

A general introduction to thinking about chronic disease

What is the definition of chronic disease?

AIHW, 2001. Chronic diseases and associated risk factors in Australia

Full document available at: <http://www.aihw.gov.au/publications/phe/cdarfa01/>

Only need to download *Introduction* which is available at:
<http://www.aihw.gov.au/publications/phe/cdarfa01/cdarfa01-c01.pdf>.

Answer

A chronic disease may be defined as one that is 'mostly characterised by complex causality, multiple risk factors, a long latency period, a prolonged illness, functional impairment or disability, and in most cases, the unlikelihood of a cure' (NPHP, 2001). Other sources have defined a chronic condition as one which 'requires ongoing medical care, including monitoring, treatment, and coordination among multiple providers, limits what one can do; and is likely to last more than 1 year' (Committee on rapid advancement projects, 2002).

Australian literature often uses the term chronic disease, while the WHO generally uses the term non-communicable disease. When we speak about chronic disease, we generally mean chronic, non-communicable disease. (There are of course chronic communicable diseases such as HIV/AIDS.)

There is, however, no widely agreed definition in Australia (NPHP, 2001). The box below considers the characteristics of chronic disease in more detail. (Source AIHW, 2002).

Box 1.0.1: Defining chronic diseases

Chronic diseases are difficult to define by using the well-known criteria of causation, acuteness, age of onset, activity restriction, period of illness and premature mortality. They are mostly characterised by complex causality, multiple risk factors, a long latency period, a prolonged course of illness, and functional impairment or disability.

Causation

Most chronic diseases have a complex aetiology and multi-factorial causation. Causal pathways that lead to the onset and progression of these diseases are poorly understood.

Acuteness

A majority of chronic diseases are the end-product of a complex and poorly defined series of events, initiated at an unknown point and progressing over a good portion of an individual's life. More often than not, the onset is gradual. Nonetheless, diseases classified as chronic can be insidious or sudden in onset, or even have acute phases.

Age of onset

Chronic diseases are not necessarily diseases of the old or consequences of ageing although age is an important determinant. They occur across all the stages of the life cycle. Type 1 diabetes, juvenile rheumatoid arthritis and childhood asthma are classic examples of chronic diseases that begin early in life.

Activity limitation

Most chronic conditions significantly compromise quality of life through activity limitations and

impairments, and may require assistance over an extended period of time. Long years of life lived with disability is not an uncommon feature of chronic diseases.

Period of illness

Most chronic diseases are long-term and persistent, leading to a gradual deterioration of health. Prolonged illness, often equated with long-term conditions, is a useful adjunct to identifying a disease as chronic. Symptom-free, prolonged biological phenomena such as high blood pressure may also be designated as chronic conditions. Many people may be exposed to the precipitating agents and risk factors of a disease over a long period before symptoms appear or the disease is diagnosed, but are referred to as having the chronic disease because of these hidden antecedents. Prolonged illness is therefore not a prerequisite to designate a disease as chronic in some cases.

Premature mortality

Most chronic diseases are not immediately life-threatening, yet they are the most common and leading causes of premature mortality. Chronic diseases are also indirect contributors to premature mortality resulting from other underlying causes.

Why is chronic disease such a concern?

