

House of Representatives
Standing Committee on Health and Ageing

Inquiry into obesity in Australia

Australian Institute of Health and Welfare Submission
May 2008

Key points

- One in two adult Australians are overweight, and a third of these (around 2.5 million) are obese.
- Multiple data sources point to increasing levels over the past 20–30 years, and the increases apply to all social groups.
- Those at special risk include children, those with a family history of Type 2 diabetes, those with low socioeconomic status, and Indigenous Australians.
- There is a critical need for a repeating, comprehensive population survey that includes physical and biomedical measures, and improved measures of physical activity and sedentary behaviours.
- The AIHW is well placed to continue monitoring overweight and obesity and integrating this with other disease monitoring.

Introduction

The Australian Institute of Health and Welfare (AIHW) welcomes this opportunity to make a submission to the inquiry. This submission presents summary data on the prevalence and trends of overweight and obesity in Australia, describes the main data sources, and recommends filling some critical data gaps.

About AIHW

The AIHW is Australia's national agency for health and welfare statistics and information. We are an Australian Government statutory authority accountable to Parliament and operate under the provisions of the *Australian Institute of Health and Welfare Act 1987*. The Act ensures that the data collections we manage are kept securely and under the strictest conditions with respect to privacy and confidentiality. Our mission is *Better information and statistics for better health and wellbeing*. We work closely with all state, territory and Australian Government health, housing and community services agencies in collecting, analysing and disseminating data. More information on our capabilities and services, as well as access to the full range of information products, can be found at www.aihw.gov.au.

The AIHW covers overweight and obesity (and the related physical activity and nutrition behaviours) in its population health program, in the context of overall monitoring of chronic diseases and associated risk factors. Overweight and obesity is also covered in relation to more specific monitoring programs in cardiovascular disease, diabetes, cancer, and musculoskeletal conditions.

Background

The dramatic increase in obesity worldwide over the past 20–30 years has resulted in the WHO labelling it a global epidemic. Excess body fat increases the risk of developing a range of health problems, including Type 2 diabetes, cardiovascular disease, high blood pressure, certain cancers, sleep apnoea, osteoarthritis, psychological disorders and social problems (WHO 2000).

High body weight—also referred to as high body mass—was estimated to be responsible for 7.6% of the total burden of disease in Australia in 2003, placing it a close third behind tobacco smoking and high blood pressure (Begg et al. 2007). In addition, there is likely to be strong growth in the level of diabetes over the next 20 years, mostly as a direct result of increasing levels of obesity. Access Economics (2006) estimated that the total financial cost of obesity in Australia in 2005 was nearly \$4 billion, or about 0.4% of gross domestic product.

Overweight and obesity arises through an energy imbalance over a sustained period. Although many factors may influence a person's weight, weight gain is essentially due to the energy intake from the diet being greater than the energy expended through physical activity. The sustained energy imbalance need only be minor for weight gain to occur, and some people—because of genetic and biological factors—may be more likely to gain weight than others (WHO 2000).

Although the evidence remains strong that obesity is a risk factor for ill health, including overall mortality, there is some debate about the contribution of lesser degrees of overweight to mortality rates. A recent study showed that obesity and underweight, but not overweight, resulted in higher mortality rates in the United States, and that the impact of obesity on mortality may have decreased over time, perhaps because of improvements in public health and medical care (Flegal et al. 2005).

Classifying body weight

Body mass index (BMI) and waist circumference are the two main methods used for monitoring body weight. The most common measure used is the BMI (particularly in self-report surveys), as people are more likely to know their height and weight than their waist circumference. The BMI is calculated by dividing weight in kilograms by the square of height in metres (kg/m^2).

The standard recommended by the World Health Organization for adults aged 18 years and over is based on the association between BMI and illness and mortality (WHO 2000):

- underweight: $\text{BMI} < 18.5$
- healthy weight: $\text{BMI} \geq 18.5$ and $\text{BMI} < 25$
- overweight but not obese: $\text{BMI} \geq 25$ and $\text{BMI} < 30$
- obese $\text{BMI} \geq 30$.

