

A PRIORITY-DRIVEN  
RESEARCH AGENDA FOR

# OBESITY PREVENTION

April 2014

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a healthy  
australia



Australian Government  
Australian National Preventive Health Agency



Government of **Western Australia**  
Department of **Health**



# promoting a healthy australia.

A Priority-driven Research Agenda for Obesity Prevention  
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- Ms Jane Martin Executive Manager, Obesity Policy Coalition who was a member of the project working group
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- Members of the Agency's Expert Committee on Obesity
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- Ms Tess Winslade, Assistant Director, Obesity Policy for the Agency who managed the project

## FOREWORD

The *Priority-driven Research Agenda for Obesity Prevention* is an initiative of the Australian National Preventive Health Agency (the Agency) and the Government of Western Australia (WA), Department of Health.

One of the greatest public health challenges confronting Australia and many other industrialised countries is the obesity epidemic. Australia is one of the most overweight developed nations, with 63 per cent of adults and one in four children overweight or obese.

The physical environment, economic factors, laws, policies and social and cultural attitudes all influence how much exercise we get and the types and quantities of foods we eat. The complexity and multitude of these influences means there is no single or simple solution to the obesity problem.

This strategic policy research agenda for obesity prevention, encompassing obesity, physical activity and nutrition priorities, has been developed through a consensus-based process. The report is also an annex to the Agency's *National Preventive Health Research Strategy 2013-2018* which aims to foster Australia's capacity to carry out applied research to enable evidence-informed activities by governments, health care systems, individuals, and by civil society and private organisations in the area of preventive health.

Australian and international obesity prevention experts participated with us to identify research questions that are relevant and important to inform future obesity prevention policies, address Australia's knowledge gaps, and develop a shared national agenda.

We would like to acknowledge the collaborative and consultative approach that was undertaken to develop this agenda and the valuable contribution of many researchers working in obesity prevention. This document will be a useful resource to guide future strategic obesity prevention-related research activity.



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## BACKGROUND

One of the greatest public health challenges confronting Australia and many other industrialised countries is the obesity epidemic. Australia is one of the most overweight developed nations, with almost two thirds (63%) of adults and a quarter (25%) of children who are overweight or obese.<sup>1,2</sup>

Rates of adult overweight and obesity have increased in Australia over the past three decades and show no signs of abating.<sup>3</sup> The prevalence of obesity is higher among lower socioeconomic and disadvantaged groups,<sup>4</sup> Aboriginal and Torres Strait Islander peoples,<sup>5</sup> people with disabilities,<sup>6,7,8</sup> people living in rural or remote areas<sup>4</sup> and some overseas-born populations.<sup>9,10</sup>

There is overwhelming evidence that health problems associated with overweight and obesity are a significant cause of preventable ill health in Australia today. High body mass increases the risk of a number of serious health conditions, particularly high blood pressure, coronary heart disease, stroke, type 2 diabetes, joint problems, sleep apnoea, psychosocial problems and some cancers.<sup>11</sup>

Among children, obesity is associated with a higher likelihood of becoming an obese adult as well as an increased risk of premature death and disability. In addition to increased future risks, obese children experience breathing difficulties, increased risk of fractures, hypertension, early markers of cardiovascular disease, insulin resistance and psychological effects.<sup>12,13</sup>

The physical environment, economic factors, regulations, policies, and social and cultural attitudes all influence the level of exercise and the types and quantities of food consumed.<sup>14</sup> Given the complexity and multitude of these influences, this means there is no single or simple solution to the obesity problem.

Modern societies are frequently described as obesogenic environments that increasingly promote a high energy intake through food and also reinforce sedentary behaviours.<sup>14,15</sup> Physical activity and dietary behaviours are influenced by factors across multiple domains, including the individual, social, physical and policy realms. As a result, comprehensive, multi-level approaches are required to address obesity.<sup>15</sup>

Turning the tide of obesity will depend on a willingness to try innovative approaches and to set a priority-driven agenda for research that has the potential to inform and develop the evidence base and accelerate necessary policy changes and investment in interventions.<sup>3</sup>

### **The purpose of this report**

This report sets out a priority-driven research agenda for obesity prevention policies in Australia. This project has been undertaken by the Agency and the Department of Health WA as part of their roles in supporting effective obesity prevention in Australia.

The obesity prevention research agenda is potentially very wide in scope, encompassing many important issues; however this project focuses on research that is most relevant to obesity prevention policies for the coming decade.

Around 25 years ago, the National Health and Medical Research Council (NHMRC) called for a greater emphasis on priority-driven research in the health sector. The NHMRC defined priority-driven research as: strategic development and evaluation research that contributes directly, in the short to medium term, to population health and the effectiveness, efficiency and equity of the health system.<sup>17</sup>

In 1999 the Australian Cancer Society and the Heart Foundation initiated a consensus process to develop Australia's first priority-driven research agenda for tobacco control. In 2012, the Agency co-ordinated the development of an updated priority-driven research agenda for tobacco control.



Following the release of the tobacco research agenda, the Agency partnered with the Department of Health WA to develop a policy research agenda for obesity prevention summarised in this report. The Department of Health WA had previously commissioned Curtin University to undertake some preliminary scoping of the obesity prevention policy research agenda and identify frameworks for a similar project. The Agency has also developed a priority-driven research agenda for the prevention of alcohol related harm.

It is hoped that this document will be a useful resource to guide future strategic obesity prevention-related research activity and funding opportunities.

The aim of developing this priority-driven research agenda was to:

- Define a strategic research agenda that will inform future evidence-based policies for obesity prevention
- Enhance the national research capacity to respond in a focused and timely fashion to emerging obesity prevention policy research needs
- Foster a shared understanding between policy makers, advocates and researchers about policy research priorities in obesity prevention and encourage linkages between these groups.<sup>18</sup>

## **Policy context for obesity prevention**

Obesity prevention has been identified as a national priority by the Council of Australian Governments (COAG). Commonwealth, state and territory, and local governments are implementing a range of strategies to encourage and motivate Australians to adopt healthy behaviours.

