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Recommendations for preventing an obesity-related surge in cancer burden in Australia

Submission from the Cancer Council Australia to the House of Representatives Health and Ageing Committee inquiry into obesity in Australia

June 2008

The Cancer Council Australia is Australia's peak non-government national cancer control organisation. Its member bodies are the eight state and territory cancer councils, whose views and priorities it represents on a national level.



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Key points

- Obesity/overweight is an important cause of cancer in Australia, associated with 11% of colon cancers, 9% of post-menopausal breast cancers and a number of less common cancers.
- On current trends, colorectal and breast cancer incidence is already likely to increase by more than 30% and 25% respectively in line with population ageing over each of the next three decades – irrespective of the significant impact obesity/overweight will also have, as the projections are based only on population ageing
- Australia therefore faces an unprecedented colorectal and breast cancer burden, compounded by obesity/overweight at a time when population ageing will impose enormous strain on the health system
- Rarer cancers such as endometrial cancer, oesophageal adenocarcinoma, kidney cancer and gall bladder cancer are at risk of becoming common, due to their close association with obesity/overweight
- Obese people diagnosed with cancer generally have poorer prognoses than non-obese people with cancer
- The total financial costs of obesity were estimated at \$3.7 billion, of which 37% is borne by the Commonwealth
- In 2007, Australia was listed as the “fifth fattest nation” in the OECD; a new national report suggests we are “the fattest”
- In the 10-year period from 1985 to 1995, the level of combined overweight/obesity in Australian children more than doubled, while the level of obesity tripled in all age groups and for both sexes
- Australia urgently requires a national obesity strategy, supported by all governments, to preempt a major preventable future increase in cancer burden
- Reducing obesity must be integral to the “Health and Hospitals Reform” process
- Cancer Council Australia recommendations on how this can be achieved follow.

Recommendations – general

- Consistent with the principles and objectives of the Health and Hospitals Reform Commission, COAG should endorse a comprehensive national obesity control strategy built into the Australian Health Care Agreements/Preventative Health Partnerships
- The strategy should have a clear implementation plan, including targeted funding, agreed policy objectives and mandatory reporting/performance benchmarks
- The strategy should set as a key performance benchmark a measurable reduction in the proportion of Australians who are overweight/obese, as recommended in the Health and Hospitals Reform Commission's preliminary report to COAG, *Beyond the blame game*
- The strategy should integrate all interventions shown to reduce obesity, including:
 - Social marketing – mass media campaigns, community-based communications programs promoting healthy weight
 - Social marketing initiatives which promote healthy eating and physical activity across the life course
 - Research – build the evidence base on what works best to prevent obesity; continue to monitor behavioural trends, including an ongoing commitment to the national nutrition and physical activity survey
 - Policy – food marketing reform, e.g. restrict children's exposure to junk food advertising (see below); regulate food labelling to prioritise public health by facilitating more informed choice and preventing deceptive claims (see below); with state and local government, foster residential and working environments conducive to physical activity
 - Program interventions – support for the primary care sector to encourage healthy weight among patients.
- The strategy should incorporate specific measures to promote increased physical activity and improved nutrition, as follows.

Recommendations – physical activity

- Increase public awareness about the link between physical inactivity and cancer, through social marketing, primary care and community/education programs
- Encourage increased levels of physical activity through primary care programs

- COAG to endorse a whole-of-government approach to developing residential and occupational environments conducive to physical activity, as outlined at the 2020 Summit
- Commonwealth to monitor physical activity trends through an ongoing commitment to the national nutrition and physical activity survey
- Commonwealth to support epidemiological research that builds the evidence base on the relationship between cancer and physical inactivity.

Recommendations – food labelling

- COAG to mandate a simplified, easily understood and applied system for nutrition labelling of packaged food products – in particular front-of-pack labelling
- Such a system should be designed to inform healthier consumer choice according to independent research on consumer perception and understanding (Cancer Council Australia and CHOICE are currently researching Australian consumers' understanding of various front-of-pack nutrition labelling formats).

