

ENHANCING FOOD SECURITY AND PHYSICAL ACTIVITY FOR MĀORI, PACIFIC AND LOW-INCOME PEOPLES

enhance

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Chapter 1: Introduction

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Complexity implies that there is no one solution to any problem anymore than there is one discrete cause¹

Background

This book represents the culmination of a multi-phase programme of research on the environmental influences on food security and physical activity among Māori, Pacific, and low-income families/whānau. This research project is referred to as ENHANCE throughout the book. The research utilises multiple methods and theoretical frameworks to identify and analyse environmental influences and their interactions, and to prioritise interventions to modify key factors that most influence food security and physical activity for Māori, Pacific and low-income New Zealanders. The research was jointly funded by the Health Research Council and the Ministry of Health and was led by the Clinical Trials Research Unit, University of Auckland. Other research partners were the Health Promotion and Policy Research Unit (HePPRU), University of Otago, Wellington; Te Hotu Manawa Māori; and the GeoHealth Laboratory, University of Canterbury. The research team was multi-cultural (including Māori and Pacific researchers) and multi-disciplinary (including nutrition, physical activity, health economics, Māori research, Pacific research, social policy, public health, clinical trials, epidemiology, and health geography). This diversity enabled the project to address issues for Māori and Pacific peoples from their perspective, and to explore a wide range of environmental factors and potential interventions, such as economic instruments to promote food security, and improvements to urban design to promote physical activity.

The ENHANCE research programme consisted of several stages, each building on the other. In chronological order, these involved:

- conducting a literature review to determine known environmental influences on food security and physical activity, and analysing existing New Zealand research data,
- holding focus groups with Māori, Pacific and low-income peoples to ascertain their views on what factors influence food security and physical activity, and how to modify them effectively,
- identifying contributing factors and critical points of intervention using complexity theory,
- defining opportunities for intervention via workshops with key players,
- evaluating potential interventions through more in-depth analysis, including further specific literature review and interviews with key informants, and
- developing a portfolio of policies, programmes and actions based on this body work and feedback from key stakeholders.

This introduction begins with a definition of the problem, identifies the research questions, provides definitions of key words, and then summarises the methods from the key stages of the research before introducing the proposed interventions presented in this book.

Problem definition

Food security is the assured access to sufficient food that is nutritious, of good quality, safe, meets cultural needs, and has been acquired in socially acceptable ways.² Despite being a land of plenty, food security is an issue for 20-22 percent of New Zealanders, with higher rates among Pacific peoples and Māori (2002 data).³ In 2002, over half of Pacific and over one-third of Māori households with children could not always afford to eat properly. A more recent study amongst 1,376 Pacific families in South Auckland with a newborn child found 43 percent reported food running out due to lack of money sometimes or often.⁴ Food security is identified in New Zealand's Healthy Eating Healthy Action strategy as a key issue for the health of New Zealanders.⁵ Furthermore, food insecurity (the opposite of food security) has been associated with detrimental health outcomes such as obesity, diabetes, and micronutrient deficiencies.⁶

Detailed information on the associations and determinants of food security in New Zealand was obtained from the Survey of Family, Income and Employment (SoFIE) run by [Statistics New Zealand](#).⁷ This is an eight-year (2002-2010) longitudinal study collecting annual information on families and households, with detailed information on income, labour market status and assets and liabilities. In bivariate analyses, food insecurity was associated more strongly with being female, younger age (25-44 years), never being legally married or separated, and being divorced or widowed, as well as Māori and Pacific ethnicity. Respondents who lived in a sole parent family or in a household with multiple people (flatting) or multiple families were more likely to be food insecure. Food insecurity was associated with being unemployed and actively looking for work, as well as receiving some form of means-tested government benefit. There was a linear relationship with increased proportions of respondents reporting food insecurity at lower levels of measures of socioeconomic status. Respondents who lived in highly deprived areas (NZDep deciles 7-10) were more likely to be food insecure, and respondents in lower household income quintiles were more likely to be food insecure. The findings were equivocal for education. These findings further support the focus of the ENHANCE research on Māori, Pacific and low-income peoples.

As well as aiming to improve nutrition, the Healthy Eating Healthy Action strategy aims to improve levels of physical activity. Physical activity can be defined as 'movement required on a daily basis to sustain health'. Physical activity opportunities include sport, active recreation, physical education, fitness activities, active transport and play.⁸ Sufficient levels of physical activity have well established health benefits, however, despite efforts to increase population levels of physical activity, approximately one-third of New Zealanders remain inactive.⁹

Thus both food security and physical activity are key issues for improving the health and well-being of New Zealanders. Māori, Pacific, and low-income families are the focus of this research as they suffer disproportionately from the burden of disease attributable to these issues.

Research questions

This research addresses the following questions:

- What are the environmental factors (including economic, socio-cultural, physical, and political) that enhance (a) food security and (b) physical activity in New Zealand?

- What are the inter-relationships between these factors and what are their relative contributions to (a) food security and (b) participation in physical activity in New Zealand?
- In what ways could these factors be modified to further enhance the food security and physical activity of Māori, Pacific, and low-income whānau/families? What other factors are likely to facilitate change?

Definitions

Environment	All that which is external to the human host. Can be divided into physical, biological, social, cultural, etc, any or all of which can influence health status of populations. ¹⁰
Food insecurity	The inability to acquire or consume an adequate diet quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so. ¹¹
Food security	<p>An internationally recognised term that encompasses the ready availability of nutritionally adequate and safe foods, and the assured ability to acquire personally acceptable foods in a socially acceptable way.²</p> <p>The Request for Proposal from the Health Research Council and Ministry of Health for this research states that “food security goes beyond the issue of resource for ‘enough’ food and includes the related issues of accessibility to food, the quality of that food (nutritional and biological), whether or not the food available for consumption is culturally acceptable to the recipient and can be accessed in a socially acceptable way”.</p>
Physical activity	‘Movement required on a daily basis to sustain health’. Physical activity opportunities include sport, active recreation, physical education, fitness activities, active transport and play. ⁸

Methodology

In this section the methodology of the multi-phased ENHANCE research project is outlined. For more detail on the individual research components see the associated full reports outlined below.

Theoretical frames

Two theoretical frames, complexity theory^{12 13} and the ANGELO framework,¹⁴ underpin this research. A third, filter criteria for stakeholder judgments on implementation,¹⁵ was utilised later in the research to assist in identifying priority interventions. All three are outlined below.

Complexity theory

Complexity theory focuses on the study of complex systems, where a ‘system can be any collection of objects or processes deemed to be of interest’.¹⁶ Complex systems

have particular properties such as: being comprised of numerous system elements, including other complex systems; and, behaving in a non-linear manner.¹⁷ A social phenomenon, such as food insecurity, is seen as emerging from the relevant social system as a whole. That is, all the parts of the social system interact to create the state of food security or insecurity. To understand food security or physical activity then, the social system as whole must be understood.¹²

To change the social phenomena emerging from a complex system there needs to be a change in how system elements interact, which is best done by introducing new resources into the system. The possible ways that a complex system can change are determined by particular elements within the system known as 'control parameters'. Control parameters are highly linked within a social system, which means a change in a control parameter is likely to have some impact on several other system elements. Control parameters are therefore the place within systems where it is most effective to intervene. The impact of intervention is difficult to predict, as a key feature of complex systems is the non-linear interactions between elements.¹⁸ Control parameters are also considered to be external inputs into the social system,¹⁹ which makes them open to manipulation by policy interventions.

For example, the money available in households to spend on food is identified as a control parameter for food security. Increasing the money available to spend on food through income interventions (see full benefit entitlements chapter 2.3 and increasing the statutory minimum wage chapter 2.2 for examples) opens up more options for those people where lack of money is a key driver of their diets. With more money to spend on food, other interventions, such as cooking skill classes (see chapter 3.1), are more likely to be effective as people will have the resources to implement lessons learnt. This suggests that the interaction between interventions needs to be considered, and that some interventions should be implemented before others to maximise their effectiveness.

ANGELO framework

Results from the literature review and focus groups were categorised according to the ANGELO Framework. The Framework was originally devised to develop interventions aimed at obesogenic environments. However, it is suitable for adaptation to other types of interventions. The Framework classifies the environment into four types: physical (what is available), economic (costs), socio-cultural (attitudes and beliefs) and political (the rules)¹⁴. These may be set in either a macro or micro environment. Macro environments are those that are generally outside individual control, whereas micro environments are more local, such as the home or neighbourhood. An example of the Framework is provided in Table 1-1.

Filter criteria for stakeholder judgments on implementation

Swinburn et al¹⁵ suggest the criteria presented below in Table 1-2 be used to judge the achievability of interventions on obesity. We have taken these criteria, a common set of considerations in any policy-making process, and used them to judge potential actions on food security and physical activity. The criteria address feasibility, sustainability, effect on equity, potential side-effects and acceptability to stakeholders. We have added a further criterion of cost-benefit analysis, where information is available, in order to ensure interventions also provide good value for money.

Table 1.1 ANGELO Framework

Examples of Prioritized Projects for Further Investigation in Pacific Island Communities				
Size	Type			
	Physical (Food and PA)	Economic (Food and PA)	Political (Food and PA)	Sociocultural (Food and PA)
Micro (settings)				
Festivities				Cultural importance of high-fat foods
Neighborhoods	Recreation and sports facilities Safe walking paths			
Schools	Canteens serving local food		Policies on physical education Promotion of traditional activities, e.g., dancing	
Homes	Home gardens			Church leaders as role models
Churches				
Markets	Availability of local food (especially fish and vegetables)			
Macro (sectors)				
Transport	Availability of buses and bus stops			
Health regulatory system			Policies and standards on imported food quality/ labeling	

Note. PA, physical activity.

Source: Swinburn et al 1999¹⁴

Table 1.2 Suggested filter criteria for stakeholder judgments on implementation

Filter criteria	Description
Feasibility:	The ease of implementation considering such factors as: the availability of a trained workforce; the strength of the organisations, networks, systems and leadership involved; existing pilot or demonstration programmes.
Sustainability:	The durability of the intervention considering such factors as: the degree of environmental or structural change; the level of policy support; the likelihood of behaviours, practices, attitudes, etc, becoming normalised; the level of ongoing funding support needed.
Effects on equity:	The likelihood that the intervention will affect the inequalities in the distribution of obesity in relation to: socioeconomic status; ethnicity; locality; gender.
Potential side-effects:	The potential for the intervention to result in positive or negative side-effects such as on: other health consequences; stigmatisation; the environment; social capital; traffic congestion; household costs; other economic consequences.
Acceptability to stakeholders:	The degree of acceptance of the intervention by the various stakeholders including: parents and carers; teachers; health care professionals; the general community; policy makers; the private sector; government and other third party funders.

Source (Swinburn et al 2005)¹⁵

These criteria are particularly relevant in this research which was requisitioned by a policy institution, the Ministry of Health, to provide advice about effective interventions for three groups who endure inequalities in relation to food security and physical activity.

Research process

From the beginning of this project the research team acknowledged that it was likely there would be little existing research available that focused on the three populations of interest in the New Zealand context. For this reason, the methodology focused on marrying international research evidence with new evidence generated specific to Māori, Pacific and low-income New Zealanders.

Phase 1

The first phase of this research consisted of two comprehensive international literature reviews identifying factors associated with food security and physical activity.²⁰ While some New Zealand literature was included, as expected, there was relatively little available. For this reason, a series of focus groups was also held with Māori, Pacific and low-income people.²¹ The focus groups identified a range of factors that impacted on people's decisions regarding food security and physical activity. These reports are available at <http://www.wnmeds.ac.nz/academic/dph/research/heppru/research/foodsecurity.html>.

Phase 2

The second phase of the research used the literature review and focus group information to address the first two research questions. Descriptions of the social system from which food security and physical activity practices 'emerge' were developed. Informed by complexity theory,^{12 13} the system descriptions identified many interacting factors contributing to food security and physical activity outcomes.

Control parameters were identified within the food security and physical activity systems; that is, the places in the system where intervention is likely to be most effective. Five control parameters were identified:

- the money available within a household to spend on food,
- the cost of healthy nutritious food,
- food purchasing influences,
- culturally-specific physical activity programmes, and
- improving urban design to facilitate physical activity.²²

The phase two report is available at

<http://www.wnmeds.ac.nz/academic/dph/research/heppru/research/foodsecurity.html>.

The objective of subsequent phases of the research was to explore interventions to impact on control parameters and move the social systems towards enhanced food security and physical activity for Māori, Pacific and low-income whānau/families.

Phase 3

Phase three of the research involved a series of seven workshops held in Wellington, Northland and Auckland with representatives of Māori, Pacific and low-income communities, policy-makers, non-governmental organisations and academics to discuss key opportunities for action and to identify appropriate interventions. Workshops were held on each of the five control parameters identified in phase two.

Three workshops were held on the provision of culturally specific physical activity programmes, including one general workshop and two Māori specific workshops led by Te Hotu Manawa Māori. Each workshop identified intervention options to impact on the control parameters using the filter criteria discussed above¹⁵ and with a particular focus on equity issues for Māori, Pacific and low-income people.

Phase 4

The fourth and final phase of the research, of which this book is the primary output, addressed the third research question; that is, how to intervene to enhance food security and physical activity. A range of interventions was prioritised for further investigation.

Selection was based on the following criteria, although greatest emphasis was given to the first three criteria:

- areas receiving most support at workshops,
- findings from literature review and other earlier work,
- key populations: Māori, Pacific, and low-income,
- initiatives covering a range of levels from macro to micro,
- avoiding overlap with work in other areas that was already underway,
- utilising the strengths of the research team, eg, Māori nutrition and health economics expertise, and
- practical considerations of where value could be added to the evidence already gained, and what was possible within the scope of the project.

The 16 interventions investigated are listed below under the controlling parameter to which they relate. These 16 interventions are detailed in the following chapters as indicated in Table 1.3 on the following page.

Table 1.3 Interventions by control parameter and chapter heading

<p>Chapter 2: Money available in households 2.1 Potential uses of economic instruments 2.2 Increasing the statutory minimum wage rate 2.3 Full and correct benefit entitlements 2.4 Fringe lender responsibility 2.5 Provision of free or subsidised food in schools</p>
<p>Chapter 3: Food purchasing influences 3.1 Enhancing cooking skills 3.2 Iwi pan tribal development of traditional Māori food sources 3.3 Community markets, community gardens, and improving access to food</p>
<p>Chapter 4: Cost of healthy nutritious food 4.1 Community-based initiatives 4.2 The potential role of the food industry</p>
<p>Chapter 5: Improving urban design 5 Enhancing open space and connectivity</p>
<p>Chapter 6: Provision of physical activity programmes that are culturally specific 6.1 Developing capacity 6.2 Evaluation and research 6.3 Using tikanga to encourage physical activity in Māori</p>
<p>Chapter 7: Cross cutting themes 7.1 The potential uses of Health Impact Assessment 7.2 Building on current initiatives</p>

The specific methods used to explore each intervention are discussed in each chapter. Two levels of research were employed. One was comprehensive, with a systematic literature review. In some cases, a limited number of key informant interviews were also undertaken in order to strengthen the New Zealand perspective in relation to the intervention being explored. Each paper using this approach uses the filter criteria¹⁵ plus cost-benefit analysis, as appropriate, to consider the 'achievability' of the proposed intervention. The other level of research involved a literature scan and aimed to raise the awareness of key stakeholders of the potential of these particular interventions. In all cases where literature scans are used, recommendations focus on the need for further research and policy development. Both levels of research were employed in order to study as wide a range of interventions as possible, thus allowing a comprehensive suite of interventions to be identified in relation to these complex issues.

Peer review played a key role in the development of these chapters. This included peer review by the research team, an advisory group of key stakeholders from central government and relevant non-governmental organisations, and by other key experts as required to support the expertise of current reviewers (for example, an expert in health impact assessment reviewed the chapter on this topic).

An overview of the ENHANCE project and key findings and draft recommendations from the intervention papers were presented at workshops at the Agencies for Nutrition Action (ANA) Conference held in May 2009 in Wellington. This forum provided an opportunity to obtain feedback from leaders in the fields of food security and physical activity working in a wide range of agencies across the country. Feedback was obtained in small facilitated discussion groups on the key interventions. Approximately 40 people attended the food security workshop and 20 attended the physical activity workshop. Overall, feedback was largely positive. However, participants provided valuable advice about the proposed recommendations that was incorporated, as appropriate, when drafting final recommendations.

The chapters in this book represent a 'portfolio' of interventions that includes recommendations for action across government, industry, community and research sectors. The interventions impact across political, socio-cultural, economic and physical environments. Taken together, they are designed to impact on the five areas where intervention is likely to be most effective (on the control parameters), as discussed in Chapter 8. If implemented, they should act to enhance food security and physical activity for Māori, Pacific and low-income people. It should be stressed that multiple interventions are required to impact on multiple control parameters operating across a complex social system. The intention is that the identified interventions be simultaneously implemented and not cherry-picked based on ease of implementation. However, it may be that there are additional interventions, not yet identified, that could impact on the control parameters. If so, including these as evidence emerges will likely serve to increase the effectiveness of the suite of actions proposed here. Alternatively, if some interventions are shown to be unachievable, or research evidence changes, then alternative interventions may need to be explored.

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Section A: Enhancing food security

Three sections of this book are dedicated to enhancing food security. The three sections correspond to the three identified control parameters chosen by the research team as the food security areas of focus. These are: money available within households to spend on food, food purchasing influences, and the cost of healthy nutritious food.

The money available in households to spend on food was identified as an important factor for food security. The money available to spend on food is determined by both income and household expenses. Five chapters consider intervention areas to increase the money available in households to spend on food. The first chapter (chapter 2.1) by Des O’Dea, Delvina Gorton and Cliona Ni Mhurchu investigates the use of food voucher systems to supplement the food purchasing power of a household. Included within this chapter is also a discussion of removing Goods and Services Tax (GST) from healthy foods to reduce their cost. Removing GST was raised under the Cost of Healthy Nutritious Food section, however, the two issues sit well together as potential economic instruments to enhance food security. The next two chapters from Des O’Dea (chapter 2.2) and Kristie Carter (chapter 2.3) focus on income interventions for two specific groups, those on the statutory minimum wage rate, and those on income support benefits. In the fourth chapter (chapter 2.4) Tolotea Lanumata and Louise Signal consider the role of fringe credit lenders and how availability of credit can enhance food security in the short term, but interest charges may reduce food security in the longer term. The fifth chapter (chapter 2.5) by Mat Walton takes a different approach and looks at the provision of free food in schools. This asks if the provision of food in schools would reduce the impact of food insecurity on children, and whether this would have a positive impact on money available in households to spend on food.

Food purchasing influences are commonly identified as associated with food security status. Three intervention areas are considered to move food purchases towards healthy and affordable options. The first chapter (chapter 3.1) by Delvina Gorton and Cliona Ni Mhurchu considers improving the knowledge of individuals through cooking skills courses, both within schools and located in communities. The second chapter by Christina McKerchar and Craig Heta (chapter 3.2) looks at what iwi and pan tribal organisations can do to stimulate production and provision of traditional Māori food sources. The third chapter (chapter 3.3) by Delvina Gorton considers the experience of community markets, gardens, transport and supermarket access issues in relation to food purchasing and food security.

The third and final section on enhancing food security considers how the cost of healthy nutritious food impacts on food security. Interventions for reducing the cost of healthy food for Māori, Pacific and low-income peoples are considered. This section has a lot of crossover with the second and third chapters of the food purchasing influences section. Delvina Gorton continues the exploration of community-based initiatives and considers the cost of food in addition to impacts on availability in chapter 4.1. The second chapter (chapter 4.2) by Delvina Gorton, Sharron Bowers, Louise Signal and Cliona Ni Mhurchu considers the role of the food industry in pricing of healthy nutritious food and what mechanisms may be used to reduce costs for healthy diets. When reading this section the discussion in chapter 2.1 regarding the removal of GST should also be kept in mind.

Chapter 2: Money available in households

2.1 Potential uses of economic instruments

Des O’Dea, Delvina Gorton and Cliona Ni Mhurchu

Summary

Two ‘Economic Instrument’ interventions, involving either subsidies or taxation changes, were proposed at the Enhance workshop in September 2008, and are assessed in this section.

Proposed Intervention I: Removing Goods and Services Tax (GST) from healthy basic foods.

Conclusions:

There are substantial objections to this proposed intervention. The most important, in this context, is that it would be a very bluntly targeted instrument for addressing food insecurity issues. Households right across the income spectrum would benefit.

Proposed Intervention II: Provision of a Smart Card, providing discounts on healthy nutritious food.

Conclusions:

The use of a Smart Card is practicable. It is now used nearly universally in the United States for the issuance of ‘Food Stamps’ to poor families, and also for other benefit transactions. It has promise for improving food security, and also the nutrient quality of food purchases. Entitlement to such a benefit, and the nature and amount of the payment could take a number of forms.

The two principal issues to resolve are:

- The choice of foodstuffs to be subsidised - three possible options are 1) fruit and vegetables; 2) a ‘basket’ of specified ‘staple’ foodstuffs, such as fruit and vegetables, milk, cereals and cereal products, fish, meats; and 3) food items identified as being of good nutritional quality by an agency such as FSANZ (Food Standards Australia and New Zealand). On the advice of members of the project team experienced in these matters the third option appears the best.
- Eligibility for a smart card - it is envisaged that there would be one card per family unit, and that the amount loaded on the card would be of the order of \$5 per dependent child per week, or a similar amount for an eligible household comprising adults only. There are several possibilities for determining eligibility. The best are either 1) Income tested eligibility. Similar for example to the current Community Services Card, but excluding pensioners, or 2) Universal eligibility. For instance, all families with dependent children, regardless of income. The advantages of the ‘Universal’ option are its simplicity, and that it overcomes stigmatization issues. The disadvantages are that it is expensive, and that much of this expenditure is directed to relatively well-off family households. The ‘Income-tested’ option could carry ‘stigma’, but is better-targeted and also less expensive.

Recommendations are that the:

- removal of GST from food in general, or from 'healthy basic foods', not be endorsed as an intervention for reducing food insecurity, and
- concept of a Smart Card for subsidising food costs and thereby reducing food insecurity has attractive features and should therefore receive further detailed investigation.

Problem Definition

A proportion of households suffer 'food insecurity'. That is, they are not always able to buy the amount and quality of food desired. Possible contributory causes include: insufficient household income, and high prices of food.

Food insecurity has consequences for nutrition and health. Foods consumed in a food-insecure household may be of high calorie content but low in other key nutrients. This can lead to poor health of household members, and inappropriate consumption patterns can also cause overweight and obesity with long-term adverse health outcomes. Measures that reduce food insecurity can therefore reduce health-care costs and improve health outcomes. Such measures are potentially cost-effective.

Two possible economic tools for dealing with the problem of food insecurity are: subsidising food prices, and increasing household incomes. For example, by reducing taxes or increasing cash or 'in-kind' benefits.

Two proposals on these lines emerged from the ENHANCE workshop in September 2008 as appearing worthy of future research. These were:

- *Removing Goods and Services Tax (GST) from healthy basic foods.* (From the group discussing 'Cost of healthy, nutritious food'.) This particular intervention has been proposed and discussed a number of times in the past (refer NZ Nurses Organisation debate).^{1,2}
- *Provision of a Smart Card or loyalty card, providing discounts on healthy nutritious food.* (From the group discussing 'Money available in households'.) Note that it is not clear what was meant in the discussion by a 'loyalty card' in this context, so the assumption made here is that the term was used simply as a synonym for a 'Smart Card'; that is, an electronically coded card providing discounts on specified foods. Also, it is assumed here that the proposal for a smart card does not rule out, as either an alternative or a supplement, the use of paper 'vouchers'. Such a scheme applied for many years in the United States in the form of Food Stamps provided to families meeting certain criteria. More recently the provision of these in the United States has been made largely electronic – in the form of EBT - Electronic Benefits Transfer.³

There are significant differences between these two proposed interventions. The 'GST removal' intervention proposes a tax reduction of a specified amount. Also, it would apply to all purchasers of those foods exempted from GST, regardless of the income or other characteristics of the purchasing household.

The 'Smart Card' proposal is more flexible in these respects. The subsidy rate for specified foods can be varied as policy-makers think fit. Also, the intervention can be targeted to provide benefits to only those households with given characteristics. In this

sense the 'Smart Card' intervention can be regarded as more of an 'income change' intervention; and the 'GST removal' intervention as more of a 'price change' intervention.

There are similarities also between the two proposals. Much the same data, principally from the Household Economic Survey (HES), is necessary for analysing the practicability of both. The impact of both will be dependent on the same economic parameters, namely price and income elasticities of demand for foodstuffs, and the price elasticity of supply. Elasticities are discussed further below. For these reasons the two proposed interventions are discussed together in this chapter.

Which foodstuffs are 'healthy and nutritious'?

The workshop recommendations were couched in terms of 'healthy basic foods' and 'healthy nutritious food'. Not all foodstuffs are of high nutritional quality, for instance, many takeaway meals, carbonated drinks, potato crisps, and others. It would seem desirable that an intervention aimed at reducing food insecurity should also, to the extent possible, aim at improving the nutritional value of household food intake. 'Fat taxes' and the like are a potential instrument for improving diets in general, but would be of little use in addressing food insecurity, and are not evaluated in this report.

An intervention seeking to improve nutritional value alongside food security might identify food categories which are seen in general as 'nutritious', such as 'fruit and vegetables', and target these commodity groups. Alternatively, it might try to identify more precisely at possibly quite a detailed level individual foodstuffs, the increased consumption of which should be encouraged.

It is tempting to target fruit and vegetables, because of widespread public and industry acceptance of this category of foods as healthy, but it is questionable how much impact increased consumption from this sub-group alone would have on household food security as it is the least consumed food group in food-insecure households. The alternative would be to also include such foods as, for example, milk, bread, breakfast cereals, and meat, on the grounds that food insecurity commonly includes shortfalls in consumption of these staple items, as well as reliance on items with poor nutritional quality. Also, many of the items in these groupings, though not all^a, are also of good nutritional quality.

In New Zealand, the University of Otago estimated that a family food costs survey basket could be used as a starting point for an appropriate 'basket' of foodstuffs.⁴

Going a step further, an accepted nutrient profiling scheme could be applied to determine eligibility of foods for smart card discounts. Arguably, the most acceptable one would be the proposed Food Standards Australia and New Zealand (FSANZ) health claims standard. The FSANZ calculator would also be available publicly for manufacturers and retailers to assess whether a specific food met the necessary criteria. This last variation does bring in added complexity, and would be more difficult to implement in places such as weekend markets. The technology of 'smart cards' does, however, seem to have advanced far enough to be able to cope with most such problems, with perhaps a fall-back allowed to simpler criteria, such as fruit and vegetables and bread, in environments where the technology would be too difficult or expensive to apply.

^a Examples of foods in these categories of lesser nutritional value include white bread (half of all bread sold), sugary breakfast cereals, and fatty meats.

Relevant economic background and parameters

The Goods and Services Tax (GST) is a tax on value-added^b, introduced in New Zealand in the late 1980s. In New Zealand it is applied at a standard rate for virtually all goods and services, the rate being 12.5 percent since 1989. In this respect New Zealand differs from virtually all other countries with value-added taxes. Other countries have lower or zero rates for commodity groups such as food, children's clothing, health-care, and books and newspapers. The rationale has generally been to make the tax less regressive.

The effectiveness of the proposed interventions will depend on certain economic parameters, namely:

- the income elasticity of food consumption – how responsive food consumption is to changes in income, and
- the price elasticity of food consumption – how responsive food consumption is to changes in food prices relative to prices of other commodities.

Elasticities are much used in economics. They are numerical measures of 'responsiveness'. If some economic variable of interest changes by $y\%$ in response to a change of $x\%$ in some other 'causative' variable, then the elasticity is y/x . For example, suppose food prices rise by 10 percent relative to all other commodities, and the quantity of food purchased falls in response by 5 percent. Then we say that the price elasticity of demand for food is -0.5^c . In this case the magnitude of the elasticity is less than unity and we say that demand is price-inelastic. A consequence of price-inelasticity is that when prices fall, total expenditure also falls, because quantities increase by a lesser percentage amount than the percentage by which prices fall.

It is generally believed, with support from empirical evidence that demand elasticities for food, both income and price elasticities, are relatively low in magnitude. That is demand for food is both income and price inelastic (evidence for this is discussed below). A 10 percent change in either income or prices will generate a less than 10 percent change in the quantity of food purchased.

Another relevant elasticity is the supply price elasticity of food. That is, the responsiveness in terms of quantities marketed by producers to a change in price paid to producers. This elasticity helps determine how much of any change in food subsidy or tax is passed on to consumers. The higher the price elasticity of supply is, the more of any subsidy or tax change is passed on to consumers.

Supply elasticities will vary with the type of food. It seems *a priori* likely that the more processed a food item is, the higher the supply elasticity is. This is because such foods will be supplied by large manufacturers with minimal change in unit costs when output quantities vary.^d Assuming reasonably competitive markets, an increase in profit margin will lead to a substantial increase in quantities supplied; and a fall in margin to a substantial decrease. On the other hand, the less processed the food is, the lower the supply elasticity is likely to be. This would apply in particular to fresh fruit and vegetables, with suppliers constrained by seasonal factors and unable to respond quickly to changes in demand caused by changes in price or income.

^b Hence the same as the Value-Added Tax (VAT) applying in many countries.

^c It is customary to ignore the negative sign for price elasticities. The negative is because the quantity change is in the opposite direction to the price change. Income elasticities, on the other hand, are almost always positive, with quantity demanded increasing as income increases.

^d It seems reasonable to expect the same to hold for retailers in general.

In such case the supplier is likely to gain a substantial proportion of any increase in subsidy, or bear a substantial proportion of any increase in tax. However, in the longer term suppliers are likely to adjust capacity to meet a price- or income-induced change in demand. That is, the long-run supply elasticity might be expected to be higher, ie. more 'elastic' than the short-run elasticity; and a larger proportion of subsidy or tax changes therefore passed on to consumers than in the short-term.

Empirical values of New Zealand elasticities.

Important work in this area was reported by Michelini in 1999.⁵ He used data from Statistics New Zealand's Household Expenditure and Income Survey^e for years 1983-84 to 1991-92. The key values, from Table 2 in his paper, are given below, with standard errors of estimate in brackets.

Table 2.1.1: Quantities elasticities for New Zealand.

Commodities	Own-Price	Total Expenditure	Household Size
Food	-.168 (.1952)	.558 (.0129)	.381 (.0122)
Household operations	-.250 (.3142)	.747 (.0199)	-.006 (.0188)
Apparel: Clothing & footwear	-2.095 (.9605)	1.110 (.0364)	.167 (.0322)
Transport	-.661 (.1433)	1.276 (.0299)	-.219 (.0217)
Other Goods	-.747 (.5620)	1.095 (.0255)	-.014 (.0235)
Other Services	-.466 (.2109)	1.321 (.0275)	-.207 (.026)

Source: Table 2. Quantities Elasticities for the Fully Constrained Model. From Michelini 1999.⁵

Total Expenditure can be regarded as a near-equivalent to Income. The Household Size variable is an additional determinant to price and income. The standard errors are large for Own Price, perhaps because data constraints forced Michelini to work with grouped data, and also in terms of the fairly broad commodity groups given in the table.

