

8 Prevalence of cardiovascular problems among patients at encounters in general practice

This report has to date concentrated on the encounters at which a cardiovascular problem was managed by the GP and the patients attending those encounters. Although encounter data provides a picture of the workload associated with the selected problems and a view of the management of these problems, such data cannot be used to estimate prevalence of disease in the patients encountered. The prevalence of cardiovascular disease among patients encountered by the GPs was investigated in a subsample study through the Supplementary Analysis of Nominated Data (SAND) (See Chapter 2, Methods).

Between September 1998 and October 1999, three SAND blocks were used to investigate morbidity not managed at the encounter. GPs and/or patients were asked to report any chronic illnesses or other health problems that require continuing management or surveillance that had not already been listed as being managed at the encounter. If there were more than four, GPs were instructed to select the four most important. Each of 310 GPs were asked to complete these details for a subset of the patients encountered during the recording period. Over the three SAND blocks the 310 participating GPs provided this information for 12,247 patients.

All the problems listed by the GPs in the SAND (morbidity not managed at encounter) section were added to those problems recorded in the main section of the form (as having been managed at the encounter). This provided a picture of total morbidity for each patient. Thus a minimum of one problem could have been recorded as managed at the encounter (with none not managed) and a maximum of eight conditions could be recorded per patient—four problems managed and four conditions not managed on that occasion.

8.1 Is the subsample representative?

Characteristics of GPs, patients and encounters

There were no statistically significant differences between this SAND subsample and the total 2 year sample (described earlier in this report) in terms of:

- GP characteristics (including age, sex, rurality, size of practice, years in general practice, country of graduation)
- patient characteristics (including age, sex, healthcare card status, Indigenous status, status to the practice)
- encounter characteristics (direct and indirect, consultation type etc.) (results not presented).

Number of problems managed

It was hypothesised that asking the GP to record a list of all morbidity not managed at the encounter may serve as a reminder to them of other patient morbidity and in turn stimulate an increase in the number of problems that were managed at the encounter. To test this hypothesis, the number of problems managed during the encounters involving the co-morbidity SAND questions were compared with the number managed in the total sample for the 2 years of BEACH data. As shown in Table 8.1, there was no significant difference in the distribution of number of problems managed at the subsample of encounters and the total sample, 64% including the management of only one problem, about 25% including two problems and about 10% involving more than two problems. The hypothesis was rejected.

Table 8.1: Comparison of the number of problems managed at the subsample of encounters and at all encounters

Number of problems managed	SAND subsample (n = 12,247)				BEACH 1998–00 (n = 203,100)			
	Number of encounters	Per cent of total encounters	95% LCL	95% UCL	Number of encounters	Per cent of total encounters	95% LCI	95% UCI
One	7,840	64.0	62.2	65.8	130,809	64.4	63.7	65.1
Two	3,153	25.7	24.5	27.0	50,697	25.0	24.6	25.4
Three	999	8.2	7.4	8.9	16,820	8.3	8.0	8.6
Four	255	2.1	1.3	2.9	4,774	2.4	2.1	2.6

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

8.2 Current morbidity among patients encountered in general practice

When the problems listed in the main section of the form (encounter data) were added to the problems listed in the SAND co-morbidity section for each patient, 40.8% of patients were found to have only one problem. A further 26.6% had two problems and 16.7% had three. Only 2.6% of patients had six or more problems recorded (Table 8.2).

Table 8.2: Number of problems recorded per patient

Number of problems recorded	Number of patients	Per cent of total patients (n = 12,247)	95% LCL	95% UCL
One	5,000	40.8	38.7	43.0
Two	3,260	26.6	25.6	27.7
Three	2,050	16.7	15.8	17.7
Four	1,049	8.6	7.8	9.4
Five	566	4.6	3.8	5.5
Six or more	322	2.6	1.5	3.8

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

Distribution of morbidity across ICPC chapter and proportion managed at encounter

Overall, there were 26,750 problems listed as current morbidities (either managed at the encounter or not) for the SAND subsample of 12,247 patients, an average of 2.18 problems per patient. Over two-thirds (67.9%) of these 26,750 problems had been managed at the encounter. Problems classified in the circulatory chapter of ICPC-2 were the most frequently recorded, accounting for 15.0% of all recorded morbidity, recorded at a rate of 32.7 per 100 patients. Just over half of these problems had been managed at the encounter (Table 8.3).

This was a relatively low proportion when compared with many of the other morbidity groups. For example, respiratory problems were second on the list of most commonly recorded problems, accounting for 13.3% of total morbidity, being recorded at a rate of 29.0 per 100 patients. However, a far greater majority of problems associated with the respiratory system had been managed at the encounter (78.7%).

