N06A) BY AGE GROUP AND SEX (UNWEIGHTED), MEDICINEINSIGHT 2019–20



	0–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	90+
Male	0.0	0.2	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.8
Female	0.0	0.3	0.7	0.7	1.0	1.1	1.1	1.1	1.2	1.1

6.6.1. Exploration of opioid prescribing rates by patient sociodemographics

To understand opioid prescribing better, rates of opioid prescribing by patient demographics and geographical regions were explored (Table 6.9).

There was a trend towards lower rates of opioid prescribing per 100 GP clinical encounters in metropolitan areas when compared to regional and remote areas. Opioids prescribing rates were significantly lower in the most advantaged areas than the most disadvantaged areas. The lower rates in metropolitan and higher socioeconomic areas may reflect better access to pain clinics and specialists.

Rates of opioid prescribing per 100 GP clinical encounters differed between states and territories, although none of the differences were statistically significant. These differences are likely to reflect jurisdictional differences in regulation of opioids.

TABLE 6.9 ISSUED PRESCRIPTIONS FOR OPIOIDS (ATC N02A) PER 100 CLINICAL ENCOUNTERS BY PATIENT DEMOGRAPHICS, MEDICINEINSIGHT 2019–20

Characteristic	Unweighted data 2019-20		Weighted data 2019-20	
	Rate per 100 encounters	(95% CI)	Rate per 100 encounters	(95% CI)
All patients	7.7	(7.1, 8.3)	7.4	(6.7, 8.1)
Sex				
Male	7.3	(6.7, 7.9)	7.0	(6.3, 7.7)
Female	8.0	(7.4, 8.6)	7.7	(6.9, 8.4)
Age group (years)				
0–9	0.04	(0.03, 0.05)	0.04	(0.03, 0.05)
10–19	0.7	(0.6, 0.8)	0.7	(0.6, 0.8)
20–29	3.6	(3.2, 4.0)	3.5	(3.1, 4.0)
30–39	6.2	(5.6, 6.8)	6.1	(5.3, 6.8)
40–49	9.7	(8.8, 10.6)	9.2	(8.3, 10.2)
50–59	10.6	(9.8, 11.5)	10.2	(9.1, 11.3)
60–69	10.0	(9.2, 10.8)	9.5	(8.6, 10.5)
70–79	8.9	(8.2, 9.7)	8.7	(7.7, 9.7)
80–89	10.8	(9.7, 11.8)	10.5	(9.3, 11.7)
90+	15.8	(13.9, 17.7)	15.2	(13.1, 17.4)
Rurality				
Major city	6.8	(6.0, 7.7)	6.6	(5.7, 7.5)
Inner regional	9.4	(7.3, 11.5)	9.4	(7.0, 11.7)
Outer regional	8.8	(6.4, 11.2)	8.6	(5.2, 12.1)
Remote/very remote	9.1	(4.6, 13.6)	8.0	(4.2, 11.8)
State/Territory				
ACT	9.0	(2.8, 15.2)	8.9	(2.8, 15.0)
NSW	7.6	(6.3, 8.9)	6.8	(5.5, 8.2)
NT	4.8	(1.1, 8.5)	4.7	(1.0, 8.4)
QLD	7.7	(5.6, 9.9)	7.7	(5.7, 9.7)
SA	8.1	(2.8, 13.3)	8.1	(2.5, 13.7)
TAS	9.4	(5.2, 13.6)	9.3	(5.2, 13.4)
VIC	7.4	(5.4, 9.5)	7.4	(5.3, 9.5)

Characteristic	Unweighted data 2019-20		Weighted data 2019-20	
	Rate per 100 encounters	(95% CI)	Rate per 100 encounters	(95% CI)
WA	7.3	(4.7, 9.9)	7.3	(4.7, 9.9)
Socioeconomic status (SEIFA IRSAD quintile)				
1 (most disadvantaged)	10.4	(8.3, 12.5	9.8	(7.2, 12.4)
2	8.6	(7.1, 10.1)	8.7	(7.0, 10.5)
3	7.9	(6.5, 9.3)	7.9	(6.4, 9.3)
4	6.5	(5.4, 7.5)	6.3	(5.2, 7.5)
5 (most advantaged)	5.7	(4.7, 6.8)	5.6	(4.6, 6.7)

7. PATHOLOGY TESTING

In summary

- Just over 60 million atomised pathology test results were recorded in 2019–20.
- There was an average of 24.3 atomised test results per patient, although 58.8% 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. This was particularly apparent for women of reproductive age.
- Patients in the top 10% by pathology tests requested had more than 70 atomised pathology test results during 2018–19. They were more likely to have chronic conditions.
- Using haemoglobin, creatinine and alanine aminotransferase as proxy measures, the percentage of patients aged 20 years or older who had an FBC was 40.1%, a kidney function test 40.1% and an LFT 39.1%, respectively.
- Among patients with diagnosed diabetes who had their HbA_{1c} level checked during the year, 52.2 had at least one result which was higher than 53 mmol/mol (7.0%).
- Approximately 10% of patients who had at least one TSH test had a result that fell outside the range of test results considered to be normal.
- Just under a third of patients (31.6%) who had a vitamin D test had a result that fell outside the range of test results considered to be normal.

This chapter reports on atomised pathology test results recorded in MedicineInsight in 2019–20 and describes the following:

- for selected pathology tests, the percentage of patients with results recorded and average number of test results per 100 patients
- average number of atomised tests according to patient demographics
- age and sex-specific average numbers of pathology tests
- distribution of number of pathology tests per patient
- age and sex-specific distribution of patients in the top 10% by pathology test volume
- proportion and relative risk of selected conditions for patients in the top 10% by pathology test volume
- for selected pathology tests, the percentage of patients with results outside the range of results considered to be normal (ie, outside the reference range).

7.1. Pathology test results by patient

There were 60,071,548 separate pathology test results recorded in MedicineInsight for 2019–20, or an average of 24.3 atomised test results per patient using unweighted data.

Only 41.2% of patients (1,018,367) had one or more atomised pathology test result recorded in 2019–20, and the remaining 58.8% of patients had no pathology tests 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, a full blood count (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 7.1, which gives the proportions of patients who had results for selected pathology tests, and the average number of these test results per 100 patients.

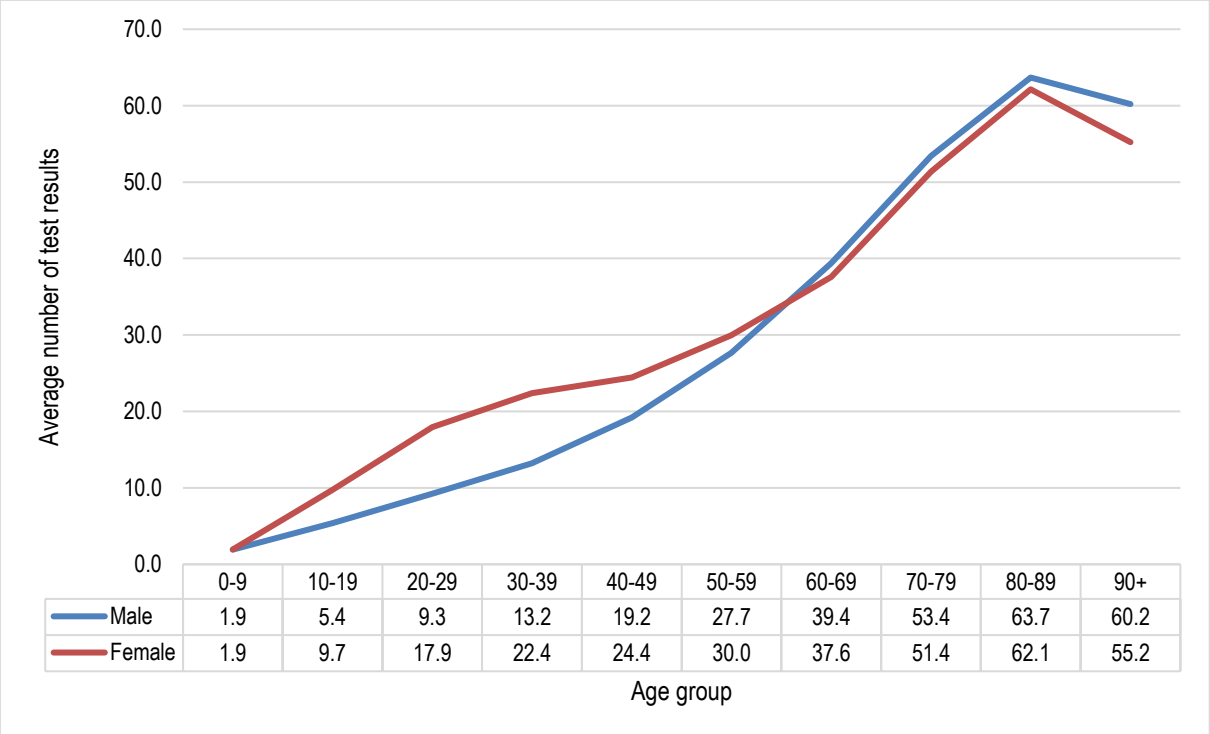
TABLE 7.1 SELECTED PATHOLOGY TEST RESULTS PER PATIENT, MEDICINEINSIGHT 2019–20

Pathology test result	MedicineInsight 2019–20 (unweighted; N = 2,470,520)		MedicineInsight 2019–20 (weighted)	
	% patients with result recorded	Average number of tests per 100 patients (95% CI)	% patients with result recorded	Average number of tests per 100 patients (95% CI)
Full blood count (FBC)[a]	33.6	56.8 (54.4, 59.2)	32.6	54.5 (51.8, 57.2)
Liver function test (LFT)[b]	32.2	52.1 (49.9, 54.4)	31.7	50.8 (48.2, 53.3)
Kidney function test (urea, electrolytes and creatinine; UECs)[c]	29.2	49.3 (46.2, 52.3)	27.2	45.0 (41.5, 48.6)
Lipids[d]	25.8	35.8 (33.7, 37.9)	25.7	35.8 (33.5, 38.1)
TSH	21.0	26.6 (25.4, 27.9)	19.8	24.9 (23.4, 26.4)
Ferritin	20.5	27.0 (26.0, 28.0)	19.7	25.7 (24.5, 26.9)
Vitamin B_{12}	12.6	14.2 (13.5, 14.9)	12.0	13.4 (12.6, 14.2)
Vitamin D	11.0	12.8 (12.1, 13.6)	10.9	12.7 (11.9, 13.5)
HbA_{1c}	12.3	16.7 (15.8, 17.6)	12.3	16.7 (15.7, 17.7)

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 7.1 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 7.1 AVERAGE NUMBER OF PATHOLOGY TEST RESULTS PER PATIENT BY AGE GROUP AND SEX (WEIGHTED), MEDICINEINSIGHT 2019–20



Females had significantly more pathology test results than males (25.6 versus 21.6). 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 7.1). As would be expected given the increasing prevalence of health conditions with increasing age, the proportion of testing increased with increasing age.

Average numbers of pathology tests per patient were much lower in remote areas than in other regions (Table 7.2). The number of tests per patient increased with socioeconomic disadvantage, with patients from more disadvantaged areas having more pathology test results per patient than patients from more advantaged areas. The NT had the fewest average number of pathology test results per patient (13.2 per patient) whereas the rate of testing in SA (30.4 per patient) was significantly higher than in the NT, Victoria and WA.

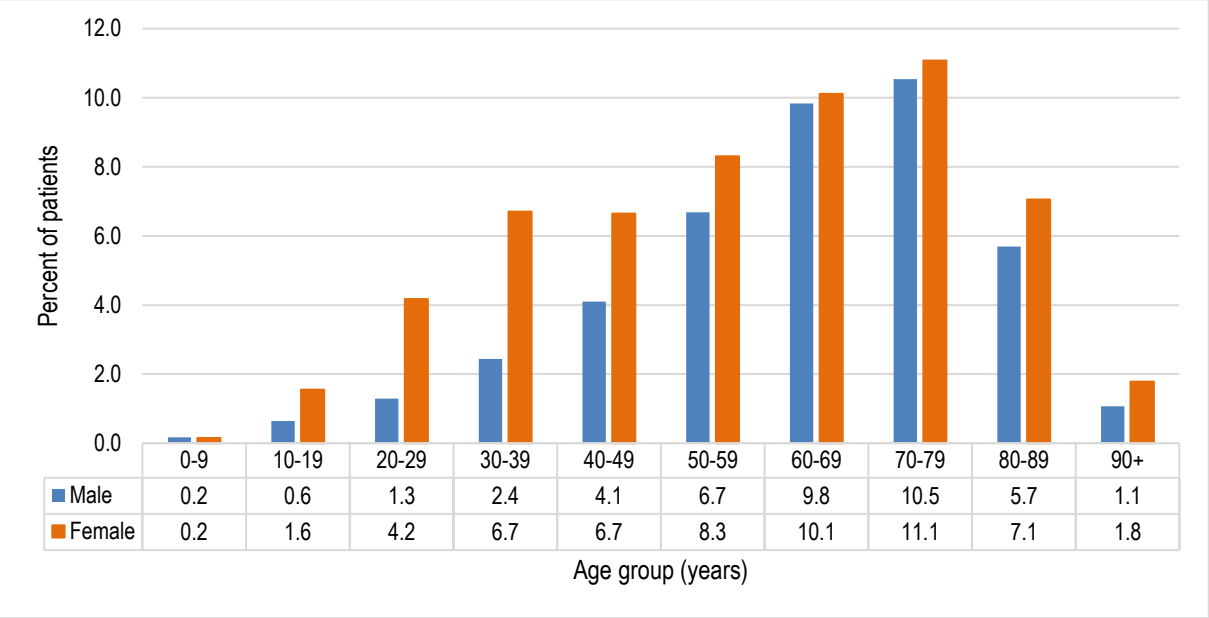
TABLE 7.2 AVERAGE NUMBER OF PATHOLOGY TEST RESULTS BY PATIENT DEMOGRAPHICS (UNWEIGHTED AND WEIGHTED), MEDICINEINSIGHT 2019–20

Patient characteristics	Average number of test results per patient, unweighted (95% CI)	Average number of test results per patient, weighted (95% CI)
All patients	**24.3 (23.3, 25.3)**	**23.6 (22.5, 24.8)**
Sex		
Male	22.1 (21.0, 23.1)	21.6 (20.4, 22.8)
Female	26.2 (25.1, 27.2)	25.6 (24.4, 26.7)
Age group (years)		
0–9	2.0 (1.8, 2.1)	1.9 (1.8, 2.1)
10–19	7.5 (7.5,8.2)	7.6 (7.2, 7.9)
20–29	14.7 (13.9, 15.4)	14.0 (13.1, 14.8)
30–39	18.8 (18.0, 19.6)	18.2 (17.3, 19.1)
40–49	22.4 (21.6, 23.2)	22.0 (21.1, 22.8)
50–59	29.3 (28.3, 30.3)	28.9 (27.7, 30.0)
60–69	39.3 (38.0, 40.5)	38.4 (37.0, 39.9)
70–79	53.4 (51.4, 55.4)	52.3 (50.3, 54.4)
80–89	63.9 (61.4, 66.3)	62.8 (60.3, 65.3)
90+	56.9 (54.5, 59.4)	57.0 (54.5, 59.5)
Rurality		
Major cities	22.9 (21.7, 24.2)	22.5 (21.2, 23.9)
Inner regional	28.6 (27.0, 30.2)	27.1 (25.4, 28.8)
Outer regional	25.6 (23.5, 27.6)	26.7 (22.9, 30.4)
Remote/very remote	17.7 (14.7, 20.6)	15.5 (13.1, 17.9)
State/Territory		
ACT	29.2 (24.5, 33.9)	28.6 (24.1, 33.1)
NSW	25.7 (23.8, 27.7)	24.3 (22.1, 26.5)
NT	15.1 (13.0, 17.1)	13.2 (11.7, 14.8)
QLD	26.3 (24.5, 28.2)	26.3 (24.6, 28.0)
SA	31.4 (25.7, 37.0)	30.4 (25.0, 35.8)
TAS	25.0 (22.4, 27.5)	24.3 (21.8, 26.7)
VIC	20.6 (18.4, 22.7)	20.4 (18.2, 22.6)
WA	20.5 (18.8, 22.3)	20.1 (18.3, 21.8)
Socio-economic status (SEIFA IRSAD quintile)		
1 (most disadvantaged)	28.4 (26.5, 30.3)	27.6 (24.5, 30.8)
2	25.5 (23.7, 27.4)	25.0 (22.6, 27.3)
3	24.7 (22.9, 26.5)	23.6 (22.0, 25.2)
4	21.7 (20.5, 23.0)	21.5 (20.1, 22.9)
5 (most advantaged)	22.8 (21.4, 24.2)	22.8 (21.4, 24.1)

7.2. Top 10% of patients by pathology test volume

Analysis of the top 10% of patients receiving pathology tests showed that these patients had more than 70 test results,[J] were more likely to be female (57.5% vs 42.5%) and were most likely to be aged 60–79 years (Figure 7.2). In the 20–39 age groups, females outnumber males in the group of patients who had more than 70 pathology test results. This may be due to pregnancy-related testing.

FIGURE 7.2 AGE AND SEX DISTRIBUTION OF PATIENTS IN THE TOP 10% OF PATIENTS BY PATHOLOGY TEST VOLUME (WEIGHTED), MEDICINEINSIGHT 2019–20



The proportion of patients with a record of the selected non-communicable conditions who were in the top 10% of patients was compared with that of patients without the conditions (Table 7.3). There was a significantly higher proportion of patients in the top 10% of patients for every condition investigated. The likelihood of being in the top 10% of patients was particularly high for people who had a record of CKD (4.5 times as likely as those without CKD), rheumatoid arthritis (3.8 times as likely) or diabetes (type 2 or unspecified; 3.7 times as likely).

TABLE 7.3 PROPORTION AND RISK OF BEING IN THE TOP 10% OF PATIENTS BY PATHOLOGY TEST VOLUME FOR PATIENTS WITH SELECTED CHRONIC CONDITIONS (WEIGHTED), MEDICINEINSIGHT 2019–20

Condition recorded in 2018–19	% patients with condition in 'top 10% of tested'	% patients without condition in 'top 10% of tested'	Unadjusted relative risk (95% CI)	Age- and sex-adjusted relative risk (95% CI)
Anxiety	16.8	8.9	1.9 (1.8, 2.0)	1.7 (1.7, 1.8)
Asthma	14.6	9.3	1.6 (1.5, 1.6)	1.5 (1.5, 1.5)
Atrial fibrillation	40.3	9.3	4.4 (4.2, 4.6)	2.5 (2.5, 2.7)
Bipolar disorder	22.6	9.8	2.3 (2.2, 2.4)	2.1 (2.1, 2.2)
Breast cancer	27.7	9.7	2.9 (2.7, 3.0)	2.1 (2.1, 2.8)
CVD	37.0	8.6	4.3 (4.1, 4.5)	2.7 (2.7, 2.9)
Chronic kidney disease	53.0	9.4	5.6 (5.3, 5.9)	4.5 (4.5, 4.8)
Coeliac disease	21.7	9.9	2.2 (2.1, 2.3)	2.0 (2.0, 2.1)

[J] This year a threshold of more than 70 atomised test results included just over 10% of patients including those with no test results. This threshold of 71 was retained for consistency with previous GPIR reports.

Condition recorded in 2018–19	% patients with condition in 'top 10% of tested'	% patients without condition in 'top 10% of tested'	Unadjusted relative risk (95% CI)	Age- and sex-adjusted relative risk (95% CI)
COPD	33.9	9.3	3.6 (3.5, 3.8)	2.1 (2.1, 2.2)
Dementia	30.8	9.8	3.2 (3.0, 3.4)	1.5 (1.5, 1.7)
Depression	19.0	8.4	2.3 (2.2, 2.4)	1.9 (1.9, 1.9)
Dermatitis/eczema	11.9	9.8	1.2 (1.2, 1.3)	1.3 (1.3, 1.4)
Diabetes (gestational)	16.7	9.9	1.7 (1.2, 1.8)	1.8 (1.8, 1.9)
Diabetes (type 1)	32.9	9.8	3.4 (3.2, 3.5)	2.8 (2.8, 3.0)
Diabetes (type 2/NOS)	40.5	8.1	5.0 (4.8, 5.2)	3.7 (3.7, 3.8)
Dyslipidaemia	26.8	7.3	3.7 (3.5, 3.8)	2.7 (2.7, 2.8)
GORD	25.6	7.7	3.3 (3.2, 3.4)	2.3 (2.3, 2.4)
Heart failure	49.0	9.5	5.2 (4.9, 5.4)	3.3 (3.3, 3.6)
Hypertension	27.5	6.6	4.2 (4.0, 4.3)	2.8 (2.8, 2.9)
Low back pain	21.7	7.9	2.8 (2.7, 2.9)	1.9 (1.9, 2.0)
Melanoma	25.9	9.7	2.7 (2.5, 2.8)	1.6 (1.6, 1.7)
Migraine	17.3	9.6	1.8 (1.8, 1.9)	1.6 (1.6, 1.7)
Osteoarthritis	30.2	7.9	3.8 (3.7, 4.0)	2.4 (2.4, 2.5)
Osteoporosis	36.0	8.7	4.1 (3.9, 4.4)	3.4 (3.4, 3.7)
Prostate cancer	36.6	9.7	3.8 (3.6, 4.0)	1.8 (1.8, 2.6)
Rheumatoid arthritis	49.6	9.6	5.2 (4.9, 5.4)	3.8 (3.8, 4.0)
Schizophrenia	23.6	9.8	2.4 (2.3, 2.6)	2.2 (2.2, 2.3)
Skin cancer	27.8	9.1	3.1 (2.9, 3.3)	1.6 (1.6, 1.7)
Stroke	35.4	9.7	3.7 (3.5, 3.9)	2.3 (2.3, 2.5)

7.3. Test results that are outside reference ranges

Table 7.4 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.[23,24]

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 lifestyle changes made by the patient, or active management by the GP, in response to these test results.

Using haemoglobin, creatinine and alanine aminotransferase as proxy measures (see section 7.1), the percentage of patients aged 20 years or older who had an FBC was 40.1%, a kidney function test was 40.1% and an LFT was 39.1%, respectively.

More than two-thirds of patients diagnosed with diabetes had a HbA_{1c} result recorded during 2018–19. For half 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.

Only 11.1% of patients with no recorded diabetes had a HbA_{1c} test. Only 2.8% of those tested had a result above the ≥ 48 mmol/mol (6.5%) threshold generally considered to be indicative of diabetes. These results do not indicate that these patients have been left undiagnosed. HbA_{1c} testing must be repeated before the diagnosis of type 2 diabetes is made.[24] So these patients may still be in the process of being diagnosed or have had type 2 diabetes ruled out after confirmatory testing.

Most patients who had at least one TSH test during the year did not have any results that fell outside the reference range. A quarter of patients had their TSH levels tested and almost 90% of those tested had results that were 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 13.4% of MedicineInsight patients who had a vitamin D test, 31.6% had no results that were outside reference range.