Own Price and Total Expenditure elasticities are of the expected sign – negative for price and positive for expenditure. For the Food group both 'price' and 'income' elasticities are of magnitude less than one, that is, 'inelastic'. Indeed the Own Price elasticity of –0.168 is notably inelastic (and in fact not significantly different from zero).

In all, Michelini's results confirm expectations that the demand for Food is both price and income-inelastic^f.

^e Now known as the Household Economic Survey.

^f Khaled et al (2006),⁶ using a Rotterdam demand system model, get very similar results from New Zealand data – an own Frisch-price elasticity of -0.101, and an expenditure elasticity of 0.440. The US Department of Agriculture's Economic Research Service has a model providing estimates for many

It should be noted, however, that his results are for the Food group as a whole. International data suggest that demand for specified sub-groups, such as fruit and vegetables, might be somewhat more price-elastic.

Further research by Khaled et al,⁸ on broadly the same data-sets, though with somewhat different modelling and estimation techniques, in general corroborated Michelini's results. Their estimate of the own-price elasticity for Food was -0.089 ; and the expenditure elasticity 0.577 . Elasticities, including cross-price elasticities, were also calculated for Food subgroups. Thus, for fruit and vegetables the own-price elasticity was -0.253 and the expenditure elasticity 0.366 (Table 8; Op cit.)

Overseas estimates of elasticities

Estimated elasticities in overseas research show a quite wide range in values, in part presumably because of differences in data-set quality and in the mathematical models used. Some specimen results are:

- Schroeter et al (2008)⁹ USA: A fruit and vegetables 'own-price' elasticity of -0.98 , a relatively high value.
- Jones (2006)¹⁰ found high price-elasticity values also, ranging up to -3.0 for citrus fruit in low-income areas, from data on Ohio supermarket sales in high- and low-income areas. His results were for quite specific products, as for example citrus fruit, salad vegetables etc, which would be expected to be more price-elastic than for fruit and vegetables in aggregate because of, for example, competition between citrus fruit and bananas. That is, the availability of substitutes increases price elasticities. Perhaps his most important result was the finding of higher price elasticities for low-income stores than for high-income stores, a result certainly reasonable *a priori*, but nice to find in actuality.
- Jensen and Smed (2007)¹¹ refer to price elasticity estimates from Scandinavian data for fruit & vegetables as being in the range -0.6 to -0.9 for Norway, and -0.77 for Denmark.
- Gustavsen and Rickertsen (2002)¹² find for Norway high own-price elasticities – absolute values exceeding unity – for traditional vegetables (-1.13) and industrially processed (frozen, dried, canned, etc.) vegetables (-1.62), especially for households with children. For salad vegetables, however, the own-price elasticity was inelastic at -0.38 . Expenditure elasticities were mostly above unity.
- The same authors quote lower estimates in a 2006 paper,¹³ less than one in magnitude for both own-price and total expenditure. They model two hypothetical public policies. First removing current VAT of 11 percent on vegetables. Because of the low expenditure elasticity this would have minimal effect in increasing vegetable consumption. Second a general income increase of 10 percent. This, however, is found not to increase vegetable purchases by low-consuming households.
- Lechene (2000)¹⁴ provides estimates, based on a UK National Food Survey data for periods up to 2000, for a quite wide range of different foodstuffs. The 'own price' values are without exception price-inelastic, but almost all significantly different from zero at the 90 percent confidence level. Income elasticities are also inelastic, markedly so for most commodities, with an 'All Foods' income elasticity of 0.20 .

countries.⁷ For New Zealand the price elasticity for Food, beverages and tobacco was estimated at -0.291 ; and the income elasticity 0.394 . Price and income elasticities are also given for food sub-groups. In making comparisons note that Michelini's Food group excludes alcohol and tobacco products.

Some of these papers also include estimates of cross-price elasticities – measuring the effects of changes in the price of one food on quantity demanded of another. Data difficulties - prices of different foodstuffs often moving fairly much in parallel - lead to such estimates often having large standard deviations. There is interesting discussion on this in some of the papers,¹⁵ and also on differences at different levels of household income, and household deprivation.¹⁶ These matters are not pursued further here, but would require investigation as part of any implementation.

In all these overseas estimates tend to confirm Michelini's results, namely that food demand is both price- and income-inelastic, and also suggest that this conclusion applies to most individual foodstuffs as well as to aggregates such as All Food, or fruit and vegetables. This should not be taken as meaning that a policy of subsidising food prices is futile. Inelasticity is not the same as zero elasticity. A price reduction will still result in some increase in quantity purchased, and the more the policy is focused on fairly tightly defined food sub-groups, the more likely the increase will be reasonably substantial. There is some evidence also in the literature of higher price elasticities for low-income households. The 'income effect' of a subsidy, however, will generally be insignificant, because both of low-income elasticities and the small size of any subsidy amount relative to total household income. However, for very low-income households, 'beneficiary households', the effect will be a bit more noticeable.

Methods

The information included in this chapter is from three sources: an examination of household expenditure and income data published by Statistics New Zealand, a literature scan, and interviews with government policy analysts and others knowledgeable in this field. The literature scan was largely undertaken in late 2008.

Five interviews were conducted with policy analysts and others. The interviews were conducted from February to May 2009. Interview participants included policy advisors and administrators from government departments and social scientists with expertise in the policy area.

Results

Official Data

The major source of household expenditure and income data is the Household Economic Survey (HES) run every third year by Statistics New Zealand.¹⁷ The survey covers approximately 3,000 households. The latest survey is for 2006/07. However, this latest survey lacks, at least in the published material, the detailed data on incomes available in earlier surveys. For illustrative purposes, therefore, most of the numbers cited here are from the 2003/04 survey.¹⁸

Table 2.1.2 gives average household expenditures in 2003/04 and 2006/07, for fruit and vegetables, for all food, and for all goods and services. Note that these numbers are prior to the substantial price increases relative to prices in general seen for some food items in 2008.

Table 2.1.2: Household Expenditure on Food. 2003/04 and 2006/07 average for all households. GST included.

Expenditure group	Average weekly household expenditure	Expenditure as a percentage of total net expenditure
	\$	%
2003/04		
Fruit and vegetables	19.40	2.2
All Food	142.50	16.0
Total net expenditure	888.40	100.0
2006/07		
Fruit and vegetables	18.40	1.9
All Food	155.60	16.3
Total net expenditure	956.20	100.0

Source: Household Economic Survey. Years ended June. 2003/04¹⁸ and 2006/07.¹⁷

The Food category includes, in addition to fruit and vegetables, non-alcoholic beverages, and restaurant meals and ready-to-eat food, as well as meat, poultry and fish, and grocery food. Sampling errors (presumably 95 percent confidence interval half-widths) are around 5 percent for fruit and vegetables, 4 percent for Food, and 3 percent for total expenditure. The apparent fall in fruit and vegetables expenditure from 2003/04 to 2006/07 may simply reflect sampling error.

In both years, expenditure on food amounted on average to around 16 percent of total net expenditure, a little less than one-sixth of the total. Average household weekly spending on food was of the order of \$150, and on fruit and vegetables of the order of \$20 per week.

Proposed intervention One: Removal of GST on food, or on fruit and vegetables

Effect of removal of GST on the 'average' household

GST has been set at 12.5 percent - one eighth – for the past 20 years. Or in terms of the selling price, GST makes up one ninth ($12.5 / 112.5$) of the total price. Thus, removing GST might be expected to reduce prices by one-ninth or 11.1 percent. For household weekly spending of approximately \$150 on Food, expenditure might be expected then to be reduced by \$16.67 per week; and that on fruit and vegetables by \$2.22.

These calculations are too simplistic, though serving to give orders of magnitude. A first caveat is that the amount of a price reduction can be affected by whether the good is made 'exempt' or 'zero-rated'. For the former, retailers would not be able to claim back GST on their own purchases, and the price reduction would be expected to be less. Secondly, the price reduction would lead to some increase in the quantity of food purchased, depending on the price elasticity of demand.

The overall reduction in household expenditure would therefore be less^g than the calculations in the previous paragraph suggest. For an elasticity of 0.50 the expenditure reduction would be half the number in the previous paragraph.

Third, the full amount of any tax reduction will not necessarily be passed on in price reductions to consumers, particularly in the short-term. If supply is at all price-inelastic, some of the subsidy will be recouped by suppliers rather than consumers. This is particularly likely to apply to fruit and vegetables, often subject to seasonal supply constraints. It is less likely to apply to 'processed' foods such as Grocery items, Beverages, and Restaurant meals and ready-to-eat foods. That is, the removal of GST on foods is likely to result in larger price reductions for the more processed foods and lesser reductions for fruit and vegetables, though frozen and canned vegetables would be less supply-constrained. In the longer term, however, some increase in supply of fruit and vegetables might be expected to be generated by a reduction in GST, and more of the tax reduction passed on as price reductions.

The effect of removal of GST on food on government revenues

The removal of GST on food would have implications for government revenues. The number of private permanent households is given in the 2006/07 Household Economic Survey as 1,565,000^h. The GST content of each household's expenditure on food is estimated above at roughly \$16.67 per week. The immediate impact on revenue would therefore be a reduction of $1,565,000 \times 16.67 \times 52 = \$1,357$ millions. Or \$1.4 billions.

This is a substantial amountⁱ. Again, this estimated revenue reduction should be regarded as a rough and ready 'first order' estimate. In reality, the GST reduction would result in increased expenditure^j on non-food commodities as well as on food. The reduction would therefore in part be offset by increased GST revenues on non-food items; and also increased income tax revenues would be generated from increased supplier incomes for both foods and non-foods. Full exploration of such consequences requires a general equilibrium analysis, well beyond the scope of this paper. However, it can be assumed there would be a substantial reduction in government tax revenues.

If the removal of GST applied only to fruit and vegetables, the revenue consequences would of course be less significant. From the approximate numbers given earlier (average All Foods household expenditure of \$150; average fruit and vegetables expenditure of \$20), a rough estimate would be 2/15 of the total revenue loss above. That is, \$181 million.

In passing, it has been proposed in some of the literature that revenue from a 'fat tax' could be used to compensate for the lost revenue from a 'thin subsidy' with respect to efforts to improve population diets in general, although not specifically in relation to food security.

^g Assuming the demand for food is price-inelastic – if it were instead price-elastic, expenditure would increase.

^h It is of interest that surveyed households were asked about the 'Adequacy of income to meet everyday needs'. Those households who it is estimated would have replied 'Not enough' numbered 254,100 or 16 percent of all households. Another 518,100 or 33 percent would have replied 'Just enough'. The households in these two categories tend to be those with lower household incomes, but they are found across the whole range of household income.

ⁱ One of the 'key informants interviewed referred to a change in revenue of \$1 billion as approximately equivalent to a change of one percent in overall tax-rates.

^j From the 'income effect' of the presumed fall in expenditure on foodstuffs.

The distribution of household food expenditure by household income

The following table shows for 2003/04 average food, and fruit and vegetables, expenditure by household income decile^k.

Table 2.1.3: Distribution of household food expenditure by household income

	Average Weekly Expenditure ⁽¹⁾ 2003/04										All Income Groups
	By income group of household										
	Annual Household Income ⁽²⁾										
	Under \$15,900 ⁽³⁾	\$15,900 to \$22,999	\$23,000 to \$28,799	\$28,800 to \$37,899	\$37,900 to \$47,299	\$47,300 to \$58,899	\$58,900 to \$71,299	\$71,300 to \$87,599	\$87,600 to \$119,999	\$120,000 and Over	
Food Group	69.80	70.10	96.20	109.40	127.40	133.50	166.70	180.50	203.00	267.60	142.50
Fruit and Vegetables	12.00	11.80	15.60	15.10	17.40	17.20	20.80	24.90	27.40	31.70	19.40
Total Net Expenditure	429.00	393.90	511.20	609.20	754.90	849.80	1,006.30	1,075.70	1,380.60	1,866.70	888.40

Average Weekly Expenditure ⁽¹⁾ as % of Total Net Expenditure 2003/04											
	Under \$15,900 ⁽³⁾	\$15,900 to \$22,999	\$23,000 to \$28,799	\$28,800 to \$37,899	\$37,900 to \$47,299	\$47,300 to \$58,899	\$58,900 to \$71,299	\$71,300 to \$87,599	\$87,600 to \$119,999	\$120,000 and Over	
Food Group	16.3	17.8	18.8	18.0	16.9	15.7	16.6	16.8	14.7	14.3	16.0
Fruit and Vegetables	2.8	3.0	3.1	2.5	2.3	2.0	2.1	2.3	2.0	1.7	2.2

(1) All expenditure is net of refunds, sales and trade-ins and includes GST.

(2) Income is before tax, from regular and recurring sources only.

Income groups are deciles (to the nearest hundred dollars) of household income.

(3) Including loss from self-employment, and no income.

It can be seen that expenditure on food, and on the fruit and vegetables sub-group, increases with income of household. However, the proportions of total expenditure are relatively stable, though falling off somewhat in the higher income deciles.

The implication is that any gain from GST removal is not particularly strongly focused towards lower-income households. It is these households which are the most likely to suffer from food insecurity.

Relevant current New Zealand research

From the discussion above, we have a general theory-based idea of how consumers are likely to respond to the removal of GST on food purchases. It would be very useful to have, in addition, some empirical data on their responses in a real life situation. Information on these lines is expected later this year from the Supermarket Healthy Options Project (SHOP) trial. The Health Research Council of New Zealand funded this project in 2006.

SHOP is a large, randomised, controlled trial of the effect of tailored nutrition education and price discounts on supermarket food purchases.^{19 20} The trial was conducted in eight supermarkets in the Lower North Island (Wellington, Wanganui and New Plymouth). Of the 1,104 SHOP trial participants, 248 (23 percent) were Māori and 101 (9 percent) were Pacific. The price discount intervention in the trial consisted of an automatic 12.5 percent price reduction (equivalent to having GST removed) on all eligible healthier food products, which were classified using an accepted nutrient profiling system.

^k The data are not 'equivalised'. That is, household incomes have not been adjusted for numbers of persons in the household, nor relative numbers of adults and children.

Discounts were implemented when randomised participants scanned their personalised card at the checkout during the study intervention period. 1,104 supermarket customers were randomised to one of four intervention arms: (1) tailored nutrition education, (2) price discounts, (3) a combination of discounts and education, or (4) a control group (no intervention). To our knowledge this is the only trial to date to evaluate the effects of removal of GST on consumer shopping behaviour in a real-life setting. The trial was completed in February 2009 and data analysis is currently underway. Results are expected later this year.

While SHOP examines strategies to improve population diet in general, and saturated fat in particular, findings in relation to the impact of the price discount intervention on consumer purchasing behaviour will nonetheless be informative regarding the potential effectiveness of economic instruments to address food insecurity.

Proposed Intervention Two: Smart Card discounts on food purchases

The implication of the above discussion is that the proposed removal of GST on Food, or on 'healthy nutritious foods', such as fruit and vegetables, has significant problems in terms of tax revenue losses, and in not directing resources to those households most likely to be affected by food insecurity. Can the second proposed intervention do better on these criteria? The key magnitudes are the size of the proposed discount, and the size of the 'target population' who would be eligible for the proposed Smart card. We pose below a set of questions about the coverage and targeting of a 'Smart Card', giving what seem plausible answers. More detailed research would be required should the proposed intervention be taken further.

Question One: *What foodstuffs should be covered?*

On nutritional and distributional grounds, not all foodstuffs and non-alcoholic beverages should be covered. It would seem undesirable to subsidise restaurant meals and ready-to-eat foods, and non-milk beverages. Nor would it seem desirable to subsidise all meats, or grocery items in general. One possible conclusion is that any subsidy should be confined to the fruit and vegetables sub-group, including frozen or dried fruit and vegetables, and also canned and bottled vegetables and fruit. It would be generally well understood, by stores and the public, which items are fruit and vegetables¹. Possible queries would be whether canned and bottled fruit should be included, whether 'raw' nuts should be added though not strictly part of the fruit and vegetables sub-group, and whether it is desirable to include 'starchy' root crops such as potatoes, kumara, taro and yams. It seems simplest, administratively, to include all these.

Another option is to include other food items, such as milk, and cereals. Some overseas programmes include such items. For instance, the Healthy Start programme in the UK provides low-income pregnant women or women with children under four with vouchers of GBP3.00 per week for purchase of milk, fresh fruit, fresh vegetables and infant formula milk. As discussed earlier in this chapter, a good part of 'food insecurity' relates to consumption of 'staples' such as milk and cereals

¹ However the SHOP research team have found it not quite so simple. A number of items were difficult to classify, such as stir fry vegetable with sauces, strawberries with chocolate dips, fruit juice with less than 100 percent juice, etc. This was a major reason for the decision to use a nutrient profiling system in the trial.

As noted earlier, average weekly household expenditure on fruit and vegetables in 2006/07 amounted to \$18.40. Average weekly household expenditures in that year on selected other products were: fresh milk \$4.60, bread \$5.50, breakfast cereals \$1.90, and grains \$0.60. Such items could clearly be included in the coverage of a Smart Card or voucher programme, though probably with some difficulties in deciding which cereals and cereal products should qualify^m.

A third option, as discussed earlier in this chapter, would be to include all items passing a 'nutritional quality' test. For example, the proposed nutritional profiling scheme proposed by FSANZ to determine the eligibility of foods to carry health claims

Question Two: Should the subsidy apply to all food purchases by any person?

No. The reasons for this answer are the same as those given above for not removing GST from fruit and vegetables. Namely the fiscal cost, and the inadequacy of a general subsidy in targeting assistance at those households most likely to be suffering Food Insecurity.

Question Three: Who then should receive the discounts?

There are several possibilities, including the following:

(1) Beneficiary households, excluding pensioner households.

That is, households receiving one of the 'main benefits' – unemployment, domestic purposes, sickness, and invalid's benefits, and some others less important. The number of working-aged (18-64) individuals receiving such benefits totalled 286,176 in December 2008 (Ministry of Social Development web-site). The number of children dependent on working aged recipients of a main benefit was 205,324 in June 2007.²¹ A possibility here would be trading off a reduction in the benefit cash payment for an increase in the discount made available. Arguments against using beneficiary status as the criterion for eligibility are that it is 'stigmatising', and that while some households suffering 'food insecurity' will certainly be beneficiary households, it is equally certainly not the case that all households suffering 'food insecurity' are beneficiary households.

(2) Community Services Card (CSC) holders, excluding pensioners.

Cards are issued to adults who are members of families with family income below a specified level. They have in the past mainly served to qualify holders for primary health-care subsidies, covering perhaps up to 40 percent of the population. CSC-holders numbered 924,092 at end-June 2007. Deducting NZ Superannuation recipients (ie. 'pensioners') numbering 272,171 gives a remainder of 651,921. Arguments against CSC-holding as the eligibility criterion are that 'take-up' of the card is thought to be poor for some groups, the more so in recent years as primary health care has become more heavily subsidised and the advantages from card-holding less.

(3) Households with dependent children.

These numbered, in HES 2006/07, in thousands:

Couple with one dependent child	130.3
Couple with two dependent children	149.0
Couple with three or more dependent children	76.9
One parent with dependent child(ren) only	90.3

The total is 446,500 plus, in addition, some more complex households with dependent children. An approximate estimate suggests the above households would have about

^m Again an argument for a 'nutrient profiling' approach.

870,000 dependent children. Checking with HES 2003/04, the number of children under 15 in that year was 880,000, to which should be added dependent children aged 15-17. For illustrative calculations here we take 500,000 as being the number of households with dependent children, and the number of dependent children as one million.

There are advantages in targeting any subsidy at this group of households, and advantages also in making the amount of subsidy proportional to the number of dependent children. A good part of the concern about 'food insecurity' is concern about food-adequacy for children in such households. Also, an eligibility criterion based on the presence of children is administratively simple and is not stigmatising. An argument against is that it would require the setting up of a dispensing system additional to that already existing for the Community Services Card. Also food-insecure households without children would not qualify. It has been claimed that increasing numbers of single people are using food bank services.²²

The strongest arguments against targeting food subsidies at children in general are that a 'universal' benefit is more expensive (unless total expenditure is spread more thinly), and that most of those receiving the benefit would not be in food-insecure households. In particular, 'couple with children' households are generally in the upper part of the household income distribution. However, were household incomes adjusted ('equivalised'), to allow for the number of persons in the household, and one-person and two-person 'pensioner households' set aside, this approach can be seen to be rather better targeted. Also, any tax increase to fund the scheme would tend to fall rather more on better-off households. At a later stage in the discussion in this chapter we discuss in more detail the issue of 'equity', in terms of household income (equivalised) and ethnicity, and of the extent to which payments based on number of children are successful in targeting lower income and Māori, or Pacific peoples households.

Question five: Should the amount of any benefit be capped?

Yes. Once only part of the population is eligible, a failure to cap the amount, for a given time-period, would lead easily to trading for profit with the non-eligible, discrediting the whole schemeⁿ. Any capping would most easily be achieved by providing a given dollar quantum at, say, weekly or two-weekly or four-weekly intervals^o, which could be credited immediately in total against qualifying purchases, rather than a given percentage discount allowed to cumulate up to the cap amount.

Question six: What is a reasonable amount of benefit?

For an approximate one million dependent children, a weekly amount of \$5 per child (or \$260 per year) would provide a useful supplement^p to household income, particularly for low-income households more likely to be affected by food insecurity. The annual cost would be about \$260 million. This fiscal cost is not negligible, but could be justified in terms of tackling food insecurity, helping low-income families

ⁿ One key informant mentioned anecdotal accounts of holders of the SuperGold card, which provides free public transport outside rush hours for those aged 65 plus, lending their card to friends aged under 65.

^o The more frequent the issue, the less the problem of expenditure being high in the first part of the period and inadequate towards the end.

^p Particularly for family incomes less than \$500 per week, which could be expected to be the case for many 'food-insecure' families. The amount of \$5 per week per child is a convenient number for calculation purposes. Also it is not so large as to be fiscally improbable, nor lead to wide-scale trading of the subsidy.

financially, and encouraging better nutrition and improving food security through increased purchases of nutritious foods by families with children.

Question seven: Are there any problems with inelastic price and income elasticities of demand?

The proposed scheme is in effect an increase in income, though an increase which has to be spent on selected foodstuffs. There would certainly be some increase in consumption of the qualifying foodstuffs, though not necessarily very much. Some of the savings from the scheme would be spent not on the selected foodstuffs, but on other goods and services, including other foods.

Question eight: What 'unintended consequences' might there be?

Increased demand for the selected foodstuffs would drive up their prices, though perhaps by not very much given the generally low price and income elasticities for foodstuffs. Persons not qualifying would pay relatively more, and their purchases of these foodstuffs would fall. There is a possible issue here for pensioner households, although the evidence is that food insecurity is a problem for only a small proportion, only one or two percent, of those aged 65 and over.²³ Over the longer term, market supply of the selected foodstuffs could be expected to increase, moderating initial price increases.

Equity implications of the proposed interventions

Intervention One: Removal of GST

Removing GST on foodstuffs, or on a specific category such as Fruit and Vegetables, in effect subsidises purchases for the whole community. As discussed earlier, this means that much of the subsidy goes to high-income households. The proposed intervention may reduce both 'income inadequacy' and 'food insecurity' rather more at the bottom end of the income distribution, but does not do much at all for equity overall.

Intervention Two: Smart Card, or Vouchers

A 'Smart Card' scheme would provide qualifying households with discounts on qualifying foodstuffs. It has possibilities for both reducing food insecurity and improving the nutrient quality of purchases. Three different possibilities were proposed earlier in this chapter for defining the 'eligible' population^q. The first was that they should comprise 'beneficiary' households. This would certainly have positive equity consequences, but the problem is that non-beneficiary 'food-insecure' households are not covered.

A second possibility was that it should cover all households with income below a specified ceiling. An obvious candidate would be to make the eligibility criteria identical to those for a Community Services Card^r.

^q A fourth possibility is making the eligible population those households who apply for the Temporary Additional Benefit (see chapter on Full Benefit Entitlements). It seems unlikely this would be a satisfactory approach, because of 'take-up' problems with that benefit, because the problem is often not 'temporary', and because food insecurity is a problem for a proportion of non-beneficiary households as well.

^r Cards are issued to adults in family units. Their primary use has been to obtain higher subsidies on doctors' fees and prescriptions, but the progressive roll-out of PHO (Primary Healthcare Organisation) funding in recent years has much diminished their value for this purpose, and they could be phased out soon as a means of obtaining primary health service subsidies.²¹

Those qualifying for the CSC include, as well as households receiving the main benefits and most NZ Superannuation recipients, Low-income earners and Family Tax Credit recipients (known as Family Support until 2005). The CSC criteria certainly appear to cover most households likely to be food-insecure, even excluding NZ Superannuation recipients as in general not troubled by food insecurity. Almost by definition, households of low socio-economic status would generally qualify, and probably most households with persons of Māori or Pacific ethnicities.

A third possibility is that a 'Smart Card' scheme should be available to all households with dependent children, providing a given quantum at frequent intervals per dependent child. A 'dependent child' is any child aged under 18 and not in employment or on a special benefit. In effect, this means virtually every person aged less than 18. This third option is a 'universal' rather than 'targeted' benefit (apart from being targeted at households with children, and targeted also in the sense of encouraging consumption of specific foodstuffs), and has of course similarities to the universal Family Benefit of decades gone by. One advantage is its simplicity. A disadvantage is the exclusion of low-income households without children. Its equity implications are worth exploring further.

Table 2.1.4 shows the implications in terms of the distribution of the benefit by household income. The five quintiles (in terms of household income before tax) are from the 2006/07 Household Economic Survey.¹⁷ The focus here is on specified household types, with dependent children, namely 'couple' households with one, two, or three children; and one parent households with a dependent child or children^s.

Table 2.1.4: Distribution of the benefit by household income

	Annual household income ⁽¹⁾					Number All Quintiles
	Quintile Boundaries					
	Under \$25,800	\$25,800 to \$44,899	\$44,900 to \$67,999	\$68,000 to \$98,799	\$98,000 and over	
	Percent of households in quintile					
Couple with -						
- one dependent child	7.4	14.7	26.5	25.3	26.3	130,300
- two dependent children	5.2	6.1	27.6	28.3	31.9	149,000
- three+ dependent children	4.3	18.1	32.4	26.1	18.6	76,900
One parent with dependent child(ren) only						
	30.6	45.7	17.7	2.3	0.0	90,300
Total Number of households in above categories	48,200	83,400	116,500	97,300	96,200	446,500
All Households Number	314,800	313,500	313,200	314,500	313,300	1,569,200

Source: HES 2006/07 tables. Table 7. Statistics NZ

(1) Income is before tax, from regular and recurring sources only. Income groups are quintiles (aggregated from Stats NZ deciles)

^s These household types do not include all dependent children, but do cover most.

It can be seen that the 'couple plus children' households are very much concentrated in the three upper quintiles. One-parent households are strongly concentrated in the bottom two quintiles, but overall the largest number of households with dependent children are to be found in the top three quintiles.

This particular approach does provide assistance to one-parent households, and presumably some of these households do suffer from income inadequacy and food insecurity. Much of the benefit, however, goes to two-parent households in the upper income brackets. So a proposed Smart Card for families with dependent children does target 'benefit' rather better to low-income households than would GST removal, probably including most households with 'food insecurity' problems, but also directs a lot of the extra funding to higher-income households with children.

From the 'equity' viewpoint then, a Smart Card for which eligibility is based solely on the presence of children appears a rather scattershot intervention. However, something we have not yet taken account of is the measuring of income 'relative to needs'. A household might be middle- or high-income in terms of pre-tax income, but, if there are several children to care for, might well feel under financial pressure. A household with children needs a higher income on average than a household with the same number of adults but without children to have the same overall 'standard of living'.

In income distribution analyses this general point is taken into account by applying an 'equivalence scale' to (or 'equivalising') household income. The procedure takes account of the number of persons in the household and also, in many cases[†], the relative numbers of children and adults. Thus, a household with a number of children will be lower in the distribution of 'equivalised' household income than in the original distribution of 'un-equivalised' household income[‡].

An intervention based on number of dependent children might well appear, therefore, more equitable when looked at in terms of 'equivalised' rather than 'un-equivalised' income. This can be checked using 2006/07 analyses from Perry's Ministry of Social Development Report.²⁴

Note that the household income measure in the Perry report is disposable after-tax income, rather than pre-tax gross income as in the table above. Perry also provides additional analyses for household incomes after deduction of housing costs, as well as after deduction of estimated taxes but the results given below are for household income data before deducting housing costs.

Table 2.1.5 from Perry²⁴ is the relevant table in terms of equivalised disposable household income quintiles, before deduction of housing costs. From the table it can be seen that now almost half of children under 18 are found in the two bottom quintiles. Also, over half of single parent households with dependent children are found in the bottom quintile.

[†] There are quite a number of different equivalence scales in use. For discussion see Perry, 2008.²⁴

Perry's report uses the Revised Jensen scale as its standard scale, in part because of its use in previous NZ income distribution reports, and results quoted here are accordingly based on that scale.

[‡] Note that this is in part a 'lifecycle stage' effect. The equivalised income of a household with dependent children might be low at that stage of the 'family life-cycle', but much higher before and after. Aid to families with dependent children can be seen for many families as being a redistribution of income from earlier or later periods of higher equivalised income. Assuming a progressive tax structure there will be in addition some redistribution from high 'lifetime income' households to low 'lifetime income' households.

Table 2.1.5 Distribution of individuals across income quintiles (BHC) by various household and individual characteristics (%)

(sum to 100% across rows)

HES 2007	Equivalised disposable household income					All individuals (000s)
	Q1	Q2	Q3	Q4	Q5	
Age						
0-17	21	27	25	17	11	1087
18-24	18	16	20	25	22	392
25-44	13	19	22	23	24	1168
45-64	17	13	17	23	30	1000
65+	43	25	13	9	10	487
All	20	20	20	20	20	4134
Household type						
One person 65+	58	21	8	6	6	148
Couple 65+	39	22	14	11	15	306
One person under 65	30	14	14	22	20	196
Couple under 65	11	8	14	28	39	520
SP with dependent children	55	23	13	7	2	286
2P with dependent children	12	27	27	20	15	1599
Other family HHs with dependent children	23	25	28	18	5	336
Family HHs with no dependent children	10	10	12	28	40	511
Non-family HHs	13	14	24	21	29	231
All	20	20	20	20	20	4134
Ethnicity						
European/Pākehā	16	19	20	22	24	2793
NZ Māori	35	26	20	12	9	611
Pacific	23	29	17	23	9	242
Other	22	18	23	19	19	529
All	20	20	20	20	20	4134
Main source of income						
Market	9	19	23	24	25	-
Government transfer	67	26	5	2	1	-
All	20	20	20	20	20	-
Children by household type						
Children in SP HHs	58	23	12	5	2	171
Children in 2P HHs	12	28	27	19	14	750
Children in other family HHs	25	26	29	16	4	144
All children	21	27	25	17	11	1066

Source: Perry B. June 2008.²⁴ Notes: 1) See note on page 29 for the need for caution in interpreting results for smaller sub-groups; 2) The HES is known to underestimate beneficiary numbers by around a third so population estimates are not given for the 'main source of income' panel.

