

12 Chronic conditions

Background

Worldwide, chronic conditions are deemed responsible for 55% of deaths, with this figure projected to rise to 70% by 2020.⁵⁶ In Australia, the leading causes of illness and disability among older Australians are chronic conditions, including ischaemic heart disease, dementia, lung cancer, osteoarthritis and emphysema.⁴⁰

People with chronic conditions utilise health services at a considerably higher rate than the rest of the population.⁵⁵ There is wide debate as to whether GPs or specialists are the most appropriately placed physicians/doctors to treat patients with chronic conditions. GPs, who are trained in general areas of medical practice rather than a specialty, may be well placed to treat patients with multiple chronic conditions (co-morbidity), while patients requiring detailed knowledge in a specific area may be better serviced by a specialist.⁶⁰

Various statistics are available regarding the prevalence and management of chronic conditions. In the United States, 88% of older people have a chronic condition, and 66% of physician visits are for the management of chronic conditions.⁵⁵ The vast majority (85%) of people with chronic conditions attend a GP in a one-year period,⁵⁷ and 82% of older people in the United States covered by Medicare have at least one chronic condition.⁵⁸

Rothman and Wagner (2003) reported that the majority of patients with chronic conditions are treated by their GP (or primary care physician),⁶⁰ yet few studies have examined the content of encounters where chronic conditions are managed. Research from the United States showed that at encounters where chronic conditions were managed, there were more problems managed, more health promotion, preventive activities and nutritional counselling, and fewer procedures and health education activities performed.⁵⁹ It has also been stated that 83% of all prescriptions in the United States were for the management of chronic conditions.⁵⁵

Westert et al. (2001) examined the combinations of health services used by patients with specific types of chronic conditions, and found that those with musculoskeletal conditions were more likely to report using only primary care to manage their condition, while cardiovascular conditions were more often managed by a combination of providers. In general, it was found that the greater the number of chronic conditions experienced by the patient, the greater the number of different health services used.⁵⁷

It is well known that the proportion of people having chronic conditions increases with age.^{45,55,57-59} Difficulties in the management of older patients have been documented, with the presence of multiple chronic conditions and their complexity being factors complicating the management of these patients. Some GPs feel that uncertainty regarding diagnosis and the most appropriate treatment course increases the difficulty of managing older patients.³¹ In addition, managing chronic conditions in health systems that focus on the provision of acute care, rather than chronic care, increases the complicated nature of managing these patients.^{31,60}

Approximately two-thirds of people with chronic conditions experience co-morbidity, defined as the coexistence of two or more health conditions.^{55,58} The prevalence of co-morbidity increases with age^{55,58,61} and older patients with at least two conditions have been shown to have a greater risk of developing further chronic conditions.⁶¹

Consultation rates with GPs for the management of chronic conditions increase with the number of conditions experienced by the patient.^{62,63} People with co-morbidities use a greater variety of health services, including GPs, specialists, home care, hospital admissions and physiotherapists.⁵⁷ A study from the United States found that older people experiencing co-morbid conditions account for a disproportionate amount of the costs of chronic conditions. Although 65% of older patients had co-morbid conditions, these conditions accounted for 95% of Medicare costs.⁵⁸ These older people also have an increased risk of death, along with lower quality of life and functional status.⁶²

Objectives

The objectives of this chapter are to determine the:

- proportion of encounters with older patients where chronic conditions were managed
- proportion of problems managed that were chronic problems
- most frequently managed chronic problems
- prevalence of chronic problems
- co-morbidities of the most common chronic conditions.

Method

Literature searches were conducted to determine the most common characteristics used when defining chronic conditions. These were then applied to a primary care classification (ICPC-2), creating a dataset to be used in the analysis of chronic conditions in primary care datasets. The relevant characteristics of chronic conditions for application in these datasets were:

- a duration lasting, or expected to last, at least six months
- a pattern of deterioration, or periods of relapse and remission
- a poor prognosis or possible lack of curability
- sequelae or consequences, including co-morbidity and activity limitation.