Table 8.3: Distribution of problems by ICPC chapter and proportion managed at the encounter

Problem label	Number of recorded problems	Per cent of total problems (n = 26,750)	Rate per 100 patients (n = 12,247)	95% LCL	95% UCL	Per cent managed at encounter
Circulatory	4,007	15.0	32.7	30.4	35.0	51.6
Respiratory	3,546	13.3	29.0	27.6	30.3	78.7
Musculoskeletal	3,033	11.3	24.8	23.2	26.3	67.7
Psychological	2,425	9.1	19.8	17.9	21.7	55.5
Skin	2,354	8.8	19.2	18.2	20.2	88.0
Endocrine & metabolic	2,262	8.5	18.5	17.1	19.8	44.4
General & unspecified	1,919	7.2	15.7	14.6	16.7	88.3
Digestive	1,917	7.2	15.7	14.5	16.8	62.8
Female genital system	1,258	4.7	10.3	9.0	11.6	78.3
Neurological	760	2.8	6.2	5.6	6.8	60.5
Ear	684	2.6	5.6	5.1	6.1	86.0
Pregnancy & family planning	683	2.6	5.6	4.7	6.5	91.8
Eye	519	1.9	4.2	3.7	4.8	70.3
Urology	512	1.9	4.2	3.7	4.7	68.6
Blood	359	1.3	2.9	2.4	3.4	69.1
Male genital system	267	1.0	2.2	1.6	2.8	62.5
Social	245	0.9	2.0	0.0	4.0	57.1
Total	26,750	100.0	218.4	211.6	225.3	67.9

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

8.3 The prevalence of cardiovascular problems among patients encountered in general practice

For simplicity, the problems relating to the circulatory chapter of ICPC-2 will be referred to as cardiovascular problems rather than cardiovascular disease, because, some problems are not yet diagnosed and are described in terms of symptoms and complaints rather than a disease.

The prevalence of cardiovascular problems in general practice patients was estimated to be 24.5%, at least one such problem being reported for 3,000 of the 12,247 patients in the subsample (Table 8.4). Of these 3,000 patients, two-thirds (62.9%) had at least one of their cardiovascular problems managed at the encounter (results not presented).

Almost three-quarters (72.5%) of these 3,000 patients, reported the presence of only one cardiovascular problem and a further 22.2% the presence of two cardiovascular problems. However, a few patients (n = 21, less than 1% of the cardiovascular patients) had four or five cardiovascular problems recorded (Table 8.4). The prevalence of a single cardiovascular problem in general practice patients was estimated to be 17.8%; the prevalence of two cardiovascular problems was 5.4%.

Table 8.4: Number of cardiovascular problems per patient

Number cardiovascular problems in patient	Number of patients	Per cent of total patients (n = 12,247)	95%		Per cent of cardiovascular patients (n = 3,000)	95%	
			LCL	UCL		LCL	UCL
At least one cardiovascular problem	3,000	24.5	23.6	26.0	100.0	...	...
One	2,175	17.8	16.7	18.9	72.5	70.4	74.6
Two	666	5.4	4.7	6.2	22.2	20.2	24.2
Three	138	1.1	0.5	1.7	4.6	2.8	6.4
Four	19	0.2	0.0	0.9	0.6	0.0	3.2
Five	2	0.0	0.0	2.3	0.1	0.0	6.7

Note: Cardiovascular patients—patients for whom at least one cardiovascular problem was recorded; LCL—lower confidence limit, UCL—upper confidence limit.

Characteristics of patients with cardiovascular problems

The characteristics of the patients with at least one cardiovascular problem were compared with those of patients without a cardiovascular problem. Table 8.5 shows that there was no significant difference in the sex distribution of cardiovascular patients when compared with the other patients in the subsample who had no cardiovascular problem. However, the age distribution of the two groups differed markedly. As one might expect, patients with a cardiovascular problem were significantly older than their non-cardiovascular problem counterparts, almost 90% of cardiovascular patients being aged over 44 years. In contrast, two-thirds of non-cardiovascular patients were aged less than 45 years. The age distributions of the two groups are compared graphically in Figure 8.1.

Patients with a cardiovascular problem were far less likely to be new patients to the practice (3.5%) than patients without a cardiovascular problem (11.0%). They were significantly more likely to hold a healthcare card (57.5% compared with 35.1% of

patients without a cardiovascular problem) and more likely to hold a Veterans' Affairs card (8.3% compared with 1.6%). These differences are not surprising in light of the age distribution of these patients when compared with non-cardiovascular problem patients. There was no significant difference between patients with or without a cardiovascular problem in the proportion who were from a non-English-speaking background, or who identified as Indigenous persons (Table 8.5).

Table 8.5: Characteristics of patients with a cardiovascular problem and those without a cardiovascular problem

