

Obesity Policy Action framework and analysis grids for a comprehensive policy approach to reducing obesity

G. Sacks, B. Swinburn and M. Lawrence

School of Exercise and Nutrition Sciences,
Deakin University, Melbourne, Australia

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Address for correspondence: Gary Sacks,
WHO Collaborating Centre for Obesity
Prevention, School of Exercise and Nutrition
Sciences, Deakin University, 221 Burwood
Highway, Melbourne VIC 3125, Australia.
E-mail: gary.sacks@deakin.edu.au

Summary

A comprehensive policy approach is needed to control the growing obesity epidemic. This paper proposes the Obesity Policy Action (OPA) framework, modified from the World Health Organization framework for the implementation of the Global Strategy on Diet, Physical Activity and Health, to provide specific guidance for governments to systematically identify areas for obesity policy action. The proposed framework incorporates three different public health approaches to addressing obesity: (i) 'upstream' policies influence either the broad social and economic conditions of society (e.g. taxation, education, social security) or the food and physical activity environments to make healthy eating and physical activity choices easier; (ii) 'midstream' policies are aimed at directly influencing population behaviours; and (iii) 'downstream' policies support health services and clinical interventions. A set of grids for analysing potential policies to support obesity prevention and management is presented. The general pattern that emerges from populating the analysis grids as they relate to the Australian context is that all sectors and levels of government, non-governmental organizations and private businesses have multiple opportunities to contribute to reducing obesity. The proposed framework and analysis grids provide a comprehensive approach to mapping the policy environment related to obesity, and a tool for identifying policy gaps, barriers and opportunities.

Keywords: Obesity prevention, policy, framework.

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Introduction

The prevention and control of non-communicable diseases, including the reduction of obesity prevalence, has been recognized as a key area for public health action globally (1). Furthermore, the recently endorsed World Health Organization (WHO) action plan for the global strategy for the prevention and control of non-communicable diseases (2) identifies policy approaches as a core component of actions to address risk factors for obesity. It is well recognized that changes in policy can drive changes in obesogenic environments (physical, economic and socio-cultural) (3) and prove effective in reaching multiple sectors of the community, including

socioeconomically disadvantaged populations where obesity prevalence is disproportionately high in middle- and high-income countries (4,5).

In this paper, 'obesity prevention policy' means the system of laws, regulatory measures, courses of action and funding priorities for the prevention of obesity (based on [6]). We take a broad view of health policy, considering policies that affect the set of institutions, organizations, services and funding arrangements of the healthcare system, as well as policies that influence actions by public, private and voluntary organizations that have an impact on health (7). Accordingly, this definition covers action on the environmental and socioeconomic determinants of health as well as population behaviours and healthcare provision.

The evidence base regarding the effectiveness and cost-effectiveness of policy-based obesity prevention interventions is very small, and building the empirical and modelled evidence for policy interventions needs to be a priority (8). Nevertheless, many authors have identified potential policy options available to government to prevent obesity (9–12). While the lists generated by these authors are useful in showing the wide range of policy options available, they do not necessarily reflect a comprehensive approach. Brownson *et al.* (13) propose a conceptual model for understanding the prevention of chronic diseases through environmental and policy approaches, but their framework does not extend to sufficient detail to systematically identify the full range of obesity prevention policy options. As governments around the world seek a strategic approach to tackle obesity, it will be increasingly important to consider the various policy options through a framework that is both comprehensive and systematic.

This paper proposes a framework and a set of analysis grids for comprehensively identifying areas for obesity prevention policy action. The framework provides a structure to understand the context within which obesity prevention policies translate into health, economic, social and environmental outcomes. The analysis grids provide a systematic way of organizing potential policy action areas by the sector to which they apply and the level of governance responsible for their administration.

Methods

The WHO framework for the implementation of the Global Strategy on Diet, Physical Activity and Health (DPAS) (14) was used as the foundation for the proposed Obesity Policy Action (OPA) framework. The WHO developed the framework to assist ministries of health, other government agencies and other stakeholders to monitor the progress of their actions in implementing the DPAS. As the

overlying global approach for activities to promote healthy diets and physical activity, the DPAS is well suited to be applied to obesity prevention policy actions.