The National Partnership Agreement on Preventive Health (NPAPH) was announced by COAG on 29 November 2008. On 28 June 2012, the NPAPH was extended by three years from 2015 to June 2018. The NPAPH aims to address the rising prevalence of lifestyle related chronic disease by laying the foundations for healthy behaviours in the daily lives of Australians and includes a focus on settings such as communities, early childhood education and care, schools and workplaces. The NPAPH includes a range of important Commonwealth and state and territory initiatives focused on obesity prevention.

State and territory governments have also developed a range of obesity prevention policy responses in addition to those initiatives that make up the NPAPH. These include mass media campaigns, telephone advice and support programs, healthy school canteens, community programs to promote physical activity and healthy eating, healthy food and drink policies for various settings including workplaces and sporting clubs, kilojoule menu labelling in quick service outlets, urban planning initiatives and active transport programs.

A range of non-government organisations, research institutions and public health groups are also involved in the development and delivery of programs and approaches to reduce overweight and obesity as well as monitoring obesity related trends and undertaking research. Other organisations are involved in awareness raising, community based activities, education and advocacy activities to raise the profile of the issue and advocate for a range of obesity prevention programs and policies to be implemented in Australia.

## Methodology

Following agreement between the Agency and the Department of Health WA to establish the project, a working group was formed to guide the development of the project. The working group comprised representatives of the Agency, Department of Health WA, Heart Foundation WA and the Obesity Policy Coalition.

The **first stage** of this project required the development of a framework to guide the generation and organisation of research questions. The framework needed to be relevant to the Australian policy context and appropriate to identify gaps and key research issues for obesity prevention policies. The resulting framework comprised the following domains:

1. Economic interventions
2. Supply, access and availability of food
3. Advertising, promotion and sponsorship
4. Public education, awareness and engagement
5. Packaging and labelling of food
6. Reshaping physical environments
7. Settings and community-based approaches
8. Maternal and child health
9. High risk population groups
10. Emerging issues and cross cutting themes.

The **second stage** of the process required the identification of Australian and international obesity prevention researchers and experts with suitable expertise and research track records who would be prepared to generate research questions. Suitable experts were identified by members of the project working group in consultation with the Agency. These experts were then invited to participate in the project by identifying up to four potential research questions in their particular area of expertise that they believed were the most important priorities for Australia. A briefing paper was prepared to explain the framework and provide an overview of the relevant issues as well as clarify the scope of the issues to be covered under each domain. To assist in the ranking process, experts were asked to ensure that research questions were very specific, rather than too general or broad brush. Forty-six of the 67 researchers/experts generated questions for the research agenda. A list of these researchers is provided at Attachment 1.

The generation of research questions was undertaken in July-August 2013. Once the experts submitted their research questions for each of the relevant domains, the questions were reviewed by the consultants and the project working group. Some questions were merged or deleted to reduce duplication and others were amended to ensure greater clarity, or relevance to the Australian context. Authors of the research questions were also consulted about proposed changes to their questions. Gaps were identified by the project working group and some additional questions were generated by researchers and the consultant in relation to these issues. The shortlist of questions and their accompanying rationales were reviewed and approved for distribution by the project working group and some members of the Agency's Expert Committee on Obesity.

The **third stage** involved developing a list of Australian and international experts in obesity prevention to rank the research questions. The obesity prevention experts from research institutions, government and non-government organisations were approached and asked to rank research questions relating to the various domains according to their identified area of expertise. Of the 83 Australian and international obesity prevention experts approached to participate, 58 participated in the final ranking exercise (Attachment 2). Each participant was asked to read a short document that listed the proposed research questions for their relevant domain(s) and a brief rationale provided by the research experts during the second phase. They were then asked to rank their top five questions in terms of their relevance and importance to the development of Australian obesity prevention policies for the next 10 years. They were asked to rank the research questions for the relevant domain on a scale of 1-5, with 1 being the highest priority of the top five questions and 5 being the lowest priority of the top five questions.

Once the questions were ranked by the experts, a score was assigned based on each ranking. A ranking of 1 received a score of 5, while a ranking of 2 received a score of 4 and so on down to a ranking of 5 which received a score of 1. It was originally planned to present only the top five questions overall, however discussion and feedback with some participants in the process and the project working group suggested that there may be value in presenting the top questions for each domain. The Results area of this report provides a summary of the research questions judged to be most important and relevant to inform obesity prevention policies.

The release of the draft report for consultation represented the **fourth stage** of the project. This stage involved consultation with representatives of a broad range of obesity prevention representatives from the Commonwealth, and state and territory governments and non-government organisations such as Cancer Councils, the Heart Foundation, the Obesity Policy Coalition, the Australian Medical Association, peak Aboriginal and Torres Strait Islander organisations, national working groups and committees, and other peak bodies with a public health interest and role in obesity prevention.

The feedback provided on the draft report was generally very positive. However several respondents raised concerns about the overlap and duplication of some research questions that remained and a few gaps were identified. Following this feedback, the report was restructured to present a more integrated list of the research questions for each domain where questions have now been organised under key themes. These appear in the Results area of this report.