Patient variable	Cardiovascular patients (n = 3,000)				Non-cardiovascular patients (n = 9,247)				Total sub-sample (n = 12,247)	Prevalence of cardiovascular problems in group
	Number	Per cent of patients ^(a)	95% LCL	95% UCL	Number	Per cent of patients ^(a)	95% LCL	95% UCL		
Sex Male	1,248	42.3	39.9	44.6	3,658	40.1	38.3	42.0	25.4	
Female	1,706	57.8	55.4	60.1	5,455	59.9	58.0	61.7	23.8	
Missing	(46)	..	..	..	(134)	..	..	..	..
Age < 25 years	60	2.0	0.0	4.7	3,092	33.8	32.1	35.4	1.9	
25–44 years	269	9.1	7.1	11.0	3,015	32.9	31.4	34.5	8.2	
45–64 years	918	31.0	28.7	33.2	1,917	20.9	19.7	22.2	32.4	
65–74 years	777	26.2	24.4	28.0	588	6.4	5.6	7.3	56.9	
75+ years	942	31.8	28.9	34.6	540	5.9	4.9	6.9	63.6	
Missing	(4)	..	..	..	(95)	..	..	..	..
New to practice	103	3.5	0.9	6.1	1,007	11.0	9.7	12.3	9.3	
Healthcare card holder	1,726	57.5	54.6	60.4	3,249	35.1	32.7	37.6	34.7	
Veterans' Affairs card holder	249	8.3	6.6	10.0	148	1.6	0.8	2.4	62.7	
Non-English-speaking background	268	9.0	3.9	14.1	849	9.3	5.1	13.4	24.0	
Aboriginal/Torres Strait Islander	35	1.2	0.0	7.7	93	1.0	0.0	3.3	27.1	

(a) Missing data removed.

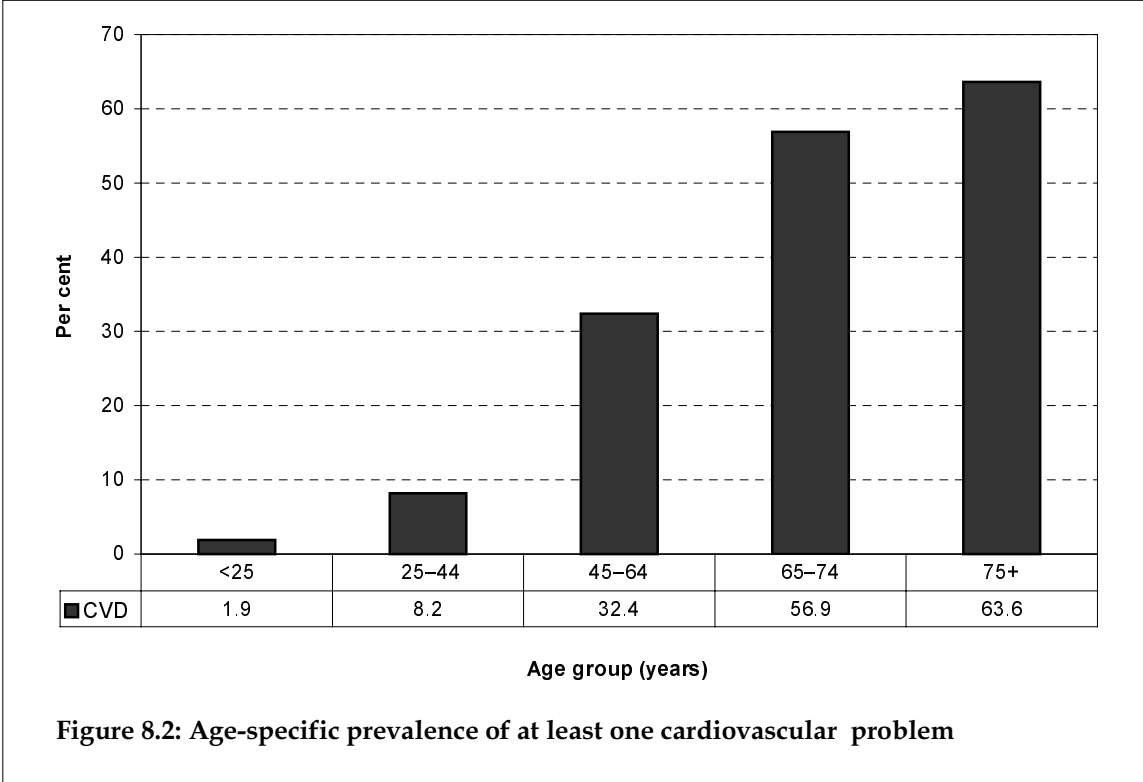
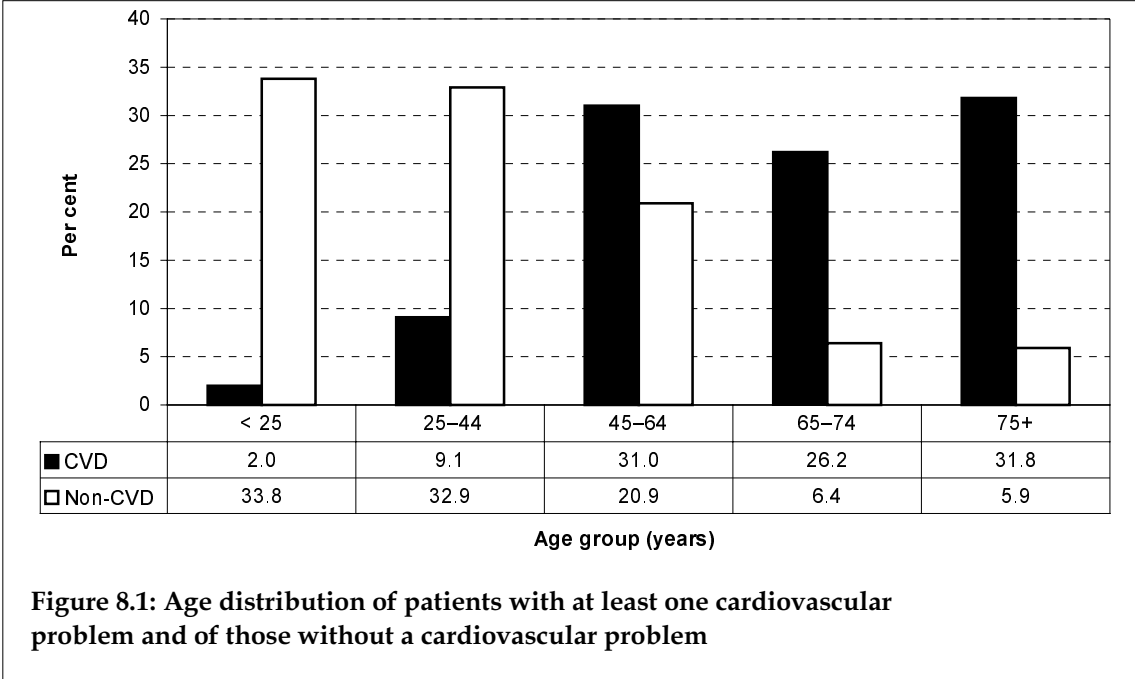
Note: Cardiovascular patients—patients for whom at least one cardiovascular problem was recorded; non-cardiovascular patients—patients for whom no cardiovascular problems were recorded. LCL—lower confidence limit, UCL—upper confidence limit. Shading indicates statistically significant difference.