Two-parent households with dependent children are relatively evenly distributed, with some concentration though in the lower to middle-income range. By ethnicity, 61 percent of Māori are in the two bottom quintiles, and 52 percent of Pacific peoples, whereas 40 percent would be around the expected proportion^v for a fully equitable distribution by ethnicity.

Table H.5 in Perry (not given here) shows, for 2006/07, 15 percent of children to be living in workless households, and 21 percent in households with no full-time worker (including the 'workless' category). An intervention such as an increase in minimum wage would provide little assistance to such households.

^v There would be some variation caused by 'lifecycle stage' differences, and difference in reproduction rates.

Overall, a Smart Card or voucher scheme, applying universally to all dependent children, does provide significant increased purchasing power to many lower income households, and to Māori and Pacific people in lower income households. These are significant equity gains. Offsetting this are the gains accruing to higher-income households with children, though these become less significant relative to 'equivalised' household incomes.

Literature Scan

A literature search was carried out by D. Gorton. Her search strategy used the following phrases, databases, and other likely sources. The search generated over 100 items, and additional papers came from various other sources.

GST search: 1) "value added tax" or VAT.mp; 2) goods and services tax" or GST.mp; 3) tax.mp; 4) food price policy.mp; 5) 1 or 2 or 3 or 4; 6) food or fat or health.mp; 7) 5 and 6; 8) limit 7 to English language and humans; 9) cigarette or tobacco or smoking or insurance.mp; 10) 8 not 9; 11) limit 10 to yr="1992 to 2009"

Smart card search: 1) Coupon OR voucher OR incentive OR subsidy; 2) Electronic benefit transfer OR smart card; 3) 1 or 2; 4) Food OR nutrition OR fruit OR vegetable OR fat; 5) Food stamps.ti OR food assistance.ti; 6) Price discount\$ OR price reduction\$ OR price elasticity OR price responsiveness; 7) 3 and 4; 8) 6 and 4; 9) 4 and 5; 10) 7 or 8 or 9' 11) Limit 10 to English language and humans and yr="1992 to 2009".

Databases: Medline, CINAHL, EBM Reviews (All), Embase, PsycINFO, International Bibliography of the Social Science, Scopus, EconLit, EconPapers, Expanded Academic, ABI/INFORM, Current Contents, Dissertations & Theses, ProQuest Central, ProQuest Social Science. Limits could not be applied to all databases

Google search of relevant websites and keywords: NBER, NZIER, FOE, Brookings, USDA

Discussion of selected papers found in literature search

A selection only of the 200-odd papers located is discussed here. The topics focused on included:

- price and income elasticities. This material is discussed earlier in this chapter when discussing relevant factors in the economic environment.
- the use of economic instruments, or modelling of the use of such instruments, and
- the practicability of Smart Card schemes, or Electronic Benefit Transfer (EBT).

Modelling the use of economic instruments for Food and Nutrition policy

A WHO Europe paper (2006)²⁵ reviewed the "effectiveness of economic instruments", but mainly from the viewpoint of preventing and treating obesity. It is a cautiously worded document. It does say, however, that "a small body of evidence indicates that reducing the price of fruits, vegetables and other healthy snacks at the point of purchase (vending machines, cafeterias) increases their consumption."

A New Zealand review²⁶ of four RCTs found that 'all four trials demonstrated a positive effect of monetary incentives on food purchases, food consumption, or weight loss'. However, the trials had some methodological limitations including small sample sizes and short durations.

Such limitations are often inescapable in the case of population health interventions. The authors went on to say that 'monetary incentives are a promising strategy to modify dietary behaviour, but more research is needed to address the gaps in evidence.

Attempts to model the use of economic instruments must build on such data as are available. An interesting example is the paper by Cash, Sunding, and Zilberman (2004),²⁷ modelling the possible effects of thin subsidies, consumption subsidies for healthier foods. They carried out empirical simulations calculating the potential health benefits of subsidies on certain classes of fruits and vegetables. They used US Department of Agriculture elasticity estimates, as follows (over all income levels): fruit -0.72, vegetables -0.72, and juice -1.01. These elasticities are relatively high, and it would be desirable to repeat the work with lower values.

Deaths from heart disease and stroke were predicted for changes in fruit and vegetable consumption. The cost of a subsidy per life saved was then calculated for various options. It is not made clear what discount rate was applied, but the present value of cost per life saved for a subsidy covering both fruit and vegetables was US\$1.29 million. This compares favourably with US labour market estimates of the value of a statistical life, typically ranging from US\$4 to US\$9 million. That is, the cost/benefit ratio looks very favourable.

This sort of investigation would be well worth replicating in New Zealand^w, with variations in elasticity parameters, discount rates, and costs. The current estimated value of a 'statistical life' in New Zealand is about NZ\$3 million.

Practicability of a Smart Card system

Such a system is already in operation in the United States. An official (GSA) report of 2004 states that the 'technology is no longer experimental'.²⁹ A US Department of Agriculture report to Congress in 2003 says that more than 95 percent of Food Stamp Program (FSP) benefits were being handled through EBT (Electronic Benefits Transfer).³⁰ The report discusses how in the case of 'farmers' markets' benefits can be exchanged for scrip (ie. cashable paper coupons) at a central point in the market.

Smart Card use is not restricted to food stamps. Other welfare benefits can also be loaded, and now commonly are. It is possible at State level to build in higher discounts for favoured foods.

In effect, the Smart Card is a 'debit card', allowing payments out up to the amount loaded on the card. It is the practice, at least in California, to allow unused benefits to be carried over into succeeding time periods.³¹

Key informant interviews

Proposed Intervention One: Removal of GST on Food, or on 'good' food.

None of the five informants supported this proposal when it was raised with them, and three were particularly strongly opposed. One of those interviewed remarked that the 'Swinburn criteria' (the sub-headings below), were defective in failing to include 'Effectiveness' and 'Cost-effectiveness'.

^w A similar investigation was carried out by the lead author for Pharmac in January 2004, investigating the expected reduction in cardio-vascular mortality resulting from the Green Prescription programme, although measuring outcomes in terms of QALYs rather than statistical lives saved.²⁸

Feasibility

The proposal is, of course, feasible, in that other countries do it. A principal objection cited by informants was that New Zealand has the simplest GST system in the world, widely admired, and sometimes quoted overseas as the “New Zealand model”. Its simplicity leads to lower administration and compliance costs than in other countries. One claim was that our costs were one-third of those of other countries per \$ of revenue. (Much of this material came up at the recent international GST conference sponsored by the Institute of Chartered Accountants and held in Wellington.)

A technical issue would be what form the exemption should take – goods classed as ‘Exempt’ or as ‘Zero-rated’ (as for exports)? For the former, supermarkets would not be able to claim back GST on inputs. Problems then emerge with apportioning costs to non-GST or GST turnover. One informant thought that zero-rating, claiming back GST on inputs, and not charging on sales, was the better option. Cleaner, from the business viewpoint. More costly for government.

Another feasibility issue raised by an informant who had worked on the topic at the World Health Organisation was the difficulty in setting the boundary between ‘good’ foods and other foods. “Where would you draw the line?”. Fish, chicken, wine all ‘good’? Also, might ‘purported’ foods be made, eg. cosmetics with oil.

Sustainability

One problem foreseen was that once exemption was gained for food, there would be pressures to do the same for other commodity groups, such as books, clothing, health-care, and medicines. “A slippery slope – start exemptions, end up with the same messy porridge as every other country.” The loss of revenue also would have to be made up somewhere. A general increase in non-food GST rates would eliminate much of the gain for low-income households from lower food prices.

Effect on Equity

A very blunt instrument, it was thought. A very limited impact on equity, especially if revenue neutrality maintained. In fact, likely to be subsidising the “well-off”. “Regressive as ‘all get-up’” said one informant.

Potential side-effects

A concern was expressed by some of the informants that the food subsidy would be used for the usual food purchases and extra income redirected to harmful non-food items, such as alcohol.

Acceptability to stakeholders

Definitely not acceptable to policy-makers in general. It would be a total break with the ‘broad base low rate’ mantra, favoured by many politicians, and policy people in the ‘revenue’ policy and collection agencies. Comment by one person “GST reduction a very bad idea”.

Proposed Intervention Two: Smart Card policy

Informants were less negative to this idea than to that of removing GST, although not that positive either! One prediction was that “design issues” would kill the implementation of this proposal. At least, it was emphasised, these would have to be got right, in readiness for the likely storm of media and political criticism.

It should be added that the detail earlier in this chapter about how a Smart Card scheme might be designed was not available to informants at the time of interview.

Thus some of the objections raised in the interviews might well be met by proposed features such as a fixed quantum of subsidy per time-period, relatively low amounts, and therefore little incentive for trading subsidy access to those not eligible

One of those interviewed was unwilling to comment in detail, regarding the proposal as outside the ambit of her department. She made the general comment that the tax system is “about collecting tax”. A good general rule when governments were asked to provide concessions was that they should be kept out of the tax system, as that made the concessions “more transparent”, and also made it easier to target them. She referred to ‘Working for Families’ as a scheme which had brought people back into the tax system, and had brought back some complexity. She added that this did not mean she would criticise Working for Families as a policy.

Some of the doubts raised were identical to those raised also about the proposed removal of GST. For instance:

- the difficulties in defining ‘good’ and ‘bad’ foods,.
- lack of clarity about objectives. Health or Equity?, and
- the possibility of savings on food purchases being put to ‘bad’ use; for instance, spent on booze or drugs. Another interviewee put it as “Broccoli cheaper – more KFC?”.

This last point can be seen as a particular (though more pungently put) expression of a general concern touched on by more than one informant, namely, that the proposed intervention might fail to address the specific problem of food insecurity, but instead have other less desirable outcomes. This could indeed apply to some food-insecure households, though surely not all.

An issue here, as pointed out by one interviewee, is that the cause of food insecurity is not solely ‘income inadequacy’. Another cause is ‘poor decision-making capability’ (for at least some households), and this is a problem better addressed by other means (eg,. budget advisory services) than, or concurrently with, consumption subsidies.

Additional points were: the importance of getting “design issues” right; as just one example; the definition of ‘dependent children’; the need to keep in mind the ‘non-card’ market.

Increases in Effective Marginal Tax rates (EMTRs) were seen by one interviewee as a potential problem (in the case of the subsidy applying to only part of the population). On reflection though he thought this was not likely to be too serious a problem, with currently a fairly large ‘non-abatement zone’ for family income up to round about \$35,000.

A point made strongly by one informant was that the whole approach “Needs to be tested with people from the likely target group.” For example, using focus groups. The overall aim should be seen as “equalising nutrition or health”. Income inequality was a factor in food insecurity, but focusing on it alone was going “off target”.

Conclusions and recommendations

Proposed Intervention I: Removing Goods and Services Tax (GST) from healthy basic foods.

Conclusions:

There are substantial objections to this proposed intervention.

- The simplicity of the current GST revenue system would be impaired, and compliance and administration costs increased.
- It would generate pressures to extend concessions to other 'worthy' commodities such as books and clothing.
- For 'revenue neutrality' to be maintained, GST on other commodities, or other taxes, would have to be increased. This would likely have a negative impact on the very individuals such a strategy purports to help.
- Most importantly, it would be a very blunt instrument for addressing food insecurity issues. All purchasers of 'Food', or of 'Healthier Food', right across the income spectrum would benefit.

Recommendation I: That the removal of GST from food in general, or from 'healthy basic foods', not be endorsed as an intervention for reducing food insecurity.

Proposed Intervention II: Provision of a Smart Card, providing discounts on healthy nutritious food

Note that this is taken to not rule out the use of physical 'vouchers' or 'scrip' in situations where an Electronic Smart Card might not be practicable, for instance at weekend markets or roadside stalls.

Conclusions:

- The use of a Smart Card is practicable. It is now used nearly universally in the United States for the issue of 'Food Stamps' to families below the poverty line, and also for other benefit transactions. The acronym is EBT – Electronic Benefit Transactions. Commonly, a given amount is credited to cards at four-weekly or monthly intervals. The cards can then be used as in effect 'Debit Cards' from which the purchase of qualifying items is deducted.
- Entitlement to such a benefit, and the nature and amount of the payment could take a number of forms. Alternatives are discussed earlier in this chapter. There are two principal issues to resolve:

A: Choice of foodstuffs to be subsidised

Three possible options are:

- Fruit and vegetables
- A 'basket' of specified 'staple' foodstuffs, such as fruit and vegetables, milk, cereals and cereal products, fish, meats.
- Food items identified as being of good nutritional quality by an agency such as FSANZ (Food Standards Australia and New Zealand).

Food insecurity is a matter of inadequate intake of a number of foodstuffs, not just fruit and vegetables. The second option is therefore preferable to the first. Not all 'staple' foodstuffs, however, are of good nutritional content, and it is desirable that the scheme

should if practicable encourage the consumption of foods of high nutrient quality. The third option is therefore the best.

B: Eligibility for a Smart Card

It is envisaged that there would be one card per family unit, and that the amount loaded on the card would be of the order of \$5 per dependent child^x per week, or a similar amount for an eligible household comprising adults only.

There are several possibilities for determining eligibility. One is that eligibility should be restricted to only those households whose principal income source is one of the main income-tested benefits. This, however, does not address the problem of food insecurity in those low-income families not receiving an income-tested benefit

Better options are either:

Income tested eligibility. Coverage would include, in addition to families relying on income-tested benefits, low-income households in general, apart from those whose major income source is NZ Superannuation (food insecurity does not appear to be a significant problem in the pensioner age-group). It would be similar in coverage to the current Community Services Card (and could in fact replace that card), taking in, for example, all families qualifying for the Family Tax Credit (formerly Family Support).

Or,

Universal eligibility for all households. All families with dependent children, regardless of income, should be entitled to the Card.

The advantages of the 'Universal' option are its simplicity - the amount could be tax-free and there would be no 'abatement' or 'incentive' problems and that it overcomes stigmatisation issues. The disadvantages are that it is expensive, of the order of \$260 million per year on the calculations above, and that much of this expenditure is directed to relatively well-off family households. The 'Income-tested' option, on the other hand, could carry 'stigma', but is better-targeted to those lower-income households more likely to be facing food insecurity problems. These include many Māori and Pacific people households. It would also be less expensive (assuming the same amount per dependent child, for instance), of the order of perhaps around half of the 'universal' option.

On balance 'income-tested' entitlement appears preferable to 'universal' entitlement.

Recommendation II: The concept of a Smart Card for subsidising food costs and thereby reducing food insecurity has attractive features and should therefore receive further detailed investigation.

Such further investigation would include discussion on which foodstuffs should be covered; who should be entitled and to how much; discussion in focus groups and elsewhere of the proposal including with Māori, Pacific and low-income peoples; further investigation of experience elsewhere of such proposals; cost-benefit modelling of the likely impact in New Zealand; and eventually small-scale trialling and evaluation of how the approach would work in New Zealand.

^x The amount of \$5 is used here for illustrative purposes. As discussed earlier it is also an amount which is fiscally 'possible', which makes a reasonable income contribution to low-income families, and which is not so large as to encourage trading of subsidy entitlement.

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2.2 Increasing the statutory minimum wage rate

Des O’Dea

Summary

A further possible ‘economic instrument’ for improving food security would be to increase the minimum wage. This proposed intervention was seen initially as an unlikely candidate, and a literature search and interviews of ‘key informants’ were not carried out. This section does, however, review briefly the pros and cons of increasing the minimum wage, from the point of view of improving food security.

In brief, an increase in the minimum wage would make some households more food-secure, but only those households in which a substantial contribution to household income is made by one or more persons on, or close to, minimum wages. Such households would perhaps be a relatively small proportion of all households suffering food insecurity.

One matter that became clear in this research was that there is not a lot of information available on the relationship between the work status of household members and household food insufficiency. Better data on this, and further analyses based on such data, would improve the quality of policy recommendations.

It is recommended that further work be undertaken to obtain better information on the work status, income levels, and benefit eligibility of food insecure households, and also on the ethnic composition and other characteristics of such households, to assist in identifying the most effective remedial interventions.

Problem definition

Increasing the Statutory Minimum Wage Rate for those in employment is another ‘economic’ intervention with potential to increase food security. It was identified by participants at the ENHANCE workshops. It would be less expensive than a general increase in benefits, and might be an alternative way of trying to target those households most likely to be suffering from food insecurity. However, it has no impact on families reliant solely on welfare benefits. It may, however, provide a useful complement to interventions to improve food security for beneficiaries by also improving the situation for those income earners on the lowest wage.

The scope of the current research did not allow time for a full exploration of this intervention. However, the research team deemed it to be of sufficient merit to warrant a brief discussion of its pros and cons and to consider the value in further research into the issue.

The New Zealand adult minimum wage rate at 1 April 2009 was \$12.50 per hour, before tax. This applies to all employees aged 16 years or over who are not new entrants or trainees (Web-site www.workandincome.govt.nz).

An increase of 50 cents per hour (an increase of 4 percent) would therefore increase the income of a person on the minimum rate by \$20 for a standard 40-hour working week, or by \$10 for a person working 20 hours per week. In annual terms, for a full-time worker, pre-tax income would increase from \$26,000 to \$27,040.

A person working at the minimum rate is therefore on a relatively low income, certainly when compared with the great majority of those in the work-force. A household living solely on the income of a person on the minimum wage-rate will often, depending on the number of persons in the household, find its consumption choices severely limited^a. An increase in the household's income from an increase in the minimum rate would therefore enlarge its purchasing possibilities, including the possibility of extra purchases of food, and so reduce food insecurity. *Prima facie* therefore, there would seem to be a good case for addressing food security by increasing the statutory minimum wage-rate.

The standard objection, in New Zealand and overseas, has been that lifting minimum wage-rates might increase the incomes of some, but leads to others losing their job, or failing to get a job^b. Employers decide that at the higher wage-rate they can no longer afford to employ, or take on, persons available at the new minimum rate.

Theoretically, this effect of increasing minimum rates seems obvious. Empirical research, however, suggests that reductions in employment are fairly minimal^c.

There are two objections to the proposed policy:

- It is difficult to say how well targeted in terms of food security an increase in the minimum rate would be. It would benefit, for example, a young unskilled person, but that person might well be part of a household with other members in employment and no problems with food insecurity. It would not address the income and food insecurity problems of those with incomes only a little higher than minimum rates, as for instance many in cleaning and caring work^d. Unless, that is, increases in minimum rates were passed on as increases in rates above minimum. This would perhaps be unlikely, except at the very bottom of the wage-rate distribution. A general increase in low-end rates might in itself be no bad thing, but more in terms of a more equitable income distribution, not a topic of this report, than of addressing food security.
- An increase in the minimum rate would not help beneficiary households, probably the household category most likely to be suffering from food insecurity.

It would seem then that an increase in the minimum wage-rate might reduce food insecurity in some households, but not others. Beneficiary families would not be helped, nor, probably, low-income families with income earners on low, but not minimum rates. Other policies and/or interventions would be needed to reach these groups.

^a This discussion does not take into account any tax concessions gained from the Working for Families scheme for those persons in employment and with families. The scheme is known to have, in recent years, reduced considerably the number of households living 'in poverty', on various measures of 'poverty'.¹

^b "Until recently, it had been widely believed by economists that the imposition of a binding wage floor, e.g. minimum wage, would reduce the employment of younger and less-skilled workers." (p1)²

^c Ibid. Page 1. "Still, it seems safe to say that the consensus has been broken and that the empirical evidence indicates, in certain situations, an increase in the minimum wage may not reduce employment."

^d Though quite a proportion of these might in any case be on the minimum rate.

Recommendation

A major cause of food insecurity is inadequate income. It is sensible therefore to consider means of reducing income inadequacy as one approach to improving food security. There are a number of possible ways of doing this, of which raising the minimum wage is one. It is not evident from the discussion above, however, that raising the minimum wage is an effective means of improving food security.

Our problem, relevant also to other possible interventions discussed in this report, is that we have less information about the work status and benefit situation of members of food insecure households than we would wish to have in deciding which is the best remedial intervention among choices such as subsidising food purchases for selected households, increasing minimum wage rates, or increasing benefit levels in general. Detailed information is lacking also on the ethnic composition of those in food insecure households, although it is apparent that Māori and Pacific peoples are over-represented.

We therefore recommend that:

Further work be undertaken to obtain better information on the work status, income levels, and benefit eligibility of food insecure households, and also on the ethnic composition and other characteristics of such households, to assist in identifying the most effective remedial interventions.

Potential sources of such information include Statistics New Zealand surveys such as the Household Economic Survey and the Household Labour Force Survey, and past and current national health and nutrition surveys, and longitudinal income studies such as SoFIE.

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2.3 Full and correct benefit entitlements

Kristie Carter, Tolotea Lanumata & Louise Signal

Summary

Participants at the ENHANCE workshop on money available in households, identified receiving full and correct benefit entitlements as an intervention to increase money available in low income households to alleviate food insecurity.

Previous research has shown that the majority of beneficiaries in New Zealand live in hardship and many are food insecure. There have been a number of reports showing that a number of beneficiaries are not receiving their full and correct benefit entitlements. It has been shown that there are ethnic disparities in accessing the benefits such as the Special Benefit and these disparities were greater in some regions than others.

The Ministry of Social Development has made a commitment to ensuring people receive their full and correct benefit entitlement. With respect to food security, recently the government increased the monetary value of Special Needs Grants particularly for food, which people can now apply for up to twice a year.

The recommendations are that:

- MSD strengthens its policy of ensuring full and correct benefit entitlements for all beneficiaries
- MSD enhances case management to ensure the policy is fully and fairly implemented
- MSD and other agencies undertake further research to find effective ways to ensure the policy is fully and fairly implemented
- there is on-going monitoring by MSD and other agencies of the effectiveness of this policy
- MSD and other agencies support local and community initiatives to educate communities about benefit entitlement.

Problem Definition

Participants at the ENHANCE workshop on money available in households, identified receiving full and correct benefit entitlements as an intervention to increase money available in low income households to alleviate food insecurity. This was strongly supported by participants working at the community level. Full and correct benefit entitlement refers to beneficiaries receiving all core and additional benefits which they are eligible for.

The 2004 Ministry of Social Development (MSD) Living Standards report identified that 8% of the total population is existing with a living standard of severe hardship (as measured by the Economic Living Standard Index).¹ The report also found that 40% of Māori and 58% of the Pacific population were in some degree of hardship, compared to only 19% of Europeans. Furthermore, “in 2004 the beneficiary group had very depressed living standards compared with New Zealanders as a whole”. (p 79)¹ Sixty one percent of the population whose main source of income is a means-tested benefit were living in some degree of hardship with 26% living in severe hardship. This is a 50% increase from 2000.

There is a strong relationship between low income and food insecurity. In the National Nutrition Survey (1997) it was shown that Maori and Pacific adults were more likely to report that they could afford to eat properly only sometimes and reported that food runs out in the household because of lack of money more often than New Zealand European respondents.² The survey has also shown that people living in more deprived areas reported lower levels of food security than people living in less deprived areas. In the SoFIE study nearly 50% of those people receiving some form of income benefit were classed as food insecure. Of those respondents who were food insecure (16% of the total adult SoFIE population), 22% had used a foodbank or food grant in the past 12 months.³ The use of foodbanks has been shown to be a strong indicator of intense hardship and poverty. Most users of foodbanks rely solely on benefits for their main source of income and around half of the households who use foodbanks include children.⁴

Methods

In order to explore the issue of full and correct benefit entitlement, a brief literature scan was undertaken. The websites of the following organisations were also searched: Ministry of Social Development, Downtown Community Ministry, Wellington People's Centre, Caritas, and the Ministry of Health.

Results

The majority of evidence on the deficiencies in the receipt of full and correct benefit entitlements in New Zealand is from grey literature produced by welfare advocacy groups.

“Caritas^a knows the difficulties many beneficiaries have accessing supplementary assistance. Catholic agencies and organisations repeatedly bear witness to this – beneficiaries are frequently unable to gain their full entitlements unless they have a community representative or advocate at their side. And even in those circumstances, there are numerous reports of the buck being passed to frustrated community organisations forced to supply an eleventh hour back-up when the official systems fall down.” (Lisa Beech, Caritas Aotearoa NZ in The Unravelling of the Welfare Safety Net, 2008).⁵

In 1993 the Wellington Downtown Community Ministry released a report on the number of New Zealanders who were missing out on receiving Special Benefits to “top-up” deficiencies in benefit income to cover essential living costs such as accommodation and food.⁶ Seven years later the Downtown Community Ministry showed continuing and growing numbers of beneficiaries not receiving their full entitlements in their report ‘Still Missing Out’ (2000).⁷ They found that while an estimated 176,000 households were entitled to the Special Benefit, an ongoing weekly payment for people who have a deficiency between their ongoing income and living costs, only 11,000 received it between 1993 and 2000.

The Special Benefit, which was utilised most by those living in poverty and hardship, has been replaced with the more prescriptive Temporary Additional Support benefit. The ‘Still Missing Out’ report indicated that despite having the information, the then Department of Work and Income failed to inform some people of their full and correct benefit entitlement.⁷

^a Caritas is the Catholic agency for justice, peace and development. <http://www.caritas.org.nz/>

The Special Needs Grants (SNG) is an additional benefit available to people who need one-off assistance to meet essential and immediate needs which they are unable to meet themselves including food, health, medical, and other emergency situations. Although there was a decrease in the number of SNGs paid between 2002 and 2007, they are still most commonly granted to help with the purchase of food in emergencies (over 41%).⁸ It was recently shown that people on the Domestic Purposes Benefit (DPB) were more likely to apply for multiple SNGs during a year.⁹ In light of this the government has recently increased the monetary value of SNGs particularly for food. People can now apply for this grant up to twice a year.^{10 11}

Commitment to ensuring full and correct benefit entitlement has been and remains a policy for MSD. One way they have attempted to implement this policy is through their 2001 Foodbank Strategy which aimed to place Work and Income staff at foodbanks to ensure people accessing these services were receiving their full and correct benefit entitlements.¹² In their most recent Statement of Intent (2008-2011) an initiative was identified aimed at enhancing case management so that clients who are of working age and are unable to work receive their full entitlement.(p 13)¹³

In spite of the Labour-led Government's 'Closing the Gaps' policy¹⁴ and MSDs' policy on 'full entitlement',¹⁵ an ethnic specific analysis of the benefit data for the whole country in March 2002 showed an ethnic disparity in accessing the Special Benefit and that this disparity was greater in some centres than others.¹⁶ Overall, it was found that "Pākehā are on average 60% more likely to receive a Special Benefit than Māori households and 83% more likely than Pacific Island households [of those entitled to it]." (p 2)¹⁶

There are a number of community initiatives that aim to support and educate communities about their entitlement to various benefits.¹⁷ These are typically led by health agencies and involve having people from the Inland Revenue Department and Work and Income NZ present at local gatherings.

Discussion

The majority of beneficiaries in New Zealand live in hardship¹ and many are food insecure.³ Further, there is evidence that beneficiaries do not always receive their full and correct benefit entitlement. This occurs at varying rates throughout the country, and Māori and Pacific beneficiaries are at greatest risk.^{5 6 18} Whilst MSD has a policy of ensuring full and correct benefit entitlement, it recognises that enhanced case management is needed to ensure it happens.¹⁵ Participants at the ENHANCE workshops identified the need for improvement in this policy and argued for it to be more strongly enforced in order to increase food security in Māori, Pacific and low-income households. Given the current economic downturn the number of beneficiaries is likely to significantly increase. Ensuring full and correct benefit entitlement is one way that money available in households can be increased with a potential improvement in food security.

Recommendations

- That MSD strengthens its policy of ensuring full and correct benefit entitlements for all beneficiaries
- That MSD enhances case management to ensure the policy is fully and fairly implemented
- That MSD and other agencies undertake further research to find effective ways to ensure the policy is fully and fairly implemented

- That there is on-going monitoring by MSD and other agencies of the effectiveness of this policy
- That MSD and other agencies support local and community initiatives to educate communities about benefit entitlement.

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2.4 Fringe lender responsibility

Tolotea Lanumata and Louise Signal

Summary

The participants in the ENHANCE workshop on money available in households identified debt as a contributing factor to food insecurity amongst Maori, Pacific and low income households. In particular, the credit practices of the fringe lending market create a culture of debt dependency, escalating debt and stress in some households.

Subsequent analysis of the New Zealand literature and the results of the key informant interviews reiterate the same concern. There is also mounting concern internationally in the US, Canada, the UK and Australia on the impact of the fringe lending market on low income and vulnerable communities.

Fringe lenders are often: small, owner-operated, specialising in personal cash loans; lending at higher interest rates than mainstream lenders; loan small amounts and have short term repayments; provide immediate cash with few credit checks.

The draft Credit Reforms (Responsible Lending) Bill and the 'Fairness in Lending' report by Finsec offer valuable suggestions for debate and action around responsible lending in New Zealand which are very timely, given the current economic downturn. Action in this area is also particularly appropriate given the increased attention internationally on lender responsibility in the banking and finance industries.

Recommendations from this research are as follows:

- Introduce regulation of fringe lenders
- Improve access to affordable credit for low-income households
- Increase financial literacy for users of the fringe lending market.

Problem Definition

The participants in the ENHANCE workshop on money available in households identified debt as a contributing factor to food insecurity amongst Māori, Pacific and low-income households. Debt reduces the amount of money available to spend on food. The concern, however, was accumulating debt, and in particular the role of the 'fringe lending' market operating in South Auckland and other low-income areas. Participants identified the need for the fringe lending market to be more responsible in dealing with Māori, Pacific and low-income communities. It was argued that this could reduce indebtedness and thus free up money that would have been used to pay off high interest loans, to buy food.

The recent report 'Beyond Reasonable Debt' by the Families and Retirement Commissions indicates that a lot of New Zealand families are in debt and this is non-mortgage debt.¹ Furthermore, a report by the Ministry of Consumer Affairs identified fringe lending market practices as detrimental to vulnerable consumers, particularly Pacific consumers.² Most importantly, it was found that the most common reason for borrowing was to meet everyday household expenses.