This classification may not be suitable for all ethnic groups and it is not suitable for children. Compared with the rest of the population, some groups may have equivalent levels of risk at lower BMI (for example Asians) or higher BMI (for example Polynesians). For children and adolescents aged 2–17 years, Cole et al. (2000) have developed a separate classification of overweight and obesity based on age and sex. Waist circumferences of 94 cm or more in males and 80 cm or more in females indicate increased risk (referred to here as abdominal overweight). Waist circumferences of 102 cm or more in males and 88 cm or more in females indicate substantially increased risk (referred to here as abdominal obesity). This classification is not suitable for use in people aged less than 18 years and the cut-off points may not be suitable for all ethnic groups.

Height and weight data may be collected in surveys as measured or self-reported data. People tend to overestimate their height and underestimate their weight, leading to an underestimate of BMI. Thus, rates of overweight and obesity based on self-reported data are likely to be underestimates of the true rates, and should not be directly compared with rates based on measured data.

Prevalence and trends

Data from the 2004–05 National Health Survey (NHS) indicate that the ‘average’ Australian aged 25 years or over is overweight, using average weight and height for each age group. Males aged 45–64 years have the highest average BMI, with a weight loss of 8 kg required to bring them into the ‘healthy’ BMI category. Persons aged 75 years and over have the least weight to lose, with a loss of 0.4 kg enough to bring them into the healthy category.

In Australia, the prevalence of overweight and obesity has been increasing over at least the past 20–30 years. National data are available from a number of surveys, using either a BMI derived from self-reported or measured height and weight, or using waist circumference.

About half of Australian adults are overweight or obese according to the 2004–05 NHS, which provides the most recent national data and records self-reported height and weight. From this survey, an estimated 2.5 million Australian adults were obese (19% of males and 17% of females aged 18 years and over). A further 4.9 million Australian adults were estimated to be overweight but not obese (41% of males and 25% of females aged 18 years and over). Among adults, 1% of males and 4% of females were estimated to be underweight. The highest rates of obesity were seen among males aged 45–54 years (23.2%) and females aged 55–64 years (21.7%) (ABS 2006a).

The prevalence of overweight and obesity has increased across all age groups from 1995 to 2004–05. The most marked increases were among those aged 25–44 years and 75 years and over, where rates increased by over 10 percentage points over that period.

This general trend is confirmed by the Bettering the Evaluation and Care of Health (BEACH) study, which shows that among adult patients attending general practice there has been a steady increase in the prevalence of overweight and obesity, from 51.1% in 1998–99 to 58.5% in 2006–07 (Britt et al. 2008).