## METHODOLOGY

### PROJECT WORKING GROUP

#### STAGE 1

Development of framework to guide the development of research questions. Development of a briefing paper

Review key International and Australian obesity prevention researchers identified under each domain according to their identified area(s) of research/expertise

Review of research questions, including merging of questions to reduce duplication

List of obesity prevention policy experts & researchers identified for each of the domains in the framework

Draft report including questions and detailed description of the methodology reviewed

### EXPERT COMMITTEE ON OBESITY PREVENTION

Update on the project and the framework provided

### CONSULTATION

#### STAGE 2

International and Australian researchers briefed on the framework for the project and invited to identify priority research questions to inform obesity prevention policies for Australian relevant to their expertise and research areas

#### STAGE 3

Obesity prevention policy experts and researchers asked to prioritise the list of research questions under each domain relevant to their expertise and research areas

#### STAGE 4

Draft report with prioritised research questions distributed broadly through the obesity prevention community for comment. Report amended in line with comments

Final report reviewed

## RESULTS

### Overview

This section of the report provides an integrated summary of the research questions judged to be most important and relevant to inform obesity prevention policies.

This report covers a broad range of important obesity prevention policies and programs including economic interventions; supply, access and availability of food; advertising, marketing and sponsorship; packaging and labelling; reshaping physical environments; settings and community-based approaches; maternal and child health; and high risk population groups. It also identifies a number of cross cutting themes relevant to several of these domains as well as emerging issues.

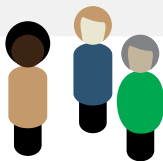
This report does not make judgements regarding the priority or importance of one domain or policy/program area versus another. Rather, it focuses on identifying the most important and relevant research questions for each domain as judged by obesity prevention experts who participated in this process. For each of the domains a list of research questions is presented and is organised under research themes in each of the policy domains. Following the consultation process, a number of research questions were merged or moved to other domains to provide a more cohesive summary of policy relevant research questions for obesity prevention in Australia.

It is recognised that the scope of some of the questions reflect work that is already underway or planned; however their addition reaffirms the importance of the research and the need to continue to grow the evidence base that ultimately informs public policy on obesity prevention.

# Domain 1: Economic Interventions

## Key issues:

- Economic policies and modelling
- Food pricing, taxes and levies
- Economic subsidies on healthy foods, physical activity and public transport



## RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

### Economic policies and modelling

- What would an obesity prevention economic benefits model look like for Australia?
- What data would need to be included in the model to assess the benefits of preventing weight gain in the population across various diseases taking into account avoided mortality and morbidity, cost savings over time and impact on adults, children and adolescents in the short, medium and long term?
- What is the cost effectiveness and the potential consequences (positive and negative, intended and unintended) of implementing economic measures to promote healthy eating and physical activity?
- What might be the cost benefits and disbenefits of taxes on unhealthy food and drinks for the overall population and for priority subgroups? What other benefits should be taken into account when an economic policy is considered as an obesity prevention measure?
- What is the likely impact, in terms of substitutes and compensatory behaviour, when fiscal policies designed to promote healthy eating are assessed within a complete food demand system, using reliable, locally applicable cross-price elasticity data?
- How could a health filter be applied to the existing Consumer Price Index (CPI) as a method of monitoring food costs?

### Food pricing taxes and levies

- What is the impact of taxes on 'unhealthy' foods on population level consumption patterns? How do the impacts vary by socio-economic group and other vulnerable population groups?
- What is the most appropriate mechanism (e.g. excise tax, changes to GST) to implement a tax on 'unhealthy' foods?
- How can taxes on 'unhealthy' foods be implemented to minimise negative distributional effects on low income groups while maximising impact on consumption of unhealthy foods?
- How does price affect food purchasing behaviour? How important is price relative to other determinants such as taste, promotions, convenience or environmental concerns? Which is more important, the price per packet, the price per serving/portion, the price per 100 g, the price per 100 kJ, etc.?
- What are the price differentials between 'healthy' and 'less healthy' foods and diets throughout Australia? How does this price differential affect 'real world' purchases at household level for various groups in Australia?

### Economic subsidies

- What would be the impact of subsidies (e.g. 'food stamps') for healthy foods on vulnerable population groups and food consumption patterns for these population groups? What other impacts would this sort of policy have?

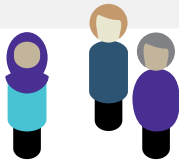
### Multi-component approaches

- What is the effect of taxation and subsidy in conjunction with other interventions, as part of a multi-sectoral strategy to improve diets and health?

## Domain 2: Supply, Access and Availability of Food

### Key issues:

- Access to and availability of healthy food
- Food composition and reformulation



### RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

#### Food supply

- What is the nutrient/food composition of our current food supply? How is our food system changing over time?
- What incentives and policy levers can influence the various aspects of Australia's food supply in terms of choices made by industry about the production, composition, pricing and sale of food products?
- What are the implications for the Australian food supply of adhering to a dietary pattern consistent with the dietary recommendations in Australia?
- What are the vulnerabilities of the Australian food supply over the next decade with respect to providing, distributing, retailing and consuming food consistent with the dietary recommendations in Australia?

#### Access to and availability of healthy food

- What are Australians eating? How has this changed over time?
- What is the cost, quality and availability of foods consistent with dietary recommendations in Australia?
- To what extent does the cost and availability of food determine food choice in Australia?
- How does food access and availability interact with intrapersonal characteristics to influence eating behaviours?
- What are the barriers to accessing healthy foods in disadvantaged areas or among disadvantaged groups?
- How can these barriers be overcome?

#### Food Composition and reformulation

- How effective has the Food and Health Dialogue (and/or other joint government-industry) initiatives been at improving the healthiness of the food supply? Is the Food and Health Dialogue a valuable and effective model for achieving reformulation of food?
- Are there other potentially more effective approaches that should be considered as part of such an approach?
- What are the optimum targets for reformulation of energy, saturated fat and sodium in Australian fast foods that would be achievable within 3 years?

#### Additional questions suggested to address gaps in this domain (not ranked)

- What is the economic impact on food prices of the freight costs, levies and charges and subsidises associated with food production and distribution, including fresh produce and processed food? Does the price structure of food differ across major cities, regional, and remote areas and is there a link between food price and health outcomes?