Methods

The following databases were searched in December 2008 and February 2009 for the period since 1998: Index New Zealand, Scopus, Web of Science, Medline, Te Puna, and Google Scholar. The Ministry of Health website was also searched at this time.

Terms used in the search were: food security or food insecurity; fringe lending, fringe markets, fringe lenders, loan sharks, credit markets; and, low-income, financial resources, household spending, household income.

Interviews with four key people with knowledge of the impact of the fringe lending market on consumers were also undertaken between January and March 2009; two were policy makers and two representatives of community organisations. A semi-structured interview was used as a guide and participants were asked about their views on the fringe lending market in New Zealand and its impact on Māori, Pacific and low-income families. The findings was analysed according to the interview guide and the key themes that emerged.

Literature Review Results

The international context

There is a growing literature on the fringe lending market and its impact on low-income and vulnerable communities. There has been a rapid increase in the number of fringe lenders over the last two decades in the US.³ This increase is largely to meet the unmet financial needs of low-income consumers who cannot access mainstream financial services. In the US in 2000, the estimated annual transaction of fringe services amounted to approximately 280 million transactions and gross revenues of more than \$168 billion.³

Furthermore, there are more pawnshops than credit unions and banks across the US. Lack of access to the mainstream financial market (financial exclusion) forces consumers to resort to high cost fringe lenders.^{4 5} The level of financial exclusion in Canada is similar to that of the UK at approximately 6 percent to 9 percent, while the US is 12 percent to 13.5 percent, with low-income people as high as 41 percent.⁵

There is mounting concern in the US, Canada, Britain and Australia over the high cost of credit in the fringe lending market.⁶ Vulnerable people on low incomes are most at risk, as well as those who are unemployed and living on social security payments, those with bad credit, and indigenous and ethnic minority communities.⁶ Evidence from the US indicates that fringe lenders target and thrive in minority communities.^{3 7 8} The consequences of borrowing from fringe lenders can be costly and can generate or prolong financial hardship for low-income consumers. 'The high cost of credit can in fact impede their ability to overcome financial difficulties, and can deplete their income and ability to save'.⁴ Not surprisingly, a large number of consumers become dependent on fringe lenders and their high cost credit for everyday expenses turning 'occasional users into chronic borrowers'.⁹

A number of studies suggest possible solutions, not only to reduce dependence on fringe lending but to improve access of low-income households to the mainstream financial market. The answers are similar. A few point out that short-term loans are an essential service for low-income consumers but argue for tighter regulation to ensure that the cost of credit is reasonable and reflects the risks by consumers.^{3 4} Howell and Wilson suggest that in order for lending to be ethical all credit providers should assess a borrower's ability to repay the loan before providing credit. They

argue that this should be a legal obligation imposed on all credit providers, including fringe lenders.⁴ In addition, the Government should support mainstream banks by providing incentives for providing financial services for low-income communities. Furthermore, banks could learn from the marketing techniques used by fringe lenders in order to attract low-income customers to their services.⁹

Some commentators point out the important role of community organisations, such as credit unions and mutual societies, in facilitating access to short-term credit for low-income consumers.⁴ Kempson et al suggest that ‘unbanked’ people, people without access to a bank, might benefit from banking services delivered through these community services.⁶ As such, in the UK the Department of Trade and Industry suggested that, “one way of minimising the problem of over-indebtedness is to ensure that low-income consumers have access to affordable credit and that credit unions have a role to play in this”.⁴ Some of the mainstream banks in Australia are in partnership with community organisations offering low interest loans, or financially support no interest loan schemes.⁴ Howell argues that ethical lending requirements should be imposed on all credit providers.¹⁰ A number of studies suggest providing consumer education to low-income consumers on interest rates, budgeting and finance in general so they could manage their money more efficiently.^{3,7,8}

National Context

In 2006, 185 companies were identified as fringe lenders; 94 percent offered cash or personal loans, 43 percent vehicle loans, 26 percent debt consolidation and 24 percent pawn broking services.¹¹ Most fringe lenders are located in lower income communities, particularly in South Auckland. They publicise creatively to entice customers to make contact and advertise in at least one community or ethnic newspaper. While exploring the fringe lending market in South Auckland, the Ministry of Consumer Affairs found that Pacific consumers are disproportionately disadvantaged.

The research reported that the most common reason for borrowing by Pacific consumers was to meet everyday household expenses, followed by purchasing large items such as cars and thirdly, borrowing to meet social and cultural obligations. The authors concluded that the current credit legislation is not protecting Pacific consumers from the detrimental effects of fringe lenders. They argued for stronger enforcement to control the operations of fringe lenders, even if it means making credit harder to get.²

According to Dale, “there is a direct relationship between low-incomes and the proliferation of high-cost lenders and pawn shops”.¹² Mobile trucks selling clothes and food on credit circulate in low-income neighbourhoods, loan companies have become mobile selling door to door, and finance companies advertise heavily in the media and locate themselves around low-income neighbourhoods. Not surprisingly, the number of fringe lenders in South Auckland outnumbers the number of banks.

Williams and O’Brien argue that there is a strong link between debt and poverty. Their research highlights the role of the fringe lending market in trapping low-income people in debt and the impact of debt on families.¹³ Valins suggests a number of policies that New Zealand could consider to tackle debt: legislation and/or guidelines for the consumer credit industry; improving access to affordable credit; improved policies for private companies (such as credit and utility companies); education and financial literacy strategies, and money advice services.¹⁴

Finsec’s 2008 report, *Fairness in Lending*, proposed reform and regulation to the financial sector by establishing a lending code and code of social responsibility for all

financial institutions.¹⁵ According to Finsec, the level of household debt was at a historical peak and,

“accumulating evidence suggests that many non-bank lenders and banks have been indulging in lending practices of a questionable ethnical nature”.

“...many lenders are marketing credit facilities to people with inadequate regard to their ability to understand the risks they are taking by borrowing, or their ability to service the debt”.

“...there is a strong need for improved financial literacy in New Zealand to assist ordinary investors and borrowers to interpret disclosure, to ask the right questions, and to understand the answers”.

Recently a bill has been drafted on this issue. The purpose of the Credit Reforms (Responsible Lending) Member’s Bill is to “require lenders to act responsibly when lending to unwary consumers and to prevent excessive rates of interest from being charged”. Key provisions of the bill include caps on interest rates and a requirement on lenders to ensure their client has the ability to pay.¹⁶

Key informant interview results

Key informants noted that it is much easier to borrow money from fringe lenders than it is from mainstream banks. They acknowledged that some people will never be able to borrow from mainstream banks because you must have assets to use as security for loans and most low-income people do not have assets. In contrast, a lot of fringe lenders provide unsecured loans.

Three of the participants stated that Pacific and low-income people borrow money from fringe lenders for everyday needs. They added that credit for them is like an additional income on an ongoing basis.

“...families are really in dire straights in respect to household income that they actually have to borrow money just to meet ongoing survival needs and that is a very serious issue”.

Mobile Trucks

Two of the participants mentioned the home direct mobile trucks that sell food and clothes to people on credit. They are very active in South Auckland, low-income areas and rural areas. One participant stated that this is revolving credit and a regular way of supplementing everyday needs:

“if you don’t have money that week to go down to Pak N Save and get your groceries, you can still get baked beans and your nappies for your child basically on debt and you can pay them off later”.

Not surprisingly, participants report that these trucks stock goods that people specifically ask for and charge higher prices. One participant noted that these mobile trucks prey on people’s inability to get out of their homes if they are stuck at home. This is much worse for people in isolated and rural areas with no easy access to shops.

One participant from a community organisation noted that some mobile trucks are better than others, such as the Red Trucks which work co-operatively with her

organisation. They allow people to buy groceries on credit with no interest and goods are not as expensive or poor quality as goods on some of the other trucks.

Concerns about fringe lenders

Three of the participants agreed that fringe lenders charge very high interest and are 'unsafe' compared with mainstream banks. However, one Pacific participant acknowledged the dilemma faced by poor people and felt hopeless as to a possible solution for this problem stating that fringe lenders,

“are a source of money that people have access to when they are really in dire straights and I know it is not a good answer because they get locked into high interest rates but what do you do?”

One participant working within the consumer lending field noted there is a maximum on the interest rates charged by credit providers under the legislation. The interest charged, however, reflects the riskiness of the consumer. Moreover, borrowers should assess the total cost of the loan, which includes the interest rate plus the fees.

One participant was very concerned that through her job she had come across some people who had signed credit contracts that they have not really understood. It appears that some lenders do not encourage people to take the contract away for someone to have a look at, instead, “they put pressure on people to sign it there and then”. She added that some lenders also sign people up for repayments that are outside their ability to pay and when they get behind, the penalty fees are often very harsh.

Interventions

Three of the participants agreed that some form of regulation around fringe lenders is needed. While two participants strongly felt that regulation around lender responsibility should be in place, one participant was uncertain on the degree of regulation. One participant stated that lender responsibility involves lenders doing credit checks on people to make sure they have the ability to make repayments. It was suggested that there needs to be better credit registers in New Zealand in order for lenders to get information on what other credit people have and to assess their credit worthiness. It appears that the Credit Reporting Privacy Act, which is currently under review, could allow this to happen.

One participant felt that Pacific people should be encouraged to use mainstream banks and the Government should support banks to be more user friendly. All of the participants strongly recommended providing information and financial literacy education for people. One participant stated that his organisation is committed to improving training and educational outcomes for Pacific peoples so they can get into good paying jobs and not have to resort to fringe lending in the future.

Feasibility and Sustainability

Three of the participants believed that regulation of fringe lenders is feasible and sustainable in the long run. The remaining participant noted that the issue of fringe lender responsibility is a current concern amongst lending enforcement agencies in a number of jurisdictions. They noted that there is discussion about “whether there is a need for a specific legislation directed at fringe creditors or additional protection for vulnerable consumers”.

All of the participants strongly agreed that financial literacy would benefit people. One participant argued that a regulatory approach combined with financial literacy for consumers would be more sustainable in the long run, rather than regulation alone.

Potential side effects and effects on equity

Two of the participants thought there would be potential negative side effects of regulating fringe lenders, particularly for consumers. One participant believed that two things might happen if fringe lenders were regulated: regulation might drive some of the fringe lenders underground, and tightening the lending criteria will make it hard for some people to access money.

“I think a very real one [side effect] is that you drive these people underground and it gets even more difficult. Tighten up and then people can’t get access to any money at all and what would happen then, and that is the challenge I think”.

In addition, one of the participants stated that policymakers need to weigh up the cost versus the benefit of any regulation. She believed that any new regulation would have compliance cost for traders which they would pass on to their customers.

“The more expensive you make credit, the harder it’s actually going to be for people really down the bottom that need credit to survive”.

Acceptability to stakeholders

Three of the participants indicated that regulating fringe lenders would not be acceptable to lenders and some borrowers. Three of the participants felt that there is a definite need for the services provided by fringe lenders, particularly for vulnerable people such as low-income, Māori and Pacific.

One Pacific participant argued that,

“I think it is hugely necessary and in fact I argue that a lot of our people’s survival depends on their ability to access this money....”

One participant argued that now is the right time to approach this issue due to the economic downturn and the need for lenders to be extra careful. She added that there will likely be less resistance from lenders at the moment.

“...if there is ever a time that is right to make lenders more responsible, its in the current economic climate where people are not going to be able to make repayments, so lenders have to be careful anyway”.

Discussion

The New Zealand literature and the results of the interviews clearly suggest that some people do not have enough money to meet everyday needs and thus borrow from fringe lenders or buy food and other goods on credit from Mobile Trucks to survive. There are concerns amongst policymakers and community organisations that the credit practices of the fringe lending market create a culture of dept dependency, escalating debt and stress in some households.^{2 12 16} The limited New Zealand literature suggests that stronger regulation of the fringe lender market is required.

Possible solutions identified in the international literature include tighter regulation of the short-term credit market, increased use of credit unions and mutual societies, government incentives to mainstream banks to provide financial services to low-

income communities, mainstream banks working in partnership with community organisations to offer low interest loans or financial support, and education to increase financial literacy amongst users of the fringe lender market.

There was strong support from key informants for regulation of fringe lenders. However, some participants are concerned that any new regulation might either drive lenders underground or leave consumers worse off. This concern needs to be addressed if any such regulation was introduced. Participants also supported the need for increased financial literacy amongst users of the fringe lender market.

Surprisingly, there is lack of international evidence on government regulation around fringe lender responsibility despite the international debate on the fringe lending market and its lending practices.⁶ Policymakers appear to be uncertain about the best ways to intervene. The draft Credit Reforms (Responsible Lending) Bill and the 'Fairness in Lending' report by Finsec offered valuable suggestions for debate and action around responsible lending in New Zealand^{15 16} which are very timely, given the current economic downturn. Action in this area is also particularly appropriate given the increased attention internationally on lender responsibility in the banking and finance industries. Regulation of the fringe lending market will likely increase protection of the most vulnerable people in our community, leave them less indebted and potentially with more money available to spend on food.

Recommendations

Recommendations from this research are as follows:

- Introduce regulation of fringe lenders
- Improve access to affordable credit for low-income households
- Increase financial literacy for users of the fringe lending market.

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2.5 Provision of free or subsidised food in schools

Mat Walton

Summary

Meals or fruit provided free at schools could potentially improve food security outcomes for children, with possible flow-on effects household food budgets. Compared to several other developed countries, New Zealand has a limited history of school food programmes, such as free or subsidised breakfast, lunch, milk, or fruit. There is limited evidence of the impact of school food programmes on child or household food security, and limited infrastructure to support such programmes in New Zealand schools. Some international research evidence exists but rarely investigates impacts of school food programmes on food security. The limited literature suggests that food provided at school has more of an impact on the diets of children from lower socio-economic households than higher socio-economic households. Interviews with New Zealand policy participants indicates limited support for development of school food programmes in New Zealand, with exception of the current Fruit in Schools scheme. However, this lack of support may reflect the lack of familiarity with food provision schemes in New Zealand.

Recommendations are that:

- Fruit in Schools is maintained, with the possibility of expansion following completion of current scheme evaluations
- a robust trial and evaluation of school breakfasts is conducted, as this appears to have promise for child health, education and food security outcomes.

Problem definition

The ENHANCE workshop on money available in households, identified a possible intervention of direct provision of food to school students, to offset impacts of food insecurity in households. This received support at the workshop with a range of interventions identified; from continuing Fruit in Schools, to provision of breakfasts and lunches at school.

The 2002 National Children's Nutrition Survey identified 22 percent of households with children as food insecure ¹. Survey results also showed that 92 percent of the least socio-economically deprived quintile of households reported being able to afford to eat properly, compared with 59.5 percent of households in the most socio-economically deprived quintile. Variation in food security was also shown by ethnic group with 64.3 percent of Māori households reporting being always able to afford to eat properly, compared with 46.6 percent of Pacific households and 86.1 percent of New Zealand European and other ethnic category households. Secondary analysis of this survey by Parnell et al,² indicates that children from food insecure households had lower levels of nutrient intake of lactose and calcium (from dairy products); and β -carotene and vitamin A (from fruits and vegetables). Children's nutrition has not only been linked to short and long term health outcomes ³⁻⁵, but also academic achievement.⁶⁻⁸ There is little information available to consider whether children regularly have enough food during the school day. A 1995 survey commissioned by the Public Health Commission (reported in Gerritsen⁹), estimated that 3.5 percent of New Zealand students were regularly hungry at school.

An intervention logic exists for provision of food in schools offsetting food insecurity or poor nutrition practices in the home.¹⁰ If food security is a problem within a household, then direct provision of food to children at school may a) reduce the negative impacts of food insecurity by providing some essential macro and micro-nutrients; b) reduce the amount of money required to spend on food within a household, thereby reducing some of the budgetary pressures; and c) ensure interventions to enhance food security are reaching children, rather than providing additional resources to a household and leaving distribution of those resources to the household decision-makers. Nelson et al¹¹ report in the UK that school meals positively contribute to the nutritional intakes of the students who, due to deprived socio-economic circumstances, are eligible for free school meals.

To be successful in alleviating food insecurity for children, and improving nutritional outcomes, several aspects must be addressed. The food provided must be of a standard that benefits the students.¹² If food in the home is reduced by more than the child receives at school, then it will likely disadvantage the child,¹³ or if food purchasing patterns at home change then other members of the household may be disadvantaged. Several authors also point to the possibility of stigma for children receiving free food if it labels them as poorer than their peers, which in the UK has been associated with low take-up of free school meals.¹⁴

Methods

The information included in this chapter is the result of a literature scan, and interviews with policymakers as part of an ongoing research project, outside of ENHANCE, looking at policy options to support primary schools to promote healthy childhood nutrition.¹⁵ The literature scan was undertaken between November 2008 and January 2009. The Scopus bibliographical database was searched for papers since 1990 with combinations of the following keywords: school food, school supplementation, food security, school lunches, school breakfast, fruit in schools, breakfast clubs. A Google search was also undertaken. Titles of articles were scanned for relevance and 18 peer reviewed articles and grey literature reports have been used for this review.

Fifteen interviews were conducted with policymakers as part of the National Heart Foundation funded research project *Promoting healthy childhood nutrition through primary schools*¹⁵. This study aims to identify policy options for supporting primary schools in promoting childhood nutrition, and involved both case studies with primary schools and a series of interviews with policymakers. The interviews were conducted between October 2008 and February 2009. Interview participants included politicians, individuals from national non-governmental organisations, district health boards, government departments and agencies. Participants were asked for personal opinions, rather than organisational positions. As part of a semi-structured interview, participants were asked about school food programmes in general, and in relation to food security. These aspects of the interviews have been analysed for this chapter. A thematic analysis was conducted using a full interview transcript.

Literature Scan: International Context

The use of school food programmes internationally

The School Food Trust in England, established in 2004 to improve the quality of food supplied and consumed in schools, has published a report comparing the provision of

food in 18 countries.¹⁶ The review identifies a large variation in practices between countries. Food provided ranges from pre-packed sandwiches and soup to full meals. The meals are provided free or at a reduced price in most countries to families who qualify, based on socio-economic circumstances, with the exception of Sweden and Finland where meals are provided free to all students. Provision of school fruit and breakfast clubs are also increasing in several countries.^{13 16 17}

The majority of literature accessed comes from the UK and US, where both breakfasts and lunches are subsidised by the government, with free meals available to children from low socio-economic households. In the US it is estimated that some form of subsidised lunch is available to 92 percent of students, and that 56 percent of students participate, with 47 percent of the lunches provided under the programme being free.¹⁸ In the UK the take-up of school meals varies by region, with Rees et al reporting rates between 28 and 57 percent.¹⁹ Results from a nationally representative UK survey in 1997, showed that between 23 percent (secondary school girls) and 72 percent (primary school boys) took up free meals when eligible.¹¹

School Food Provision and Child Outcomes

The majority of the literature related to school food provision describes links to nutritional and academic outcomes. In the UK there have been several studies examining the nutrient content, and impact on students' diets, of school meals. In an analysis of a nationally representative survey conducted in 1997, Nelson et al¹¹ conclude that 'if anything, school meals are making matters worse rather than better' (p 660). This is due mainly to the number of foods high in fat and sugar, and the relatively few vegetable and fruit options. There is an exception to this conclusion. For those from the poorest households, who were shown to have the worst diets in general; the school meal provided a benefit. The authors suggest that for these groups school meals offer a 'safety net'. Reports of poor quality food available in schools led to the UK government introducing new standards for school meals in 2006.¹⁹

Prior to the new UK school food standards being compulsory, Hull City Council introduced free school meals to all children, with those meals guided by the new meal standards. A comparison of one Hull City school with a neighbouring local authority area school,¹² showed that students' average intake of nutrients was inadequate, compared with the standards, for both schools in 11 of the 17 nutrients assessed. Rees et al,¹⁹ in another small study of four schools, showed that the packed lunches children were bringing to school provided double the amount of fat and sugar compared with school meals, yet more calcium, iron and fruit. These studies suggest that unless school meals are meeting nutritional standards, their ability to offset inadequate diets at home will be limited. The quality of free lunches may also impact on student take-up. Wojcicki and Heyman²⁰ report increased uptake of free school lunches in the San Francisco school district after nutritional regulations were introduced for both the federal school meal programme, and other foods available for sale within the school.

Dunifon and Kawaleski-Jones¹⁸ report an analysis of a nationally representative survey in the US, where children who participated in the school lunch programme were found to be more likely to come from food insecure households. They conclude that there is little to suggest participation in the school lunch programme is associated with improved child cognitive, behavioural or health outcomes. They suggest a number of mechanisms to explain this finding, including: the level of additional nutrients gained from the lunches being inadequate for improvements to be recorded; that families may use the lunch programme to replace food they would have otherwise provided; or that children may already be receiving adequate nutrients, and therefore

the additional nutrients do not lead to improvements. This study does not examine in detail the impact of school lunches on children from food insecure households. Cook et al,²¹ in a US cross-sectional study, found associations between children from food insecure households and adverse health outcomes, and that health outcomes were worse again if the child themselves was considered food insecure. The association between food security and adverse health outcomes was reduced with participation in the Food Stamp Programme. These studies suggest that providing benefits to the household, rather than to the child directly, may have more of an impact on child health outcomes. However, these studies are relatively small, and do not examine all associations that could more fully explore these scenarios.

A number of studies have examined the impacts of school breakfast and fruit schemes on child outcomes. These studies are largely cross-sectional and not designed to measure effect on food security. Given this, the picture appears to be mixed. Breakfast provided at school has been associated with increased school attendance and performance; however, a review of studies notes caution in generalising from these studies due to size and methods.¹⁴ A study of 22 primary schools in deprived areas of London (13 with and 9 without breakfast clubs), showed a significant increase in academic test scores for schools with breakfast clubs, comparing the year before the clubs were introduced with the year after. These improvements were sustained in subsequent years.²² There was no change in test scores for schools without breakfast clubs. Principals from schools with breakfast clubs reported several benefits for children, including: improved social skills; improved punctuality; improved concentration levels; and promoting links between schools and parents.²²

Effect on Equity

In the UK and US, not all children in a school will be eligible for free school meals, and several studies report concerns over stigma as a reason for children not taking up free meals.¹⁴ In the US income and parental education are negatively associated with free school meal take-up.¹⁸ Low levels of take-up are likely to mean that those children most at risk of food insecurity are not receiving the benefit of free food. There is some indication from breakfast clubs and fruit schemes that universal eligibility within a school increases take-up.^{6 17}

Sustainability and Acceptability to Stakeholders

Studies that include qualitative components with teachers and school staff generally report positive attitudes from students,²⁰ school staff,²² and parents.²³ This suggests general acceptability to stakeholders if the organisation of the food provision is easy to access and meets their needs.^{14 22 23}

Cost Benefit of School Food Provision

There appear to have been few studies that examine the costs and benefits of school food provision. A review of breakfast and fruit programmes suggests that benefits are likely to be larger where the food is designed as additional, rather than a substitute for home provision, such as fruit schemes.¹⁴ A study by Currie,²⁴ while drawing only tentative conclusions, suggests that direct in-kind provision to children, such as school food programmes, are likely to have a bigger positive impact on children's wellbeing than cash transfers to the home.

Key components for effectiveness

Greenhalgh et al²⁵ report the findings of a realist review of 18 school food programme studies. The interventions included in these studies ranged from milk supplementation to full lunch meals, from the 1920s until early 2000s, and across developed and developing nations. They draw conclusions of process factors that seemed to increase the efficacy of the programmes, which include:

- clear nutritional deficiencies being targeted
- well organised school and food distribution chain
- locally designed interventions
- pilots of interventions are used to assess acceptability of the food to children
- processes increase the likelihood that the food is consumed, such as supervision, and
- inclusion of social aspects of the meal in the intervention.

Literature scan: National Context

Use of school food programmes in New Zealand

Since the end of the school milk programme in the 1960s, there was no government-funded school food provision in New Zealand⁹, until the introduction of the Fruit in Schools scheme in 2005. There have, however, been a number of individual schools and non-government organisations providing locally organised breakfast or lunch foods to schools.⁹

There is little evidence in New Zealand of the impacts of food provision in schools on children, and even less on children from food insecure households. A process evaluation of the Fruit in Schools scheme, completed after one year of operating, reported significant increases in the number of students reporting eating vegetables and fruit every day, as well as the amount of vegetables and fruit being consumed.²⁶ This result is from a relatively small sample of 591 students. Staff and students were supportive of the scheme. Further evaluation results with more child outcome information should be available in 2009.

The positive results from the Fruit in Schools evaluation are supported by the findings of Ashfield-Watt et al,¹³ in a pilot study of a free fruit in primary school scheme. Across ten matched intervention and control schools in Auckland, schools where a piece of fruit was provided daily increased average fruit intakes by 0.39 pieces per school day per student, compared with no increase in control schools. There was a reduction of almost 50 percent in students who ate no fruit in intervention schools. The increased fruit intake was not sustained six weeks post intervention, and the authors suggest the intervention period of one school term was not long enough to establish new habits independently of the intervention. Other studies internationally have shown sustained effects following longer intervention periods.¹⁷

A study in the Waikato as part of project Energize,²⁷ trialled the provision of vitamin D fortified low fat milk to all students in eleven low decile primary schools. The study found that compared with control schools, students receiving the milk had higher serum vitamin D levels, even though both groups' vitamin D remained low. The students who received the milk also had a significantly better cardio-protective lipid profile compared with students from control schools.

The Red Cross Breakfast in Schools programme was launched nationally in 2007,²⁸ with 29 schools involved as at March 2008. An evaluation survey was conducted including eight months of operation. A majority of teachers considered that both behaviour and students' learning capacity had been improved by the breakfast

programme. No information was collected on food security of the children before and after introduction of the programme. Delivery of the programme relied on volunteers and sustainability of the volunteer workforce was cited as a potential risk for the programme.

Acceptability to stakeholders

While it appears that the Fruit in Schools scheme is highly acceptable to stakeholders,²⁶ less is known about other school food programme types. In a study of food insecurity amongst primary school children, Gerritsen⁹ surveyed 115 primary schools in the Wellington region. School principal respondents estimated that 3.3 percent of students were regularly hungry throughout the survey period of May 2004. The research also found that the majority of schools between decile 1 and 6 in Wellington provided free food to a small number of students on a regular basis. Principals from decile 1 and 2 schools were largely in agreement with statements that parents found it difficult to always provide breakfast and lunch for children. Principals from higher decile schools (decile 7-10) agreed with these statements less. There was full agreement amongst principals that it is the responsibility of parents to provide their children with lunch every day, although a third of principals also acknowledged that schools had a responsibility for ensuring children had lunch.

Key informant interviews

The following section presents results relating to food security and school food programmes from 15 policymaker interviews as part of the project *Promoting healthy childhood nutrition through primary schools*.

Responsibility for children's food at school

Most participants stated that parents have primary responsibility for the food that children eat during the day at school. A few participants noted that the responsibility rests with parents because that is how the schooling system has developed in New Zealand, and acknowledged that internationally there is a wide variety of practice. There was also recognition that when children are faced with food insecurity the school may be required to take some responsibility for feeding children at school.

Who should provide food in schools?

As highlighted by Gerritsen,⁹ some schools currently provide some food to children who present as hungry at school. This provision of food is usually paid for by the school, or donations are used. Participants were asked about the type of support that should be available for schools to address hunger in students. There was a range of opinions. Three participants stated that lower decile schools, with an assumption that this is where the burden of hungry children is located, already receive more money in operational grants from government than higher decile schools. They suggested that some of this operations money should be used to purchase food if this is a need for the school.

Other participants suggested that the number of children presenting as hungry is likely to vary between schools and communities. They suggested that the best place to locate solutions therefore was to use community resources to support schools (e.g., local suppliers providing food at cost, or the wider whānau). Some participants noted that existing welfare agencies, such as the Red Cross, were providers of food in schools, and saw this as a positive alternative to individual schools funding food provision. Two participants raised concerns about community-based solutions and charitable models, questioning the “sustainability in the long term”, particularly if the

number of students who would benefit from additional food provided at school grows, or proves to be larger than currently perceived.

A few participants suggested that the focus of food provision at school should be less on hungry children, and more an integrated part of the school day. This was both to address food security and other reasons why children may not have eaten sufficient or healthy food, such as parent working patterns and lack of breakfast. When such a model was discussed, it was identified that state funding would be required. As one participant stated:

I think there are bigger social discussions, community discussions that need to be had around [school food programmes], because that will probably take an increase in tax to pay for it.

Type of school food provision supported

When the provision of food in schools was supported by participants, existing schemes received the greatest support. This appears to be because participants could draw on examples where the schemes had benefited children and schools. The participants generally did not support schemes when they had no direct contact with existing schemes, or familiarity with scheme evaluations.

In this regard the Fruit in Schools scheme received the most support. Participants who were familiar with the scheme highlighted how the scheme had increased the amount and types of fruit being eaten by children, and that it appeared to be encouraging greater fruit consumption at home, rather than substituting at home fruit consumption.

Examples of comments by two participants are presented below:

I have heard with Fruit in Schools ... that a big concern was that the parents would think, 'right fruit is being provided we'll cross that off the shopping list'. But no, in contrast the students are loving the fruit, realising they enjoy it and then bringing more fruit as well themselves.

Its really clear that kids are being introduced to fruit they haven't had before, and they are enjoying it, and its made a focus for the school around nutrition and health, and its been really, I think, successful.

There was some concern expressed by two participants that the current focus of Fruit in Schools on decile one and two schools, may not reach enough children who would benefit from the scheme.

There was mixed support for breakfast being provided at school. When participants did support breakfast provision it was due to a perceived positive impact on student learning and behaviour at school, or reducing stresses in the home to do with parents' work commitments and before school care.

Those participants who did not support breakfast provision suggested that there was a lack of evidence of need, and that the reasons for children not having breakfast are complex and not necessarily related to money or food security, as expressed by one participant:

when you look at the recent New Zealand health survey results, a large number of young people are having breakfasts, and some of the reasons why children don't have breakfast is not necessarily a food security issue.

There was very little discussion of provision of lunches at school. No participants pointed to existing programmes in New Zealand as a basis for discussion. As a result, when lunches were discussed, the comments were more general reflections on the experience of other countries, the role schools should play in providing food, and comparing lunch provision to breakfast or fruit provision schemes. In general, lunch provision was considered to be practically more difficult to implement than fruit or breakfast in schools, due to limited kitchen and dining facilities in most New Zealand primary schools. Participants expressed mixed perceptions of benefits to students of lunch programmes in other countries, such as the United Kingdom.

Discussion

The results of the interviews described above suggests that there is no clear cut position amongst policymakers in New Zealand on the role of food provision in schools to help address food security issues. This research suggests three reasons for this ambiguity. First, the international evidence is poor. Few studies have examined the impact of school food provision on food security, with most examining the impact on student nutritional intakes, academic achievement, or behaviour. In these areas results are mixed, and seem dependent on the quality of food provided, nutritional status, take-up rates, and measurement issues.