Recommendations – junk food advertising to children

- Prohibit the marketing of unhealthy food and beverages directed to children in all media (both broadcast and non broadcast)
- Restrict TV food marketing so that unhealthy food and beverage advertisements are not shown before 9pm
- Regulate persuasive marketing techniques used to promote unhealthy food to children, in particular the use of premium offers and cartoon and celebrity endorsements.

Recommendations – national nutrition strategy

- Reinvigorate the National Food Industry Strategy, with its scope extended to improved public health as well as commercial benefits
- In developing a national nutrition strategy that is clearly in the public interest, support measures to ensure food industry sustainability is assisted by incentives to produce safe, nutritious foods for domestic consumption
- The strategy should improve access to healthy food choices for people who are socially or geographically disadvantaged.

Overview

Obesity/overweight is an important cause of cancer in Australia.¹ It is linked to 11% of colon cancers and 9% of post-menopausal breast cancers.² These are increasingly prevalent tumour types in Australia due to population ageing.³ A number of rarer cancers are at risk of also becoming prevalent due to their strong association with obesity, notably endometrial cancer (39% attributed to obesity/overweight), oesophageal adenocarcinoma (37%), kidney cancer (25%) and gall bladder cancer (24%). There is also emerging evidence that obesity is linked with increased risk of cancers of the pancreas and liver, and multiple myeloma and non-Hodgkin lymphoma.⁴ (See Table 3.)

Extrapolating the population ageing trends used by the Australian Institute of Health and Welfare to determine cancer projections beyond 2011 suggests an increase in cancer incidence of around 30% over each decade until the middle of the century.^{3,5} These projections indicate that cancer is set to impose an unprecedented impact on our health system as our population ages – and they do not factor in the effects of a 50% increase in the number of obese or overweight Australians over the past 15 years.¹

In 2005, it was estimated that more than 20,000 Australians had cancer as a result of being obese, and the health system costs alone from cancers associated with obesity were estimated to be \$107 million in 2005.⁶ A high body mass accounts for 3.9% of the total cancer burden and causes an estimated 7.5% of the total burden of disease and injury in Australia.¹ The attributable burden of a high body mass is likely to rise in the future as the prevalence of overweight and obesity increases.

Cancer mortality figures are higher for people with obesity, as they have a worse prognosis. A large cohort study in the USA estimated that 14% of all deaths from cancer in men and 20% of those in women could be attributed to overweight and obesity.⁴

Moreover, obesity/overweight is an important risk factor for a range of other expensive chronic diseases, with an Access Economics report estimating the health system costs of obesity in 2005 to be \$873 million.⁶ The total financial costs of obesity were estimated at \$3.7 billion, of which 37% is borne by the Commonwealth. The total health costs from cancer due to obesity were \$107.3 million, with 79% of the costs related to bowel and breast cancers. Given the social and psychological consequences of obesity, intangible costs such as impaired quality of life are significant, with estimates for obesity-related cancers at \$218 million.⁷

A 2007 OECD report identified Australia as the “fifth-fattest nation” in the developed world,⁸ while an Australian study focused on middle-aged waistlines and published in June 2008 indicated Australia was “the fattest nation in the world”.⁹ In the 10-year period from 1985 to 1995, the level of combined overweight/obesity in Australian children more than doubled, while the level of obesity tripled in all age groups and for both sexes.¹⁰

Reducing obesity must therefore be integral to the COAG “Health and Hospitals Reform” process.

Defining obesity

“Obesity” is defined as having a body mass index (BMI) of 30 and over; “overweight” is defined as a BMI of 25 to 29.99 (Table 1).¹ BMI is calculated by dividing a person’s weight in kilograms by their height in metres squared (kg/m^2).

