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Mr James Catchpole
Committee Secretary
Standing Committee on Health and Ageing
House of Representatives
Parliament House
CANBERRA ACT 2600

Dear Secretary

The Heart Foundation is pleased to provide the attached submission to assist the Standing Committee on Health and Ageing with its inquiry into obesity.

Growing prevalence of obesity and overweight in the Australian population is a cause for significant concern to the Heart Foundation as a high body mass index increases the risk of ischaemic heart disease, hypertensive heart disease, ischaemic stroke, diabetes and other serious conditions. It is also associated with high blood pressure and high blood cholesterol.

Our submission includes a summary outlining 18 specific recommendations, including a call for a comprehensive, coordinated approach to be taken across the government and non-government sectors to counter the growing rates of obesity in the Australian community. The issue is too serious for piecemeal action.

Importantly, we also call for action on the food supply, as this is where we believe major gains can be made. A range of measures are needed, including setting targets for food manufacturers and the food service sector, so that the consumption of healthier food can become the norm, not the exception.

We would be pleased to have an opportunity to appear before the committee to expand on our submission.

Yours sincerely

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Chief Executive Officer – National

Heart Foundation

National Heart Foundation of Australia

Submission

House of Representatives Standing Committee on Health and Ageing

Inquiry into Obesity

Terms of Reference

The Committee will inquire into and report on the increasing prevalence of obesity in the Australian population, focusing on future implications for Australia's health system.

The Committee will recommend what governments, industry, individuals and the broader community can do to prevent and manage the obesity epidemic in children, youth and adults.

Submission Outline

Summary

Levels of obesity and overweight have risen steadily in Australia over recent decades among men and women and across all age groups. Excess body weight is a risk factor for a wide range of health conditions, including cardiovascular disease (CVD), diabetes, osteoarthritis, some cancers, high blood pressure and high cholesterol (ABS 2008a). The Heart Foundation sees the increasing prevalence of overweight and obesity in the community as a significant challenge that is likely to add to the prevalence of CVD in Australia over the coming decades.

The Heart Foundation commissioned a major literature review which shows the relationship between excess body weight, in particular obesity, and CVD. Excess body weight is linked with CVD both indirectly as an independent risk factor for the established biomedical risk factors (such as high blood pressure and high cholesterol), and directly as an independent risk factor for CVD, particularly coronary heart disease (AIHW & NHFA 2004).

CVD remains Australia's leading health challenge. It is:

- **Australia's leading killer**: It affects nearly one in five Australians (more than 3.5 million people) and kills more people than any other disease (accounting for 34% of all deaths in 2006 (ABS 2008b).
- **A leading cause of disability:** An estimated 1.4 million Australians have a disability associated with CVD (AIHW 2006a). Almost one in three Australians living with cardiovascular disease report being disabled to some degree by the disease. CVD is responsible for 18% of all disability adjusted life years (DALYs)[a] lost in Australia (NHFA 2007a).
- **The most costly disease group to treat**: Total direct health costs for CVD were estimated at $7.6 billion in 2004. Left unchecked, these costs are projected to rise to $11.5 billion by 2011. The total economic bill of CVD in direct and indirect costs is estimated to be $14.2bn per annum (Access Economics 2005).
- **Becoming more prevalent:** Despite declining mortality rates, over the past decade the prevalence of CVD rose by more than 18.2% (AIHW 2004).
- **Largely preventable:** Much of the death and disability caused by CVD is preventable. Many Australians remain at higher risk of CVD through smoking, being physically inactive, eating a diet high in saturated fats and low in unsaturated fats (Cobiac et al. 2000), being overweight or having high blood cholesterol or high blood pressure.

The rising incidence of obesity will have a negative impact on coronary heart disease (CHD). A recent US study predicts that by 2035, the prevalence of CHD will increase by 5% to 16% in that country, with 100,000 excess cases attributable to increased obesity. The study suggests that overweight among adolescents can be projected to cause substantial increases in the rate and the effect of CHD among future young and middle-aged adults over the next 20 years (Bibbins-Domingo et al. 2007).

The dramatic increase in the rate of obesity and type 2 diabetes has been identified as one of three factors that could accelerate the rate of CVD and its complications (Bonow et al. 2002). Overweight and physical inactivity are the main modifiable risk factors responsible for type 2 diabetes, by far the most common form of diabetes. Between 1989-90 and 2004-05, the proportion of people with diagnosed diabetes more than doubled from 1.3% to 3.6%, largely driven by an increase in prevalence of type 2 diabetes (AIHW 2008). This will have considerable implications for CVD.

[a]DALY = Disability-Adjusted Life Year. The DALY is now being accepted as the standard measure of disability and premature death arising from illness or poor health. One DALY is a lost year of 'healthy' life and is calculated as a combination of years of life lost due to premature mortality (YLL) and equivalent 'healthy' years of life lost due to disability (YLD).

While action is taking place at local, state/territory and federal levels to address Australia's obesity problem, the scale of response has been to date insufficient to turn the tide on rates of overweight and obesity, poor nutrition and insufficient levels of physical activity.

A comprehensive response is called for that engages not only all three spheres of government, but also the private sector, workplaces, communities and non-government organisations. Major change is needed in the way we live our lives, the way we plan our communities, the way we move and travel, and the way we gain our daily nourishment.

Heart Foundation Recommendations

Comprehensive response needed

1. The Australian Government's response to the increasing prevalence of overweight and obesity must be comprehensive, engaging all spheres of government, the community, non-government and private sectors and the workplace. It should be guided by the recommendations of the newly formed National Preventative Health Task Force.

Specifically, action must be taken to:

Nutrition and physical activity

2. Tighten food and beverage advertising and promotion regulations to prevent marketing of food and beverage products to children under 16, with the exception of healthy eating messages promoted through non-commercial social marketing campaigns.

3. Introduce mandatory nutrition information labelling on foods purchased when eating out.

4. Amend current mandatory nutrition information labelling on food for retail sale to include trans fats, salt and standardised serve size information.

5. Intensify coordination of, and boost funding for national multimedia social marketing campaigns addressing overweight and obesity, physical inactivity and poor nutrition.

6. The Australian Government must review the current *Dietary Guidelines for Australians* and develop a comprehensive nutrition policy framework. The framework should cover standards for food quality, quantity and frequency of consumption of different food types for different population groups, and support a consistent front of pack labelling scheme.

7. Food supply targets should be established and enforced that eliminate the use of industrially produced trans fat, dramatically cut the use of saturated fat and salt, increase the amount of fibre, fruit and vegetables, and control portion sizes.

8. Increase community levels of physical activity and reduce the amount of sedentary time by implementing a comprehensive range of strategies across sectors, including working with local, state and territory, and federal governments to achieve a regulatory and funding framework that provides a built environment and workplaces that support active living. Action should also be taken to:

    (a) Reorientate transport policy to prioritise planning for walking, cycling and public transport.

    (b) Build and retrofit neighbourhoods to provide infrastructure and services for recreational physical activity as well as accessibility for pedestrians and cyclists to shops, workplaces, public transport and services, rather than focusing on the mobility of motor vehicles.

    (c) Support the development, implementation and evaluation of national guidelines for planning for health; mandate physical activity impact assessments on all planning and policy decisions.

    (d) Ensure high-quality and usable public open space that caters for different target groups (children, adolescents, adults and older adults) and is accessible to many to encourage walking, as well as active recreation and sport.

Action in primary care

9. Expand the Lifescripts (lifestyle prescription) program in primary care and implement a national referral model to support the advice given by GPs to patients, and integrate advice with national campaign messages and resources on healthy weight, healthy eating and physical activity.

10. Improve risk identification, management and outcomes for people at risk of developing CVD by implementing absolute risk assessment in general practice and supporting ongoing management for those identified to be at high risk, including those who are overweight or obese.

11. Introduce a program in general practice to improve the ongoing prevention and management of patients with established CHD, including attention to lifestyle issues such as weight, nutrition and physical activity.

Aboriginal and Torres Strait Islander Peoples

12. Resource and implement the National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (NATSINSAP) and the outcomes of the National Obesity Task Force workshop on overweight and obesity in Aboriginal and Torres Strait Islander peoples.

13. Increase the provision of programs and opportunities for Aboriginal and Torres Strait Islander peoples to become more physically active.

14. Improve preventive health assessment in Indigenous Australians by promoting wider uptake of the existing Medicare Benefits Schedule Indigenous health check items.

15. Address inadequacies in existing Indigenous health and welfare data by conducting a high level review of data, determining priority areas and by mandating common data sets to be collected by all states and territories.

Surveillance, monitoring and research

16. Establish an ongoing national biomedical risk factor surveillance system with a maximum time interval of five years, which includes collection of comprehensive data on the nutritional, physical activity and weight status and behaviours of Australians.

17. Increase funding for agencies such as the Australian Institute of Health and Welfare to improve monitoring, surveillance and reporting.

18. Boost NHMRC funding for health and medical research. Further research is critical to better understanding the obesity epidemic. The Heart Foundation supports the case for increasing funding for NHMRC health and medical research to a new base of $1.4 billion by 2014-2015.

Obesity and Cardiovascular Disease

Impact of excess weight on cardiovascular disease

The Heart Foundation commissioned the Australian Institute of Health and Welfare to undertake a review of literature on the impact of excess weight on cardiovascular disease. The review, published in 2004, covered a large body of peer-reviewed research (AIHW & NHFA 2004).

The review found that there is good evidence of an association between excess body weight and:

- atherosclerosis (the process that gradually clogs arteries with fatty and fibre like deposits);
- high blood pressure, including in children and adolescents;
- high total blood cholesterol, high LDL cholesterol (the 'bad' cholesterol that increases risk of coronary heart disease) and low HDL cholesterol (the 'good' cholesterol that helps protect against disease);
- type 2 diabetes.