A full list of the conditions described as chronic in this study can be found in Appendix 7.

Data about disease prevalence in patients encountered in general practice were collected as part of the SAND on the BEACH survey form (see Chapter 2 Methods).

To determine prevalence and levels of co-morbidity, GPs and/or patients were asked to report up to twelve chronic illnesses or other health problems that had not been managed at the encounter and required ongoing management or surveillance. Thus, a maximum of 16 problems could be recorded, providing total morbidity for each patient. Data were recorded for 11,342 patients from 378 GPs.¹⁰⁹ Data collected on the prevalence of chronic conditions using the BEACH survey is representative only of the general practice population, as BEACH cannot account for the prevalence of health conditions in patients who do not attend general practice.

In this chapter, only the 65+ group as a whole has been analysed, due to the smaller sample size in the subset.

12.1 Chronic conditions managed at encounter

At least one chronic condition was managed at almost two-thirds (60.8%) of encounters with patients aged 65 years and over, while only non-chronic conditions, which may be acute or subacute, were managed at the remaining 39.3% (Table 12.1).

In BEACH, up to four problems managed at the encounter can be recorded. One chronic condition was managed at the majority of encounters (41.5%) where chronic conditions were managed. Two chronic conditions were managed at 14.8%, while three chronic conditions were managed at only 3.8% of encounters. Four chronic conditions were rarely managed at a single encounter (0.6%) (Table 12.1).

Table 12.1: Proportion of encounters where chronic conditions were managed

	Per cent (n=49,647)	95% LCL	95% UCL
Chronic conditions managed at encounter	60.8	59.9	61.6
1 chronic condition managed	41.5	41.0	42.1
2 chronic conditions managed	14.8	14.2	15.3
3 chronic conditions managed	3.8	3.4	4.3
4 chronic conditions managed	0.6	0.0	1.2
No chronic conditions managed at encounter	39.3	38.4	40.1

Note: LCL—lower confidence limit; UCL—upper confidence limit.

Relationship between the number of problems managed and the likelihood of management of chronic problems

As the number of problems managed at encounter increased, so did the likelihood that at least one of those problems was a chronic condition (Table 12.2).

Where only one problem was managed, 43.3% of those problems were chronic. When two problems were managed, at least one chronic condition was managed at 73.7% of encounters. One chronic condition alone was managed at the majority of these encounters (46.1%), while both problems were chronic at over one-quarter of encounters (27.6%). The number of non-chronic conditions managed decreased to 26.3%.

Where three problems were managed, at least one of those problems was chronic at 86.3% of encounters, and the proportion of conditions that were not chronic continued to decrease to 13.7% of problems managed. In these encounters, one or two chronic problems were managed at most encounters (32.3% and 35.9% respectively). At almost one in five encounters all three problems managed were chronic (18.1%) (Table 12.2).

At the vast majority of encounters where four problems were managed, at least one of those problems was chronic (93.6%). During these encounters, two or three chronic problems were managed at the highest proportions (31.0% and 31.3% respectively). One chronic problem was managed at less than 20% of these encounters (17.3%), while encounters where all four problems were chronic accounted for 14.0% of encounters. The proportion of encounters where four problems were managed, and none of those problems was chronic, accounted for only 6.4% of encounters in this group (Table 12.2).

Table 12.2: Likelihood of chronic problems managed by number of problems managed at encounter

Number of problems managed at encounter	Number of chronic problems managed at encounter	Per cent	95% LCL	95% UCL
One (n = 25,365)	Zero	56.7	55.8	57.5
	One	43.3	42.5	44.2
Two (n = 15,413)	Zero	26.3	25.2	27.4
	One	46.1	45.3	47.0
	Two	27.6	26.6	28.6
Three (n = 6,659)	Zero	13.7	11.9	15.5
	One	32.3	31.0	33.6
	Two	35.9	34.6	37.3
	Three	18.1	16.6	19.6
Four (n = 2,210)	Zero	6.4	1.4	11.4
	One	17.3	13.9	20.7
	Two	31.0	28.5	33.5
	Three	31.3	28.7	34.0
	Four	14.0	10.6	17.5

Note: LCL—lower confidence limit; UCL—upper confidence limit.

