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13/6/08



James Catchpole
Committee Secretary
Inquiry into Obesity in Australia
Standing Committee on Health and Ageing
PO Box 6021
Parliament House
Canberra, ACT 2600

Dear Mr Catchpole

Re Parliamentary Inquiry into Obesity

We are very pleased to see that a Parliamentary Inquiry into Obesity is underway. Please find enclosed the submission from the WHO Collaborating Centre for Obesity Prevention at Deakin University. Two papers which are only available as pre-publication online have been appended: one on the results of the Colac *Be Active Eat Well* Study and one on the results of the global consultation on the Sydney Principles to reduce food and beverage marketing to children. We would be happy to present to Inquiry in person or provide any other material to help the Inquiry in its important deliberations.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Boyd Swinburn".

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Submission to the Inquiry on Obesity in Australia

From

**The WHO Collaborating Centre for Obesity Prevention
Deakin University
Victoria**

1. The WHO Collaborating Centre for Obesity Prevention

Deakin University has the only WHO collaborating centre in the world that is specified for obesity prevention and it is the largest research group in Australia working on obesity prevention at the community, state, national and international levels. It has the following objectives:

1. To undertake research and build research capacity in all aspects of obesity prevention
2. To train and educate professionals and academics in the science and art of obesity prevention
3. To support WHO and Member States (especially in the Western Pacific Region) in the development, advocacy, implementation and evaluation of population-based strategies for obesity prevention
2. To provide expert advice to WHO and Member States on obesity-related matters and support for WHO and other key institutions to increase the capacity and capabilities of people in the Region for obesity prevention.

Our **research studies** are funded with about \$1-1.5million of grant income per year and involve a team of about 25 researchers, staff and PhD students. The areas of research we cover are:

- o **Community-based interventions** to reduce childhood & adolescent obesity
- o **Socio-cultural factors** related to food, physical activity & body size
- o **Health economics**, including cost-effectiveness modelling of obesity interventions
- o **Food security** and food environments
- o **Food policy and regulation** for obesity prevention and other health outcomes

We are involved in **teaching and professional training** on obesity prevention through the courses and units provided by Deakin University.

In addition, we are involved in **advocacy** at state, national, and international levels through the following organisations:

- o The **Obesity Policy Coalition** – The WHO Collaborating Centre is a founding partner
- o The **Parents Jury** – co-founded by Prof Boyd Swinburn for ANZOS

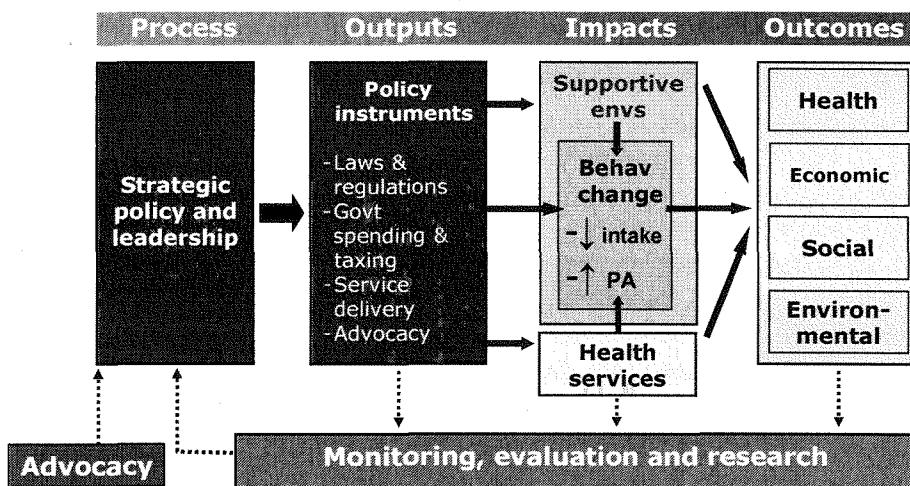


- The **Obesity Society** (Australia and NZ Obesity Society, ANZOS) – Prof Swinburn is the immediate Past President and Dr Andrea Sanigorski is a Council member
- **Public Health Association** – Dr Cate Burns is the convenor of the Food and Nutrition Special Interest Group for PHAA
- **International Obesity Taskforce** – Prof Swinburn is a Steering Committee member
- **UN Standing Committee on Nutrition** – Prof Swinburn is chairman of the Taskforce on the Responsibilities of the Corporate Food Sector on the Rights of the Child
- **World Public Health Nutrition Association** – A/Prof Mark Lawrence is a member of Council
- **Australian Public Health Nutrition Academic Collaboration** - A/Prof Mark Lawrence is a member of the collaboration

2. Overview of obesity prevention in Australia

The diagram shows the policy framework that we have adapted from the WHO Global Strategy for Diet, Physical Activity and Health.

Obesity prevention policy framework



Adapted from:
World Health Organisation (2006). *Global Strategy on Diet, Physical Activity and Health: A framework to monitor and evaluate implementation*. World Health Organization.

There are some key points from this schema in relation to the Australian situation. The '**intelligence**' in Australia in the form of monitoring, evaluation and research is nowhere near what it should be to manage this epidemic – the latest national data on childhood obesity prevalence is 13 years old!! This intelligence should stimulate a strategic policy response (which this Inquiry is part of). The response needs the full support of the **political leadership** and to date this has been good in some patches in the states but was non-existent at a federal level under the Howard Government which lay the blame and responsibility for obesity squarely on



individuals. The **policy instruments** available to governments are being used differentially. There has been some willingness to spend money on projects, but often these are poorly evaluated so we will never know if the projects worked or not. The \$124 million spent to date on the Federal Government's Active After School Communities program¹ is a classic case of large amounts of funding going to a program which was not recommended by the government's own National Obesity Taskforce, nor will it be evaluated to determine if it makes any difference to childhood obesity. The focus has been on '**soft**' instruments of education and programs which are likely to have negligible to modest effect and there has been a marked reluctance by all governments to use the '**hard**' instruments of taxation and regulation which, from the experience of controlling previous epidemics, are more likely to be effective. The government has undertaken some **advocacy** to encourage the food industry to contribute meaningfully to obesity prevention but only a few companies from the food or advertising sector are responding in a way that will contribute to reducing the obesogenic environment and their peak bodies continue to vigorously oppose any regulatory measures to protect children from commercial marketing pressures or to better inform consumer choice (eg mandated traffic light labelling). **Supportive environments** are the only possible target for regulatory measures because, unlike other epidemics such as road injuries and tobacco, there are no conceivable regulations which would require particular foods to be eaten or not eaten or exercise to be done. This means that regulations only make the healthy choices for people *easier, not mandatory*. Of the two sides of the energy balance equation, **energy intake is more important**: A high energy intake is the dominant driver of the epidemic and reducing energy intake is a more potent way to maintain a healthy weight in the population (see below). The benefits or **outcomes are multiple** – health, economic, social and environmental.

3. Basic principles for selecting priority interventions

Many actions available to government and other players are not controversial and are broadly supported. However, on some core strategies there will be a wide divergence of opinion, depending on the level of commercial, vested interests. The Inquiry will therefore be forced back to first principles in deciding on its recommendations on these contentious issues. We would urge the Inquiry to be bold in its recommendations on these matters.

Some of the basic principles for selecting priority interventions for obesity prevention are:

- **Protection of children is the paramount consideration.** The principles derived from Human Rights (Rights of the Child, Right to Health and Right to Food) should be used to determine the priorities when the risks to children's health clash with the risks to commercial profits.
- **Education-based approaches are weak.** Obesity is NOT a knowledge-deficit problem. Most people, including children, know what healthy food is and what junk food is and that regular exercise is

¹ Active After School Communities
[http://www.health.gov.au/internet/healthyactive/Publishing.nsf/Content/working-together/\\$File/ActiveSchool.pdf](http://www.health.gov.au/internet/healthyactive/Publishing.nsf/Content/working-together/$File/ActiveSchool.pdf)



good for health. Education approaches alone (increasing knowledge) have proven to be weak in influencing most epidemics (eg alcohol and tobacco). Education can be powerful when there is clearly a knowledge deficit, the 'cost' of behaviour change is low (ie it is very easy to do), and the benefits are potentially high. The classic example of powerful education is around the sleeping position of infants to avoid cot death. Changing the behaviours that lead to obesity definitely do not fall into this category. Education needs to be part of the mix of interventions but not amongst the top priorities.