TABLE 7.4 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 2019–20 FOR SPECIFIED TESTS, MEDICINEINSIGHT 2019–20

	MedicineInsight 2019–20 (unweighted) Number of all eligible male or female patients aged 20+ years (N_{tot}) = 1,909,545			
Pathology test result (test reference range)	**Number of tested patients***	**Patients with 1+ result for the specified test as a percentage (95% CI) of all patients (N_{tot})**	**Patients with 1+ test result outside the reference range for the specified test as a percentage (95% CI) of all patients (N_{tot})**	**Patients with 1+ test result outside the reference range for the specified test as a percentage (95% CI) of tested patients**
Haemoglobin (< 130 g/L in men < 120 g/L in women†)[23]	766,145	40.1 (38.9, 41.4)	4.9 (4.6, 5.1)	12.1 (11.8, 12.5)
Alanine aminotransferase (ALT; > 40 U/L in men and > 30 U/L in women)[23]	746,125	39.1 (37.9, 40.3)	8.4 (8.0, 8.7)	21.4 (20.9, 21.8)
Creatinine (> 110 umol/L in men and > 90 umol/L in women)[23]	766,589	40.1 (38.9, 41.4)	3.9 (3.7, 4.2)	9.8 (9.4, 10.3)
HbA_{1c} in patients with diagnosed diabetes of any kind (N = 154,103; ≥ 53 mmol/mol [7.0%]))[23,24]	102,702	66.6 (65.4, 67.9)	34.8 (34.0, 35.6)	52.2 (51.4, 52.9)
HbA_{1c} in patients with no recorded diagnosis of diabetes (N = 1,755,442; ≥ 48 mmol/mol [6.5%])[23,24]	194,431	11.1 (10.3, 11.8)	0.3 (0.3, 0.4)	2.8 (2.5, 3.2)
Low thyroid-stimulating hormone (TSH; < 0.4 mIU/L)[23]	484,207	25.4 (24.2, 26.5)	1.2 (1.2, 1.3)	4.8 (4.7, 4.9)
High thyroid-stimulating hormone (TSH; > 4.0 mIU/L)[23]	484,207	25.4 (24.2, 26.5)	1.7 (1.6, 1.8)	6.6 (6.4, 6.8)
Vitamin D (< 50 nmol/L)[23]	256,382	13.4 (12.7, 14.2)	4.2 (3.8, 4.7)	31.6 (29.6, 33.7)
Ferritin (< 20 µg/L in women of childbearing age and < 30 in post-menopausal women and in men)[23]	463,341	24.3 (23.4, 25.1)	3.3 (3.1, 3.4)	13.5 (13.0, 14.0)

* 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 for women who are pregnant of < 110 g/L was not used. Instead, the general threshold for women of < 120 g/L was applied to all women within the sample

8. RISK FACTORS

In summary

- Smoking status was recorded ever for 84.5% of patients as of 2019–20.
- Alcohol use was recorded ever for 27.4% of patients over 18 years of age as of 2019-20. This is a large increase on previous years. Unlike previous years, alcohol use was more frequently recorded for males than females (32.4% vs 23.4%).
- In the 24-month period from 1 July 2018 to 30 June 2020, BMI (or both height and weight) was recorded for 34.9% of patients of all ages. Weight was recorded for 43.0% 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
- body mass index (BMI) or both height and weight recorded, as well as weight recorded separately, in the past 24 months (since 1 July 2018) in the MedicineInsight 'observations' data table for patients of all ages.

8.1. 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 84.5% of patients (Table 8.1). Patients aged 18–19 had the lowest rates of recording of smoking status, 66.1% for males and 72.4% for females.

TABLE 8.1 COMPLETENESS RATES OF SMOKING STATUS RECORDED BY PATIENT AGE AND SEX (UNWEIGHTED), MEDICINEINSIGHT 2019–20 COMPARED WITH GPIR 2018–19

	Age group	2019–20		2018–19
		No.	%	%
Total patients		**1,657,163**	**84.5**	**84.0**
Females	10-19*	21,241	72.4	70.0
	20-29	152,465	80.9	80.0
	30-39	174,001	84.4	84.1
	40-49	152,569	86.6	86.3
	50-59	146,704	87.5	87.3
	60-69	131,657	87.2	87.0
	70-79	98,539	87.9	87.6
	80-89	48,330	87.1	87.2
	90+	14,464	80.3	80.2
Total females		**939,970**	**85.1**	**84.6**
Males	10-19*	15,079	66.1	63.7
	20-29	95,842	75.4	74.5
	30-39	120,225	81.1	80.6
	40-49	119,312	85.1	84.6
	50-59	120,036	87.6	87.3
	60-69	112,272	87.8	87.4
	70-79	88,319	87.8	87.6
	80-89	38,087	87.3	87.7
	90+	8,021	82.4	83.5
Total males		**717,193**	**83.7**	**83.1**

*For recording of smoking status, this includes patients aged 18–19 only

8.2. Alcohol use recorded

The last recorded entries in the data fields for alcohol use were used in this analysis. Alcohol use was reported for 27.4% of patients aged 18 years and over (Table 9.2). This is a substantial jump since 2018–19 (21.5%). There were reports of changes in expenditure and consumption of alcohol among Australians during the pandemic.[25] It is possible that this may have increased the likelihood that GPs ask patients about alcohol use.

There has been a particularly large increase in the proportion of men who have information on their alcohol use included in the record. The proportion of men with a record of alcohol use increased from 19.0% in 2018–19 to 32.4% in 2019–20. However, recording in women was similar between the years.

TABLE 8.2 COMPLETENESS RATES OF ALCOHOL USE RECORDED BY PATIENT AGE AND SEX (UNWEIGHTED), MEDICINEINSIGHT 2019–20 COMPARED WITH GPIR 2018–19

	Age group	2019–20		2018–19
		No.	%	%
Total patients		**537,837**	**27.4**	**21.5**
Females	10-19*	2201	7.5	22.1
	20-29	35,532	18.9	22.0
	30-39	44,846	21.7	24.0
	40-49	45,986	26.1	21.7
	50-59	47,612	28.4	20.8
	60-69	41,127	27.3	21.4
	70-79	28,943	25.8	26.0
	80-89	11,490	20.7	36.4
	90+	2708	15.0	34.2
Total females		**260,445**	**23.6**	**23.4**
Males	10-19*	1678	7.4	18.5
	20-29	28,958	22.8	16.8
	30-39	46,101	31.1	17.5
	40-49	49,321	35.2	18.6
	50-59	51,085	37.3	18.4
	60-69	46,924	36.7	18.0
	70-79	36,409	36.2	21.2
	80-89	14,385	33.0	31.0
	90+	2531	26.0	30.9
Total males		**277,392**	**32.4**	**19.0**

*For recording of alcohol use, this includes patients aged 18–19 only

8.3. BMI and weight recorded

BMI (or both height and weight) was recorded for 34.9% of patients of all ages in the 24-month period from 1 July 2018 to 30 June 2020 (Table 8.3).

According to the RACGP Redbook clinical guidelines,[26] BMI should be measured for adults every two years, and for children at times of child health surveillance or immunisation. Adults at increased risk (for example, with a history of CVD or gout) and Aboriginal and Torres Strait Islander people should be assessed every 12 months, and adults with identified risk (those who are overweight and obese) should be assessed every 6 months.

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 (54–55%).

TABLE 8.3 COMPLETENESS RATES OF BMI OR EQUIVALENT RECORDED BY PATIENT AGE AND SEX (UNWEIGHTED), MEDICINEINSIGHT 2019–20 COMPARED WITH GPIR 2018–19

	Age group	2019–20		2018–19
		No.	%	%
Total patients		**861,823**	**34.9**	**33.9**
Females	0-9	59,108	39.7	35.6
	10-19*	30,445	23.8	22.2
	20-29	55,483	29.5	27.1
	30-39	64,841	31.4	29.9
	40-49	56,936	32.3	31.9
	50-59	59,179	35.3	34.8
	60-69	58,010	38.4	38.9
	70-79	52,802	47.1	48.2
	80-89	30,214	54.4	56.4
	90+	7014	39.0	40.8
Total females		**474,032**	**35.1**	**33.9**
Males	0-9	64,583	39.8	36.1
	10-19*	27,317	22.5	21.6
	20-29	28,347	22.3	20.8
	30-39	40,247	27.1	25.7
	40-49	46,886	33.4	33.5
	50-59	51,701	37.7	38.0
	60-69	52,474	41.0	41.5
	70-79	47,839	47.6	49.1
	80-89	24,035	55.1	57.6
	90+	4362	44.8	46.8
Total males		**387,791**	**34.7**	**33.9**

Note: BMI records were assessed in the period 1 July 2018 to 30 June 2020.

In the 24-month period from 1 July 2018 to 30 June 2020, weight was recorded more frequently than BMI, for 43.0% of patients of all ages (Table 8.4). 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 (~64%).

TABLE 8.4 COMPLETENESS RATES OF WEIGHT RECORDED BY PATIENT AGE AND SEX (UNWEIGHTED), MEDICINEINSIGHT 2019–20 COMPARED WITH GPIR 2018–19

	Age group	2019–20		2018–19
		No.	%	%
Total patients		**1,061,965**	**43.0**	**41.9**
Females	0-9	86,741	58.2	55.4
	10-19	43,882	34.3	32.3
	20-29	65,426	34.7	32.5
	30-39	78,575	38.1	36.7
	40-49	66,291	37.6	37.1
	50-59	69,261	41.3	40.5
	60-69	68,312	45.3	45.4
	70-79	61,512	54.9	55.6
	80-89	35,341	63.7	65.1
	90+	9228	51.3	53.2
Total females		**584,569**	**43.2**	**42.1**
Males	0-9	94,157	58.0	55.7
	10-19	39,421	32.4	31.0
	20-29	31,937	25.1	23.2
	30-39	45,665	30.8	29.0
	40-49	53,354	38.1	37.9
	50-59	60,597	44.2	43.9
	60-69	62,614	49.0	48.9
	70-79	56,298	56.0	56.9
	80-89	27,901	64.0	65.5
	90+	5452	56.0	58.2
Total males		**477,396**	**42.7**	**41.7**

Note: Weight records were assessed in the period 1 July 2018 to 30 June 2020.

9. IMPACT OF COVID-19 ON GP WORKLOADS

In summary

- The highest monthly numbers of clinical encounters during 2020 were seen in March and April 2020. This was just prior to and during the first wave of the COVID-19 pandemic and widespread restrictions on movement.
- Compared with the same month in 2019, the number of clinical encounter rates in 2020 was lower for children aged 0–9 years. In contrast the number of monthly clinical encounters in 2020 was slighter higher among adults aged 40–59 when compared to 2019.
- The number of clinical encounters per patient increased during the pandemic. In 2019, the average patient visited their practice 5.2 times compared with 5.7 times in 2020. This may have been because telehealth consultations reduced patient barriers to accessing care.
- With one exception, the increase in the frequency of clinical encounters per patient was seen regardless of sex, age or geographical location. The exception was children aged 0–9 years for whom the average number of encounters fell from 3.8 in 2019 to 3.6 in 2020.
- Presentation rates for acute upper respiratory tract infections more than halved during the pandemic, possibly due to social distancing measures and restrictions on movements. Patient presentations for anxiety appeared to increase in the second half of 2020.
- Monthly prescribing rates of medicines for chronic conditions (cardiovascular, diabetes and respiratory medicines and antidepressants) increased rapidly at the beginning of the pandemic. Patients may have been ensuring they had adequate supplies of their medicines ahead of the first lockdown. Prescribing rates for chronic disease medicines returned to pre-pandemic levels from June 2020 onwards.
- Prescribing rates for beta-lactam antibiotics and oral prednisone were significantly lower throughout the pandemic, consistent with the fall in presentations of acute respiratory illnesses.
- Influenza vaccine rates peaked higher and earlier in 2020 than in 2019, corresponding with government messaging for Australians to get their flu vaccines early during the pandemic.
- Rates of GP medical test requests and receipt of pathology results per 1000 clinical encounters fell sharply in March and April 2020, corresponding to the first lockdowns.

This chapter provides information on the impact of COVID-19 on general practice workloads including:

- changes in the number of clinical encounters per month before and during the pandemic period
- changes in the average number of encounters per patient by patient characteristics before and during the pandemic period
- changes in monthly prescription rates for selected classes of medicines (issued prescriptions only) per 1000 clinical encounters during 2019 and 2020
- changes in monthly testing request and result rates per 1000 clinical encounters for selected pathology tests during 2019 and 2020.

Unlike the rest of this report, the analyses in this chapter are based on data from calendar years 2019 and 2020. This includes the 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 2020).[K]

As such the patient cohort for this chapter differs from that used in rest of the report. It includes patients who had at least one clinical encounter in either 2019 or 2020 calendar year.

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

[K] The first recorded case of coronavirus was reported on 25 January 2020. Border closures began in March and a national biosecurity emergency was announced on 18 March 2020.

9.1. Sociodemographics of patients included in the COVID study

The 3,227,610 patients included in this analysis had very similar demographics to those included in the cohort for the non-COVID analyses. Most lived in major cities (67%), 54% were female and 3% identified as Aboriginal or Torres Strait Islander people. Additional detail on the demographics of these patients can be found in Appendix Table A6.4.

Of the included patients:

- 1,619,112 (50.2%) had at least one clinical encounter in both 2019 and 2020
- 862,352 (26.7%) only had clinical encounters recorded in 2019
- 746,146 (23.1%) only had clinical encounters recorded in 2020.

9.2. Total number of clinical encounters per month

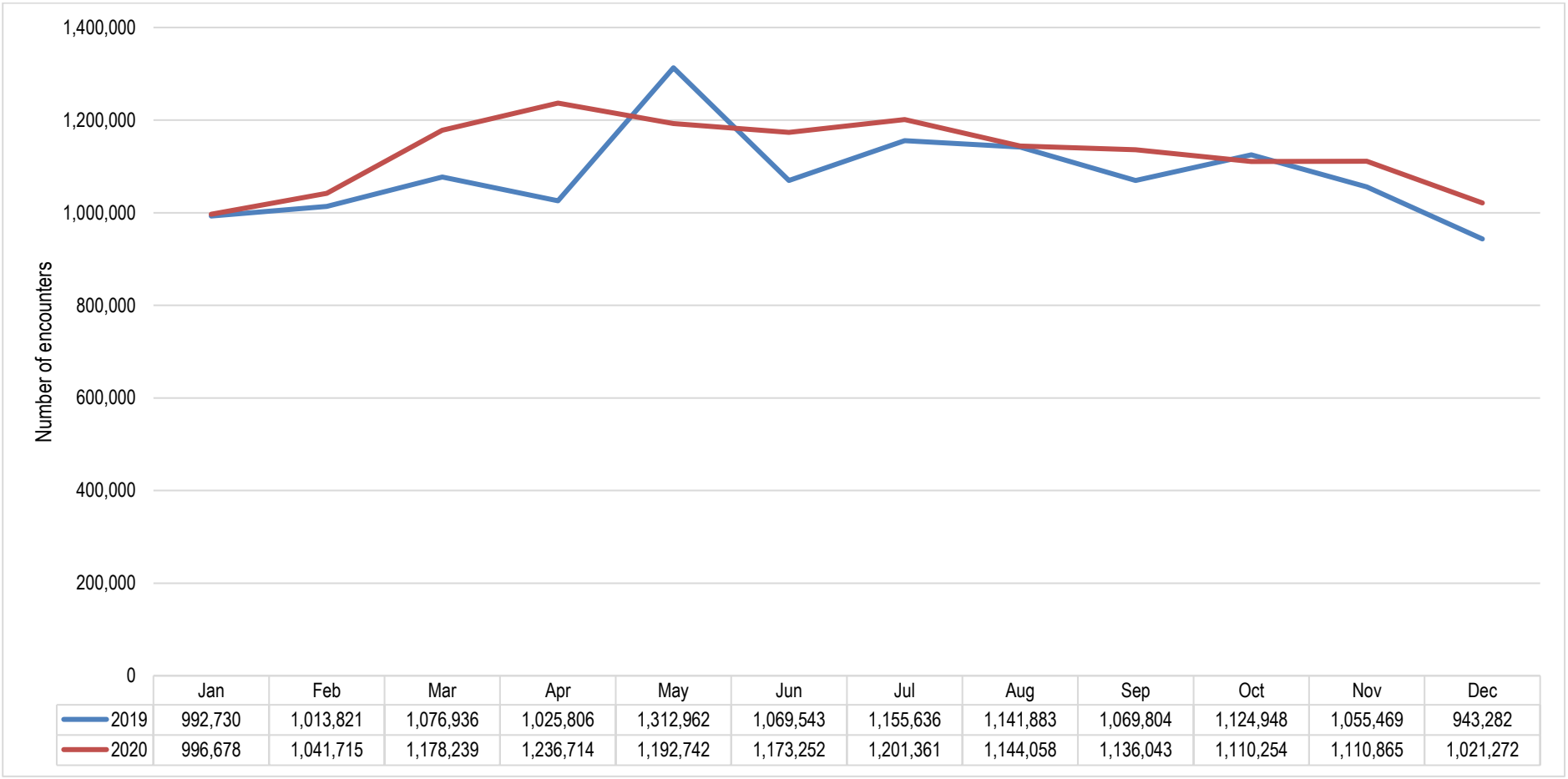
The general pattern in the monthly number of clinical encounters was similar in 2019 and 2020 (Figure 9.1). The decreases in the number of encounters in December and January correspond to school holidays and the Christmas period, and increases are seen in the winter months.

The peak in clinical encounters seen in May 2019 is consistent with national MBS data (see Appendix 6: Figures A6.6 and A6.7). In April 2019, Easter and Anzac Day public holidays occurred in the same week. This in conjunction with the timing of school holidays, is likely to have led to delaying GP visits until May in 2019.

The monthly number of encounters during 2020 was highest in March and April, just prior to and during the first wave of the COVID-19 pandemic and widespread restrictions on movement. A number of factors could explain this, including:[27]

- the rapid uptake of telehealth in April immediately after the introduction of these MBS items (see Chapter 3.2 and Appendix 6: Figure A6.7) following the COVID-19 lockdown restrictions
- an increase in patients visiting their GPs during March and April for care, influenza vaccines and prescriptions ahead of any potential lockdown (see section 9.4).

FIGURE 9.1 TOTAL NUMBER OF CLINICAL ENCOUNTERS PER MONTH IN 2019 AND 2020 NATIONALLY



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	992,730	1,013,821	1,076,936	1,025,806	1,312,962	1,069,543	1,155,636	1,141,883	1,069,804	1,124,948	1,055,469	943,282
2020	996,678	1,041,715	1,178,239	1,236,714	1,192,742	1,173,252	1,201,361	1,144,058	1,136,043	1,110,254	1,110,865	1,021,272

9.2.1. Number of clinical encounters recorded by geographical location

Graphs of the total number of encounters per month stratified by state/territory, remoteness and patient socioeconomic status can be found in Appendix 6 (Figures A6.1–A6.3). Similar patterns are seen in each with a peak in the number of encounters in May 2019 and a smoother pattern of encounters seen in 2020.

9.2.2. Number of clinical encounters by age and sex

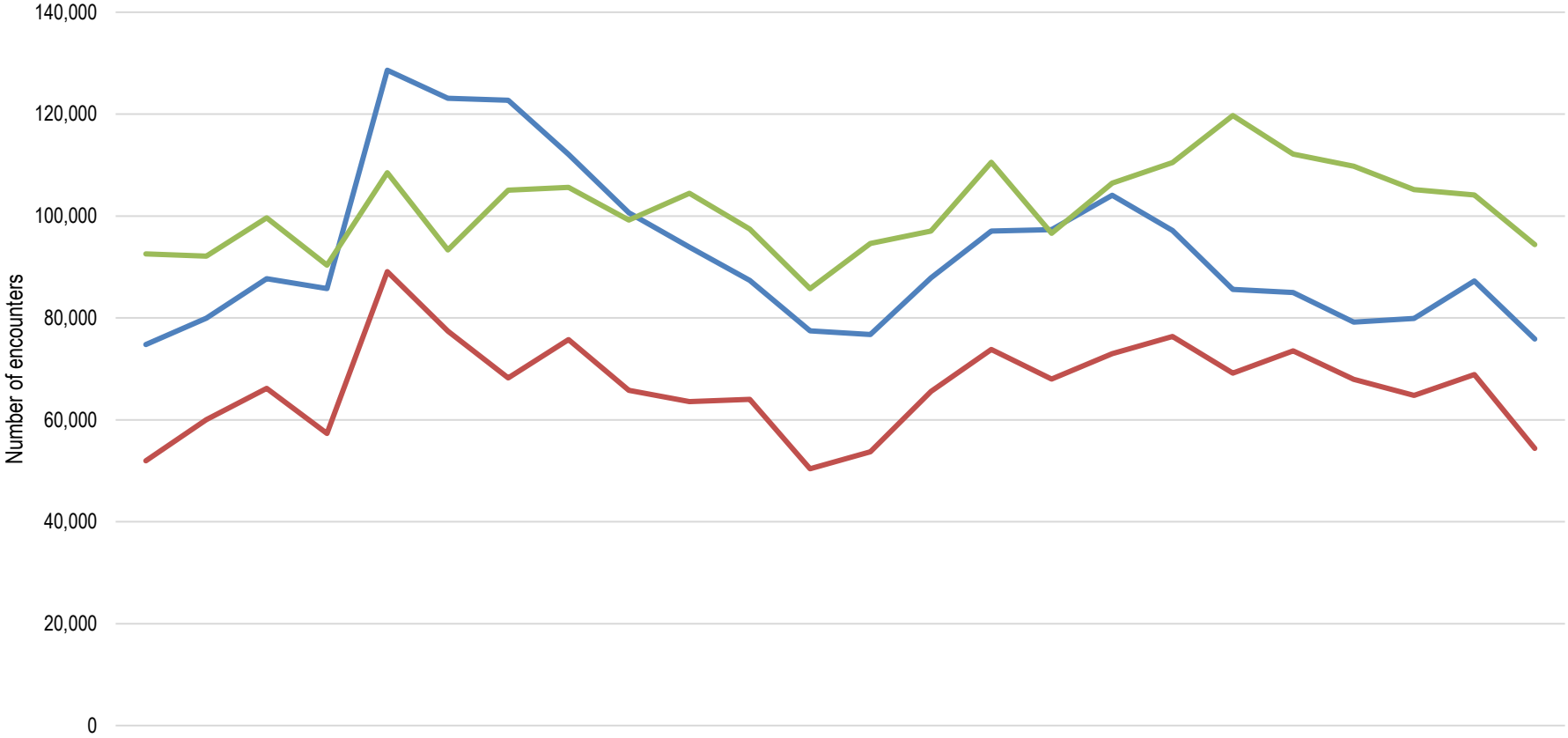
Females tend to visit their GPs more often than males do. As expected, the number of clinical encounters per month was higher for women than men over the two-year study period. Otherwise, the pattern of encounters for males and females was the same (Appendix 6; Figure A6.4).

Figure 9.2 shows the number of encounters per month for young people aged 0–29 years. The number of encounters with children aged 0–9 years appears to have fallen slightly in 2020. This may be due to school closures and social distancing decreasing the risk of acute infections such as colds and gastroenteritis.[28,29] The number of encounters for patients aged 10–19 was similar in both years while there seems to have been a small increase in the number of encounters for patients aged 20–29 in 2020, compared with 2019.

The number of clinical encounters per month for patients aged 40–59 appears to be higher in 2020 than in the corresponding months of 2019 (Figure 9.3). This may reflect increased attendance due to the greater ease of accessing care via telehealth.