Most frequent chronic problems managed

Overall, chronic conditions were managed at a rate of 140.0 per 100 encounters with patients aged 65+. Hypertension was by far the most frequent chronic problem managed in this age group, accounting for almost one-quarter of all chronic problems (23.4%), managed at a rate of 32.7 per 100 encounters (Table 12.3). Osteoarthritis was the second most common chronic problem managed, accounting for 7.3% of all chronic problems (managed at a rate of 10.3 per 100 encounters), followed by diabetes at 9.8 per 100 encounters. Lipid disorders were also managed often (5.7% of all chronic problems managed, at a rate of 7.9 per 100 encounters).

A number of chronic cardiovascular conditions (other than hypertension) were managed at high relative rates at encounters with patients aged 65 years and over. These included ischaemic heart disease (6.3 per 100 encounters), heart failure (4.4 per 100 encounters) and atrial fibrillation/flutter (3.6 per 100 encounters). Other chronic conditions managed at relatively high rates at general practice encounters with patients aged 65 years and over included:

- depression, managed at 4.6 per 100 encounters
- oesophageal disease, at a rate of 4.5 per 100 encounters
- chronic obstructive pulmonary disease, at a rate of 3.6 per 100 encounters
- asthma, managed at a rate of 3.5 per 100 encounters
- osteoporosis, at a rate of 3.3 per 100 encounters
- malignant neoplasms of the skin (3.2 per 100 encounters)
- dementia (2.7 per 100 encounters)
- unspecified arthritis (2.5 per 100 encounters)
- chronic anaemia (1.8 per 100 encounters).

Table 12.3: Most frequent chronic problems managed at encounters with patients aged 65 years and over

Chronic problem managed	Per cent of total chronic problems	Rate per 100 encs ^(a)	95% LCL	95% UCL
Hypertension*	23.4	32.7	31.8	33.6
Osteoarthritis*	7.3	10.3	9.7	10.8
Diabetes*	7.0	9.8	9.3	10.3
Lipid disorder	5.7	7.9	7.4	8.4
Ischaemic heart disease*	4.5	6.3	5.8	6.7
Depression*	3.3	4.6	4.2	5.0
Oesophageal disease	3.2	4.5	4.0	4.9
Heart failure	3.1	4.4	3.9	4.8
Chronic obstructive pulmonary disease	2.6	3.6	3.2	4.1
Atrial fibrillation/flutter	2.5	3.6	3.0	4.1
Asthma	2.5	3.5	3.1	4.0
Osteoporosis	2.3	3.3	2.8	3.7
Malignant neoplasm, skin	2.3	3.2	2.5	3.8
Dementia	1.9	2.7	1.6	3.7
Arthritis*	1.8	2.5	1.7	3.3
Chronic anaemia*	1.3	1.8	1.4	2.3
Back syndrome without radiating pain	1.1	1.6	1.1	2.1
Gout	1.1	1.6	1.0	2.1
<i>Subtotal (n, %)</i>	<i>32,482</i>	<i>76.9</i>	—	—
Total chronic problems (n)	42,216	140.0	138.5	141.4

(a) Figures do not total 100.0 as more than one problem can be managed at each encounter. Only those problems managed at a rate of greater than 1.5 per 100 encounters are included.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes.