## Domain 3: Advertising, Promotion and Sponsorship

### Key issues:

- Sponsorship, promotion and marketing strategies used by the food industry
- Exposure of children to television advertising for unhealthy foods



### RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

#### Policy and Regulatory Approaches

- What impact would different policy instruments (e.g. regulations, co-regulation, limit of tax deductions for unhealthy food promotion, buy-back of sponsorship) have on the level of exposure of children to ‘unhealthy’ food promotions? Which model that would be most effective in reducing children’s exposure?
- What are the criteria that should be applied consistently across food industry marketing activities to reduce children’s exposure to unhealthy food marketing? How can policy provisions best be structured to achieve consistency between industry groups?
- What are the standard metrics needed for monitoring the effectiveness of policies to reduce marketing and how can these be integrated into research studies?
- What is the cost-effectiveness of policy interventions to reduce food and beverage marketing to children through multiple forms of media (with impact assessments incorporating the loss of quality of life associated with an unhealthy diet and overweight/obesity)?

#### Exposure to food sponsorship, promotion and marketing

- To what extent are children exposed to food marketing over the course of a day? Which mediums and types of promotion techniques are children exposed to most? Does this vary by age?
- What is the ongoing pattern of Australian children’s exposure to food marketing across multiple media?
- What is the impact of this exposure in terms of children’s perceptions, attitudes and beliefs toward advertised food and drinks and food consumption patterns?
- To what extent has this changed as a result of industry self-regulatory actions?
- What is the share of marketing spend and volume of promotion of unhealthy food (including marketing to children) across media platforms and by product, including through sponsorship of sports that children and adolescents play and those that they support?
- What is the nature and scale of digital (on-line) food promotion in Australia? What is the exposure of children, young people and the general population to digital food promotion? What impact does this exposure have on attitudes, beliefs and consumption of food among children, young people and the general population?

#### Additional questions suggested to address gaps in this domain (not ranked)

- To what extent are adults, parents and vulnerable populations exposed to food marketing (both long and short term)? What types of media and promotion techniques are used? What is the impact in terms of perceptions, attitudes and beliefs toward advertised food and drinks and what is the impact on consumption of these products?



## Domain 4: Public Education, Awareness and Engagement

### Key issues:

- Comprehensive mass media campaigns to support and motivate lifestyle changes and complement environmental/ policy changes
- Telephone advice and support services
- Health literacy
- Education about nutrition and physical activity guidelines
- Community engagement
- Advocacy



### RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

#### Mass media campaigns and public education

- Based on our knowledge of the basic science of weight loss, what are the most promising campaign messages/angles available to promote weight loss and maintenance of healthy weight?
- How important is the concept of habit in obesity prevention? What are the positive and negative reinforcers of these habits and can they be influenced by policies and media campaigns?
- What are the most effective ways of framing campaign messages for parents and children?
- How can we optimise the reach and effect of population health communications in an increasingly cluttered, complex and evolving communications environment?
- What are the implications for future campaigning on obesity prevention, and media planning in particular? Are there issues specific to obesity prevention communications and how might these be dealt with?
- Are there any unintended consequences of obesity prevention mass media campaigns/public education? If they are occurring, how can these be minimised?
- Can mass media campaigns/public education about what constitutes overweight challenge social norms and reduce self-exemption from messages about diet and physical activity, thereby facilitating behaviour change?
- What intensity of broadcast media investment (i.e. minimum and maximum Target Audience Rating Points over what duration) is needed for effective obesity prevention campaigns?
- Do different types of advertising executions demand different approaches to media planning for greatest return on investment?
- What is the optimal media weight, placement (media channel and media spot/ schedule) and duration of exposure for a highly emotive television advertisement versus other types of executions?
- Can well funded, professionally implemented and sustained public education programs 'prepare the ground' and increase support for obesity prevention policy measures such as tax increases, curbs on industry promotion and marketing?

#### Health literacy

- Would promoting nutrition literacy in relation to packaged foods/evaluating commercial food marketing improve people's ability to make healthier food choices?
- How is the media contributing to health literacy and misconceptions about obesity? How is it shaping public opinion on obesity, its causes and measures for addressing it?

## Domain 5: Packaging and Labelling of Food

### Key issues:

- Food labelling systems
- Point of sale signage and/or labelling
- Nutrition and health claims



### RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

#### Food labelling systems

- What is the impact of the introduction of Health Star Rating labelling on consumer purchasing behaviour and consumption patterns? How useful is the Health Star Rating labelling compared to other front-of-pack systems, such as traffic lights and % Daily Intake (DI)? Which system is most effective in helping consumers to identify healthier options?
- How does the Health Star Rating labelling compete with other aspects of food labelling such as preconceived ideas about brands, price etc., when it comes to making healthier choices?
- What are the most effective public education strategies/campaign messages to increase awareness and use of the new front of pack labelling system by consumers most at risk of diet-related disease?

#### Food labelling, health claims and reformulation

- What are the reformulation outcomes of food labelling?
- What is the influence of health claims and nutrient content claims and health star rating labels on reformulation?
- What is the time period over which changes occur?
- What influence do health claims and nutrition content claims have on food purchases at point of sale e.g. in the supermarket?
- How do health claims and front-of-pack food labels (FoPL) interact to influence food choices?

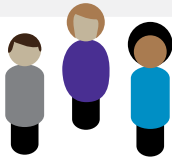
#### Point of sale signage and/or labelling

- What are the most effective consumer messages when developing and conducting a public education campaign on dietary energy?
- What types of point of sale signage and messages are most effective?
- How should standard serve sizes for different foods be defined and how can these be developed for use on food labels?
- What is the impact of kilojoule menu labelling in fast food outlets on consumers' consumption? Would full labelling of other risk nutrients (e.g. saturated fat or sodium) in fast food outlets have a greater benefit than kilojoule only labelling? What is the impact of fast food menu labelling on product reformulation?