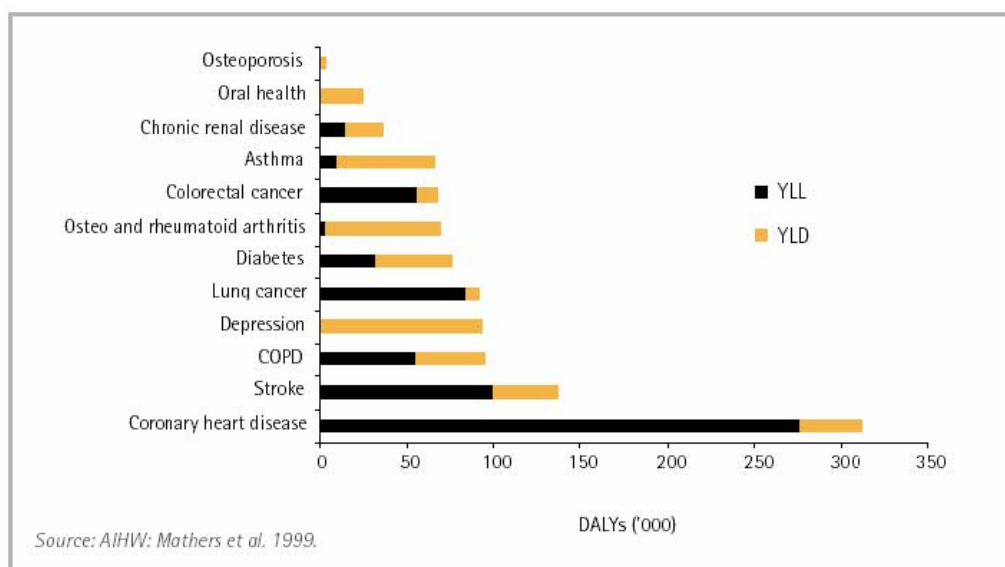
Answer

Globally, non-communicable diseases (NCD) are now leading causes of death and disability. The World Health Report 2002, estimated that NCDs contributed to approximately 60% of global mortality and 43% of the global burden of disease (WHO, 2002). Based on current trends, however, these figures are set to increase to 73% and 60% respectively (NPHP 2000/2001).

Approximately 70% of the total burden of illness and injury in Australia is the result of chronic, non-communicable diseases (NPHP, 2001). Over the next two decades, this figure is expected to increase to 80%. These diseases are now among the most 'prevalent, costly and preventable of all health problems'. (NPHP, 2001).

The twelve chronic diseases and conditions shown in Figure 1 accounted for approximately 42% of total DALYs in 1996.

Figure 1: DALYs attributed to various chronic diseases and conditions, 1998. Source: AIHW, 2002.



There is evidence that morbidity from some chronic diseases is set to increase (NPHP, 2001):

1. While mortality from cardiovascular disease has decreased, the prevalence of heart and vascular disease has increased from 174/1000 adults in 1989/90 to 209/1000 in 1995
2. The prevalence of diabetes has doubled since the 1980's
3. Obesity has more than doubled over the last two decades (from 8% in 1980 to almost 20% in 1995). Obesity is a strong risk factor for Type 2 Diabetes, and subsequent heart disease.
4. Chronic disease, and the number of chronic diseases a person may have, increases with age. Population aging will lead to an increase in the prevalence of chronic disease and an increase in co-morbidity.

How have we responded to the increasing epidemic of chronic disease?

WHO Global Strategy for Prevention and Control of Non-Communicable Diseases
Australia's response"

Preventing Chronic Disease: A strategic Framework, October 2001

<http://www.nphp.gov.au/publications/strategies/chrondis-bgpaper.pdf>

Answer

The importance of non-communicable diseases globally has been recognised by the World Health Organisation. In May 2000, the World Health Assembly adopted a resolution (WHA/53.17), which endorsed a *WHO Global Strategy for the prevention of non-communicable diseases*. Member states were urged to develop national policy frameworks and to promote community-based initiatives for the prevention of NCDs through comprehensive risk factor approaches based on the best available evidence.

A national strategy for the prevention and control of chronic disease has been developed through the National Public Health Partnership Group – *Preventing chronic disease: A strategic framework*. The Australian Health Minister’s Advisory Council has endorsed the National Framework for chronic disease prevention, and State and Territory governments are developing their own initiatives for chronic disease prevention, along these lines.

In Australia, a wide range of initiatives at national, state and local levels are already in place to improve the early detection and management of chronic disease and to address risk and protective factors. These include:

- The national health priority areas initiatives
 - The rural chronic disease initiative - As part of the Australian Government's Regional Health Strategy, the Rural Chronic Disease Initiative (RCDI) is currently supporting 20 Innovative Rural Projects in small rural and remote communities of up to 10,000 people.
 - Sharing health care initiative – part of the enhanced primary care package for older Australians and those with chronic and complex conditions. The Enhanced Primary Care (EPC) Medicare Items provide a framework for a multidisciplinary approach to health care through a more flexible, efficient and responsive match between care recipients' needs and services. A number of sharing health care demonstration projects are underway.

The above paper argues that a new approach to chronic disease prevention and control is needed. Why is that?