Table 1: Body mass index (BMI) definitions according to the World Health Organization¹¹

Category	BMI (kg/m^2)
Underweight	<18.5
Healthy weight	18.5 to <25
Overweight	25 to <30
Obese	≥ 30

Another way to measure overweight and obesity is waist circumference, where a measurement (around the narrowest point for women or around the navel for men) 80cm and over for women or 94cm and over for men indicates being overweight (Table 2).¹²

Table 2: NHMRC waist circumference definitions¹²

Risk of metabolic complications	Waist Circumference (cm)	
	Women	Men
Increased	≥ 80	≥ 94
Substantially increased	≥ 88	≥ 102

Weight gain and obesity develop when there is an imbalance between the energy intake from food and drink and energy expenditure from physical activity and other metabolic processes.¹²

Obesity and cancer

Prevention

The World Cancer Research Fund (WCRF) recently released a comprehensive report on food and the prevention of cancer.¹³ The report found convincing evidence that excess body fat (total adipose tissue) is a risk factor for cancers of the colorectum, kidney, pancreas, oesophagus, endometrium and post-menopausal breast cancer.¹³ It also found that excess body fat probably increased the risk of gallbladder cancer and there was limited suggestive evidence that excess body fat increased the risk of liver cancer.¹³ However, excess body fat was also found to probably decrease the risk of pre-menopausal breast cancer.¹³

The WCRF found that abdominal fatness (central adipose tissue) was convincingly associated with an increased risk of colorectal cancer, and probably increased the risk of cancer of the pancreas, endometrium and breast (in post-menopausal women).¹³ The WCRF also found that weight gain in adulthood probably increased the risk of post-menopausal breast cancer.¹³

Table 3: Proportion of cancers attributable to overweight and obesity^{2,14,15}

Cancer type	Proportion of incidence attributable to overweight or obesity	Aspects of the association between overweight or obesity and cancer
Endometrial cancer	39%	Women with a BMI of >25 have a two- to three-fold increase in risk Limited evidence suggests risk is similar in pre- and post-menopausal women Risk is greater with upper body obesity
Oesophageal adenocarcinoma	37%	Strong association between being overweight and adenocarcinomas of the lower oesophagus and the gastric cardia, with a two-fold increase in risk in individuals with a BMI of >25 Association seems greater in men than women
Renal (kidney) cancer	25%	Individuals with a BMI of >30 have a two- to three-fold increase in risk compared to those below 25 The effect is similar in men and women
Gallbladder cancer	24%	Limited evidence available but there is a suggestion of almost a two-fold risk, especially in women
Colorectal cancer	11%	Association seems greater in men than women Risk not dependent on whether person has been overweight in early adulthood or later in life
Post-menopausal breast cancer	9%	Increase in risk of 30% in women with a BMI >28 compared to those with a BMI of <21

Cancer-causing mechanisms

The evidence linking obesity/overweight to cancer is clear. Studies into the biological mechanisms responsible for the link are ongoing. The latest research suggests that excess body weight may influence cancer risk because it can:

- lead to elevated levels of insulin-like growth factor 1 (IGF-1), insulin and leptin which can promote the growth of cancer cells.¹³ Excess body weight (particularly abdominal fatness) exacerbates insulin resistance which leads to the pancreas producing more insulin. Hyperinsulinaemia increases the risk of colorectal and endometrial cancer, and possibly pancreatic and kidney cancer.⁴ Increased circulating leptin levels are associated with an increased risk of colorectal and prostate cancer.^{16,17}
- increase sex steroid hormones, including oestrogens, androgens and progesterone.¹³ Adipose tissue is the main site of oestrogen synthesis in men and post-menopausal women.⁴ Increased insulin and IGF-1 levels (from body fatness) result in higher oestradiol levels in men and women,⁴ and testosterone levels in women.¹³ Higher sex hormone levels are particularly associated with endometrial and post-menopausal breast cancer.¹⁸ Body fatness may protect against pre-menopausal breast cancer, as obese women tend to have anovulatory menstrual cycles, which lead to lower levels of oestrogen.^{18,19}