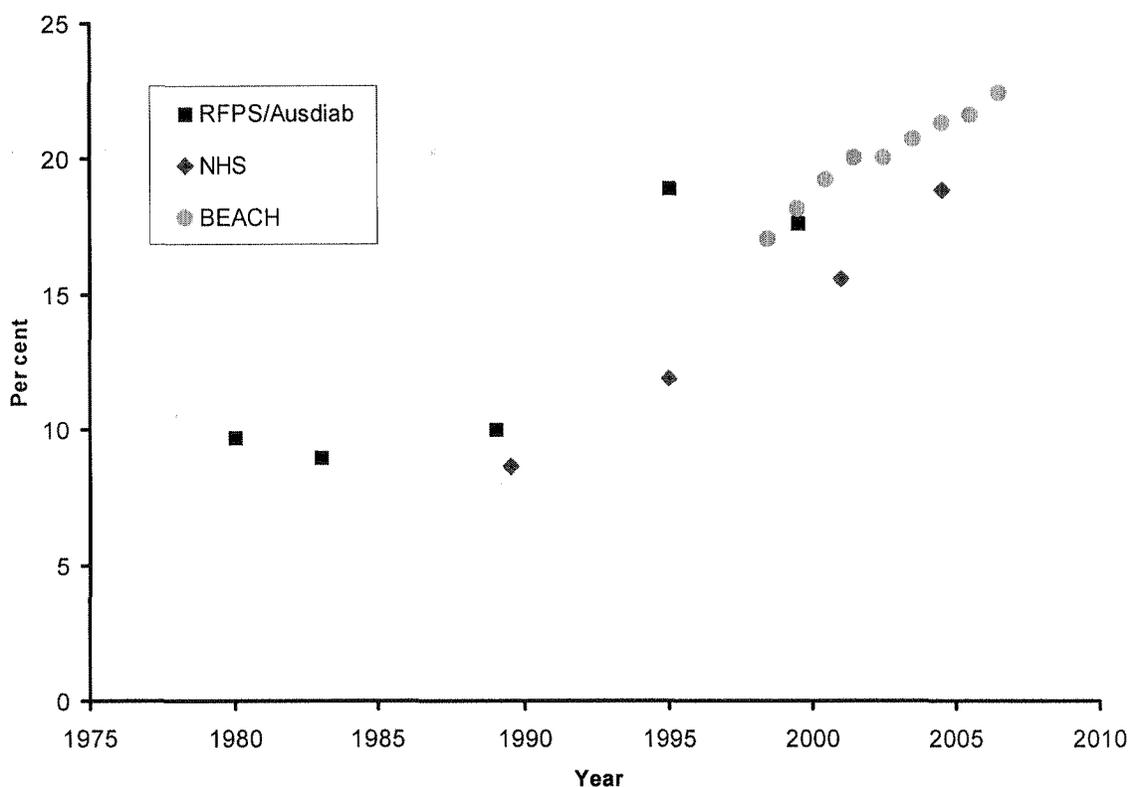
Measured height and weight were last collected nationally in the 1999–2000 Australian Diabetes, Obesity and Lifestyle (AusDiab) Study. Analysis of this survey found that 19% of males and 22% of females aged 25 years and over were obese and

an additional 48% of males and 30% of females were overweight but not obese. The prevalence of underweight was less than 1% for males and nearly 2% for females. Overall, males were more likely than females to be overweight or obese (67% versus 52%). Among adults, the prevalence of obesity was highest among those aged 55–64 years (29%), with the lowest rates being among those aged 25–34 years (15%) or 75 years and over (14%). A similar pattern was seen for people who were overweight (but not obese), with the prevalence increasing with age to 65–74 years and declining thereafter.

Waist circumference is also a useful indicator of abdominal obesity, which is an independent risk factor for Type 2 diabetes, coronary heart disease and other health disorders (WHO 2000). In 1999–2000, data from the AusDiab study showed that more than a quarter of males (27%) and over a third of females (34%) aged 25 years and over were abdominally obese.

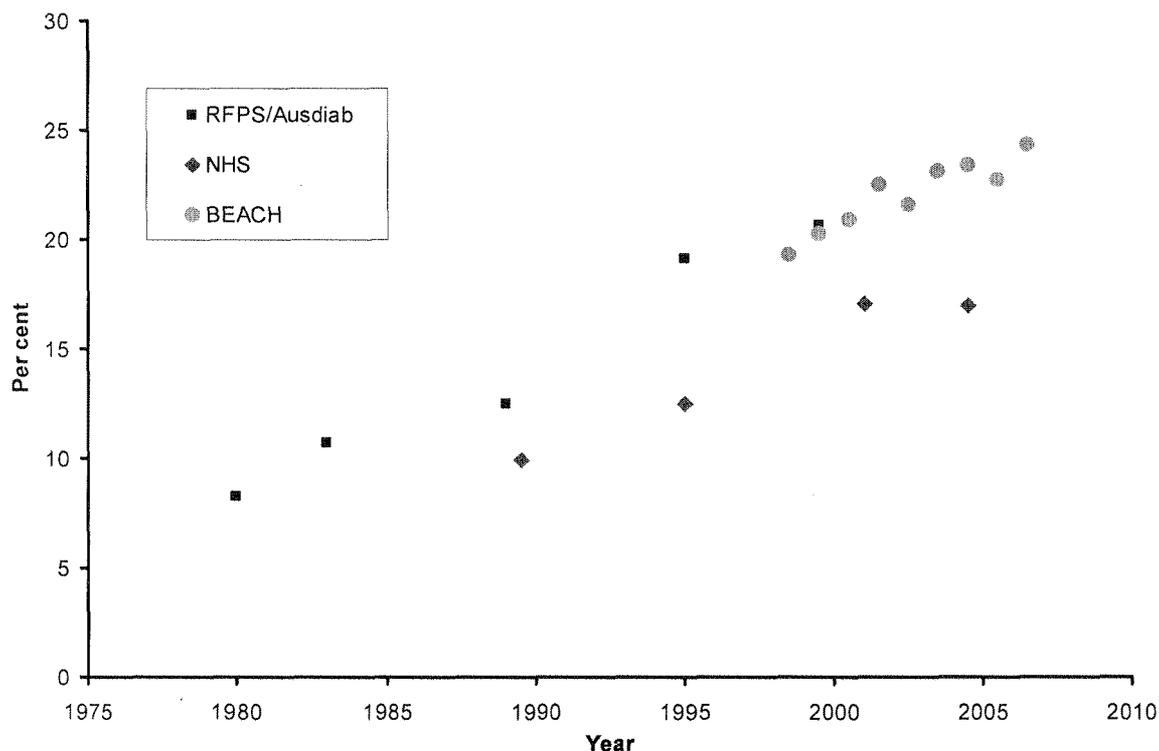
Combining the data from these three main sources—National Health Survey, AusDiab and the National Heart Foundation Risk Factor Prevalence Surveys, and BEACH—provides a corroborating picture of increasing prevalence of obesity over the past decades, with no clear indication of a slowing in the increasing rates (Figures 1 and 2).