Answer

This is because (NPHP, 2001):

- Significant health inequalities due to differential rates of chronic disease exist between different population groups in Australia
- Existing public health effort tends to be organised on vertical single-issue programs, which may be an inefficient means of addressing chronic diseases, since many chronic diseases affect the same population groups and share common risk factors. A more efficient approach would involve a sharing of effort, and coordination across strategies and agencies – a cross-cutting or horizontal approach.
- Evidence indicates that predisposition to chronic disease is the result of cumulative risks over the life course – therefore interventions need to be offered over the life course, rather than concentrating on adulthood.
- Complex problems such as obesity and depression require a multi-faceted response, which requires action both from within and outside the health system.
- A comprehensive approach to chronic disease requires action across the continuum of care. Prevention and management are complementary interventions. However, prevention strategies are not sufficiently connected to the mainstream health system. New partnerships between public health, clinicians and consumers need to be developed.

What are the three key domains around which the national prevention effort should be built?

The strategy recommends activity around three key domains (NPHP, 2001). These are in line with the recommendations of the WHO Global Strategy:

1. Ensuring an effective information base to guide action e.g.
 - a. Systematic surveillance of risk factors and their determinants
 - b. Systematic development of the evidence base to inform policy and program design
 - c. Evaluation and performance measurement
2. Strengthening prevention and health promotion e.g.

- a. Reduce risk factors and their determinants; enhance protective factors
 - b. Promote health across the life course
 - c. Build partnerships for intersectoral action and supportive public policies
 - d. Give priorities to populations most at risk
3. Improving systems of care for those with chronic disease e.g.
- a. Strengthening the role of prevention in the health care system
 - b. Improving early detection and intervention
 - c. Integrated primary health care systems
 - d. Care partnerships and consumer participation
1. Further information on improving systems of care (the third domain) is available See pages 4 & 5 in the Executive Summary of the WHO Document Innovative Care for Chronic Conditions available at: <http://www.who.int/diabetesactiononline/about/ICCC/en/>

An Australian perspective:

Gross P et al. 2003. Australia confronts the challenge of chronic disease. Editorial. MJA 179:233-234. http://www.mja.com.au/public/issues/179_05_010903/gro10737_fm.pdf

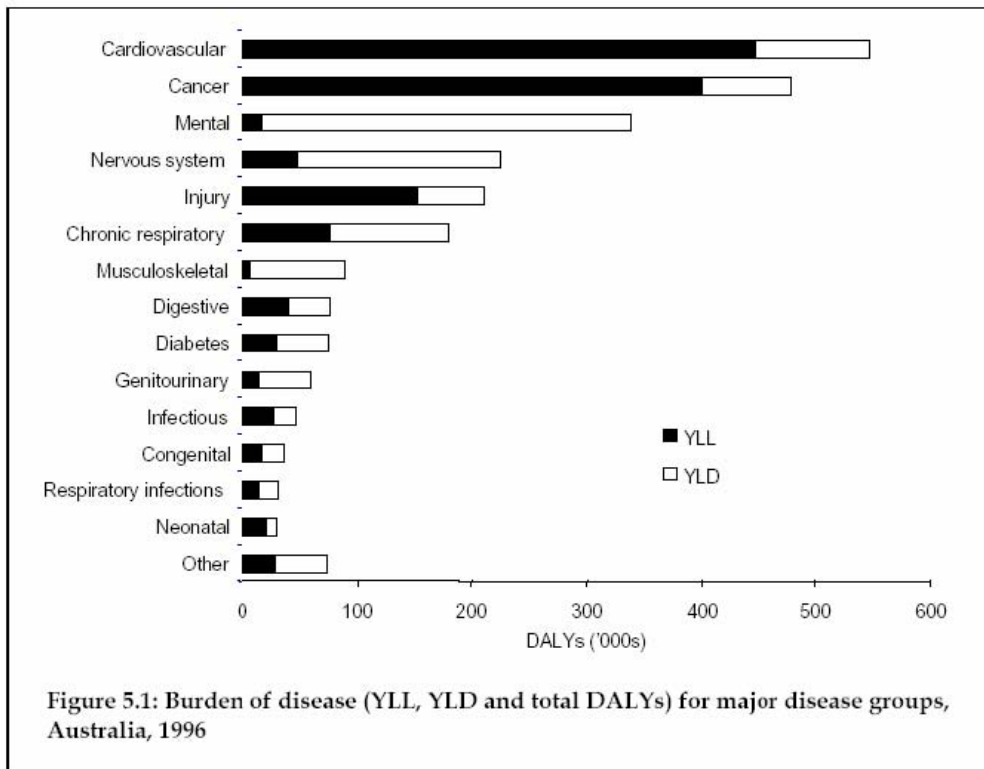
Cardiovascular Disease

Cardiovascular disease encompasses all diseases and conditions of the heart and blood vessels. How significant is it in Australia?