- raise the inflammatory response which can promote cancer development.¹⁸ Obesity has been described as a state of low-grade chronic inflammation. Adipose tissue produces pro-inflammatory factors, and obese people have higher levels of tumour necrosis factor alpha (TNF- α), interleukin-6 and C-reactive protein than normal weight individuals.²⁰ Leptin is also higher with excess body weight, and it can function as an inflammatory cytokine.²¹

Body weight and cancer survival

As well as a healthy body weight being associated with preventing cancer, it is also associated with preventing cancer recurrence and improving survival for people diagnosed with cancer.²² There is a reasonable level of evidence that weight management and physical activity positively impacts on quality of life, cancer recurrence and overall survival for cancer survivors.²³ Randomised controlled trials, such as the Women's Intervention in Nutrition Study (WINS), have shown encouraging results of the effectiveness of nutrition and physical activity interventions in improving outcomes for cancer survivors.²²

Weight loss and cancer risk

Up to now we have known that excess body weight increases cancer risk, but there is a lack of evidence to suggest whether losing weight would lower cancer risk. Recent evidence indicates that weight loss in those who are overweight lowers breast cancer risk.²³ This is probably linked to the fall in circulating oestrogen levels seen with weight reduction.²³

Australia: an unenviably 'fat nation'

Our obesogenic environment

In 2007 a global report identified Australia as the "fifth-fattest nation" in the developed world,⁸ while an Australian study focused on middle-aged waistlines and published in June 2008 indicated Australia was "the fattest nation in the world".⁹

A number of factors contribute to the recent increase in obesity/overweight in Australia. In the past, Australian lifestyles fostered a higher degree of physical activity and restricted food choices. Today there is access to a wide variety of cheap, energy dense/nutrient poor foods that are marketed powerfully; and the population is encouraged, directly or indirectly, to avoid expending energy through physical activity. This has led researchers to describe the environment as 'obesogenic', in that it inhibits appropriate dietary and physical activity patterns and encourages energy imbalance.²⁴

Table 4: Factors that are linked to weight gain and obesity.³

Evidence	Decreased risk	Increased risk
Convincing	Regular physical activity	Sedentary lifestyles
	High intake of dietary fibre	High intake of energy-dense* and micronutrient-poor* foods
Probable	Home and school environments that support healthy food choices for children	Heavy marketing of energy-dense* foods and fast-food outlets
		High intake of sugar-sweetened soft drinks and fruit juices

	Breastfeeding	Adverse socioeconomic conditions
Possible	Low glycaemic index foods	Large portion sizes
		High proportion of food prepared outside the home
		“Rigid restraint” and “periodic disinhibition” eating patterns
Insufficient	Increased eating frequency	Alcohol

* Energy-dense and micronutrient-poor foods tend to be processed foods that are high in fat and/or sugars. Low energy-dense foods, such as fruit, legumes, vegetables and whole grain cereals, are high in dietary fibre and water. In children specifically, overweight and obesity are influenced by a lack of sufficient activity and excessive time spent in sedentary activities.^{25,26,27} Poor food habits such as the consumption of sugary drinks, confectionery and high-fat foods are also contributing factors.^{26,27}

Breastfeeding and birth weight

The WCRF reported that being breastfed[#] probably decreases the risk of weight gain and becoming overweight or obese.⁷ In addition, breastfeeding^{*} convincingly decreases a woman’s chance of developing breast cancer and there is limited suggestive evidence that it can decrease the risk of ovarian cancer.⁷ Furthermore, breastfeeding is known to help protect infants against infections and other childhood diseases.⁷

Higher birth weights have been linked to a probable increased risk of breast cancer in pre-menopausal women.⁷