Second, with the exception of the school milk programme and recently the Fruit in Schools scheme, New Zealand has little experience in state provision of food in schools. The responsibility for food children eat at school is seen to primarily rest with parents through packed lunches or purchasing food.

Where food insecurity has led to hungry children at school, local solutions have been developed, funded either by the school or through charitable donations and food programmes. Currently two of the largest charities state that they supply breakfast to 8,000 children per week,²⁹ and 29 primary schools nation-wide,²⁸ respectively. It could be argued that if this provision is meeting the majority of need, then there is little requirement to consider school food programmes on the policy agenda. Although government intervention to aid sustainability of these programmes may still be justified.

The third reason for the ambiguity is likely to be the limited understanding of the size of problem. While the 2002 National Children's Nutrition Survey¹ identified 22 percent of households with children as food insecure, it is not evident how this necessarily impacts on the food children eat while at school. As noted by three interview participants, the latest New Zealand Health Survey indicated that a majority of children do eat breakfast.³⁰ However, the survey results show that 1 in 14 children aged 2-14 years had eaten breakfast at home fewer than five times over the previous week, and that rates of breakfast at home were lower for children of Māori and Pacific ethnicities.³⁰ If the existing charitable programmes are not meeting the needs of all children who would benefit from school breakfast programmes to aid food security, then more systemic government intervention is likely required. An argument was also made by a couple of participants that schools have a duty to meet students' health and safety requirements. Therefore, a government response to student hunger and nutritional needs can be justified.

While there is ambiguity in support for school food programmes, there is good support for the Fruit in Schools scheme from those participants with some knowledge of the scheme. The outcome evaluation findings of Fruit in Schools, due in 2009, should

inform further debate on the merits of such a scheme. A fruit provision scheme does not challenge the established patterns of responsibility for children's diets in the same way a breakfast or lunch programme does, as it is designed to supplement, not replace. The cost of a fruit provision scheme will also be less than breakfast or lunch provision. It is possible, however, that a fruit provision scheme will have less impact on household or child food insecurity than a breakfast or lunch provision scheme, for the reason that it is not replacing the requirement for households to purchase food for children to eat at school. For children who are hungry at school, a fruit in schools scheme is less likely to provide adequate energy to address hunger, compared with breakfast or lunch programmes.

School breakfast programmes also received some level of support from interview participants. It is likely that the intervention logic of providing school breakfast programmes will be enhanced if consideration is given to a wide range of issues, rather than just food security. For example, several participants mentioned the difficulty parents may face in managing breakfast provision and before-school care, with work commitments. Developing breakfast programmes that are as much about before-school care as food provision may enhance the benefit calculations of such schemes. Several participants cautioned against relying on teachers and existing school staff for these programmes, suggesting that the quality of teaching may suffer if teachers are asked to supervise students in before-school programmes.

With the current economic crisis and the likely rising unemployment rate in New Zealand, the role of schools in providing a safety net of food provision should be actively monitored. If the current ad hoc arrangements are coming under strain, then it is likely that a more considered policy response is required. This could be the development of national level programmes, or increased support for local solutions. In order to develop evidence of successful school food programmes, and impacts on student health, education and food security outcomes, an active trial and evaluation programme should be implemented.

Recommendations

Maintain existing funding for Fruit in Schools.

The initial evaluation findings of the Fruit in Schools scheme show signs of positive outcomes for children in increasing fruit consumption. The scheme also appears largely acceptable to schools and policymakers. For this reason it seems prudent to ensure the existing coverage of Fruit in Schools across decile one and two schools is maintained. This includes removing the requirement that schools identify funding options for the scheme after three years of government funding. When further evaluation results are available a discussion should be held on whether Fruit in Schools should be expanded to more schools. Because a fruit in schools scheme is likely to have less impact on food security compared with a breakfast or lunch in schools programme, due to the energy provided, an active research programme of breakfast programmes is also recommended.

Keep a watching brief on existing programmes.

The evidence regarding the impact of school food programmes on child outcomes looks likely to increase in the near future with several schemes being trialled in New Zealand and internationally. An active programme of considering research and evaluation findings, and implications for policy in New Zealand, should be developed. Funding evaluations of existing New Zealand programmes, including those provided by charitable organisations, should be part of this approach.

Pilot programme of breakfast in school provision.

Because research that considers breakfast and lunch provision in schools seldom considers food security, it is difficult to recommend implementation of such programmes in New Zealand. However, there is some support for breakfast in school programmes from policymakers, and good research evidence of positive impacts on student learning outcomes. For this reason it is recommended that a pilot of breakfast in schools is implemented. This should consider implementation issues, and examine impacts on student learning, behaviour and food security. Such a pilot programme should be implemented over a sufficiently large number of schools and time period for robust findings.

Summary of Recommendations

- Maintain existing Fruit in Schools scheme, with an option to increase coverage based on evaluation findings.
- Maintain watching brief on evidence for impact of school food programmes on student health, education and food security outcomes.
- Implement a comprehensive pilot programme of school breakfast provision to test impacts on student health, education and food security outcomes.

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Chapter 3: Food purchasing influences

3.1 Enhancing cooking skills

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Summary

Cooking skills are an important life skill and a means of preparing affordable, healthy foods. Thus, cooking skills interventions could be a positive means of reducing a potential barrier to food security for some households, however there has been little research conducted assessing their impact on food security. Cooking skills interventions do seem, however, to provide benefits such as increased cooking confidence, cooking frequency, and food hygiene. There also seems to be demand for cooking skills training from priority populations. There are two common ways to teach cooking skills: through schools (for children), or in community classes (for adults). There is a wide range of cooking skills courses on offer in New Zealand, and it is recommended that existing courses are evaluated and successful formats are built on and expanded. Alongside this, basic cooking skills training should return to the school curricula.

Specific recommendations are that:

- practical cooking skills are taught in schools, with a focus on preparing affordable healthy meals (for example, the NZQA standard to ‘provide nutritious low cost food for a family’). The focus in the curriculum should be on practical, hands-on, cooking skills rather than a focus on food technology.
- flexible community-based cooking skills courses are implemented at a national level, with ability to tailor to audiences. These should incorporate the key components for effectiveness identified in this chapter.
- community-based cooking skills courses should be evaluated to determine their impact on food security.

Problem Definition

Food security encompasses having sufficient food that is nutritious, safe, and acceptable. In order to achieve this, some cooking skills are needed. There has been growing concern about an increasing lack of even the most basic cooking skills in both children and adults. This lack of skill leads to a reliance on processed and pre-prepared foods, and limits the use of some cheaper foods and ways of preparing meals. Stitt has called the growing lack of cooking skills the “deskilling process”, assisted by the removal of cooking skills from education systems in many countries and expansion of the processed foodstuffs market.¹ He notes that removing cooking skills from the education system will deprive low-income households of a means to afford a healthy diet. Others have stated that “it is essential that children are taught relevant food skills if they are to have the choice of eating a healthy diet”.²

Internationally, there is some evidence from cross-sectional studies and qualitative research of a relationship between lack of cooking skills and/or lack of knowledge and food insecurity (Table 1). Further, some participants in the ENHANCE focus groups expressed support for cooking skills training.³ In focus groups with low-income

families in the US, cooking on a budget was one of the preferred methods for nutrition education.³ It was also a preferred intervention by low-income young women from ethnic minority groups in the UK.⁴ Furthermore, organisations in New Zealand dealing with food insecurity also suggest a need for food insecure families to learn more about cooking and budgeting skills.^{4 5} The purpose of this chapter is therefore to assess the potential of cooking skills courses to improve food security for Māori, Pacific, and low-income whānau/families. However, it should be kept in mind that if there is insufficient money to purchase enough food, no amount of cooking skills can correct that.

Methods

A literature review was conducted in Scopus, Medline, HEHA Knowledge Library, Food Science and Technology Abstracts, and Index New Zealand for 'cooking skills', 'cooking', 'budgeting skills' or 'lifestyle skills' and course or class. The Agencies for Nutrition Action, Te Hotu Manawa Māori, and Feeding Our Futures intervention databases were also searched. No restrictions were placed on type of evidence, as many programme evaluations have not been published in journals.

Results

The original brief included budgeting and lifestyle skills, as well as cooking skills. No papers were identified which specifically addressed budgeting or lifestyle skills courses or training. However, budgeting skills are often included in cooking courses. Cooking skills courses tend to take a broad focus and also include topics such as nutrition and food safety. Due to the lack of research on budgeting skills training, this chapter focuses solely on cooking skills training.

Twenty-one studies or evaluation reports were identified which assessed the impact of cooking skills programmes (Table 2). One evaluation report was from New Zealand and assessed the Kai Lelei Food and Nutrition Course for Pacific communities.⁶ The remainder of studies were largely conducted in the US and UK. Fourteen studies were with adults,⁶⁻¹⁸ six were with children/youth,¹⁹⁻²⁴ and one was with both adults and youth.²⁵

No randomised controlled trials of cooking skills interventions were identified, and only two of the 21 studies had a control group.^{9 21} The evidence for cooking skills programmes was derived largely from evaluations and qualitative research. Outcomes were assessed predominantly by self-report. Only one study used an objective measure, measuring plate waste to assess consumption of targeted foods.²¹

International Context

There is a wide range of cooking skills courses in existence internationally, delivered either by non-government organisations or via government-funded programmes. Few have been evaluated in any way and even fewer have been evaluated using robust methods.

Feasibility

There has been little assessment of sustained behaviour change following attendance at cooking skills training. Three studies investigated whether changes were maintained post-intervention, one at six weeks¹¹ and the others at three and/or six months.^{17 18} All of these studies found at least some sustained improvements post-intervention, such as increased cooking confidence,¹⁸ increased number of people reporting cooking from scratch¹⁸, improved self-reported dietary choices or habits,^{11 17} and increased hand washing.¹⁷

There has been little investigation of the effect of cooking skills classes on food security. Only two studies examined the impact of a cooking skills class or nutrition education on food security. DeWolfe²⁶ found that the 42 participants who attended the Basic Shelf Experience cooking classes and completed the evaluation felt more confident in planning and preparing meals and reported positive changes in shopping; however, this did not translate into an improvement in food security when quantitatively assessed using the Radimer/Cornell scale. An evaluation of over 16,000 graduates of the Expanded Food and Nutrition Education Program found that as number of lessons attended increased, food security improved by a small amount.²⁷ Food security was assessed using one question asking how often participants ran out of food before the end of the month, and was measured on a 5-point Likert scale. After controlling for confounding variables, food security scores of participants who graduated from the programme had improved 0.20 points ($p < 0.001$) more than participants who terminated the programme early.

Sustainability

There were some examples in the literature of cooking skills classes that have been running for some time; however, issues related to sustainability were not specifically addressed. There is no reason, given adequate and ongoing resourcing and responsiveness to community need, that cooking skills training would not be sustainable.

There are two common approaches to cooking skills training. One is a community-based approach targeted at high-risk families, and another is a population-based approach taught through school curricula. While both are sustainable, given adequate funding and resourcing, changing school curricula requires a greater level of structural change.

Effect on equity

People who are constrained in their food choices by budget, time, resources or availability of food would potentially have most to gain from good cooking skills. Cooking skills courses in the literature tend to be targeted at low-income or high-need communities, school children, or at special groups such as young, pregnant mothers. If cooking skills classes continue to be appropriately targeted, their effect on equity is likely to be positive. To achieve this, consideration needs to be given to factors such as location and timing of the courses, transport, childcare, and appropriateness of the course to the target group. Participants must also have access to adequate facilities at home to be able to cook successfully, eg, pots/pans, refrigerator, hob.^{28 29}

Acceptability to stakeholders

When asked, participants were largely positive about the cooking skills course they had attended. Cooking classes with published evaluations have been well-received by participants, where this has been assessed.^{6 7 10 20 23}

Focus groups were conducted with young women from ethnic minority groups in low-income areas in London to assess the factors that affected their food choices.³⁰ The concept of cooking skills training was popular with participants. Thus, it appears likely to be an acceptable intervention.

Key components for effectiveness

A variety of factors have contributed to the success of cooking classes, and are key components to consider in developing such an initiative.

The Sisters in Health programme found experiential learning, facilitated group discussions, a positive social setting and social support were important.⁹ The

programme was developed based on formative research, which led to the following elements being incorporated into the programme: tasting new foods; food presented in a positive social setting; pretesting of recipes; hands-on food preparation; modelling by peers; self-assessment and planning; group selection of topics; talkback sessions; take-home challenges; incentives to reinforce skill practice; active group learning; positive social interaction; warm-up activities; series of meetings to build cohesion; family-friendly foods; leftovers taken home; and use of regionally and seasonally available foods.

Exploratory research to develop a cooking skills course in the UK found that the course would need to address widely varying needs due to the range of cooking skills and experiences participants start with.¹⁶ The research suggested the courses should incorporate healthy cooking skills in a way that engages with participants' lives, cooking on a budget, and the use of everyday ingredients. Small groups were run in familiar surroundings to build participant confidence, usually by a local facilitator.

Students attending an after-school 'Food Club' for 12-13 year olds in the UK were attracted to it because they wanted to learn how to cook or to have something to do after school.²⁰ They liked the fact that the club was fun, informal, hands-on, and was with friends from school. Having the ingredients and food containers provided for free was generally seen as positive and an advantage. Having to clean up afterwards was disliked, and some of the dishes cooked were unpopular, suggesting benefit in a participatory approach to selecting recipes.

The social aspect and informality also appealed to pregnant, teenage mothers attending a cooking skills course. Favourable aspects reported were the ability to bring a friend, the relaxed atmosphere, restricting the group to teenagers, and provision of free food.²³

Evaluation of the Cook It! course in the UK also found the social aspect of the course was very important to its success.⁸ Suggestions to improve the course included having a refresher course, celebrating participants' achievements at the end of the course, and allowing participants to suggest topics, amongst other things.

A workshop in the UK of people involved in running or setting up cooking classes identified the following factors as important to success:³¹

- provision of a crèche, and transport if possible
- use of venues with the appropriate equipment
- course content which is relevant and taught in a 'hands-on' way
- use of local tutors
- course content as influenced from the 'bottom up' as the 'top down'
- entertaining as well as educational courses
- utilising the skills and experience of participants
- courses that are a positive experience for participants
- recipes and techniques which can be replicated in participants' own homes
- the role of intermediaries in identifying and encouraging participation should be recognised and utilised, and
- linkage of courses with existing initiatives.

Some of these findings were echoed in focus groups with low-income young women in London who were supportive of cooking classes but felt that free food would be needed as an incentive to attend, the venue needed to be easily accessible, a crèche needed to be provided, and classes run at appropriate times in relation to childcare and other domestic duties.³⁰

Community cooking classes in Canada aimed at older men noted the specific focus on men, an accessible and community-based setting, involvement of a nutrition professional taking the classes, evolving the programme based on input from participants, and the social component were important factors in its success.³²

Potential side effects

There are no obvious adverse potential side effects identified in the literature from cooking skills training; however, there is a range of potential positive side effects such as improved food hygiene, healthier eating for the family, and improved community support and cohesion.

Cost-benefit analysis

Cost-benefit analyses have been conducted for two government-funded nutrition education classes in the US, which are offered as part of the Expanded Food and Nutrition Education Program. The cost-benefit ratio of the programme in Virginia in 1996 was \$1:\$10.64, whereas in Oregon in 2000 it was calculated as \$1:\$3.63. The Virginia analysis used programme costs compared with the benefits of disease prevention. The Oregon analysis was based on programme costs and optimal nutrition behaviours in relation to potential health savings from diet-related chronic disease.

Other studies have calculated the cost per participant for cooking skills training. These estimates have been £9.40/student/session in 2000,²⁰ US\$22 per participant (2002);¹³ US\$52,000 to implement a programme for 590 students (excluding programme development) in 1996;²¹ and £16-30 per person/session depending on whether equipment needed to be purchased.¹⁸

National Context

Feasibility

There is a variety of local cooking and/or lifestyle skills initiatives existing around New Zealand. Table 3 shows details of an environmental scan of cooking skills courses available in New Zealand. This is not intended to be a complete list of all courses, but rather to give an indication of the variety of interventions that exist. Few have been evaluated, and they are largely local projects. Only one evaluation was identified, and this was of the Kai Lelei healthy eating and cooking course for Pacific communities. Results of the evaluation showed an improvement in knowledge of serving sizes and food safety.⁶ Targeting the intervention to Pacific people through churches was effective; however, it was felt the active support of church leaders would ensure greater attendance and may be important for sustainability.⁶

Sustainability

Sustainability will depend to a large extent on adequate and ongoing resourcing of the programme. Funding of existing cooking skills courses in New Zealand appears to be largely *ad hoc*, through Primary Health Organisations, District Health Boards, food banks, Healthy Eating Healthy Action, the Diabetes Projects Trust, and community groups such as Age Concern, Salvation Army, and churches. If a cooking skills programme is to be part of a programme of interventions to address food security, then funding needs to be sustainable and secure. Long-term commitment to such a programme through Primary Health Organisations and District Health Boards or a government agency seems most appropriate. Funding of cooking skills programmes should also include a component for evaluation.

The need for ongoing support in the community has been highlighted by developers of the Pataka Kai train-the-trainer cooking skills course in Rotorua.³³ Structures need to be in place to ensure trainers have support once their initial training is completed. The original course in Australia that Pataka Kai is based on is a community-based project with backing from social services, who provide ongoing support to trainers.

Effect on equity and acceptability to stakeholders

Cooking and lifestyle skills courses were identified as a popular option to enhance food security amongst attendees at the ENHANCE workshops in an earlier phase of this research. Participants represented a wide range of health-related organisations. Most favoured such interventions to be run through schools. Focus groups with Māori, Pacific and low-income groups identified a strong need and recommendation for community cooking classes, along with the desire to learn more about healthy food and cooking.³ Participants recognised a lack of knowledge and skills in areas such as healthy food and how to prepare it, portion size, nutrition labels, cooking, nutrition and budgeting. Rural Māori identified that lack of cooking skills prevented them from eating the food needed for a healthy life. Participants in the Māori focus groups suggested cooking classes, demonstrations plus tastings, information on how to shop properly, and how to get a balance of meat and vegetables when making meals. They favoured education on marae or in other Māori settings to encourage and support Māori communities to eat healthily. Tongan and low-income focus groups suggested free community cooking classes, and all the Tongan participants agreed they would like to attend such classes. Samoan and Māori groups wanted to learn more about nutrition and cooking. The Samoan group also thought that budgeting sessions run in the community would be beneficial. Therefore, a cooking skills intervention could be considered highly acceptable to those stakeholders consulted. Furthermore, evaluation of the Kai Lelei course showed it was well-liked, and was rated excellent by many participants. Key informants in a recent report for the Obesity Action Coalition on food security for Pacific peoples in New Zealand also identified a need for practical cooking demonstrations or tasting sessions to address food security for Pacific peoples.³⁴

In the 1990s four community nutrition programmes for Māori were developed and run in different areas in New Zealand.³⁵ They were based on a train-the-trainer concept, and aimed at developing basic food and nutrition skills in Māori community workers. The programmes included cooking skills and budgeting training. The programmes took a strong community-development approach and created a sense of ownership, empowerment and involvement. The programmes led to changes in the type of food available on marae, in Kōhanga Reo, Māori organisations, and in whānau; reduced consumption of fat, sugar, and salt; and greater consumption of salads and water. Programmes such as these demonstrate the positive impact on equity and acceptability to stakeholders that community-based initiatives, such as cooking skills courses, can have.

Key components for effectiveness

The key components that would make such an intervention successful should be determined based on extensive consultation with the communities targeted³⁵ and findings from the international literature and ENHANCE focus groups. It should use appropriate methods to deliver information for the target groups.³⁵ Evaluation of cooking skills programmes will allow further identification of the key components for effectiveness, and should be an integral part of the programme plan. Robust evaluation of objectively measured cooking skills and food security outcomes are needed.

A review of initiatives to improve the health of communities for the Ministry of Health identified that the key determinants of an effective community-based programme were:³⁵

- agreement between parties on the need for intersectoral action
- support provided in the wider community, and
- capacity to conduct develop and implement the intervention

Nutrition programmes for Māori were particularly effective when they had the approval of the local Māori community, were run and developed by Māori using principles of tikanga Māori, and utilised existing Māori networks.³⁵

The most common format for cooking skills classes is a small group class once a week for approximately six weeks. They are often community-based, and use either a train-the-trainer approach or are led by nutrition professionals. Some classes are more participatory, where participants choose recipes and topics, and plan the meals they will cook. This format appears most effective. Cooking classes for children/youth were either taught during school time as part of the curriculum, or run as an after-school programme.

Potential side effects

The potential positive side-effects of such a course noted by attendees at workshops for the ENHANCE project included community capacity-building, connectiveness and social cohesion, and improved wellbeing for participants.

It was noted that if the classes were aimed at school-aged children, and the classes were run through schools, they could add to an already overloaded curriculum and further burden schools. There may also be some risk of increasing inequalities if the classes are not appropriate or acceptable to Māori or Pacific communities.

Cost-benefit analysis

No cost-benefit analyses were identified in New Zealand literature.

Conclusion

Although the evidence assessed is not high quality, it suggests cooking skills programmes have potential to influence diet. Their impact on food security is less certain. While cooking skills courses appear to improve practical skills, cooking confidence, and knowledge of healthy eating, there is not enough evidence to determine if they have a positive effect on food security. However, provided cooking skills programmes are developed and implemented with and for priority groups, they are likely to be acceptable to stakeholders and have a positive effect on equity.

Cooking skills classes should also be framed within the context of the true causes of food insecurity. Food insecurity is not primarily caused by a lack of individual cooking skills, but is mainly a problem of insufficient access to food and resources. Thus, cooking skills classes might help with issues of food insecurity, but they will not remove the cause. However, this research suggests they could be a valuable component of a multi-faceted and multi-level intervention to enhance food security for Māori, Pacific and low-income families/whānau. Thus, cooking skills programmes need to be in the context of a comprehensive food security or nutrition policy and not a stand-alone solution.

There is a wide range of local cooking interventions either being developed or already running. Building on the more successful examples, with proper evaluation to refine and enhance the programmes, and adequate resourcing for wider implementation is recommended.

Community consultation on this cooking skills chapter of the ENHANCE portfolio raised or reinforced the following points:

- Food security is a sensitive issue for Pacific people, and they will not step forward and identify themselves as food insecure. Therefore, cooking skills interventions must be accessible to all and not require referral based on being food insecure.
- Cooking skills courses must be part of a range of multi-level interventions aimed at improving food security.
- It is important to target younger generations through the school curriculum. Cooking at school should focus on preparing healthy affordable meals, rather than, for example, baking. There is a need to advocate for cooking skills training to the Education sector.
- It would be optimal to instigate a 'complete package' at schools where students grow fruit and vegetables in school gardens, then prepare them in cooking classes.
- Cooking skills courses should also incorporate aspects of social learning, so that participants can learn from each other. They should also incorporate shopping skills, budgeting skills, recipe modification, portion sizes and quantities.
- There is a need to build on current interventions, and deliver courses through local community members who are accepted by the target community.
- There are currently very limited resources to implement initiatives such as these.

Recommendations

Cooking skills are an important life skill and a means of preparing affordable, healthy foods. Cooking skills interventions could, thus, be a positive means of reducing a potential barrier to food security. There is a wide range of cooking skills courses on offer in New Zealand, and it is recommended that existing courses are trialled and evaluated for more comprehensive implementation. Specific recommendations are that:

- Practical cooking skills are taught in schools, with a focus on preparing affordable healthy meals (for example, the NZQA standard to 'provide nutritious low cost food for a family'). The focus in the curriculum should be on practical, hands-on, cooking skills rather than a focus on food technology.
- Flexible community-based cooking skills courses are implemented at a national level, with ability to tailor to audiences. These should incorporate the key components for effectiveness identified in this chapter.
- Community-based cooking skills courses should be evaluated to determine their impact on food security.

There is a lack of evidence on budgeting skills interventions, and these should be trialled and evaluated to assess if they are an effective intervention to improve food security.

Enhancing Food Security and Physical Activity for Māori, Pacific and Low-income Peoples

Table 1: Literature summary – background/problem definition

Author	Setting and population	Design ³⁰	Sample size	Results
Babbington 2006 ²⁹	Wollongong, Sydney: Users of an Anglican food bank	Q	121	Lack of knowledge was one of the reasons given for struggling with food.
Birkett 2004 ³⁶	Convenience sample of WIC participants in urban and rural locations in Washington state, US	FG	41	Barriers to behaviour change included lack of knowledge. Participants identified cooking classes as one of the preferred methods of nutrition education.
Booth 2001 ³⁷		Review		Factors related to FI amongst refugees include poor understanding of English, unfamiliarity with foods and cooking methods, lack of social support and budgeting skills.
Broughton 2006 ³⁸	Vancouver: households in low-income neighbourhoods with a child aged 2-5 years	CSS	142	Households with less well equipped kitchens, poorer self-rated cooking skills, and less access to food of reasonable quality had higher odds of FI.
Dollahite 2003 ²⁷	New York, US: participants in the Expanded Food and Nutrition Education Program	E	16,146	FI decreased more in graduates of the program compared to terminators. Dose-response relationship between number of lessons received and decrease in FI. Being taught in a group reduced FI less than those taught individually.
Grutzmacher 2004 ³⁹	Rural, low-income, adult mothers	L, SDA	315	Mothers in food-secure households were significantly more likely to have food-related skills (ability to make a budget, manage bills, and stretch groceries to the end of the month) compared to mothers in food-insecure households in Wave One, but not Wave Two. Ability to make a budget predicted food insecurity in Wave Two. Note that there was a lot of missing data on food-related skills in Wave Two, and incomes had increased dramatically between Waves. There may also be some reverse causation, whereby those who are food insecure have a greater ability to make a budget because they have to.
Lawrence 2007 ³⁰	African and South Asian girls and young women (12-35 years) living in low-income areas in London and the south east of the UK	FG	33	Food choices were made based on culture, time available, availability of food, cost, and health. Cooking skills was identified as a possible intervention that appealed to most of the groups. They preferred participating in cooking culturally-specific foods rather than watching cooking demonstrations. Some felt offering an incentive of free food would be needed, and that the venue should be easily accessible, provide a crèche, and at appropriate times taking into account childcare and domestic responsibilities.
Olson 2004 ⁴⁰	14 US States: rural low-income families participating in a program for low-income groups. Participants had an	I	316	FI predicted by low level of food and financial skills (but note that 72% had the highest level of skill).

³⁰ Abbreviations: CSS cross sectional survey; E evaluation; FG focus group; I interviews; L longitudinal; FCS food cost survey; Q questionnaire; FS food security; FI food insecurity; GIS global information system mapping; SDA secondary data analysis

Enhancing Food Security and Physical Activity for Māori, Pacific and Low-income Peoples

Author	Setting and population	Design ³⁰	Sample size	Results
	annual household income ≤200% poverty line, and at least one child >12 years.			
Shankar 2008 ⁴¹	Low-income families attending a food bank in southeastern Georgia	Pilot study	151	Half of the participants reported they would be interested in learning how to budget money to buy food.

Table 2: Literature summary – Cooking/budgeting/lifestyle skills interventions

Author	Setting and population	Design ³¹	Sample size	Results
Action for Healthy Kids ²⁴	3,900 children at kindergarten and primary schools in low income areas in Santa Fe, US	E	3,100	Cooking With Kids is a hands on learning with fresh affordable foods from different cultures. Consists of an introductory class, five cooking classes, and five fruit and vegetable tasting lessons (16.5 hours over the school year). Special lunches are offered about twice a term in the school cafeteria. Evaluation shows that 88% of children liked the new foods they were introduced to, 71% of students chose the new meals on offer in the cafeteria for lunch, 78% of parents reported their children had shown more interest in healthy eating, 65% report now eating more fruit and vegetables at home, and 96% of families believed the cooking program had been valuable.
Beets 2007 ¹⁹	Pilot study with young adolescents	Pre- and post-E	17	Attended Culinary Camp for 4 hours/day for eight days. Culinary Camp was based on an experiential learning framework. Introductory session on food hygiene, followed by demonstrations of cooking techniques, and group based cooking sessions. Statistically significant increase in knowledge (effect size 0.42) and perceived cooking ability (effect size 0.52). There was a non-significant reduction in negative attitudes towards cooking (effect size 0.40) and improvement in self efficacy (0.33). However, there was no change in number of times participants had cooked in the past 7 days pre- to post-intervention.
Brown 2005 ²⁵	Youth and adults. Run by the Oklahoma Cooperative Extension Service	Q, Pre- and post-E	602 youth, (229 adults)	Fruit and vegetable cooking classes which covered preparation methods, incorporating fruit and vegetables into meals, food safety, and nutrition. Designed to be used with youth or adults, and to be taught as either a cooking demonstration or practical cooking class. Statistically significant increase in number of fruit servings eaten per day (1.1 to 2.3 servings/day for youth and 1.5 to 2.1 servings/day for adults). Statistically significant increase in number of vegetable servings eaten per day (1.4 to 2.4 servings/day for youth and 2.1 to 2.7 servings/day for adults).
Chartered Institute of Environmental Health ⁷	Young mothers in a deprived ward in Anglesey, Wales	Q	5	A group of young mothers attended five two-hour classes in a community setting. Classes covered an introduction to the course, food safety, healthy eating, planning and budgeting, supermarket visit, and cooking a festive meal. After the course, all participants considered that their cooking ability had increased. All now considered that prepared food was more expensive to buy than home cooked food, and that take away food did not taste nicer than home cooked food. All considered the course to have been a positive experience.

³¹ Abbreviations: CSS Cross sectional survey; FG focus group; I interviews; L longitudinal; FCS food cost survey; Q questionnaire; FS food security; FI food insecurity; SDA secondary data analysis.