It found there is moderate evidence of an association between excess body weight and:

- atherosclerosis in men compared with pre-menopausal women;
- high blood pressure in women compared with men, and younger men compared with older men;
- high total blood cholesterol (and high LDL cholesterol) in younger adults versus older adults;
- high total blood cholesterol (and high LDL cholesterol and low HDL cholesterol) in children and adolescents;
- type 2 diabetes in children and adolescents.

There is good evidence of an association between overweight and obesity and:

- CVD incidence in young to middle aged adults;
- coronary heart disease (CHD) incidence in adults.

Prevalence in Australia: *Adults*

The most recent national obesity rates based on measured height and weight for Australian adults were collected in 1999-2000 in the Australian Diabetes, Obesity and Lifestyle (AusDiab) Study. Around one-fifth of Australians aged 25 years and over (20.5%) were categorised as obese (BMI ≥ 30.0 kg/m^2): 19.1% of males and 21.8% of females (Dunstan et al. 2001). Overall, almost 60% were overweight or obese (59.6%): 67.4% of males and 52.0% of females (AIHW 2006a).

More recent Australian estimates, based on self-reported height and weight, are available from regular National Health Surveys. Results from the most recent of these, in 2004-2005, indicate that 18.0% of Australians aged 18 and over were classified as obese, 35.5% as overweight but not obese, and 53.6% as either overweight or obese (ABS 2006). There is no recent trend data available for weight classification for the Australian population based on measured data. However, rates over time have been calculated from self-reported data from the national health surveys (ABS 2008a). Comparing results over 15 years indicates that there has been a rise in the number and proportion of adults who are overweight or obese. Using age-standardised data, the proportion of overweight or obese adults increased from 38% in 1989–1990 to 44% in 1995, 50% in 2001 and 53% in 2004–2005.

The most striking increase was seen in the proportion of Australian adults classified as obese, which doubled between 1989–1990 and 2004–2005 from 9% to 18%. Over the same period, the proportion of overweight adults increased from 29% to 35% (ABS 2008a).

These trends were observed among both men and women. The average self-reported weight of Australian adults also increased steadily over the fifteen-year period (ABS 2008a). Men's weight increased overall by an average of 6.2 kg (from 77.4 kg in 1989–1990 to 83.6 kg in 2004–2005), while women's weight increased by 5.1 kg, from 62.6 kg in 1989–1990 to 67.7 kg in 2004–2005.

Prevalence in Australia: *Children*

National data on the prevalence of obesity and overweight among Australian children based on measured height and weight has not been collected for well over a decade. Updated national childhood obesity and overweight prevalence estimates based on measured data will be available from the National Children's Nutrition and Physical Activity Survey results, scheduled for release in mid 2008. The most recent national survey was the National Nutrition Survey (NNS) conducted in 1995–1996. This survey found that 19.5% of boys and 21.1% of girls aged 2–18 years were overweight or obese (Magarey et al. 2001).

Between 1985 and 1995, obesity prevalence in 7 to 15 year-olds more than tripled for all age groups and both sexes, from 1.4% of boys and 1.2% of girls to 4.7% of boys and 5.5% of girls (Magarey et al. 2001). Rates of overweight or obesity in 7 to 15 year-olds nearly doubled during this time, rising from 10.7% of boys and 11.8% of girls in 1985 to 20.0% of boys and 21.5% of girls in 1995.

The most recent measured estimates for Australian children are available from several state- and territory-level surveys. One-quarter of 5–16 year-olds in NSW in 2004 were classified as overweight or obese, an increase from 20% in 1997 (Booth et al. 2006). Overall, 7.7% of boys and 6.1% of girls were obese. Just over one-quarter of 11–12 year-old children in the ACT in 2006 were either overweight or obese (25.8%), with 6.6% of boys and 4.1% of girls classified as obese (PHRC 2007). In Queensland, just over one in five (21%) 5-17 year-olds in 2006 were overweight or obese (Abbott et al. 2007). Overall, 4.9% of children were classified as obese: 4.8% of boys and 5.1% of girls. On average, overweight and obesity prevalence had doubled for most age groups in Queensland schoolchildren compared with national data from 1985, while the rate of increase seemed to have slowed since 1995.

Predicted future prevalence of overweight and obesity in Australia

Recent analyses estimated the current and future prevalence of overweight and obesity in Australian children and adults based on measured height and weight data from national and state population surveys (DHS 2008). The results predict a continued rise in BMI for both males and females and across the age span; based on past trends and assuming no effective interventions are in place, 16.9 million Australians will be overweight or obese by 2025.

Rates of overweight and/or obesity are predicted to reach around one-third of 5–19 year olds and 83% of males and 75% of females aged 20 years and over by 2025. These increases will have a substantial effect on the burden of disease and costs of health care. For example, the increase in the prevalence and incidence of type 2 diabetes (related mainly to predicted rises in obesity as well as population growth, ageing and other issues), is expected to increase health expenditure on diabetes from 2003–2033 by around 400% to $7 billion.

Future implications of overweight and obesity in Australia

While Australia's mortality rates for coronary heart disease, stroke, lung cancer and transport accidents have improved significantly in terms of our ranking with other Organisation for Economic Co-operation and Development (OECD) member countries, this is not the case for our ranking for obesity (AIHW 2006a). Australia's adult obesity rate is the fifth highest among OECD countries, behind the United States, Mexico, the United Kingdom and Greece (OECD 2007).

Recent conservative estimates based on Australian data indicate that life expectancy at age 20 is about one year less among overweight Australian adults compared with Australians within the healthy weight range, while life expectancy is reduced by an average of around four years for obese Australian adults (Holman & Smith 2008).

For Australian children, it has been estimated that if current obesity trends continue, the life expectancy for children alive now will fall two years by the time they are 20 years old (Holman & Smith 2008). This would represent a loss of 5 to 10 years in life expectancy gains and a return to life expectancy values seen in 2001 for males and in 1997 for females. These estimates, particularly those for children's life expectancy, are likely to be conservative. The results are particularly compelling given that life expectancy is otherwise increasing for healthy Australians (Holman & Smith 2008).

The burden of overweight and obesity in Australia

The most recent estimates indicate that in 2003, high body mass accounted for 7.5% of the total burden of disease and injury and 7.2% of the total deaths in Australia, which represented up to 9,525 deaths in Australia (Vos & Begg 2007). The diseases associated with high body mass are ischaemic heart disease, type 2 diabetes, stroke, colorectal, breast and corpus uteri cancer, hypertensive heart disease, and osteoarthritis (Vos & Begg 2007). Physical inactivity was estimated to account for 10.2% of total deaths and 6.6% of the total burden of disease and injury in the Australian population in 2003, representing a significant burden of disease among Australians (Begg et al. 2007, Vos & Begg 2007). Low fruit and vegetable consumption accounted for 2.1% of the total burden of disease and 3.5% of total deaths in Australia in 2003 (Begg et al. 2007, Vos & Begg 2007).

Almost three-quarters (74%) of the total burden of disease and injury (Begg et al. 2007) and two-thirds of deaths (66%, up to 6,296 deaths) (Vos & Begg 2007) attributable to high body mass in Australia in 2003 were due to type 2 diabetes and ischaemic heart disease. The majority of deaths attributed to high body mass were due to conditions within the CVD cluster, with up to 6,905 deaths (72%) attributed to ischaemic heart disease, stroke and hypertensive heart disease (Vos & Begg 2007).

The burden of cardiovascular disease

Cardiovascular disease remains the largest single cause of mortality in Australia, accounting for 34% of all deaths in 2006 (ABS 2008b). Despite successes in the past 10 years in reducing CVD burden rates by more than one third, it is still responsible for 18% of the total burden of disease and injury in Australia in disability-adjusted life years (DALYs), including non-fatal as well as fatal events. CVD (18%) sits alongside cancer (19%) as the largest contributor to total burden (NHFA 2007a).

Much of the burden of disease of CVD is avoidable, with the World Health Organization stating that "modest reductions in blood pressure, obesity, cholesterol and tobacco use would more than halve cardiovascular disease incidence, if these reductions were population-wide and simultaneous" (WHO 2002).

For the risk factors that affect cardiovascular disease, WHO estimated that over a 10 year period to 2010 about one-third of the attributable disease burden would be avoided by a 25% reduction in risk factors.[b] (WHO 2002).

Latest data on the health of younger Australians (aged 12–24 years) show that while some health gains have been made in recent years, key areas where health improvements need to be made include reducing obesity, increasing daily fruit and vegetable consumption and improving levels of physical activity (AIHW 2007b).

American research indicates that adolescent overweight is projected to track to increased obesity, an increase in the incidence of CHD and an increase in the total number of CHD events and deaths in young and middle aged adults (Bibbins-Domingo et al. 2007). Perhaps more than any other area, the challenge of obesity illustrates the need for comprehensive strategic approaches to tackle CVD risk factors.

Increased body mass, low physical activity, and low fruit and vegetable intake (nutrition) are among the seven modifiable risk factors that explain 81.5% of ischaemic heart disease deaths as well as 67.3% of stroke deaths in Australia. (The others are high blood pressure, high cholesterol, smoking and alcohol consumption). This shows that there remains great potential for further reductions in disease burden. This potential could be realised by reducing the prevalence of these risk factors,

Economic costs of obesity

Prevention and management of overweight and obesity will make extensive demands on health care resources (WHO 2000). However, additional investment in prevention and management will also help address the co-morbidities associated with excess weight.

Evidence suggests that as BMI increases, so do length of hospital stay, medical consultations and use of medication (WHO 2000). In 2005, the total financial cost in Australia of obesity alone, not including overweight, was estimated at $3.767 billion (Access Economics 2006). Of these costs, the Federal Government bears well over one-third (37% or $1.4 billion per annum), and state governments 5% (Access Economics 2006). This estimate includes productivity costs of $1.7 billion (45%), including short- and long-term employment impacts, as well as direct financial costs to the Australian health system of $873 million (23%). Obesity was associated with over 4 million days lost from Australian workplaces in 2001 (based on AIHW analysis of data from the 2001 National Health Survey). Obese employees tended to be absent from work due to illness significantly more than non-obese workers and for a longer time when they were absent, and were more likely than non-obese people to be 'not in the labour force' (AIHW 2005).