Figure 1: Obesity trends in males



Sources: National Health Survey, AusDiab and the National Heart Foundation Risk Factor Prevalence Surveys, and BEACH.

Figure 2: Obesity trends in females



Sources: National Health Survey, AusDiab and the National Heart Foundation Risk Factor Prevalence Surveys, and BEACH.

Children and adolescents

There is a lack of recent national data on overweight and obesity among children and adolescents, with the most recent being that from the 1995 NHS. Using the standard international definitions of body weight, the prevalence of overweight (including obesity) among children and adolescents aged 2–18 years was 19.5% for boys and 21.1% for girls in 1995 (Magarey et al. 2001).

There is a range of evidence that the prevalence of both overweight and obesity in Australian children has risen markedly in recent decades.

A study of data for those aged 7–15 years from five population surveys conducted between 1969 and 1997 illustrated that, between 1985 and 1997, the prevalence of overweight increased by 60–70%, obesity increased up to fourfold, and the combined overweight and obesity categories doubled. The findings were consistent across data sets and between the sexes. For the period 1969 to 1985, there was no change in the prevalence of overweight or obesity among girls, but among boys the prevalence of both overweight and obesity increased markedly (Booth et al. 2003).

The New South Wales Schools Physical Activity and Nutrition Survey found that the measured prevalence of overweight and obesity combined among young people in New South Wales (from Kindergarten to Year 10) had risen from 20% in 1997 to 25% in 2004. Overall the prevalence of obesity among boys was 7.7% and among girls it was 6.1% (Booth et al. 2006).

Similarly, the Western Australian Child and Adolescent Physical Activity and Nutrition Survey found that the prevalence of overweight and obesity among students aged 7–15 years increased from 9.3% of boys and 10.6% of girls in 1985 to 21.7% of boys and 27.8% of girls in 2003 (Hands et al. 2004).