- **Social marketing.** We have seen large amounts of money wasted in Australia on poor social marketing – short term, not researched, not evaluated, not linked to on-the-ground actions, and not linked to NGOs or public health groups. To date, the campaigns have been controlled by government agencies, had a strong political input, and have had little input from experts in public health and social marketing. Social marketing is about motivating for behaviour change or attitude change, and it can be valuable if:
 - It is complementary to on-the-ground policies and programs (and not the 'main course')
 - Closely linked and coordinated with the implementation of policies and programs
 - Is well researched and evaluated
 - Is backed by long term funding

- **Policy is often powerful, low cost, equitable, sustainable, and popular.** It is powerful because it is required rather than suggested (eg NSW's school food policy versus Victoria's school food guidelines). It is often much cheaper than programs, social marketing, or health care services because it is just setting the 'rules'. It often reduces inequalities because it covers environments for the whole population or sub-populations (education, by contrast, is preferentially picked up by the more advantaged sections of society). Unlike programs or education approaches, once policies are in place they tend to stay there (eg healthy food policies in canteens). Finally, policies and regulations can also be very popular with parents (eg banning junk food and drinks from sale in schools, banning food marketing that targets children) because it is supporting them in their efforts to raise healthy children.² The experiences with policy-based approaches in tobacco control and road toll and injury prevention are very instructive for obesity prevention.

- **Environmental changes make healthy choices easier.** Healthy environments make the default choices the healthy choices. The Economic aspects of the environment (costs of goods and services and the level of incomes to pay for them) are powerful determinants of behaviour and are amenable to changes to promote healthy choices (eg taxes, subsidies). Policy and environmental changes are more equitable than 'message-based' approaches which will be

² Australian Consumers Association: CHOICE. Food Marketing: Child's Play?
<http://www.choice.com.au/viewarticle.aspx?>



preferentially picked up and acted upon by more advantaged groups. We commend the establishment of ACCC enquiry in the cost of groceries as a first step to ensuring affordable healthy food – a major environmental determinant of obesity

- **Action on food intake is more powerful than action on physical activity.** A balanced portfolio must have both aspects and physical activity has many benefits in addition to helping maintain a healthy body weight. However, the energetics of the matter are inescapable. Physical activity makes up only about 25-35% of total energy expenditure. The part of physical activity that is amenable to change (mainly increasing recreational activity and active transport) is, in turn, only a fraction of the energy costs of activity. For a population of children to reduce their energy intake by 10% would mean a reduction of about 785kJ/d or about 450ml of soft drink. To achieve the same 10% energy balance deficit by increasing physical activity, it would require them to walk for an extra 2.5 hours a day to burn the 785kJ/d. Either of these behavioural changes would reduce their weight by about 4.5% or 1.4kg.³
- **Reductions in food marketing to children are potentially very powerful.** The ACE Obesity modeling⁴ has shown that reductions in exposure to junk food advertising to children are likely to be highly effective and cost effective, and indeed cost-saving. This is because the intervention is cheap, the number of children affected is very large, it involves energy intake rather than energy expenditure (above), and it involves changing the type of food and drink consumed (ie a change to less energy dense foods and drinks). In Australia, from 1985 to 1995, the energy intake of children increased by 13%⁵ virtually all due to an increase in the energy density of foods and drinks consumed. In other words, a large part of increasing energy intakes is due to increasing energy density rather than increasing weight of food consumed.
 - **The right question to ask** in relation to food marketing to children is NOT: 'Has food marketing to children been proven to cause childhood obesity?' The question for governments is: 'Are regulations to minimize food marketing to children likely to be an effective and cost-effective strategy as a part of a multi-pronged approach to reduce childhood obesity?'
 - **Self regulation** of marketing to children aims to ensure that individual advertisements are not illegal, untruthful, misleading or indecent. They are not intended to reduce the high volume of effective marketing of junk food to children.

³ Swinburn BA, Jolley D, Kremer PJ, Salbe A, Ravussin E. Estimating the impact of energy imbalance on body weight in children. *Am J Clin Nutr* 2006;83:859-863

⁴ Haby MM, Vos T, Carter R, Moodie M, Markwick A, Magnus A, Tay-Keo K-S, Swinburn BA. A new approach to assessing the health benefit from obesity interventions in children and adolescents: the assessing cost-effectiveness in obesity project. *Int J Obesity* 2006; 30:1463-1475

⁵ Cook P, Rutishauser IHE, Seelig M. Comparable data on food and nutrient intake and physical measurements from the 1983, 1985 and 1995 National Nutrition Surveys. Brisbane: Australian Food and Nutrition Monitoring Unit; 2001.



- **All major interventions need to be thoroughly evaluated.** With our current state of evidence, we cannot afford to implement major activities without evaluating their effectiveness (and preferably cost effectiveness). There are many examples in Australia of tens or hundreds of millions of dollars going into non evidence-based, poorly evaluated, cost-ineffective, politically-driven investments.
- **System changes not projects are needed.** Recurrent funding sources are needed for the major cost items – community and professional capacity building, social marketing, evaluation and research, monitoring, and changes to the built environment. Funding mostly short term projects is not what is needed.
- **Monitoring is fundamental.** We act on what we measure. The last national data on childhood obesity prevalence is 13 years old! The gross under-monitoring of such a serious epidemic is an indictment on the health system and has probably contributed in large part to the 'blindness' of society to the growing problem over the last 30 years.

4. Major action points for the Inquiry to consider

Listed below are what we consider to be the major points for action. There will be others in addition to the ones listed but, we believe that it is important for the Inquiry to focus on the big issues about getting the policy backbone right, ensuring the funding streams are flowing and getting the governance and monitoring structures right. It would be a mistake to delve into the detail of the myriad of current and proposed community programs. As with getting the economy right, it is about having the systems, policies, institutions and monitoring in place – not what the content of each business is. Similarly, with obesity prevention, the focus of the government should be to put the conditions in place to allow the communities, the professionals, the parents, and individuals to make the changes needed.

Intelligence

- A. **Regular monitoring program:** This is a must. A comprehensive monitoring program is needed to track changes and give local agencies feedback on how well they are doing. The experience from other countries is instructive, and the Arkansas approach⁶ of measuring every child every year and providing feedback to parents is currently the most comprehensive system in place. It is probably at least partly responsible for halting the rise in childhood obesity in this second fattest state in the US. This issue carries with it a number of sensitivities about measuring children and providing that information back to parents. Therefore, its piloting and implementation need to be well evaluated.
- B. **Program evaluation, knowledge translation, applied research capacity.** This is at the intersection of research and program delivery and

⁶ Ryan KWP et al. Arkansas fits fat. Translating research into policy to combat childhood and adolescent obesity. Health Affairs. 2006;25:992-1004



as such it is falling through the cracks. Traditional research funding agencies like NHMRC tend to see it as the program funder's responsibility and program funders (governments) are reluctant to put service delivery money into evaluation. The cost of determining effectiveness and cost effectiveness of a program will not typically fit into the 10-15% of program funding which is traditionally allocated for evaluation. The establishment of Centres of Excellence for evaluation and knowledge translation would certainly help to fill this existing gap.

Leadership

- C. Priority issue at high level COAG, AHMAC and whole-of-government.** Where obesity sits on the agenda at the highest levels of government bodies and whether it stretches beyond the health portfolios are two key indicators of the level of government commitment. It is pleasing to see the establishment of this Inquiry into obesity and the Preventive Health Taskforce as markers of the priority given to this important area. The level of budget commitment to population prevention action to improve healthy eating and promote physical activity remains tiny (probably less than 0.5% of the health budget) and is totally out of proportion with the enormous health costs of the consequences of obesity, poor diet and low physical activity.
- D. DoHA and state/territory departments of health adopting organizational healthy eating and physical activity policies.** One inexpensive, yet powerful sign of leadership would be for all government departments (led by the health departments) to enact internal policies for promoting healthy eating and physical activity. This would certainly provide the governments with the credibility they need to advocate for workplaces in the private sector to do the same thing.

Funding and taxation

- E. Tax on alcohol, tobacco and junk food to fund population prevention.** As mentioned, population prevention efforts are funded at such a low level (<0.5%) it is hard to find a line item for them in health expenditure breakdowns. Boosting this part of the health budget turned out to be the number one priority for the health stream at the recent Vision 2020 Australia Summit. Lifting this budget item to, say 5%, over the coming years will be difficult if it means taking funding from existing health care services which is why the Summiteers identified boosting the existing excise taxes on alcohol and tobacco and adding a new one on 'junk food' as a way of not only funding preventive health but also reducing consumption of the products that are causing the problem in the first place. Some serious analysis is needed on this top 2020 priority and it is likely that any junk food taxes will need to be offset by subsidies on fruit and vegetables to ensure that such a tax regime is not regressive.
- F. Identify ongoing funding streams.** There will be no shortage of calls on new funding for prevention programs, and the ones mentioned below should, in our opinion, be the high priority items.