## Domain 6: Reshaping Physical Environments towards Healthy Options

### Key issues:

- Urban planning, land use and building design
- Sedentary behaviour
- Facilities for physical activity
- Transport policies and infrastructure
- Food outlet location and density



### RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

#### Transport policies and infrastructure

- What is the cost-effectiveness and broader effects of promising planning and transport policies on health outcomes?
- What contribution does investment in public transport make to physical activity levels and reducing weight?
- What are the benefits and costs of different mixes of transport investment?

#### Food outlet location and density

- What types, locations/proximity and density of food outlets are correlated with healthy eating practices (supermarkets, greengrocers, growers markets) and conversely what types and locations/density of food outlet are associated with unhealthy eating? (e.g. corner stores, fast food outlets)

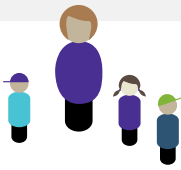
#### Urban planning, land use and building design

- What is best practice for Australian planners, developers, and other decision makers to orient their thinking toward planning for built environments that support physical activity and healthy eating?
- What methods (including economic) are best suited to explore the health impact of 'natural experiments' and policy change; e.g. evaluating the health and co-benefits of transport infrastructure changes e.g. rapid transit, extended rapid bus routes, the health benefits (or not) of building new suburbs, different planning regulation etc.?
- What aspects are most effective in 'retrofitting' existing suburbs to increase recreational and transport-related physical activity?
- What are the barriers and facilitators within government and the private sector, that prevent the uptake of evidence to create higher density walkable mixed use urban environments?
- Based on established guidance such as that in Healthy Spaces and Places, what is the relative contribution of selected design features in increasing population levels of physical activity (e.g. walkability, public open space, density, mixed use, co-location etc.), and what are the associated co-benefits, e.g. reduced vehicle kilometres travelled, reduced traffic congestion, economic benefit, increased social capital?
- How and for whom do environmental features/conditions/modifications promote physical activity and healthy eating? How do features of the physical environment interact with intrapersonal characteristics to influence physical activity and eating behaviours?
- What impact does living in high density housing have on the physical activity levels of children, and how could the design of higher density housing be enhanced to improve the physical activity levels of children?

## Domain 7: Settings and Community Based Approaches

### Key issues:

- Child care settings
- Schools and out of hours school care
- Workplaces
- Communities
- The home



### RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

#### Communities

- How is existing evidence and experience in preventing obesity at the community level best translated to the large scale of a state or nation?
- What are the impacts of a large-scale (state/territory) approaches to obesity prevention?
- What are the successful implementation elements of community based healthy eating and/or physical activity programs? What are the aspects of scalability of community based healthy eating and/or physical activity programs that ensure they are effective and sustainable?
- How are existing systems operating at the community and settings level best oriented to increase the promotion of healthy eating and physical activity?

#### Multiple settings

- How can the spread of expertise, ideas, knowledge, enthusiasm etc. be spread better from areas of good progress on obesity prevention to areas of little progress?
- Can simultaneous interventions across several settings generate sufficient demand for healthier food to increase profitability of producing and selling healthy food for the relevant private sector stakeholders?
- If so, do these profits translate into market mediated incentives to sustain the programs?
- How can successful models for interventions in homes and workplaces be integrated into child care or school interventions for maximum effects on obesity prevention in children and adults, including ensuring that effects of programs during academic years are not eroded during the holiday when school is not in session (summer months)?
- What dietary changes have resulted from successful implementation of healthy food supply strategies in government owned premises (schools, workplaces and health settings) in Australia? What is the cost-effectiveness of these approaches?
- How can learnings from these interventions be extended to other settings, including sporting clubs, mining camps etc.?

#### Childcare

- How can we intervene in childcare settings (crèches and other preschool care settings) to support healthy eating and physical activity during infancy and early childhood?

#### Workplaces

- What environmental interventions in workplaces, would be most effective in reducing time spent sitting?
- What are the long-term health and productivity impacts of reshaping both the physical workplace environment and organisational cultures/social norms to be more 'movement and standing permissive'?

#### Home

- What is the most effective approach for engaging with parents and extended family to promote children's physical activity and healthy eating in the home setting?

#### Schools

- What are the short and long-term health and academic performance impacts in children arising from the reshaping of both the school classroom physical environment and modernising teaching practices/social norms to be more 'movement and standing permissive'?

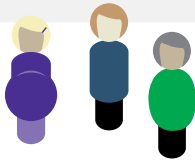
#### Additional questions suggested to address gaps in this domain (not ranked)

- How effective are systems approaches to changing health behaviours at the population level?
- How effective are systems approaches at improving population health?
- What is the most effective method of operationalising systems approaches?

## Domain 8: Maternal and Child Health

### Key issues:

- Pregnancy
- Breastfeeding
- Nutrition and early childhood



### RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

#### Pre-conception and Pregnancy

- What are the most effective ways to improve engagement, awareness, planning and uptake of important evidence based health promotion activities for women and their families from pre-conception through to motherhood?
- How can these best practice approaches be widely implemented?
- What are the most effective approaches for high risk vulnerable populations (including low SES, rural dwelling, refugee and Aboriginal and Torres Strait Islander women)?
- How can we intervene using traditional media, social media or other digital media approaches such as mobile technologies at different life stages to promote healthy eating and physical activity in young women, mothers and children and how effective is this approach?
- How can these approaches be linked to existing health care and/or other family support systems?
- What is the most effective way to implement evidence based lifestyle programs into routine pregnancy care?

#### Breastfeeding

- How can best practice in increasing breast-feeding and appropriate complementary feeding be widely implemented? What practices in other countries can improve Australia's breast-feeding record?