In the far right-hand column of Table 8.5, prevalence estimates of cardiovascular problems are provided for each patient group. The prevalence of at least one cardiovascular problem was similar for male and female patients. However, there was a direct relationship between prevalence and age. Only 1.9% of young people aged less than 25 years had a cardiovascular problem and this increased steadily to 63.6% of patients aged 75 years or more. This relationship is graphically presented in Figure 8.2.

Prevalence was far higher for certain groups of patients including those who hold a healthcare card (34.7% having at least one cardiovascular problem) and those holding a Veterans' Affairs card (62.7%), and these rates are likely to be reflecting the age distribution of patients with a cardiovascular problem.

The overall prevalence of at least one cardiovascular problem was earlier shown to be 24.5% (Table 8.4). However, this prevalence was directly age-related, less than 2% of

patients aged less than 25 years having a cardiovascular problem and almost two-thirds (63.6%) of those aged 75 years or more having at least one cardiovascular problem (Figure 8.2).



Most prevalent cardiovascular problems in patient encounters in general practice

Hypertension was the most common cardiovascular problem recorded, at a rate of 16.5 per 100 patients. This was followed by ischaemic heart disease (4.1 per 100). The third most commonly reported problem was heart failure (1.9 per 100 patients) followed by cardiovascular check-up (1.5) and atrial fibrillation/flutter (1.2) (Table 8.6).

At first it was thought that patients for whom cardiovascular check-up or another cardiovascular process code were recorded should perhaps be removed from the sample since it was assumed that patients having a 'check-up' had been found to be free of cardiovascular problems at that point, and that patients for whom a process (e.g. pathology test order) was undertaken in the management of a cardiovascular problem had no demonstrated disease. However, further investigation demonstrated this was not the case. One in five of the patients having a 'cardiovascular check-up' had at least one other cardiovascular problem recorded as current. Further, 25% of these 186 patients had received a prescription for medication as a result of the check-up, usually an ACE inhibitor or antihypertensive. It is possible that, for patients for whom medication is controlling hypertension, the GPs are hesitant to record hypertension as a problem under management since the patient is no longer hypertensive. As the individual disease prevalence is not affected by any other specific disease prevalence, it was decided to leave these patients in the analysis. It must also be remembered that the 80% of these 186 patients who had no other cardiovascular problems recorded may well have hypertension. If this is the case, this estimate of the prevalence of hypertension would be underestimated by about 1.2%. Further, of the 72 patients for whom a process of care was recorded rather than a problem label, some were recorded as the care of a high-risk cardiovascular patient (such as people who had a coronary artery bypass, heart valve replacement etc.). It was decided to include these patients even though we were unsure of the exact cardiovascular label applicable.

Table 8.6: The ten most common individual cardiovascular problems

Individual cardiovascular problems	Number	Rate per 100 patient population		
		(n = 12,247)	95% LCL	95% UCL
Hypertension*	2,023	16.5	15.2	17.8
Ischaemic heart disease*	497	4.1	3.3	4.8
Heart failure	237	1.9	1.1	2.8
Cardiac check-up*	186	1.5	0.3	2.7
Atrial fibrillation/flutter	148	1.2	0.5	1.9
Atherosclerosis/peripheral vascular disease	118	1.0	0.1	1.8
Cardiovascular disease, other	93	0.8	0.2	1.3
Stroke/cerebrovascular accident	76	0.6	**	1.5
Heart disease, other	75	0.6	**	1.4
Elevated blood pressure	74	0.6	**	2.3
<i>Sub-total</i>	3,527	88.0	..	..
Total cardiovascular problems	4,007	100.0	..	..