In an effort to provide specific guidance for governments seeking to comprehensively and systematically identify areas for obesity policy action as part of their implementation of the DPAS, the WHO framework is modified to allow analysis at multiple layers, utilizing core concepts from the public health and health promotion literature.

In order to both inform the development of the proposed framework and populate the analysis grids, a literature search was conducted to gain perspective on the obesity prevention policy actions previously recognized. The discussions, issues and examples sourced from the literature were categorized into areas amenable to policy intervention, or more simply 'policy areas'. The authors then conducted a series of workshops with fellow policy researchers and experienced public health practitioners in Melbourne, Australia to discuss the policy areas identified. These workshops served to identify additional policy areas and clarify the scope of each policy area in an Australian context. Given the lack of evidence of the effectiveness of different policy options (8), a programme logic approach was used to identify the potential policy areas (15). Accordingly, the inclusion of particular policy areas as part of the framework should not be taken necessarily to mean that there is evidence supporting the effectiveness of policy actions in that area.

Results

Modifying the WHO framework to comprehensively cover policy options

In developing the proposed OPA framework, the WHO framework for implementation of the DPAS (14) was modified in three ways in an effort to encompass the broad nature and scope of policy options (Fig. 1).

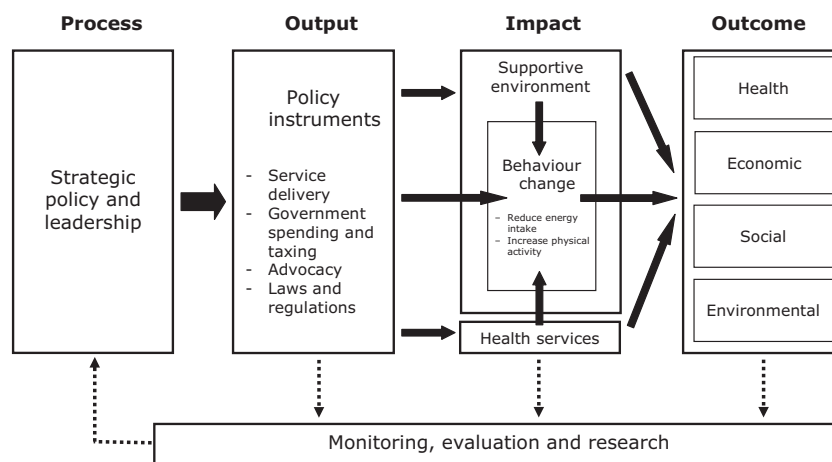


Figure 1 Obesity Policy Action framework: high-level schema for policy development, implementation and evaluation (modified from [14]).