[b] 25% reduction in risk factors commencing 2000

Comprehensive Response Required

The UK's Healthy Weight, Healthy Lives Strategy

In January 2008, the British Prime Minister announced a major cross-government strategy to turn the tide on obesity in the UK so that by 2020, the prevalence of overweight and obesity in children will be returned to Year 2000 levels.

Announcing the initiative, the Prime Minister, Gordon Brown said: "Our response to this challenge will be one of the defining elements in our lives over the next 20 years – one of the most powerful influences on the kind of society in which we live and which we pass on to our children. It is why we need a reformed National Health Service, better able to put information and control in the hands of patients, and better able to prevent illness before it develops."

The £372 million UK strategy supports the creation of a healthy society – from early years to schools and food, from sport and physical activity to planning, transport and the health service. It will bring together employers, individuals and communities to promote children's health and healthy food; build physical activity into people's lives; support health at work; and provide incentives to promote health. It will also provide effective treatment and support when people become overweight or obese.

The strategy is regarded as "a first step" and will be supported by an annual report that assesses progress, looks at the latest evidence and trends and makes recommendations for further action. Importantly, a panel of experts will assist the UK Government, with input from a new public health obesity 'observatory' that will develop understanding of what changes behaviour.

The five key elements of the strategy are:

1. Healthy growth and development of children
    - Early identification of at-risk families.
    - Investment in healthy schools, increasing participation in physical activity, and making cooking a compulsory part of the national curriculum.
    - A £75 million marketing campaign to support and empower parents to make changes to their children's diet and increase levels of physical activity.
2. Promoting healthier food choices
    - Setting out a Healthy Food Code of Good Practice including proposals to develop a single, simple and effective approach to food labelling, and to challenge the industry (including restaurants and food outlets) to support individuals and families reduce their consumption of saturated fat, salt and sugar.
    - Bringing forward a review of restrictions already introduced on the advertising of unhealthy foods to children.
    - Promote Local Authority planning powers to limit the spread of fast food outlets in particular areas, such as close to schools or parks.
3. Building physical activity into our lives
    - Investment of £30 million in "Healthy Towns" - working with selected towns and cities to bring together the successful EPODE (Ensemble Prevenons Lobesite Des Enfants) model used in Europe, using infrastructure and whole-town approaches to promoting physical activity.

- Set up a working group with the entertainment technology industry to ensure that they continue to develop tools to allow parents to manage the time that their children spend watching TV or playing sedentary games, online and much more widely.
- Review the overall approach to physical activity, including the role of Sport England, with the aim of producing a fresh set of programs to ensure that there is a clear legacy of increased physical activity.

4. Creating incentives for better health
    - Stronger incentives for individuals, employers and the National Health Service to prioritise the long-term work of improving health.
    - Working with employers and employer organisations to explore how companies can best promote good health among their staff and make healthy workplaces part of their core business model.
    - Piloting and evaluating a range of different approaches to using personal financial incentives to encourage healthy living.

5. Personalised advice and support
    - Developing the National Health Service 'Choices' website so that it provides advice for diet and activity levels, with clear and consistent information on how to maintain a healthy weight.
    - Increased funding to support the commissioning of more weight management services, where people can access personalised services to support them in achieving real and sustained weight loss.

In England alone, nearly a quarter of men and women are now obese. The trends for children are even more cause for concern, with 18% of 2 to 15 year olds currently obese and a further 14% overweight.

The Foresight report on obesity (Foresight 2007) indicated that on current trends nearly 60% of the UK population will be obese by 2050 – that is almost two out of three in the population defined as severely overweight. If this trend continues, the UK Government says millions of adults and children "will inevitably face deteriorating health and a lower quality of life and we face spiralling health and social care costs".

Australia would do well to consider a comprehensive response to the problem of rising prevalence of obesity similar in scale and dimension to that adopted by the UK Government.

Building on existing initiatives

It is important that comprehensive action be taken to counter the increase in overweight and obesity in the Australian population. These measures should build on existing strategies.

National Health Priority Areas (NHPAs) have already been established; initiatives focus on chronic diseases that have a significant health burden. They are asthma, cancer control, cardiovascular health, diabetes, injury prevention and control, mental health, and arthritis and musculoskeletal conditions. The Rudd Government has promised to add obesity to the NHPAs.

The National Chronic Disease Strategy was endorsed by the Australian Health Ministers' Conference (AHMC) in November 2005. It provides an overarching framework of national direction for improving chronic disease prevention and care across Australia. It represents a nationally agreed agenda to encourage coordinated action in response to the growing impact of chronic disease on the health of Australians and the health care system (NHPAC 2006b).

National Service Improvement Frameworks (NSIF) have been developed to cover these priority areas. The Frameworks outline opportunities for improving prevention and care in relation to these diseases, while not prescribing the detail of individual services in the Australian health system. The recommended actions in this submission align with key 'Priority Actions' set out in the NSIF on Heart, Stroke and Vascular Disease (NHPAC 2006a).

The National Obesity Taskforce developed a national action agenda for healthy weight for children, young people and their families (Commonwealth of Australia 2003) and for adults and older Australians (Commonwealth of Australia 2006) and has also identified a number of priority actions to address overweight and obesity in the Aboriginal and Torres Strait Islander population (National Obesity Taskforce 2003).

The Australian Better Health Initiative (ABHI) commenced in July 2006 to begin refocussing the health system to promote good health and reduce the burden of chronic disease with investment of $500 million over four years. It was agreed that type 2 diabetes would be the first priority to be addressed and the Commonwealth agreed to a fair sharing of costs and benefits of reform. The model is being implemented through the leadership of a Victorian ten-year plan, with that state committing $137 million in new funds and the Commonwealth needing to contribute $448 million over the first four years (Victorian Government 2007).

While Australia has a number of national strategies and frameworks in place that relate to chronic disease and obesity, the funded programs and cohesive national action necessary to drive these strategies forward are conspicuously absent.

Recommendations

1. The Australian Government's response to the increasing prevalence of overweight and obesity must be comprehensive, engaging all spheres of government, the community, non-government and private sectors and the workplace. It should be guided by the recommendations of the newly formed National Preventative Health Task Force.

The Importance of Prevention

In general terms there is now very good evidence for prevention of CVD risk factors such as physical inactivity and poor nutrition. The US Task Force on Community Preventive Services (USTFCPS 2008) has issued substantive recommendations on effective interventions for prevention or reduction of these risk factors, among others. There are, in addition, a large number of systematic reviews in the Cochrane Database supporting interventions addressing such risk factors.

Evidence over the past two decades has taught us that comprehensive approaches are required to deliver and sustain population health behaviour change. Critically, desired health behaviour changes need to be made achievable for the target population. Once achievable behavioural changes are in place, they need to be supported to ensure they can be easily accessed (Perdue 2005). This has become enshrined in the health promotion principle of "making healthy choices easier choices". A comprehensive strategic approach to population health comprises multiple interventions targeted at the achievement of different health promotion outcomes. Another important idea in comprehensive approaches is that many opportunities to improve or maintain health are outside of the health sector and its services; for example, local councils have an important role with regard to local environments which can be supportive and enabling of healthy lifestyle decisions.

Evidence indicates that campaigns that are carefully developed using formative research (both qualitative and quantitative), pay attention to the specific behavioural goals of the intervention, target populations, communication activities and channels, message content and presentation, and techniques for feedback and evaluation, will change health behaviours if they are properly funded and implemented (Snyder et al. 2004; Snyder 2007).

Poor nutrition, physical inactivity and excess weight all contribute significantly to the growing incidence of chronic diseases in Australia. A comprehensive social marketing campaign is an essential component of a broader, multi-strategy plan to effectively prevent and treat these diseases. With the increasing prevalence of overweight and obesity, it seems that Australians may perceive being overweight as 'normal' and hence many overweight people may not consider they have a problem. For example, only around one-third of Australian adults in the 2004-05 National Health Survey considered themselves to be overweight (32% of males and 37% of females) (ABS 2006). This was substantially lower than the 62% of males and 45% of females in the survey classified as overweight or obese based on BMI calculated from self-reported height and weight.

Similarly, research commissioned in 2007 by the Heart Foundation found that only 37% of Australian adults identified themselves as overweight or obese (NHFA 2008). In addition, examining national trends over time suggests that overweight or obese adults are increasingly likely to see themselves as having an acceptable weight. The proportion of overweight or obese Australians who perceived themselves as having an acceptable weight increased from 37% in 1995 to 41% in 2001 and 44% in 2004–2005 (ABS 2008a).

Many Australians are confused about what constitutes healthy eating and may not be aware of the benefits of physical activity. A social marketing campaign using consistent messages to raise awareness of these issues is essential in addressing Australia's obesity problem. Health industry campaigns show that awareness and beliefs about appropriate levels of vegetable and fruit consumption can be increased significantly (15%) and consumption increased modestly (0.5 serves) within three years with relatively low mass media investment (mainly television at 200 to 300 TARPs for four to eight weeks per year) as part of a comprehensive campaign. With larger budgets, industry campaigns have achieved larger changes in consumption of various types of foods and vegetables and fruit within two years. However, campaigns need to be maintained to achieve sustained change and may need to be renewed to address changes in competitor and policy environments.

Evaluation results of the WA 2 Fruit and 5 Veg campaign showed:

- Increases in the proportion of the target group aware of recommended intakes of fruit (from 39% to 53%) and vegetables (from 65% to 93%);
- Increases in the proportion of low consumers of vegetables that believed that they should eat more vegetables from 50% to 63%.