* Includes multiple ICPC-2 codes (see Appendix 6).

** Less than 0.05.

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

The most common individual cardiovascular problems recorded for these patients are presented in Table 8.6 with their rate of occurrence per 100 patients and the 95% confidence limits. These ten cardiovascular problems accounted for 88.0% of all cardiovascular problems recorded for the sample of 12,247 patients.

8.4 A grouped analysis of prevalence of cardiovascular problems in patients encountered in general practice

In this section we investigate the prevalence of cardiovascular problems, their inter-relationship in the group of patients with at least one cardiovascular problem, and the relationship of cardiovascular problems with diabetes and lipid disorders. In ICPC-2 diabetes and lipid disorders are classified in the endocrine/nutritional/metabolic chapter, so they have not as yet arisen in this report.

In order to simplify these analyses, the circulatory chapter of ICPC-2 was divided into 12 groups. The ICPC-2 codes and rubrics included in each group are listed in Appendix 6. But in summary the groups are as follows:

- *Arrhythmias*: including atrial fibrillation/flutter; tachycardia and other unspecified arrhythmias
- *Cerebrovascular disease*: including transient cerebral ischaemia, stroke/cerebrovascular accident and other cerebrovascular disease
- *Hypertension*: including both complicated and uncomplicated hypertension
- *Ischaemic heart disease/acute myocardial infarction (IHD/AMI)*: including ischaemic heart disease with or without angina, and acute myocardial infarction
- *Other vascular disease*: atherosclerosis/peripheral vascular disease, pulmonary embolism, phlebitis and thrombophlebitis, varicose veins and haemorrhoids
- *Circulatory symptoms and complaints*: including heart pain, pressure and tightness, palpitations, irregular heartbeat, oedema, fear of heart disease and limited function of the cardiovascular system.
- *Other heart disease*: including arterial murmurs, pulmonary heart disease and other heart disease
- *Other cardiovascular disease*: including infections of the circulatory system, rheumatic heart disease; neoplasms, congenital anomalies and cardiovascular disease not classified elsewhere
- *Elevated blood pressure*: only those, without a diagnosis of hypertension
- *Postural hypotension*.

An individual patient has been counted only once in each of these 12 groups, even if they were reported as having more than one problem type within the group. However, an individual patient could be counted multiple times if their cardiovascular morbidity fell into two or more of these groups.

Results

Almost two-thirds of the patients with at least one cardiovascular problem had hypertension and 16.7% had IHD/AMI. Heart failure was reported for 7.9% of these patients with a cardiovascular problem, and arrhythmias for 7.4%.

The prevalence of hypertension among general practice patients was estimated to be 15.0% (95% CI: 13.8–16.1) and this was followed by IHD/AMI (4.1%), heart failure (1.9%), arrhythmias (1.8%) and 'other vascular disease' (1.7%). (Table 8.7).

In the far right-hand column of this table these prevalence estimates have been extrapolated to the total population of general practice attenders. Approximately 82% of the population visit a GP in any one year⁵. This equates to about 15.6 million people. Extrapolation of the results of the current study suggest that between 3.6 and 4.05 million people who attend general practice have at least one (recognised) cardiovascular problem, that 2.3 million general practice patients have (diagnosed) hypertension and a further 78,000 have recognised elevated blood pressure without a diagnosis of hypertension. (Note that the diagnosis of hypertension requires repeated high blood pressure readings over time.)