Enhancing Food Security and Physical Activity for Māori, Pacific and Low-income Peoples

Author	Setting and population	Design ³¹	Sample size	Results
Cook It! ⁸	Low income groups in the UK. Run by the Health Promotion Agency and Health Boards	E		Community based nutrition education programme for use with groups where “cost is a consideration”. Community tutors are trained to deliver the programme in their communities. The Cook It! Programme consists of six sessions covering healthy eating, food safety, and practical cooking sessions with tastings. It aims to increase understanding of healthy eating and how to do so on a limited budget, increase cooking skills and confidence in cooking, and encourage change in food shopping and eating patterns. Feedback from participants indicated skills had been gained, improvements in health made, and increased confidence in cooking.
Devine 2005 ⁹	Ethnically diverse, urban, low-income women in New York State who attended the Sisters in Health nutrition education program to increase fruit and vegetable consumption	Quasi-experimental pre-/post E	269	A flexible course of six 90-minute weekly meetings in groups of ~10 women. Facilitated by community nutrition paraprofessionals. Takes an active learning approach, where participants helped choose topics and recipes and shared skills. Post-intervention, the intervention group reported eating fruit and vegetables 1.6 more times per day than pre-intervention, and their intake increased 0.8 times/day compared with control group (p=.04).
Devine 2006 ¹⁰	Low-income adults in rural and urban communities in New York and Pennsylvania who had participated in the Expanded Food and Nutrition Education Program or Food Stamp Nutrition Education	I	18	Participants' perceptions of outcomes from community nutrition education programmes were positive and expressed improved awareness, attitudes, self-efficacy, skills and physical health, amongst other things.
DeWolfe 2003 ²⁶	Canada: participants in the Basic Shelf Experience programme to assist people on a low income to manage their food resources	Pre-/post-test E, FG	42	The Basic Shelf Experience is six weekly meetings where 5-10 participants planned, prepared and ate meals. Recipes were from The Basic Shelf Cookbook. Covered topics such as shopping, putting together a meal, eating out, and caring for self and others. Quantitative results showed no significant change in FS up to three months post-intervention. Qualitative results showed positive changes in shopping, planning and meal preparation and increased confidence. Still faced barriers of living in a rural area, limited transport, and insufficient money which impacted on FS.
Foley 1998 ¹¹	Low-income earners in the Great Southern Health Region of Western Australia who attended the Food Cent\$ project	E, Q, FG	612	The Food Cent\$ project provided practical budgeting, cooking and shopping skills (supermarket) development. It also trained advisers to run Food Cent\$ sessions. 612 attended at least one of the sessions, and 150 of these were trained as advisers. 20% of those advisers went on to run at least one Food Cent\$ session. At 6 weeks post-intervention, 60% of advisers and 35% of attendees self-reported that they had made changes to their diet, and a slightly lower number reported making changes to their food spending. At 6 weeks, 21% increase in number of attendees reporting spreading margarine thinly, 17% increase in number who rarely ate lollies, and 25% increase in number who rarely bought cakes.
Food Net ⁴²	Community venues and schools in deprived areas of Birmingham, UK	E	459	
Food Standards Agency 2003 ¹⁸	Adults living in deprived households, UK	FG, Q, 24-hour diet recall		A transferable, community-based cooking skills programme called CookWell. Evaluation showed an increase from 2 to 3 portions of fruit/week, but this change was not sustained at six months. Increased confidence in cooking from a recipe, and increased percentage of people cooking from basic ingredients, which was sustained at six months. Cost of the programme per participant per session were £30 where equipment needed to be purchased, and £16 per person/session if no equipment needed to be purchased.
Hildebrand 2008 ¹²	Participants in the Oklahoma	Pre-/post- Q,	2,139	Significant improvement in shopping habits after 9-12 lessons, and again after 16 lessons or more (compared with 6 to 8 lessons and

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Author	Setting and population	Design ³¹	Sample size	Results
	Community Nutrition Education Program	SDA		13-15 lessons).
Hyland 2006 ²⁰	Deprived Year 7 pupils (11-12 year olds) in five secondary schools in the UK	FG, I	61 girls, 37 boys attended at least one class	Weekly after-school two-hour Food Club during the school year, focusing on practical cooking skills. Meals were cooked and taken home to eat with the family. Median attendance 12-16 students per school, and 44% attended more than 15 sessions. Most students positive about the overall course, liked having an after school activity, and the informality of the classes. Students reported small changes to eating habits (such as adding something new to their diet), increased awareness of healthy eating, and gaining a lot of practical skills. Cost of consumables was £1.40 per student/session, and with salary costs was £8/student/session.
Keller 2004 ³²	Senior men in Ontario, Canada attending a community-based cooking skills course	E (Q, I)	19	A community organisation model was used to develop the course. The group met once a month for eight months to cook and eat a meal. Sessions lasted around two hours and were conducted by a dietitian. Group members had input into direction and design of the sessions. There was a CDN\$10 charge for each session. The main reasons for men joining the group were to develop cooking skills, to socialise, and for general learning and mental stimulation. Participants reported developing multiple skills over the course: such as reading recipes (84%) food hygiene (90%), including more healthy foods (84%), and making main dishes (53%). Men also valued the social aspect of the group. Confidence in cooking increased 0.28 on a 5-point Likert scale from baseline to follow-up, and reporting good cooking skills increased 0.25. 90% of the men interviewed planned to continue with the group the next year. They felt the nutrition knowledge of the dietitian was essential to the group's success. Negative aspects were the facilities and equipment available for use.
Levy 2004 ¹³	First-year university students at Colorado State University attending either a cooking demonstration or cooking classes	Pre-/post-test Q	65	Four 2-hour hands-on cooking classes and a supermarket tour. Food cost for cooking classes US\$22 per participant (2002). Very small or no between group and pre-/post- mean changes on a Likert Scale, which tended to slightly favour the cooking classes intervention. Small increase in confidence in cooking in both groups, with a statistically significant improvement in cooking classes group. No differences in behaviour.
Liquori 1998 ²¹	Urban, low-income, elementary school children in Central Harlem, New York	Pre-/post-intervention 2 x 2 factorial design	39 classes with 590 students	Programme designed to increase consumption of whole grains and vegetables, through activities in the classroom, providing the foods in the cafeteria, and parent involvement (through workshops, recipes sent home, newsletters). Cooking classes (Cookshop program) and food and nutrition education lessons most effective for nutrition education of younger children. Classes were allocated to receive either 10 cooking classes and/or 10 food and environment lessons or to be a control group. Post-intervention, classes that participated in the cooking classes had a higher mean food preference for plant foods score than classes that did not participate in cooking classes. Both cooking classes and food and nutrition education had a positive effect on knowledge, however cooking classes had a much greater effect than food and nutrition education for older students. The cooking classes improved self efficacy in cooking for older children. Behavioural intentions to eat plant foods were higher in the younger classes that attended cooking skills. Estimation of plate waste showed that children participating in both the cooking classes plus food and nutrition education left the least amount of targeted foods on the plate. The cost of implementation (excluding programme development) was US\$52,000 in 1996.
Marinerway Consulting ⁶	Kai Lelei Food and Nutrition Course for Pacific Communities	Pre-/post-test, survey, I	313 with a 55-63% response rate	The Kai Lelei course was implemented as part of a Counties Manukau District Health Board funded healthy lifestyles program in 50 Pacific churches in South Auckland. The one-day course covers health and wellbeing, healthy lifestyles, aerobics, healthier eating, menu planning and food labels, food safety, and a cooking demonstration. Pre-test showed low initial levels of awareness related to serving sizes and food safety. Post test results generally improved across all seven sessions (3-15% increase in respondents answering correctly). Most respondents felt the sessions were highly useful and informative and the majority reported being very or extremely likely to make lifestyle changes.

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Author	Setting and population	Design ³¹	Sample size	Results
Rajgopal 2002 ¹⁴	Adults who had participated in the Virginia Expanded Food and Nutrition Education Program (EFNEP) during 1996 (for limited resource families)	Retrospective cost benefit analysis	3,100	Cost-benefit ratio of the programme in Virginia is \$1:\$10.64, based on the total cost of the programme in Virginia in 1996 compared to total benefits (direct and indirect intangible). Sensitivity analyses estimated a range of cost-benefit ratios from \$1:\$2.66 to \$1:\$17.04 depending on assumptions made.
Schuster 2003 ¹⁵	Adult graduates of Oregon State University's Expanded Food and Nutrition Education Program from 1999-2000 (for low-income adults with young children)	Cost benefit analysis	368	The EFNEP is a series of nutrition education lessons (~10) taught in small groups. Cost benefit ratio of program costs to possible health care savings of the EFNEP programme in Oregon in 1999 dollars was \$1:\$3.63.
Stead 2004 ¹⁶	Potential Cookwell course participants from disadvantaged communities in Scotland	FG	16	Exploratory qualitative research to inform development of the Cookwell community-based food skills initiative. Participants were either confident (¼), basic but fearful (½), or "useless" (¼) in their self-reported cooking skills. Cooking from scratch, following a recipe, and perceived inability to cook properly were areas where participants particularly lacked confidence or skills. Popular potential topics were cooking sauces, budget cooking, and soup; and moderately popular topics were basics of cooking rice and pasta, casseroles and stews, cakes and cooking for children. Learning about healthy cooking received a mixed response with some wanting it and others not.
Swindle 2007 ¹⁷	Low-resource adults in metropolitan Denver area	L	53	Operation Frontline/Eating Right provides a six-week hands-on cooking class and nutrition education taught by volunteer nutritionists and chefs. Food is prepared in class, and groceries are provided to take home that tie in with the class. At the next class, they discuss what was prepared with the groceries at home and how. Behaviour changes, such as shopping behaviour, eating breakfast and washing hands, made during the course were maintained at 3 and 6 months post-intervention.
Thonney 2006 ²²	9-14 year old students (US)		128	"Cooking up Fun!" is an integrated nutrition and youth development informal after-school programme. Two adults work with a group of 6-8 students to plan and facilitate practical cooking sessions and discuss food. Skill-building activities are conducted covering reading recipes and labels, food safety, food science, and nutrition. Simple and low-cost recipes are used. Sessions last approximately 1½ hours. Evaluation of the pilot project in 2002 showed gains in skills, knowledge and behaviour related to food preparation. Facilitators reported challenges with access to facilities and program structures, which were overcome by gaining the trust of site managers. http://www.cookingupfun.cornell.edu/
Wrieden 2003 ²³	9-15 year old students who were pregnant	Pre-/post-test Q, I	16	Midwives in a community setting deliver seven informal food preparation sessions once a week. Covered nutrition, food safety, and practical ways to make low-cost meals. Free food, transport, and vouchers were provided. Only 16 out of the 120 invited attended any of the classes, and only three post-intervention interviews completed. Midwives reported the package was easy to follow and use. Participants were happy with the content and structure, liked being able to bring a friend, the informal atmosphere, only having teenagers in the group, and free food.

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Table 3: Environmental scan

Name	Setting and population	Run by	Contents
Balance ME	Taranaki	Maanaki Oranga Ltd in collaboration with PHOs and Taranaki DHB	Pilot of five and a half hour workshops on nutrition, budgeting, cooking, behaviour, and healthy communities. Based on an Australian programme called Parental Guidance Resource
Budget Blitz	Economically disadvantaged people in Christchurch	Christchurch Methodist Mission	A 6-week course for one morning per week teaching budgeting in a fun and practical way.
Certificate in Pacific Nutrition	New Zealand	Pacific Islands Heartbeat	Train-the-trainer course of three 3-day blocks covering food and nutrition guidelines, cooking skills, food safety, food costs, and promoting healthy lifestyles.
Cook for Less	Taranaki	Cook for Less Non-profit organisation, Taranaki District Health Board	Community based course on nutrition and basic cooking skills for low-socio economic groups.
Eat Well, Live Well ⁴³	Older people in Auckland	Age Concern North Shore	Five sessions of 2½ hours each which cover nutrition, how to shop, cooking for one, food safety and food demonstrations. Run by peer facilitators.
Everyday Meal and Snack Ideas	New Zealand	Family & Community Services (MSD) and Lets Beat Diabetes	Booklet on healthy eating, shopping tips, meal planning, and recipes.
Get Cooking	Waikato	Waikato Primary Health PHO	A series of six hands-on workshops covering healthy eating, shopping and cooking, with locally trained leaders.
Healthy Cooking on a Budget	Train the trainer programme in Auckland for vulnerable or at-risk populations	Diabetes Projects Trust	
Healthy eating GOOD FOOD ⁴⁴	CTV viewers in the South Island	Community and Public Health, Canterbury District Health Board	A healthy eating TV series on CTV showing healthy cooking demonstrations and delivering health messages.
Healthy Eating, Healthy Cooking	Faith Family Baptist Church in Panmure, Auckland	Faith Family Baptist Church	Teaches the benefits of home-grown food and how to prepare and cook healthy meals
Kool Kitchen ⁴⁵	Kids' Hamilton East Primary School	HEHA District Coordinator	Kitchen redevelopment for school class-based learning, and for out-of-school parent and community cooking skills training.
NZQA	Food technology and nutrition: home and life sciences	Accredited providers and industry training	NZQA have a Level 2 unit standard for providing nutritious low cost food for a family. People who achieve this unit standard should be able to describe, plan and prepare healthy low-cost meals for a family.

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Name	Setting and population	Run by	Contents
		organisations	
Pataka Kai	Rotorua	Waiariki Institute of Technology and Rotorua PHO	Based on the Community Foodies programme in Adelaide, Australia. A structured train-the-trainer programme which will teach skills for shopping and cooking nutritious food, taking into consideration budget restraints and available equipment and utensils. Participants will then teach the skills in their community. They will be mentored for two years after completion of the course. The aim is for 14 participants to complete the course at Waiariki Institute of Technology by the end of the year. A community funded programme.
Quick Easy Healthy Eating	New Zealand	Community & Public Health, Canterbury DHB	A booklet of low cost recipes using canned fish, potatoes, beans, rice and pasta.
SAGES	New Zealand	Family & Community Services (MSD)	A \$1.1 million/year scheme contracting 17 non-government organisations to provide mentoring to families in practical household management strategies such as basic cooking and budgeting.
Salvation Army	New Zealand	Salvation Army	Eight week cooking course. Attendance required if staying at Salvation Army transitional housing.
Smart Foods	Economically disadvantaged people in Christchurch	Christchurch Methodist Mission	A 7-week cooking course for one morning per week covering reading and understanding recipes, basic nutrition, cooking within a budget.
SuperGrans	Christchurch	Volunteers	Individual mentoring in cooking and budgeting, household management, and setting up a home garden. Run a Smart Food Cents course which consists of 2½ hour classes three mornings a week for four weeks and covers healthy, economical meal preparation. They also run a Stretchin' Your \$ course of 1½ hours/week for six weeks covering how to budget and saving money at the supermarket.
Te Hotu Māori Kai Totikame Whakapakari Tinana ⁴⁶	New Zealand	Te Hotu Manawa Māori	Train-the-trainer nutrition and physical activity course which includes sections on cooking and budgeting. Evaluation of the service has shown that trainees develop a very good basic understanding of nutrition, they have the skills to promote change, and are using these skills in their communities to improve nutrition for Māori once the course is completed.
The Great Little Cookbook	New Zealand, http://www.workandincome.govt.nz/documents/cookbook.pdf	Nelson Marlborough DHB, West Coast DHB, and WINZ Nelson	Hints on healthy eating on a tight budget, menu plans, and recipes.
Watties Project Cook	Year 7 and 8 students at school	Watties	A survey of 249 adults and 439 8-14 year old children found limited cooking skills. The only cooking that children regularly do is making breakfast or a sandwich. Children wanted to learn more about cooking and become involved in food preparation, with interest peaking at around 10-11 years of age. 95% of parents responded positively to a potential cooking and nutrition programme for their children, as did 94% of 9-12 year olds. Project Cook was developed as an intermediated-aged school-based programme covering ingredients, food chemistry, cooking and nutrition. A teaching resource for us in the Technology curriculum was distributed to 1,600 schools.

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3.2 Iwi pan tribal development of traditional Māori food sources

Christina McKerchar and Craig Heta

Summary

Workshop participants suggested 'increasing iwi and other pan-tribal investment/ economic development in traditional Māori food sources/supply as a possible intervention to enhance food security for Māori.

Economic development can potentially impact in two ways:

1. Increase food supply e.g Mātaitai reserves, community gardens
2. Creation of jobs: e.g aquaculture, horticulture

The role of Iwi/Pan Tribal Organisations in enhancing food security for Māori through the development of traditional Māori food sources is an area for future consideration and research as it offers some potential for culturally specific interventions.

It is recommended that:

- funding is allocated to research into the role of iwi and pan tribal organisations in food security and economic development through the development of traditional Māori food sources,
- the Crown engages with iwi and pan tribal organisations about how development of traditional food-related projects can be supported,
- iwi and pan tribal organisations further investigate opportunities to develop traditional food-related projects to enhance food security and economic development.

Problem definition

Participants at the Māori specific workshops suggested increasing iwi and other pan-tribal investment in traditional Māori food sources as a possible intervention, and economic development through the development of traditional Māori food sources. Māori have reduced access to traditional foods compared with pre-European times. The colonisation of New Zealand resulted in loss of Māori land with which to grow or gather both traditional and modern foods, as well as loss of an economic base; whilst pollution and over-fishing have depleted seafood stocks.¹ There may also be a loss of traditional food-gathering skills.² This chapter looks at iwi/pan tribal development of traditional Māori food sources to promote food security and economic development.

Iwi economic development in traditional food sources

In pre-European times, food was gathered from the bush, the sea and the rivers. Time and energy were expended to secure a safe, year-long food supply. Food was acknowledged as coming from atua (gods) and many different tikanga (customs) were established governing how different foods were collected, cultivated, stored, prepared and cooked.^{3 4 5 6}

In the years following European settlement, land loss through legislation and war meant the loss of traditional food-gathering places. Land being cleared for farming and increased pollution due to industry also impacted on Māori traditional food-gathering sites. The loss of these traditional food-gathering sites or mahinga kai was one important part of the Ngāi Tahu claim to the Waitangi Tribunal.⁷

There are two possible ways iwi economic development in traditional food sources could impact on household food security for Māori. The first way is through directly increasing food availability to households, for example, through mātaimai reserves or community gardens. The second is through increasing income available to households through economic development and the creation of jobs. Aquaculture and horticulture are examples of this.

Mātaimai reserves

Currently many iwi are working to re-establish their traditional food-gathering practices and reinforce their role as kaitiaki or carers of the environment. One example of this is the establishment of mātaimai reserves to preserve the marine environment and enable fish and shellfish stocks to re-establish. Mātaimai reserves were created under the 1996 Fisheries Act and designed to give effect to the obligations stated in the Treaty of Waitangi Fisheries Claims Settlement Act 1992 to develop policies to help recognise use and management practices of Māori in the exercise of non-commercial fishing rights.⁸ Currently there are now six Ngai Tahu mātaimai around the South Island, with another two expected to be finalised soon.⁹ There are a further five mātaimai reserves in the North Island, in Aotea Harbour, Mt Maunganui/Tauranga Harbour, Raukokere on the East Cape, and two at Moremore in Hawkes Bay.¹⁰

It is hoped by iwi that fish, shellfish, and eel stocks will replenish enough to recreate the flourishing food baskets once enjoyed. In order to establish and manage the mātaimai, iwi are working with a number of partners including the National Institute of Water and Atmospheric Research (NIWA), Department of Conservation, city councils, Ministry of Fisheries, and Otago University.⁹

Community Gardens

Many iwi and pan-tribal Māori organisations are also establishing gardening projects to enable people access to low-cost vegetables and fruit. One example is the Wai Ora Trust in Christchurch which has community garden plots available for community groups to grow and harvest their own vegetables.¹¹ The expansion of the gardens to include 'community garden plots' came about after a successful application to the Canterbury District Health Board via its Healthy Eating Healthy Action programme.

Aquaculture

Aquaculture development is relevant to Māori for a number of reasons.

- New legislation for aquaculture development is being implemented.
- An allocation of aquaculture assets will be made to iwi.
- Many iwi are being allocated fishing assets which are complementary to aquaculture assets.
- Aquaculture, if appropriately developed, can be consistent with kaitiakitanga (guardianship).

Aquaculture development has special relevance to Māori because of the allocation of aquaculture space to coastal iwi. The equivalent of 20 percent of all aquaculture space created between September 1992 and December 2004, under the previous legislation, must be allocated to those coastal iwi recognised in the Māori Fisheries Act 2004. Any new space created after the aquaculture reforms will automatically have 20 percent allocated to iwi.¹²

As well as the development of aquaculture in the coastal marine area, iwi are also involved in land-based aquaculture. As an example of development in this area, the Hongoeka Development Trust is working with NIWA on a land-based polyculture for local Māori in Plimmerton. Polyculture is the concept of growing two or more complementary species together, as opposed to aquaculture which involves the propagation and rearing of a single aquatic species. The joint project has enabled the local iwi to investigate a low-cost way for coastal Māori to engage in land-based polyculture. To date the primary species grown in Plimmerton have been paua and karengo (edible seaweed). Once the facility is established, NIWA and the Hongoeka Development Trust plan to run a training course at Plimmerton.

Horticulture

Traditionally, gardening played an important role in providing Māori with cultivated vegetables, namely, kumara, uwhi (yams), taro and hue (gourds). Europeans introduced many new food crops, significantly, the potato which was grown both for food and for trading with settlers.⁶

Massey University, together with the Māori grower collective, are currently investigating the place of taewa (Māori potatoes) in future Māori economic development. The resurgence of taewa is partly due to burgeoning interest in indigenous food, nationally and internationally; the interest from Māori growers themselves; and the potential to restore or build on a body of knowledge currently held by Māori horticulturists.¹⁴

Conclusion

The role of iwi/pan tribal organisations in enhancing food security for Māori through the development of traditional Māori food sources is an area for future consideration and research by iwi/pan tribal organisations and the Crown. This paper suggests that it offers potential to enhance food security and economic development for Māori.

Recommendations

It is recommended that:

- funding is allocated to research into the role of iwi and pan tribal organisations in food security and economic development through the development of traditional Māori food sources,
- the Crown engages with iwi and pan tribal organisations about how development of traditional food-related projects can be supported,
- iwi and pan tribal organisations further investigate opportunities to develop traditional food-related projects to enhance food security and economic development.

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3.3 Community markets, community gardens, and improving access to food

Delvina Gorton

Summary

There has been little assessment of the impact of community gardens on food security, however they are well-liked by gardeners who use them. They also have a positive effect on fruit and vegetable consumption and provide social benefits to users, and may be a particularly appealing intervention to Māori. Their development and use should be supported where there is community demand. Community markets and farmers' markets have potential to reach a larger audience than community gardens, and also provide social benefits. However, in order to improve access to affordable produce in low-income areas the markets must be appropriately located, operate at suitable times, be appropriately targeted, and accessible. Implementation of community markets in low-income areas merits strong consideration. Alternative options for households with limited transport options is to have fresh produce delivered to consumers, or a supermarket shuttle. Robust research and evaluation of interventions is necessary to determine the impact of such initiatives on food security.

Specific recommendations are to:

- support community gardens where there is community demand for them. Alongside this, evaluation or research should be conducted to determine their true impact on food security and nutrition
- trial and evaluate community/farmers' markets in low-income areas, along with consideration of suitable transport options to attend markets
- conduct economic analyses of supermarkets providing shuttles in low-income areas
- consider subsidised fruit and vegetable delivery boxes or mobile vendors as an alternative in some areas if a community market is not feasible.

Problem Definition

This chapter briefly addresses the broad and inter-related topics of community markets and gardens, access to food supply, and transport. The commonality between these topics is the desire to make access to affordable, healthy food easier for Māori, Pacific, and low-income families. In the past, food security was considered primarily a problem of general food availability, and focus was traditionally on the supply of food at a national level.^{1,2} Since the early 1980s, however, food security in developed countries has been considered an issue related principally to individual access to food, which can be physical or economic in nature. Within the context of this chapter, access is considered in relation to physical access to healthy food, that is, the range and quality of food available within easy reach. The topics considered are community gardens, farmers' or community markets, and access or transport initiatives.

Methods

A brief review of the literature on community gardens, farmers' markets, access + food security, and transport + food security was conducted in Scopus, alongside the author's existing collection of papers on the topics and dissertation identifying the environmental influences on food security.

Results: Community gardens

Use locally and internationally

Community gardens are shared local gardens where members of a community can grow fresh produce. Community gardens are increasing in number, both internationally and locally, as a way to improve food security. Community gardens are not a novel idea and have been in existence since the turn of the 20th century.³ They are popular in the United States, Canada, and in the United Kingdom, where low-income or urban neighbourhoods may not have individual land on which to establish gardens.^{4,5} In British Columbia, Canada there are more than 170 community gardens.⁶ The city of Montreal in Canada has 97 community gardens, approximately 8,200 plots, and more than 10,000 people gardening at them. In the US, a 1998 estimate was of ~6,000 active community gardens used by more than two million gardeners.⁷ This year, the National Trust in the UK pledged to create 1,000 new community gardens over the next three years,⁸ and they have more than 100,000 people on waiting lists to join one. It is estimated these community gardens could grow the equivalent of 2.6 million lettuces or 50,000 sacks of potatoes, with a value of up to £1.5 million each year.

Community gardens have not traditionally been a common feature in New Zealand, where home gardens have a stronger heritage. However, the growth of in-fill housing and apartments has meant that less land is now available for home gardens. As well as limited land availability, home gardens can be expensive to set up, and require a certain level of skill to successfully manage them.⁹ They also do not provide the social connectedness often experienced in community gardens. There appears to be a growing interest in community gardens to improve both food security and health, and they are being implemented on a small scale by local health promoters.¹⁰ However, evaluation of such initiatives is currently sparse or difficult to access.

Evidence of effectiveness

Participants in a community gardening project in the US noted reduced household food spending and increased confidence in cooking.¹¹ Home and community gardens have been used by Navajo nations in the US to address nutrition and food security issues.¹² The gardens provided many benefits such as providing fresh, locally grown food; increasing physical activity through gardening; savings in food expenditure; and creating a positive mental outlook. Furthermore, a random phone survey of people living in Michigan (n=766) identified that people who utilise community gardens (n=115) ate fruit and vegetables 1.4 times more in a day, and were 3.5 times more likely to eat fruit and vegetables greater than five times in a day compared with respondents who did not use community gardens.¹³

Sustainability

As has been mentioned, community gardens have a long heritage in some countries. Thus, they are likely to be a sustainable intervention if developed and managed

appropriately. Some of the factors that can impact on sustainability were identified in a case study of community gardens in Toronto. It found that gardeners had concerns about insecure land tenure for the garden, and felt at the mercy of decision-makers who did not understand the value of the community garden.¹⁴ There were also some concerns expressed about personal safety (as some gardeners went there after dark) and the quality of the soil, with some gardeners concerned that it was contaminated from previous land use. The gardeners also felt that funding and in-kind support were fundamental to support infrastructure, but were usually lacking. Ongoing funding has also been mentioned as a key sustainability issue in a New Zealand evaluation of a school garden.¹⁵

Effect on equity

The impact of community gardens on food security has not been evaluated; therefore it is difficult to determine their possible effect on equity. However, gardening is seen by Māori as a culturally relevant response to food insecurity due to strong cultural and spiritual connections with the land.¹⁰ Furthermore, community gardens may be a means to reinvigorate and develop traditional Māori skills in working with the land.

Acceptability to stakeholders

Over 80 percent of participants in a nutrition education programme in the United States, who ran out of food by the end of each month, reported that they would like a garden where they could grow fresh produce.¹⁶ In the ENHANCE focus groups, all groups other than the Tongan group (who did not mention it) favoured gardening initiatives. However, acceptability and buy-in from individual communities should be determined before establishing community gardens.

Key components for effectiveness

A Healthy Garden pilot project was run in five Pacific early childhood centres in the Wellington region.¹⁵ Some of their learning points were to choose fertile locations for the garden, have a means of deterring pests, provide professional gardening help to assist in setting up the garden, and provide project workshops in participants' own language.

In California, seven cities received grants through the California Healthy Cities and Communities project for community gardens.³ They identified the key elements for success as commitment of local leadership and staff, involvement of volunteers and community partners, and skill-building for participants. Local leadership included staff, resources and funding. Community members who helped the gardens to succeed were residents, partner institutions (such as schools, health departments, and universities), and volunteers (such as businesses and civic associations). Skills-building was achieved through gardening workshops, developing leadership and programme planning skills. The lessons learnt from developing the community gardens were the importance of ongoing training, mentoring and leadership development for both gardeners and staff; using partnerships to build on successful community-based programmes; creating public awareness of the benefits of community gardens; and experiential work such as gardening classes and cooking.

A Canadian guide for local government to improve food access listed three areas where local governments can take action on community gardens.⁶ Firstly, land needs to be made available either through donations, grants, or unused public or private land. Community gardens need to be promoted and the public educated. They can be promoted through council websites and other public forums, and can be used as

demonstration sites for sustainable and environmentally-friendly gardening practices. Local councils also need to work in partnership with the community to support and encourage community gardens.

From experiences in Scotland, people involved with community gardens identified that to be successful the gardens must be meaningful, functional, accessible, and attractive, and need to create a feeling of ownership.¹⁷ The community, project partners, and funders need to be involved throughout the project from inception to ongoing management.

Potential side effects

Community gardens can have positive side effects such as empowerment, community development, and improved health and wellbeing. If the resources and opportunities for skill development are provided, and participants' have significant and meaningful control over resources and decision-making, participants can gain a real increase in social power and self-determination.⁷

Positive social and health outcomes were demonstrated by youth involved in community gardening projects in the US. Those involved in community gardens were more willing to eat nutritious food and try different foods, had a stronger appreciation for other individuals and cultures, and were more likely to cook and garden than youth not involved in the programme.¹⁸

Cost-benefit analysis

A US Department of Agriculture programme which funded 23 community gardens found that for every \$1 of funding, \$6 of food was produced through the garden.⁷

Results: Community and farmers' markets

Use locally and internationally

Farmers' markets are re-emerging in New Zealand and around the world, having previously been displaced by supermarkets in many countries.^{19 20} There are now around 40 official farmers' markets operating in New Zealand, and many more 'unofficial' markets (which are not part of Farmer's Market NZ Association) or community markets. Farmers' markets are places where local growers sell their produce direct to consumers. These differ to community markets, where fresh produce may be sold which is not necessarily locally grown or sold by the producer. Farmers' markets often operate as a premium or boutique supplier of produce, while community markets are often more cost-focused. To address food security, markets (either farmers or community markets) in low-income communities must be cost-focused. In the literature, the focus is on farmers' markets. The resurgence of interest in farmers' markets is led by increasing desire for local, sustainable food sources and the 'slow food' movement. They are often positioned as an alternative to the dominant food system.

Internationally, farmers' markets are on the increase. Britain now has more than 400,²⁰ and in the US there are over 4,600 farmers' markets.²¹ In British Columbia, Canada there are more than 100 farmers' markets ranging from large, sheltered public markets to a few farmers' trucks parked up in a specific location.⁶

Feasibility and sustainability

The growth of farmers' markets in New Zealand has to some extent been driven by producers seeking a sustainable means of selling their produce, as for many stallholders wholesale prices had been pushed below the cost of production.²⁰ Farmers' markets also cater to consumers who desire a more sustainable food system with less environmental impact than the dominant food system.

Effect on equity

The impact on equity depends on appropriate targeting towards affordable, quality produce rather than targeting the boutique/premium end of the market. Despite farmers' markets often having a boutique focus, 70 percent of stallholders at farmers' markets in New Zealand felt that their lower prices attracted customers.²⁰ A positive impact on equity also requires selecting sites and hours of operation appropriate to the target audience.²² Placing a premium farmers' market in a low-income area will not have a positive effect on access to food; however, placing a price-conscious community market in the area will positively influence equity. An example of a successful market with a positive impact on equity is a farmers' market which runs in Whangarei.²⁰ It attracts a wide mix of customers from different ethnic and socio-economic groups. In 2003, they estimated 4,700 shoppers visited each week. On average, prices of produce were 50-75 percent of those in supermarkets; however, three-quarters of stallholders reported earning higher margins than if they supplied supermarkets.