Obesity in Australian Adults

In Australia, obesity has more than doubled in the past 20 years.²⁸ Obesity rates rose from 7.2% in men in 1980 to 17.1% in 2000, and for women the rise was even greater, moving from 7.0% in 1980 to 18.9% in 2000.²⁹

Between 1995 and 2004-5, the average weight of an Australian adult male rose from 80kg to 84kg, while females rose from 65kg to 68kg.³⁰ Research has confirmed that people are gaining weight faster than previous generations, with a higher number of people entering adulthood weighing more.^{31,32} Those born later in the 20th century (Generation X) will gain weight at a faster rate than their parents did.^{31,32}

In 2003, the Australian Institute of Health and Welfare estimated that there may be as many as 3.3 million Australian adults who are obese and 5.6 million who are overweight.³³

Recent figures from the 2004–05 National Health Survey (using self reported data) show that 54% of Australian adults are either overweight or obese.³⁴ This has increased from 15 years ago when 38% of adults were regarded as being overweight or obese.³⁴ In 2004-05, 62% of men were overweight or obese compared with 45% of women.³⁴

* Studies reporting on breastfeeding use the term with different meanings: some distinguish only between “ever” and “never”, while others report results from extended and exclusive breastfeeding. However, the evidence on cancer shows that sustained, exclusive breastfeeding is protective for the mother and child.

Overweight and obesity are higher in those living in remote areas, and lower in affluent urban areas in NSW.³⁰ It is also more common among those with a low socioeconomic status, low income, people from Southern European and Middle Eastern backgrounds and indigenous Australians.³⁰

Obesity in Australian children

Over the last 20 years, rates of obesity in children have risen greatly in many countries, including Australia, leading some researchers to speak of an “international epidemic of obesity”.³⁵

A study looking at weight changes among Australian children over three decades found that between 1985-1997, the prevalence of overweight and obesity combined doubled, and that of obesity trebled among young Australians, but the increase over the previous 16 years was far smaller.^{36,37}

The NSW Schools Physical Activity and Nutrition Survey (SPANS) found in 2004 that 1 in 4 children, with 25% of boys and 23% of girls overweight or obese.²⁷ Children in Years 6-8 had some of the highest rates of overweight and obesity.²⁷ In boys, the prevalence rose from 15% among kindergarten children to 32% among Year 6 boys and then fell to 27% among secondary school boys.²⁷ In girls, the prevalence was about 20-25% in all groups except Year 4 students where it peaked at 30%.²⁷

The prevalence of overweight was higher in children with lower socioeconomic status, and children were more likely to be overweight if they came from a Middle Eastern background.²⁷

Around 25-50% of obese adolescents remain obese in adulthood.³⁸ This means that less than half of children who are obese during childhood go on to become obese adults. However, the later into adolescence overweight persists and the more severe the obesity, the greater the likelihood of persistence into adulthood.³⁸ Also the number of obese children and adolescents is growing, therefore the likelihood of overweight persisting into adulthood will increase in the future. This makes childhood obesity a priority for targeted preventive action.

How we can reverse obesity trends

The evidence base on how to reduce obesity on a population basis is growing, with researchers recommending a range of measures. Table 5 summarises the best options to prevent weight gain based on a framework for a broad portfolio of actions for tackling weight gain prevention.³⁹ This framework considers the level of potential health gain and level of uncertainty of risk associated with different interventions, and adopts the concept of assessing the level of ‘promise’ to judge the worth of interventions.