Figure 5.1 <http://www.aihw.gov.au/publications/health/bdia/bdia-c05.pdf>

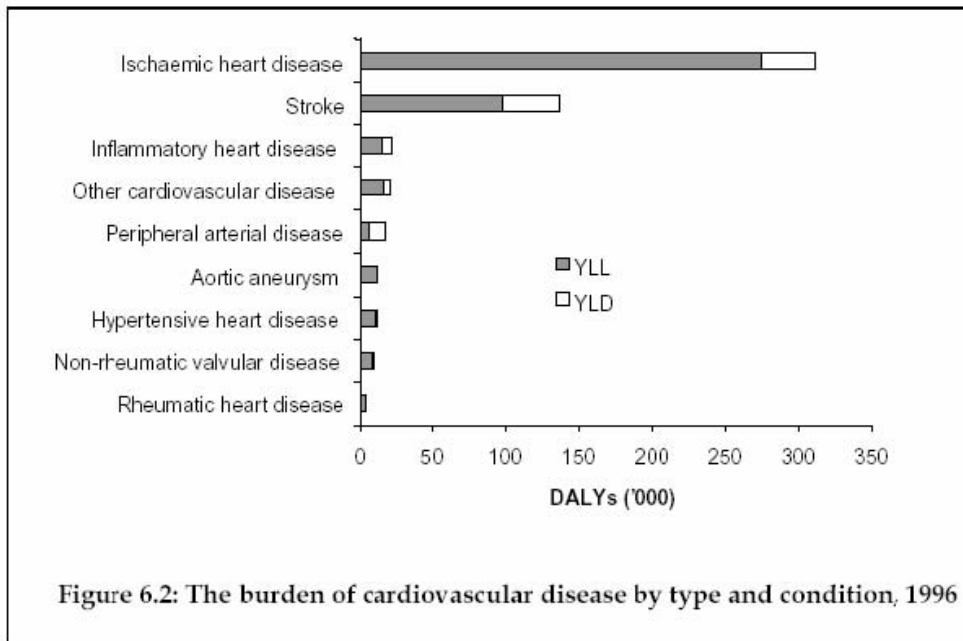
Figure 6.2 <http://www.aihw.gov.au/publications/health/bdia/bdia-c06.pdf>

Answer:



The cardiovascular disease burden is dominated by ischaemic heart disease and stroke, which account for

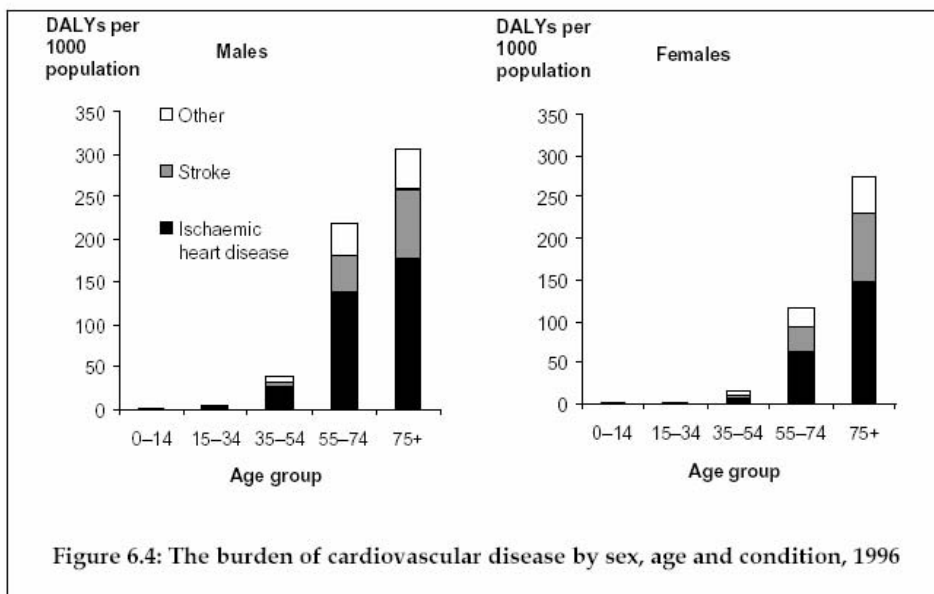
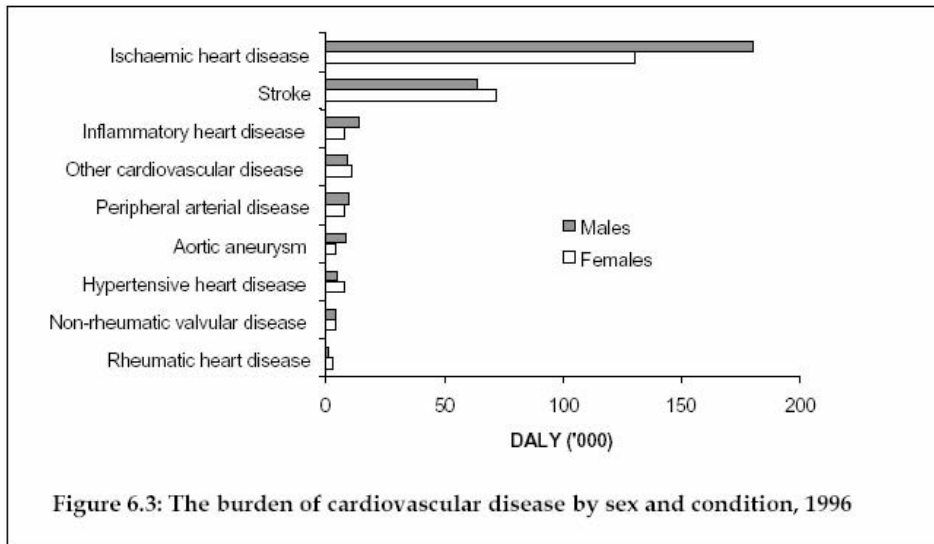
almost 57% and 25% of the cardiovascular DALYs respectively (Figure 6.2).