- a. **Community capacity building systems for obesity prevention.** We have proof-of-principle from the Colac *Be Active Eat Well* project⁷ that this approach to obesity prevention works to reduce unhealthy weight gain and reduce the SES gradient with obesity. Community capacity building means providing communities with the funding, systems, and support programs to allow them to implement what is best to promote healthy eating and physical activity. It builds up their own expertise and systems to find the solutions, rather than expecting them to deliver a pre-determined program. The DoHA funding of the **CO-OPS Collaboration** (Community Obesity Prevention Sites Collaboration) will allow the lessons from the 20 or so similar projects around the country to be collated and disseminated more widely. The CO-OPS Collaboration (which is just about to be established) will provide the 'glue' and network services to capitalize on the existing community-based work and help to take this to the next stage of moving beyond demonstration projects into systems that allow for national scale up.
- b. **Social marketing.** To be done well, social marketing for obesity prevention needs to follow the Quit model – ongoing, substantial government funding but at arms length from government. Innovative, evidence-based, evaluated, connected and effective social marketing will not be possible from government departments in Canberra or probably even the states and territories.
- c. **Evaluation and research.** This has already been mentioned and funding for research and evaluation will, more than anything else, lift the quality of intervention program.
- d. **Public transport infrastructure.** There is an enormous difference in infrastructure funding for roads and for public transport (see the Obesity Policy Coalition's submission) which needs to be redressed.

Regulations and enforceable policies

- G. **Comprehensive regulations to reduce marketing to children.** This is a touchstone issue for childhood obesity, just as reducing marketing of cigarettes was for tobacco control. Self regulation by the industry is not designed to shield children from being effectively targeted for obesogenic products and statutory regulations will be needed. We believe that this is a top priority for action. All the evidence needed to back the case has been detailed elsewhere⁸ and in the submission from the Obesity Policy Coalition. **The Sydney Principles**, which were launched at the International Congress on Obesity in Sydney 2006, have undergone a global consultation process.⁹ They provide the seven principles to guide

⁷ Sanigorski AM et al. Reducing unhealthy weight gain in children through community capacity building: results of a quasi-experimental intervention program, *Be Active Eat Well*. *Int J Obesity* (in press) – copy of this paper is appended because it is only available online pre-publication

⁸ Children's Health of Corporate Wealth? The case for banning television food advertising to children. Coalition on Food Advertising to Children. Available at: <http://www.chdf.org.au/foodadstokids/>

⁹ Swinburn BA et al. The 'Sydney Principles' for reducing the commercial promotion of foods and beverages to children. *Public Health Nutrition* 2008 – in press. A copy of the paper is appended since this is only available as pre-publication online.



action which will substantially reduce commercial promotion of foods and beverages to children. There was a very high level of support for the Sydney Principles during the global consultation process. Several peak bodies for the advertising and food industries responded and were fully supportive of all the principles except for the one on the need for statutory regulations – they believed that self-regulatory approaches were ‘working’. Responses on the age of the definition of a child were varied but the vast majority suggested at least an age of 16 should be used. There was a split among respondents on whether regulations to reduce marketing that targets children should include all commercial products (eg the Quebec model), all foods and beverages, or only energy-dense, nutrient-poor foods and beverages (eg the UK model). The first mentioned takes a child rights perspective, the last mentioned takes a risk-benefit perspective, weighing up the potential risks to industry profits against the potential gains for children’s health. The Sydney Principles are:

The Sydney Principles

Guiding principles for achieving a substantial level of protection for children against the commercial promotion of foods and beverages

Actions to reduce commercial promotions to children should:

1. **SUPPORT THE RIGHTS OF CHILDREN.** Regulations need to align with and support the United Nations Convention on the Rights of the Child and the Rome Declaration on World Food Security which endorse the rights of children to adequate, safe and nutritious food.
2. **AFFORD SUBSTANTIAL PROTECTION TO CHILDREN.** Children are particularly vulnerable to commercial exploitation, and regulations need to be sufficiently powerful to provide them with a high level of protection. Child protection is the responsibility of every section of society – parents, governments, civil society, and the private sector.
3. **BE STATUTORY IN NATURE.** Only legally-enforceable regulations have sufficient authority to ensure a high level of protection for children from targeted marketing and the negative impact that this has on their diets. Industry self regulation is not designed to achieve this goal.
4. **TAKE A WIDE DEFINITION OF COMMERCIAL PROMOTIONS.** Regulations need to encompass all types of commercial targeting of children (e.g. television advertising, print, sponsorships, competitions, loyalty schemes, product placements, relationship marketing, Internet) and be sufficiently flexible to include new marketing methods as they develop.
5. **GUARANTEE COMMERCIAL-FREE CHILDHOOD SETTINGS.** Regulations need to ensure that childhood settings such as schools, child care, and early childhood education facilities are free from commercial promotions that specifically target children.
6. **INCLUDE CROSS BORDER MEDIA.** International agreements need to regulate cross-border media such as Internet, satellite and cable television, and free-to-air television broadcast from neighbouring countries.
7. **BE EVALUATED, MONITORED AND ENFORCED.** The regulations need to be evaluated to ensure the expected effects are achieved, independently monitored to ensure compliance, and fully enforced.



- H. **Healthy food service policies for government-funded or licensed institutions.** Governments fund or license many institutions including schools, early childhood facilities, and hospitals. Having a requirement for those institutions to have a healthy food service policy that ensures healthy food choices are provided and actively promoted would be an important and powerful step towards promoting healthy food choices.
- I. **Front of pack nutrition signposting.** The FSANZ nutrient profiling system needs to be more widely applied and one of the areas of urgent need is to provide a standardized system for front of pack labeling. The expanding plethora of logos on the front of packs is potentially very confusing. The option of a traffic light system needs to be fully investigated (for further information, see the Obesity Policy Coalition submission).

Advocacy

- J. **Organisational policies supporting healthy eating and physical activity.** As previously mentioned, if public and private organisations have internal policies promoting healthy eating and physical activity, they would go a long way to promoting healthy behaviours (just as smokefree indoor areas has had a significant effect on overall smoking). However, governments would be in a more credible position to advocate for businesses to take up this challenge if government departments were leading the way.
- K. **Food industry changes.** Many aspects of the food environment are in the hands of the food industry, including the hands of the very powerful duopoly of supermarket retailers whose control extends from production to marketing. Some of the changes that the food industry can make may be positive or at least neutral for revenue – examples include changing product compositions or launching new, healthier products or reducing serving sizes. The combined effects of these actions from across the industry would be powerful for population nutrition outcomes. In the more responsive companies, these changes are underway and to be applauded, but many have made little effort to date to contribute to the solutions to make the environment less obesogenic. Some actions, such as limiting marketing to children, are perceived by the industry as being a threat to revenue, so they are being opposed as matter of commercial risk management. Internationally, governments are effectively giving the food and advertising industries the opportunity to control marketing to children through self-regulation, but there are problems with the ‘get your house in order or else’ approach. There is no benchmark to which industries are being held accountable and no regulatory measures in the wings if they don’t meet the benchmark. Therefore, benchmarks of the exposure of children to food and beverage marketing are urgently needed.

Services

- L. **Management programs for overweight and obesity children and adults.** These are grossly under-funded at present. Treatment programs with strong evidence credentials (like bariatric surgery) need to be better funded and programs with weak evidence credentials (like primary care



management or work place programs) need to be implemented but with the backing a of strong evaluation component. This could be achieved through evaluated pilot programs in primary care, work place or other community settings.

If further information or references are needed for any of the issues mentioned, we would be pleased to try to provide them.





ORIGINAL ARTICLE

Reducing unhealthy weight gain in children through community capacity-building: results of a quasi-experimental intervention program, Be Active Eat Well

AM Sanigorski¹, AC Bell², PJ Kremer¹, R Cuttler³ and BA Swinburn¹

¹School of Exercise and Nutrition Sciences, Deakin University, Geelong, Victoria, Australia; ²Population Health, Hunter New England Area Health Service, Newcastle, New South Wales, Australia and ³Colac Area Health, Colac, Victoria, Australia

Background: Be Active Eat Well (BAEW) was a multifaceted community capacity-building program promoting healthy eating and physical activity for children (aged 4–12 years) in the Australian town of Colac.

Objective: To evaluate the effects of BAEW on reducing children's unhealthy weight gain.

Methods: BAEW had a quasi-experimental, longitudinal design with anthropometric and demographic data collected on Colac children in four preschools and six primary schools at baseline (2003, $n=1001$, response rate: 58%) and follow-up (2006, $n=839$, follow-up rate: 84%). The comparison sample was a stratified random selection of preschools ($n=4$) and primary schools ($n=12$) from the rest of the Barwon South Western region of Victoria, with baseline assessment in 2003–2004 ($n=1183$, response rate: 44%) and follow-up in 2006 ($n=979$, follow-up rate: 83%).

Results: Colac children had significantly lower increases in body weight (mean: -0.92 kg, 95% CI: -1.74 to -0.11), waist (-3.14 cm, -5.07 to -1.22), waist/height (-0.02 , -0.03 to -0.004), and body mass index z-score (-0.11 , -0.21 to -0.01) than comparison children, adjusted for baseline variable, age, height, gender, duration between measurements and clustering by school. In Colac, the anthropometric changes were not related to four indicators of socioeconomic status (SES), whereas in the comparison group 19/20 such analyses showed significantly greater gains in anthropometry in children from lower SES families. Changes in underweight and attempted weight loss were no different between the groups.