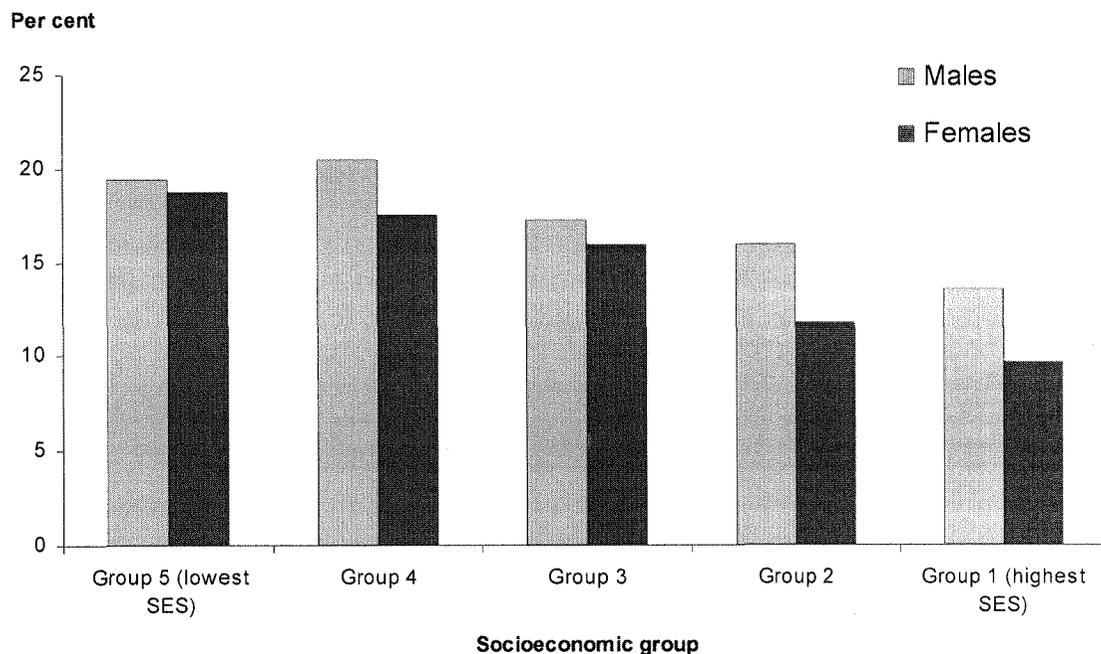
Aboriginal and Torres Strait Islander peoples

Data from the 2004–05 National Aboriginal and Torres Strait Islander Health Survey show that 28% of Indigenous Australians aged 15 years and over were overweight and a further 29% were obese (ABS 2006b). After adjusting for differences in the age structures of the Indigenous and non-Indigenous populations, Indigenous Australians were just as likely as other Australians to be overweight (but not obese), and almost twice as likely to be obese.

Socioeconomic status

Results from the 2004–05 NHS for adults aged 18 years and over show that people in the most socioeconomically disadvantaged fifth of the population had the highest rates of overweight and obesity. For them, 50% were overweight or obese, compared with 45% of adults in the best-off fifth of the population (ABS 2006). The gradient is more marked when considering obesity alone. Based on self-reports, adults in the highest socioeconomic fifth were least likely to be obese: 9.6% of females and 13.5% of males (Figure 3). In comparison, 18.7% of females and 19.4% of males in the lowest socioeconomic fifth were obese.

Figure 3: Obesity by socioeconomic status and sex



Source: AIHW analysis of the 2004–05 National Health Survey.

International comparisons

Based on an analysis by the World Health Organization (WHO 2005), the prevalence of obesity among males and females 15 years and over in Australia (24% and 25%) is much lower than that in the United States of America (37% and 42%). However, it is similar to that in Canada (24% and 23%) and the United Kingdom (22% and 24%), and considerably higher than that in France (8% and 7%) and Japan (2%).

Obesity-related data sources

A range of obesity-related data sources are available in Australia, although some are now quite dated (see results above, and Table 1 below).

Currently, the only ongoing national series is the National Health Survey (NHS) conducted by the ABS, which is presently being conducted on a 3-year cycle. In the 2007-08 survey, the ABS introduced measured height, weight and waist circumference for all respondents aged 5 years and over (this was last done on a subset of the 1995 NHS), and this will provide a much-needed update to the previous data points. Importantly, the NHS will include self-reported height and weight as well (for people aged 15 years and over), providing information on the mismatch between measured and self-reported values; this information was also available on the 1995 subset, so analysis of any changes in this mismatch over time will be possible.

The NHS does not, however, include a full physical activity module, nor a detailed food intake module, so a complete picture of the energy balance of respondents cannot be established.

The AusDiab study also included measured height, weight and waist, but there is some concern about the representativeness of the sample for that survey, and the level of attrition between the two waves of the survey.