Table 5. Best options to prevent weight gain

Target setting	Activities
Best options for families	Reduce time spent watching TV and other sedentary behaviours

Best options for early childhood care	<p>Improve parental knowledge and skills through early childhood care facilities</p> <p>Enhance food service policies in early childhood care facilities</p> <p>Enhance policies in early childcare facilities to promote physical activity</p>
Best options for schools	<p>Establish a network of health promoting schools:</p> <ul style="list-style-type: none"> policy on food and drinks school physical environment physical activity opportunities health education curricula programs for out of school hours care
Best options for active neighbourhoods	<p>Active transport</p> <p>Safe space for exercise facilities</p> <p>Improve access to food options for families</p>
Best options for workplaces	<p>Increase options for incidental physical activity</p> <p>Reduce passive work environments</p> <p>Improve workplace food service options</p>
Best options for primary care	<p>Improve skills and knowledge of health workers</p>
Best options for industry / food supply	<p>Work with local suppliers to reduce fat in common foods</p> <p>Introduce taxation measures and subsidies to make healthy food options cheaper</p> <p>Develop a simplified food labelling system indicating energy and fat content</p>
Best options for media / marketing	<p>Reduce exposure of children to food advertising</p> <p>Implement social marketing strategies to support improvement of parents as healthy role models</p>
Best options for support structures	<p>Improve monitoring of weight and fitness status</p> <p>Implement 'whole of community' demonstration projects</p>

Source: Gill, King & Webb 2005; from the Cancer Council Australia's National Cancer Prevention Policy 2007-09

Current approaches

Despite the increasingly urgent need to prevent an obesity-related increase in disease burden, there is no comprehensive national strategy to address obesity and overweight in Australia's population. A piecemeal collection of government initiatives, largely funded and administered at the state level, have been in place over a number of years, with limited national coordination and evaluation.

In 2003, a National Obesity Taskforce, with representation from the Commonwealth and states, developed a four-year national action plan for tackling obesity.⁴⁰ This was preceded by *Acting on Australia's weight: a strategic plan for the prevention of overweight and obesity* (NHMRC 1997), *Eat well Australia: a strategic framework for public health nutrition*, (SIGNAL 2001), and *Be active Australia: a framework for health sector action for physical activity 2005 - 2010*. None has been comprehensive, sufficiently funded nor mandated to address policy issues such as food marketing.

Food marketing in Australia operates under co-regulation system, with the Australian Communications and Media Authority responsible for the Children's Television Standards, which include some regulations for limiting food advertising to children. The Advertising Standards Bureau administers industry codes of practice developed by Free TV Australia and the Australian Association of National Advertisers, which add little to the statutory regulations.

Other food policy levers include regulatory systems for food safety and marketing, including Food Standards Australia New Zealand (FSANZ), which is responsible for setting standards for the production and sale of food in Australia.

ABHI

In February 2006, COAG announced a joint \$500 million commitment to health through the Australian Better Health Initiative (ABHI), with a major focus on obesity control. More than two years later, there is no measurable obesity-related outcome to report in relation to ABHI. It is understood initial work on ABHI focused on governance issues around program management across nine jurisdictions. This is reflected in comments from Federal Labor in 2007, that ABHI was "a positive step, but progress is slow".⁴¹

The Cancer Council Australia welcomes the Commonwealth Government's subsequent commitment to build obesity control into the "Health and Hospitals Reform" process, with modest 2008-09 budget initiatives under this heading seen as a step towards a comprehensive national strategy supported by all jurisdictions through the Australian Health Care Agreements/Preventative Healthcare Partnerships.

None of these approaches appears to have made a significant impact on reversing the obesity/overweight trends in Australia. While they were all generally welcomed by the public health community, initiatives to date have lacked sufficient whole-of-government support and an effectively comprehensive and integrated approach.

The Cancer Council Australia strongly recommends that a comprehensive approach to obesity control policy be adopted, integrating research, social marketing, policy reform and program interventions to maximise return on investment. We will engage closely with the Preventative Health Taskforce to promote our priorities in greater detail.

Recommendations – general

- Consistent with the principles and objectives of the Health and Hospitals Reform Commission, COAG should endorse a comprehensive national obesity control strategy built into the Australian Health Care Agreements/Preventative Health Partnerships
- The strategy should have a clear implementation plan, including targeted funding, agreed policy objectives and mandatory reporting/performance benchmarks
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