Over the period of the campaign 1990–1995:

- The proportion of Perth women (25 to 65 years) eating at least 300g of fruit per day increased significantly from15% to 22%;
- The proportion of Perth women (25 to 65 years) eating at least 300g vegetables per day increased from 32% to 34%;
- The proportion of Perth men (25 to 65 years) eating at least 300g of fruit per day increased from 17% to 19%;
- The proportion of Perth men (25 to 65 years) eating at least 300g vegetables per day increased from 44% to 46%.

Media is pervasive in the lives of young people and presents an opportunity to advertise the benefits of a healthy, physically active lifestyle. After one year, an evaluation of the VERB campaign found higher levels of physical activity in subgroups of US children (Huhman et al. 2007).

A review of community-wide campaigns identified ten studies that utilised diverse media in addition to social support, risk factor screening, community events, and policy changes. There was a median increase of 4% in physical activity participation, and a median increase of 16% in energy expenditure. Of the ten studies reviewed, only one failed to report an increase in physical activity (Kahn et al. 2002).

There is powerful new evidence that sedentary (sitting) behaviour is a serious risk to health regardless of the time a person may spend in moderate-to-vigorous intensity activity (Healy et al. 2007). This provides a compelling rationale for a separate and dedicated physical activity campaign specifically targeting the sedentary population. Such a campaign would have important additional benefits through reduced absenteeism and increased productivity because there is good evidence that the greatest productivity gains through increasing physical activity are for people in sedentary employment (Bernaards et al. 2007; Jans et al. 2007).

Well-executed mass media campaigns can have an impact on health knowledge, beliefs, attitudes, and behaviours. These campaign effects can translate into major public health impact given the wide reach of mass media. This is achieved only if principles of good practice are followed (Snyder et al. 2004). Australia has achieved remarkable progress in reducing tobacco consumption, dramatically cutting the percentage of adults who smoke daily (from 35.4% in 1983 to 17.7% in 2004). Much of this decline can be attributed to policies aimed at reducing tobacco consumption through comprehensive approaches including hard-hitting public education and awareness campaigns, advertising bans, graphic health warnings, smokefree environment policy and increased taxation (OECD 2007).

Tobacco mass media campaigns have a very well-established pedigree (Donovan & Henly 2003a; Siahpush et al. 2007). The Australian National Tobacco Campaign data suggest that around 200–250 TARPs per week alternating over an eight-week period are necessary for an effective impact (Donovan et al. 2003b). The evidence is that we "get what we pay for". NSW tobacco campaigns show that higher TARPs (400–450) give very good returns (NSW reducing smoking by an estimated 2.4%).[c] There is evidence of a dose-response relationship between campaign weight (dose) and impact (behaviour change) (Craig et al. 2007; Hyland et al. 2006).

[c] "NSW smoking rates plummet to record low" Press Release 08 April 2007 NSW Health http://www.health.nsw.gov.au/news/2007/20070408_00.html

Public health campaigns are cost-effective

Public health campaigns aiming to reduce coronary heart disease in Australia have been evaluated by Applied Economics on behalf of the Federal Department of Health and Ageing, analysis covering the period 1971 to 2010 (Department of Health and Ageing 2003). The estimated benefit-cost ratio is more than 11:1. For tobacco control programs in Australia, the report concluded that even the most conservative estimates indicated savings of about $2 for every $1 of expenditure on public health programs.

Healthier eating and better access to healthier foods

Food promotion to children to normalise and reinforce healthy eating

The myriad of ways in which food is marketed requires review. Food is marketed through a wide range of methods and media, including television, billboards, radio, the internet, mobile telephones, product placement, sponsorship (including educational materials), point of sale, movie toys, competitions, and school and sporting club promotions. There is a need to modify or to adopt regulations governing the marketing of specific food and beverage products so that such marketing is not directed at children younger than 16 years of age.

Children's food preferences are influenced by food and beverage advertising, and research indicates that children are vulnerable to these messages. A Joint World Health Organization/Food and Agriculture Organisation of the United Nations (WHO/FAO) Expert Consultation concluded that the heavy marketing of fast food and energy-dense, micronutrient-poor foods and beverages is a "probable" causal factor in weight gain and obesity (World Health Organization 2003). A systematic review commissioned by the United Kingdom's Food Standards Agency (FSA), probably the most comprehensive study of its type conducted to date, found that advertising does affect food choices and does influence dietary habits (Hastings et al. 2003).

According to the International Obesity Taskforce, several evidence reviews have concluded that marketing to children is dominated by energy-dense, nutrient-poor foods and that it clearly influences children's food preferences, beliefs, and food consumption (International Obesity Taskforce 2007).

The US Institute of Medicine (IOM) suggests television advertising influences the food preferences, purchase requests, and diets, at least of children under age 12 years, and is associated with the increased rates of obesity among children and youth (McGinnis et al. 2006).

We know that children under the age of eight years accept advertising claims to be true and they cannot distinguish advertising from regular television programming (Public Health Association of Australia 2004). Marketing to children is hardly new, but recent methods are far more intense and pervasive.

Television still predominates, but the balance is shifting to product placements in toys, games, educational materials, songs, and movies; character licensing and celebrity endorsements; and less visible "stealth" campaigns involving word of mouth, mobile-telephone text messages, and the internet. All aim to teach children to recognise brands and pester their parents to buy them. The IOM has reported that by two years of age, most children can recognise products in supermarkets and ask for them by name (Nestle 2006).

Food marketing does influence children's food choices and their preferences for particular food brands. Creating a regulatory environment that makes healthier food choices easier will help individuals and parents have greater control over the purchase of foods that are consumed in their homes. Changes should be made to the marketing environment that allow parents/guardians to take greater control of what they and their children eat. For example, recent market research by the Heart Foundation on eating out from home revealed that four out of five people wanted an independent guide to healthier choices (Instinct and Reason 2006). Therefore regulatory changes to food marketing should encourage food companies to focus on issues important to the product purchaser, particularly health issues, by providing clear and accurate information regarding product nutrition and health data.

Encouraging inappropriate eating habits affects children's health and wellbeing and their risk of obesity and chronic disease. Australian children's exposure to television food advertising is among the highest in the world and a high proportion of these advertisements are for non-

core or extra foods (energy-dense, nutrient-poor) (Neville et al. 2005; Wake et al. 2003). Australian children watching 20 hours of television or more per week (two hours and 51 minutes per day) are twice as likely to be overweight or obese as children who watch less television (Wake et al. 2003). Television advertising has significant reach, and has been shown to independently influence children's food preferences and purchasing requests.

Recent Australian research suggests that heavier TV use and more frequent commercial TV viewing were independently associated with more positive attitudes toward junk food; heavier TV use was also independently associated with higher reported junk food consumption. The researchers found that advertising for nutritious foods promoted positive attitudes and beliefs concerning these foods. The study concluded that changing the food advertising environment of children's TV to one where nutritious foods are promoted and junk foods are relatively unrepresented would help to normalise and reinforce healthy eating (Dixon et al. 2007).

There is a clear rationale to justify government intervention including a review of all forms of food advertising and promotion to tighten current regulations and develop new regulations that encourage the promotion of nutritious foods to children in order to normalise and reinforce healthy eating.

Food labelling: Saturated fat and trans fat

There is good evidence for an association between a high consumption of saturated fatty acids and trans fatty acids and an increased risk of coronary heart disease. Saturated and trans fatty acids increase the risk of coronary heart disease by increasing total and low-density lipoprotein (LDL) cholesterol (the 'bad' cholesterol) (NHFA 1999).

Adults' intake of saturated fats is mainly associated with the consumption of milk, cream, cheese, butter, pastries and fatty meat. Among Australian adults, while the contribution of saturated fat as a proportion of total energy intake has declined over the past decade, saturated fat still accounts for around 13% of total energy intake. This is higher than the maximum level of 10% recommended by the NHMRC (AIHW 2004).

Trans fatty acids occur naturally in trace amounts in the fat of dairy products and meat. They are also found in foods that use hydrogenated or partially hydrogenated vegetable fats (for example, 'hardened margarines') (NHFA 2007b). There has been some good progress in recent years in the reduction of trans fats in the Australian diet: for example, in the past, most margarines had high levels of trans fats. This is no longer the case in Australia, where table (or 'soft') margarines and spreads are virtually free of trans fatty acids (AIHW 2004). However, it is manufactured trans fats found in foods such as baked products like pies, pastries, cakes, biscuits and buns which remain of most concern in the consumption of trans fats by Australians. A high intake of trans fatty acids increases the risk of coronary heart disease by increasing total blood cholesterol and LDL-cholesterol, and decreasing HDL-cholesterol (the 'good' cholesterol) (AIHW 2004).

Currently there are no national data to assess trans fatty acid intake among Australians, although it is believed to be 1–2% of total fat (FSANZ 2006; Government of South Australia 2006). To minimise the risk of coronary heart disease, the Heart Foundation recommends that saturated fatty acids and trans fatty acids together contribute no more than 8% of total energy intake. It is important that all Australians have the facts on trans fat in Australia. The Heart Foundation strongly supports mandatory labelling of trans fat to empower Australians to make healthier food choices.

Development, promotion and distribution of initiatives and tools are further required to assist the food service industry to reduce trans and saturated fat levels in the food supply. An example of this is the Heart Foundation development of a resource for the Australian food service industry, 'The 3-Step Guide' (NHFA 2007c). Mandating trans fat labelling, as has been done for saturated fat, is a strategy that the Australian Government should also adopt.

Nutrition information on foods purchased when eating out

With alarming statistics of the increasing number of meals Australians eat out (around 3.8 billion a year, with nearly one in three Australians eating out every day), the need for mandatory labelling of foods eaten out of home is clear. The Heart Foundation stands firm on this position and encourages the food industry to inform consumers of the nutritional content of foods, for example through the Heart Foundation's Tick program in the food service sector. For Australians to make informed food choices when eating away from home, mandatory nutrition labelling is required across all food outlets, large and small.

Standardised serve sizes

An important aspect to consider in addressing overweight and obesity is the education of consumers regarding what constitutes an appropriate serve size of food.