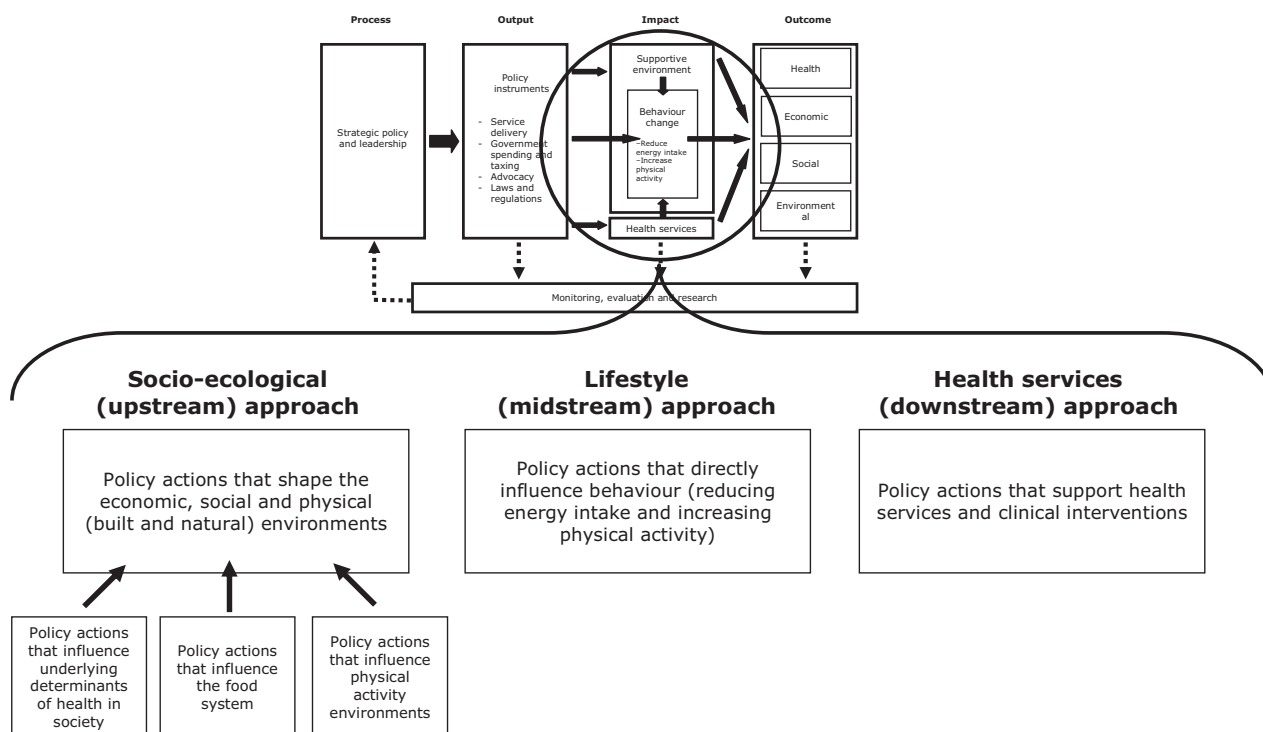


Figure 2 Obesity Policy Action framework: breakdown of 'upstream', 'midstream' and 'downstream' policy targets.

The first modification recognizes the broad range of policy instruments available to policy makers. Whereas the WHO framework identifies that strategic leadership contributes to the adoption of supportive policies and programmes, the OPA framework delineates this further by highlighting that governments have multiple policy instruments at their disposal with which to achieve policy objectives. These policy instruments include service delivery, government spending and taxing, advocacy, and laws and regulations, and they are used by governments according to their perceived appropriateness, efficiency, effectiveness, equity and workability (16). Policy instruments such as education campaigns are often considered 'soft' or politically weak instruments, whereas laws and regulations can be considered 'hard' instruments (17).

Second, the OPA framework depicts the intended impact of the various policy instruments. As illustrated in Fig. 2, the framework recognizes that some policy actions are directed at shaping the environment in which we live (affecting behaviour indirectly), whereas other policy actions are aimed at directly influencing behaviour, and still others are targeted at supporting health services and clinical interventions. In so doing, the framework incorporates three different public health approaches (the socio-ecological or 'upstream' approach, the behavioural or 'midstream' approach and the health services or 'downstream'

approach) to addressing the obesity epidemic. The differences in these approaches are detailed in Table 1 (based on [18–20]).

The final modification is to the outcomes of policy changes. While the WHO identified health, economic and social outcomes, the OPA framework also recognizes that it is important to explicitly consider environmental outcomes. This is in line with the evolving concepts of the scope of nutrition sciences ('New Nutrition Science') (21) and the close links between unhealthy lifestyles and environmental degradation (22). We recognize that policy intervention outcomes can be mediated through changes in behaviour, e.g. more supportive physical environments may lead to individuals exercising more, which results in positive health outcomes, or could have direct effects, e.g. changes in food composition can lead to positive health outcomes without individuals changing their behaviour.

It is noted that the WHO framework identifies the importance of continued monitoring, evaluation and research throughout the process. This is reinforced in the OPA framework where these aspects occur at each step of the process and serve as a feedback mechanism. These components are particularly important given the current lack of evidence of the impact of different policy options.