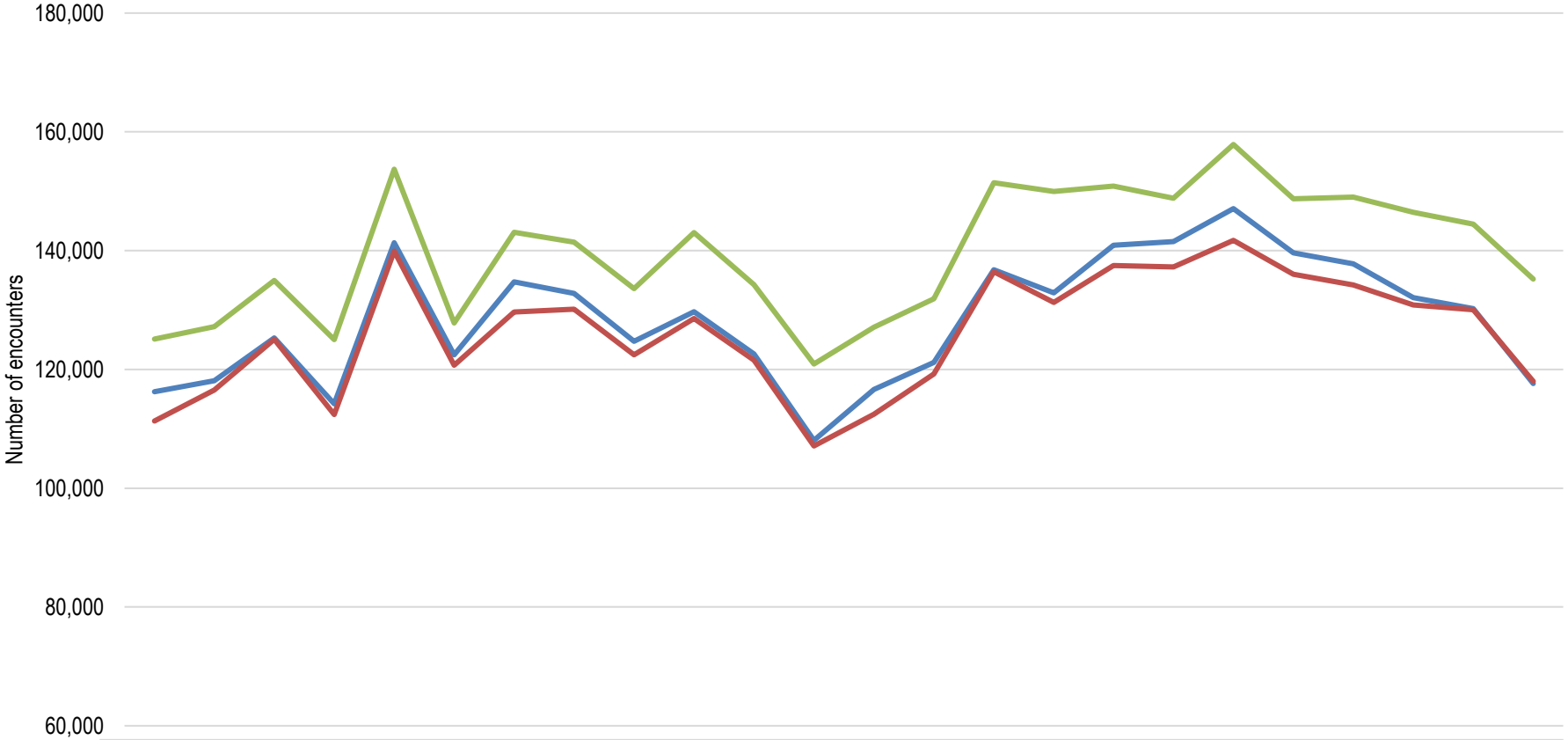
Finally, among older patients there appears to have been a small increase in the number of clinical encounters provided to patients aged 60–79 but not to those aged 80 and above (Figure 9.4). The peaks seen in May 2019 and April 2020 are likely to be due to patients in these groups visiting their GPs for vaccines ahead of winter. Government messaging in early 2020 advised Australians to get their influenza vaccine earlier than usual to minimise the burden of influenza during the pandemic. The peak in April 2020 could also be due to patients with chronic conditions visiting their GPs for prescriptions ahead of any potential lockdown.[27]

FIGURE 9.2 TOTAL NUMBER OF CLINICAL ENCOUNTERS PER MONTH IN 2019 AND 2020 FOR PATIENTS AGED 0–29 YEARS



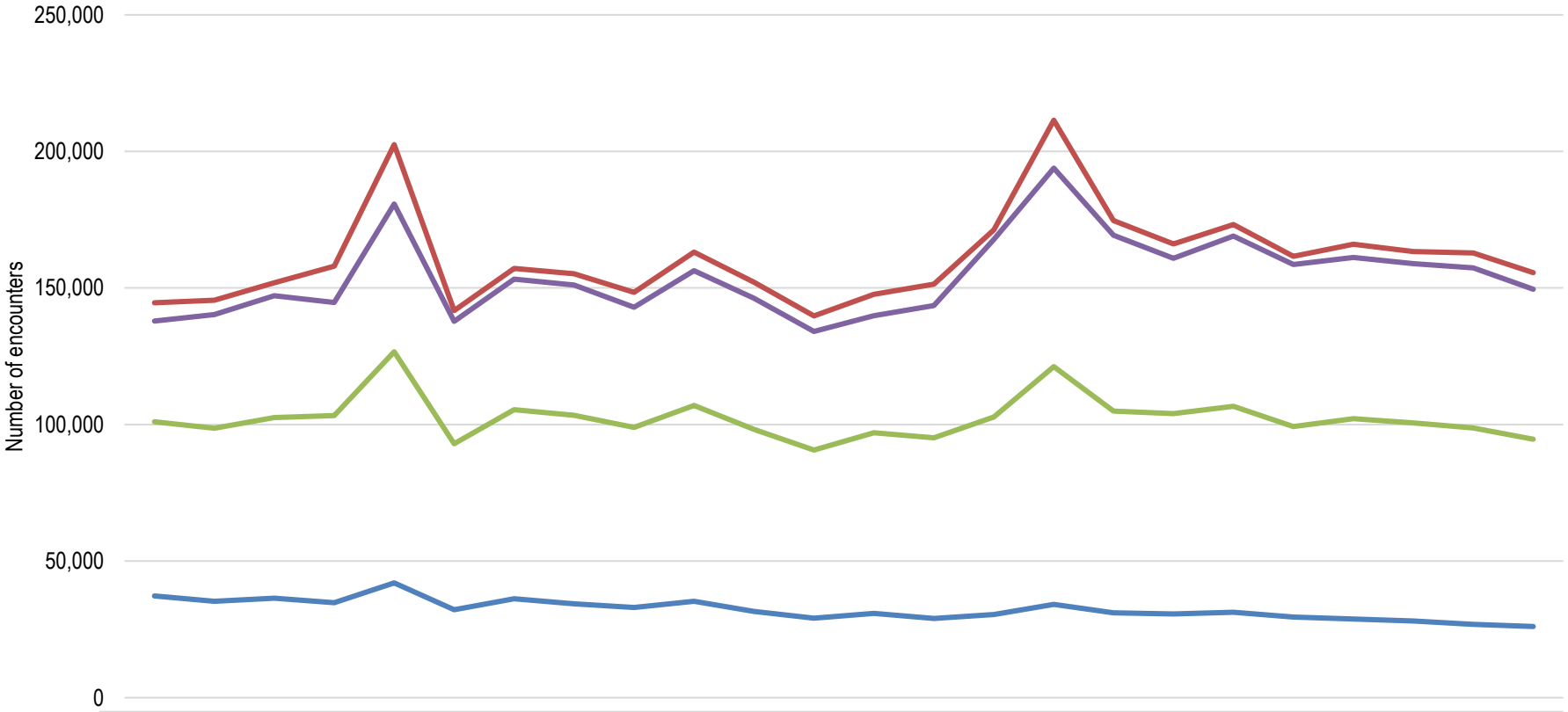
	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
0-9	74,774	79,966	87,692	85,760	128,621	123,136	122,720	112,105	100,663	93,893	87,392	77,442	76,755	87,859	97,039	97,340	104,057	97,170	85,574	84,980	79,180	79,882	87,254	75,860
10-19	51,948	60,059	66,202	57,335	89,086	77,417	68,197	75,772	65,814	63,576	64,034	50,394	53,718	65,561	73,832	67,983	72,955	76,350	69,169	73,561	67,931	64,787	68,868	54,398
20-29	92,550	92,151	99,656	90,371	108,493	93,325	105,099	105,599	99,186	104,487	97,455	85,744	94,597	97,052	110,554	96,635	106,447	110,475	119,728	112,163	109,785	105,164	104,108	94,401

FIGURE 9.3 TOTAL NUMBER OF CLINICAL ENCOUNTERS PER MONTH IN 2019 AND 2020 FOR PATIENTS AGED 30–59



	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
30-39	116,230	118,090	125,298	114,221	141,315	122,458	134,721	132,779	124,760	129,726	122,612	108,060	116,621	121,174	136,789	132,875	140,917	141,549	147,079	139,639	137,777	132,110	130,254	117,609
40-49	111,330	116,514	125,087	112,403	139,913	120,709	129,682	130,164	122,462	128,584	121,567	107,114	112,467	119,224	136,445	131,305	137,488	137,263	141,733	136,043	134,204	130,874	130,059	118,006
50-59	125,124	127,224	134,964	125,040	153,720	127,839	143,104	141,438	133,611	143,047	134,263	120,915	127,132	131,903	151,452	149,964	150,885	148,810	157,878	148,723	149,043	146,467	144,485	135,231

FIGURE 9.4 TOTAL NUMBER OF CLINICAL ENCOUNTERS PER MONTH IN 2019 AND 2020 FOR PATIENTS AGED 60 YEARS AND OLDER



	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
60-69	137,919	140,300	147,183	144,695	180,715	137,766	153,281	151,063	142,941	156,279	146,191	134,072	139,891	143,555	167,715	193,874	169,346	160,889	169,049	158,638	161,128	158,869	157,359	149,517
70-79	144,612	145,552	151,850	157,976	202,441	141,657	157,198	155,211	148,395	163,148	152,134	139,764	147,704	151,346	171,237	211,410	174,652	166,086	173,205	161,617	166,037	163,359	162,817	155,583
80-89	101,008	98,663	102,595	103,273	126,639	93,009	105,468	103,359	98,985	106,945	98,224	90,652	96,938	95,089	102,765	121,164	104,949	103,973	106,663	99,234	102,141	100,640	98,786	94,622
90+	37,235	35,302	36,409	34,732	42,019	32,227	36,166	34,393	32,987	35,263	31,597	29,125	30,855	28,952	30,411	34,164	31,046	30,687	31,283	29,460	28,817	28,102	26,875	26,045

9.3. Average number of clinical encounters by patient in 2019 versus 2020

The average number of clinical encounters per patient in 2020 increased significantly when compared with 2019 (Table 9.1). In 2019, on average, a MedicineInsight patient visited the practice 5.2 times compared with 5.7 in 2020. This is consistent with the increase in GP attendance seen in MBS data (Appendix 6: Figures A6.6 and A6.7). This may have been because the introduction of telehealth consultations reduced patient barriers to accessing care, such as having to travel to the general practice or take time off work.

9.3.1. Sociodemographics

The significant increase in the average number of encounters per year between 2019 and 2020 was seen in both men and women, in all socioeconomic groups and in most age groups. The exception was among children aged 0–9 years, where average encounters fell from 3.8 in 2019 to 3.6 in 2020. This may be due to school closures and social distancing which may have reduced children's exposure to acute respiratory and gastrointestinal infections.[28,29]

The average numbers of encounters per patient when stratified by state were similar, although there was a trend towards a slightly higher average number of encounters per year in most states. There was a significant increase in the average number of encounters in two states, Queensland and Victoria.

While the average number of clinical encounters increased significantly in metropolitan and inner regional areas, there was no difference observed in for outer regional and remote areas. There were few COVID cases outside metropolitan and inner regional areas and this may explain these findings. It could also be explained by the higher uptake of telehealth in these regions (see Table 3.5).[27]

TABLE 9.1 AVERAGE NUMBER OF GP ENCOUNTERS PER PATIENT BY SOCIODEMOGRAPHIC CHARACTERISTICS IN MEDICINEINSIGHT (UNWEIGHTED DATA) DURING 2019 (PRE-COVID) COMPARED WITH 2020 (COVID PERIOD)

Patient characteristic	MedicineInsight average number of encounters per patient in 2019 (95% CI) N=2,481,464	MedicineInsight average number of encounters per patient in 2020 (95% CI) N=2,365,258
All patients	**5.2 (5.1, 5.4)**	**5.7 (5.6, 5.9)**
Sex		
Male	4.9 (4.7, 5.0)	5.2 (5.1, 5.4)
Female	5.5 (5.4, 5.7)	6.1 (6.0, 6.3)
Age		
0–9	3.8 (3.7, 3.9)	3.6 (3.5, 3.6)
10–19	3.1 (3.1, 3.2)	3.4 (3.3, 3.5)
20–29	3.7 (3.6, 3.8)	4.2 (4.1, 4.3)
30–39	4.2 (4.1, 4.3)	4.7 (4.6, 4.8)
40–49	4.6 (4.5, 4.7)	5.2 (5.0, 5.3)
50–59	5.3 (5.2, 5.4)	5.9 (5.8, 6.0)
60–69	6.4 (6.2, 6.5)	7.1 (7.0, 7.3)
70–79	8.7 (8.5, 8.9)	9.8 (9.5, 10.0)
80–89	12.1 (11.7, 12.5)	13.1 (12.7, 13.4)
90+	13.8 (13.1, 14.5)	14.3 (13.6, 14.9)

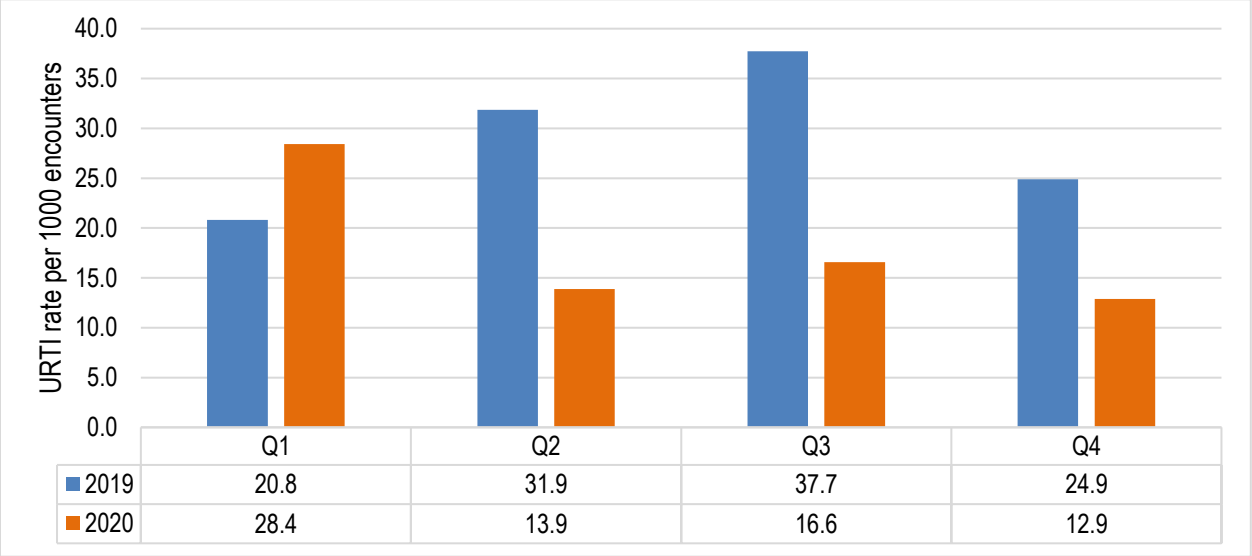
Patient characteristic	MedicineInsight average number of encounters per patient in 2019 (95% CI) N=2,481,464	MedicineInsight average number of encounters per patient in 2020 (95% CI) N=2,365,258
State		
ACT	4.8 (4.4, 5.2)	5.2 (4.8, 5.6)
NSW	5.2 (4.9, 5.4)	5.7 (5.4, 5.9)
NT	5.4 (4.0, 6.8)	4.6 (4.2, 5.0)
QLD	5.1 (4.9, 5.3)	5.6 (5.4, 5.9)
SA	5.6 (5.0, 6.3)	6.3 (5.8, 6.8)
TAS	6.2 (5.7, 6.6)	6.7 (6.2, 7.2)
VIC	5.4 (5.1, 5.6)	6.0 (5.7, 6.2)
WA	5.1 (4.7, 5.4)	5.4 (5.0, 5.7)
Rurality		
Major city	5.0 (4.9, 5.2)	5.5 (5.4, 5.7)
Inner regional	5.7 (5.5, 5.9)	6.3 (6.1, 6.5)
Outer regional	5.7 (5.3, 6.1)	5.9 (5.6, 6.3)
Remote/very remote	4.3 (3.7, 4.9)	4.6 (3.8, 5.3)
Socioeconomic status		
1 (most disadvantaged)	5.9 (5.7, 6.2)	6.6 (6.3, 6.8)
2	5.3 (5.0, 5.5)	5.8 (5.6, 6.0)
3	5.4 (5.2, 5.6)	5.9 (5.7, 6.1)
4	5.0 (4.8, 5.2)	5.4 (5.3, 5.6)
5 (most advantaged)	4.8 (4.6, 5.0)	5.2 (5.1, 5.4)

9.3.2. Acute conditions and mental illness

The analyses contained in this section are reported by quarters and are restricted to conditions recorded in the CIS within that quarter. That is, the condition must have been recorded in either the diagnosis, reason for prescription or reason for encounter fields during the three months of the quarter. This provides information on recent patient history and is better for capturing information on acute conditions or conditions which are being actively managed by the GP.

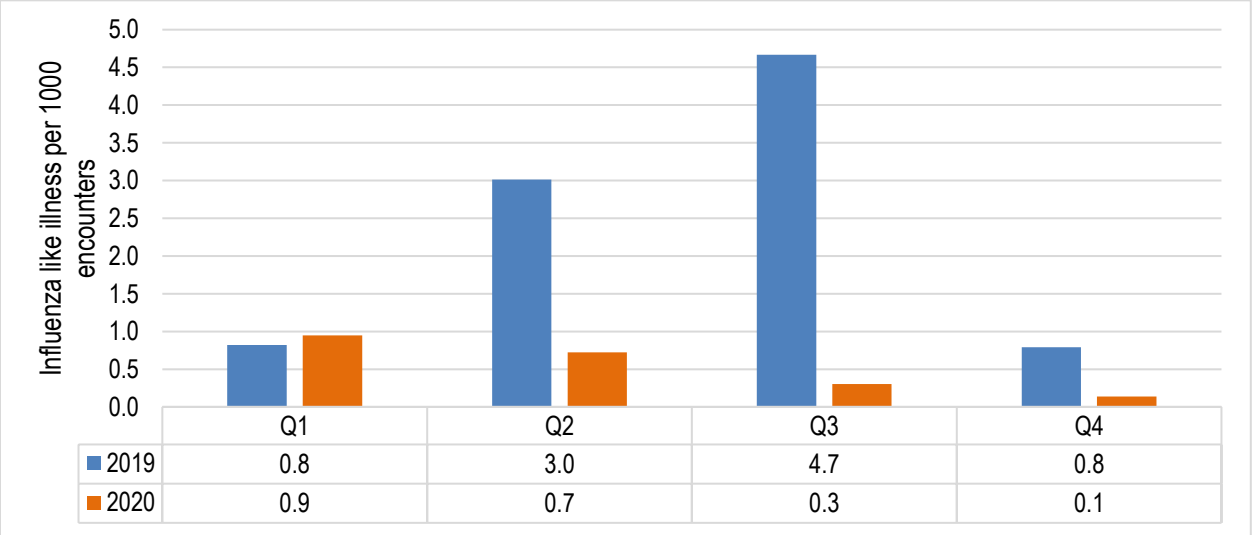
The rate at which patients attended a practice with an acute upper respiratory tract infection decreased in 2020 (Figures 9.5 and 9.6). In the winter of 2019 (Q3), 38 patients presented with an upper respiratory tract infection per 1000 clinical encounters, decreasing to 17 patients per 1000 clinical encounters in 2020. Presentations for influenza-like illness fell from 5 patients per 1000 clinical encounters during the winter of 2019 to fewer than 1 patient per 1000 clinical encounters in winter 2020. Similar decreases in respiratory illness have been reported in other datasets and have variously been explained as the result of wearing face masks, social distancing, closure of workplaces and schools and restrictions upon international and interstate movement.[28,30]

FIGURE 9.5 PATIENTS WITH A RECORD OF AN UPPER RESPIRATORY TRACT INFECTION PER 1000 CLINICAL ENCOUNTERS BY QUARTERS 2019 AND 2020



	Q1	Q2	Q3	Q4
2019	20.8	31.9	37.7	24.9
2020	28.4	13.9	16.6	12.9

FIGURE 9.6 PATIENTS WITH A RECORD OF INFLUENZA-LIKE ILLNESS PER 1000 CLINICAL ENCOUNTERS BY QUARTERS, 2019 AND 2020



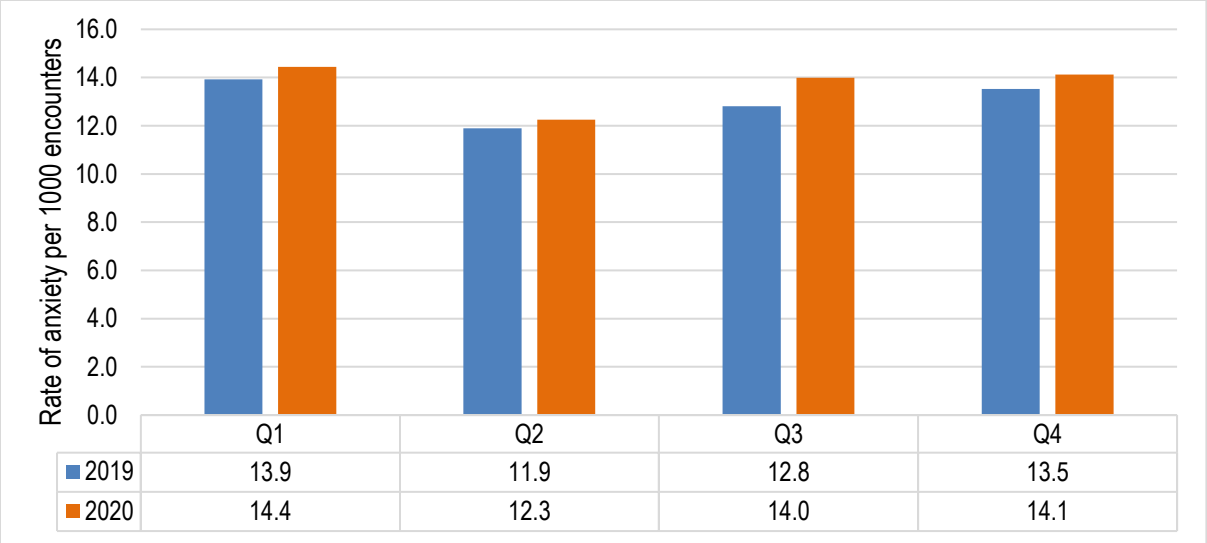
	Q1	Q2	Q3	Q4
2019	0.8	3.0	4.7	0.8
2020	0.9	0.7	0.3	0.1

The changes in the everyday lives of Australians that were required to manage the pandemic, including disruption to the way people work, study and socialise, raised concerns about increases in mental illness.[6,31] There was an increase in the number of encounters with patients with a recent history of anxiety in the second half of 2020 when compared to the second half of 2019 (Figure 9.7). However, the number of encounters per quarter for depression in both 2019 and 2020 appears to be similar (Figure 9.8).

This small increase contrasts with the large rise in call volumes recorded by crisis and support organisations such as Lifeline and Beyond Blue.[6] It could be that these services, rather than GPs, are the first points of contact for many patients experiencing mental health issues as a result of the pandemic. Alternatively, GPs may be waiting to see if patients newly presenting with mental health symptoms improve with time before formally diagnosing anxiety or depression. Lastly, the study requirement that the

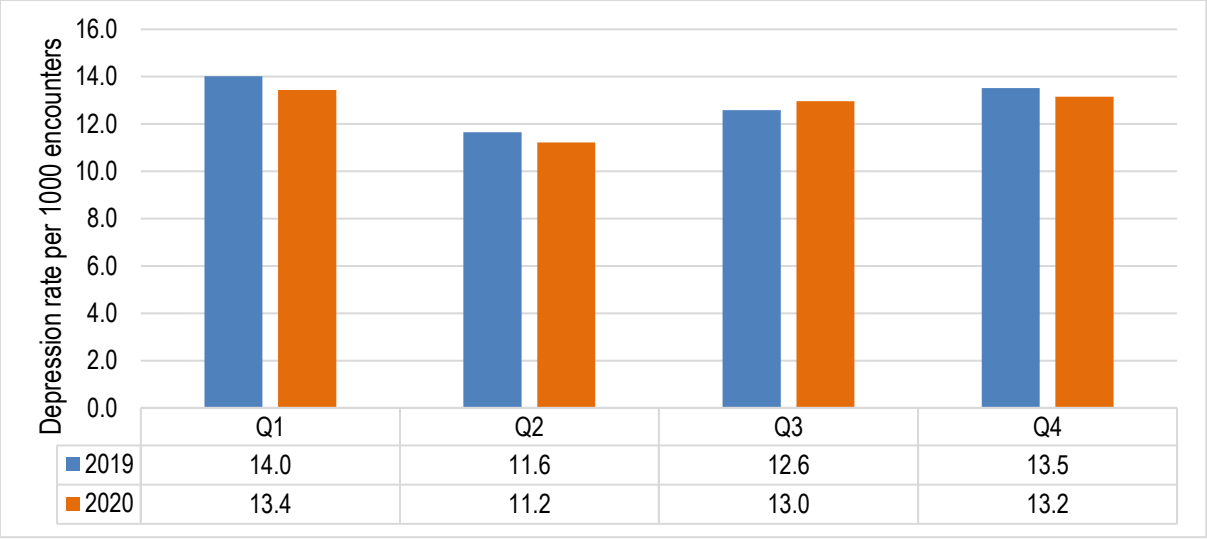
patient have a record of depression or anxiety within the quarter may mean that patients with pre-existing mental health conditions that were exacerbated by the pandemic are being missed.