#### Early childhood

- Can parents of young children be trained and supported in child-rearing habits that lead to healthy weight in their children?
- What are the 'typical' childhood trajectories of BMI and body composition, and their predictors?
- What role can general practitioners and other primary health care providers play in preventing obesity in children?

#### Additional questions suggested to address gaps in this domain (not ranked)

- What is the impact of the promotion and monitoring of Baby Friendly hospitals and maternity care – are they working? What gaps, loopholes and barriers do they face? How do mothers perceive them?
- What factors influence a women's decision to breastfeed or bottle-feed? How is this influenced by SES, and by economic and social conditions (such as maternity leave, work-place nursing facilities, public nursing facilities)?
- Is continued breastfeeding undermined by messages from companies promoting formula and weaning/ complementary foods?
- What is the impact and influence of the commercial market for complementary feeding products?
- Do these products support or undermine continued breastfeeding up to 24 months?
- Do food products make recommended serving sizes too large, thereby undermining appetite for breastmilk?
- To what extent do commercial weaning foods aid in the transition to healthy family foods rather than in the transition to highly processed foods (e.g. how is the changing market towards the promotion of baby 'snacks', 'cookies' etc, and the use of dessert flavourings like chocolate, vanilla, or sweetening agents in savoury dishes, affecting children's food preferences)? How aware are parents of these challenges?
- How can the food supply and eating environment of modern society be modified to encourage healthier eating (e.g. more fruit and vegetables and fewer energy dense foods)?

## Domain 9: High Risk Population Groups

### Key issues

- Low socio-economic populations
- Culturally and Linguistically Diverse Populations
- Aboriginal and Torres Strait Islander peoples
- Young adults
- Remote communities



### RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

#### Disadvantaged populations

- What are the most effective approaches for preventing obesity in the long-term among socioeconomically disadvantaged groups and why?
- What approaches work to create sustained weight loss among disadvantaged groups and why?
- What is the extent and nature of food and nutrition insecurity in Australia and what are effective interventions and policy responses to reduce food insecurity?
- What are the long-term links between diet, disease, and obesity particularly among disadvantaged groups, as the protective effects and disease development may be over a long period of time?
- What are the social policy options that can improve access to a wide variety of safe, nutritious foods, particularly for disadvantaged groups?
- Which education or other programs are effective in improving healthy living skills in people or their families with low health literacy?
- Which interventions to improve the nutritional quality of the food supply to those in more disadvantaged and culturally and linguistically diverse groups are most effective, feasible, sustainable and able to be scaled up?
- What are the social disparity indicators (including financial stress indicators) for people experiencing overweight and obesity in terms of food, nutrition, physical activity and access to services? What are the food literacy skills and opportunity for skills development for groups vulnerable to obesity?

#### Remote communities

- Which interventions to improve the nutritional quality of the food supply to those remote and rural areas are most effective, feasible, sustainable and able to be scaled up?

#### Aboriginal and Torres Strait Islander peoples

- How can the learnings from successful Aboriginal and Torres Strait Islander community-based nutrition intervention projects be extended more broadly to other communities?
- What are the barriers and enablers affecting translation of evidence in Aboriginal and Torres Strait communities and how can these be addressed?

## Monitoring systems

- What are the minimum requirements for an ongoing food and nutrition monitoring system to protect the population against obesity and potential chronic disease risk, particularly the most vulnerable?

## Additional questions suggested to address gaps in this domain (not ranked)

- Are targeted obesity prevention interventions required for all high risk groups? And where warranted, what is needed that is distinct from what is already on offer?
- What are the specific consumption trends/activity practices/factors that are associated with increases in obesity/unhealthy weight in disadvantaged/priority groups and how are these different from overall population issues (if at all)?
- What are the principles that can most effectively inform culturally appropriate social marketing directed towards Aboriginal and Torres Strait Islander peoples? How should social marketing be presented?
- What are the barriers preventing Aboriginal and Torres Strait Islander peoples from accessing sport and other physical activity programs (e.g. affordability, cultural acceptability, racism etc.)? How can these barriers be overcome? What are the most effective obesity prevention initiatives for late middle-aged and older people?
- What are the potential benefits of obesity prevention initiatives for this group in terms of reduced risk of chronic disease and short and long term economic benefits?
- Retirement is recognised as a major life transition stage linked to overweight and obesity. What are the most effective interventions to promote healthy eating, increase physical activity and reduce sedentary behaviour for retirees?
- Which messages/programs are most likely to be effective during the transition from the workforce to retirement?

## Domain 10: Emerging Issues and Cross Cutting Themes

In this domain, researchers and policy experts were invited to contribute specific research questions in relation to emerging issues for obesity prevention, or on those issues that they believe are important and relevant but may not have been covered by the other domains in this framework



### RESEARCH QUESTIONS JUDGED TO BE MOST IMPORTANT AND RELEVANT TO FUTURE OBESITY PREVENTION POLICIES

#### Influence of the food industry on public health policies

- How is the food industry influencing public policy-making?
- What is the extent and nature of food industry engagement with government agencies?
- How can the governance structures be strengthened to ensure that commercial interests are not influencing public policy-making where there are conflicts of interest between commercial and public health outcomes?
- What is the impact (positive and negative) of the actions of the food industry on the healthiness of food environments (composition, price, placement, promotion etc.)?
- What is the extent of food industry marketing, promotional and support activities in Australia – including public relations and lobbying by food companies and associated groups, and legal activities?
- How much is the food industry investing in these activities?
- How does the food industry respond to policy changes including food taxation and subsidies?