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

12.2 Prevalence and co-morbidities of the most common chronic conditions

Data were available for 2,976 patients aged 65+ in the SAND subsample (26.0%). More than nine out of ten of these patients reported experiencing at least one chronic condition (93.2%, 95% CI: 91.9–94.4). Hypertension was the single most prevalent condition, managed or reported by 45.6% of these patients. One in five reported they had osteoarthritis or had it managed at encounter (20.9%), while lipid disorder was experienced by 17.5% of patients. Ischaemic heart disease was the fourth most prevalent condition, occurring in 16.9% of these older respondents. Other relatively prevalent conditions in older patients included:

- diabetes (14.4%)
- oesophageal disease (11.6%)
- osteoporosis (10.1%)
- depression (10.0%) (Table 12.4).

The high prevalence of hypertension was reflected in the analysis of the most common co-morbidities, with hypertension the condition most often co-existing with other conditions. The most common co-morbid relationship was between hypertension and lipid disorder (both conditions present in 10.8% of patients). Other conditions which had a high relative rate of co-morbidity with hypertension included:

- osteoarthritis (10.6%)
- ischaemic heart disease (8.0%)
- diabetes (7.6%)
- oesophageal disease (4.9%)
- osteoporosis (4.7%)
- depression (4.1%).

A combination of osteoarthritis and lipid disorder was present in 3.9% of patients. Also present in 3.9% of patients was a combination of osteoarthritis and ischaemic heart disease, or lipid disorder and ischaemic heart disease. Diabetes and ischaemic heart disease were present together in 3.4% of patients. Over 3% of patients experienced a combination of osteoarthritis and oesophageal disease, or lipid disorder and diabetes simultaneously (3.2% each) (Table 12.4).

12.3 Comparison between the prevalence and management rates of chronic conditions

A comparison of the management rates and the prevalence of chronic problems in patients encountered in general practice is provided in Table 12.5. This table groups the results described in Tables 6.2 and 12.3, with the aim of comparing the rates of management of chronic problems relative to their prevalence. Some conditions not meeting the criteria of chronic were removed from Table 6.2 to ensure comparability of the results.

The table shows that hypertension was both the most prevalent, and the most frequently managed chronic problem in patients aged 65 years and over, followed by osteoarthritis in both groups. Hypertension and osteoarthritis were also the most frequently managed of all problems in patients aged 65 years or more (Table 6.2). This indicates the importance of these problems in patients in this age group. Hypertension was also the problem with the greatest likelihood of being managed at the encounter where it was present in the patient, being managed for 71.7% of the patients who reported having this condition.

It is interesting to note the management rate and prevalence of diabetes. In older patients, diabetes was the third most frequently managed chronic problem, managed at almost one in ten encounters. However, it was the fifth most prevalent problem (14.4%), behind lipid disorder and ischaemic heart disease. Patients with diagnosed diabetes had a 68.1% chance of having their diabetes managed at the encounter, suggesting that this condition requires ongoing or frequent management, and that GPs are largely responsible for the management of this condition.

Table 12.4: Most prevalent chronic conditions and their co-morbidities (n = 2,976)

Condition	Estimated prevalence (per cent)	Hypertension (per cent)	Osteoarthritis (per cent)	Lipid disorder (per cent)	Ischaemic heart disease (per cent)	Diabetes (per cent)	Oesophageal disease (per cent)	Osteoporosis (per cent)	Depression (per cent)
Hypertension	45.6	100.0	10.6	10.8	8.0	7.6	4.9	4.7	4.1
Osteoarthritis	20.9	10.6	100.0	3.9	3.9	2.9	3.2	2.4	2.7
Lipid disorder	17.5	10.8	3.9	100.0	3.9	3.2	2.9	1.8	1.9
Ischaemic heart disease	16.9	8.0	3.9	3.9	100.0	3.4	2.7	1.7	1.6
Diabetes	14.4	7.6	2.9	3.2	3.4	100.0	1.7	2.0	1.3
Oesophageal disease	11.6	4.9	3.2	2.9	2.7	1.7	100.0	1.5	2.0
Osteoporosis	10.1	4.7	2.4	1.8	1.7	2.0	1.5	100.0	1.3
Depression	10.0	4.1	2.7	1.9	1.6	1.3	2.0	1.3	100.0