FIGURE 9.7 PATIENTS WITH A RECENT RECORD OF ANXIETY PER 1000 CLINICAL ENCOUNTERS BY QUARTERS, 2019 AND 2020



	Q1	Q2	Q3	Q4
2019	13.9	11.9	12.8	13.5
2020	14.4	12.3	14.0	14.1

FIGURE 9.8 PATIENTS WITH A RECENT RECORD OF DEPRESSION PER 1000 CLINICAL ENCOUNTERS BY QUARTERS, 2019 AND 2020



	Q1	Q2	Q3	Q4
2019	14.0	11.6	12.6	13.5
2020	13.4	11.2	13.0	13.2

9.3.3. Non-communicable conditions

To look at whether the pandemic decreased the likelihood that a patient with a chronic condition would visit their GP, the rate of presentations per 1000 clinical encounters for patients with a history of each condition was explored. For example, if a patient had ever been recorded as having diabetes and they visited their general practice up until the end of a particular quarter, they were classified as being a patient with diabetes who had visited their GP. It should be noted that while patients may have a history of a condition, it may not necessarily be managed at every encounter. They may have been visiting for another purpose.

Table 9.2 shows the rates at which patients with a history of each condition visited their practices per 1000 clinical encounters over 2019 and 2020. There was little variation in rates of attendance per 1000 encounters over the two-year period, nor was there any substantial difference when each quarter in 2020 was compared to the corresponding quarter in 2019.

TABLE 9.2 PATIENTS WITH A RECORD OF SELECTED CONDITIONS EVER RECORDED IN THE CIS* PER 1000 ENCOUNTERS (UNWEIGHTED), 2019 AND 2020

	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Anxiety disorder	66.1	63.1	64.8	69.4	70.2	64.6	68.3	73.0
Asthma	51.6	52.1	51.1	52.8	54.5	50.7	49.2	52.1
Atrial fibrillation	13.1	12.5	12.5	13.5	13.5	12.4	12.6	13.5
Cardiovascular disease	29.0	27.6	27.3	29.3	29.1	26.8	26.9	28.9
Chronic kidney disease	7.2	7.8	6.7	7.4	7.5	7.0	7.1	7.7
COPD	15.2	14.5	14.4	15.6	15.5	14.4	14.5	15.5
Depression	76.6	71.9	73.4	78.2	78.1	70.9	74.4	79.1
Diabetes (type 2/NOS)	31.6	29.9	29.7	32.1	31.7	29.5	29.8	32.0
Dyslipidaemia	69.8	67.9	66.4	71.9	71.7	67.3	67.9	73.6
Heart failure	6.6	6.2	6.3	6.8	6.7	6.1	6.4	6.9
Hypertension	89.2	86.4	84.7	91.5	90.7	84.5	84.4	90.8
Low back pain	76.9	74.0	74.4	79.8	79.6	73.6	75.6	81.2

*A patient was classified as having the condition if that condition was recorded at any point up until the end of the quarter of interest.

9.4. Issued prescription rates per month

This section explores the impact of the pandemic on prescribing rates for a number of selected medicines. These medicines were chosen because they:

- are typically used on a long-term daily basis for chronic or mental health conditions
- are used to manage respiratory conditions (asthma and COPD medicines)
- are used to manage acute infections but are sometimes used less appropriately to manage acute respiratory conditions (beta-lactam antibiotics/penicillin)
- are influenza vaccines, or
- were promoted as being potential treatments for COVID-19.

The monthly rate of prescribing per 1000 clinical encounters for all the selected medicines in the one graph can be seen in Appendix 6, Figure A6.5.

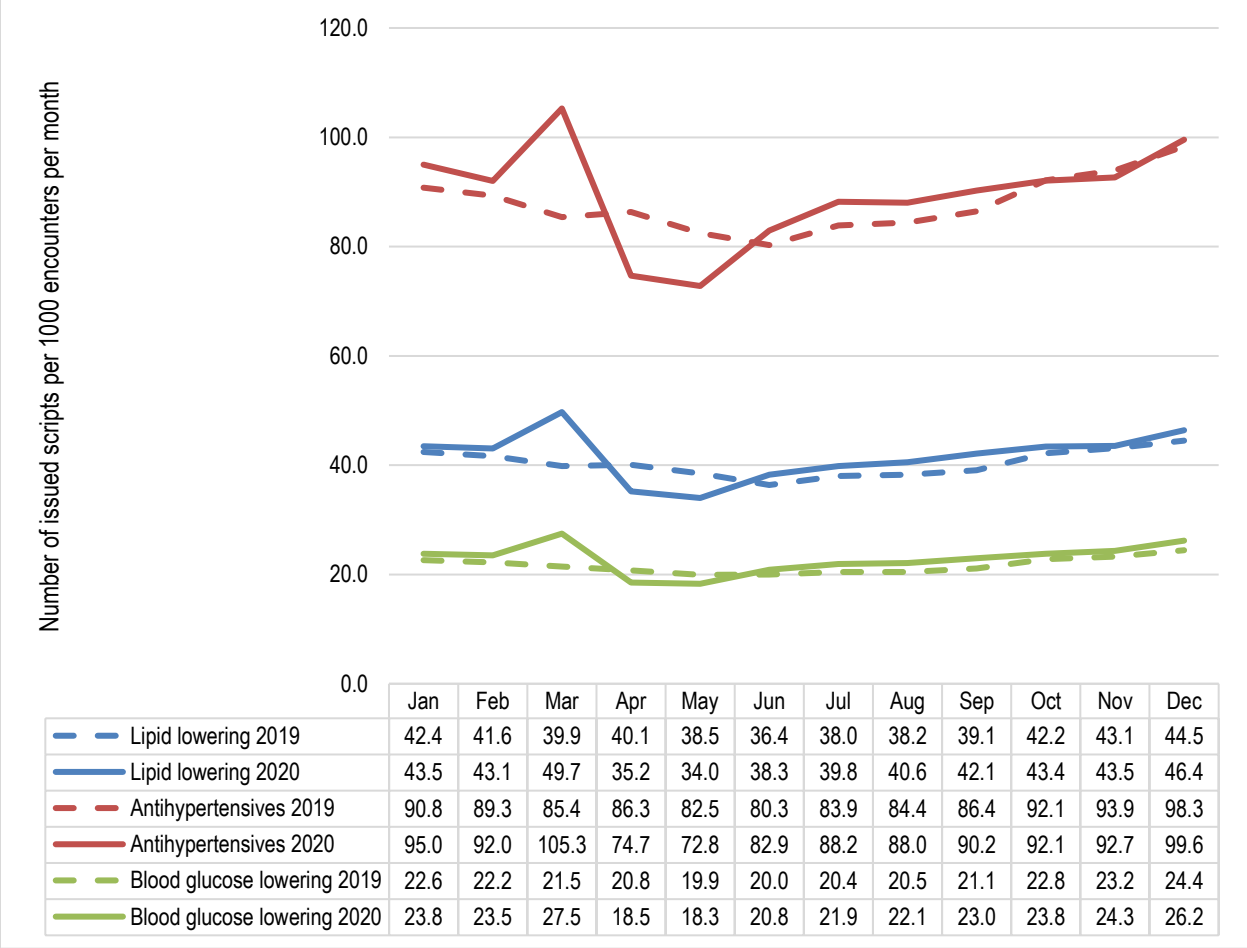
9.4.1. Cardiovascular and blood glucose-lowering medicines

The medicines included in this section were the lipid-lowering medicines (ATC code C10), the antihypertensives (C02, C03, C07, C08 and C09) and the blood glucose-lowering medicines (A10).

While prescribing rates of each of these classes of medicines were similar throughout 2019, there was a sharp increase in prescribing in March 2020. This is consistent with PBS data which showed a 23.1% increase in the number of prescriptions dispensed in March 2020 compared to March 2019.[27] This rise happened before the implementation of restrictions on movement. It may be that patients using these medicines were concerned that potential lockdowns would make it difficult to get new prescriptions and

visited their general practices just in case. After a plateau in May 2020, prescribing began to increase again possibly due to the easing of restrictions on movements and telehealth consultations.

FIGURE 9.9 MONTHLY NUMBER OF ISSUED PRESCRIPTIONS FOR CARDIOVASCULAR AND BLOOD GLUCOSE-LOWERING MEDICINES PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2020



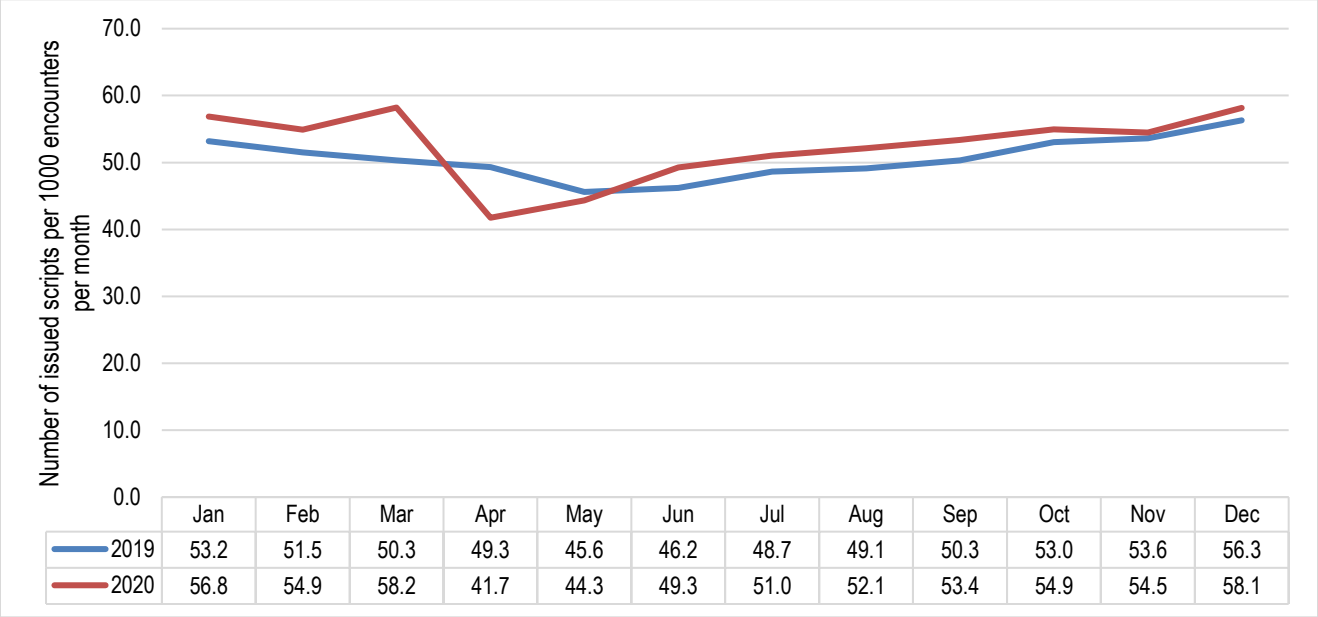
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lipid lowering 2019	42.4	41.6	39.9	40.1	38.5	36.4	38.0	38.2	39.1	42.2	43.1	44.5
Lipid lowering 2020	43.5	43.1	49.7	35.2	34.0	38.3	39.8	40.6	42.1	43.4	43.5	46.4
Antihypertensives 2019	90.8	89.3	85.4	86.3	82.5	80.3	83.9	84.4	86.4	92.1	93.9	98.3
Antihypertensives 2020	95.0	92.0	105.3	74.7	72.8	82.9	88.2	88.0	90.2	92.1	92.7	99.6
Blood glucose lowering 2019	22.6	22.2	21.5	20.8	19.9	20.0	20.4	20.5	21.1	22.8	23.2	24.4
Blood glucose lowering 2020	23.8	23.5	27.5	18.5	18.3	20.8	21.9	22.1	23.0	23.8	24.3	26.2

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

9.4.2. Antidepressants

A similar pattern of prescribing as for cardiovascular medicines was seen for the antidepressants (ATC N06A). Once again there was a sharp increase in prescribing in March 2020 followed by a sharp fall in April 2020, suggesting many patients using these medicines saw their GP for a new prescription in case of a lockdown.

FIGURE 9.10 MONTHLY NUMBER OF ISSUED PRESCRIPTIONS FOR ANTIDEPRESSANTS PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2020

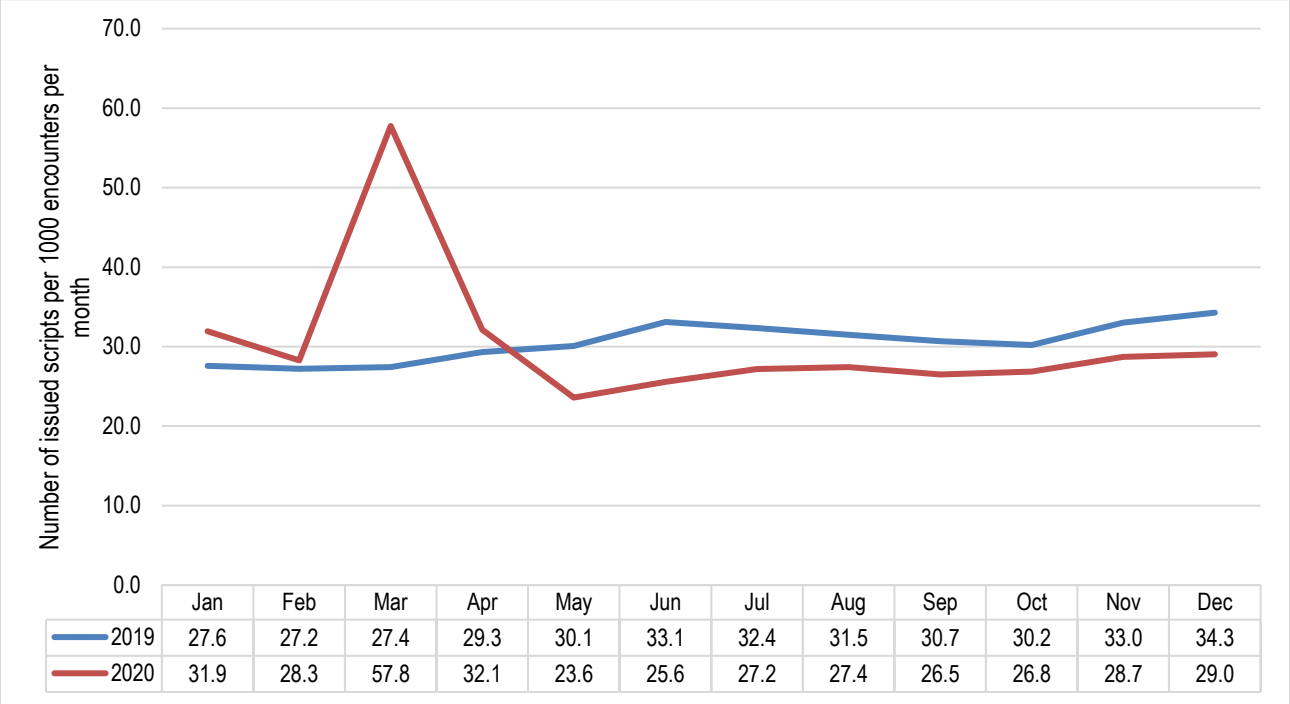


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	53.2	51.5	50.3	49.3	45.6	46.2	48.7	49.1	50.3	53.0	53.6	56.3
2020	56.8	54.9	58.2	41.7	44.3	49.3	51.0	52.1	53.4	54.9	54.5	58.1

9.4.3. Asthma and COPD medicines

Like the medicines above, there was also a sharp rise in the prescribing rates of medicines to manage asthma and COPD (ATC R03). However, this increase was more pronounced than for the other medicines, with rates of prescribing almost doubling in March 2020.This is consistent with data from the PBS which also reported a large spike in group of medicines used to treat respiratory conditions.[27]

FIGURE 9.11 MONTHLY NUMBER OF ISSUED PRESCRIPTIONS FOR ASTHMA AND COPD MEDICINES PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2020



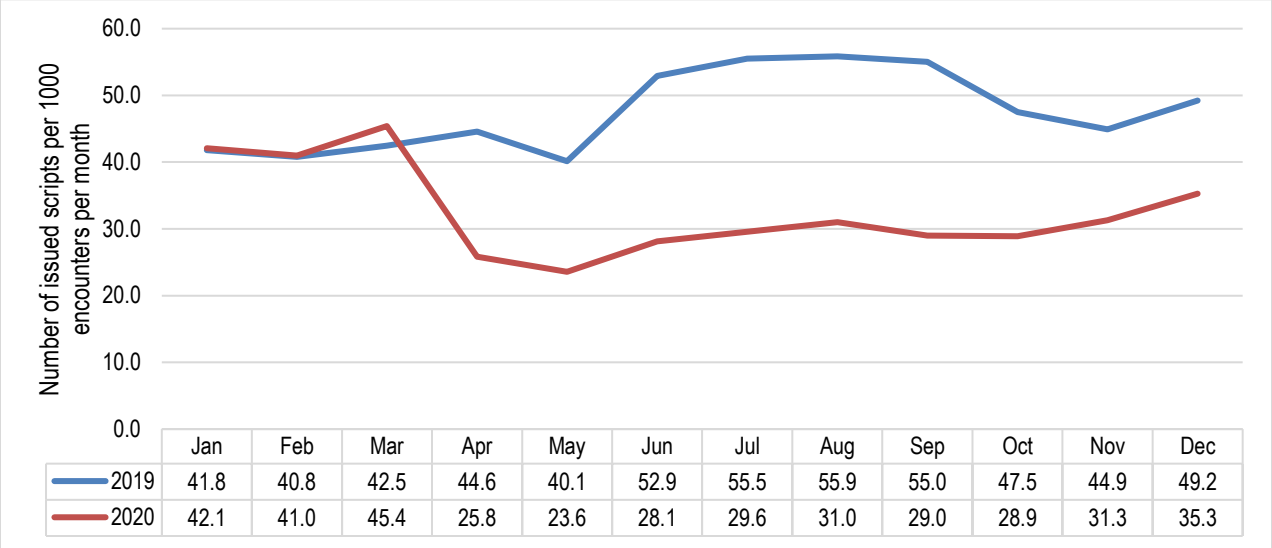
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	27.6	27.2	27.4	29.3	30.1	33.1	32.4	31.5	30.7	30.2	33.0	34.3
2020	31.9	28.3	57.8	32.1	23.6	25.6	27.2	27.4	26.5	26.8	28.7	29.0

9.4.4. Beta-lactam antibiotics and penicillin

Penicillin and beta-lactam antibiotics are used to treat bacterial infections but are sometimes inappropriately used to treat acute viral infections, particularly those of the upper respiratory tract during winter months. They may be used appropriately for unresolved otitis media, an infection of the middle ear.

In 2019, rates of prescribing of beta-lactam antibiotics increased during winter. However, the same pattern was not seen in 2020 and rates of prescribing of these medicines from April 2020 were typically almost half that seen in the same months in 2019. This might have been due to the large drop in the number of respiratory tract infections reported during the pandemic which could be associated with COVID-19 preventive measures such as physical distancing, wearing masks and improved hand hygiene practices.

FIGURE 9.12 MONTHLY NUMBER OF ISSUED PRESCRIPTIONS FOR BETA-LACTAM ANTIBIOTICS PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2020

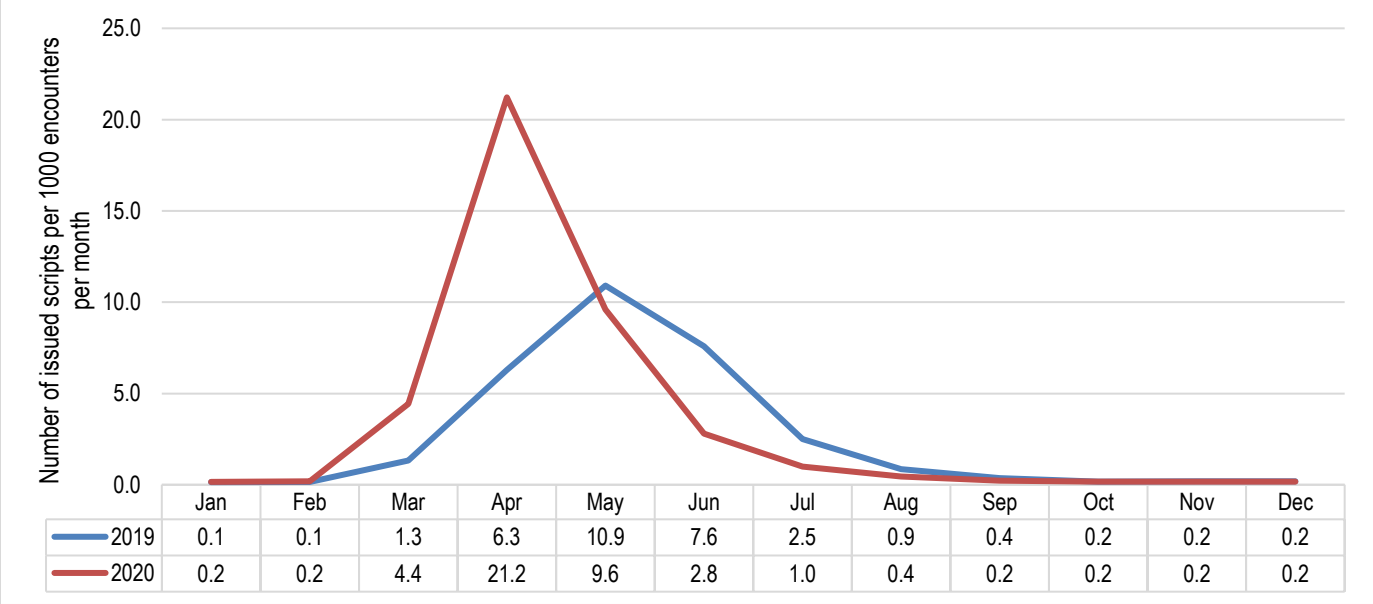


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	41.8	40.8	42.5	44.6	40.1	52.9	55.5	55.9	55.0	47.5	44.9	49.2
2020	42.1	41.0	45.4	25.8	23.6	28.1	29.6	31.0	29.0	28.9	31.3	35.3

9.4.5. Influenza vaccine

The influenza vaccine usually becomes available in April and May of each year. In 2019, the peak prescribing period for flu vaccine was May (11 issued prescriptions per 1000 clinical encounters). In 2020, the peak was a month earlier and more than double that seen in 2019 (Figure 9.13). This corresponds with government messaging in the early months of the pandemic for Australians to get their flu vaccine early to minimise the burden of influenza during the COVID-19 pandemic period. Similar findings have also been reported in Australian immunisation registry datasets.[27,32]

FIGURE 9.13 MONTHLY NUMBER OF ISSUED PRESCRIPTIONS FOR INFLUENZA VACCINES PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2020