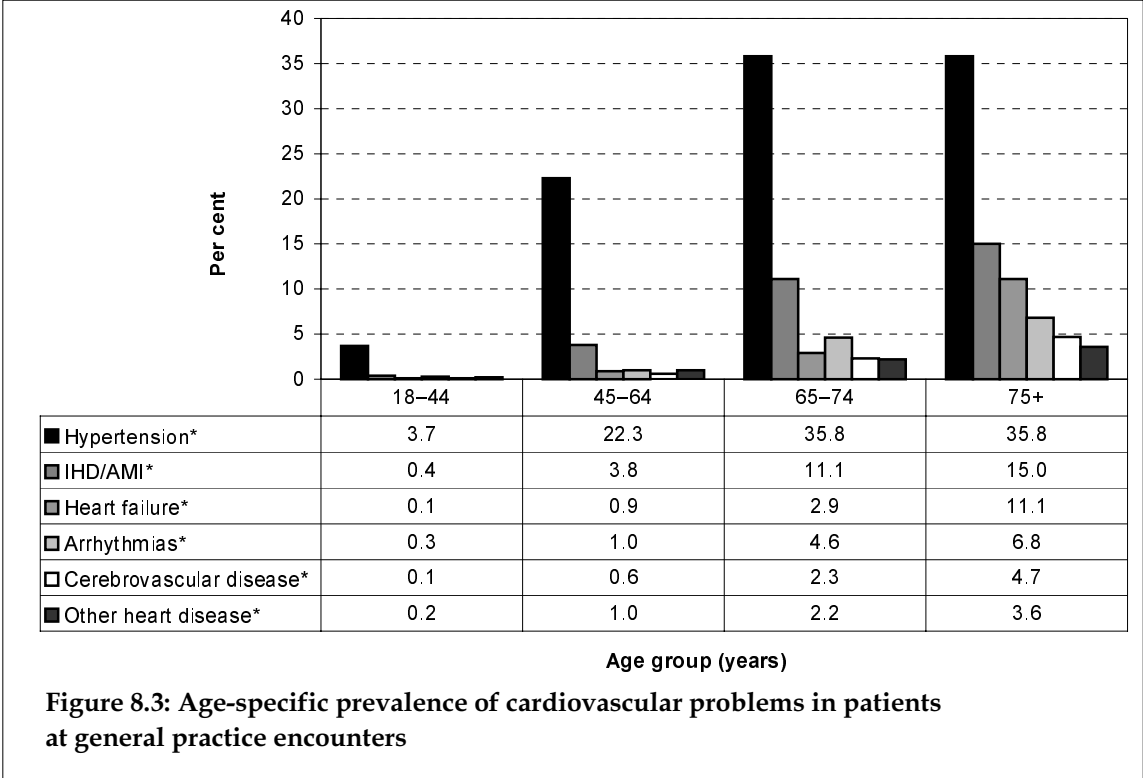
The estimated number of general practice patients with diagnosed ischaemic heart disease/acute myocardial infarction is 640,000 and those with heart failure 296,000. Patients with arrhythmias are likely to number 280,000 and those with vascular disease 265,000. Estimates for the less commonly recorded cardiovascular problems are provided in Table 8.7, but due to small sample sizes the wide confidence intervals provide very broadband estimates.

Table 8.7: Prevalence of cardiovascular problems in the general practice patient population

Cardiovascular group	Number of patients with at least one cardiovascular problem	Estimated prevalence (and 95% CI) in patients with a cardiovascular problem (n = 3,000)	Estimated prevalence (and 95% CI) in the general practice patient population (n = 12,247)	Extrapolated estimate of number of general practice patients in Australia (95% CIs)
Hypertension*	1,834	61.1 (58.7–63.6)	15.0 (13.8–16.1)	2,340,000 (2,153,000–2,500,000)
IHD/AMI*	501	16.7 (14.5–18.9)	4.1 (3.3–4.8)	640,000 (514,000–750,000)
Heart failure*	236	7.9 (5.6–10.1)	1.9 (1.1–2.8)	296,000 (172,000–437,000)
Arrhythmias*	208	7.4 (5.6–9.2)	1.8 (1.2–2.4)	280,000 (187,000–374,000)
Other vascular disease	222	6.9 (5.3–8.6)	1.7 (1.1–2.3)	265,000 (172,000–359,000)
Other heart diseases*	132	4.4 (2.8–6.0)	1.1 (0.6–1.6)	172,000 (93,000–250,000)
Cerebrovascular disease	123	4.1 (2.0–6.2)	1.0 (0.3–1.7)	156,000 (47,000–265,000)
Other cardiovascular disease *	109	3.6 (1.9–5.4)	0.9 (0.4–1.4)	140,000 (62,000–218,000)
Elevated blood pressure	53	2.4 (0.2–4.6)	0.5 (0.0–1.3)	78,000 (** –203,000)
Postural hypotension	30	2.3 (0.2–4.4)	0.2 (0.0–1.8)	31,000 (**–280,000)
Total	3,000	24.5 (23.0–26.0)	100.0	3,800,000 (3,600,000–4,056,000)

* Includes multiple ICD-2 or ICD-2 PLUS codes (see Appendix 6). ** Extrapolation not valid. CI—confidence interval.

Age-specific prevalence of the more common cardiovascular problems is presented in Figure 8.3. The prevalence of hypertension in the general practice patient population was shown in Table 8.7 to be 15.0%. However, this was directly related to patient age. Only 3.7% of younger adults had diagnosed hypertension, but prevalence leapt to 22.3% in those aged 45–64 years and to more than one in three (35.8%) in both older age groups. Similar trends were apparent for IHD/AMI, the prevalence of which ranged from 0.4% in younger adults, to 15.0% of those aged 75 years or more, there being almost a threefold increase in prevalence from the 45–64 age group to the 65–74 age group. The jump in prevalence of heart failure occurred at an older age in this population. Although prevalence remained relatively low in the 65–74 age group, it increased almost threefold in the oldest age group. Steady increases in prevalence with age were demonstrated by each of the other more common cardiovascular problem groups (Figure 8.3).



* Includes multiple ICPC-2 (see Appendix 6).
 Note: IHD/AMI—i-schaemic heart disease and acute myocardial infarction.

8.5 Interrelationships of cardiovascular problems

Using the twelve cardiovascular groups previously described, Table 8.8 provides a picture of the interrelationship of these problems in the patients with at least one cardiovascular problem.

Of the 3,000 patients with at least one cardiovascular problem, 2,319 (72.2%) had only one of these disease types. Elevated blood pressure (without a diagnosis of hypertension) was the cardiovascular problem most likely to occur without other cardiovascular problems. Nine out of ten of the patients with elevated blood pressure had no other cardiovascular co-morbidity.