Table 1 Public health approaches to obesity prevention (based on [18–20])

	Socio-ecological (upstream) approach	Behavioural (midstream) approach	Health services (downstream) approach
Perspective of the obesity epidemic	The economic, social and physical environments are major determinants of population eating and physical activity behaviour patterns.	Population eating and physical activity behaviour patterns are major determinants of obesity prevalence.	Individual behaviours, motivations, genes and metabolism are major determinants of the presence of obesity in patients.
Obesity prevention intervention targets	Policy interventions shape the circumstances and conditions which are the underlying determinants of health and social equity in society. Policy actions target the food environments, physical activity environments and the broader socioeconomic environments (including taxation, employment, education, housing and welfare), thus indirectly influencing population behaviours.	Policy interventions target population or subpopulation behaviour change, aiming to improve eating and physical activity behaviours by using policy instruments such as social marketing and programmes.	Policy interventions support health services and clinical interventions. The focus is on managing and reducing existing weight problems in individuals and working with families to prevent overweight or obese children becoming overweight or obese adults. This includes medically managed, individual-based behaviour change.
Responsibility for action	Primarily governments, with the private sector responsible to some extent (corporate social responsibility)	Governments, civil society and the private sector	Governments, health professionals and non-government health services
Primary policy outcome measures	Improved prosperity, social equity and environmental sustainability, together with improved health outcomes	Improved population eating and physical activity behaviour patterns and obesity prevalence	Improved anthropometry and disease risk for individuals

Analysis grids to systematically identify areas for policy action

While the proposed framework described earlier sets out the context within which obesity action policies are translated into health, economic, social and environmental outcomes, a further layer of analysis is needed to systematically identify where roles and responsibilities for policy action are located. In this section we present a series of analysis grids, corresponding to each of the areas depicted in Fig. 2 to enable a practical and structured analysis of potential policy intervention areas.

Obesity policy areas can be systematically analysed across two dimensions: (i) the level of governance that is primarily responsible for administering the policy action; and (ii) the sector or setting to which the policy action applies most directly (23). The levels of governance to include are dependent on the government structure of the particular country being analysed. The particular sectors and settings to include in the analysis are dependent on the policy objective and the environment targeted. We have populated each of the analysis grids with a selection of policy areas related to the Australian environment to demonstrate the way in which the analysis grids can be used for policy analysis in a particular country or policy setting. The Australian example may be relevant to other countries with

similar social, economic, cultural and political contexts for policy making (e.g. some other Organisation for Economic Co-operation and Development [OECD] countries) but is likely to need modification for use in other countries.

Policy actions that influence underlying determinants of health in society

The social determinants of health are embedded in the economic, political and social circumstances in which individuals and communities live. These determinants of health influence the extent to which individuals and communities possess the physical, social and personal resources to identify and achieve personal aspirations, satisfy needs, and cope with the environment (24). The burden of poor health and disease, including obesity prevalence, is not distributed randomly within and across populations; instead, it is disproportionately located with those individuals and communities that are economically, politically and socially disadvantaged (25).

A government's policies for obesity action and policies for chronic disease prevention more generally need to address the underlying determinants of health. The framework for analysing policies in this area includes sectors corresponding to each of the determinants on one dimension, with the levels of governance on the other, as set out

in Table 2. The analysis grid can be used to map potential policy intervention points or identify potential barriers to obesity prevention at each level of governance with respect to each determinant of health.

As illustrated in Table 2, potential policy areas to consider in this section include the financial, education, employment and social policies that impact health in general and obesity in particular. Examples include policy areas such as trade agreements between countries (international), migration policies, personal income tax regimes and social security mechanisms (national government), community housing and education facilities (state government), and local crime prevention policies (local government).

Policy actions that influence food and physical activity environments

The intention of obesity prevention policies with respect to the food system is typically to alter the food environment such that healthier choices are the easier choices. Similarly, obesity prevention policies targeting physical activity environments will seek to alter the environment to make increased levels of physical activity and decreased levels of sedentariness the easy choices. In order to systematically analyse the policy actions that influence these environments, it is necessary to consider the policy actions of each level of governance on each component of the food system and on all sectors that influence the environments within which physical activity/inactivity predominantly occurs (23). An analysis of these policy areas are set out in Tables 3 and 4 (modified from [23]).

There is a broad range of policy areas influencing the food environment, including local government policies on land-use, local and/or state government policies on food safety, and policies on agricultural subsidies operating at national and international levels. Some potential policy action areas, such as restricting marketing of unhealthy foods, can span all levels of governance, ranging from local restrictions on the placement of billboards to cross-jurisdictional restrictions on broadcast advertising.