Conclusions: Building community capacity to promote healthy eating and physical activity appears to be a safe and effective way to reduce unhealthy weight gain in children without increasing health inequalities.

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Keywords: community capacity building; longitudinal; healthy eating; physical activity; children; social gradient

Introduction

Childhood obesity is a global epidemic^{1,2} and only population-level prevention strategies can curb this growing problem. In Australia, as in other Western societies, the burden of obesity is greatest among those who are most disadvantaged,^{3,4} and the obesity-prevention strategies developed must therefore reach children in these vulnerable families who have an increased risk of obesity from an early age.⁵

There is a broad agreement that, to reduce obesity, priority needs to be given to multistrategy, multisetting prevention efforts, particularly in children and adolescents.^{6,7} Controlled

obesity prevention trials in childhood are few in number, mostly short term (1 year or less), focused on only a single or a few strategies (education or social marketing only) and settings (school-based only) and largely showed little or no impact.^{8–10} Until recently, the studies that did show an impact tended to be high-intensity, less sustainable approaches (for example, extensive classroom time promoting individual behavior change).^{8–10} It is clear that innovative approaches that work and are flexible, effective, cost effective, equitable and sustainable are urgently needed, and comprehensive community-wide interventions hold promise as one such option.^{6,7,10–12}

We are currently evaluating a capacity-building approach to community-wide interventions aimed at reducing childhood obesity in six controlled intervention demonstration projects in a broad range of contexts, age groups and ethnic groups across four countries (Australia, Fiji, Tonga and New Zealand).¹³ It is rare that communities have sufficient

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resources or capacity to promote health, and therefore a process of capacity building is required. Hawe *et al.*¹⁴ have described capacity for health promotion as 'the value added to a system so that it can sustain any particular health promotion or disease prevention program...and [so it can] initiate additional health promotion programs'. In this context, community capacity refers to the community's own ability to bring about change¹⁵ and means enhancing skills, reorienting organizational priorities, creating partnerships and structures, building leadership and community ownership, and finding the resources to promote healthy eating and physical activity in a sustainable way. This capacity-building approach provides the flexibility to account for local contexts of target age groups, ethnicities, socioeconomic backgrounds, rural/urban contexts and existing community activities.^{10,11,16}

The aim of this article is to report the results from the first of these demonstration projects, Be Active Eat Well (BAEW), which was situated in Colac, a town of about 11 000 inhabitants in rural Victoria, Australia. The primary outcomes were differences in the increases in anthropometry (weight, waist and body mass index (BMI)-z score) over time and the relationship between baseline indicators of children's household socioeconomic status and changes in children's anthropometry.

Methods

Be Active Eat Well intervention program

Be Active Eat Well was designed to build the community's capacity to create its own solutions to promoting healthy eating, physical activity and healthy weight in children aged 4–12 years and their families. The intervention program was designed, planned and implemented by the key organizations in Colac, particularly Colac Area Health (lead agency), Colac Otway Shire and Colac Neighbourhood Renewal, with Deakin University providing support, training and evaluation. The action plan was developed by the agencies and other stakeholders in 2002 and implemented from 2003 to 2006. It had 10 objectives, with the first three being capacity building, increasing awareness of the project messages and evaluation. The capacity-building objective included broad actions around governance, partnerships, coordination, training and resource allocation. Five objectives targeted evidence-based behavior changes (reducing television viewing, reducing sugar drinks and increasing water consumption, reducing energy dense snacks and increasing fruit intake, increasing active play after school and weekends, increasing active transport to school), and each objective had a variety of strategies (such as social marketing, programs and policies). The two final objectives were intentionally more innovative: a small parent support and education program and a project to improve the deep-frying practices in food outlets (healthier frying oils, wider chips). Table 1 provides an overview of the BAEW intervention strategies. The Victorian Department of Human Services

Table 1 Overview of the Be Active Eat Well intervention strategies

<i>Nutrition strategies^a</i>	
School-appointed dietitian for support	
School nutrition policies (including policies around water, fruit breaks, canteens, fundraising)	
Training for canteen staff	
Canteen menu changes	
Lunch pack (healthy combos in designed packaging; 549 sold during the pilot period and remaining packs, about 4000, provided to schools for ongoing use)	
Professional development for teachers about healthy eating curriculum	
One-off class sessions conducted by dietitians	
Taste tests of new canteen menu items	
Fresh taste program (Melbourne Markets)	
Healthy breakfast days	
Interactive, glossy, children's newsletters (set of four 1600 copies of each newsletter distributed through the schools)	
Teacher fliers (linking to children's newsletters)	
Promotional materials (for example, balloons, stickers)	
Happy healthy families program (small groups, 6 weeks)	
Parent tips sheets (set of 10)	
Healthy lunchbox tip sheets	
Community garden	
Choice chips program (7 hot chip outlets in Colac)	
Fruit shop displays (3 shops involved)	
<i>Physical activity strategies^b</i>	
After-school activities program	
Be Active Arts program	
Walking school buses	
Walk to school days	
Promotional materials (for example, balloons, stickers)	
Sporting club coach training	
Sporting club equipment	
Two class sets of pedometers for rotation between schools	
<i>Screen time^c</i>	
TV power-down week, including a 2-week curriculum	
Interactive, glossy, children's newsletters (series of five 1600 copies of each distributed thorough the schools)	
Teacher fliers (linking to children's newsletters)	
<i>Across all strategies</i>	
Sponsorship of the Colac Kana festival 2004	
Sponsorship of kids day out 2003	
Broad media coverage over 4 years (57 newspaper articles, 21 paid adverts)	
Incorporation of BAEW strategies on Municipal Early Years Plan (Colac Otway Shire)	
Incorporation of BAEW strategies into Integrated Health Promotion Plan (Colac Area Health)	
Incorporation of BAEW strategies into Municipal Public Health Plan (Colac Otway Shire)	
Social marketing training	
Obesity-prevention training	

^aIncrease water, fruit and vegetables; decrease sweet drinks and energy dense snacks. ^bIncrease active transport and time spent being active after school.

^cLimit TV viewing time.

provided the funding for the intervention (\$AUD100 000 per year) and most of the funding for the evaluation. Much of the work of the part-time project staff centered on social marketing, coordination and implementation of intervention activities. This also involved reorienting schools and other partners toward providing and promoting healthy food choices and opportunities for physical activity.

Study design and subjects

The study design was quasi-experimental with nonrandomized intervention and control groups and measures taken pre- and post-intervention in the same children. This design is viewed as useful for community-based interventions where it is not possible for randomization and also for testing the efficacy and feasibility of an intervention, as in this community-based demonstration project. The presence of a comparison group greatly strengthens this experimental design as secular trends can also be accounted for. The town of Colac was the intervention site for the demonstration project with all preschools ($n=4$, age 4 years) and primary schools ($n=6$, age 5–12 years) in Colac with ≥ 20 enrolled students being included in the sample frame. Colac was purposively selected as the intervention site as it had not previously been engaged in similar community-based projects, it was geographically contained and it had good infrastructure and community networks to support the intervention program.

The remainder of the Barwon South Western region of Victoria (population 323 000) was the comparison site. The region (one of eight in Victoria) includes Geelong (population of 199 684 in 2003) as the regional center and covers the south-west coast of Victoria, and it is further divided into eight school networks. It is socioeconomically disadvantaged compared with state-wide averages, and in 2003, 12% of the population were born overseas. The sample frame for the comparison group was a stratified, random sample of the Barwon South Western region, with the Colac school network and any schools within a 30 km radius excluded to avoid possible contamination. The schools and preschools across the remaining seven networks were stratified according to enrollment size (large: ≥ 150 ; small: ≥ 20 ; not included: < 20) and probability proportional to size sampling was used to select large schools across the seven networks. Small schools and preschools were drawn from one network (simple random sample), and then probability proportional to size was used to select the actual schools.

Survey methodology

Children were measured in 2003/2004 (baseline) and again in 2006 (follow-up). Weight and height were measured in accordance with standard methods for the collection of anthropometric data in children¹⁷ by trained researchers. All measures were taken in light clothing and without shoes. Weight was measured to the nearest 0.05 kg using electronic scales (A&D Personal Precision Scale UC-321) and height was measured to the nearest 0.1 cm using a portable stadiometer (PE87 portable stadiometer). Waist circumference was measured at the level of the umbilicus using a plastic tape measure. Two measurements were recorded for each parameter, and where there was disagreement between these measures (> 0.1 kg for weight, > 0.5 cm for height, > 0.3 cm for waist), a third measure was recorded. The mean of all measures recorded was used for analysis. Self-reported

information regarding children's physical activity and nutrition behaviors, dieting practices, episodes of teasing and satisfaction with their body shape and size was captured with a 16-question survey administered to children in grades 5 and 6 only (aged 10–12 years) at baseline and in years 8 and 9 only at follow-up.