Some state and territory health authorities conduct ongoing or regular health surveillance surveys—typically using computer-assisted telephone interviews—that include self-report height and weight. A one-off ‘filling the gaps’ survey was conducted in 2004 to enable a national estimate of selected risk factor indicators. These jurisdictional surveys use reasonably-standardised questions, but there is scope for more uniform collection, analysis and reporting.

The major new national collection of recent times is the ‘Kids Eat Kids Play’ study, conducted by CSIRO with the University of South Australia. Findings from this study are due mid-2008, and will provide a welcome update to the 1995 national data for children.

The Australian Government Department of Health and Ageing has also committed to undertake an adult nutrition and physical activity survey in 2009/10 that will include physical measures. This is part of a non-lapsing program in the 2007–08 federal Budget, but the AIHW is unaware of plans for future components of the program.

The major gap in Australian data sources is a nationally-representative population survey that includes questions on health-related attitudes and behaviours, physical measurements, detailed dietary assessment, detailed physical activity assessment (including patterns of sedentariness), and biomedical measurements (from blood and urine). Only a survey of this nature, repeated regularly, can provide a sufficiently-detailed picture of the behaviours and physiological processes related to overweight and obesity.

Summary and recommendations

A synthesis of the main data sources indicates that around half of Australian adults (7.4 million) are overweight, with over a third of those being obese. These levels are substantially higher than 20–30 years earlier. Although comprehensive data are not available for children, indications are that childhood obesity is also a worsening problem.

There would be considerable value in having regular, comprehensive, population-based data on overweight and obesity in the Australian population, including in at-risk subgroups.

The AIHW therefore recommends that:

1. Efforts to harmonise and standardise jurisdictional surveillance systems continue—and be expanded to jurisdictions without ongoing surveillance programs—so that annual national estimates can be obtained.
2. A comprehensive population survey (as outlined above, and including physical and biomedical measures) be established and repeated at regular intervals.
3. Better measures of physical activity and sedentary behaviours be developed and implemented in population surveys.
4. The AIHW's monitoring role be enhanced to actively monitor the prevalence and trends in overweight and obesity in the Australian population, and integrate this with broader disease monitoring.

Table1: Overview of survey content and management—obesity-related risk factor topics

Item	Instrument	Survey	Population	Manager	Timing
Self-report height/weight	n/a	National health survey	Adults 15+	ABS	[1977, 1983, 1989-90,] 1995, 2001, 2004-05
Self-report height/weight	n/a	S&T surveillance surveys	Adults 15+, sometimes children	S&T health authorities	1999 onwards (national estimate for 2004 only)
Measured height/weight	n/a	National health survey	Adults 15+	ABS	2007-08, 2010-11
Measured height/weight	n/a	Risk factor prevalence surveys	Adults 25+ capital cities	National Heart Foundation	1980, 1983, 1989
Measured height/weight	n/a	National nutrition survey	Adults and children	ABS	1995
Measured height/weight	n/a	Ausdiab	Adults 25+	International Diabetes Institute	1999-2000 (+ follow-up in 2005, but not a representative sample)
Measured height/weight/waist	n/a	Kids eat, kids play	Children	CSIRO with University of South Australia	2007
Physical [in]activity	'Active Australia'	Active Australia survey	Adults 18-75	Australian Sports Commission with AIHW assistance in 1999, 2000	1997, 1999, 2000
Physical [in]activity	'Active Australia'	S&T surveillance surveys	Adults 15+, sometimes children	S&T health authorities	1999 onwards (national estimate for 2004 only)
Physical [in]activity	?, plus accelerometers	Kids eat, kids play	Children	CSIRO with University of South Australia	2007
Exercise	n/a	National health survey	Adults 15+	ABS	[1977, 1983, 1989-90,] 1995, 2001, 2004-05, 2007-08, 2010-11
Nutrition – detailed dietary intake	Food frequency questionnaire + 24-hour dietary recall	National nutrition survey (NNS)	Adults and children	ABS	1995
Nutrition – detailed dietary intake	Similar methods to 1995 NNS	Kids eat, kids play	Children	CSIRO with University of South Australia	2007
Nutrition – detailed dietary intake	Similar methods to 1995 NNS	Proposed adult survey	Adults 18+ (?)	TBA (DoHA contract)	2009 (?)
Nutrition – dietary behaviours	Reasonably standardised questions on fruit and veges	National health survey	Adults 15+	ABS	[1977, 1983, 1989-90,] 1995, 2001, 2004-05, 2007-08, 2010-11
Nutrition – dietary behaviours	Reasonably standardised questions on fruit and veges, and type of milk	S&T surveillance surveys	Adults 15+, sometimes children	S&T health authorities	1999 onwards (national estimate for 2004 only)