Policy areas influencing physical activity environments include urban planning policies (at a local and/or state level), transport policies (at a state and/or national level) as well as organizational policies on the provision of facilities for physical activity. Policy areas may include areas where existing policies serve as barriers to obesity prevention (e.g. local public liability laws that serve as a barrier to opening school grounds after hours) and areas where there are opportunities for action (e.g. taxation incentives for use of public transport).

Policy actions that directly influence behaviour

The midstream policy approach aims to directly influence behaviour to control the population's level of energy intake

Table 2 Examples of policy areas that influence underlying determinants of health in society (related to Australian context)

Sector	Level of governance			
	Local government	State government	National government	International
Finance		Fiscal policy	- Fiscal policy - Personal income tax regime	Ownership structure
Commerce and trade		Business taxes	- Business taxes - Trade agreements	- Trade agreements - Location of operations
Education		- Education facilities - School leaving age	- National curricula - School infrastructure	
Employment			- Industrial relations - Standard working hours - Minimum wage	Corporate social responsibility
Social affairs	Crime prevention	- Community housing - Crime prevention - Social security	- Migration policies - Social security	
Other sectors			- Access to telecommunications - Environmental management	Corporate social responsibility

Table 3 Examples of policy areas that influence food environments (related to Australian context) (modified from [23])

Sector	Level of governance			
	Local government	State government	National government	International
Primary production	- Land-use management - Community gardens	Primary production subsidies and taxes	Primary production subsidies and taxes	Primary production subsidies and taxes
Food processing		Food safety	Product composition standards	Product composition standards
Distribution		Food transport	- Importation restrictions, subsidies and taxes - Quarantine	Trade arrangements
Marketing	- Restrictions on marketing of unhealthy food - Promotion of marketing of healthy food	- Restrictions on marketing of unhealthy food - Promotion of marketing of healthy food - Marketing practices in schools	- Restrictions on marketing of unhealthy food - Promotion of marketing of healthy food - Nutrient content disclosures in marketing material - Consumer protection (e.g. misleading advertising)	- Restrictions on marketing of unhealthy food - Promotion of marketing of healthy food
Retail	- Land-use management - Density of local fresh food retailers - Density of fast food outlets	Products sold in schools	- Nutrition labelling - Health claims on food products - Incentive system for welfare recipients to buy healthy food - Food taxes/subsidies	- Nutrition labelling - Health claims on food products - Product placement in stores
Catering/food service		- Nutrition information in restaurants - Food safety		- School food policies - Standards for food served in workplaces - Food procurement policies

Table 4 Examples of policy areas that influence physical activity environments (related to Australian context) (modified from [23])

Sector	Level of governance			
	Local government	State government	National government	International
Infrastructure and planning	- Land use management (zoning) - Walking environment - Cycling environment	- Urban planning - Roads	Roads	
Education		- Physical education in schools - Facilities for physical activity in schools - Building design standards		School policies on physical education, physical activity and sport
Employment				- Facilities for physical activity in workplaces - Availability of showers and change room facilities for staff
Transport	- Public transport - Parking restrictions - Traffic control	- Public transport - Traffic control	- Taxation policies on cars - Taxation incentives for using public transport	Trade arrangements on motor vehicles
Sport and recreation	- Facilities for physical activity –built structures - Facilities for physical activity –open spaces - Public liability	- Public liability - Access of general community to school sport facilities		

(by individuals eating less food or consuming less energy-dense foods) and increase the population's levels of physical activity. For policies to directly influence behaviour, they need to have a direct effect in the settings in which people live their lives. Key settings where people eat and/or can be physically active include early childhood settings, education settings (e.g. schools, universities, colleges), workplaces, community and recreational facilities, households, hospitals, prisons and the military (26). Table 5 sets out the analysis grid for examining these policy areas.