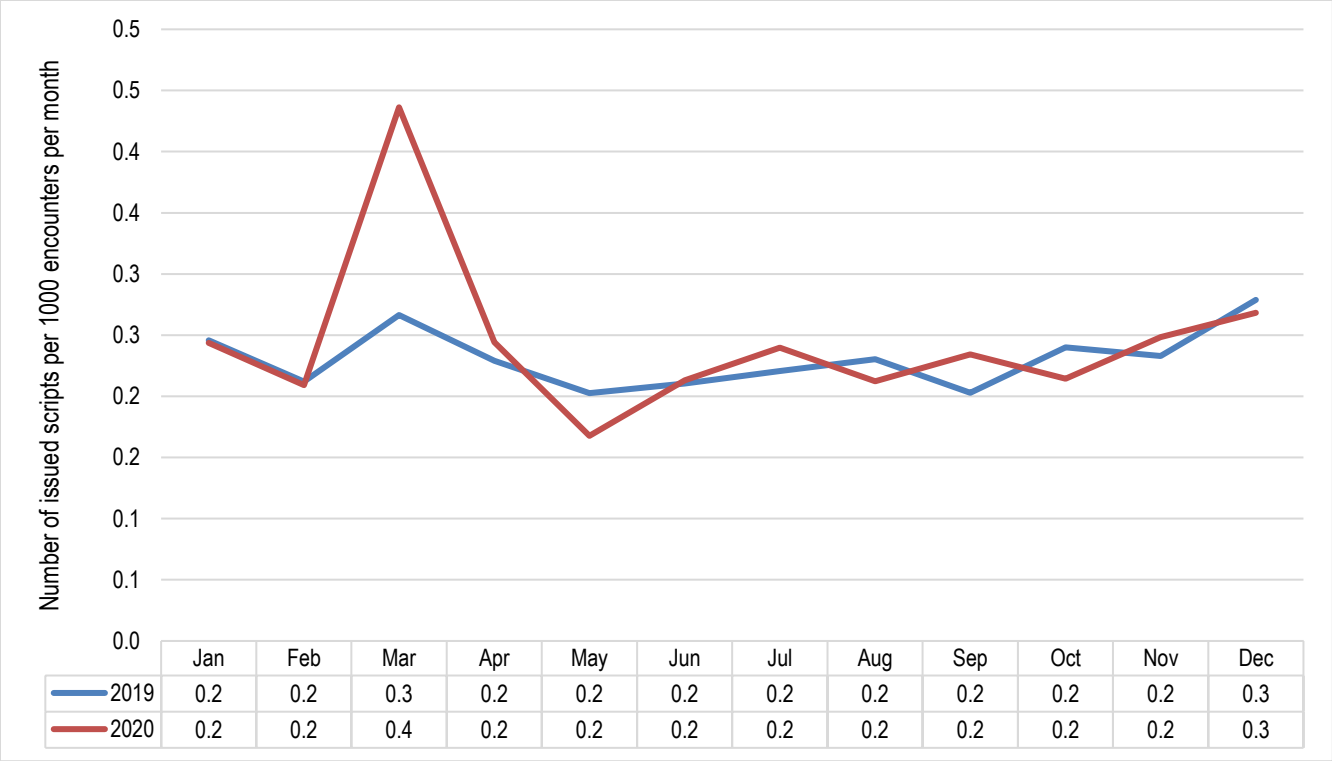
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	0.1	0.1	1.3	6.3	10.9	7.6	2.5	0.9	0.4	0.2	0.2	0.2
2020	0.2	0.2	4.4	21.2	9.6	2.8	1.0	0.4	0.2	0.2	0.2	0.2

9.4.6. Hydroxychloroquine

Hydroxychloroquine is used to prevent and treat malaria or to treat autoimmune conditions. Early in the pandemic, research started into the possible use of hydroxychloroquine to prevent or treat COVID-19. This led to an increase in demand for hydroxychloroquine. Stories of stockpiling emerged as did reports that patients using it to manage their chronic diseases were having difficulty filling their prescriptions.

Hydroxychloroquine prescriptions typically only account for a small proportion of prescribing – around 0.2 issued prescriptions per 1000 clinical encounters (Figure 9.14). However, there was a doubling in usual prescribing of hydroxychloroquine in March 2020. Once again, this was prior to the lockdown and may correspond with patients with autoimmune diseases stockpiling in preparation for the lockdown and some potentially inappropriate prescribing. After March 2020, new TGA restrictions meant that only certain specialists[L] could start new patients on hydroxychloroquine.[33]

FIGURE 9.14 MONTHLY NUMBER OF ISSUED PRESCRIPTIONS FOR HYDROXYCHLOROQUINE PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2020



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
2020	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3

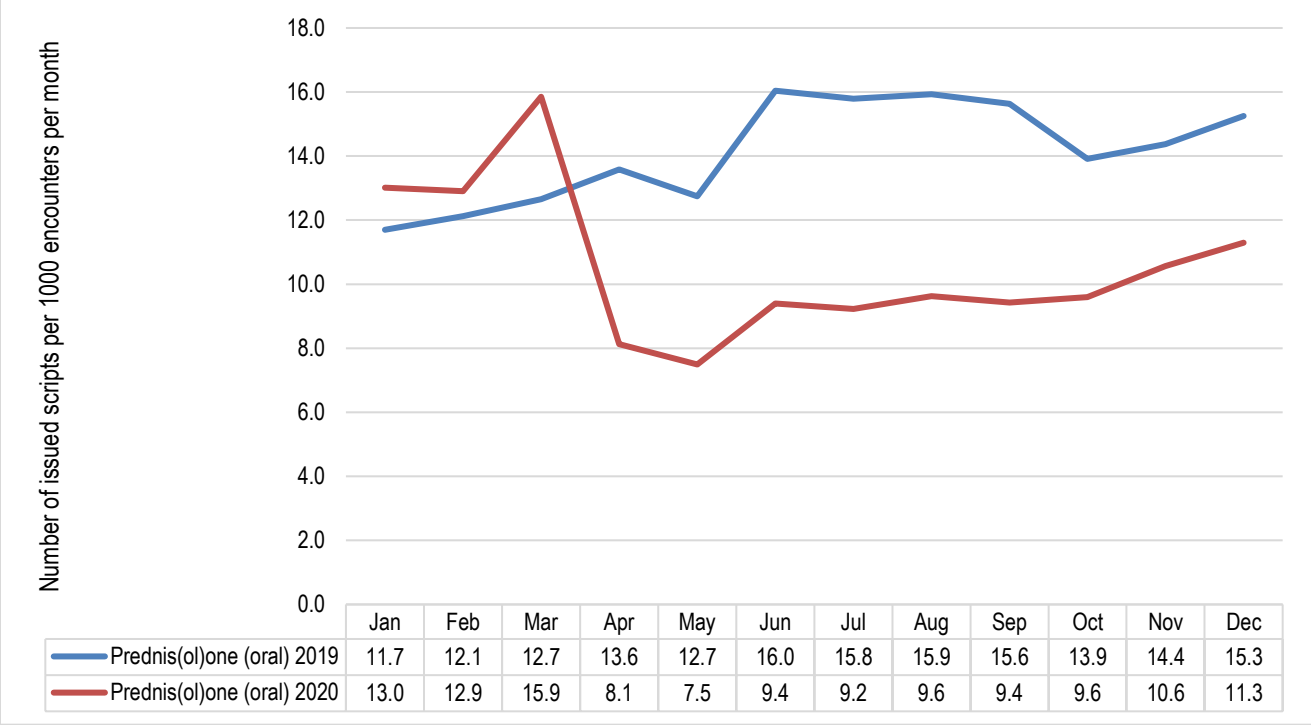
9.4.7. Oral prednisolone/prednisone

As with most medicines above, there was an increase in prescribing of oral prednisolone/prednisone in March 2020 but generally the prescribing rates for oral prednisolone/prednisone followed a similar trend as penicillin and beta-lactam antibiotics. In 2019, rates of prescribing of prednisolone/prednisone increased during winter. However, the same pattern was not seen in 2020 and rates of prescribing of these medicines from April 2020 were almost half that seen in the same months in 2019. It is possible

[L] These specialists included physicians and those in dermatology, intensive care medicine, paediatrics, or emergency medicine

that the drop in respiratory tract infections reported during the pandemic because of COVID-19 preventive measures might be responsible for the drop in prednisolone/prednisone prescribing.

FIGURE 9.15 MONTHLY NUMBER OF ISSUED PRESCRIPTIONS FOR ORAL PREDNISOLONE/PREDNISONE PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2020



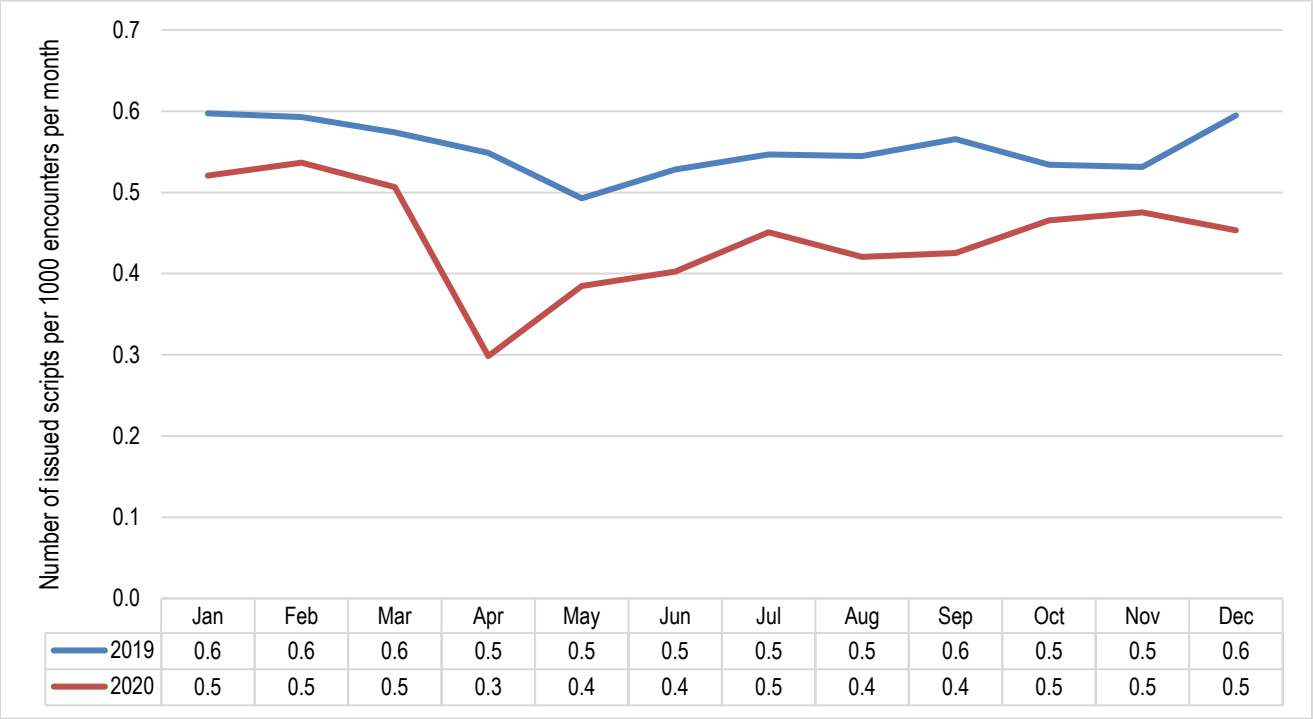
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Prednis(ol)one (oral) 2019	11.7	12.1	12.7	13.6	12.7	16.0	15.8	15.9	15.6	13.9	14.4	15.3
Prednis(ol)one (oral) 2020	13.0	12.9	15.9	8.1	7.5	9.4	9.2	9.6	9.4	9.6	10.6	11.3

9.4.8. Heparins

The heparins (enoxaparin, dalteparin and heparin) are anticoagulants typically used to treat patients with venous thromboembolism (VTE) or acute coronary syndrome or prescribed to prevent VTE in surgical patients. They have also been used prophylactically for some patients with severe or critical COVID-19 infection.

There was very little prescribing of heparins over the entire study period (Figure 9.16). Prescribing rates were lower in 2020 than in 2019, possibly due to the suspension of elective surgery during the pandemic period.[34]

FIGURE 9.16 MONTHLY NUMBER OF ISSUED PRESCRIPTIONS FOR HEPARINS PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2020



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.6
2020	0.5	0.5	0.5	0.3	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.5

9.5. Pathology test result rates per month

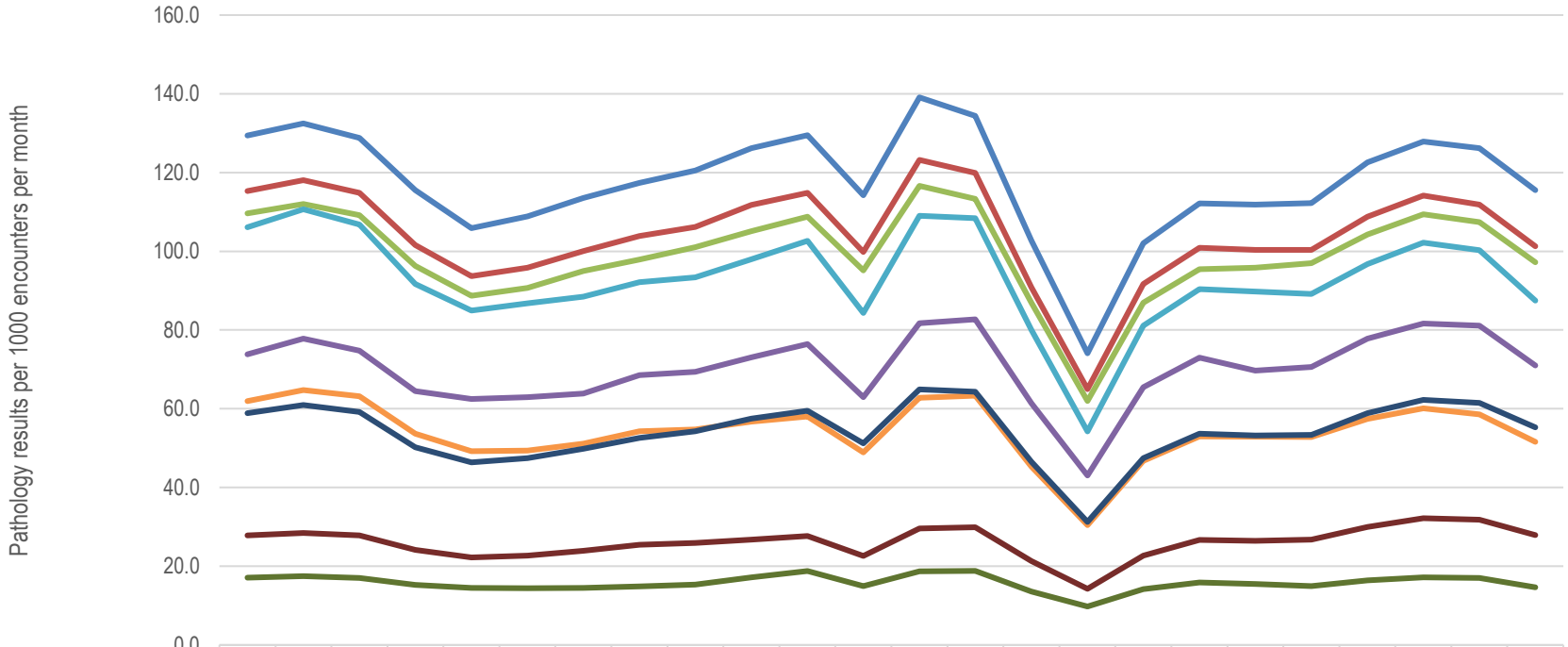
This section explores the impact of the COVID-19 pandemic on the number of pathology test results recorded for a number of selected blood tests. The included test results are:

- haemoglobin (as a proxy for FBC)
- ALT (as a proxy for LFT)
- sodium (proxy for kidney function tests)
- HbA_{1c}
- total cholesterol
- TSH
- ferritin
- vitamin D
- prostate-specific antigen (PSA).

Recorded pathology result rates per 1000 clinical encounters fell sharply in December 2019 (Figure 9.17). This may have been due to a combination of the Christmas break and the severe bushfires at this time.

Testing rates recovered in January and February 2020 before falling sharply again for all selected tests in April 2020, corresponding to the first lockdowns. While testing rates rose again from May 2020 onwards, they plateaued again in July, the time of the second wave in Victoria.

FIGURE 9.17 MONTHLY PATHOLOGY TEST RESULTS RECEIVED PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2020



	Jan 19	Feb 19	Mar 19	Apr 19	May 19	Jun 19	Jul 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20
Haemoglobin	129.4	132.4	128.8	115.5	105.9	108.9	113.5	117.4	120.5	126.2	129.5	114.2	139.1	134.4	102.7	74.1	102.0	112.2	111.8	112.2	122.6	127.9	126.2	115.5
ALT	115.3	118.0	114.9	101.5	93.7	95.8	100.1	103.9	106.2	111.7	114.8	99.8	123.2	119.9	90.8	65.0	91.7	100.9	100.3	100.4	108.8	114.1	111.8	101.3
Sodium	109.7	112.0	109.2	96.3	88.7	90.7	95.0	97.9	101.0	105.1	108.8	95.1	116.6	113.3	86.9	62.0	86.9	95.5	95.9	97.0	104.2	109.4	107.4	97.2
Total cholesterol	106.1	110.7	106.8	91.7	84.9	86.8	88.5	92.2	93.4	97.9	102.7	84.4	109.0	108.4	80.0	54.2	81.1	90.4	89.8	89.2	96.8	102.2	100.3	87.5
HbA1c	73.8	77.8	74.7	64.5	62.5	62.9	63.9	68.5	69.4	73.0	76.5	63.0	81.8	82.7	61.4	43.0	65.5	73.0	69.7	70.6	77.8	81.7	81.1	71.0
TSH	62.0	64.8	63.2	53.6	49.2	49.4	51.1	54.3	54.7	56.7	58.0	48.9	62.8	63.3	45.3	30.4	46.8	53.0	52.9	52.8	57.4	60.1	58.6	51.6
Ferritin	58.8	61.0	59.2	50.2	46.4	47.4	49.8	52.6	54.3	57.5	59.5	51.2	64.9	64.3	46.5	31.2	47.5	53.6	53.2	53.3	58.9	62.3	61.5	55.3
Vit D	27.8	28.4	27.8	24.2	22.2	22.7	23.9	25.5	25.9	26.8	27.7	22.6	29.6	29.9	21.3	14.3	22.7	26.7	26.5	26.8	30.0	32.2	31.8	27.9
PSA	17.1	17.5	17.0	15.3	14.5	14.4	14.5	14.9	15.3	17.2	18.8	15.0	18.7	18.8	13.6	9.8	14.2	15.9	15.5	14.9	16.4	17.2	17.0	14.6

9.6. Medical test request rates

The data in section 9.5 is based on atomised test results transmitted directly from pathology laboratories to the CIS of practices. However, there are some types of medical test results that cannot be transferred to the practice in this manner. These are typically test results that are not numerical, such as medical imaging results or microbiology.

Another way of exploring medical testing patterns during the COVID period is to look at the tests that GPs themselves record that they have requested. This allows us to:

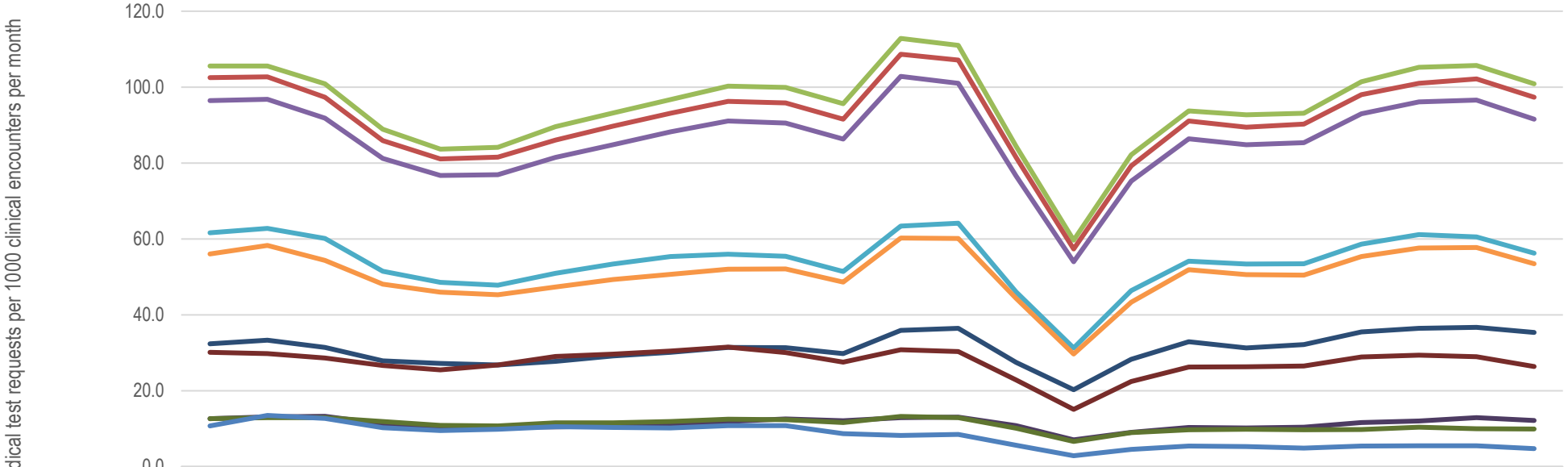
- explore whether the decrease in test results received at the practice was mirrored by a decrease in GPs requesting tests
- explore whether there has also been a reduction in requests for other types of tests such as medical imaging, serology, cervical screening, etc.

To understand GP test request behaviour, we used the 'REQUESTED_TEST' field. Entries in this field are often written in free text and frequently list more than one medical test. Therefore, a pragmatic approach was used to classify the test requests into relevant groups. More information about how this was done can be found in Appendix 1. The chosen test requests are:

- FBC
- LFT
- electrolytes, urea, creatinine (EUC)
- lipids
- HbA_{1c}
- thyroid function tests
- cervical tests (including cervical screening tests)
- X-rays (including mammograms and any entry with x-ray recorded)
- serology (defined as any entry which contains the term serology or relevant synonyms)
- histology (defined as any entry which contains the term histology, histopathology, biopsy, cytology or excision).

The same patterns seen for pathology test results were also seen for medical test requests (Figure 9.18). Test requests per 1000 clinical encounters fell sharply for all selected tests in April 2020, corresponding to the first lockdowns, before rising again from May 2020 onwards.