A Computer-Assisted Telephone Interview of parents/guardians was used to capture information regarding parents' socio-demographic characteristics, including maternal and paternal education level and household income (AUD). These were categorized as follows: education: has completed a university degree; has a Technical and Further Education (TAFE) qualification (for example, diploma, trade qualification); completed secondary school; did not complete secondary school; household income: \$100 000+, \$75 000–\$99 999, \$50 000–\$74 999, \$30 000–\$49 999, $< \$30 000$. We also used the 2001 Socioeconomic Index For Areas (SEIFA) (index of advantage/disadvantage), which is an area-level indicator of socioeconomic status (SES). The SEIFA classification used was based on geographic postal area of the child's residential address, and a low score on the SEIFA Index indicates an area of social disadvantage.¹⁸ For analysis, SEIFA scores were classified into high SES and low SES based on the statewide median.¹⁸

Statistical analysis

BMI (weight in kg/height in m^2), waist/height ratio and BMI-z score (calculated against the 2000 CDC growth reference from the United States using the zanthro module in Stata) were calculated and differences in mean baseline anthropometry were determined by *t*-test. Differences in follow-up anthropometry were determined by univariate regression analysis, with group (intervention or comparison) entered into the model together with the following covariates: baseline variable, age at follow-up, height at follow-up (for models with BMI, BMI-z score and weight only), gender and time between measurements. Incidence rate ratios were used to determine whether the rate of increase of overweight/obesity was different in the intervention and comparison groups (rate of incidence in the intervention group/rate of incidence in the comparison group). The International Obesity Task Force age-specific BMI cut-offs were also used to classify children's weight status as either thinness grades 1–3, healthy weight, overweight or obese^{19,20} using the LMS Growth Microsoft Excel module.²⁰ Analyses were conducted using Stata SE 9.2 (StataCorp, College Station, Texas, USA), with clustering by school at follow-up—therefore, school was the primary sampling unit. In all cases, $P \leq 0.05$ was considered statistically significant.

Statement of ethics

We certify that all applicable institutional and governmental regulations concerning the ethical use of human volunteers were followed during this research. This study was approved

by the Deakin University Human Research Ethics Committee, the Victorian Department of Education Employment and Training and the Catholic Education Office. This trial has been registered on the Australian Clinical Trials Registry (ACTRN012607000373471), and the results are presented in line with the revised CONSORT statement.²¹ Owing to the nature of the quasi-experimental design, masking of group assignment was not possible.

Results

BAEW program and evaluation participation

The BAEW interventions were applied across the Colac community to all children in the target age range from mid-2003 to mid-2006, and activities were planned with a community engagement and equity focus. Actions occurred for all of the behavioral objectives (Table 1), although the sugar drinks, active play and fruit objectives had a higher intensity of actions than active transport and television viewing. The total person-hours required to deliver the intervention is estimated to be approximately 6,789, and detailed process evaluation reports of the intervention can be found on the BAEW website (www.goforyourlife.vic.gov.au/hav/articles.nsf/pracpages/Be_Active_Eat_Well).

Although the intervention was delivered to all children in the Colac community, only a subset consented to being involved in the evaluation study and the flow chart of these children is shown in Figure 1. The intervention activities were available to all children regardless of their participation or nonparticipation in the evaluation study. In the intervention group, a response rate of 58% was achieved at baseline, and of those, 84% were measured at follow-up. The final analysis sample was 833. In the comparison group, a response rate of 44% was achieved at baseline, and of those, 83% were measured at follow-up—the final analysis sample was 974. In both groups, the sample size for some of the SES indicators was smaller, as data was not available for some measures (see Figure 1).

Table 2 shows the characteristics of the intervention and comparison populations at baseline and follow-up. There were no significant differences in age, weight, waist circumference, BMI, BMI-z score or proportion of overweight and obese children between the two groups at baseline, although height was significantly lower in the intervention group ($P=0.01$). This baseline difference in height may relate to the lower proportion of males and the children being slightly younger in the intervention group compared to the comparison group (although these were not statistically different).

The proportion of children whose parents were born overseas is higher in the comparison group (12%) than the intervention group (6%), although both groups still have only a low level of cultural diversity and represent a predominately Anglo-Saxon Australian population. The

most prevalent countries of birth (if not born in Australia) were New Zealand and countries comprising the United Kingdom. In the comparison group, there were also 16 and 11 families where the mother was born in Croatia and the Philippines, respectively. This level of representation was not seen in the intervention group, and in both groups, all other countries were prevalent at frequencies less than 7 (and generally <3).

The collection of data took substantially longer at baseline than follow-up due to the time needed to recruit schools and obtain parental consent, as well as working around school timetables and vacation periods. This resulted in a longer duration between measurements in the intervention group compared with the comparison group (mean 2.97 years (95% CI: 2.97–2.98) vs 2.11 years (2.10–2.13), respectively). As the children were growing, this had an impact on the raw outcome variables. Owing to the differences in duration of follow-up, statistical analyses were only conducted on the adjusted outcome variables.

Changes in anthropometry

Table 3 shows the differences in outcome measures between comparison (reference) and intervention children at follow-up adjusted for covariates. Children in Colac gained less weight (−0.92 kg), showed significantly lower increases in waist circumference (−3.14 cm), BMI-z score (−0.11) and waist/height ratio (−0.02) compared with the comparison population. The prevalence of overweight and obesity increased in both groups, and the incidence of overweight/obesity was not significantly different between the intervention and comparison group (point estimate of incidence rate ratio: 0.91 (95% CI: 0.65–1.28)). The size of the clustering effect of schools ranged from 0.1 to 0.5 for the anthropometric measures of weight, waist and height.

Associations with socioeconomic status

Associations between the adjusted changes in the five anthropometric measures and the four individual- and area-level indicators of socioeconomic status are shown in Table 4. In the comparison population, all regression coefficients were negative and 19 of 20 analyses were statistically significant (lower SES associated with a greater weight gain). In the intervention group, all coefficients were negative, but none were statistically significant.

Doing no harm

Examination of a number of 'safety' measures showed that the BAEW intervention did not increase the proportion of children participating in behaviors that would put them at increased risk of eating disorders. Specifically, the intervention did not increase the prevalence of thinness/underweight (intervention from 3.1% at baseline to 3.6% at follow-up, comparison 2.2–2.4%, NS) or the self-reported