There are opportunities in settings such as schools, pre-schools and workplaces (27) to have setting-specific organizational policies about food that can and can not be eaten, or requiring participation in physical activity. However, government policy instruments to directly influence behaviour will typically take the form of education and campaign-based programmes that promote healthy behaviours, with opportunities for each level of government to tailor these campaigns in targeting multiple settings. Other 'harder' government policy instruments, such as laws and regulations, which seek to stipulate the behaviour of individuals, are very unlikely to be used in this domain. This is true for adults, where there are no conceivable laws that would directly dictate required eating or physical activity behaviours, as well as for children, despite greater societal obligations to protect children against ill health. One possible example of a hard policy instrument in this area would be mandatory physical education in the school curriculum, but even this is likely to be a physical *education* rather than a physical *activity* requirement.

Policy actions that support health services and clinical interventions

The downstream approach to obesity action represents actions supporting health services and clinical interventions for individuals. As with the other parts of the framework, policy actions using this approach can be analysed based on the sector to which the policy action applies, and the level of government implementing the policy. As set out in Table 6, the sector represents the component of the health sector (i.e. primary health care, secondary health care, tertiary health care and therapeutic goods including pharmaceuticals).

The opportunities for obesity prevention through health service delivery are primarily in the area of targeting children who are overweight or obese in an attempt to reduce the subsequent incidence of adult obesity. Otherwise, the role of the health system is mainly aimed at obesity management, e.g. surgical and/or therapeutic treatment of existing obesity and its complications. Potential policy areas include increasing the number of dietitians and nutritionists in hospitals and subsidization of weight-loss medication.

Table 5 Examples of policy areas that directly influence behaviour (related to Australian context)

Setting	Level of governance			
	Local government	State government	National government	International
Early childcare settings	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity	• Food policies • Active play policies • Campaigns and programmes promoting healthy eating and physical activity
Education settings (e.g. schools, universities)	• Campaigns and programmes promoting healthy eating and physical activity	• Mandatory physical education/activity in schools • Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity	• School food policies • Physical activity requirements • Campaigns and programmes promoting healthy eating and physical activity
Workplaces	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity • Financial incentives to participate in health and wellness activities • Health targets as part of key performance indicators
Community and recreational facilities	• Educate neighbourhood stores on selling healthier products • Promotion of recreation facilities	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity
Households	• Campaigns and programmes promoting healthy eating and physical activity	• Mass media promotion of healthy foods and physical activity	• Mass media promotion of healthy foods and physical activity	
Other settings (e.g. hospitals, prisons, military)	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity	• Campaigns and programmes promoting healthy eating and physical activity

Table 6 Examples of policy areas that support health services and clinical interventions (related to Australian context)

Health sector component	Level of governance			
	Local government	State government	National Government	International
Primary care	• Healthy lifestyle counselling		• Number of nutritionists/dietitians • Subsidies for healthy lifestyle counselling	• Primary care partnerships • Career development opportunities for nutritionists/dietitians
Secondary care		• Number of nutritionists/dietitians in hospitals		
Tertiary care		• Hospital waiting lists for treatment by specialists	• Subsidies for treatment by specialists	
Therapeutic goods			• Subsidies for weight-loss medication	

Discussion

The proposed OPA framework provides a tool for adopting a comprehensive approach to obesity policy action that is strategic and systematic. It is designed to promote the integration of a combination of policy approaches to ensure a complementary and coherent response to obesity. The organization of policy approaches into different analysis grids provides a useful means to highlight policy targets, identify who is responsible for policy actions, and define places of intervention.

By populating the analysis grids with areas for potential policy action, we have demonstrated the large number of areas in which policy can be used in efforts to address obesity, spanning multiple sectors and levels of governance. These policy action areas include areas where there are policy gaps or weaknesses, as well as areas where existing policies may be obesogenic, i.e. create an environment that contributes towards obesity. It is important to recognize that the analysis grids are not designed to indicate priorities between the different policy elements nor describe any interactions or causative relations between these policy elements.

We argue that there are synergies to be gained from integrating policy activities across the different public health approaches (upstream, midstream and downstream), sectors and settings, and different levels of governance. For example, policy activities that help make the healthy choices the easy choices (e.g. traffic-light labelling on the front of food products) complement those activities that inform individuals about healthy choices and how to put them into practice (e.g. campaigns educating children on selecting healthy foods). Similarly, policy activities at a local government level (e.g. restricting the placement of billboards advertising unhealthy foods) can complement activities at other levels of government (e.g. restricting television advertising of unhealthy foods to children) or in other sectors (e.g. taxes on unhealthy foods).