Even for health professionals, ambiguity still exists around serve sizes. There is a great divide between recommendations from respected guides such as the Core Food Groups, CSIRO 12345+ food selection guide, Australian Guide to Healthy Eating, and the serve sizes determined by food manufacturers and food service outlets. Some food categories follow industry-agreed standards, such as white milk where the agreed standard serve is 250ml; for flavoured milks, however, the serve size ranges from 100ml to 600ml per serve.

The establishment of industry-agreed standardised serves across all food categories is necessary to address the 'sizing up' of food portions in retail and foodservice sectors. Canada's Food Inspection Agency has recommended serve sizes set out in its foods code (Canadian Food Inspection Agency 2003). This is a helpful guide to manufacturers when determining an appropriate serve size to include on food packaging nutrition information panels.

The importance of fruit and vegetable consumption

The consumption of fruits and vegetables is associated with numerous health benefits and has been found to be protective against a range of conditions including ischaemic stroke, hypertension, type 2 diabetes, coronary heart disease and cancer (Strategic Inter-Governmental Nutrition Alliance (SIGNAL) 2001). Lower obesity prevalence or reduced weight gain are associated with a high level of fruit and vegetable consumption or eating a wide variety of vegetables (Cash et al. 2005). In addition, an increased intake of healthy foods such as fruits and vegetables could be more effective in weight reduction than decreasing consumption of unhealthy food items.

Low fruit and vegetable intake accounted for 2.1% of the total burden of disease and 3.5% of total deaths in Australia in 2003 (Begg et al. 2007; NHFA 2007a). In 2004-05, 85.7% of Australians aged 18 years and over reported that they did not usually consume five serves of vegetables daily, while 46.0% reported inadequate fruit consumption (fewer than two serves of fruit daily) (AIHW 2006a).

Front of pack labelling

An improved food labelling scheme can contribute to tackling Australia's weight problem by helping consumers make informed choices and by influencing consumer behaviour. A national nutrition policy is needed that includes an articulated position on a front of pack labelling scheme. An effective food labelling system needs to guide people to healthier food and drink choices rather than further confuse them or provide insufficient information on important nutritional messages. The Heart Foundation questions whether the labelling schemes currently under consideration – 'percent of daily intake' and 'traffic light' - will guide people to healthier choices. An Australian labelling system must be clear and comprehensible to shoppers in order to influence consumer behaviour.

In Australia there is some support to introduce traffic light labels which use colours to outline whether the product contains high (red), medium (orange) or low (green) levels of key nutrients in products, including sugar, salt, saturated fat and total fat. In the UK, the Food Standards Agency has developed a voluntary multiple traffic light scheme which it advocates for retailers and manufacturers to use, and now traffic light labels are used by the majority of major retailers and several food manufacturers on their products.

The New Zealand Parliament's Health Select Committee recently recommended the use of a clear and effective labelling system such as 'traffic lights' on packaging (August 2007). The International Obesity Taskforce in an October 2006 discussion paper called for a universal traffic light nutritional signposting standard to be introduced, based on WHO goals for fats, sugars and salts, to apply to all food packaging, supermarket shelves, canteens and restaurant menus. Reasons given were that this system has been shown to be preferred by most consumers and can be more easily understood by those with lower education levels.

The Heart Foundation is cautious of initiatives which oversimplify nutrient profiling by focusing solely on 'negative' nutrients and which compare all foods against a single nutrient profiling criterion. The UK traffic light system does not take positive nutrients (such as calcium, iron, unsaturated fat or fibre) into consideration, risking a nutritionally unbalanced diet and contradicting healthy eating messages. For example, meats are comparatively higher in fat content (even when lean and trimmed) than breakfast cereal. However, meat is an important part of a balanced diet, providing a good source of iron and protein, while cereals should provide fibre. In addition, the UK traffic light scheme has been associated with 'amber confusion', such as how a label with two amber lights, one red and one green light would be interpreted by a shopper.

'Per cent of daily intake' (%DI) labelling provides information on the energy contribution a serve of food will make to an Australian adult's daily intake. However, energy content alone is not the basis for a healthier food choice: a can of cola, for example, would display a lower energy value than a carton of reduced-fat chocolate milk, without taking into account the very different nutritional contents of the products.

Food labelling has an important role to play, but in isolation it will achieve very little. To have maximum effect, any labelling scheme must result in real changes to the foods we eat. The Heart Foundation believes food labelling, nutrition education strategies and food changes must be complementary for the greatest impact. Improving the foods themselves is the best way to improve the health of Australians. Food labelling schemes should not take the pressure off food companies to improve our food supply. The food industry must have an incentive to make healthier foods available for Australians.

Setting targets for food supply change

Food supply targets should be established and enforced that eliminate the use of industrially produced trans fat, dramatically cut the use of saturated fat and salt, increase the amount of fibre, fruit and vegetables, and control portion sizes.

In the UK, the Food Standards Agency published voluntary salt reduction targets in March 2006. The targets identify the type of foods in which salt reductions are required and the level of reduction needed to achieve the FSA's goal of reducing salt intakes to 6g per day. The targets cover 85 categories of processed foods, including everyday foods such as bread, bacon, ham, breakfast cereals and cheese, and convenience foods such as pizza, ready meals, savoury snacks, cakes and pastries.

The salt targets have been set at challenging levels that will have a real impact on consumer intake, while also taking into account food safety and technical issues. The majority of organisations that have made commitments to the Agency on salt reduction are now working towards the salt targets.

Major UK retailers are working towards the FSA's voluntary salt reduction targets. For example, half of Tesco own-brand products now meet the salt targets. Major manufacturers such as McCain, Heinz, Bernard Matthews, Premier Foods, Northern Foods, Nestlé and Unilever are all working towards achieving the salt reduction targets. A number of caterers are also working towards the salt targets including 3663, Brakes, and Scolarest. Compass Group, a large contract caterer that provides meals to schools and hospitals, has a program to review levels of salt in products and requires suppliers to meet, or to be working towards, the FSA salt targets. The Association of Cereal Food Manufacturers (ACFM) and the Snacks, Nuts and Crisps Manufacturers Association are working towards the FSA salt targets. Between 1998 and 2006, the ACFM has reduced the amount of salt in breakfast cereals by 38%.

Recommendations

Action must be taken to:

2. Tighten food and beverage advertising and promotion regulations to prevent marketing of food and beverage products to children under 16, with the exception of healthy eating messages promoted through non-commercial social marketing campaigns.
3. Introduce mandatory nutrition information labelling on foods purchased when eating out.
4. Amend current mandatory nutrition information labelling on food for retail sale to include trans fats, salt and standardised serve size information.
5. Intensify coordination of, and boost funding for, national multimedia social marketing campaigns addressing overweight and obesity, physical inactivity and poor nutrition.
6. The Australian Government must review the current *Dietary Guidelines for Australians* and develop a comprehensive nutrition policy framework. The framework should cover standards for food quality, quantity and frequency of consumption of different food types for different population groups, and support a consistent front of pack labelling scheme.
7. Food supply targets should be established and enforced that eliminate the use of industrially produced trans fat, dramatically cut the use of saturated fat and salt, increase the amount of fibre, fruit and vegetables, and control portion sizes.

More Australians More Active More Often

Physical inactivity is a major burden of cardiovascular disease and disease more generally (NHFA 2007a). There is good evidence to show that 30 minutes of moderate intensity physical activity on most, if not all, days of the week reduces the risk of cardiovascular disease (NHFA 2001). Physical activity has an important role in blood pressure, blood cholesterol and weight management, as well as promoting mental health. Increases in weight are associated with increased risk of cardiovascular and many other chronic diseases. There is growing evidence to show that long periods of sedentary behaviour (> 4.5 hours per day), even when undertaking 30 minutes of physical activity on most days, can be associated with weight gain in the absence of dietary restriction (NHFA 2007a). For those adults endeavouring to lose weight it is recommended that they do at least 60 minutes physical activity a day (NHFA 2001).

People with highly sedentary lifestyles may require similar levels of physical activity to maintain weight loss. However, it should be emphasised that 30 minutes of moderate-intensity physical activity (eg brisk walking) on most (preferably all) days of the week confers important health benefits for all individuals, regardless of body weight and shape. Children need at least 60 minutes of physical activity every day and should restrict their use of electronic recreational media to less then two hours a day (Saris et al. 2003).

It is essential that more Australians become more physically active through multiple strategies including the provision of physical environments that make activity an easier choice – 'healthy by design'. Research published in 2007 by Medibank Private estimated that if more Australians were physically active for just 30 minutes a day the Australian health care system could save $1.5 billion annually (Medibank Private 2007). There is compelling evidence that prevention of weight re-gain in formerly obese individuals requires 60–90 minutes daily of moderate intensity activity or lesser amounts of vigorous intensity activity. It is also likely that moderate intensity activity of approximately 45 to 60 minutes per day is required to prevent the transition to overweight or obesity. For children, even more activity time is recommended (Saris et al. 2003).

As discussed above, there is powerful new evidence that sedentary (sitting) behaviour is a serious risk to health regardless of the time a person may spend in moderate-to-vigorous intensity activity (Healy et al. 2007). In other words, too much sitting is bad for our health even if individuals are already meeting the general recommendations for physical activity.

These new scientific findings represent very challenging changes in lifestyle behaviours for the vast majority of Australians and they simply will not happen without some external help for families and individuals. Behavioural change towards a more active lifestyle needs to happen in part without people being aware of any deliberate effort. In other words, we need a supportive environmental strategy which puts activity back into the Australian lifestyle 'by design'.

There are some good policy precedents and encouraging research findings on the links between environment and physical activity (Costanza et al. 2007; Frank et al. 2007). Policy implications are clear. People who have access to safe places to be active and neighbourhoods that are walkable are likely to be more active (Sallis & Glanz 2006).