#### Implementation of policies

- What has been (or is being) implemented at the federal and state/territory level from previous and current sets of recommendations (below) and why were (or are) some things implemented and not others (for example NHMRC ‘Acting on Australia’s Weight’, National Obesity Taskforce reports for children and adults, Parliamentary Inquiry on Obesity, Preventative Health Taskforce, Blewett Report, Food and Health Dialogue, National Partnership Agreement on Preventive Health)?
- How is the healthiness of Australia’s food environments changing over time and in response to changes in public policies including investment policies and trade agreements?
- What global obesity policy actions are effective and why, and what obesity policy actions are not/have not been effective and why not? What are the implications for Australia?

#### Trends in dietary intake and physical activity patterns

- What are the current dietary intake and physical activity patterns of Australians (and sub-groups of Australians); how do these compare with current recommendations; and how do these compare with past and (regularly collected) future data? If we can’t answer these questions, what systems do we need to put into place to ensure that these questions can be answered in the near future?

#### Additional questions suggested to address gaps in this domain (not ranked)

- What is the spatial distribution of the prevalence of obesity in Australia?
- What is the spatial variation in the provision of obesity prevention interventions and variations in health outcomes between geographical areas; and
- what are the implications of these issues?



## CONCLUSION

Given the multifaceted causes of the obesity problem in modern society, a comprehensive and sustained effort at the population level is required to reduce the prevalence of obesity.

The value and importance of a collaborative consultative approach to research priority settings is well-recognised. The development of a priority-driven research agenda for obesity prevention has the potential to improve the effectiveness, efficiency and equity of obesity prevention policies and programs, and ultimately contribute to improved population health.

This report identifies those research questions judged by obesity prevention experts who participated in the process to be most important and relevant to inform obesity prevention policies over the next decade.

Research should not only generate more knowledge but also help to translate knowledge into action through innovative approaches. It is anticipated that the priority research questions described in this report will be of interest to all those in obesity prevention research, policy and practice. It is hoped that linking future obesity prevention research efforts to the set of priorities developed through this consensus process will concentrate future research efforts, and focus attention on the most policy-relevant questions as well as generating new and important evidence for obesity prevention in Australia and internationally.



## LIST OF OBESITY PREVENTION EXPERTS WHO GENERATED THE RESEARCH QUESTIONS

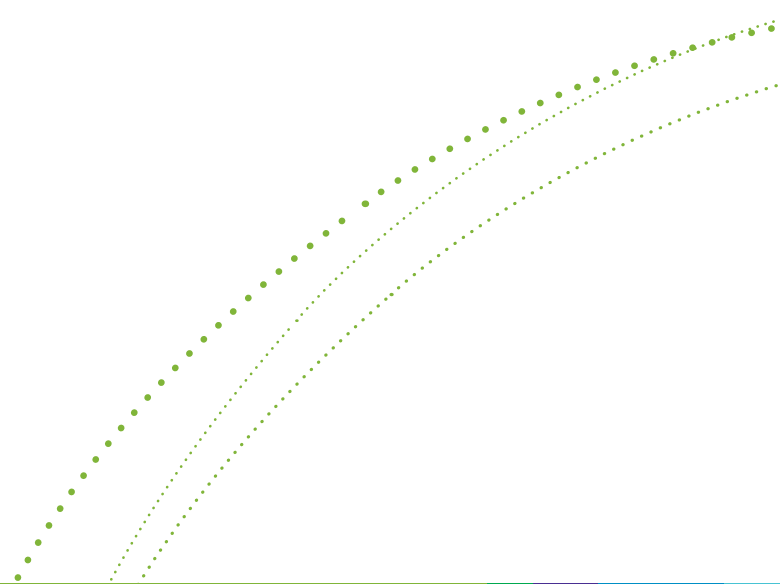
<b>Domain 1: Economic Interventions</b>		<b>Domain 4: Public Education, Awareness and Engagement</b>		<b>Domain 8: Maternal and Child Health</b>	
Professor Amanda Lee	1	Ms Kathy Chapman	23	Professor Melissa Wake	41
Ms Jane Martin	2	Ms Clare Hughes	23	Professor Colin Binns	42
Dr Gary Sacks	3	Professor David Hill	24	Dr Helena Teede	43
A/Professor Marj Moodie	4	Dr Helen Dixon	25	Professor David Crawford	43
Professor Boyd Swinburn	5	Mr Maurice Swanson	26		
Dr Anne Marie Thow	6	Ms Denise Sullivan	27	<b>Domain 9: High Risk Populations</b>	
Dr Mike Rayner	7	Belinda Morely	28	Professor Amanda Lee	43
A/Professor Tim Gill	8	Professor Boyd Swinburn	28	Dr Anna Peeters	44
				Professor Kerin O'Dea	45
<b>Domain 2: Supply, Access and Availability</b>		<b>Domain 5: Packaging and Labelling of food</b>		Dr Christina Pollard	45
Dr Bridget Kelly	9	Professor Simone Pettigrew	28	Professor Mark Harris	46
Ms Clare Hughes	10	Ms Kathy Chapman	28		
Dr Gary Sacks	10	Ms Angela McDougall	28	<b>Domain 10: Emerging Issues and Cross Cutting Themes</b>	
Ms Jane Martin	10	Dr Bridget Kelly	28	Professor Boyd Swinburn	46
Ms Kathy Chapman	10	Ms Jane Martin	28	Ms Jane Martin	46
Ms Julie Woods	11	Ms Clare Hughes	28	Professor Amanda Lee	46
A/Professor Tim Gill	11			Professor Ian Caterson	46
Dr Rosemary Stanton	12	<b>Domain 6: Reshaping the Physical Environment</b>		Professor David Crawford	46
Dr Christina Pollard	13	Dr Christina Pollard	28	Ms Denise Sullivan	46
Professor Bruce Neal	14	Professor David Crawford	29	Mr Maurice Swanson	46
Dr Corinna Hawkes	15	Professor David Dunstan	30		
Ms Angela McDougall	16	Professor Billie Giles Corti	31		
Professor Boyd Swinburn	16	Professor Rachel Davey	32		
		Mr Trevor Shilton	33		
<b>Domain 3: Advertising Promotion and Sponsorship</b>		<b>Domain 7: Settings and Community Based Approaches</b>			
Dr Bridget Kelly	16	Professor Boyd Swinburn	33		
Ms Clare Hughes	16	Professor David Dunstan	33		
Dr Gary Sacks	16	A/Professor Lesley King	33		
Ms Jane Martin	16	Professor Amanda Lee	33		
Ms Kathy Chapman	16	Professor Jo Salmon	34		
Professor Sandra Jones	17	Professor Steve Allender	35		
A/Professor Lesley King	18	Professor Ian Caterson	36		
Dr Corinna Hawkes	18	Professor Tony Okely	37		
Dr Tim Lobstein	19	Dr Tahna Pettman	38		
Dr Mike Rayner	20	Ms Shelley Bowen	39		
Professor Simone Pettigrew	21	Dr Siriki Kumanyika	40		
Professor Boyd Swinburn	21				
Professor Mike Daube	22				
Ms Julie Woods	23				