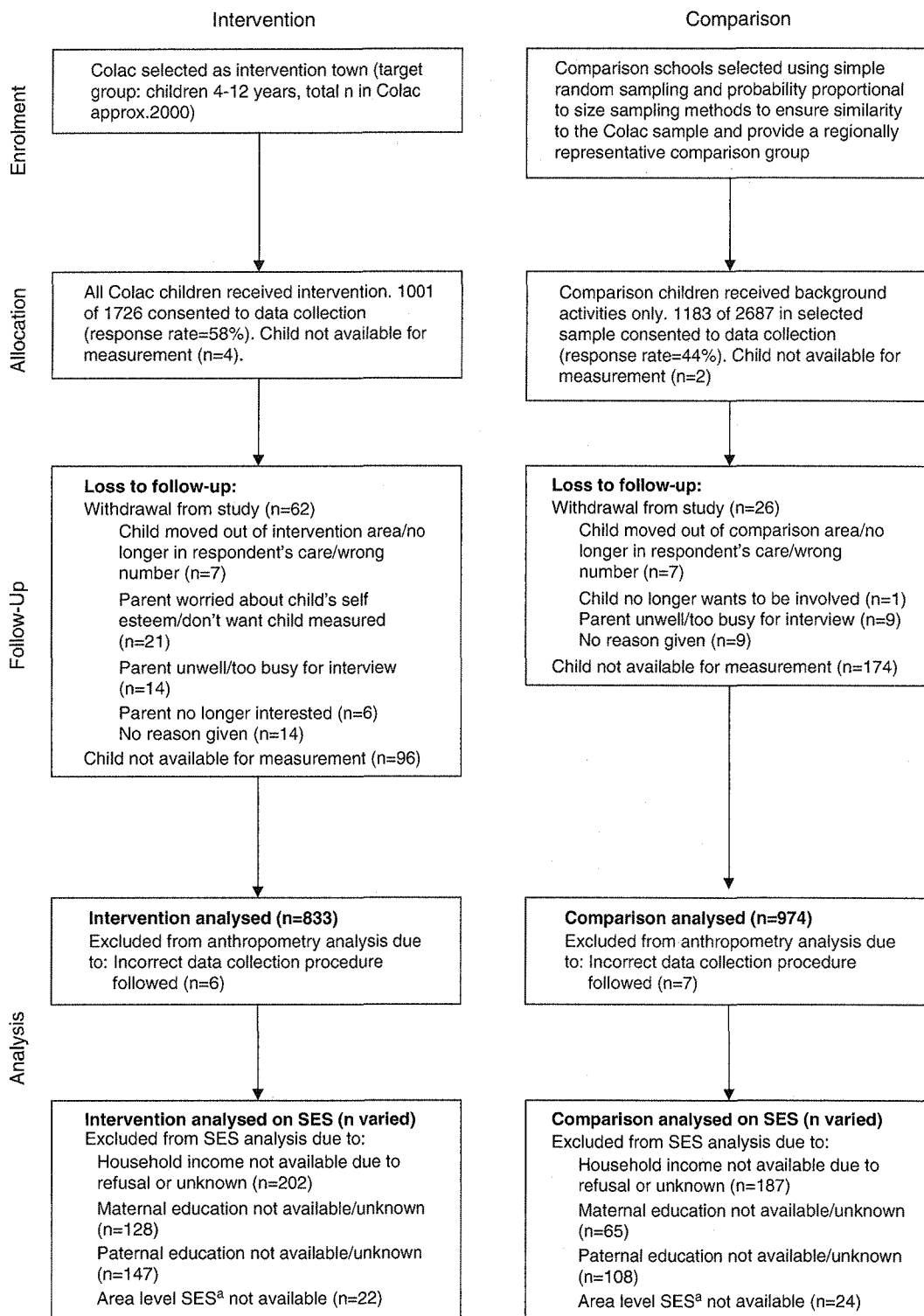


Figure 1 Flow diagram showing participation in an evaluation design of BEAW. ^aSES = SEIFA index of advantage/disadvantage based on residential postcode.¹⁶

Table 2 Characteristics of the study populations at baseline and follow-up

	Baseline (2003–2004)		Follow-up (2006)	
	Intervention	Comparison	Intervention	Comparison
<i>n</i>	1001	1183	833	974
Age, years (s.d.)	8.21 (2.26)	8.34 (2.22)	11.13 (2.27)	10.31 (2.14)
Female (%)	53.6	50.2	53.7	49.1
Height, cm (s.d.)	128.9 (14.2)	130.5 (13.9) ^a	146.2 (14.6)	142.3 (13.7)
Weight, kg (s.d.)	30.7 (10.4)	31.4 (10.4)	43.3 (14.7)	39.9 (13.3)
BMI, kg/m ² (s.d.)	18.0 (3.0)	17.9 (2.9)	19.7 (3.9)	19.2 (3.6)
BMI-z score (s.d.) ^b	0.63 (0.93)	0.60 (0.88)	0.54 (0.94)	0.58 (0.88)
Waist circumference, cm (s.d.)	63.4 (8.9)	63.5 (9.1)	70.7 (11.5)	67.7 (10.7)
Waist-for-height (s.d.)	0.49 (0.05)	0.49 (0.05)	0.48 (0.06)	0.48 (0.06)
Thinness, grades 1–3 (%) ^c	3.11	2.20	3.60	2.36
Overweight (%) ³	18.76	19.73	21.61	20.43
Obese (%) ³	8.53	6.77	8.76	7.91
Time between measures, years (s.d.)			2.97 (0.11)	2.11 (0.25)

^aSignificantly different from baseline intervention group, $P=0.01$. ^bBMI-z score calculated against the 2000 CDC growth reference from the United States. ^cCole et al., 2007.¹⁹

Table 3 Adjusted differences in outcome measures between comparison (reference) and intervention children at follow-up

Variable	Difference	Robust standard error	P	95% CI
Body weight (kg)	-0.92	0.41	0.03	-1.74 to -0.11
Waist circumference (cm)	-3.14	0.96	0.01	-5.07 to -1.22
BMI (kg/m ²)	-0.28	0.21	0.20	-0.7 to 0.15
Waist/height ^a	-0.02	0.01	0.01	-0.03 to -0.004
BMI-z score	-0.11	0.05	0.04	-0.21 to -0.01

Abbreviation: CI, Confidence interval. Regression models adjusted for baseline variable, age and height at follow-up, gender, duration between measurements and clustering by school. ^aHeight excluded from this model.

Table 4 Adjusted regression coefficients of changes in anthropometric measures for individual- and area-level indicators of SES in the intervention and comparison populations^a

	Delta waist	Delta BMI	Delta BMI-z score	Delta weight	Delta waist/height
<i>Intervention</i>					
Maternal education	-0.39, NS	-0.12, NS	-0.02, NS	-0.27, NS	-0.002, NS
Paternal education	-0.20, NS	-0.10, NS	-0.003, NS	-0.33, NS	-0.001, NS
Household income	-0.34, NS	-0.11, NS	-0.02, NS	-0.26, NS	-0.002, NS
Area level SES	-0.44, NS	-0.23, NS	-0.04, NS	-0.74, NS	-0.002, NS
<i>Comparison</i>					
Maternal education	-0.50, $P=0.03$	-0.16, $P=0.006$	-0.04, $P<0.001$	-0.38, $P=0.006$	-0.003, $P=0.05$
Paternal education	-0.52, $P=0.008$	-0.17, $P=0.004$	-0.04, $P=0.005$	-0.41, $P=0.003$	-0.004, $P=0.02$
Household income	-0.35, NS	-0.14, $P=0.006$	-0.04, $P=0.006$	-0.27, $P=0.02$	-0.003, $P=0.05$
Area level SES	-1.87, $P=0.006$	-0.46, $P=0.003$	-0.12, $P=0.006$	-1.00, $P=0.002$	-0.01, $P=0.001$

Abbreviation: NS, nonsignificant; SES, socioeconomic status. ^aModels adjusted for baseline variable, age at follow-up and height at baseline and follow-up, gender, duration between measurements and clustering by school.

level of children's (grade 5 and 6 at baseline) 'unhappiness' ('fairly' and 'extremely') with their body size (intervention 6.3–13.4%; comparison 8.2–15.5%; NS); proportion not feeling good about themselves (intervention 2.5–9.8%; comparison 2.3–4.8%, NS); attempts to lose weight in the previous 12 months (intervention 37.6–34.5%; comparison 42.5–45.2%, NS); frequency of teasing about weight (intervention 5.3–5.7%; comparison 4.1–9.5%, NS). Increases in these variables are likely to be due to the children's transition

into adolescence where body dissatisfaction is common, particularly for girls.²²

Discussion

Be Active Eat Well in Colac was a 3-year capacity-building program to increase community promotion of healthy eating and physical activity in a disadvantaged community

in Victoria, Australia. It was effective at slowing the rate of weight gain (by about 1 kg) and waist gain (about 3 cm) in primary school-aged children, in a manner that was safe. Importantly, this is the first obesity prevention program to show significant reductions in the social gradient in weight gain, and therefore this approach may be very valuable for reducing obesity-related health inequalities in children.

Controlled interventions to reduce or prevent childhood obesity have, to date, shown little or no effect. There have been only a small number of studies and they have been relatively short term and tend to be limited to a few strategies and/or settings.⁸⁻¹⁰ More recently, however, promising results have emerged from obesity-prevention studies with wider community engagement. The first-year results from the APPLE community-based intervention in New Zealand showed a significant reduction in BMI-z score (-0.12 units), although a reduction in the prevalence of overweight/obesity was not seen.²³ The APPLE intervention had a focus on increasing physical activity outside of school through a community-based activity program. The 'Shape Up Somerville: Eat Smart, Play Hard' intervention engaged the community widely and was specifically focused on changing children's environments. This project achieved a significant reduction in BMI-z score (0.1 units) in the intervention children after 1 year.²⁴ The design of BAEW and Shape Up Somerville: Eat Smart, Play Hard was similar, and although we did not measure the effect after 1 year, in BAEW, there was a change in BMI-z score of 0.1 units over 3 years. This effect is similar to that seen in APPLE, and together, these three studies demonstrate that community-based interventions are effective and that BMI-z score is sensitive to change in community-level assessments.

The magnitude of the changes in these three studies is of public health significance, indicating that community-wide action can reduce unhealthy weight gain in children; however, the changes were still not of sufficient magnitude to reduce the incidence of overweight or obesity. Although this is the ultimate goal of obesity-prevention interventions, categorical weight status is a blunter measure of changes compared with continuous measures such as BMI-z score or waist circumference. To date, there are no published community-intervention studies that have demonstrated a reduction in the prevalence of childhood obesity. The challenges ahead, therefore, are to determine the level of intervention required to achieve a reduction in childhood overweight and obesity prevalence, how to ensure sustainability of the successful intervention strategies within the community and to assess the longitudinal effects of the reductions in unhealthy weight gain as children become adolescents and then adults.