Healthy environments that support active living take a broad view of health and seek ways to develop or harness community resources to improve health status and quality of life. Community and neighbourhood environments impact on local walking, cycling and public transport use as well as recreational physical activity. Creating more 'liveable' neighbourhoods has the potential to produce significant sustainability benefits by reducing car use, by improving access to local services and through more efficient land use (Gebel et al. 2005).

A number of reviews have shown that access to neighbourhoods characterised by higher density, mixed-use zoning, interconnected streets and access to public transport, increases walking (McCormack et al. 2004; Owen et al. 2004). There is also reasonably strong evidence of an association between parks and open spaces and walking. Having access to public open spaces is associated with walking as a form of transportation and achieving recommended levels of walking; it also appears necessary to have good communication and promotion of available facilities – access alone does not guarantee improved outcomes (Giles-Corti & Donovan 2002; Giles-Corti & Donovan 2003). Young people who live in more walkable, pedestrian friendly neighbourhoods with reduced exposure to traffic are also more likely to walk (Carver et al. 2005).

Behavioural changes towards a more active lifestyle need to occur with a minimum of effort. People who have access to safe places for recreational physical activity and live in neighbourhoods that encourage walking and cycling are more likely to be active. Walking, cycling and recreational physical activity depend on neighbourhoods that are characterised by:

- **Higher density, mixed-use zoning**
- **Interconnected (walkable) streets**
- **Access to public transport**
- **Reduced traffic**
- **Parks and open spaces**

Active modes of transport have a role to play. Active transportation is an easy form of physical activity that can be incorporated into daily activities.

In the past decade, there has been a rapid decline in children walking or cycling to school and few adults participate in walking or cycling as a mode of transport. Walking has stopped being a necessity and has become a luxury. Walking seems too easy, too commonplace, too obvious and indeed too inexpensive an activity to pursue as a way of getting to places and staying healthy.

Increasing walking, cycling and public transport use is consistent with government sustainability objectives to reduce automobile dependence and its associated environmental problems (including air and noise pollution, greenhouse gas emissions, energy and sprawl); economic impacts (such as the high costs of passenger transport and infrastructure and congestion); and social problems (including road rage, loss of public safety and community and poor transport choice for disadvantaged or vulnerable groups).

All governments should encourage public transport use by providing financial subsidy, especially in outer metropolitan suburbs, considering a standard charge for bus and train journeys and regulating public transport to make it more affordable and efficient than using a car.

In some countries, some revenue from fuel taxes is spent on specific purposes such as road construction. In the United States, revenue from federal fuel excise currently is spent on highway construction. However, the ISTEA (Intermodal Surface Transportation Efficiency Act of 1991) represented an important environmental policy to promote physical activity. In essence, the Act encouraged more efficient, greener modes of transportation (including cycling and walking) and made federal funding available for environmental modifications to support this.[d] Australia could follow this example to make infrastructure funding available to local communities.

[d] http://ntl.bts.gov/DOCS/ste.html

The Heart Foundation is developing a *Blueprint for an Active Australia* that will outline a comprehensive set of actions to address population inactivity. To address the major issues of population inactivity and obesity will require a combination of educational, media, environmental and program approaches, sustained over time — such as that outlined in the Blueprint. The Blueprint will be a useful guide for policymakers.

Recommendations

Action must be taken to:

8. Increase community levels of physical activity and reduce the amount of sedentary time by implementing a comprehensive range of strategies across sectors, including working with local, state and territory, and federal governments to achieve a regulatory and funding framework that provides a built environment and workplaces that support active living. Action should also be taken to:

    (a) Reorientate transport policy to prioritise planning for walking, cycling and public transport.

    (b) Build and retrofit neighbourhoods to provide infrastructure and services for recreational physical activity as well as accessibility for pedestrians and cyclists to shops, workplaces, public transport and services, rather than focusing on the mobility of motor vehicles.

    (c) Support the development, implementation and evaluation of national guidelines for planning for health; mandate physical activity impact assessments on all planning and policy decisions.

    (d) Ensure high-quality and usable public open space that caters for different target groups (children, adolescents, adults and older adults) and is accessible to many to encourage walking, as well as active recreation and sport.

Action in Primary Care

Primary health care plays a critical role in identification and treatment of CVD risk factors, including overweight and obesity, lack of physical activity and poor nutrition. Risk assessment is usually undertaken by general practitioners to help identify and manage risk, including that associated with overweight and obesity, before a cardiovascular event occurs. Once a person has been identified as at increased risk of CVD, doctors are in a position to provide lifestyle advice and often will prescribe medicines.

There is very good evidence for the effectiveness of lifestyle counselling across the CVD risk factors of smoking (Lancaster & Stead 2004; Stead et al. 2006), nutrition (Brunner et al. 2007), alcohol (Kaner et al. 2007) and physical activity (Elley et al. 2004; Kolt et al. 2007). The interventions for smoking and alcohol can be brief and may be supported by drug therapies. Interventions for nutrition and physical activity are vitally important in reducing CVD risk but may need more intensive and sustained services to deliver the required results and to focus on patients at higher risk (Saaristo et al. 2007; Whitlock & Williams 2003).

In Australia this type of approach is demonstrated by the *Lifescripts* program[e]. This national evidence-based initiative is being implemented through local divisions of general practice, promoting risk factor management in general practice and primary health care services. The Lifescripts Resources aim to make it easier for GPs and their practices to manage lifestyle-related risk factors by providing a framework for:

- raising and discussing lifestyle risk factors with patients;
- advice in the form of a written script and associated patient education;
- referral to other providers to support healthy lifestyle.

The primary health care sector offers important opportunities to promote positive lifestyles for those at increased risk, including for people who are overweight or obese. However, only a small percentage of these opportunities are utilised due to identified systems and capacity 'barriers'. There is evidence suggesting that the potential for GP efforts in prevention and early detection of risk factors are not being fully realised (Degenhardt et al. 2005; Phillips et al. 1998; Zwar et al. 2006).

Interventions for the prevention of CVD in primary care often focus on individual risk factors such as physical inactivity, overweight and obesity, high cholesterol or blood pressure, in isolation from each other. An 'absolute risk' approach to CVD risk assessment and management, which helps to strengthen CVD prevention, is not yet systematically supported for use in Australian general practice.

Moreover, accurate estimation of risk for disease is critical to the determination of the benefit–risk ratio and the most cost-effective use of preventive therapies. This is particularly relevant for cardiovascular disease (CVD), which is the leading cause of death in Australia. Expenditure on cardiovascular drugs under the Pharmaceutical Benefits Scheme exceeds $1.2 billion annually, $940 million of this on lipid-lowering drugs, especially statins.[f] Accurate assessment of the likelihood of future events by using an absolute risk approach would help to ensure patients at higher risk of CVD are appropriately targeted for use with such medications and for lifestyle intervention.

Also, for people who already have CHD, there is the potential for substantial gains to be made by addressing lifestyle issues in combination with the better utilisation of medications which significantly reduce the risk of a repeat heart attack or other CVD event, and improve survival.

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[e] http://www.health.gov.au/Lifescripts

[f] Pharmaceutical Benefits Scheme expenditure report for year ending 30 June 2006. . Available at: http://www.health.gov.au/pbs (accessed December 2007).

Unlike for conditions such as diabetes and asthma, care for those with CHD in general practice has not been provided with specific practice incentive payments.

Therefore, Australia also needs a dedicated general practice program to improve the identification and management of coronary heart disease (CHD) and reduce death, disability and costs associated with this condition. This could include counselling and other supports to help people with CHD obtain and maintain a healthy weight, and improve their nutrition and physical activity levels.

A GP CHD program would build on existing chronic disease and quality care initiatives in general practice including the Australian Primary Care Collaboratives program (APCC) and Practice Incentive Payments.

Importantly, this proposed program will include a new innovation – an additional financial incentive or 'outcomes payment' to encourage and reward the delivery of quality care. Once trialled within the CHD proposal presented here, such a payment system could be further developed to address the needs of a broader range of chronic conditions.

The program would be implemented through Divisions of General Practice, which would provide support to practices to establish the following key elements to enhance the identification and management of CHD in general practice:

- Disease registers for the recall of CHD patients for review;
- Regular assessment of patient lifestyle, biomedical and psycho-social risk factors for CHD;
- Care plans for patients incorporating lifestyle and pharmacological interventions, referrals and support;
- Practice nurse support for secondary prevention;
- Financial incentives to encourage improved quality of care.

Dedicated programs in general practice to improve the identification and management of two high risk groups – people with coronary heart disease and others in the general population at high risk of cardiovascular disease – will produce important and achievable outcomes. Such programs with attention to all risk factors including overweight and obesity have the potential to significantly reduce heart attack, stroke, death and disability in the Australian population.

Recommendations

Action must be taken to:

9. Expand the Lifescripts (lifestyle prescription) program in primary care and implement a national referral model to support the advice given by GPs to patients, and integrate advice with national campaign messages and resources on healthy weight, healthy eating and physical activity.

10. Improve risk identification, management and outcomes for people at risk of developing CVD by implementing absolute risk assessment in general practice and supporting ongoing management for those identified to be at high risk, including those who are overweight or obese.

11. Introduce a program in general practice to improve the ongoing prevention and management of patients with established CHD, including attention to lifestyle issues such as weight, nutrition and physical activity.

Aboriginal and Torres Strait Islander Peoples

Obesity is significantly more prevalent among Aboriginal and Torres Strait Islander (ATSI) peoples than it is among all Australians. As a single risk factor, high body mass was the second leading cause of the burden of illness and injury among Indigenous Australians in 2003, accounting for 11% of the total burden of disease and 13% of all deaths (ABS & AIHW 2008).

In 2004-2005, Indigenous Australians were 1.2 times more likely to be overweight or obese than non-Indigenous Australians, after adjusting for non-response and for age differences between the two populations (NATSIHS & ABS 2006). Of those Indigenous people aged 15 years and over who reported their height and weight, 28% were overweight and 29% were obese (ABS & AIHW 2008). Overall, more than half (57%) of Indigenous people aged 15 years and over were overweight or obese. Between 1995 and 2004–2005, rates of overweight/obesity among Indigenous people aged 15 years and over in non-remote areas increased from 48% to 56%.