How does the burden vary by gender?

Figure 6.3 <http://www.aihw.gov.au/publications/health/bdia/bdia-c06.pdf>

The burden of ischaemic heart disease is 38% higher for men than women while the burden of stroke is 12% higher for women than men (Figure 6.3). The rates of DALYs per 1,000 population rise with age and are higher for men than women at all ages (Figure 6.4).



What are the preventable risk factors for cardiovascular disease?

Page 57 <http://www.aihw.gov.au/publications/aus/ah04/ah04-c04.pdf>

The main underlying causal mechanism in cardiovascular disease is atherosclerosis, a process marked by abnormal build-ups of fat, cholesterol and other substances in the inner lining of the arteries. It is most serious when it affects the blood supply to the heart (causing angina or heart attack) or to the brain (causing a stroke). The major, preventable risk factors for cardiovascular disease are tobacco smoking, high blood pressure, high blood cholesterol, insufficient physical activity, overweight and obesity, poor nutrition and diabetes. Atrial fibrillation, transient ischaemic attack and a high intake of alcohol also increase the risk of stroke.

What do you know about the epidemiology of coronary heart disease?

What do you know about the epidemiology of stroke?

What do you know about the epidemiology of rheumatic heart disease?

Page 56-64 <http://www.aihw.gov.au/publications/aus/ah04/ah04-c04.pdf>

Answer:

In the 2001 National Health Survey, 1.9% of respondents indicated they had CHD, which corresponds to around 355,600 Australians affected. Around three-quarters of this group reported experiencing angina, and around one-third reported having had a heart attack. Based on these self-reports, CHD prevalence was higher among males than females: 2.4% and 1.6%, respectively. Its prevalence increases rapidly with age, from around 4% among 55–64-year-olds to 8% in 65–74-year-olds, and rising to 13% among those aged 75 and over. Almost two-thirds of those reporting CHD were aged 65 and over.

An estimated 1% of respondents to the 2001 National Health Survey, corresponding to about 217,500 Australians, reported that they had had a stroke sometime in their lives. The prevalence was higher among males than females: 1.4% versus 1.0%. Less than one out of five who reported a stroke was younger than 55. An estimated 40,000 to 48,000 stroke events occur in Australia every year—one every 11–13 minutes. The majority of these, around 70%, are first-ever strokes (AIHW 2004). More females than males have a stroke; however, the age-standardised incidence is higher among males as they tend to have a stroke at younger ages.