Over three-quarters (76.3%) of patients with diagnosed hypertension did not have another cardiovascular problem. The most common cardiovascular co-morbidity with hypertension was ischaemic heart disease/acute myocardial infarction. Almost one in 10 (9.2%) of the patients with hypertension also had ischaemic heart disease/acute myocardial infarction and 33.7% of the 501 patients with ischaemic heart disease/acute myocardial infarction had hypertension.

Of the 236 patients with heart failure, one-third (35.2%) had no other cardiovascular problem recorded, whereas 29.2% also suffered hypertension and 13.1% had arrhythmias. Half the patients with 'other vascular disease' had no other cardiovascular problem but 27.0% had diagnosed hypertension and 16.2% had ischaemic heart disease/acute myocardial infarction. The remaining interrelationships between the groups are shown in Table 8.8.

Table 8.8: Multiplicity of cardiovascular problems in the cardiovascular patient group

Cardiovascular problem group	Hypertension*	IHD/AMI*	Heart failure*	Other vascular disease*	Arrhythmias*	Other heart diseases*	Cerebrovascular disease*	Other cardiovascular disease*	Circulatory symptoms & complaints*	Elevated blood pressure	Postural hypotension	Cardiovascular process of care*	Number of patients with at least one of specified problem
Hypertension*	1,400	169	69	60	59	31	59	36	11	0	0	34	1,834
Row per cent	76.3	9.2	3.8	3.3	3.2	1.7	3.2	2.0	0.6	..	..	1.9	
IHD/AMI*	169	217	50	38	35	14	12	12	6	2	2	21	501
Row per cent	33.7	43.3	10.0	7.6	7.0	2.8	2.4	2.4	1.2	0.4	0.4	4.2	
Heart failure*	69	50	83	12	31	11	12	4	3	0	3	10	236
Row per cent	29.2	21.2	35.2	5.1	13.1	4.7	5.1	1.7	1.3	..	1.3	4.2	
Other vascular disease*	60	36	12	110	10	4	4	8	4	2	3	9	222
Row per cent	27.0	16.2	5.4	49.5	4.5	1.8	1.8	3.6	1.8	0.9	1.4	4.1	
Arrhythmias*	59	35	31	10	80	17	5	3	3	1	2	13	208
Row per cent	28.4	16.8	14.9	4.8	38.5	8.2	2.4	1.4	1.4	0.5	1.0	6.3	
Other heart diseases*	31	14	11	4	17	63	1	3	1	0	0	2	132
Row per cent	23.5	10.6	8.3	3.0	12.9	47.7	0.7	2.3	0.7	..	..	1.5	
Cerebrovascular disease*	59	12	12	4	5	1	45	2	0	0	0	0	123
Row per cent	48.0	9.8	9.8	3.3	4.1	0.8	36.6	1.6	..	..	..	..
Other cardiovascular disease*	36	12	4	8	3	3	2	53	1	1	0	3	109
Row per cent	33.0	11.0	3.7	7.3	2.8	2.8	1.8	48.6	0.9	0.9	..	2.8	
Circulatory symptoms/complaint*	11	6	3	4	3	1	0	1	43	0	1	4	69
Row per cent	15.9	8.7	4.3	5.8	4.3	1.4	..	1.4	62.3	..	1.4	5.8	
Elevated blood pressure	0	2	0	2	1	0	0	1	0	53	0	0	58
Row per cent	..	3.4	..	3.4	1.7	..	..	1.7	..	91.4	..	..
Postural hypotension	0	2	3	3	2	0	0	0	1	0	21	0	30
Row per cent	..	6.7	10.0	10.0	6.7	..	..	..	3.3	..	70.0	..	
Cardiovascular process of care*	34	21	10	9	13	2	2	6	4	0	0	151	258
Row per cent	13.1	8.1	3.9	3.5	5.0	0.8	0.8	2.3	2.2	..	..	58.5	

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 6).

Note: IHD/AMI— ischaemic heart disease and acute myocardial infarction.

8.6 Prevalence of lipid disorder and diabetes in patients with cardiovascular disease

In patients with a current cardiovascular problem the prevalence of lipid disorder was estimated to be 11.5% (95% CI: 9.7–13.3). The prevalence of diabetes in these patients with a cardiovascular problem was estimated at 11.6% (95% CI: 10.2–13.1).

In terms of the total GP patient sample, the prevalence of cardiovascular problem(s) + lipid disorder was estimated as 2.8% (95% CI: 2.2–3.4) and that of cardiovascular problem(s) + diabetes at 2.9% (95% CI: 2.4–3.3). The triple combination of cardiovascular problem(s) + diabetes + lipid disorder was rare, being recorded for only 52 patients, representing only 1.7% of the cardiovascular patients and 0.4% of the total GP patient sample. The majority ($n = 35$) of the cardiovascular patients with both diabetes and lipid disorder had hypertension.