As can be seen in some farmers' markets in New Zealand, produce at local markets in the US is often sold at a price premium,²¹ as it appeals to those who can afford to make value-based choices about where they source their food.²³ Markowitz reports on a project in Kentucky which aims to overcome this by linking low-income neighbourhoods with small farmers.²¹ They created two new farmers' markets in low-income neighbourhoods, developed a distribution centre to link producers and buyers (restaurants and specialty markets), youth volunteered to sell the produce at the farmers' markets, and they have plans to create mobile markets and a home food delivery service. A farmers' market in a different region of the US was purposely positioned in an ethnically-diverse, working-class neighbourhood and operates a state-subsidised 'farm-to-family' programme.²⁴ Farm-to-family coupons are provided to low-income households for use at the market. Thus, with proper planning, markets can have a positive effect on equity.

Acceptability to stakeholders

The rapid growth in farmers' markets indicates that they are acceptable to both consumers and producers. Ninety-eight percent of people shopping at a rural growers' market in Western Australia reported shopping there because they liked having access to locally grown fresh produce, and 88 percent reported being able to buy produce that was cheaper.²⁵ Stallholders and producers have a viable means of selling their produce,²⁰ and local communities and councils are often keen to support farmers' markets as a means of stimulating the local economy.²⁰

Markets are also an acceptable means to purchase food for Māori, Tongan and Samoan people, who discussed markets in the ENHANCE focus groups as a way to purchase more affordable fruit and vegetables.

Key components for effectiveness

Local governments can support farmers' markets by designating particular sites for markets in neighbourhood plans.⁶ They can promote farmers' markets through the council website or by running an awareness and education campaign. Local government can also provide support by providing resources for traffic control, set-up and clean-up. Partnerships with the local community and non-profit organisations to encourage the presence and growth of farmers' markets are important. A study of farmers' markets in New Zealand found support from local councils included leasing land for the markets for a nominal fee, and providing start-up grants or covering set-up costs.²⁰ Community consultation on the ENHANCE portfolio also highlighted the importance of working with councils when implementing community gardens.

Strengthening farmers' markets can occur through educating consumers to use the markets, making markets accessible to the target group, and improving market quality.²² Strong levels of coordination and collaboration between partners in the project leads to more successful farmers' markets.²² This requires a commitment to collaboration amongst the partners, and adequate funding.

A growers' market was set up in a rural area in Western Australia, where there was an identified lack of convenient access to local produce, despite being a horticultural region.²⁵ The market, the Gascoyne Growers Market, was set up as a public health strategy to improve access to local produce and develop social capital. They identified that a critical factor in the market's success was funding a project officer who was well accepted by the stallholders. The project officer had dedicated time to deal with legal and structural issues, and gained support from the council, health department and local development commission for the markets.

A concern raised during community consultation on the ENHANCE portfolios was whether community gardens could supply produce all year round. In some areas of New Zealand this may be more problematic than others. Appropriate crop choice can resolve the issue in warmer areas, while in colder or wetter areas other strategies are likely to be needed, such as greenhouses.

Potential side effects

Stallholders at the farmers' market in Whangarei reported the market had saved many small producers from going out of business by providing a viable venue for selling their products.²⁰ Organisers of the market believed it had created 30 full-time jobs. Research into the role of farmers' markets as business incubators and safety nets found they had increased the survival chances of small rural businesses in New Zealand.²⁶ Thus, farmers' markets can have a positive effect on employment and income. They can also act as a means of drawing people back into an area and helping revitalise it.²⁰ Drawing extra foot traffic through an area can also have positive effects on nearby businesses who may benefit from increased patronage.²⁰

Evaluation of the Gascoyne Growers Market found that two-thirds of people reported eating more fruit and vegetables since starting shopping at the markets.²⁵ Thus, they may also have a positive impact on nutrition and health. Successful farmers' markets can also help develop tourism and encourage urban development.²⁷

Cost-benefit analysis

An economic impact study of the Otago Farmers Market estimated \$750,000 was spent by consumers in the first six months of operation.²⁰ Money spent in local farmers' markets tends to stay in the local economy, and every \$10 spent on locally-produced food is estimated to be worth \$24 to the local area. This is in comparison to \$10 spent at a supermarket which only generates \$14 worth to the local area. In Australia, farmers' markets are reported to earn rural communities AUD\$40 million/year.²⁵

Results: Access and transport

Interventions to improve access to nutritious food are diverse, and some examples are provided in the literature. In the UK food access schemes include breakfast clubs, fruit tuck shops, fruit and vegetable cooperatives, growing schemes, box-delivery schemes, and a community café which teaches cooking skills.²⁸ The suggestions in the ENHANCE workshops related to mobile food delivery and improving transport to shops. It is not within the scope of this literature review to assess each possible intervention using the Swinburn criteria;²⁹ instead, examples of possible interventions in the literature are provided.

Home delivery/mobile vendors

Home delivery of food has been proposed as a means to improve access to healthy food. A pilot programme in Seattle delivered twice-weekly locally-grown market baskets to 480 elderly Meals-on-Wheels participants.³⁰ Participants receiving the baskets increased self-reported consumption of fruit and vegetables by just over one serving/day. Eighty-two out of the 89 participants who completed the telephone survey reported wanting to continue receiving the baskets.

Another way of receiving home-delivered fresh produce in the US is to join a community supported agriculture programme.³¹ Consumers are able to support local farmers by having a weekly delivery of just-picked fruit and vegetables. In Toronto a similar project – the Good Food Box – is a community food security project which delivers a weekly box of locally grown produce to low-income urban dwellers.³² The cost of the produce is paid for by the recipients, but the cost of infrastructure and delivery is covered by FoodShare, which receives both public and private funding. Over 4,000 boxes are delivered each month, feeding an estimated 8-10,000 people.

Two examples of community-run mobile food shops are Roots and Fruits, and Health on Wheels in Scotland.³³ Both projects use community development approaches to address issues related to access, affordability and availability to healthy food for low-income households. Roots and Fruits evolved from a group of volunteers buying a mini-bus to deliver fruit and vegetables to rural areas. It is now a registered charity that delivers low-cost fruit and vegetables and tinned goods to around 300 customers in 19 areas. Products are sold at slightly above cost price. Community involvement has been crucial to its success, and funding is now derived mainly from the health service and the local council. Obtaining additional funding remains difficult however, and is very time-consuming. Health on Wheels was a similar concept, and acted as a mobile shop selling fresh food at housing estates. The project ceased running due to continual funding difficulties and reliance on volunteer staff with lack of necessary skills. The project has since been restarted by a local voluntary organisation. It was noted that in

both projects the van drivers often ended up providing other health promotion, social work, and social support services to customers.

The Braystone Project, a community intervention in Australia, evaluated provision of mobile fruit and vegetable market stalls at public housing estates.^{34 35} Evaluation showed that at two high-rise estates access to fruit and vegetables and social connectedness improved, but these findings were not replicated at two low-rise estates.

Access to supermarkets

Access to supermarkets is often seen as important in the ability to access healthy food.³⁶ Research with food bank users in Christchurch found that half used a car to do supermarket shopping, and they did not necessarily shop at the closest supermarket.³⁷ Without a car, food had to be carried home and participants had to shop locally at higher priced outlets. In Glasgow, a food superstore was developed as part of a regeneration initiative in a deprived area.³⁸ Assessment of the impacts on the community found 30 percent of households surveyed switched to the new store, and two-thirds of these were households with a very low disposable income. Subsequent analysis showed that most of those who switched stores had previously shopped at similar stores outside the local area.³⁹ Thirty-nine percent of shoppers got to the store by walking, leading to increased independence reaching the store.³⁸ However, no impact from having closer access to a supermarket was seen on fruit and vegetable consumption. An earlier study in Leeds assessed a similar intervention. This study did observe an increase in fruit and vegetable intake in those switching to the new food store, although there was no control site as in the study in Glasgow.³⁹

Lack of transport to undertake food shopping has been associated with food insecurity in many studies.^{9 37 40-45} The economic feasibility of providing a supermarket shuttle to transport shoppers to supermarkets was investigated in California.⁴⁶ Although the results are specific to the supermarket areas investigated and the assumptions made, it showed that if 5 percent (n=181) of transit-dependent households used the shuttle, it would break even in 16 months.⁴⁶ Such a system could be considered not just by supermarkets, but by councils, in order to provide transport to established community or farmers' markets in low-income areas.

Discussion

The ENHANCE workshops proposed community/farmers' markets or gardens and improved access to the food supply as important targets to improve food security for Māori, Pacific, and low income families/whānau. Interventions suggested to improve access were community markets, mobile fruit and vegetable vendors, and providing transport to stores. These suggestions fit within a Community Food Security framework. Community Food Security takes a wide view of food security and focuses on both communities and food production systems. It combines the issues of sustainable food production and food consumption,⁴⁷ and recognises them both as important in achieving food security. Examples of some of the different Community Food Security initiatives are teaching vegetable gardening to low-income households, creating community food businesses, new bus routes linking low-income neighbourhoods with supermarkets, developing community gardens, and farmers' markets.⁴⁸

The literature review suggests that community gardens are well-liked by gardeners who use them, and can have a positive effect on fruit and vegetable consumption, as well as

providing social benefits to users. Community and farmers' markets have potential to reach a larger audience than community gardens, and can also provide social benefits. Many focus on providing locally-grown produce. However, in order to improve access to affordable produce in low-income areas the markets must be appropriately located, operate at suitable times, and be appropriately targeted. An alternative option is to have the produce delivered to consumers. Fruit and delivery boxes or mobile vendors are two possible options which merit further investigation. Companies that deliver fruit and vegetable boxes already exist in New Zealand, and it may be that providing subsidised boxes for low-income households with lack of transport is an alternative option. For those with limited transport options a supermarket shuttle could be very useful. It is likely to be a win-win situation for supermarkets and shoppers, creating increased patronage from low-income shoppers.

Recommendations

- Support community gardens where there is community demand for them. Alongside this, evaluation or research should be conducted to determine their true impact on food security and nutrition.
- Trial and evaluate community/farmers' markets in low-income areas, along with consideration of suitable transport options to attend markets.
- Conduct economic analyses of supermarkets providing shuttles in low-income areas.
- In some areas, if a community market is not feasible, subsidised fruit and vegetable delivery boxes or mobile vendors could be considered as an alternative.

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Chapter 4: Cost of healthy nutritious food

4.1 Community-based initiatives

Delvina Gorton

Summary

Community-based food projects such as community gardens and food cooperatives have potential to impact on food insecurity at a local community level. Whilst it is not expected that they would eliminate food insecurity on their own, there has been little research to determine what level of impact they do have on food insecurity. Experience with such food projects in the UK has shown that to be successful they should be created within a supportive and comprehensive over-arching food policy environment, along with secure funding and long-term support. Community-based food initiatives can provide the opportunity to obtain healthy food at lower cost and are likely to be important to the people they reach. They should be supported where there is community demand for such initiatives, alongside robust evaluation.

The evidence for impact on food security of these additional community-based initiatives is insufficient to make a firm recommendation. Community-based food initiatives can, however, offer the opportunity of good food at lower cost and can be important to the people they reach. Hence, they show potential to improve food security for some individual households, provided they are contained in the context of a comprehensive policy and programme package and issues of sustainability are addressed.

Specific recommendations are to:

- Support community-instigated and led gardening and food cooperative projects. A formalised means of providing funding and support in setting up the projects, for example, from a Nutrition Fund for communities, is recommended.
- Further investigate and evaluate gardening projects and food cooperatives to determine whether they should be part of a more comprehensive population-based approach to improving food security.

Problem Definition

The next chapter in this portfolio addresses the role of the food industry in relation to the cost of healthy food. This chapter addresses the topic from a different perspective – using community-based initiatives to reduce the cost of healthy food. At the ENHANCE workshops, participants suggested various community-based initiatives such as locally grown gardens, micro-level programmes for women to generate income, cutting out the middle men, and food co-operatives as means of enhancing food security. This chapter examines the literature to assess the merit of such interventions. There is an obvious overlap between some potential community-based initiatives and those discussed in other chapters of this report, and initiatives discussed elsewhere will not be duplicated here.

Methods

A brief literature scan was undertaken of the HEHA Knowledge Library and ANA nutrition and physical activity database to identify relevant New Zealand community-based initiatives addressing the cost of healthy food. The Scopus database and Google Scholar were also searched to identify local and international literature.

Results: Literature Scan

Overview

A review of community-based initiatives (or local food projects) in the UK in 2002 found over 400 food-related projects.¹ The most common were cooking skills and cooking initiatives, food cooperatives, community cafes, school breakfasts, provision of fruit in schools, gardening schemes or allotments, and transport schemes. While they focused on low-income communities, the projects were not necessarily developed to address food security. Sustainability of such projects was identified as a key issue, as well as the need for a coherent policy focus and an integrated approach to issues of food access and food security.²

The key factors affecting sustainability of food projects have been identified from earlier work in the UK, and should be considered when setting up community-based initiatives.³ These factors were reconciling different agendas, access to long-term funding, community involvement, professional support, credibility of the project to professionals and the community, shared ownership, dynamic individuals committed to the project, and responsiveness to changing agendas and needs. Conversely, opposing or changing agendas, unstable funding, lack of support, only meeting limited needs, and exclusive ownership hindered sustainability of food projects.

Food cooperatives

A cooperative is a business entity that is owned and controlled by its members, and is run for the benefit of its members.⁴ There are two main types of cooperatives: participatory and consumer cooperatives, which usually exist in one of three main forms:⁵

- buying clubs, which do not have their own premises, but instead meet regularly to order food in case lots at wholesale prices;
- traditional co-operatives, where members (who may also be the producers) sell products at market rates and receive a share of the dividends; and
- participatory cooperatives, in which members work a certain number of hours in a food co-op store.

Food cooperatives were suggested by provincial Māori in the ENHANCE focus groups as an intervention to improve food security. From interviews conducted with low-income households in New Zealand, Parnell⁶ found that five of the 40 households belonged to a food cooperative. Cooperatives purchased foods in bulk, which minimised the cost to participating households. Traditionally, the major motives for joining food co-ops such as these have been low prices and improved food quality.⁵ The type of cooperative likely to be most relevant to low-income households in New Zealand are buying clubs. An example of a buying club is the Whaingaroa Organic Kai cooperative in Raglan which supplies 38 member families.⁷ The co-op is run by one person, who purchases food in

bulk at wholesale prices and sells it to members at the same price. A monthly membership fee is charged based on the amount spent on food at the co-op per month.

Food cooperatives are more common in some other countries. Moore⁸ has noted the growth of a 'new' food cooperative movement in Scotland, which has arisen almost unnoticed. These are emerging from community initiatives, with groups of disadvantaged consumers joining together to bulk purchase food, either from wholesalers or direct from farmers.^{8,9} The cooperatives range in size from 10 to 500 members, and are mostly run by volunteers, although some have been successful in obtaining external start-up funding.⁸ However, they face difficulties associated with relying on volunteers, transporting and storing stock, difficulties finding a venue, finding a consistent product source, and uncertainty over funding.^{8,9} In some cases, social work departments have provided funding for food cooperatives as well as providing training and support.

A different format for a food cooperative exists in the Burlington Community Farm in the US.¹⁰ Over 500 households pay US\$400 at the beginning of each growing season for a share in the farm's harvest. The farm is managed by an experienced and paid farm manager. Twice a week, members are able to go to the farm to collect or harvest their produce. In this example, the cost of produce is not significantly less than that from supermarkets; however the quality is likely to be superior. It has been noted that members of the farm co-op were more likely to be of higher socioeconomic status compared with the average in the surrounding area. This was attributed to the requirement for a \$400 up-front fee. Thus, formats which require large up-front fees are less likely to have a positive effect on equity.

Gardening projects (other than community gardens)

Having a home vegetable garden has been associated with higher levels of household food supplies,¹¹ better access to fresh food, and improved diets or increased fruit and vegetable consumption.^{12,13} A study in rural America found that food insecurity with hunger was associated with not having a home garden.¹⁴ All the ENHANCE focus groups, other than the Tongan group, proposed gardening as an intervention to improve food security.

Some New Zealand community-based initiatives have focused on home gardens. The Good Kai Project in Maraenui provides learning and support for whānau wanting to grow their own kai.¹⁵ It is driven by the community and health workers who recognised the need for better access to good quality fruit and vegetables. Programme participants have stated that they now eat more fruit and vegetables, feel healthier and more active, and enjoy spending time with whānau in the garden. Securing enough funding to deliver the programme to all who want it has been a major challenge for the project.

The Grab a Bite That's Right programme in Whanganui used a number of community-based initiatives to increase fruit and vegetable consumption.¹⁶ One of the strategies involved growing and distributing 4,000 apple trees and 3,000 tomato seedlings to the community. Another of their initiatives was a 'fruit drive' where people donated excess produce from home gardens to the local food bank. They have also set up nutrition and gardening workshops and edible gardens in kōhanga reo.

Schools and kōhanga reo are increasingly becoming sites for establishing edible gardens, such as the Martinborough School Kitchen Garden.¹⁷ Students are involved in growing and preparing produce from the garden, which is aligned to the school

curriculum. The garden has been sustained over five years, and an evaluation showed it had achieved its goals of children participating in gardening, understanding where food comes from, increased awareness of some nutrition principles and cultural practices around food. However, there was no evidence it had led to children learning sustainability principles or making healthy food choices. A similar programme, called Tucking In, has been implemented on the West Coast.¹⁸ Raised garden kitsets have been donated by Mitre 10 for schools and early childhood centres to grow their own vegetables.

Marae are another potential setting for shared gardens, and a quarter-acre garden and worm farm has been set up at Hauiti marae in Marton.¹⁹ The garden is tended by volunteers and the produce distributed to the community. It is supported by funding from Feeding our Futures.

While gardening projects appear a logical and promising strategy to enhance food security, it has been noted that the high time commitment required to successfully garden discourages involvement of people with multiple jobs and/or children.¹⁰ These type of initiatives also require a requisite skill level to garden successfully, suitable growing conditions, and access to gardening tools.²⁰ Residential transience is also an issue with home gardens, as they take time to establish and re-coup their initial cost.

Other

Fruit and vegetable prescription

A similar system to the Green Prescription has been used in a health centre in England to increase fruit and vegetable intake.²¹ The brief intervention is delivered through primary care and consists of primary care staff writing a prescription for fruit and vegetables accompanied by four £1 vouchers for fruit and vegetables, and three key messages about the importance of fruit and vegetables to health. Final evaluation results have not been published, but initial feedback suggests that patients are surprised at the effect fruit and vegetables have on their health. Primary care staff reported they appreciated having a brief preventive intervention they felt confident discussing with their patients. Staff undertook training prior to implementation of the intervention, and regular updates on the programme were sent to them. Fruit and vegetable posters and leaflets were available in the health centre and a free bowl of fruit at reception. The project cost £15,300 for one year in a health centre serving a population of 12,000 people.

A similar UK scheme, the Healthy Start Scheme, gives low-income pregnant and new mothers free vouchers for milk, fruit, vegetables and/or infant formula milk for babies/toddlers at certain shops.²²

Local Exchange Trading Systems (LETS)

A LETS is a formalised bartering and trading service for members.²³ An annual fee is paid to cover administration costs, and it is run by an elected steering group. Members list the goods and services they can offer, and they receive a directory listing goods and services that other members offer. Members can then arrange to trade with each other, and individual accounts of members' debits and credits are kept. In relation to food, members can trade home grown produce or baking in exchange for things like childminding, gardening, tuition, second-hand goods, or hairdressing. A similar system for businesses in New Zealand is Bartercard (www.bartercard.co.nz); however, this does not allow for non-business trading.

Discussion

Community-based food projects such as those described in this chapter may have a positive impact at a local community level. However, experience with such food projects in the UK has shown that to be successful they should be created within a supportive and comprehensive over-arching food policy environment, along with secure funding and long-term support.¹ Lack of forward planning and unrealistic expectations can hinder successful food projects.¹ Thus, if community-based initiatives are to be part of a viable food security solution, they must be adequately resourced and funded within the context of long-term policy and planning. This policy and planning must also address the longer-term changes needed to tackle the upstream causes of food insecurity.²⁴ Community-based food projects can be worthwhile, but must not be mistaken as fixing the root problems of food insecurity on their own.

Evaluations of community-based food initiatives have shown that they can have a positive impact if they are based on principles of community involvement and needs assessment, have clear objectives, and have time to become established.²⁴ Sustainability of initiatives is characterised by use of sound community development principles including community consultation, ongoing community involvement and ownership, shared agendas, and secure funding. To have a positive impact on equity, they should be developed with or by Māori, Pacific, and low-income community groups in order to meet their needs. It should be noted that not all community-based food projects can be expected to suit all communities; therefore, the ability of communities to select and tailor interventions is imperative.

The community-based initiatives described in this chapter can be time-intensive for participants. For example, growing and preparing one's food, rather than relying on pre-prepared and processed foods, takes time and skill. It may be unrealistic to expect time-poor low-income households to have the time and skills needed to successfully tend a garden, contribute to operating a food cooperative, or prepare food from scratch. For some low-income households they may be a suitable option to improve food security; however, they will not work for all low-income households. It has also been noted that food projects can attract the more motivated people within a community and thus may make only a small overall contribution to community improvement.²⁴ Again, ensuring a community development approach is taken will help to ensure these types of projects are appropriate to community members. Other potential benefits of community-based initiatives should not be overlooked. Increasing social inclusion and cohesion are frequently mentioned by participants in community-based initiatives. For Māori they increase the *whanaungatanga* or relationships between community members and sense of community spirit which many Iwi would consider an important outcome. These benefits should be considered when determining the merit of community-based food projects which have been based on a community development model.

While there are a range of community-based initiatives that can impact on the cost of a healthy diet, there still remains a lack of quality evaluations to demonstrate their effectiveness. Evaluating initiatives, and making evaluations publicly available, will contribute to the success of similar initiatives aimed at improving the affordability of a healthy diet and improving food security.

Recommendations

The evidence for impact on food security of these additional community-based initiatives is insufficient to make a firm recommendation. Community-based food initiatives can, however, offer the opportunity of good food at lower cost and can be important to the people they reach.³ Hence, they show potential to improve food security for some individual households, provided they are contained in the context of a comprehensive policy and programme package and issues of sustainability are addressed.

- Community-instigated and led gardening and food cooperative projects should be supported. A formalised means of providing funding and support in setting up the projects, for example, from a Nutrition Fund for communities, is recommended.
- Further investigation and evaluation of gardening projects and food cooperatives is recommended to determine whether they should be part of a more comprehensive population-based approach to improving food security.

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4.2 The potential role of the food industry

Delvina Gorton, Sharron Bowers, Louise Signal and Cliona Ni Mhurchu

Summary

There are multiple levels in the food supply chain which offer potential for intervention to decrease the cost of healthy food compared to less healthy food, or to encourage choice of healthier options. At the upstream or primary production level, this includes ensuring food-related research considers health as well as economic outcomes. At the midstream level of food processing, manufacture, and distribution, promising initiatives include product reformulation and proportional package size pricing. At the downstream level, retailing and food services offer many options for intervention, such as increased promotion of healthier foods, strategic location of supermarkets, expansion of private label product ranges, visible positioning of healthier products in food outlets, decreasing the relative cost of healthier fast food options, development of industry nutrition policy, and monitoring of cost and availability of healthier foods throughout New Zealand. A comprehensive review of the food supply chain to determine where cumulative food costs are incurred would provide a sound baseline from which to move forward. The role of the food industry is crucial to improving access to and cost of healthy food, and consideration should be given to whether interventions such as those proposed are best achieved on a voluntary, collaborative, or regulatory basis.

Specific recommendations for areas where action can be taken have been identified in the literature and from key informants and these include the following:

Overarching

- Consider whether the best way forward for improving the affordability of healthy food is through industry leadership, developing collaborations between the food industry and public health and creating a shared agenda, or government regulation.
- Undertake a comprehensive review of the food supply chain looking at upstream, midstream and downstream factors in order to identify how cumulative food costs are incurred and areas where costs or profitability could be manipulated to favour healthy over less healthy foods.
- Ensure initiatives related to the development or availability of healthy foods are not just focused on premium products and consideration is given to providing affordable healthier products.

Upstream

- Invest in research across the entire food chain in order to ensure an integrated focus on health and economic outcomes for the New Zealand market.

Midstream

- Support continued product reformulation to make staple foods eaten by all socio-economic groups healthier, reflecting dietary guidelines.

- Implement proportional pricing in order to make smaller food package sizes more affordable. This could also have the advantage of decreasing overconsumption frequently associated with bulk buying.

Downstream

- Reorient food promotions and advertising to healthy food, eg, loss leaders; and determine the actual effect of promotions on food purchasing and consumption.
- Investigate the feasibility of providing unit pricing information in all food stores and assess effect on consumer purchasing behaviour.
- Locate budget supermarkets in low-income areas and/or provide transport support to budget supermarkets from low-income areas (see Chapter 4.3 on community markets, community gardens, access and transport).
- Evaluate availability and cost of healthy versus unhealthy foods by area-level deprivation and rural/urban location in New Zealand.
- Further develop and expand the range of healthy private label products available.
- Position affordable healthy foods in prime, strategic positions within supermarkets to promote their purchase
- Develop individual food industry sector nutrition policies which address planned actions in relation to provision and promotion of affordable healthy food.
- Ensure that adherence by the food industry to the code of practice on advertising to children and the Children's Food Classification System is monitored
- Explore opportunities for partnership with industry around food marketing and activities for promotion of healthier food
- Fast food industry to further develop healthier products and meal combinations equivalent or lower in cost than unhealthy products, and consider implementing menu nutrition labelling.

Additional

- Implement cooking skills interventions (see Chapter 3.1 on cooking skills).
- Explore the feasibility of initiatives to reduce food waste.

Problem definition

This chapter addresses the potential role of the food industry in reducing the cost of healthy, nutritious food. For a household to be food secure, it must be able to afford enough food, and the food must also meet nutritional needs. Therefore, the dual aspects of cost and nutritional value of food are addressed in this chapter. The final cost of healthy food is a product of production, manufacture, distribution, and retail processes, as well as macro-environmental factors such as government policy/regulation and trade. The food industry therefore has a strong influence on both the cost and nutritional value of food throughout the food supply chain. At the ENHANCE workshops, one favoured intervention was working with the food industry to improve the cost of healthy food. This chapter has taken a broader approach, focusing on the wide-ranging role the food industry could potentially play in this respect.

Cost of food is a barrier to food security for low-income households. In the 1997 National Nutrition Survey in New Zealand, cost was a frequently cited barrier (24 percent) by those trying to increase fruit and vegetable intake.¹ More recently, the APPLE study found that cost prevented 45 percent of parents buying healthier foods for their children.² Both adults and children state that price is one of the factors that most

strongly influences food choice.^{3 4} Research in Australia has found that the difference in food purchasing by household income, where low-income households purchase less healthy diets, was related in part to concerns about food cost.⁵ The findings suggested that concern about cost of food is one of the main factors contributing to the relationship between low socio-economic status and less healthy diets.

As well as the actual cost of food, the relative cost of healthy compared with less healthy food is important. It is the greater expense of healthy food that acts as a barrier to its purchase compared with cheaper less healthy food. There have been various estimates of the price differential between healthy and less healthy foods. In the US, high energy density foods have been found to be the least expensive source of energy.⁶ Healthier foods in the lowest quintile of energy density, such as fruit and vegetables, cost US\$18.16 per 1,000kCal compared with US\$1.76 per 1,000kCal for those in the highest quintile of energy density, such as butter or margarine, oils, chocolate, cookies and chips. Over a two-year period from 2004 to 2006, the least energy dense foods increased in price by 19.5 percent, whereas the high energy density foods decreased in price by 1.8 percent.⁶ Looking at the US consumer price index over a longer time period provides even starker comparisons. Between 1989 and 2005, the real price of fruit and vegetables rose 74.6 percent while fats and oils fell 26.5 percent and sugars and sweets fell 33.1 percent.⁷

In 2007, New Zealanders spent an average 16 percent of their weekly household expenditure on food.⁸ Since then, food prices have continued to increase. According to the Food Price Index, food prices increased 9.5 percent from January 2008 to January 2009.⁹ For the year to January 2009, fruit and vegetable prices increased 13.4 percent, bread increased 20.8 percent, and the price for meat/poultry/fish increased 11.8 percent. This was substantially greater than the general Consumer Price Index, which rose 3.4 percent over the year to December 2008.¹⁰ This rapid rise in food prices has been associated with reports of increasing numbers of whānau/families seeking emergency food supplies from food banks,^{11 12} indicating that this is contributing to worsening food security in New Zealand.

The variation in price by food type seen in the US is reflected in a New Zealand study of the comparative cost of healthier and less healthy foods.¹³ Analysis of the cost of a healthier versus less healthy food basket found that certain food categories showed greater variation in cost between the healthier and less healthy options, namely meat and poultry (healthier options 27 percent more expensive), butter and margarine (44 percent), and cheese (19 percent). Overall, the healthier basket cost 7 percent more per week (excluding fruit and vegetables).

The cost of healthy food is therefore an important issue for low-income households. This chapter explores the potential role of the food industry in relation to reducing the cost of healthy food. Key players in the food industry in New Zealand have indicated a willingness to promote health by becoming signatories of the Food Industry Accord, and the subsequent development of the Food Industry Group.¹⁴ This arose from an acknowledgement that obesity is an issue in New Zealand, and the mission of the Food Industry Group was to encourage the creation of commercially successful products and services that contribute to health. While the Food Industry Accord does not focus on food security, food insecurity has been linked to obesity, and it sets a precedent for the role of the industry in an issue of public health significance.

Methods

A literature search was conducted in February 2009 of the Scopus, Medline, Embase, International Biography of the Social Sciences, and Food Science and Technology Abstracts databases using the following search terms:

1. Food industry/ OR food industry.mp
2. Food price or food cost.mp
3. Food policy OR public policy
4. 2 OR 3
5. 1 AND 4
6. Supermarket
7. 2 AND 6
8. 5 OR 7
9. "Price of food".mp
10. "Cost of food".mp
11. "Food cost" or "food price".mp
12. 9 OR 10 OR 11
13. 8 OR 12

Seven key informant interviews were also conducted with representatives of the food industry (n=2), government (n=1), academics (n=3), and non-government organisations (n=1) experienced in working with the food industry. All academic informants were based in Australia. Interviews were conducted by the same researcher over the telephone, using an interview guide. Written informed consent was obtained. Written notes of the interviews were taken and forwarded to the key informant for approval. The findings were analysed according to the research questions and the issues that emerged from the data.