We recognize that this is a demonstration project and the potential biases involved in evaluating complex community-based interventions under real world conditions and have attempted to minimize these or statistically adjust for them. The Colac community was purposively selected for the BAEW intervention, and the results may not apply in other

communities. We believe that the use of a capacity-building approach has built in flexibility by design and should overcome this, and the intervention activities are designed to be transferable to other communities as they have been delivered through fairly standard settings/services. However, as the Colac community is fairly homogeneous in terms of ethnicity, applying the intervention activities to communities with high levels of ethnic diversity may require further adaptation. Additionally, a quasi-experimental design has more risk of bias than individual or setting-based randomization (however, having the regional population as the comparison group reduces this potential bias); the differences in duration of follow-up between the intervention and comparison groups occurred for logistical reasons (this was adjusted for in the analyses); the nonblinding of group allocation during testing; response rates of about 50% (although, if more overweight children were not included in the evaluation, the bias may contribute to an underestimate of the impact of the intervention).

The BAEW project employed a community capacity-building approach to the intervention, rather than using a predeveloped program to apply to the community. The main characteristics of this approach are as follows: to enhance the skills of health professionals and stakeholders, to reorient organizational priorities, to develop networks and partnerships, to build leadership and community ownership and to develop sustainable health-promotion strategies. These characteristics are appealing for a number of reasons: (1) they allow flexibility and so are adaptable to varying local contexts (for example, age of target group, locality, ethnicity, existing capacity, resources), (2) they promote sustainability as they are community owned and operated, and involve reorienting existing resources, (3) they can be scaled up with an injection of external funds for a defined period of time (for example, 3-4 years) to enable the organizational, training and resources issues oriented toward promoting healthy eating and physical activity, which is then followed by increased internal organization funding for these initiatives and reduced external resources and (4) a community capacity-building approach has the potential to build the policies, environments and community ethos over time, more than externally designed and applied programs or campaigns.

A community-wide, capacity-building approach has the potential to influence the underlying social and economic determinants of health. We saw some evidence of this upstream impact through reduction in the social gradient with weight gain, and this implies that community-wide interventions should not increase health inequalities in relation to child overweight.

Conclusion

A capacity-building approach to reducing childhood obesity is flexible, cost effective, sustainable, equitable and safe. BAEW has shown that this approach can effectively prevent

unhealthy weight gain in children and has given it sufficient credentials to warrant implementation and evaluation (including cost-effectiveness) in other communities. In addition, efforts to determine the long-term maintenance of anthropometric changes in those exposed to the interventions and community sustainability beyond the initial period of external funding are required.

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Short communication

The 'Sydney Principles' for reducing the commercial promotion of foods and beverages to children

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Abstract

A set of seven principles (the 'Sydney Principles') was developed by an International Obesity Taskforce (IOTF) Working Group to guide action on changing food and beverage marketing practices that target children. The aim of the present communication is to present the Sydney Principles and report on feedback received from a global consultation (November 2006 to April 2007) on the Principles.

The Principles state that actions to reduce marketing to children should: (i) support the rights of children; (ii) afford substantial protection to children; (iii) be statutory in nature; (iv) take a wide definition of commercial promotions; (v) guarantee commercial-free childhood settings; (vi) include cross-border media; and (vii) be evaluated, monitored and enforced.

The draft principles were widely disseminated and 220 responses were received from professional and scientific associations, consumer bodies, industry bodies, health professionals and others. There was virtually universal agreement on the need to have a set of principles to guide action in this contentious area of marketing to children. Apart from industry opposition to the third principle calling for a statutory approach and several comments about the implementation challenges, there was strong support for each of the Sydney Principles. Feedback on two specific issues of contention related to the age range to which restrictions should apply (most nominating age 16 or 18 years) and the types of products to be included (31% nominating all products, 24% all food and beverages, and 45% energy-dense, nutrient-poor foods and beverages).

The Sydney Principles, which took a children's rights-based approach, should be used to benchmark action to reduce marketing to children. The age definition for a child and the types of products which should have marketing restrictions may better suit a risk-based approach at this stage. The Sydney Principles should guide the formation of an International Code on Food and Beverage Marketing to Children.

Keywords
Marketing
Children
Obesity
Human rights

The legal protection of children from exploitation has a long history, and now the rising epidemic of childhood obesity is putting this spotlight on the commercial marketing of obesogenic foods and beverages to children. Multiple strategies are needed to address the epidemic, and controls on marketing consistently rate as a high

priority option in preventing obesity among public interest stakeholders and the public, although commercial interest organisations rank this option as a low priority⁽¹⁻³⁾. Regulations and international codes are being called for by health ministers within Europe⁽⁴⁾, health ministers at the World Health Assembly⁽⁵⁾ and two working groups of

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the United Nations System Standing Committee on Nutrition⁽⁶⁾. The food and advertising industries have opposed the idea of legislation, placing great emphasis on industry self-regulation and consumer personal responsibility⁽⁷⁾.

Marketing to children has been challenged as inherently exploitative because young children are incapable of discerning its commercial intent⁽⁸⁾, while children of all ages are susceptible to its influence. Several evidence reviews have concluded that marketing clearly influences food preferences, positive beliefs, food purchases and consumption^(8–11). The huge global volume of food marketing that targets children⁽¹²⁾ through television and many other marketing channels undermines the efforts of governments and parents to promote healthy eating in children and runs contrary to the aims of the WHO Global Strategy on Diet, Physical Activity and Health (Objective 40), which has been endorsed by 192 countries⁽¹³⁾.

The debate, therefore, has shifted from 'whether marketing is an obesogenic influence on children's diets' to 'how to curb this influence as one of the priority strategies for preventing childhood obesity'. Modelled estimates suggest that increased restrictions are potentially a very effective measure in reducing childhood obesity⁽¹⁴⁾. Several countries already have some form of regulation in place⁽⁷⁾, although most of the recent developments have been in the form of industry self-regulation, with fewer examples of statutory regulations⁽¹⁵⁾. To support national and transnational efforts to make further progress on this issue, the International Obesity Taskforce (IOTF) established a Working Group on Marketing to Children (the authors of this paper) to develop a set of principles to guide action on changing marketing practices that target children. The Working Group's objective was to develop Principles which, if applied, would ensure a substantial level of protection for children against the exposure to commercial promotions for obesogenic foods and beverages and contribute significantly to efforts to reduce childhood obesity. This work would serve to complement wider efforts by the International Association for the Study of Obesity and other global non-governmental organisations that are calling upon Member States to mandate the WHO to develop an International Code on Food and Beverage Marketing to Children.

Process

The IOTF Working Group members drafted the Principles based on the common themes that arose at the WHO Forum and Technical Meeting on the Marketing of Food and Non-alcoholic Beverages to Children in Oslo in May 2006⁽¹⁶⁾ and the existing international regulatory environment⁽⁷⁾.

The Working Group used a rights-based approach where possible, drawing on children's rights as specified

in the United Nations Convention on the Rights of the Child⁽¹⁷⁾ and operationalised as the right to adequate food⁽¹⁸⁾ and freedom from obesity⁽⁶⁾. This approach places the debate at the more fundamental level of a civilised society's responsibility to protect its citizens, especially the vulnerable. An alternative is the risk-benefit approach where an attempt is made to weigh up multiple likelihoods of harm and gains in terms of outcomes. It is a difficult and highly contested task, for example, to measure and compare the likely improvements in children's health *v.* the likely reductions in corporate profits from marketing restrictions. A risk-benefit approach is intrinsically more favourable to the case for commercial interests whereas a rights-based approach is intrinsically more favourable to the case for children. Since it is children who suffer the consequences of targeted marketing of energy-dense foods and beverages without having any powers to change it, a rights-based, protection-oriented approach seemed the most appropriate.

The Principles were defined to cover the 'commercial promotion of foods and beverages to children' and did not consider issues related to social marketing campaigns funded by government or non-commercial sources. Marketing encompasses many strategies (classically stated as promotion, price, product and place), all of which provide opportunities for interventions to help address obesity; however, promotion is considered the most amenable to a regulatory approach.

The first draft of guiding principles was distributed to delegates (~ 2500) at the 10th International Congress on Obesity in Sydney in September 2006 and written feedback was received from forty-three delegates. A revised version of the 'Sydney Principles' (see box) was posted on the IOTF website⁽¹⁹⁾ and distributed by email and organisation newsletters to a wide variety of individuals and organisations with an interest in nutrition, public health or food marketing as part of UN agencies, the health and science sector, civil society and the private sector. Contacts came from many sources (e.g. the Internet and IOTF and Working Group member networks). The global consultation on the draft Principles was conducted from November 2006 to April 2007.