The set of policies influencing the underlying determinants of health can be seen as fundamental to obesity prevention efforts. Nevertheless, it is important to recognize that the obesity issue alone is unlikely to be a major driver of policy change in these areas. This component of the framework is most relevant in highlighting the inter-relationships between policy actions. Critically, the effectiveness of other policy actions designed to prevent obesity (such as promoting participation in sports) may be constrained by the effects of policies that influence the underlying determinants of health (such as taxation and financial policies that exaggerate income inequalities). The paradox that emerges from this analysis is that although it is the health sector that is responsible for meeting the burden associated with the treatment of obesity and related chronic

diseases, the sector has minimal policy leverage over the determinants of such health outcomes.

Policies influencing the food and physical activity environments represent the greatest potential for policy action. There are multiple areas in which each level of government can act to influence the food environment. While this presents multiple levers for action, it also highlights the importance of a coordinated approach to policy development and implementation across all levels of government. A collaborative 'whole of government' approach, spanning multiple sectors, is required to avoid fragmented, overlapping or contradictory policies. In the Australian context, the majority of policy action areas influencing physical activity environments appear to be at a local and/or state level, with less of a role for national or regional governments in this area.

Government policy action aimed at directly influencing behaviour often appears to be almost exclusively limited to education and social marketing programmes. There do not appear to be plausible regulations that would direct eating and physical activity behaviours in the same way that there are regulations that require specific behaviours for wearing seatbelts, not smoking in restaurants, drinking under-age and obeying traffic and occupational health and safety laws. This observation argues against the notion that government intervention to reduce obesity is akin to a 'nanny' state.

Policy actions supporting health services are predominantly focused on obesity management rather than prevention. Nevertheless, activities in the primary care sector, such as monitoring, screening and referrals to other health professionals, should play an important role in tackling obesity. While this paper does not consider the cost-effectiveness of policy intervention, it is worth noting that downstream policy actions tend to be expensive and have a lower reach, particularly when compared with upstream policy actions.

Conclusion

The proposed OPA framework provides a valuable tool to use as part of the process of developing, implementing, monitoring and evaluating obesity prevention policy at all levels of government. It could also prove useful as a communication aid to highlight areas where governments have active policies, or equally importantly, where governments are not acting to prevent obesity.

The large number of policy areas, spanning multiple sectors and levels of governance, highlights that there may be value in conducting 'obesity impact assessments' on new policy proposals, as part of a comprehensive government strategy to address obesity. These impact analyses could assist in 'obesity-proofing' new policies.

Where the framework is used to map the policy environment and identify potential policy areas for intervention,

this represents only an initial step in the overall process of bringing about policy change and subsequent implementation. Selected policy areas would then need to be defined in more detail and analysed to understand the broad influences on policies in the area, the existing regulatory environment and opportunities for change. For example, when considering the 'walking environment' as a policy area, it would be important to identify the way in which 'walkability' can be measured, recognize the vested interests that promote a car-friendly environment, understand the way in which urban planning laws are implemented and enforced, and examine jurisdictions that have been successful in promoting walking. This analysis would provide the appropriate context to enable relevant stakeholders to prioritize policy areas at each level of government. This would lead to defining specific policy interventions, and modelling their likely health and economic impacts, as part of a comprehensive obesity policy.

Conflict of Interest Statement

No conflict of interest was declared.

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References

1. World Health Organization (WHO). *Prevention and Control of Noncommunicable Diseases: Implementation of the Global Strategy*. Sixty-First World Health Assembly, Resolution WHA61.14, Geneva, May 24. World Health Organization: Geneva. [WWW document]. URL <http://www.who.int/nmh/> (accessed July 2008).
2. World Health Organization (WHO). *Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases*. World Health Organization: Geneva. [WWW document]. URL http://www.who.int/mediacentre/events/2008/wha61/issues_paper2/en/index.html (accessed July 2008).
3. Swinburn BA, Egger G. Preventive strategies against weight gain and obesity. *Obes Rev* 2002; 3: 289–301.
4. Monteiro CA, Moura EC, Conde WL, Popkin BM. Socioeconomic status and obesity in adult populations of developing countries: a review. *Bull World Health Organ* 2004; 82: 940–946.
5. Mishra G, Ball K, Arbuckle J, Crawford D. Dietary patterns of Australian adults and their association with socioeconomic status: results from the 1995 National Nutrition Survey. *Eur J Clin Nutr* 2002; 56: 687–693.
6. Kilpatrick DG. Definitions of Public Policy and the Law. [WWW document]. URL <http://www.vawprevention.org/policy/definition.shtml> (28 February 2007).
7. Walt G. *Health Policy. An Introduction to Process and Power*. Zed Books: London, 1994.