Indigenous Australians have one of the highest levels of rheumatic fever and rheumatic heart disease in the world (AIHW: Field forthcoming). Two registers of people with known or suspected cases of rheumatic fever and rheumatic heart disease operate in the Top End of the Northern Territory and in Central Australia to capture the nature and extent of the problem. In 2002, there were 58 registrations of people with acute rheumatic fever in the Top End of the Northern Territory and 27 in Central Australia—all Aboriginal and Torres Strait Islander peoples. In the Top End, most of the cases (83%) required hospitalisation and 35% were recurrences; in Central Australia 30% were recurrences. Children aged 5–14 accounted for around 55% of all cases of acute rheumatic fever (Table 2.19). On the two registers in 2002, there were 696 people with chronic rheumatic heart disease in the Top End of the Northern Territory and 283 people in Central Australia. Almost all (92–94%) of these were Aboriginal or Torres Strait Islander peoples. In the Top End of the Northern Territory, 92% of those registered with the disease were aged 15 and over; in Central Australia over two-thirds of cases occurred in the 15–44 age group.

What do you know about health service use for cardiovascular disease -general practice & hospital utilisation?

Page 56-64 <http://www.aihw.gov.au/publications/aus/ah04/ah04-c04.pdf>

GP visits

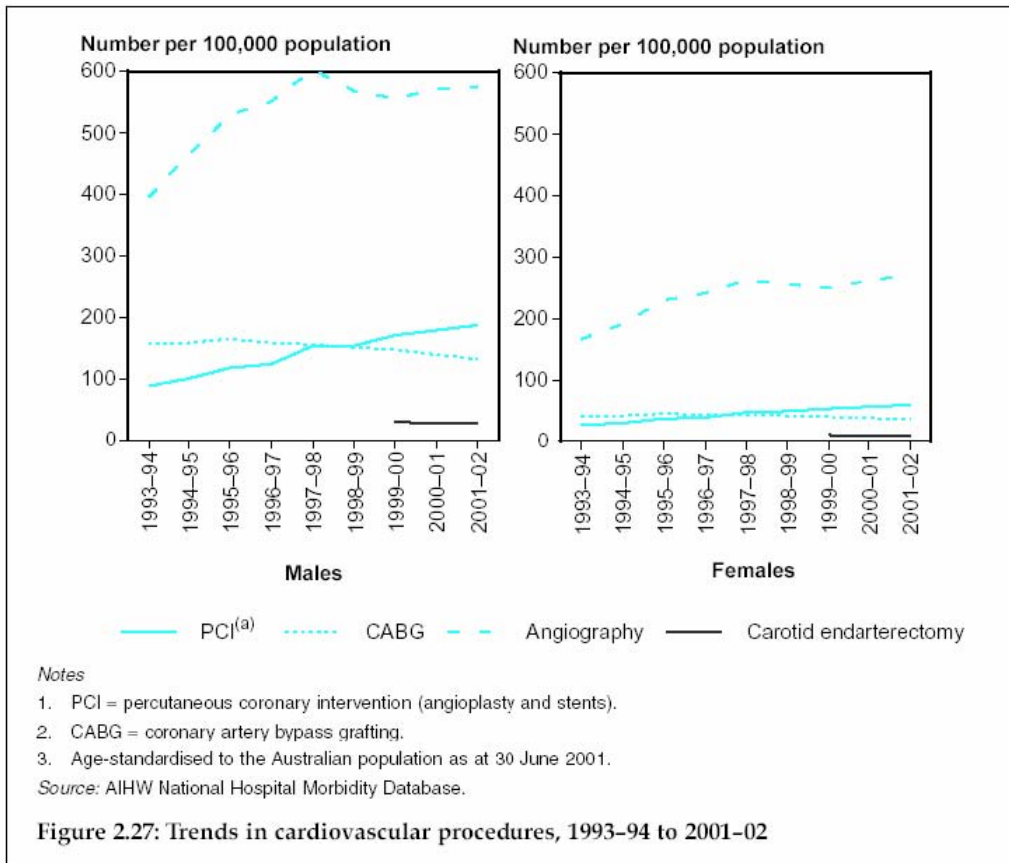
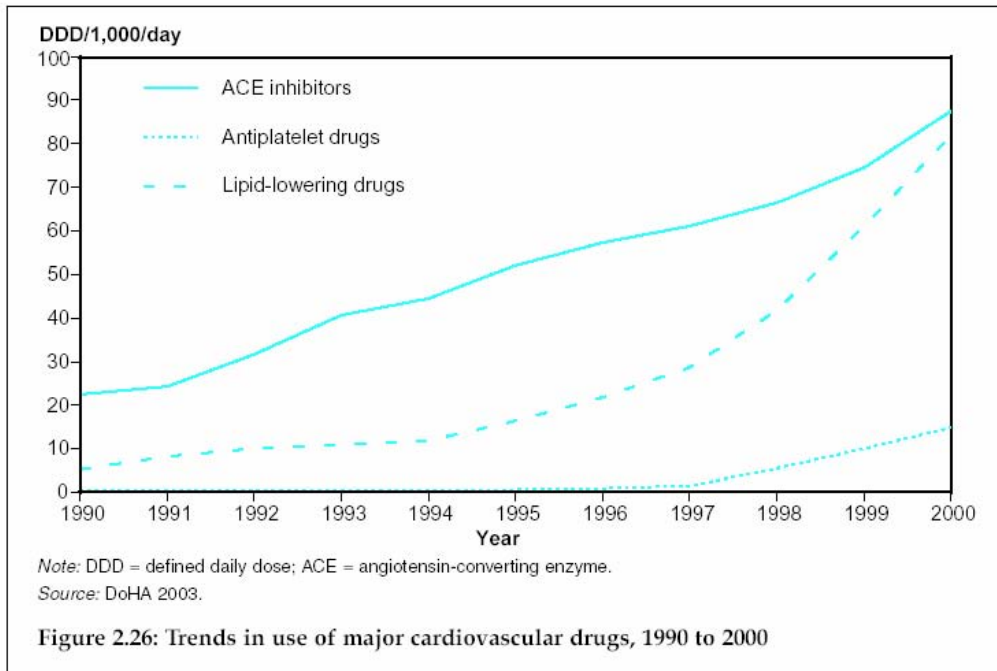
Cardiovascular diseases and conditions constitute one of the most common problems treated by GPs, accounting for 11% of all problems seen in general practice in 2002–03 (AIHW: Britt et al. 2003). Overall, GPs managed cardiovascular problems at 16 per 100 encounters. High blood pressure was the most frequently managed problem, at a rate of 8.9 per 100 encounters, accounting for over half of all cardiovascular problems managed. Lipid disorders (abnormal levels of cholesterol or related substances in the blood) were managed at a rate of 3.0 per 100 encounters. Other relatively common cardiovascular problems managed by GPs were CHD, cardiac check-ups, heart failure, and atrial fibrillation or flutter. For 62% of encounters for cardiovascular problems, at least one medication was prescribed, advised or given in 1998–00. At least one nonpharmacological treatment (mainly advice and counselling) was also provided by GPs in 16% of these encounters.