FIGURE 9.18 MONTHLY MEDICAL TEST REQUESTS PER 1000 ENCOUNTERS DURING 2019 AND 2020



	Jan 19	Feb 19	Mar 19	Apr 19	May 19	June 19	Jul 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20
FBC	105.5	105.6	100.8	88.9	83.7	84.1	89.6	93.2	96.7	100.3	99.9	95.6	112.8	111.0	84.4	59.7	82.2	93.7	92.7	93.1	101.4	105.2	105.7	100.9
EUC	102.5	102.7	97.3	85.9	81.1	81.5	86.0	89.7	93.1	96.2	95.8	91.6	108.7	107.1	81.5	57.3	79.2	91.1	89.5	90.2	98.0	101.0	102.2	97.3
LFT	96.5	96.8	91.8	81.2	76.7	77.0	81.5	84.8	88.2	91.1	90.5	86.3	102.8	101.0	76.6	54.0	75.2	86.4	84.8	85.4	93.0	96.1	96.6	91.5
Thyroid function	61.6	62.8	60.1	51.5	48.5	47.8	50.9	53.4	55.4	55.9	55.4	51.4	63.4	64.1	46.0	31.3	46.4	54.1	53.4	53.5	58.6	61.2	60.5	56.2
Lipids	56.0	58.3	54.4	48.1	46.0	45.3	47.3	49.3	50.7	52.0	52.1	48.6	60.2	60.1	44.3	29.7	43.3	51.9	50.6	50.4	55.4	57.6	57.7	53.5
HbA1c	32.4	33.3	31.4	27.9	27.2	26.8	27.7	29.2	30.1	31.4	31.3	29.8	35.9	36.4	27.4	20.3	28.3	32.9	31.3	32.2	35.5	36.4	36.7	35.4
Any X-ray	30.1	29.8	28.6	26.7	25.5	26.8	29.0	29.6	30.5	31.5	30.0	27.5	30.8	30.3	22.8	15.1	22.4	26.3	26.3	26.5	28.9	29.3	29.0	26.4
Any histology	12.6	13.1	13.3	11.3	10.3	10.4	10.4	10.7	11.0	11.9	12.6	12.1	12.9	13.1	10.8	7.1	9.0	10.4	10.2	10.4	11.6	12.0	12.9	12.2
Any serology	12.6	12.9	12.9	11.9	10.9	10.7	11.6	11.6	11.9	12.5	12.4	11.6	13.2	12.9	10.1	6.6	9.0	9.7	9.8	9.7	9.8	10.4	10.0	9.9
Cervical test	10.7	13.5	12.7	10.2	9.5	9.9	10.5	10.3	10.2	10.8	10.8	8.7	8.2	8.5	5.6	2.9	4.5	5.4	5.3	4.9	5.4	5.5	5.5	4.7

10. 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 visit, at each visit.
- Conditions may be underreported in MedicineInsight data, depending on recording practices. A validation study has been conducted to estimate the accuracy of condition definitions in MedicineInsight.[35]
- Calculation of the relative proportions of different conditions assumes that non-recording of conditions occurs at random.
- Selection criteria were applied in order 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 2019–20 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.

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APPENDIX 1. METHODOLOGY

This report is based upon MedicineInsight data extracted from the data warehouse in March 2021 and includes encounters from 1 January 2019 to 31 December 2020. Decisions on sample selection and scope were guided by the following objectives:

- ensuring that 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 2020, 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 general practitioners (GPs) have been provided as background information only. Only GPs who delivered more than 3 clinical encounters during financial year 2019–20 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 to be included, 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 2019 to June 2020 and had high quality data recorded. The GP clinical encounters associated with these patients between July 2019 to June 2020 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, 2019–20

	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)	2,470,520 (2,470,090 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)	13,310,362 (for the purposes of counting GP clinical encounters)

COVID analyses

Patients and clinical encounters included in the COVID 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 2019–20 financial year, patients were included if they had at least one clinical encounter in either 2019 or 2020.

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 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 2019–20 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 2019 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[M] 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 upon 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 MedicineInsight. Both coded conditions (entered by GPs using drop-down lists in the CIS) and non-

[M] 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.

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 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 chronic obstructive pulmonary disease, 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 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 2019–20) 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 test 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.

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 which indicates how many population units are represented by the sample unit. As MedicineInsight data is more robust at the patient level rather 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 2019–20 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 2019–20 patient cohort	Includes all patients with at least one clinical encounter, with a GP, recorded at a MedicineInsight general practice site in 2019–20 financial year.
MBS 2019–20 patient population	Includes all patients with at least 1 MBS-billed GP attendance in 2019–20 financial year. MBS encounters were defined by the Medicare claim groups listed in Table A6.2.

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 the 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 describing the baseline (unweighted) study population but 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 3.2) and the impact of COVID (Chapter 9) 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 2 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 2019–20 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. THE MEDICINEINSIGHT PROGRAM

Recruitment of general practices and consent

General practice sites (both accredited and non-accredited) from all states and territories are recruited into the MedicineInsight program and consent to the collection of de-identified patient information. Practices included in the cohort used for this report use one of two clinical information systems (CISs), 'Best Practice' (BP) or 'Medical Director 3' (MD), which together account for the majority of general practice software systems.

The general practice owner or authorised person for a general practice must provide a signed agreement to participate in MedicineInsight. Consistent with National Health and Medical Research Council (NHMRC) ethical guidelines for the use of health-related data, patients are not required to give written consent due to the non-identifiable nature of the data collected. This process has been approved by the RACGP ethics committee. However, general practices are required to inform patients of the practice's participation in the MedicineInsight program through poster displays and information leaflets. The posters and information leaflets contain MedicineInsight contact information (email and phone line) in case there are any patient concerns. Patients can opt out of the program through a process handled independently at the practice if they do not wish their de-identified data to be shared via MedicineInsight.

Data collection

MedicineInsight uses third-party data extraction tools to de-identify, extract and securely transmit whole-of-practice data from within each general practice's CIS. An all-of-practice data collection, containing all available historic and current de-identified electronic health records, is conducted when a practice joins MedicineInsight. The extraction tool collects incremental data regularly, allowing the development of a longitudinal database in which patients within practices can be tracked over time.

The data that MedicineInsight collects from general practice sites include:

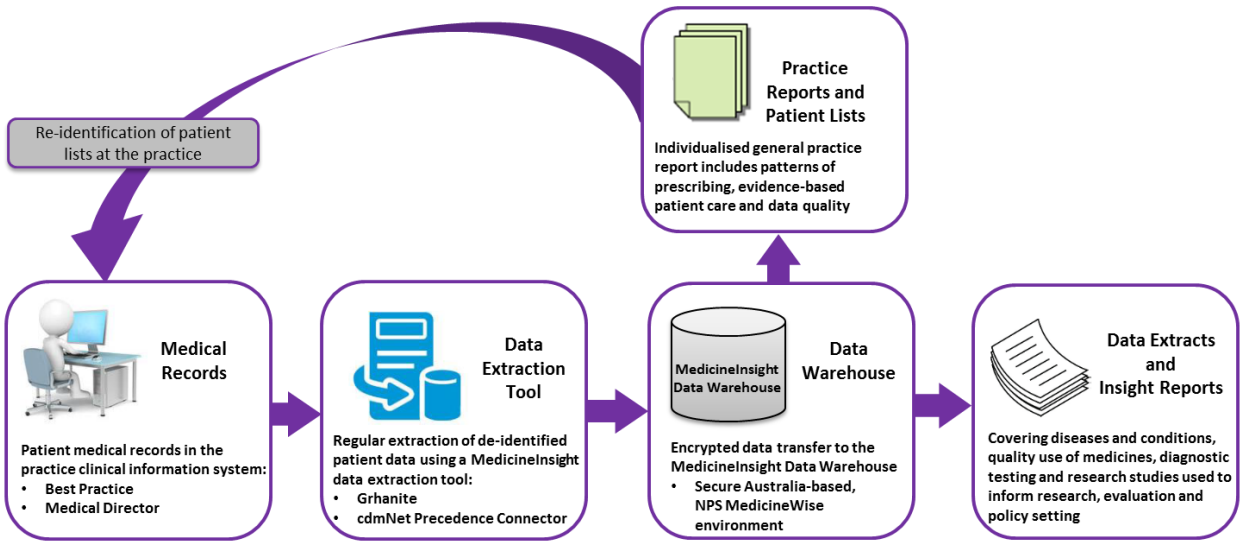
- general practice and GP information for the administration of quality improvement activities by NPS MedicineWise
- patient demographic and clinical data entered by GPs and practice staff directly into the system, or collected in the CIS from external sources (eg, pathology test results)
- system-generated data such as start time and date of a patient encounter.

The CIS uses coding systems such as 'Docle' in MD or 'Pyefinch' in BP to code conditions entered into the system. However, it is not mandatory to use a code and clinicians can also enter terms as free text. Both coded and free-text data are extracted from the CIS. However, data are not extracted from fields such as the progress notes that may contain identifying information.

The data held in the MedicineInsight database are de-identified. However, each patient, practice site and provider has a unique identifier, enabling patient data to be matched across multiple data tables within each practice. Rigorous confidentiality controls are in place to prevent re-identification of patient data.

The data are held by NPS MedicineWise in an external, secure data warehouse. General practices are provided with transformed data via practice reports. These insights support general practices in monitoring quality improvement activities and best practice patient management over time. Subject to Data Governance Committee approval, data extracts are also available to external parties, including researchers and government agencies. Figure A2.1 summarises this process.

FIGURE A2.1 MEDICINEINSIGHT DATA COLLECTION AND EXTRACTION PROCEDURE



Other Australian general practice data

MedicineInsight data can be used to supplement other sources of general practice data in Australia. Where appropriate, this report compares MedicineInsight data to these other sources. All data sources have different methods of data collection and different strengths and limitations. The following data sources are referred to in this report.

Pharmaceutical Benefits Scheme (PBS) data

Data from the PBS are available for all medicines dispensed in the community and to patients who are discharged from public hospitals in five states and one territory meeting PBS requirements. Data are also available for Repatriation Pharmaceutical Benefits Scheme (RPBS) prescriptions for eligible war veterans and their families. PBS data do not include medicines prescribed for hospital inpatients or private prescriptions. Data from the PBS are limited, with only sociodemographic data routinely available for individual patients. PBS data do not include information on relevant diagnoses, test results, risk factors and service use, which are important to the interpretation of medicines data.

Medicare Benefits Schedule (MBS) data

The MBS claims data are an administrative by-product of the administration of the Medicare fee-for-service payment system. MBS data are available on eligible general practice attendances. Data are also available on pathology tests, but generally only for the three most expensive items undertaken (called ‘coning’). The MBS data do not cover all services, for example those qualifying for a benefit under the Department of Veterans’ Affairs (DVA) National Treatment Account, or some services conducted through state and territory community-controlled health centres.

RACGP General Practice: Health of the Nation 2020

This 2019 report from the RACGP has used a number of data sources, and also draws information from an RACGP-commissioned online survey by EY Sweeney, incorporating responses from 1174 RACGP Fellows on a broad range of questions, from experiences and challenges in clinical practice to opinions of government health policy.[11]

Productivity Commission Report on Government Services 2020

The annual Report on Government Services (RoGS) provides information on the equity, effectiveness and efficiency of government services in Australia, including primary healthcare via the MBS, Department of Veterans' Affairs and initiatives such as the Practice Incentives Program (PIP) and Primary Health Networks (PHNs). It includes information on the number of general practices in Australia, rate of accredited general practices across jurisdictions, availability of GPs by region and by sex (number of FTE GPs per 100 000 people), waiting times and patient satisfaction.[1]

APPENDIX 3. 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.[36]

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.[37]

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'.[38]

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.[39,40] 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 2019–20and 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 information about pathology 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 full blood count there would be over a dozen separate test results documented, such as white blood cell count, haemoglobin, and so on.

APPENDIX 4. EXCLUSION TERMS FOR GP CLINICAL ENCOUNTERS

TABLE A4.1 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 A4.2 SUMMARY LIST OF "REASONS FOR ENCOUNTER" TERMS EXCLUDED (IN A SINGLE ENCOUNTER PER DAY, WHERE THERE WERE NO ASSOCIATED MISSING OR OTHER VALID RFE 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 5. 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 A5.1).

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 A5.1 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)
COPD	Includes: acute exacerbation of copd, cal, chronic airways limitation, chronic bronchitis, chronic obstructive airways disease, chronic obstructive pulmonary disease, coad, copd, emphysema

Condition	
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
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
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
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
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
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
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 6. ADDITIONAL ANALYSES

Patients by PHN

Primary Health Network	MedicineInsight patients 2019–20 Unweighted		MedicineInsight patients 2018–19, Weighted	National data 2018–19[1]	
	Number	%	%	Number	%
Adelaide	46,224	1.9	4.2	1,107,854	5.0
Australian Capital Territory	74,059	3.0	1.9	371,918	1.7
Brisbane North	97,673	4.0	4.4	906,257	4.1
Brisbane South	91,750	3.7	4.4	1,052,130	4.7
Central and Eastern Sydney	104,036	4.2	3.5	1,301,522	5.9
Central Queensland, Wide Bay, Sunshine Coast	109,910	4.5	5.5	794,246	3.6
Country SA	6,537	0.3	1.0	444,875	2.0
Country WA	46,496	1.9	1.2	440,547	2.0
Darling Downs and West Moreton	51,487	2.1	2.0	529,045	2.4
Eastern Melbourne	100,112	4.1	6.4	1,361,359	6.1
Gippsland	25,009	1.0	0.9	259,436	1.2
Gold Coast	81,867	3.3	2.3	566,410	2.6
Hunter New England and Central Coast	408,868	16.6	5.4	1,150,397	5.2
Murray	40,063	1.6	1.0	560,802	2.5
Murrumbidgee	13,369	0.5	0.8	214,936	1.0
Nepean Blue Mountains	28,665	1.2	3.1	356,275	1.6
North Coast	77,268	3.1	2.1	480,973	2.2
North Western Melbourne	173,274	7.0	6.6	1,566,689	7.1
Northern Queensland	46,606	1.9	2.7	606,589	2.7
Northern Sydney	75,554	3.1	7.0	825,633	3.7
Northern Territory	38,267	1.6	1.1	186,048	0.8
Perth North	120,109	4.9	5.6	958,803	4.3
Perth South	114,971	4.7	3.4	898,109	4.0
South Eastern Melbourne	76,381	3.1	6.1	1,405,847	6.3
South Eastern NSW	90,675	3.7	2.8	560,744	2.5
South Western Sydney	55,242	2.2	4.2	965,333	4.4
Tasmania	135,059	5.5	1.7	467,265	2.1
Western NSW	12,729	0.5	0.6	270,757	1.2
Western Queensland	1,018	0.0	0.0	51,674	0.2
Western Sydney	81,204	3.3	6.6	918,118	4.1
Western Victoria	41,719	1.7	1.4	592,686	2.7
TOTAL	**2,466,201**	**100**	**-**	**22,178,760[a]**	**100**

a There were 5483 patients who were missing information on PHN

Medicines without unique ATC codes

Exploration of the medicines that could not be mapped to a unique ATC code was conducted using the SAS PROC FREQ procedure for all of the prescriptions that had an active ingredient listed in the 'Medicine Active Ingredient' field but no ATC code. The PROC FREQ procedure summarises categorical variables to provide information on the number and percentage of cases which fall into different categories of the variable in question.

TABLE A6.1 PRESCRIPTION NUMBERS FOR THE TOP 20 ACTIVE INGREDIENTS FOR WHICH AN ATC CODE WAS UNABLE TO BE ASSIGNED

Active ingredient	Number of prescriptions	Percentage of all issued prescriptions (N = 9,893,456)	Percentage of prescriptions without a unique ATC code (N = 513,791)
hydrocortisone	17,305	0.17	3.37
metronidazole	17,041	0.17	3.32
adrenaline (epinephrine)	11,046	0.11	2.15
clotrimazole	10,935	0.11	2.13
chloramphenicol	9971	0.10	1.94
ferrous sulfate, ascorbic acid	9889	0.10	1.92
olmesartan	7884	0.08	1.53
betahistine dihydrochloride	6815	0.07	1.33
ciprofloxacin	6678	0.07	1.30
cefuroxime axetil	6276	0.06	1.22
adapalene, benzoyl peroxide	6217	0.06	1.21
tenofovir, emtricitabine	6056	0.06	1.18
iron polymaltose complex	5435	0.05	1.06
ciclesonide	5413	0.05	1.05
olmesartan medoxomil, hydrochlorothiazide	5115	0.05	1.00
hyoscine butylbromide	5017	0.05	0.98
aciclovir	4971	0.05	0.97
methenamine (hexamine) hippurate	4853	0.05	0.94
miconazole	4810	0.05	0.94
polyethylene glycol 400, propylene glycol	4802	0.05	0.93

Number and proportion of prescriptions by all ATC 3 codes

TABLE A6.2 NUMBER AND PROPORTION (%) OF ISSUED AND TOTAL PRESCRIPTIONS FOR ALL ATC LEVEL 3 CLASSES RECORDED IN MEDICINEINSIGHT 2019–20 (UNWEIGHTED)

ATC code	Description	Issued prescriptions		Total prescriptions	
		No.	%	No.	%
A01A	Stomatological preparations	10,099	0.1	16,113	0.1
A02A	Antacids	<5	0.0	<5	0.0
A02B	Drugs for peptic ulcer and gastro-oesophageal reflux disease (GORD)	543,590	5.5	2,476,138	7.9
A03A	Drugs for functional gastrointestinal disorders	5,815	0.1	13,751	0.0
A03F	Antispasmodics and anticholinergics in combination with other drugs	76,033	0.8	103,416	0.3
A04A	Antiemetics and antinauseants	58,909	0.6	94,688	0.3

ATC code	Description	Issued prescriptions		Total prescriptions	
		No.	%	No.	%
A05A	Bile therapy	1,004	0.0	3,049	0.0
A06A	Drugs for constipation	36,839	0.4	143,698	0.5
A07A	Intestinal anti-infectives	9,540	0.1	11,921	0.0
A07B	Intestinal adsorbents	<5	0.0	10	0.0
A07D	Antipropulsives	13,447	0.1	28,086	0.1
A07E	Intestinal anti-inflammatory agents	9,924	0.1	51,024	0.2
A07F	Antidiarrheal micro-organisms	7	0.0	7	0.0
A07X	Other antidiarrheals	<5	0.0	<5	0.0
A08A	Antiobesity preparations, excluding diet products	34,535	0.3	60,095	0.2
A09A	Digestives, including enzymes	<5	0.0	<5	0.0
A10A	Insulins and analogues	53,951	0.5	107,241	0.3
A10B	Blood glucose lowering drugs, excluding insulins	267,424	2.7	1,458,476	4.6
A11C	Vitamin A and D, including combinations of the two	31,858	0.3	71,267	0.2
A11H	Other single agent vitamin preparations	525	0.0	1,440	0.0
A12A	Calcium	4,052	0.0	8,026	0.0
A12B	Potassium	8,601	0.1	16,930	0.1
A12C	Other mineral supplements	7,777	0.1	20,734	0.1
A16A	Other alimentary tract and metabolism products	5	0.0	20	0.0
B01A	Antithrombotic agents	220,409	2.2	1,009,248	3.2
B02A	Antifibrinolytics	7,896	0.1	15,933	0.1
B02B	Vitamin K and other haemostatics	60	0.0	84	0.0
B03A	Iron preparations	22,988	0.2	33,790	0.1
B03B	Vitamin B12 and folic acid	50,965	0.5	60,591	0.2
B03X	Other antianaemic preparations	172	0.0	1,029	0.0
B05B	Intravenous solutions	<5	0.0	<5	0.0
B05C*	Irrigating solutions	<5	0.0	<5	0.0
B05X	Intravenous solution additives	16	0.0	44	0.0
B06A	Other haematological agents	16	0.0	19	0.0
C01A	Cardiac glycosides	14,526	0.1	27,920	0.1
C01B	Antiarrhythmics, class I and III	8,904	0.1	50,422	0.2
C01C	Cardiac stimulants excluding cardiac glycosides	196	0.0	547	0.0
C01D	Vasodilators used in cardiac diseases	34,855	0.4	187,574	0.6
C01E	Other cardiac preparations	1,343	0.0	7,277	0.0
C02A	Antiadrenergic agents, centrally acting	28,962	0.3	150,845	0.5
C02C	Antiadrenergic agents, peripherally acting	16,615	0.2	80,483	0.3
C02D	Arteriolar smooth muscle, agents acting on	3,306	0.0	9,096	0.0
C02K	Other antihypertensives	12	0.0	24	0.0
C03A	Low-ceiling diuretics, thiazides	11,573	0.1	21,150	0.1
C03B	Low-ceiling diuretics, excluding thiazides	16,469	0.2	32,218	0.1
C03C	High-ceiling diuretics	77,379	0.8	143,714	0.5
C03D	Potassium-sparing agents	21,974	0.2	109,025	0.3
C03X	Other diuretics	8	0.0	23	0.0
C04A	Peripheral vasodilators	58	0.0	232	0.0

ATC code	Description	Issued prescriptions		Total prescriptions	
		No.	%	No.	%
C05A	Agents for treatment of haemorrhoids and anal fissures for topical use	6,202	0.1	10,677	0.0
C07A	Beta blocking agents	190,017	1.9	1,010,482	3.2
C08C	Selective calcium channel blockers with mainly vascular effects	132,239	1.3	745,218	2.4
C08D	Selective calcium channel blockers with direct cardiac effects	29,471	0.3	168,439	0.5
C08E	Non-selective calcium channel blockers	103	0.0	543	0.0
C09A	ACE inhibitors, single agent	204,539	2.1	1,161,748	3.7
C09B	ACE inhibitors, combinations	69,393	0.7	395,980	1.3
C09C	Angiotensin II receptor blockers (ARBs), single agent	221,194	2.2	1,260,752	4.0
C09D	Angiotensin II receptor blockers (ARBs), combinations	146,546	1.5	838,807	2.7
C10A	Lipid modifying agents, single agent	490,336	5.0	2,950,501	9.4
C10B	Lipid modifying agents, combinations	48,905	0.5	285,446	0.9
D01A	Antifungals for topical use	40,318	0.4	61,359	0.2
D01B	Antifungals for systemic use	7,679	0.1	12,913	0.0
D03A	Cicatrizants	62	0.0	122	0.0
D05A	Antipsoriatics for topical use	12,252	0.1	25,616	0.1
D05B	Antipsoriatics for systemic use	386	0.0	1,039	0.0
D06A	Antibiotics for topical use	70,821	0.7	76,999	0.2
D06B	Chemotherapeutics for topical use	13,289	0.1	23,107	0.1
D07A	Corticosteroids, single agent	283,294	2.9	551,390	1.7
D07C	Corticosteroids, combinations with antibiotics	27,915	0.3	43,520	0.1
D08A	Antiseptics and disinfectants	45	0.0	76	0.0
D10A	Anti-acne preparations for topical use	12,206	0.1	26,509	0.1
D10B	Anti-acne preparations for systemic use	411	0.0	1,252	0.0
D11A	Other dermatological preparations	8,910	0.1	19,166	0.1
G01A	Antiinfectives and antiseptics, excluding combinations with corticosteroids	4,853	0.0	6,896	0.0
G02A*	Uterotonics	<5	0.0	<5	0.0
G02C	Other gynaecologicals	<5	0.0	24	0.0
G03A	Hormonal contraceptives for systemic use	167,939	1.7	408,620	1.3
G03B	Androgens	3,174	0.0	12,334	0.0
G03C	Oestrogens	78,308	0.8	253,614	0.8
G03D	Progestogens	13,090	0.1	34,475	0.1
G03F	Progestogens and oestrogens in combination	6,049	0.1	27,443	0.1
G03G	Gonadotropins and other ovulation stimulants	41	0.0	164	0.0
G03H	Antiandrogens	25,058	0.3	78,590	0.2
G03X	Other sex hormones and modulators of the genital system	913	0.0	5,290	0.0
G04B	Urologicals	74,407	0.8	307,301	1.0
G04C	Drugs used in benign prostatic hypertrophy	34,927	0.4	194,770	0.6
H01A	Anterior pituitary lobe hormones and analogues	25	0.0	67	0.0
H01B	Posterior pituitary lobe hormones	517	0.0	2,269	0.0
H01C	Hypothalamic hormones	28	0.0	155	0.0
H02A	Corticosteroids for systemic use, single agent	187,195	1.9	354,764	1.1
H03A	Thyroid preparations	116,849	1.2	224,620	0.7