8. Haby MM, Vos T, Carter R, Moodie M, Markwick A, Magnus A, Tay-Teo KS, Swinburn B. A new approach to assessing the health benefit from obesity interventions in children and adolescents: the assessing cost-effectiveness in obesity project. *Int J Obes (Lond)* 2005; 30: 1463–1475.
9. French SA, Story M, Jeffery RW. Environmental influences on eating and physical activity. *Annu Rev Public Health* 2001; 22: 309–335.
10. Nestle M, Jacobson MF. Halting the obesity epidemic: a public health policy approach. *Public Health Rep* 2000; 115: 12–24.
11. Hayne CL, Moran PA, Ford MM. Regulating environments to reduce obesity. *J Public Health Policy* 2004; 25: 391–407.
12. Fussenegger D, Pietrobelli A, Widhalm K. Childhood obesity: political developments in Europe and related perspectives for future action on prevention. *Obes Rev* 2007; 9: 76–82.
13. Brownson RCD, Haire-Joshu D, Luke DA. Shaping the context of health: a review of environmental and policy approaches in the prevention of chronic diseases. *Annu Rev Public Health* 2006; 27: 341–370.
14. World Health Organization (WHO). *Global Strategy on Diet, Physical Activity and Health: A Framework to Monitor and Evaluate Implementation*. World Health Organization: Geneva, 2006.
15. Swinburn B, Gill T, Kumanyika S. Obesity prevention: a proposed framework for translating evidence into action. *Obes Rev* 2005; 6: 23–33.
16. Bridgman P, Davis G. *The Australian Policy Handbook*, 3rd, edn. Allen and Unwin: Sydney, 2004.
17. Milio N. *Nutrition Policy for Food-Rich Countries: A Strategic Analysis*. The John Hopkins University Press: London, 1990.
18. Lawrence M, Worsley T. Concepts and guiding principles. In: Lawrence M, Worsley T (eds). *Public Health Nutrition: From Principles to Practice*. Allen and Unwin: Sydney, 2007, pp. 5–27.
19. Labonte R. Health promotion and the common good: towards a politics of practice. *Crit Public Health* 1998; 8: 107–129.
20. Baum F. *The New Public Health: An Australian Perspective*, 2nd, edn. Oxford University Press: Melbourne, 2003.
21. The Giessen Declaration. *Public Health Nutr* 2005; 8: 783–786.
22. von Schirnding YER. Health and sustainable development: can we rise to the challenge? *Lancet* 2002; 360: 632–637.
23. Sacks G, Swinburn B, Lawrence M. A systematic policy approach to changing the food and physical activity environments to prevent obesity. *Aust New Zealand Health Policy* 2008; 5: 13.
24. Raphael D. Introduction to the social determinants of health. In: Raphael D (ed.). *Social Determinants of Health – Canadian Perspectives*. Canadian Scholar's Press Inc: Toronto, 2004, pp. 1–18.
25. Marmot M. Introduction. In: Marmot M, Wilkinson RG (eds). *Social Determinants of Health*, 2nd, edn. Oxford University Press: Oxford, 2006, pp. 1–16.
26. Swinburn BA, Egger G, Raza F. Dissecting obesogenic environments: the development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Prev Med* 1999; 29: 563–570.
27. World Health Organization/World Economic Forum. *Preventing Noncommunicable Diseases in the Workplace through Diet and Physical Activity: WHO/World Economic Forum Report of a Joint Event*, 2008. World Health Organization and World Economic Forum: Geneva, 2008.