References

Most of the text in this submission is taken from *Australia's health 2006*, and material being prepared for *Australia's health 2008*. References cited above are as cited in these reports, and are reproduced below.

[See AIHW 2006. *Australia's health 2006*. Cat. no. AUS 73. Canberra: AIHW.]

Access Economics 2006. *The economic costs of obesity: report prepared for Diabetes Australia*. Canberra: Access Economics.

ABS (Australian Bureau of Statistics) 2006a. *National Health Survey: summary of results, Australia 2004–05*. ABS cat. no. 4364.0. Canberra: ABS.

ABS 2006b. *National Aboriginal and Torres Strait Islander Health Survey 2004–05, Australia*. ABS cat no. 4715.0. Canberra: ABS.

Begg S, Vos T, Barker B, Stevenson C, Stanley L & Lopez AD 2007. *The burden of disease and injury in Australia 2003*. Cat. no. PHE 82. Canberra: AIHW.

Booth M, Chey T, Wake M, Norton K, Hesketh K, Dollman J & Robertson I 2003. *Change in the prevalence of overweight and obesity among young Australians, 1969–97*. *American Journal of Clinical Nutrition* 77:29–36.

Booth M, Okely AD, Denney-Wilson E, Yang B, Hardy L & Dobbins T 2006. *NSW schools physical activity and nutrition survey (SPANS) 2004*. Sydney: NSW Department of Health.

Britt H, Miller GC, Charles J, Bayram C, Pan Y et al. 2008. *General practice activity in Australia 2006–07*. Cat. no. GEP 21. General Practice Series no. 21. Canberra: AIHW.

Cole TJ, Bellizzi MC, Flegal KM & Dietz WH 2000. *Establishing a standard definition for child overweight and obesity worldwide: international survey*. *British Medical Journal* 320:1–6.

Hands B, Parker H, Glasson C, Brinkman S & Read H 2004. *Physical activity and nutrition levels in Western Australian children and adolescents: report*. Perth: Western Australian Government.

Flegal KM, Graubard BI, Williamson DF & Gail MH 2005. *Excess deaths associated with underweight, overweight and obesity*. *Journal of the American Medical Association* 293:1861–7.

Magarey AM, Daniels LA & Boulton JC 2001. *Prevalence of overweight and obesity in Australian children and adolescents: reassessment of 1985 and 1995 data against new standard international definitions*. *Medical Journal of Australia* 174:561–4.

WHO 2000. *Obesity: preventing and managing the global epidemic. Report of a WHO consultation*. WHO Technical Report Series 894. Geneva: WHO.

WHO 2002. *World health report 2002: reducing risk, promoting healthy life*. Geneva: WHO.

WHO 2005. *WHO global comparable estimates 2005*. Viewed 4 September, <www.who.int>.



Australian Government

Australian Institute of
Health and Welfare

Better information and statistics
for better health and wellbeing

Mr James Catchpole
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House of Representatives
Standing Committee on Health and Ageing
PO Box 6021
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Canberra ACT 2600

JE 15/05/08

Dear Mr Catchpole

Inquiry into obesity in Australia

I refer to your invitation to make a submission to the above inquiry. I am pleased to provide the attached submission from the Australian Institute of Health and Welfare.

I also welcome the opportunity to discuss this submission with the Committee, and would be happy for the Institute to provide more details or comment if required. In the first instance, please contact Mr Mark Cooper-Stanbury from the Population Health Unit on 02 6244 1251.

Yours sincerely

Dr Penny Allbon
Director

8 May 2008

STANDING COMMITTEE
9 MAY 2008
ON HEALTH AND AGEING