Osteoporosis was reported as present in 10.1% of the surveyed patients, and ranked as the seventh most prevalent problem in this age group. However, it had a low relative rate of management (3.3 per 100 encounters) and was managed in only 33.0% of encounters where patients reported the condition. It is possible that osteoporosis may be more commonly managed by a health practitioner other than the GP, for example a specialist. Alternatively, patients with osteoporosis may feel that their condition is well managed, and therefore do not present to their GP for the management of this problem, or that little or nothing can be done for the management of this condition.

Other conditions with a high likelihood of being managed at encounter if present in the patient included:

- malignant neoplasms of the skin, managed at 68.1% of encounters with patients having the condition
- heart failure (57.9%)
- unspecified arthritis (51.0%) and osteoarthritis (49.3%)
- atrial fibrillation (50.7%).

Table 12.5: Comparison of the prevalence and management of chronic conditions in general practice

Condition	Chronic condition management				Chronic condition prevalence ^(a)				Likelihood of condition being managed at encounter (per cent)
	Rank	Rate per 100 encs (n=49,647)	95% LCL	95% UCL	Rank	Per cent of patients (n=2,976)	95% LCL	95% UCL	
Hypertension*	1	32.7	31.8	33.6	1	45.6	43.1	48.0	71.7
Osteoarthritis*	2	10.3	9.7	10.8	2	20.9	18.6	23.1	49.3
Lipid disorder	4	7.9	7.4	8.4	3	17.5	15.7	19.3	45.1
Ischaemic heart disease*	5	6.3	5.8	6.7	4	16.9	15.2	18.6	37.3
Diabetes*	3	9.8	9.3	10.3	5	14.4	13.0	15.8	68.1
Oesophageal disease*	7	4.5	4.0	4.9	6	11.6	10.1	13.0	38.8
Osteoporosis	12	3.3	2.8	3.7	7	10.1	8.6	11.8	32.7
Depression*	6	4.6	4.2	5.0	8	10.0	8.7	11.3	46.0
Heart failure	8	4.4	3.9	4.8	9	7.6	6.4	8.8	57.9
COPD	9	3.6	3.2	4.1	10	7.4	6.2	8.6	48.6
Asthma	11	3.5	3.1	4.0	11	7.2	6.1	8.2	48.6
Atrial fibrillation/flutter	10	3.6	3.0	4.1	12	7.1	6.1	8.1	50.7
Dementia	14	2.7	1.6	3.7	13	6.1	4.2	8.0	44.3
Arthritis*	15	2.5	1.7	3.3	14	4.9	3.5	6.2	51.0
Malignant neoplasm, skin	13	3.2	2.5	3.8	15	4.7	3.8	5.7	68.1

(a) Non-chronic problems have been removed from prevalence results in this table. Appendix 7 contains a list of all conditions regarded as chronic for this analysis.

* Includes multiple ICPC-2 or ICPC-2 PLUS codes.

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; COPD—chronic obstructive pulmonary disease.

In summary, this chapter has shown that at least one chronic condition is managed at six out of every ten encounters with patients aged 65 years or more, and that an increase in the number of problems managed at encounter was associated with an increased likelihood of at least one of those problems being chronic. Hypertension, followed by osteoarthritis, was both the most prevalent and the most frequently managed chronic problems in patients aged 65 years and over. Linking chronic conditions management and prevalence, it was shown that hypertension was the chronic condition most likely to be managed at encounters where the patient reported experiencing the condition.

The co-morbidity section of this chapter has shown that there is a definite pattern in the co-morbidities experienced in general practice patients aged 65 years or more. Hypertension, the most prevalent condition in patients in this age group, was also part of the top seven co-morbidities. These issues will be examined in Chapter 14 Discussion.