## LIST OF OBESITY PREVENTION EXPERTS WHO PARTICIPATED IN THE RANKING PROCESS

Professor Steve Allender	Mr Peter McCue
Professor Louise Baur	Ms Amanda Mitchell
Professor Colin Binns	A/Professor Marj Moodie
Ms Patricia Carter	Ms Belinda Morley
Professor Ian Caterson	Professor Bruce Neal
Ms Kathy Chapman	Professor Tony Okely
Dr Stephen Christley	Professor Tim Olds
Ms Megan Cobcroft	Dr Anna Peeters
Professor David Crawford	Professor Simone Pettigrew
Professor Rachel Davey	Dr Tahna Pettman
Professor David Dunstan	Dr Christina Pollard
Dr Helen Dixon	Dr Mike Rayner
Mr Jim Dodds	Dr Lyn Roberts
Professor Billie Giles-Corti	Dr Gary Sacks
A/Professor Tim Gill	Professor Jo Salmon
Professor Mark Harris	Mr Trevor Shilton
Dr Corinna Hawkes	Dr Rosemary Stanton
Professor David Hill	Ms Denise Sullivan
Ms Clare Hughes	Mr Maurice Swanson
Dr Bridget Kelly	Professor Boyd Swinburn
Dr Paul Kelly	Dr Helena Teede
Professor Lesley King	Dr Anne Marie Thow
Dr Rosie King	Ms Sam Torres
Ms Sandra King	Dr Mark Veitch
Dr Siriki Kumanyika	Professor Melanie Wakefield
A/Professor Mark Lawrence	Mr Trevor Webb
Professor Amanda Lee	Ms Julie Woods
Ms Sue Leivers	
Dr Tim Lobstein	
Mr Richard Marson	
Ms Jane Martin	

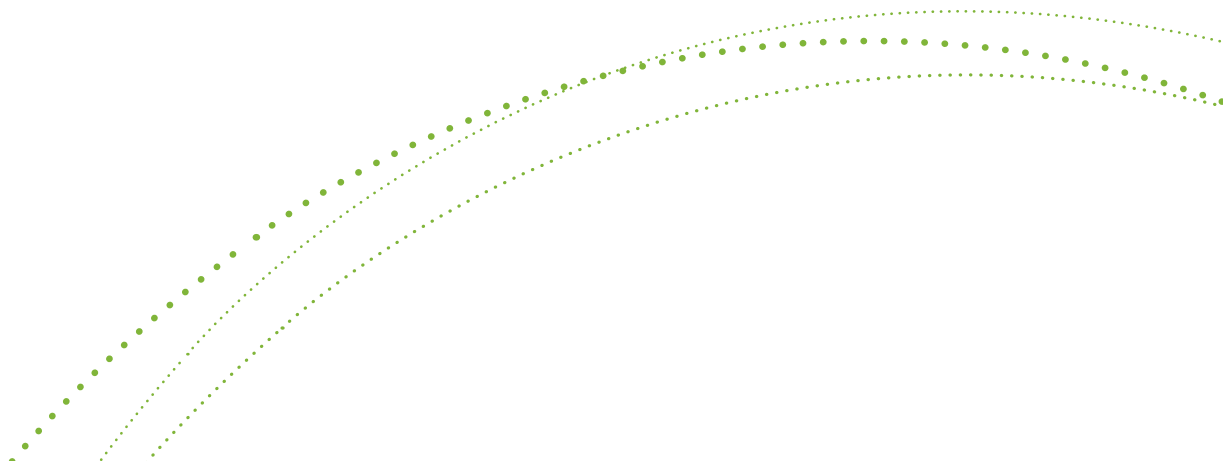
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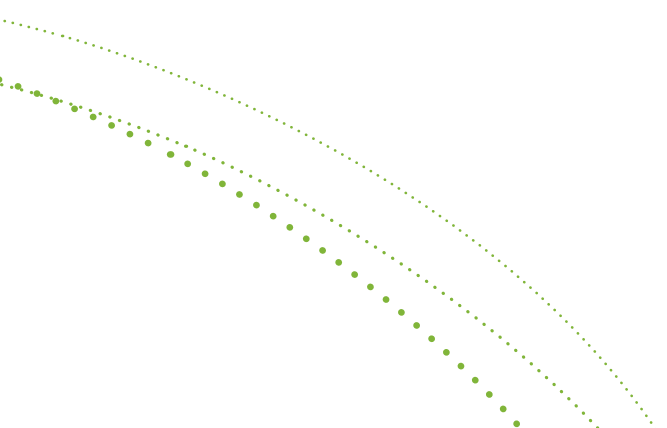


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NOTES



## NOTES





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