Table 8.10 shows the prevalence of lipid disorder and diabetes in relation to each of the more common cardiovascular problem groups. The number of patients with lipid disorder and/or diabetes was highest for hypertension. However, this is due to the overall prevalence of hypertension in the group, rather than a higher prevalence of these diseases in patients with hypertension. In fact, both these diagnoses were more prevalent in patients who had ischaemic heart disease/acute myocardial infarction than in those with hypertension.

Table 8.9: Prevalence of lipid disorders and diabetes in patients with at least one cardiovascular problems

Disease combination	Number	Per cent of cardiovascular patients ($n = 3,000$)	95% LCL	95% UCL	Prevalence in GP patients ($n = 12,247$)	95% LCL	95% UCL
At least one cardiovascular problem + lipid disorder	345	11.5	9.7	13.3	2.8	2.2	3.4
Hypertension + lipid disorder	241	8.0	6.3	9.8	2.0	1.4	2.5
At least one cardiovascular problem + diabetes	349	11.6	10.2	13.1	2.9	2.4	3.3
Hypertension + diabetes	235	7.8	6.3	9.3	1.9	1.4	2.4
At least one cardiovascular problem + diabetes + lipid disorders	52	1.7	0.0	4.9	0.4	0.0	1.4
Hypertension + diabetes + lipid disorder	35	1.2	0.0	4.2	0.3	0.0	1.1

Note: Cardiovascular patients—patients for whom at least one cardiovascular problem was recorded. LCL—lower confidence limit, UCL—upper confidence limit.

Table 8.10: Prevalence of lipid disorder and diabetes in patients with specific cardiovascular problems

Cardiovascular problem type	Lipid disorder		Diabetes		Number of patients with at least one of specified cardiovascular problem
	Number	Prevalence	Number	Prevalence	
Hypertension*	241	13.1	235	12.8	1,834
IHD/AMI*	86	17.0	82	16.4	501
Heart failure*	10	4.2	36	15.2	236
Other vascular disease*	12	5.4	25	11.3	222
Arrhythmias*	20	9.6	23	11.1	208
Other heart diseases*	10	7.6	16	12.1	132
Cerebrovascular disease*	9	7.3	12	9.8	123
Other cardiovascular disease*	7	6.4	8	7.3	109
Other circulatory problems*	8	11.1	7	9.7	72
Elevated blood pressure	9	15.5	5	8.6	58
Postural hypotension	1	3.3	4	13.3	30
Total: at least 1 cardiovascular problem	345	11.5	349	11.6	3,000

* Includes multiple ICPC-2 or ICPC-2 PLUS codes (see Appendix 6).

Note: IHD/AMI—ischæmic heart disease and acute myocardial infarction.

8.7 Discussion

Methodological issues

The estimates of prevalence of cardiovascular disease among general practice patients included in this chapter are the first available for general practice. However, they are likely to be overestimates. The chance of a patient being 'selected' in the subsample study is directly related to their number of GP attendances over the year. That is, a young healthy male who sees the GP only once in the year has a lesser chance of being included in the subsample than an older patient with multiple chronic diseases who may have visited 18 times in that year. It must also be remembered that these estimates are confined to the patient population of general practitioners, rather than to the population at large. Although over 80% of the Australian population visit a GP in any one year, the remaining 15–20% are likely to be well, or to not have a diagnosed cardiovascular condition.

Future substudies of this type will include a question about the number of GP attendances during the previous 12 months. These data in combination with HIC data on average age–sex-specific rates of GP attendance will allow some adjustment for this selection bias and so provide more reliable estimates at that time.

Comparison with other data sources

The AIHW estimates that in 1999–00 almost 3 million Australians over the age of 25 had high blood pressure⁴. In the current study we need to add the number with hypertension to the number with elevated blood pressure to gain a comparable figure. This provides an estimate of 2.2 million to 2.75 million, a figure not very different from the AIHW estimate.

The AIHW also estimates that in 1999–00 31% of men and 26% of women had high blood pressure and that in people aged 65–74 the prevalence was 79% for men and 67% for women. Prevalence estimates in Table 8.5 of this report suggest a prevalence of any cardiovascular problem of 25.4 for males (all ages) and 23.8% of females, considerably less than the estimate of hypertension alone by the AIHW. In the 65–74 age group, the prevalence of all cardiovascular problems was estimated as 56.9%, again considerably less than that estimated for this age group in the total population. This may reflect the fact that patients attending general practice are usually ambulatory and are only rarely in hospital when under the GP's care. If hospitalised patients were included in the AIHW estimates, then the prevalence rate would be expected to be higher than that of general practice attended. In fact, the GP data here reported agree far more with that of the Australian Bureau of Statistics, from the 1995 National Health Survey, which estimated the prevalence of hypertension (through self-report) to be 14.4%⁴⁴.

The AIHW estimates from current available data that around 40,000 people have a stroke each year, and the 1995 National Health Survey estimated that 116,500 (0.6% of the population) had at some times in their lives had a stroke⁴. The current study suggests an estimated 0.6% of the patient population have a diagnosis of stroke (Table 8.6) and this extrapolates to about 94,000 general practice patients nationally. Again this estimate would exclude the majority of hospitalised patients.

There are no national data available for the prevalence of the other cardiovascular problems here reported.