Hospitalisation

Cardiovascular disease was the principal diagnosis for 441,002 hospital separations (7% of all separations) in 2001–02. Of these, 36% were due to CHD, 12% to heart rhythm disorders, 9% to heart failure, 9% to stroke, 6% to peripheral vascular disease and 0.5% due to acute rheumatic fever and chronic rheumatic heart diseases. When both principal and additional diagnoses were considered, cardiovascular disease was listed in 10% of all hospital separations. Males were more likely to be hospitalised for cardiovascular disease than females, with male CHD and peripheral vascular disease separation rates being twice as high. Hospitalisation for cardiovascular disease increases rapidly with age, with those aged 55 and above accounting for 77% of separations (Figure 2.25). For those hospitalised for at least one night in 2001–02, the average length of stay was 8.1 days, a substantial reduction from 9.8 days in 1993–94. The average length of stay for stroke, peripheral vascular disease, rheumatic fever and rheumatic heart disease was at least twice as long as that for CHD. Females had a longer average length of stay than males.

What have been the trends in terms of drug treatment and therapeutic procedures for cardiovascular disease?

Answer:



Aboriginal and Torres Strait Islanders bear an increased burden
Indigenous people are twice as likely to die from cardiovascular disease, as are non-indigenous Australians.

Aboriginal and Torres Strait Islanders have one of the highest rates of rheumatic heart disease in the world.
They are more than 10 times as likely to die from rheumatic heart disease, as are non-indigenous Australians.

Australians from the lowest SES group are twice as likely to die from cardiovascular disease, as are those in the highest SES group.

Overall nice summary

http://www.heartfoundation.com.au/media/HSVD_2004HighlightsFINAL_2004-05-05.pdf

Large document – lots of information. Heart, Stroke and Vascular Diseases, AIHW, 2001.

<http://www.aihw.gov.au/publications/cvd/hsvd01/hsvd01.pdf>