Indigenous people aged 35 years and over who were overweight/obese were more likely than those who were a healthy weight to report diabetes/high sugar levels (22% compared with 10%) and/or cardiovascular disease (36% compared with 23%). The 2003 Australian Burden of Disease study showed that the majority of illness and injury among Indigenous people who were overweight/obese was a result of diabetes (49%) and ischaemic heart disease (40%) (ABS & AIHW 2008).

Exercise rates are poor and getting worse

Physical inactivity was the third leading cause of the burden of illness and disease for Indigenous Australians in 2003, accounting for 8% of the total burden and 12% of all deaths (ABS & AIHW 2008). Indigenous Australians are more likely than non-Indigenous Australians to be sedentary or to exercise at low levels, taking into account differences in the age structure between the two populations. The 2004–2005 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) reported that 50% of adult Indigenous Australians living in non-remote areas undertook no physical activity in the two weeks prior to the survey, compared with 30% of non-Indigenous respondents living in non-remote areas (NATSIHS & ABS 2006). Physical activity among Indigenous people aged 15 years and over living in non-remote areas has decreased: the proportion who reported being sedentary or engaging in low level exercise in the two weeks prior to interview was 75% in 2004–2005, an increase from 68% in 2001, while one-quarter (24%) reported exercising at moderate/high levels in 2004–2005, compared with 32% in 2001 (ABS & AIHW 2008).

Compared with those who engaged in moderate or high levels of exercise, Indigenous people who were sedentary/engaged in low levels of exercise were more likely to be overweight/obese (58% compared with 51%), to report fair/poor health and to smoke on a daily basis. Those aged 35 years and over who were sedentary/engaged in low levels of exercise were more likely than people who exercised at moderate/high levels to have three or more long-term health conditions (66% compared with 55%). They also reported higher rates of cardiovascular disease (33% compared with 23%).

Fruit and vegetable intake rates are low

In 2003, insufficient fruit and vegetable consumption contributed to 3% of the total burden of disease and 6% of deaths for Indigenous Australians (ABS & AIHW 2008). Many of the main causes of ill-health among ATSI people are nutrition-related diseases, such as heart disease, type 2 diabetes and renal disease (NATSIHS & ABS 2006). The 2004–2005 NATSIHS reported that less than half of Indigenous adults have a medium to high level of fruit intake—from self-reports, an estimated 45% of Indigenous adults had two or more serves of fruit per day, compared with 54% of non-Indigenous adults. While most ATSI people aged 12 years

and over reported daily intake of vegetables (95%) and/or fruit (86%), access to such fresh food may be more difficult for Indigenous people in remote areas, as one in five (20%) of these reported no usual daily fruit intake compared with one in eight (12%) in non-remote areas. This difference was even greater for vegetables: 15% of people in remote areas reported no usual daily intake compared with 2% in non-remote areas (NATSIHS & ABS 2006).

The National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (NATSINSAP) provides a framework for action to improve the health and wellbeing of Indigenous people through better nutrition. Designed to build on existing efforts to facilitate healthy food choices for all Aboriginal and Torres Strait Islander peoples, the NATSINSAP 2000-2010 highlights key areas for action. However, implementation of the strategy is under-resourced and future funding not secured.

In 2003, a national workshop was held to identify and prioritise practical actions to address overweight and obesity in Australia's ATSI population. The overarching recommendation of the workshop was to ensure that COAG endorses, prioritises and supports actions that will reduce overweight and obesity in Aboriginal and Torres Strait Islander communities. Five priority areas were identified: Aboriginal and Torres Strait Islander health workforce; family and community; socioeconomic status and food supply; measurement/information; and environment and household structure. Some of the recommendations from the workshop were incorporated broadly into the national action agenda developed by the National Obesity Taskforce. However, we are not aware of any action regarding implementation and funding for recommendations.

Health checks for Indigenous Australians

In 2004, the Federal Minister for Health launched a new Medicare Benefits Schedule item for biennial health checks of Aboriginal and Torres Strait Islander people aged 15–54 years. However, figures show that at a national level less than 4% of the target group received these assessments in 2005–2006. Similarly, the Medicare supported annual health check for Aboriginal and Torres Strait Islander people aged 55 years and over had a low uptake (approximately 7%) (AHMAC 2006). These require more systematic promotion and support to be effective. Supportive activities are needed to maximise adult health checks and follow-up (Mayers and Couzos 2004).

Determinants of Indigenous health are multi-factorial

The determinants of health are multi-factorial – cultural, historic, environmental and socioeconomic factors all contribute to the increased risk of ill-health among Indigenous Australians. Various studies have concluded that psychosocial factors (such as depression, social isolation and lack of quality social support) are also substantial independent risk factors for onset and progress of disease (AIHW 2006b).

The Heart Foundation believes the recommendations and actions outlined in the National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (NATSINSAP) and the outcomes of the National Obesity Task Force (NOTF) workshop on overweight and obesity in Aboriginal and Torres Strait Islander peoples should be adequately supported, resourced and implemented such that long-term sustainability is ensured. These recommendation and actions have been developed in consultation with Aboriginal and Torres Strait Islander peoples and organisations. If these recommendations and strategies were to be implemented, there would be improvements in health outcomes for Australia's Aboriginal and Torres Strait Islander population.

Recommendations

Action must be taken to:

12. Resource and implement the National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (NATSINSAP) and the outcomes of the National Obesity Task Force workshop on overweight and obesity in Aboriginal and Torres Strait Islander peoples.

13. Increase the provision of programs and opportunities for Aboriginal and Torres Strait Islander peoples to become more physically active.

14. Improve preventive health assessment in Indigenous Australians by promoting wider uptake of the existing Medicare Benefits Schedule Indigenous health check items.

15. Address inadequacies in existing Indigenous health and welfare data by conducting a high level review of data, determining priority areas and by mandating common data sets to be collected by all states and territories

Surveillance, Monitoring and Research

A biomedical survey for Australia

Given that poor nutrition, physical inactivity and excess weight all contribute significantly to the growing incidence of chronic diseases in Australia, it is remarkable that Australia does not have a national risk factor surveillance system. Surveillance of risk factors, including the physical measurements of height and weight, waist circumference and blood pressure, and biochemical measures of key markers of chronic disease, such as blood glucose and cholesterol levels, has been identified as the "the most pressing priority" for chronic disease surveillance in Australia (NPHP 2006).

Surveillance is essential to:

- identify emerging public health issues;
- target public health interventions ;
- evaluate prevention and control measures;
- model long-term projections in risk factors, protective factors and disease;
- inform individuals and communities to enable them to take action to protect and improve health.

Current major government initiatives in chronic disease prevention and control provide a policy imperative for improved surveillance of risk factors for cardiovascular disease, and other chronic diseases. Surveillance information will provide essential information to support the planning and implementation of these new initiatives, and is crucial to evaluating their success.

Detailed and reliable data on Australian's dietary, physical activity and weight patterns from a nationally representative sample of the population have not been collected for over seven years. There is a clear need for the collection of up-to-date measured data, highlighted by the fact that the only trend data available on obesity prevalence is based on self-reported height and weight, less accurate than rates calculated from objective measurements. This has not been done since measured national prevalence estimates were collected in the first AusDiab survey in 1999–2000.

The Federal Department of Health and Ageing in 2002 commissioned a detailed proposal for an Australian Health Measurement Survey (AHMS). This progressed to a pilot in 2003. Although the conduct of the pilot was considered to be successful, development of the AHMS did not progress further. There are as yet no firm, funded, plans for a survey that will provide national prevalence estimates for cardiovascular disease risk factors based on physical and biochemical measures.

Research

The role of research is critical if we are to successfully meet the obesity challenge. There needs to be a boost in NHMRC funding for health and medical research to ensure that this can be done. Research Australia has warned in its submission to the Innovations Review that the NHMRC funding profile will flatten from 2009–2010 with no real growth in expenditure. The Heart Foundation supports the case for a further doubling of funding for the NHMRC to a new base of $1.4 billion by 2014–2015.

The work of the Australian Institute of Health and Welfare in monitoring and reporting the health of the nation is also critically important to measuring health outcomes. The Institute needs to be properly funded to ensure its high quality work can be continued and expanded.

Recommendations

Action must be taken to:

16. Establish an ongoing national biomedical risk factor surveillance system with a maximum time interval of five years, which includes collection of comprehensive data on the nutritional, physical activity and weight status and behaviours of Australians.

17. Increase funding for the Australian Institute of Health and Welfare to improve monitoring, surveillance and reporting.

18. Boost NHMRC funding for health and medical research. Further research is critical to better understanding the obesity epidemic. The Heart Foundation supports the case for increasing funding for NHMRC health and medical research to a new base of $1.4 billion by 2014-2015.

Heart Foundation Action

To address the epidemic of cardiovascular disease, the Heart Foundation is working to a 2008–2012 strategic plan known as *Championing Hearts.* A key strategic focus of this plan is to help Australians to achieve a healthy weight through improving eating habits and increasing physical activity levels.

Specific objectives are:

1. To build and use a healthy eating, active living and healthy weight evidence base to inform activities.
2. To improve the availability of healthier food choices and opportunities for active living.
3. To increase consumer awareness, knowledge, skills and uptake of Heart Foundation healthy eating, active living and healthy weight messages to improve heart health.
4. To improve professional, key opinion leaders' and service providers' awareness and use of the Heart Foundation's expertise in healthy eating, active living and healthy weight.

Some of the key projects include;

Heart Foundation Tick

The Heart Foundation has been challenging food companies since 1989 to improve the nutrition of the foods they sell in supermarkets. Foods that meet Heart Foundation standards (on nutrition and labelling standards) are able to earn the Heart Foundation Tick for their packaging and promotions. In August 2006, in response to the changing eating habits of Australians, the Heart Foundation launched Tick for foods 'eaten out'. Whether people are shopping in the supermarket, or buying a take-away meal, they can choose healthier options by looking for the Heart Foundation Tick.