ATC code	Description	Issued prescriptions		Total prescriptions	
		No.	%	No.	%
H03B	Antithyroid preparations	5,131	0.1	12,922	0.0
H04A	Glycogenolytic hormones	2,120	0.0	4,000	0.0
H05A	Parathyroid hormones and analogues	59	0.0	354	0.0
H05B	Anti-parathyroid agents	46	0.0	252	0.0
J01A	Tetracyclines	122,815	1.2	293,238	0.9
J01B	Amphenicols	7	0.0	7	0.0
J01C	Beta-lactam antibacterials, penicillins	563,930	5.7	714,095	2.3
J01D	Other beta-lactam antibacterials	301,424	3.0	402,023	1.3
J01E	Sulfonamides and trimethoprim	73,894	0.7	101,782	0.3
J01F	Macrolides, lincosamides and streptogramins	131,889	1.3	188,910	0.6
J01G	Aminoglycoside antibacterials	72	0.0	158	0.0
J01M	Quinolone antibacterials	15,983	0.2	23,198	0.1
J01X	Other antibacterials	13,408	0.1	26,989	0.1
J02A	Antimycotics for systemic use	12,767	0.1	27,477	0.1
J04A	Drugs for treatment of tuberculosis	299	0.0	563	0.0
J04B*	Drugs for treatment of lepra	<5	0.0	6	0.0
J05A	Direct acting antiviral drugs	52,127	0.5	138,834	0.4
J07A	Bacterial vaccines	57,283	0.6	68,715	0.2
J07B	Viral vaccines	83,300	0.8	104,449	0.3
J07C	Bacterial and viral vaccines	11,638	0.1	11,840	0.0
L01A	Alkylating agents	166	0.0	472	0.0
L01B	Antimetabolites	17,033	0.2	23,100	0.1
L01C	Plant alkaloids and other natural products	14	0.0	21	0.0
L01D	Cytotoxic antibiotics and related substances	<5	0.0	13	0.0
L01X	Other antineoplastic agents	549	0.0	2,550	0.0
L02A	Hormones and related agents	1,149	0.0	2,580	0.0
L02B	Hormone antagonists and related agents	8,190	0.1	46,600	0.1
L03A	Immunostimulants	468	0.0	2,866	0.0
L04A	Immunosuppressants	13,971	0.1	60,784	0.2
M01A	Anti-inflammatory and antirheumatic products, non-steroids	276,456	2.8	691,984	2.2
M01C	Specific antirheumatic agents	68	0.0	229	0.0
M02A	Topical products for joint and muscular pain	1,590	0.0	2,031	0.0
M03B	Muscle relaxants, centrally acting agents	6,215	0.1	25,035	0.1
M03C	Muscle relaxants, directly acting agents	86	0.0	260	0.0
M04A	Antigout preparations	75,585	0.8	234,679	0.7
M05B	Drugs affecting bone structure and mineralisation	96,732	1.0	182,536	0.6
M09A	Other drugs for disorders of the musculoskeletal system	<5	0.0	<5	0.0
N01A	Anaesthetics, general	22	0.0	55	0.0
N01B	Anaesthetics, local	13	0.0	25	0.0
N02A	Opioids	1,022,604	10.3	1,350,382	4.3
N02B	Other analgesics and antipyretics	64,773	0.7	239,898	0.8
N02C	Antimigraine preparations	46,349	0.5	233,176	0.7
N03A	Antiepileptics	185,516	1.9	810,605	2.6

ATC code	Description	Issued prescriptions		Total prescriptions	
		No.	%	No.	%
N04A	Anticholinergic agents	622	0.0	1,626	0.0
N04B	Dopaminergic agents	16,847	0.2	61,741	0.2
N05A	Antipsychotics	169,113	1.7	440,515	1.4
N05B	Anxiolytics	248,823	2.5	271,651	0.9
N05C	Hypnotics and sedatives	242,225	2.4	378,663	1.2
N06A	Antidepressants	683,991	6.9	3,202,629	10.2
N06B	Psychostimulants, agents used for ADHD and nootropics	10,123	0.1	44,794	0.1
N06D	Anti-dementia drugs	8,168	0.1	45,687	0.1
N07A	Parasympathomimetics	176	0.0	853	0.0
N07B	Drugs used in addictive disorders	67,882	0.7	108,795	0.3
N07C	Antivertigo preparations	3,831	0.0	10,268	0.0
N07X	Other nervous system drugs	348	0.0	1,824	0.0
P01A	Agents against amoebiasis and other protozoal diseases	20,702	0.2	25,292	0.1
P01B	Antimalarials	12,312	0.1	23,993	0.1
P01C*	Agents against leishmaniasis and trypanosomiasis	<5	0.0	<5	0.0
P02B	Antitrematodals	192	0.0	193	0.0
P02C	Antinematodal agents	1,751	0.0	2,218	0.0
P03A	Ectoparasiticides, including scabicides	5,489	0.1	9,342	0.0
R01A	Decongestants and other nasal preparations for topical use	56,236	0.6	121,740	0.4
R01B	Nasal decongestants for systemic use	2,946	0.0	4,457	0.0
R02A	Throat preparations	11	0.0	13	0.0
R03A	Adrenergics, inhalants	335,896	3.4	1,680,986	5.3
R03B	Other drugs for obstructive airway diseases, inhalants	86,968	0.9	413,414	1.3
R03C	Adrenergics for systemic use	27	0.0	41	0.0
R03D	Other systemic drugs for obstructive airway diseases	10,563	0.1	45,148	0.1
R05C	Expectorants, excluding combinations with cough suppressants	3,827	0.0	4,568	0.0
R05D	Cough suppressants, excluding combinations with expectorants	15,847	0.2	17,249	0.1
R05F	Cough suppressants and expectorants, combinations	<5	0.0	<5	0.0
R06A	Antihistamines for systemic use	32,075	0.3	44,554	0.1
S01A	Anti-infectives	49,489	0.5	61,632	0.2
S01B	Anti-inflammatory agents	8,296	0.1	19,554	0.1
S01E	Antiglaucoma preparations and miotics	17,995	0.2	99,506	0.3
S01F	Mydriatics and cycloplegics	24	0.0	44	0.0
S01G	Decongestants and antiallergics	815	0.0	1,643	0.0
S01H	Local anaesthetics	8	0.0	8	0.0
S01J*	Diagnostic agents	<5	0.0	<5	0.0
S01K	Surgical aids	1,737	0.0	9,518	0.0
S01L	Ocular vascular disorder agents	<5	0.0	6	0.0
S01X	Other ophthalmologicals	7,490	0.1	43,607	0.1
S02A	Anti-infectives	28	0.0	30	0.0
S02C	Corticosteroids and anti-infectives in combination	58,967	0.6	93,094	0.3
S03A	Anti-infectives	2,380	0.0	3,437	0.0

ATC code	Description	Issued prescriptions		Total prescriptions	
		No.	%	No.	%
V03A	All other therapeutic products	924	0.0	2,676	0.0
V04C	Other diagnostic agents	<5	0.0	<5	0.0

PBS/RPBS and private prescription breakdown by all ATC 3 codes

TABLE A6.3 NUMBER AND PROPORTION (%) OF PRIVATE AND PBS SUBSIDISED ISSUED PRESCRIPTIONS FOR ALL ATC LEVEL 3 CLASSES RECORDED IN MEDICINEINSIGHT 2019–20 (UNWEIGHTED)

ATC code	Description	PBS/RPBS		Private	
		No.	%	No.	%
A01A	Stomatological preparations	6,450	63.9	3,649	36.1
A02A	Antacids	0	0.0	<5	100.0
A02B	Drugs for peptic ulcer and gastro-oesophageal reflux disease (GORD)	522,366	96.1	21,224	3.9
A03A	Drugs for functional gastrointestinal disorders	265	4.6	5,550	95.4
A03F	Antispasmodics and anticholinergics in combination with other drugs	66,940	88.0	9,093	12.0
A04A	Antiemetics and antinauseants	21,368	36.3	37,541	63.7
A05A	Bile therapy	944	94.0	60	6.0
A06A	Drugs for constipation	22,251	60.4	14,588	39.6
A07A	Intestinal anti-infectives	2,912	30.5	6,628	69.5
A07B	Intestinal adsorbents	<5	100.0	0	0.0
A07D	Antipropulsives	8,082	60.1	5,365	39.9
A07E	Intestinal anti-inflammatory agents	9,492	95.6	432	4.4
A07F	Antidiarrheal micro-organisms	0	0.0	7	100.0
A07X	Other antidiarrheals	0	0.0	<5	100.0
A08A	Antiobesity preparations, excluding diet products	39	0.1	34,496	99.9
A09A	Digestives, including enzymes	0	0.0	<5	100.0
A10A	Insulins and analogues	53,425	99.0	526	1.0
A10B	Blood glucose lowering drugs, excluding insulins	259,741	97.1	7,683	2.9
A11C	Vitamin A and D, including combinations of the two	906	2.8	30,952	97.2
A11H	Other single agent vitamin preparations	27	5.1	498	94.9
A12A	Calcium	730	18.0	3,322	82.0
A12B	Potassium	6,547	76.1	2,054	23.9
A12C	Other mineral supplements	2,347	30.2	5,430	69.8
A16A	Other alimentary tract and metabolism products	0	0.0	5	100.0
B01A	Antithrombotic agents	202,341	91.8	18,068	8.2
B02A	Antifibrinolytics	7,828	99.1	68	0.9
B02B	Vitamin K and other haemostatics	<5	1.7	59	98.3
B03A	Iron preparations	20,308	88.3	2,680	11.7
B03B	Vitamin B12 and folic acid	36,963	72.5	14,002	27.5
B03X	Other antianaemic preparations	163	94.8	9	5.2
B05B	Intravenous solutions	0	0.0	<5	100.0
B05C*	Irrigating solutions	0	0.0	<5	100.0
B05X	Intravenous solution additives	0	0.0	16	100.0
B06A	Other haematological agents	<5	25.0	12	75.0
C01A	Cardiac glycosides	14,502	99.8	24	0.2

ATC code	Description	PBS/RPBS		Private	
		No.	%	No.	%
C01B	Antiarrhythmics, class I and III	8,800	98.8	104	1.2
C01C	Cardiac stimulants excluding cardiac glycosides	<5	1.0	194	99.0
C01D	Vasodilators used in cardiac diseases	34,485	98.9	370	1.1
C01E	Other cardiac preparations	1,029	76.6	314	23.4
C02A	Antiadrenergic agents, centrally acting	28,859	99.6	103	0.4
C02C	Antiadrenergic agents, peripherally acting	16,520	99.4	95	0.6
C02D	Arteriolar smooth muscle, agents acting on	3,298	99.8	8	0.2
C02K	Other antihypertensives	6	50.0	6	50.0
C03A	Low-ceiling diuretics, thiazides	11,518	99.5	55	0.5
C03B	Low-ceiling diuretics, excluding thiazides	16,044	97.4	425	2.6
C03C	High-ceiling diuretics	73,272	94.7	4,107	5.3
C03D	Potassium-sparing agents	21,539	98.0	435	2.0
C03X	Other diuretics	<5	37.5	5	62.5
C04A	Peripheral vasodilators	18	31.0	40	69.0
C05A	Agents for treatment of haemorrhoids and anal fissures for topical use	11	0.2	6,191	99.8
C07A	Beta blocking agents	188,662	99.3	1,355	0.7
C08C	Selective calcium channel blockers with mainly vascular effects	131,727	99.6	512	0.4
C08D	Selective calcium channel blockers with direct cardiac effects	28,847	97.9	624	2.1
C08E	Non-selective calcium channel blockers	103	100.0	0	0.0
C09A	ACE inhibitors, single agent	203,957	99.7	582	0.3
C09B	ACE inhibitors, combinations	69,208	99.7	185	0.3
C09C	Angiotensin II receptor blockers (ARBs), single agent	220,194	99.5	1,000	0.5
C09D	Angiotensin II receptor blockers (ARBs), combinations	145,633	99.4	913	0.6
C10A	Lipid modifying agents, single agent	486,767	99.3	3,569	0.7
C10B	Lipid modifying agents, combinations	48,463	99.1	442	0.9
D01A	Antifungals for topical use	1,683	4.2	38,635	95.8
D01B	Antifungals for systemic use	2,308	30.1	5,371	69.9
D03A	Cicatrizants	15	24.2	47	75.8
D05A	Antipsoriatics for topical use	10,947	89.3	1,305	10.7
D05B	Antipsoriatics for systemic use	378	97.9	8	2.1
D06A	Antibiotics for topical use	2,335	3.3	68,486	96.7
D06B	Chemotherapeutics for topical use	4,152	31.2	9,137	68.8
D07A	Corticosteroids, single agent	219,410	77.4	63,884	22.6
D07C	Corticosteroids, combinations with antibiotics	13,073	46.8	14,842	53.2
D08A	Antiseptics and disinfectants	5	11.1	40	88.9
D10A	Anti-acne preparations for topical use	81	0.7	12,125	99.3
D10B	Anti-acne preparations for systemic use	293	71.3	118	28.7
D11A	Other dermatological preparations	5,924	66.5	2,986	33.5
G01A	Antiinfectives and antiseptics, excluding combinations with corticosteroids	0	0.0	4,853	100.0
G02A*	Uterotonics	0	0.0	<5	100.0
G02C	Other gynaecologicals	<5	100.0	0	0.0
G03A	Hormonal contraceptives for systemic use	135,572	80.7	32,367	19.3
G03B	Androgens	1,914	60.3	1,260	39.7
G03C	Oestrogens	65,733	83.9	12,575	16.1

ATC code	Description	PBS/RPBS		Private	
		No.	%	No.	%
G03D	Progestogens	10,072	76.9	3,018	23.1
G03F	Progestogens and oestrogens in combination	1,329	22.0	4,720	78.0
G03G	Gonadotropins and other ovulation stimulants	37	90.2	<5	9.8
G03H	Antiandrogens	653	2.6	24,405	97.4
G03X	Other sex hormones and modulators of the genital system	847	92.8	66	7.2
G04B	Urologicals	12,510	16.8	61,897	83.2
G04C	Drugs used in benign prostatic hypertrophy	24,478	70.1	10,449	29.9
H01A	Anterior pituitary lobe hormones and analogues	8	32.0	17	68.0
H01B	Posterior pituitary lobe hormones	422	81.6	95	18.4
H01C	Hypothalamic hormones	23	82.1	5	17.9
H02A	Corticosteroids for systemic use, single agent	185,003	98.8	2,192	1.2
H03A	Thyroid preparations	110,126	94.2	6,723	5.8
H03B	Antithyroid preparations	5,106	99.5	25	0.5
H04A	Glycogenolytic hormones	2,115	99.8	5	0.2
H05A	Parathyroid hormones and analogues	52	88.1	7	11.9
H05B	Anti-parathyroid agents	25	54.3	21	45.7
J01A	Tetracyclines	110,343	89.8	12,472	10.2
J01B	Amphenicols	0	0.0	7	100.0
J01C	Beta-lactam antibacterials, penicillins	552,922	98.0	11,008	2.0
J01D	Other beta-lactam antibacterials	297,990	98.9	3,434	1.1
J01E	Sulfonamides and trimethoprim	68,766	93.1	5,128	6.9
J01F	Macrolides, lincosamides and streptogramins	113,109	85.8	18,780	14.2
J01G	Aminoglycoside antibacterials	60	83.3	12	16.7
J01M	Quinolone antibacterials	9,261	57.9	6,722	42.1
J01X	Other antibacterials	12,998	96.9	410	3.1
J02A	Antimycotics for systemic use	1,757	13.8	11,010	86.2
J04A	Drugs for treatment of tuberculosis	141	47.2	158	52.8
J04B*	Drugs for treatment of lepra	0	0.0	<5	100.0
J05A	Direct acting antiviral drugs	32,504	62.4	19,623	37.6
J07A	Bacterial vaccines	3,128	5.5	54,155	94.5
J07B	Viral vaccines	71	0.1	83,229	99.9
J07C	Bacterial and viral vaccines	40	0.3	11,598	99.7
L01A	Alkylating agents	139	83.7	27	16.3
L01B	Antimetabolites	1,652	9.7	15,381	90.3
L01C	Plant alkaloids and other natural products	13	92.9	1	7.1
L01D	Cytotoxic antibiotics and related substances	<5	100.0	0	0.0
L01X	Other antineoplastic agents	510	92.9	39	7.1
L02A	Hormones and related agents	1,138	99.0	11	1.0
L02B	Hormone antagonists and related agents	8,047	98.3	143	1.7
L03A	Immunostimulants	456	97.4	12	2.6
L04A	Immunosuppressants	13,784	98.7	187	1.3
M01A	Anti-inflammatory and antirheumatic products, non-steroids	243,153	88.0	33,303	12.0
M01C	Specific antirheumatic agents	66	97.1	<5	2.9
M02A	Topical products for joint and muscular pain	49	3.1	1,541	96.9

ATC code	Description	PBS/RPBS		Private	
		No.	%	No.	%
M03B	Muscle relaxants, centrally acting agents	6,141	98.8	74	1.2
M03C	Muscle relaxants, directly acting agents	86	100.0	0	0.0
M04A	Antigout preparations	75,012	99.2	573	0.8
M05B	Drugs affecting bone structure and mineralisation	94,195	97.4	2,537	2.6
M09A	Other drugs for disorders of the musculoskeletal system	0	0.0	<5	100.0
N01A	Anaesthetics, general	0	0.0	22	100.0
N01B	Anaesthetics, local	0	0.0	13	100.0
N02A	Opioids	847,024	82.8	175,580	17.2
N02B	Other analgesics and antipyretics	36,419	56.2	28,354	43.8
N02C	Antimigraine preparations	43,940	94.8	2,409	5.2
N03A	Antiepileptics	163,210	88.0	22,306	12.0
N04A	Anticholinergic agents	599	96.3	23	3.7
N04B	Dopaminergic agents	16,113	95.6	734	4.4
N05A	Antipsychotics	144,554	85.5	24,559	14.5
N05B	Anxiolytics	215,842	86.7	32,981	13.3
N05C	Hypnotics and sedatives	127,897	52.8	114,328	47.2
N06A	Antidepressants	660,131	96.5	23,860	3.5
N06B	Psychostimulants, agents used for ADHD and nootropics	8,472	83.7	1,651	16.3
N06D	Anti-dementia drugs	7,636	93.5	532	6.5
N07A	Parasympathomimetics	175	99.4	<5	0.6
N07B	Drugs used in addictive disorders	50,699	74.7	17,183	25.3
N07C	Antivertigo preparations	43	1.1	3,788	98.9
N07X	Other nervous system drugs	245	70.4	103	29.6
P01A	Agents against amoebiasis and other protozoal diseases	19,055	92.0	1,647	8.0
P01B	Antimalarials	10,074	81.8	2,238	18.2
P01C*	Agents against leishmaniasis and trypanosomiasis	0	0.0	<5	100.0
P02B	Antitrematodals	166	86.5	26	13.5
P02C	Antinematodal agents	397	22.7	1,354	77.3
P03A	Ectoparasiticides, including scabicides	4,562	83.1	927	16.9
R01A	Decongestants and other nasal preparations for topical use	1,717	3.1	54,519	96.9
R01B	Nasal decongestants for systemic use	<5	0.1	2,942	99.9
R02A	Throat preparations	0	0.0	11	100.0
R03A	Adrenergics, inhalants	331,339	98.6	4,557	1.4
R03B	Other drugs for obstructive airway diseases, inhalants	85,735	98.6	1,233	1.4
R03C	Adrenergics for systemic use	7	25.9	20	74.1
R03D	Other systemic drugs for obstructive airway diseases	4,871	46.1	5,692	53.9
R05C	Expectorants, excluding combinations with cough suppressants	62	1.6	3,765	98.4
R05D	Cough suppressants, excluding combinations with expectorants	12,331	77.8	3,516	22.2
R05F	Cough suppressants and expectorants, combinations	0	0.0	<5	100.0
R06A	Antihistamines for systemic use	1,819	5.7	30,256	94.3
S01A	Anti-infectives	13,320	26.9	36,169	73.1
S01B	Anti-inflammatory agents	7,998	96.4	298	3.6
S01E	Antiglaucoma preparations and miotics	17,774	98.8	221	1.2
S01F	Mydriatics and cycloplegics	0	0.0	24	100.0

ATC code	Description	PBS/RPBS		Private	
		No.	%	No.	%
S01G	Decongestants and antiallergics	9	1.1	806	98.9
S01H	Local anaesthetics	0	0.0	8	100.0
S01J*	Diagnostic agents	0	0.0	<5	100.0
S01K	Surgical aids	1,541	88.7	196	11.3
S01L	Ocular vascular disorder agents	<5	100.0	0	0.0
S01X	Other ophthalmologicals	7,318	97.7	172	2.3
S02A	Anti-infectives	<5	3.6	27	96.4
S02C	Corticosteroids and anti-infectives in combination	51,183	86.8	7,784	13.2
S03A	Anti-infectives	2,259	94.9	121	5.1
V03A	All other therapeutic products	892	96.5	32	3.5
V04C	Other diagnostic agents	0	0.0	<5	100.0

* Not in the list for the last GPIR. Note that this report includes new recording for ATC 3 classes B05C, G02A, J04B, P01C, S01J that were not included in the last report and classes A14A (Anabolic steroids) and R07A (Other respiratory system products) included in the last report are not included in this list.

Demographics of COVID-19 study population

TABLE A6.4 SOCIODEMOGRAPHIC DISTRIBUTION OF MEDICINEINSIGHT PATIENTS (UNWEIGHTED) INCLUDED IN THE COVID-19 ANALYSES, STUDY PERIOD 1 JANUARY 2019 TO 31 DECEMBER 2020

Patient sociodemographic characteristic	MedicineInsight patients 1 January 2019 to 31 December 2020	
TOTAL		3,227,610
	No.	**%**
Sex		
Male	1,479,452	45.8 (454, 46.3)
Female	1,748,158	54.2 (53.7, 54.6)
Age		
0–9	416,148	12.9 (12.4, 13.4)
10–19	337,254	10.4 (10.1, 10.8)
20–29	451,784	14.0 (13.2, 14.7)
30–39	486,422	15.1 (14.5, 15.6)
40–49	413,573	12.8 (12.6, 13.1)
50–59	385,075	11.9 (11.7, 12.2)
60–69	338,960	10.5 (10.1, 10.9)
70–79	248,322	7.7 (7.2, 8.2)
80–89	115,484	3.6 (3.3, 3.8)
90+	34,588	1.1 (1.0, 1.2)
Aboriginal and Torres Strait Islander status		
Aboriginal and/or Torres Strait Islander	95,779	3.0 (2.3, 3.6)
Neither Aboriginal nor Torres Strait Islander	2,436,364	75.5 (72.8, 78.2)
Not recorded	695,467	21.5 (18.8, 24.3)
State or territory		
ACT	94,880	2.9 (1.0, 4.9)
NSW	1,240,367	38.4 (32.5, 44.4)
NT	52,654	1.6 (0.4, 2.9)
QLD	642,454	19.9 (15.5, 24.3)
SA	66,458	2.1 (0.7, 3.4)

Patient sociodemographic characteristic	MedicineInsight patients 1 January 2019 to 31 December 2020	
TOTAL	3,227,610	
	No.	**%**
TAS	169,746	5.3 (3.1, 7.5)
VIC	587,977	18.2 (13.6, 22.8)
WA	373,074	11.6 (7.7, 15.4)
Remoteness		
Major city	2,176,987	67.4 (62.6, 72.3)
Inner regional	661,193	20.5 (16.6, 24.3)
Outer regional	331,172	10.3 (7.6, 12.9)
Remote/very remote	58,258	1.8 (0.9, 2.7)
Socioeconomic status		
1 (most disadvantaged)	482,285	14.9 (12.3, 17.5)
2	556,875	17.3 (14.6, 19.9)
3	712,437	22.1 (19.0, 25.2)
4	699,515	21.7 (18.6, 24.7)
5 (most advantaged)	776,498	24.1 (20.3, 27.8)
Concessional card status		
Health Care Card	825,074	29.6 (27.7, 31.6)
DVA Health Card	6947	0.2 (0.2, 0.3)
Non-concessional	1,954,109	70.1 (68.2, 72.1)

Total number of clinical encounters during 2019 and 2020 by remoteness, sex and socioeconomic status

The following graphs show the absolute number of clinical encounters per month. Therefore, the differences between different geographical regions can largely be explained by differences in the distribution of MedicineInsight practices across jurisdictions. For example, the number of encounters per month was much higher in NSW which is the state with the largest number of eligible practices than in Victoria or Queensland with a smaller number of eligible practices. Similarly, MedicineInsight includes a larger number of practices from major cities and consequently the number of clinical encounters per month is higher in major cities than in other regions.