The consultation requested views on the need for a set of Principles, specific feedback on each of the Principles, and responses to two other key issues: (i) which products should be covered by marketing restrictions (only energy-dense, nutrient-poor foods and drinks; all foods and drinks; or all products); and (ii) up to what age should marketing restrictions apply. The web page attracted approximately 6000 'hits' and responses were received from 128 individuals or organisations⁽¹⁹⁾. Ninety-five per cent of respondents were from high-income countries, with a total of eighteen countries represented, and 65% of respondents were identified as health professionals or organisations. Two national consumer organisations and

Box The Sydney Principles***Guiding principles for achieving a substantial level of protection for children against the commercial promotion of foods and beverages***

Actions to reduce commercial promotions to children should:

1. **Support the rights of children.** Regulations need to align with and support the United Nations Convention on the Rights of the Child and the Rome Declaration on World Food Security, which endorse the rights of children to adequate, safe and nutritious food.
2. **Afford substantial protection to children.** Children are particularly vulnerable to commercial exploitation, and regulations need to be sufficiently powerful to provide them with a high level of protection. Child protection is the responsibility of every section of society – parents, governments, civil society and the private sector.
3. **Be statutory in nature.** Only legally enforceable regulations have sufficient authority to ensure a high level of protection for children from targeted marketing and the negative impact that this has on their diets. Industry self-regulation is not designed to achieve this goal.
4. **Take a wide definition of commercial promotions.** Regulations need to encompass all types of commercial targeting of children (e.g. television advertising, print, sponsorships, competitions, loyalty schemes, product placements, relationship marketing, Internet) and be sufficiently flexible to include new marketing methods as they develop.
5. **Guarantee commercial-free childhood settings.** Regulations need to ensure that childhood settings such as schools, child care and early childhood education facilities are free from commercial promotions that specifically target children.
6. **Include cross-border media.** International agreements need to regulate cross-border media such as Internet, satellite and cable television, and free-to-air television broadcast from neighbouring countries.
7. **Be evaluated, monitored and enforced.** The regulations need to be evaluated to ensure the expected effects are achieved, independently monitored to ensure compliance, and fully enforced.

several peak associations for food and beverage and advertising industries (such as the International Council of Beverages Association, International Council of Grocery Manufacturers Associations and World Federation of Advertisers) also provided considered submissions. In addition, the Oxford Health Alliance conducted a poll through its networks receiving forty-nine responses from twenty-seven countries, which mirrored the responses made to the Working Group⁽²⁰⁾. Thus, a total of 220 written submissions were made through the various channels; however, it is the 128 responses (above) which are further analysed here. The Working Group reviewed the submissions further and debated any points of contention (below).

Comments on the Principles***General comments***

Virtually all respondents (97%), including those from industry groups, supported the need to have such a set of guiding principles (with no additional principles suggested). Several comments in the general feedback referred to the need for the Principles to be placed in the context of achieving a balance between the personal responsibilities of parents and of children, the ethical responsibilities of the private sector, and the child protection responsibilities of governments and society.

Principle 1 ('Support the rights of children') and Principle 2 ('Afford substantial protection to children')

Comments received on Principles 1 and 2 were supportive with no specific issues raised.

Principle 3 ('Be statutory in nature')

Apart from the industry respondents, there was little specific comment on this Principle. The industry bodies disputed the need for statutory regulations, stating that the existing self-regulatory approaches were working well, industry was continuing to respond to public pressure and consumer needs, and regulations already protected consumers from deceptive practices. In evaluating this argument, the Working Group considered the primary purpose of advertising self-regulatory codes, which is to ensure that the content of specific advertisements is legal, decent, truthful and honest⁽²¹⁾. The Working Group believed that self-regulatory codes, by their nature, even if fully enforced, would not substantially reduce the large volume and high impact of marketing obesogenic foods and beverages to children. Their reach appears to be limited and fragmented⁽²²⁾, especially in low-income countries, and, arguably, the undertakings by some large food companies to refrain from marketing to children^(23,24) are inconsistent and very limited in scope. In addition, the Working Group believed that the effectiveness of

self-regulation will always be limited because such codes are voluntary and without meaningful sanctions. Thus, the Working Group considered that only statutory regulation could guarantee substantial protection to children (Principle 2) and deal with cross-border marketing (e.g. regional broadcasting and the Internet, Principle 6).

Principle 4 ('Take a wide definition of commercial promotions')

There was very strong support for regulations to cover all commercial promotions, given that children are being increasingly targeted through a variety of marketing strategies such as sponsorships, competitions, loyalty schemes, websites, mobile phone text messages and viral marketing⁽²⁵⁾. However, some respondents highlighted some of the practical challenges in implementing actions based on this Principle. These included the complexities of trying to regulate promotions on packaging or through the Internet, and the need to find alternatives for children's sport being sponsored by fast-food restaurants, confectionery or soft drinks companies.

Principle 5 ('Guarantee commercial-free childhood settings') and Principle 6 ('Include cross-border media')

Commercial-free childhood settings and cross-border regulations also received strong support in the comments from respondents. While no comments disputed the Principles themselves, some highlighted the likely implementation difficulties in defining 'childhood settings' and ensuring that positive relationships between the private sector and childhood settings were not lost.

Principle 7 ('Be evaluated, monitored and enforced')

The only comments received on this Principle stressed the need to adequately fund independent compliance monitoring and enforcement.

As a result of the comments received, the Working Group provided clearer wording in the explanatory notes that accompanied the Sydney Principles but did not change the wording of the Principles themselves (see box).

Response to other key issues

Which products should be covered?

The question of which products should be covered by marketing restrictions was not included in the Sydney Principles because there did not appear to be sufficient consensus to create a principle; so this issue was put to respondents with three options provided.

1. Total prohibition. The most restrictive option, and the one that most faithfully adhered to a rights-based approach, was one that restricted the marketing of 'all commercial products' including games, toys, books

and events to children. This approach not only sets the highest ethical benchmark but also has been applied for over 25 years in Quebec, where there is a prohibition on print and broadcasting advertising targeted at children under 13 years of age⁽²⁶⁾, and in Sweden with similar restrictions applying to television programming for children under 12 years old⁽²⁷⁾. This was supported by 31% of those who chose one of the three options (33/121).

2. Prohibition of all food and beverage advertising. The second most restrictive option was one that covered 'all foods and beverages'. The rationale for this option was that definitions of the disallowed products were clear and that in practical terms very little commercial marketing for healthy foods and beverages would be excluded simply because this is a tiny segment of current products marketed to children. This option was supported by 24% of respondents.
3. Conditional prohibition based on content. The final option was the least restrictive, taking more of a risk-based than a rights-based approach, and was for the restriction of commercial promotions for 'energy-dense, nutrient-poor foods and beverages'. This forms the basis for the new UK regulations to restrict television advertising during programming specifically for children up to the age of 16 from 2008⁽²⁸⁾. This option was supported by 45% of respondents.

In the comments provided, there was some recognition that targeting only unhealthy foods and beverages would be a valuable start because of the close association with obesity, whereas restricting marketing of all products to children was a much bigger step and broader than the obesity and health agenda. Others noted that the division of foods into 'healthy' and 'unhealthy' would need to be made on scientific grounds, but even then it ran the risk of shifting the focus away from protecting children and onto the details of the classification system. Another option mentioned was to restrict the commercial marketing of all foods and beverages unless they had been shown to have health benefits, such as fruit and vegetables.

To which age should restrictions apply?

This was the second important issue upon which the Working Group felt there was not enough consensus to place it as a principle, and so respondents were asked their opinions. The age of 18 years corresponds to the standard definition of a child adopted by the United Nations Convention on the Rights of the Child⁽¹⁷⁾. Of those who specified an age limit (*n* 110), 70% favoured restrictions up to at least the age of 16, with over half of this group stating the age of 18. Some respondents commented that the rationale for ensuring that the restrictions extend to older children was that they are also affected by both the obesity epidemic and commercial marketing, and the most logical approach would be to

ensure that children of all ages are protected. There were also calls for a 'stepped approach' across the age range in recognition of the greater awareness of the persuasive intent of marketing and the higher expectation to accept responsibility for their behaviour in older children.

In light of the diversity of responses and comments received, the Working Group decided that, at this stage, the age and product criteria could only be covered in the context of each country or region. However, an international code on marketing to children should define these issues more tightly to provide clearer guidance to countries and consistency across countries.

Conclusions

The consultation has found strong support among a diverse group of interested stakeholders (although the majority of respondents were from high-income countries and had a health background) for a set of guiding principles for actions to provide a substantial level of protection to children from food and beverage marketing. Apart from some food and advertising industry dissent expressed towards a statutory approach and several implementation challenges, there was strong support for each of the Sydney Principles. These Principles are now available to be widely promoted to those interested in children's health globally and the IOTF Working Group believes they will serve as an important advocacy tool by providing a basis for benchmarking action. The Working Group also believes that these Principles should be used not only to underpin the development of national regulations, regional agreements and recommendations, but they could also be used as the foundation for developing a WHO Code on Food and Beverage Marketing to Children.

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