Guidelines for the food industry

The Heart Foundation has produced a 3-Step Guide to help the foodservice industry reduce the level of trans and saturated fat in food prepared and served to Australians. It briefly outlines why these fats should be removed from food, where they are found in menu items, and the simple steps that can be taken to reduce them. The 3-Step Guide will be updated regularly to include new products as they become available.

Practical ideas for parents and carers

The Heart Foundation has produced a series of 'Healthy Ideas for Young Hearts' resources providing practical nutrition and physical activity ideas for parents and carers. Resources include booklets on healthy lifestyles for kids and cooking activities for kids. There are a wide range of recipes, in addition to cooking activities, information sheets for parents/guardians and plenty of ideas for games and activities suitable for children aged 5–12 years.

Heart Foundation Walking

Heart Foundation Walking is Australia's largest network of free community-based walking groups, led by volunteer Walk Organisers. The aim of Heart Foundation Walking is to make regular physical activity enjoyable and easy, especially for people who are not used to being active. Walking groups can be any size, and walk at various times, days, lengths and levels of difficulty. Everyone is encouraged to walk at their own pace. Over the past 10 years, more than 15,000 Australians have become more physically active through the Heart Foundation's local walking groups. Heart Foundation Walking is undertaken with the support of the Australian Government.

Healthy by Design: a planner's guide to environments for active living

Healthy by Design: a planner's guide to environments for active living was developed in response to local government requests for practical guidance in designing walkable and ultimately more liveable, neighbourhoods. Healthy by Design provides information for a range of professionals including planners, urban designers and engineers on how to incorporate healthy urban planning and design into neighbourhoods. This includes design considerations to promote walking, cycling and public transport, a practical design tool and case studies.

Heartmoves

Heartmoves is a low-to-moderate intensity exercise program led by a specially trained and accredited leader, encouraging people to start slowly and work safely at their own pace. Programs are available in fitness and health centres, as well as in community venues. This program is specifically designed for people with risk factors such as overweight, high blood pressure and high cholesterol, or those with stable chronic disease, especially heart disease and diabetes.

Heart Foundation Jump Rope for Heart

The Heart Foundation Jump Rope for Heart program was established in Australia in 1983. Since then, more than eight million Australian schoolchildren have participated in the program to promote health and fun while raising valuable funds, raising over $60 million. Today, around 400,000 children participate each year in over 2300 schools across all states and territories of Australia.

Heart Foundation funding for health and medical research

The Heart Foundation research program has provided more than $189 million for research into cardiovascular disease since 1959, and last year alone provided funding of more than $9 million to support quality research into the cause, diagnosis, treatment and prevention of Australia's biggest killer. Examples of obesity-related research currently funded by the Heart Foundation include:

Dr Jo Salmon

Developing strategies to promote physical activity and reduce sedentary behaviour
A decline in healthy eating and physical activity and an increase in sedentary behaviours (such as computer use) among children, young people and their families has been blamed for the dramatic increase in overweight and obesity in the Australian population. This trend is alarming at all levels, as obesity has been associated with a number of poor health outcomes, in particular, an increased risk of cardiovascular disease. Many Australian researchers are actively seeking new ways to address this issue. Dr Jo Salmon is a leading researcher in this field. Her research specifically aims to reverse this trend by developing new strategies to promote physical activity and reduce sedentary behaviour. Dr Salmon's study will contribute to our understanding of the individual, social, policy and environmental influences on physical activity and sedentary behaviour choices among children and adults. It will examine the effectiveness of strategies to change these behaviours at the individual and population level.

Ms Helen Walls

Strategies to reduce the burden of obesity-related conditions

In Australia the prevalence of obesity has doubled in 20 years, resulting in almost half of women and two-thirds of men being overweight or obese in 2000. This has important health and economic implications. Excess body weight is an important risk factor for a number of diseases, including cardiovascular disease (CVD). Current information on how to prevent obesity and CVD is limited, and often lacks cost-effectiveness and equity information. Ms Walls will study obesity trends in Australia, the association between obesity and CVD, and compare programs that are designed to reduce the burden of obesity and CVD in the Australian community. In particular, she will examine how cost-effective these programs are, if they deliver value for money and if they reach the community groups in most need.

Dr Esther Ooi

Investigating new ways to manage obesity and control the amount of fatty substances in blood

The increased risk of heart disease in obese individuals may relate to the levels of abnormal fatty substances in the blood. These abnormalities are caused by overproduction and impaired clearance of blood fats. As the obesity problem continues to grow, it causes concern due to the much greater risk of CVD in obese individuals. Dr Esther Ooi's study will look into new means for weight loss and fat-lowering therapies including the use of drugs that lower cholesterol that might be employed to reduce CVD risk.

Professor Susan Paxton

Factors influencing eating behaviours in young children

In young children, excess weight is associated with the presence of significantly higher levels of cardiovascular risk factors. However, there is little research for health professionals to use when talking to the carers of children aged two to three years about how carers can encourage healthy eating behaviours and consequently equip their children with the knowledge and habits that will help them to maintain a healthy weight through to adulthood. Professor Paxton's study will examine relationships between carers' own eating attitudes and beliefs, the way in which they feed their children, the eating behaviours of their children and the obesity levels of their children. Professor Paxton's findings will suggest ways in which excess weight gain can be prevented in children and consequently how cardiovascular health outcomes can be improved for children in the future.

Appendix

Cardiovascular disease

Cardiovascular disease (**CVD**) is also known as 'circulatory disease' or as 'heart, stroke and vascular disease' and refers to all diseases and conditions of the heart and blood vessels. The main types are outlined below. The definitions in this appendix are derived from the 2005 Report from Access Economics and the Heart Foundation "*The Shifting Burden of Cardiovascular Disease*"(Access Economics 2005).

Coronary heart disease (**CHD, or ischaemic heart disease**) is the most common cause of sudden death in Australia. Its main manifestations consist of **acute myocardial infarction** (AMI, or heart attack) and **angina**. The common underlying problem is **atherosclerosis**, which is plaque build-up on the inside of arteries.

- A heart attack occurs when a coronary plaque suddenly breaks open, bringing on a blood clot that blocks blood flow to the heart muscle. The blockage can cause severe chest pain and death of some of the heart muscle unless the blood flow can be quickly restored through the use of drugs or catheter procedures.
    - Among Australians having a heart attack, about 25% die within an hour of their first-ever symptoms and over 40% will be dead within a year.
- With stable angina, the plaque has narrowed an artery so that blood flow under normal conditions is adequate, but may be insufficient if there is physical activity or strong emotion, causing temporary chest pain, but no immediate threat to life. Unstable angina is a condition which may be manifest as chest pain occurring at rest, new onset chest pain with exertion, or angina that is more frequent, longer in duration or lower in threshold than before and this condition can quickly lead to heart attack.

Stroke (or **cerebrovascular disease**) is Australia's second greatest killer after CHD and the leading cause of long term disability in adults. Stroke occurs when a blood vessel that carries oxygen and nutrients to the brain is either blocked by a clot (ischaemic stroke) or, less frequently, bleeds (haemorrhagic stroke). This can cause death, or damage part of the brain, which in turn can impair a range of functions such as movement of body parts, vision and communication. About one-third of people sustaining stroke die within 12 months and half of the survivors are disabled in the longer term.

Heart failure is a major burden on society due to its high costs of care, lower quality of life and premature death (the third biggest CVD killer). It describes a pathologically complex condition where the heart functions less effectively to pump blood around the body. This results from a lifetime of 'insults' to the structural integrity and efficiency of the heart that impair or overload it, such as heart attack, high blood pressure or a damaged heart valve. Symptoms can include fatigue, breathlessness and fluid retention, and these symptoms are related to unmet metabolic demand, abnormal neurohormonal regulation and left ventricular dysfunction. Heart failure that causes build-up of fluid in the lungs, liver or legs is called **congestive heart failure**.

Chronic heart failure refers to length of duration of heart failure, usually where the heart muscle has been irreversibly damaged, in contrast to **acute heart failure** that can sometimes be reversed.

Peripheral vascular disease (**PVD or peripheral artery disease**) refers to disease of the arteries outside the heart and brain, when plaque builds up in these arteries and reduces blood circulation, mainly affecting the legs and feet. It ranges from asymptomatic disease, through to pain on walking, to pain at rest and limb-threatening reduced blood supply that can lead to amputation. A major form of PVD is **abdominal aortic aneurysm**, which is an abnormal widening of the main artery from the heart below the level of the diaphragm, which

can be life-threatening if it ruptures. However, the major cause of death in people with peripheral vascular disease is CHD.

Rheumatic heart disease is the damage done to the heart muscle and heart valves by an attack of **acute rheumatic fever**, which is caused by Group A Streptococcus bacteria associated with infections of the throat and skin. It occurs mainly in children and young adults and may affect the heart valves, the heart muscle and its lining, the joints and the brain. Recurrences of rheumatic fever lead to cumulative heart damage but can be almost completely prevented by strict follow-up and monthly injections of penicillin. Poverty and overcrowding, poor sanitary conditions, lack of education and limited access to medical care for adequate diagnosis and treatment are recognised as contributing factors in Australia. Aboriginal and Torres Strait Islander people living in remote areas have among the highest rates of chronic rheumatic heart disease in the world.

Congenital heart diseases (those present at birth) are one of the biggest killers of infants less than one year old, with over 42% of deaths associated with these conditions occurring prior to five years of age. Congenital heart diseases include abnormalities of the heart, its valves or of blood vessels such as the aorta or pulmonary artery. Anecdotal evidence from clinicians report that more children are surviving congenital heart disease resulting from improvements in paediatric surgery in recent decades. Consequently a larger number are reaching adulthood with complex congenital heart disease associated with the need for hospital admissions, late complications and complications of pregnancy.

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