FIGURE A6.1 TOTAL NUMBER OF CLINICAL ENCOUNTERS PER MONTH IN 2019 AND 2020 BY STATE/TERRITORY

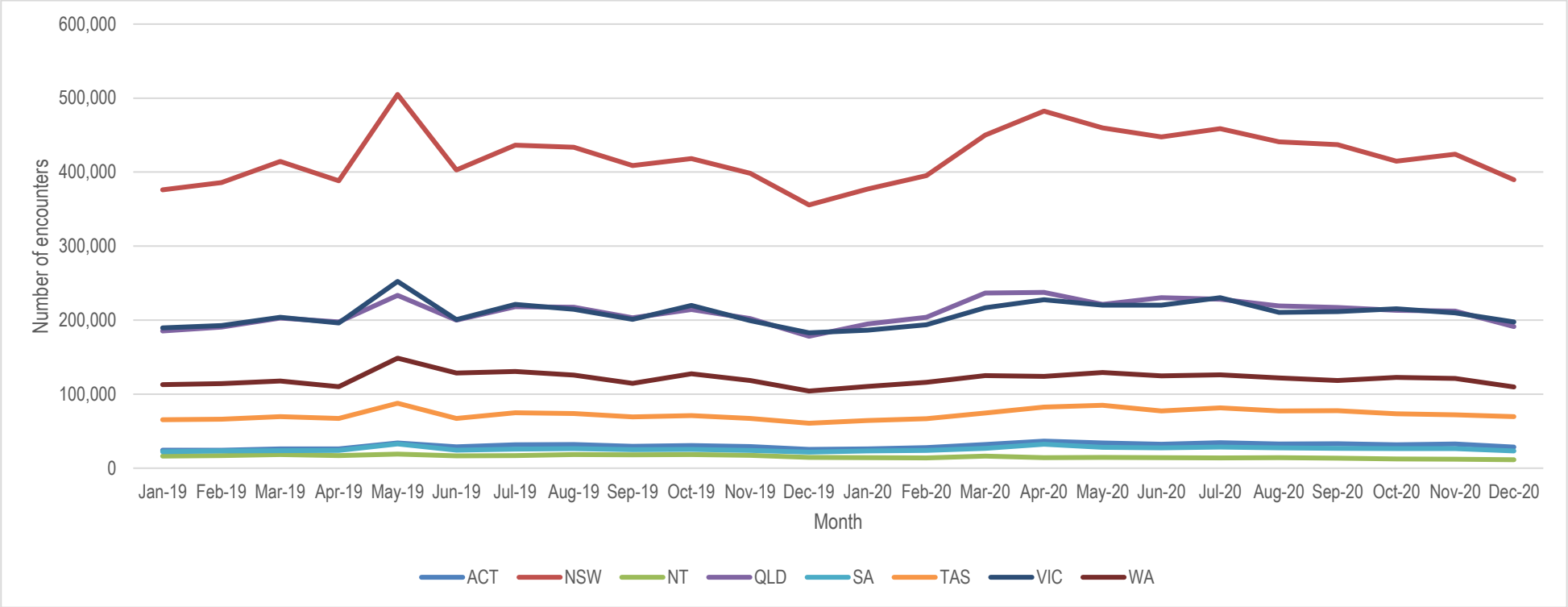


FIGURE A6.2 TOTAL NUMBER OF CLINICAL ENCOUNTERS PER MONTH IN 2019 AND 2020 BY ABS REMOTENESS

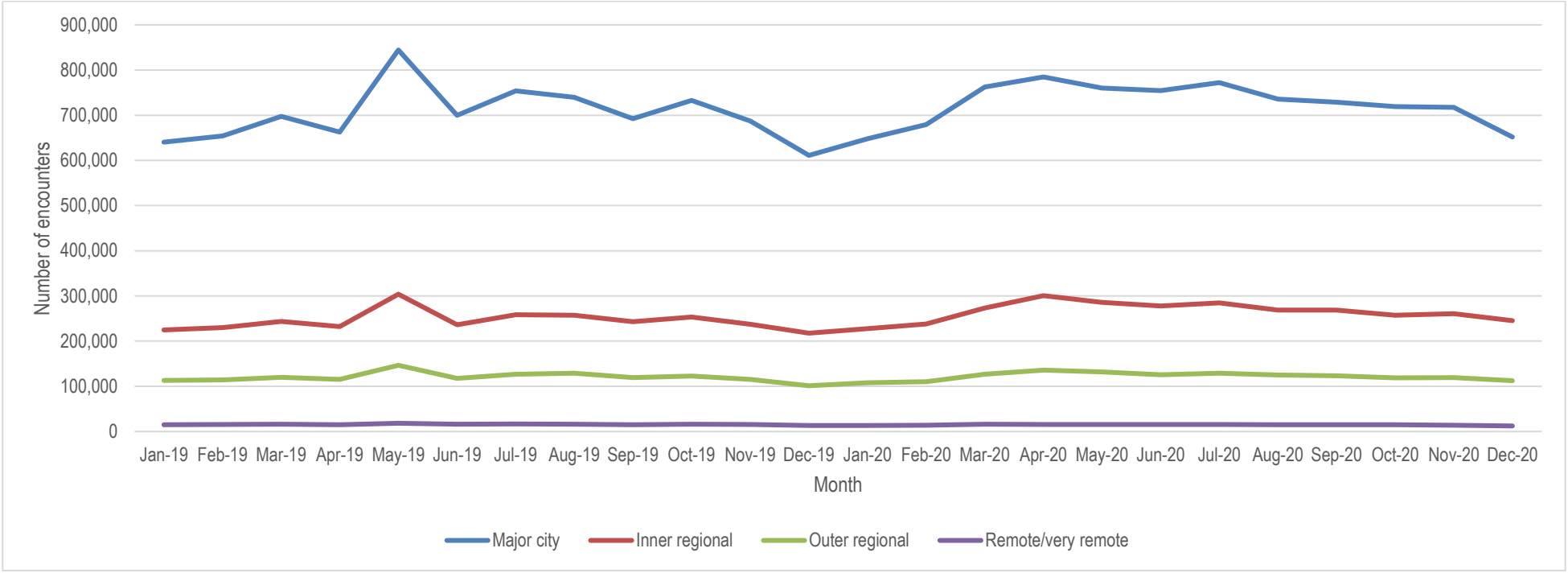


FIGURE A6.3 TOTAL NUMBER OF CLINICAL ENCOUNTERS PER MONTH IN 2019 AND 2020 BY ABS SOCIOECONOMIC STATUS

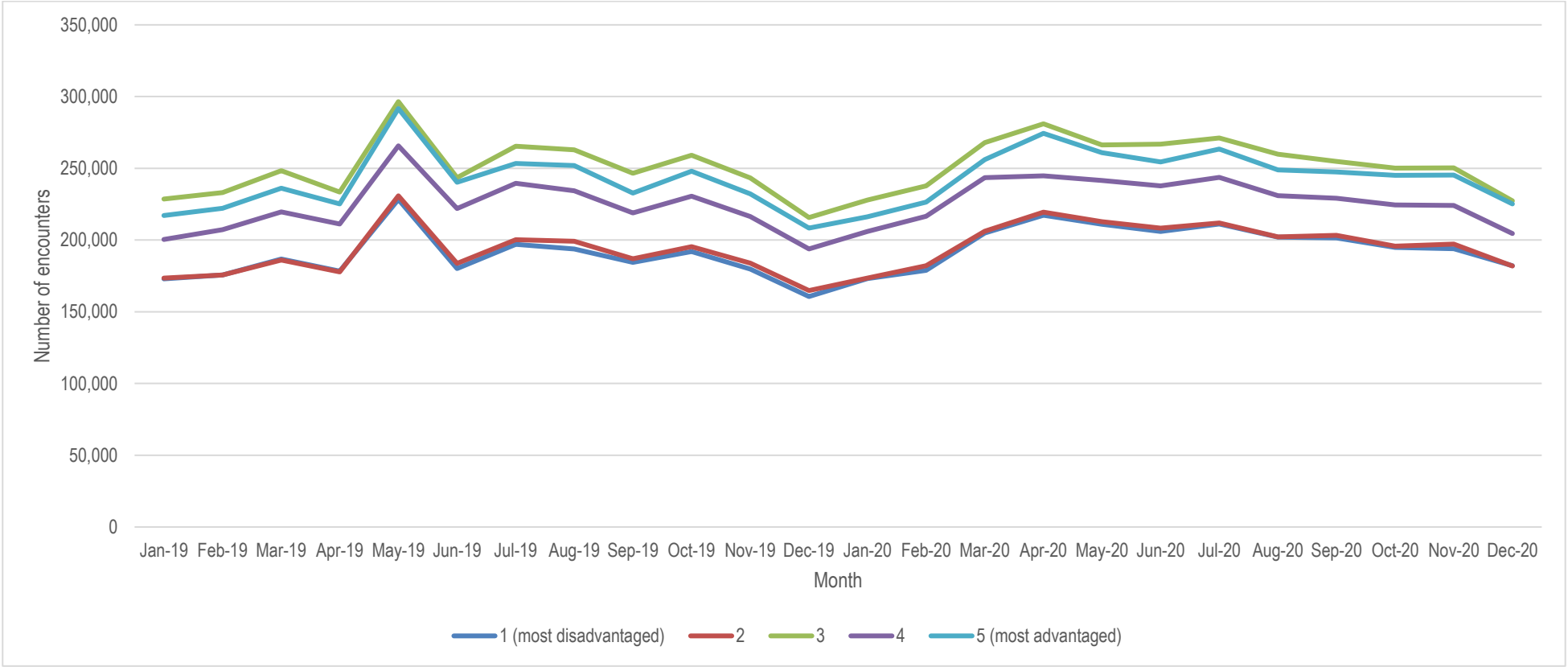
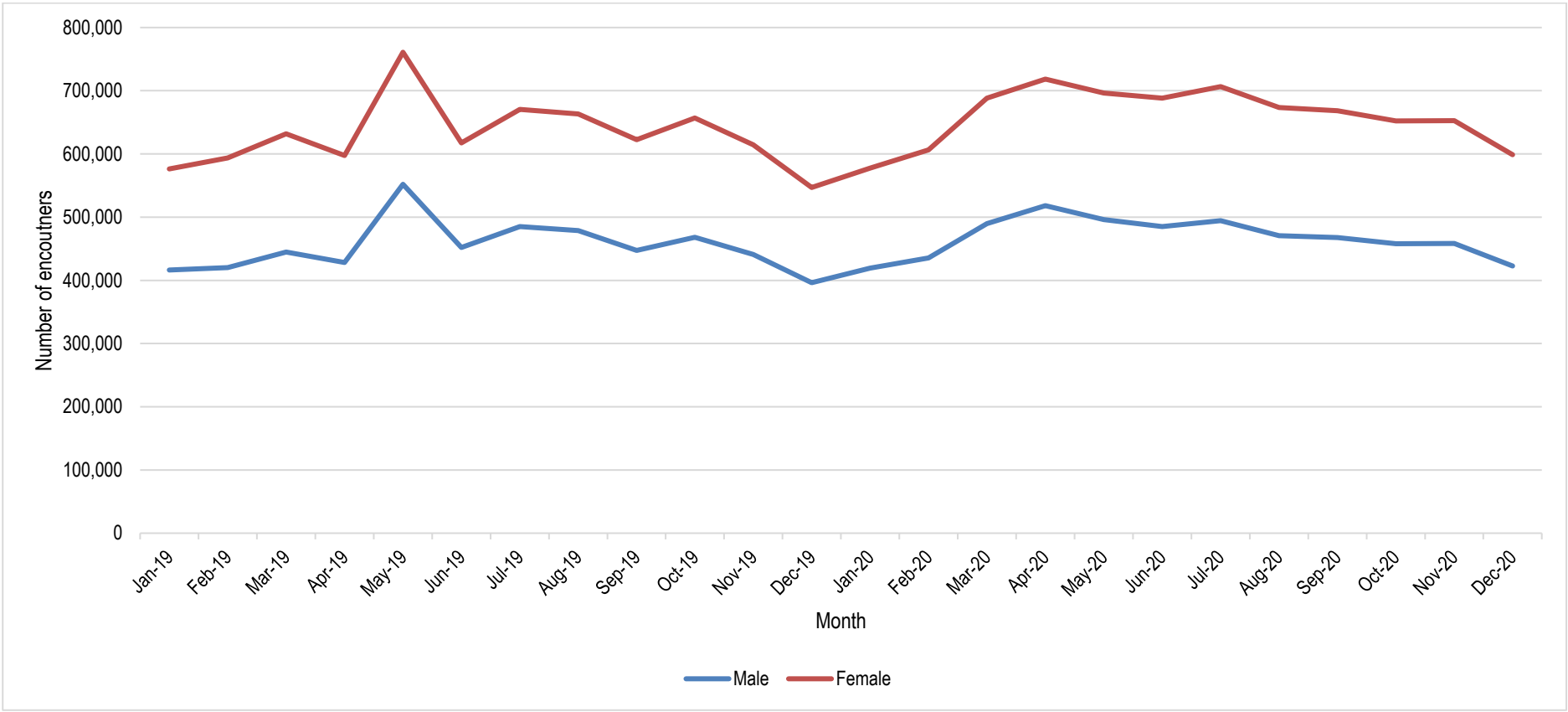
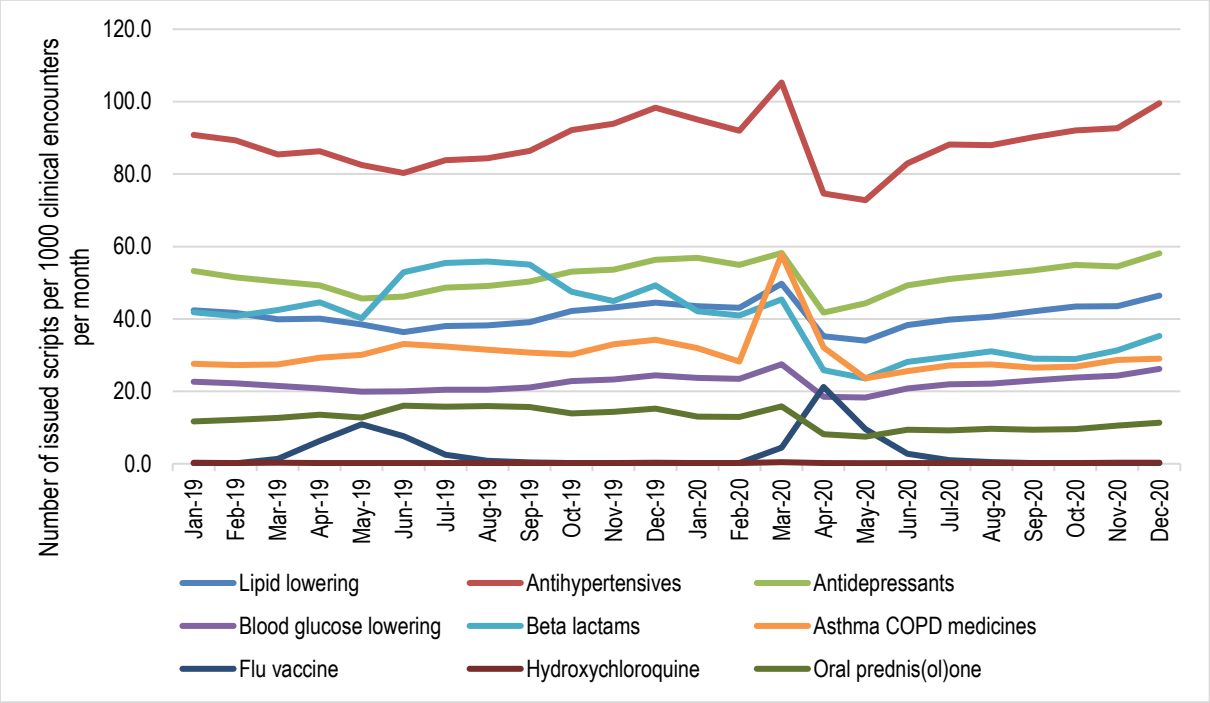


FIGURE A6.4 TOTAL NUMBER OF CLINICAL ENCOUNTERS PER MONTH IN 2019 AND 2020 BY SEX



Monthly prescribing rates of all selected medicines during 2019 and 2020

FIGURE A6.5 MONTHLY RATE OF ISSUED PRESCRIPTIONS PER 1000 CLINICAL ENCOUNTERS DURING 2019 AND 2019



Number of GP non-referred attendances per month using MBS data

FIGURE A6.6 NUMBER OF SERVICES PER MONTH UNDER MBS GROUP A1 GP ATTENDANCES BETWEEN JANUARY 2019 AND DECEMBER 2020

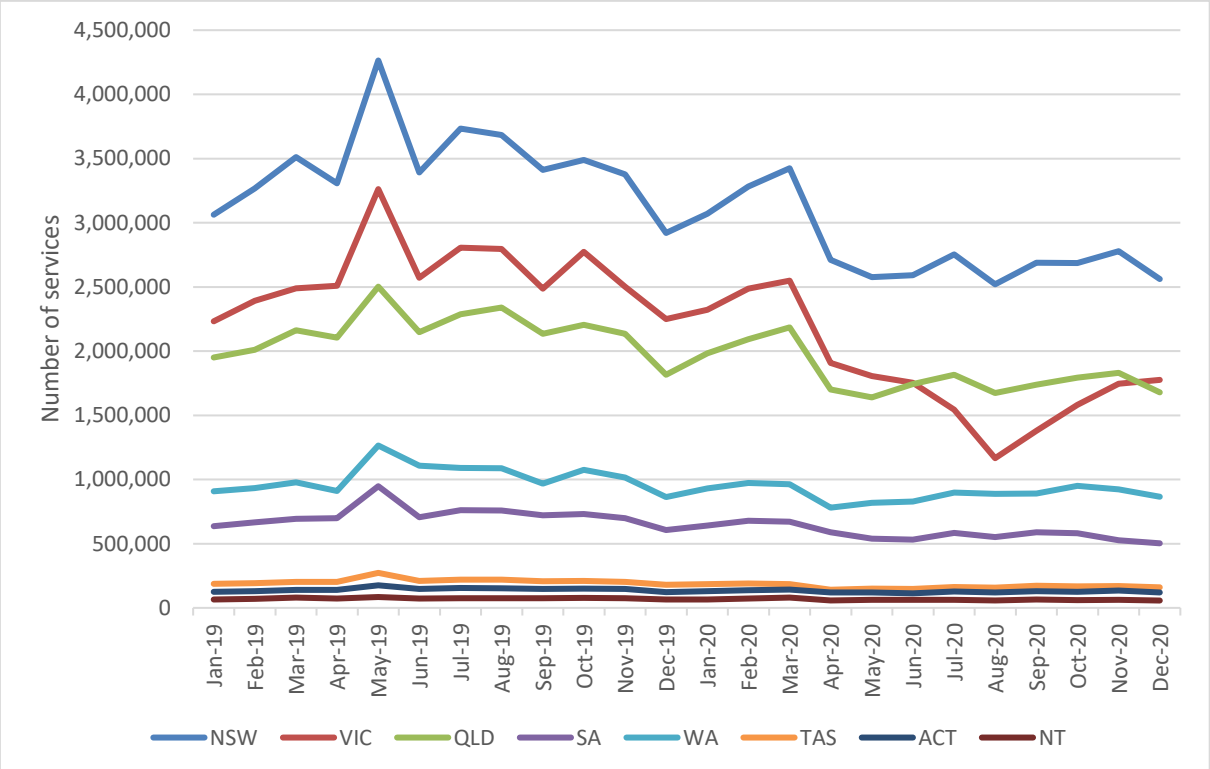
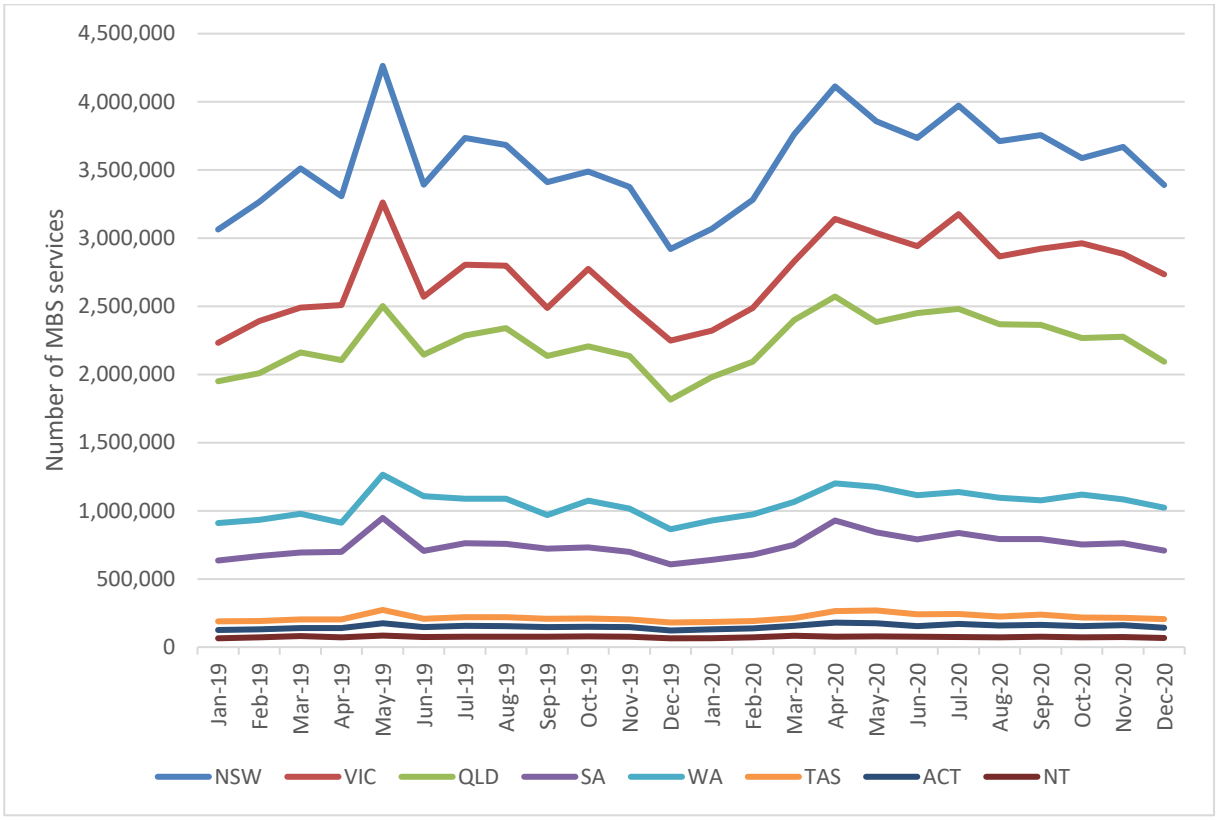


FIGURE A6.7 NUMBER OF SERVICES PER MONTH UNDER MBS GROUP A1 (GP ATTENDANCES), GROUP A40.1 (COVID-19 GENERAL PRACTICE TELEHEALTH SERVICES) AND GROUP A40.2 (COVID-19 GENERAL PRACTICE PHONE SERVICES) BETWEEN JANUARY 2019 AND DECEMBER 2020



APPENDIX 7. 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 healthcare.
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.
BEACH	Bettering the Evaluation and Care of Health program	Cross-sectional program collecting information on GP activities in Australia.
BMI	body mass index	A measure of weight in relation to height.

Term	Definition	Description
BP	Best Practice	Clinical management software for the GP.
BTOS	broad terms of service	
CDMP	chronic disease management plan	
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.
DoH	Australian Government Department of Health	Federal department overseeing Australia's health system.
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	
FY	financial year	
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 the GP.
MHTP	mental health treatment plan	

Term	Definition	Description
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	
NSW	New South Wales	
NT	Northern Territory	
OECD	Organisation for Economic Cooperation and Development	A group of member countries that discuss and develop economic and social policy.
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.
SHIP	2010 Survey of High Impact Psychosis	
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	
URTI	upper respiratory tract infection	
VIC	Victoria	
WA	Western Australia	