Results – literature review

The World Health Organization (WHO) in its Global Strategy on Diet, Physical Activity and Health challenged the food industry to play a role in improving health, and highlighted their role in ensuring public health.¹⁵ It recommended that the food industry introduce and report upon health-related performance including promoting healthy diets, reformulating products to enhance health, *providing affordable and healthy choices to consumers*, providing better information to consumers including labelling, using responsible marketing practices, and providing information on food composition to responsible authorities.

WHO also recommended that working with the food industry should involve acting in all areas of the food supply chain. The food supply chain can be broadly divided into three areas: upstream, which is primary food production and first stage processing; midstream or second stage processing and food manufacture; and downstream, which is the food retailers.¹⁶ This chapter therefore looks at the role of the food industry within these three levels of the food supply chain.

Upstream: Primary production

Agricultural policies and agricultural production practices influence what the food farmers choose to grow.¹⁷ Agricultural policies include input, production, and trade policies. Agricultural production practices include crop breeding, crop fertilisation practices,

livestock-feeding practices, and crop systems diversity. Together, they impact on diet through food availability, price, and nutrient quality, and thus the choices available to consumers. These policies and practices could be utilised to promote affordable healthy diets. Traditionally, agricultural policies and production practices are considered from a trade and agriculture perspective; however, to adequately consider cost and nutritional value of food, a health and equity 'lens' should be applied.¹⁸

Intervening at the primary production stage has potential to lead to significant improvements in healthiness of the food supply, and some examples are provided in the literature. In the UK, work has been undertaken looking at improving the fatty acid profile of meat and increasing the phytochemical content of fruit.¹⁹ Altering the fatty acid profile of cow's milk has been achieved through methods such as feeding cows whole cracked rapeseeds, changing the variety of grass cows eat, and providing biodiverse grass pastures.^{19 20} Another example has been producer and government supported research to reduce the fat content of pork and improve meat quality in the US.²¹

In New Zealand, a 'calculator' for potato growers to optimise fertiliser and water use has recently been developed²² by scientists at Plant & Food Research. It is saving farmers hundreds of thousands of dollars each year, as well as benefitting the environment. Innovations such as these have potential to help reduce the cost of food for consumers, if savings are passed on through reduced prices.

In contrast to the prior examples, factors impacting on primary production can also have a negative impact on healthiness and price of the food supply. In Canada the price of milk for processors is based on its end use, and fluid milk prices are higher than prices for milk used for other dairy products. This has meant butterfat is more price-competitive than milk solids, and consumers' purchases are shifted towards higher-fat milk products such as ice cream.²³ There are also restrictions on the blending of dairy and non-dairy products, which restricts use of butter blend margarines which are lower in saturated fat. Thus, agricultural policy made in the absence of health considerations can adversely impact nutrition-related health outcomes, creating price incentives for less healthy products.

Traill¹⁹ has noted that changes in primary production are more likely to be acceptable to consumers if they are achieved through traditional animal husbandry or agriculture techniques rather than genetic modification or novel food processing techniques. It is noted that it may require a substantial shift in primary production focus to consider health and nutrition alongside yield. Globally, this is most likely to happen in parallel with the growing focus on climate change and sustainable agricultural practices. Thus, initiatives to influence nutritional value and cost of food at primary production level stand most chance of success if they are pitched as natural partners to these other initiatives that have substantial public and political support.

Making changes to improve the food supply at the primary production level requires significant investment in research and development. While traditionally research focuses on economic, production or efficiency factors, health also needs to be a consideration. Such research needs to be targeted at factors that would provide the most health benefits to the New Zealand population, such as reducing saturated fat and increasing fruit and vegetable intake (eg, by developing vegetable varieties that appeal to children, are more cost-effective to produce, or which overcome some of the barriers to consumption). A key priority would be that any changes made in primary production do

not create a price premium, but rather ensure that healthier options are accessible to all consumers. The government currently invests ~\$134 million/year in food research.²⁴ This research investment is primarily driven by economic motives, recognising the importance of the food industry to the New Zealand economy - over 50 percent of New Zealand's exports are food and beverages.²⁵ Only five percent of the current research investment is directly targeted at achieving health outcomes.^{24 25} The Ministry of Research, Science and Technology is currently developing a roadmap for future food research.²⁶ The roadmap notes that this government research investment has a wider role to play in supporting public health policy and decision-making. Integrating primary sector food research with a health research agenda should see more funding focused on nutrition-related health outcomes.

A report for the Australian government on price determination in the food industry identified five key determinants of the price of food.²⁷ These are supply and demand conditions, trade, integration between producer and consumer throughout the food chain, use of technology and innovation, and product competition. It is noted that the cost of services such as transport, storage, distribution and retailing (which include a high labour input) make a greater contribution to the increasing cost of core grocery foods than the raw commodity. The cost of raw goods, however, usually benefits to a greater extent from improvements in technology than does the cost of services.²⁷ These technologies are often rapidly taken up by competitors and eventually lower the cost of goods. Whilst improving the cost of food, the introduction of new technologies could potentially have an unintended impact on food security if they result in job loss.

The impact of international trade on the cost of food is also important. Trade can impact on three areas: prices on overseas markets of products which are predominantly exported determine the price on domestic markets and returns to producers; the price and market penetration of imported products determine the price that domestic products can achieve; and world commodity prices for non-food items (such as commodities used in packaging and transport) influences prices on the domestic market.^{27 18} Free trade can increase the local year-round availability of food and exports create income which can positively impact on food security.²⁸ Thus international trade can have both positive and negative effects on food cost.

In summary, innovation at the primary production level can lead to improvements in the healthiness of the food supply. Reorienting agricultural and food research funding to also consider health implications and affordability would guide new development and initiatives towards those that provide benefits not just for industry, but for the consumer and society as a whole. There is definite potential for improvements in the cost and availability of healthy food through upstream initiatives. However, an important consideration when making changes at the primary production level is that the changes should not lead to healthier foods only being available at a price premium.

Midstream: Food processing and manufacturing

There are various factors that impact on type and composition of manufactured products.²¹ These include consumer demand, input and processing costs, commodity support programmes/tariff policy, food safety requirements, government policy, and nutrition education and information policy. An example is the commodity support programme in the US which pays a minimum price for certain crops.²⁹ Commodity support for corn led to oversupply and increased the use of corn oil and high fructose corn syrup as cheap forms of fat and sugar in food manufacturing.

A major area for the food industry to improve the food supply is in reformulation of existing products. Reformulation refers to modifying the composition of foods.³⁰ The potential for reformulation is demonstrated by the impact of the National Heart Foundation's Pick the Tick programme in New Zealand. In 1999, Pick the Tick led to the removal of ~33 tonnes of salt from 390 products over one year.³¹ More recently, the Heart Foundation has worked with the food industry to reduce the salt content of bread, leading to removal of 100-150 tonnes of salt from the food supply per year.³² The current Food Industry Group website (www.fig.org.nz) provides examples of reformulation undertaken by food manufacturers in New Zealand and demonstrates some of the changes that can be made. Van Raaij³⁰ has highlighted that food reformulation should focus on basic foods that are commonly eaten by all socio-economic groups in order to gain the greatest impact on population health. Again, it is important that reformulation to create healthier products does not create a price premium.

The effect government nutrition policy can have on reformulation has been demonstrated in the US. The introduction of trans fat labelling regulations in the US resulted in major product reformulation to remove trans fat from the food supply.²¹ This occurred without any adverse impact on cost for consumers.³³ Similarly, the 2005 Dietary Guidelines for Americans included a new recommendation that at least half of all grain foods consumed should be wholegrain. These Guidelines led to market competition between food manufacturers, and many manufacturers reformulated products to include wholegrains or introduced new wholegrain products.^{21 34} Importantly, wholegrain products were not more expensive than comparable refined products. Sales of wholegrain products increased at a significantly faster rate after release of the Dietary Guidelines, showing that consumers probably increased purchases in response to the Guidelines and/or increased availability.

There is a danger, however, that product reformulation based on one aspect of a food may not lead to a healthier food overall, as experience in the US has shown. For example, reformulation of packaged potato chips to remove trans fat was achieved by a change to healthier oils, whereas reformulation of cookies resulted largely in a return to the use of saturated fats.

Reformulation can only achieve so much, however, and takes time.^{21 35} For example, replacement of trans fat necessitates development of a suitable alternative, which can be technically difficult, and may require designing and investing in new processing equipment due to changes in oil texture and stability.

Other than encouraging reformulation, consideration should be given to the frequently disproportionate price of the same product by package size. Consumers who buy larger quantities (buy in bulk) tend to pay lower prices.³⁶ However, food insecure households may not have the money to buy in bulk or the necessary storage facilities at home.³⁷ Buying in bulk could also lead to overconsumption.³⁸ Proportional pricing of packaging, where different package sizes are priced proportionally according to their size, would allow food insecure consumers to buy smaller packages of food without incurring a price penalty.

The World Health Organization suggests that governments use incentives to encourage the food industry to develop and market healthier foods, reduce the salt content of

processed foods, restrict hydrogenation of oils, and reduce the sugar content of beverages.^{23 28} Elsewhere, it has been suggested that incentives for positive outcomes are likely to be more palatable to the food industry than restrictions or regulation, and may be more effective than undertaking actions that the food industry will resist.²³

In contrast, Sugarman³⁹ has argued that there are limits to the degree and speed of change that can be expected from the food industry under a voluntary cooperative approach. He suggested that while industry is needed as an ally, voluntary agreements would not work due to the conflict of interest between sacrificing profits and changing the food supply. Instead, he proposed a performance-based regulatory approach, which would be outcome focused. As an example of this approach, the food industry would be required to ensure that fewer schoolchildren become obese. Industry would therefore be given the task to find ways to meet this legally enforceable goal.

Midstream: Distribution

There is a growing interest in 'food miles' or the 'carbon footprint' caused by long distance food distribution, driven by concerns about climate change. It is generating a resurgence of interest in locally grown foods, and calls for country of origin labelling on food. Some New Zealand retailers have responded by labelling country of origin on fresh produce, which gives consumers the choice to purchase locally grown or not.⁴⁰ There has been discussion, however, around the need to differentiate between 'food miles' and the 'carbon footprint'. Food miles are considered a poor indicator of environmental impact.^{41 42} Food that has travelled a long distance, for example from New Zealand to the United Kingdom, may have a lot of food miles, but a much smaller carbon footprint due to production methods.⁴³

The impact of a local distribution system on food security is uncertain. While it would seem intuitive that food grown locally would be more affordable, this is often not the case. Further analysis needs to be conducted on the benefits of a local food supply chain,⁴² including consideration of food security and cost implications alongside sustainability and environmental issues.

Downstream: Retail

Supermarkets in New Zealand are dominated by two food companies: Foodstuffs and Progressive Enterprises Limited. Progressive is a subsidiary of the Australian company Woolworths Limited. It operates the Foodtown, Woolworths and Countdown supermarket brands and is the franchise co-ordinator for FreshChoice and SuperValue.⁴⁴ Progressive Enterprises controls approximately 42 percent of the New Zealand grocery market.⁴⁴ Based on data from the Retail Trade Survey,⁴⁵ this is likely to represent annual sales of approximately \$6.3 billion. Foodstuffs (New Zealand) Limited consists of three regionally based companies (Auckland, Wellington and South Island). Foodstuffs operates the New World, Pak'nSave, Four Square, On the Spot, Shoprite and Write Price brands.⁴⁶ Foodstuffs total wholesale turnover for the year ending 2008 was \$7.6 billion.

There are five core areas where supermarkets can influence the diet of consumers, according to Hawkes⁴⁷, and we will address these in turn:

- location and format of stores,
- foods sold in stores,
- prices charged,

- promotions undertaken, and
- nutrition-related activities implemented.

Location and format of store

The location and format of food stores has an impact on the cost of food. Supermarkets tend to have cheaper prices and a larger variety of foods than local outlets such as dairies. Different supermarket chains also have different price structures. Thus, the type of food store within a geographic area impacts on the cost of food to consumers. For example, in the UK, supermarkets have increasingly been located away from low-income areas, and are increasingly located in areas that require private transport to access them.⁴⁸ This can potentially have a negative impact on food security as transport issues have been linked with food insecurity.³⁷

The location of food stores has been an increasing area of research focus, and has led to the concept of food deserts. Food deserts are geographic areas where there is limited or no access to affordable, nutritious food.⁴⁹ While food deserts are evident in deprived areas in the US, initial evidence would suggest they are not common in other countries including New Zealand. The Neighbourhoods and Health project found that more deprived areas actually tend to have better access to food outlets, except in rural areas where more socially disadvantaged neighbourhoods had less access to food outlets.^{50 51} However, there could potentially be differences in types of food available and their cost between supermarkets (classed as a healthy food outlet) in areas of greater or lesser deprivation, although it is unclear if this is the case in New Zealand. In Australia, research has shown that food deserts are determined more by availability of transport than the physical location of shops.⁵²

The food industry could make a positive contribution in this area by considering the location and format of supermarkets and positioning budget supermarkets in more deprived areas that lack good food retail facilities. Options for transport to stores for low-income and rural shoppers should also be considered. The economic feasibility of providing a supermarket shuttle has been investigated in California, and similar breakeven analyses could be conducted by supermarkets in New Zealand to determine whether such a scheme could be a useful initiative.⁵³

Comparative differences in the cost of healthy versus unhealthy foods by area-level deprivation or rural/urban location have received little investigation in New Zealand. A food supply audit in the Waikato region found that in some rural areas healthy food was less available and/or more expensive than in a nearby rural or urban centre⁵⁴, suggesting these may be important considerations in New Zealand. Availability of fresh produce may also be more limited in some rural areas.⁵⁵

At a more micro level, the layout within stores can influence the foods purchased. The job of a supermarket is to sell food, and to sell as much as possible.⁵⁶ A wealth of consumer research has informed store layout, product location and placement, price setting and product promotions.⁵⁶ The products that are seen the most sell the best.⁴⁷ A conscious effort by supermarkets to place affordable, healthy foods in strategic positions to encourage sales would be a simple first step. The importance of consumers actually seeing foods was demonstrated in an Australian study where researchers found that it was *perceived availability*, rather than actual or even perceived cost that explained some of the inequality in purchase of less healthy foods in low-income households.⁵⁷

Foods sold in stores

Retailers control the foods sold in supermarket stores, and thereby determine the types and range of foods from which consumers can select. There is evidence that consumer behaviour is affected by the foods supermarkets offer and their marketing strategies.²³ An investigation in the US of the effect of private label milk on milk prices also found that the brands supermarkets choose to stock allows them to exert a degree of price discrimination.⁵⁸ As supermarkets can choose which brands they stock, they may not stock budget brands. Therefore, supermarkets can assist by ensuring they are stocking a range of affordable, healthy foods.

Prices charged

Pricing is one of the key strategic decisions for supermarkets.⁴⁷ Three pricing strategies have been mentioned in the literature: everyday low costs, achieved by cutting costs in the supply chain; a 'high-low' strategy with lower regular prices on key items (if this is below cost it is called a 'loss leader') and higher prices on other items; or use of price promotions. These strategies could be used by the food industry to favour affordable healthy foods over less healthy foods. Currently, there are indications the reverse occurs and that promotions favour less healthy foods. A survey of four Wellington supermarkets over a four-week period found that less healthy beverages were discounted more frequently than healthy beverages.⁵⁹

A previous chapter discussed removal of GST from food (Chapter 2.1) and commented on the importance of the price elasticities of demand for various foods. The evidence is that demand for most food items, and for fruit and vegetables in particular, is relatively price inelastic. This means that price would need to decrease substantially to cause a significant increase in consumption. Demand for other items such as meat tends to be more price elastic, with a reduction in price tending to cause a greater increase in consumption. One estimate of the price elasticity of demand for fruit and vegetables in New Zealand predicts that a 10 percent reduction in price would lead to a 2.5 percent increase in consumption.⁶⁰ Thus, theoretically it is likely that some healthy foods require a greater level of price promotion to encourage sales than other foods. Results from the SHOP study, when publicly available, will provide further evidence regarding this and determine how such price subsidies translate into actual consumer purchasing. Early findings from the trial suggest that a 12.5 percent reduction in price of fruit and vegetables led to a greater increase in fruit and vegetable sales than expected based on previous price elasticity work.⁶¹

At supermarkets, it is often the relative rather than the absolute price that is important.⁴⁷ Prices are compared with either external reference prices (a similar product) or internal reference prices (price of that product last week or in another store). Consumers will then buy foods that they perceive as 'good value'. This perception of food value can lead to greater purchasing of 'value' items. Providing unit pricing information on supermarket shelf labels could influence price perceptions. Unit pricing displays the cost per kilogram (or standard measure) for that food. It allows consumers to instantly compare prices between different products and sizes in order to find the cheapest option. While it allows consumers to compare the price of similar foods in different sized packages, it also shows that a small \$1.80 chocolate bar actually costs \$30 per kilogram, making a \$2.99/kilogram bag of apples seem less expensive.⁶² The recent Australian Competition and Consumer Commission inquiry into food prices recommended unit pricing be available at the point of sale.⁶³ A draft industry code to implement a mandatory and nationally-consistent unit pricing scheme in Australia has been

developed.⁶⁴ However, the effect of unit pricing on food needs to be explored further, as some consumers find it confusing or that it does not help them identify better value products.^{65 66}

Private label products have been a growth area for supermarkets.⁶⁷ They have also helped reduce the price of food, and supermarkets should continue to focus on developing healthier private label options.⁴⁷ In New Zealand, private label products are on average one-third cheaper than branded products (2005 data).⁶⁷ Supermarkets in the UK have gone further, introducing an 'economy line' range of products in addition to a private label range.⁶⁸ The economy line products analysed were consistently much cheaper than branded products, and were nutritionally equivalent or superior to the branded products. In New Zealand, comparison of sodium content of private label versus branded products found a wide range of differences in sodium content between the two, depending on product type.⁶⁹ The difference ranged from -33 percent to 74 percent in the salt content of private label versus branded products. In 11 of the 15 categories, salt content was higher in the private label products. However, this study only looked at one nutritional aspect of the food, and may not be reflected when analysing the nutrition content of foods overall. The impact of private labels on the price of milk was investigated in the US.⁵⁸ As private label milk sales increased, the price of private label milk decreased. However, it also served to increase the price charged for manufacturer brands. This works in favour of the low-income consumer as long as they are buying the private label products, and they are of equivalent quality.

Promotions undertaken

Food marketing clearly influences food preferences and food purchasing.^{38 70} Marketing to children has been noted as a food security issue as it creates demand for higher priced products from children.^{71 72} It has been estimated that for every dollar the WHO spends on non-communicable disease prevention, the food industry spends \$500 on promoting processed foods.⁷³ The combined advertising spend of Coca Cola and PepsiCo in 2004 was more than the WHO's entire budget for 2002-03.⁷⁴ In 2002-04, Coca Cola spent 10.5 percent of their turnover on marketing, and Unilever, another major food company, spent 13.6 percent.⁷⁵ Thus, there is considerable marketing aimed at encouraging purchase of advertised products. The Institute of Medicine Committee on Food Marketing to Children and Youth found that food and beverage marketing is out of balance with dietary guidelines and contributes to an environment that puts the health of children and youth at risk.⁷⁶ An analysis in 2005 of television advertising in New Zealand during children's viewing time found 70 percent of food advertisements were counter to improved nutrition.⁷⁷ In relation to food security, this means children are pressuring parents for advertised products that are likely to be higher priced⁷¹ and often less nutritious than other options available.

In order to offset the impact of marketing, particularly on children, the Sydney Principles were developed. This is a set of seven guiding principles to direct action on changing food and beverage marketing to children.⁷⁰ As a direct response to the Sydney Principles, the food industry in New Zealand is developing a voluntary code of practice on advertising and marketing to children. Commercial broadcasting time was also donated to the Feeding our Futures social marketing campaign, when it existed.⁷⁸ Adherence with the Code should be closely monitored, and regulation considered in the case of inadequate compliance.

Promotions are a commonly used supermarket marketing strategy that have potential to be used to reduce the cost of healthy food. Sales promotions are defined as inducements to increase sales by offering extra value or incentives to the customer.⁷⁹ Sales promotions are usually temporary and of short duration (typically one to four weeks). Examples of sales promotion techniques include price reductions, loyalty card discounts and/or points, coupon discounts, multi-buys (eg, buy one get one free (BOGOF), three for \$5), quantity deals (25 percent more), link saves (buy one product and get a discount on another), in-store tastings or demonstrations, rebates, contests, sweepstakes and free samples. Loyalty cards have also given supermarkets the ability to target promotions directly to individual consumers.⁴⁷

Sales promotions are an important merchandising tool, accounting for 30-40 percent of supermarket sales in the UK and United States.^{80 81} Their effects are so immediate and tangible that some retailers spend more on sales promotions than on advertising.⁸² Supermarket sales promotions substantially increase sales volume, with the magnitude and duration of the increase dependent on the sales promotion method, price reduction and product category.^{79 83-85} The average increase in grocery sales is estimated to be 200 percent in the UK, with BOGOF offers increasing sales by up to 3000 percent.⁸⁰ Sales promotions are often accompanied by displays and/or advertising which significantly enhance the effectiveness of price reductions.⁸²

Sales promotions have a noticeable effect on customer behaviour, altering the timing and quantity of purchases.^{79 82} Common behavioural responses include store switching (customers shop at a different store to usual), brand switching (customers buy a different brand within the same category), purchase acceleration (customers purchase a product at an earlier time), stockpiling (customers buy more product and store this), product trial or simply buying more for immediate use.⁸⁶ Behavioural responses vary by promotion method.^{86 87} For example, price discounts are more likely to result in purchase acceleration, stockpiling and spending more. BOGOF offers induce both stockpiling and purchase acceleration, but are less effective at encouraging additional spending. In-store demonstrations and tastings are most effective at encouraging product trial.

Supermarket sales promotions appear common in New Zealand. The Woolworths online shopping website⁸⁸ lists over 2600 products as 'specials' (discounts and/or loyalty card points), representing 20 percent of all products and probably a higher proportion of sales. Approximately 1400 of the products on "special" were foods or non-alcoholic beverages. Because not all products are listed online, the number of in-store sales promotions may be even greater. Supermarket sales promotions are generally offered nationally,⁸⁹ although anecdotal reports suggest individual supermarkets may have some discretion regarding 10-20 percent of promotions in New Zealand supermarkets. Owner-operated stores may have more discretion to run promotions on a store-by-store basis. There is a lot of potential for promotions to reduce the cost of healthy food, provided the right foods are promoted. In a review of food sales promotions, Hawkes³⁸ concludes that sales promotions for healthy foods need to be designed very carefully to ensure that they increase consumption in the target groups or broaden the customer base, rather than just leading to switching of brands/types, switching stores, or increasing waste. It should also be noted that core foods tend to have a lower profit margin than processed foods, and this is likely to impact on the level of price promotion implemented.

Nutrition-related policies and activities

Some supermarkets have nutrition-related policies on how they can improve diet-related health.⁴⁷ Types of nutrition-related activities that could be undertaken include reformulation of private label products, developing healthy private label products, promoting fruit and vegetables, and implementation of nutrition-education initiatives at point of sale.⁴⁷ Developing a nutrition-related policy which includes the cost of healthy food would be an important starting point for supermarkets that do not currently have one. A 2005 review found four of the top ten food retailers in the world, eight of the top ten food manufacturers, and five out of five food service organisations had made a statement on diet-related health.⁷⁵ However, only four companies reported key performance indicators, which could be used to assess progress towards health-related goals. Six of the 25 companies reported having a senior staff member or board member responsible for health-related matters.

The positive role that supermarkets can play in promoting healthier choices through nutrition-related activities was shown in the evaluation of the Fresh for Less campaign as part of Let's Beat Diabetes.⁹⁰ This seven-week intervention used the marketing concepts of product, price, place, and promotion to increase fruit and vegetable consumption in Manukau. Significant price discounts were given on fruit and vegetables being promoted each week. During the period of the intervention there was a significant increase in average total produce sales in intervention stores but not control stores overall (although one control store showed a similar purchasing pattern to intervention stores). Price discounts were the most persuasive factor.

Thus, at the downstream level there are key areas where the retail sector can take action to reduce the cost of healthy food, to encourage their consumption over less healthy foods, or to avoid promoting unhealthy foods. These include locating affordable food stores in low-income areas, stocking healthy budget brands in supermarkets, placing healthy foods where consumers are most likely to buy them, having a pricing policy that favours healthy foods, ensuring marketing activities promote healthy affordable foods, and developing a nutrition policy and activities that promote affordable healthy foods.

Downstream: Catering/food service

Between 2000 and 2005 there was a 57 percent increase in the number of pizza takeaway outlets, a 33 percent increase in the number of chicken takeaway outlets, and an 18 percent increase in other takeaway outlets in New Zealand.⁹¹ In the 2003/04 period, 26 percent of the average household food expenditure was spent on meals away from home (restaurant and fast food) and ready to eat food. Expenditure on meals away from home was seven times higher in the highest compared with the lowest household income groups. The increased expenditure in high income groups could relate to different frequency of eating out and/or the cost of food purchased (eg, restaurants versus fast food). While we do not want to promote the consumption of fast food, the reality is that it is consumed to some extent by those on a low income. Thus, this section examines ways the food industry could improve the healthiness of fast food or encourage choice of healthier over less healthy options.

Some fast food restaurants have begun to introduce healthier options onto their menus and to offer healthier meal combos. While this is a positive step, healthier options may have the unintended consequence (from a public health perspective) of increasing sales of traditional options. They also rarely have an equivalent or lower price than less

healthy options, creating a price disincentive for consumers. For example, at McDonalds a classic chicken salad is 30c more expensive than a Big Mac and large fries combined,⁹² and at Burger King consumers are charged 60c to swap items in a combo meal for healthier choices.⁹² Having healthier options on the menu at a price premium is not offering an equivalent choice to low-income consumers. If the food industry is serious about encouraging healthier diets, it should consider listing healthier options at the same or lower prices than less healthy options, even if this requires subsidising their cost from sales of less healthy options. The need to continue developing and promoting healthier options instead of less healthy is highlighted in a quote from the ENHANCE focus groups:

“We eat the way we eat, not because it’s cultural but because it is all around us... It is put in our face”

The way that fast food is cooked can impact on the healthiness of the food. In New Zealand, the National Heart Foundation and the Chip Group have worked on reducing the fat content of hot chips. Through training of takeaway staff in correct cooking techniques, and use of the right shape of chip and cooking oil, the fat content of chips can be reduced, improving the food supply without additional cost to consumers.⁹³

Menu board labelling of the nutrition content of food sold in fast food outlets and restaurants would be another means of promoting informed choice of healthier options. Menu board labelling can influence consumer attitudes toward healthier products and their intention to buy them, as well as increasing sales of healthier menu choices to some extent.⁹⁴⁻⁹⁸ While some fast-food chains voluntarily provide nutrition information on their products, this information is usually made available after the point-of-purchase.

There is growing pressure internationally to consider menu labelling at restaurants and fast-food outlets. Recent food labelling bills passed in New York City and the state of California require all food chains with more than 15 to 20 outlets respectively (nationwide) to provide energy information on their menu boards,^{99 100} and earlier this year a campaign was launched to pass national legislation across America employing a uniform menu-labelling standard. Similarly, in the UK the Food Standards Agency is negotiating a menu-labelling campaign; they have already signed approximately six large restaurant chains to trial menu energy labelling over the UK summer (2009), and expect another 46 or so to follow when the pilot scheme is complete.¹⁰¹ In Australia, the Preventative Health Taskforce has recently announced that they too are considering the need for energy information on restaurant and take-away chain menus, and will submit this strategy as a recommendation to the Government in June this year.¹⁰² If menu labelling is successful in these countries, it should receive strong consideration for implementation in New Zealand.

In this final section of the literature review, the role of the food industry at the downstream food service level has been examined. Fast food outlets who typically serve high fat or high calorie foods can work to improve the healthiness of their product range, provide consumers with the information to make a healthier choice through menu board labelling, and promote healthier options by offering them at the same or lower price to less healthy options.

Results – key informant interviews

This section reports on the findings from the seven key informant interviews.

Interventions and policy

When asked about influencing food pricing of healthy, nutritious food to increase food security, all key informants considered this to be a complex and difficult area. The cost of food was reported to be dependent on many factors including: the global cost of commodities; government regulation such as labelling and employment law (the food industry being one of the biggest employers in New Zealand); the cost of production; supply chain efficiency; consumer demand; and environmental changes.

Both industry informants commented that the food industry was highly competitive, worked on tight margins, and had limited ability to further reduce the cost of healthy food. One informant stated that, “the industry does not put excessive margins on healthy foods and thus it is difficult to respond to the question as to how to reduce costs”. This was echoed by an Australian informant who noted that profit margins were low on healthier products relative to unhealthy items like chocolate and potato chips which were often made from low cost primary ingredients.

Two informants stressed the importance of understanding the relationship between food suppliers and supermarkets. One considered that it was up to supermarkets to decide the price of food (within parameters, rules and regulations). This informant noted that “food companies do not have a lot of control over what the supermarkets do.” The second informant commented that while the supermarket sets the price to the consumer, the food companies set the price in the first instance and that “to have an impact on that is a very difficult thing”.

Despite this complexity, a number of possible interventions focusing on the food industry were suggested by informants that could be, or have been, successful in reducing the cost of healthy nutritious food. Informants were asked to discuss potential interventions in relation to the Swinburn criteria⁹² of feasibility, sustainability, effect on equity, potential side effects, and acceptability to stakeholders. Suggested interventions discussed are listed below.

Loss leaders (and bundling) in supermarkets

Three informants commented on loss leading in supermarkets. Loss leading is a pricing strategy where retailers set very low prices for some products, sometimes below cost, to entice customers into stores. Loss leaders were seen as being more often focused on occasional food items such as “ice-cream, coke, and chocolate”. The proposed intervention was to increase the balance of healthier food items being used as loss leaders. In addition, loss leaders could be bundled to facilitate the making of a healthy cheap meal.

In terms of specifying the intervention, one informant commented that loss leaders was “hard to pin down” as a government intervention. Loss leading was seen as being “in the realm of the free market” and therefore not readily open to government intervention. Public monitoring of supermarkets was suggested as a way to motivate supermarkets to focus loss leaders on healthier foods.

Information sharing by supermarkets was seen by one informant as a prelude to making loss leaders effective as a strategy to enhance food security. This comment was made by an informant in an Australian context who considered that loss leaders were not a level playing field because “the supermarkets know exactly who is buying what and how the patterns of consumption change across the socioeconomic scale”. Questions were raised about who makes up for the loss.

Two informants, including one from industry, reported that they were already having discussions with industry around focusing loss leaders on more healthy foods. One commented that many supermarkets were doing this already. Both informants were still developing an understanding of what was possible in this area.

In terms of feasibility and sustainability, comments included that the initiative would need to be retailer led, with a full understanding of what works at the retail level, and that more research was needed to clearly specify the intervention and related processes. The effect on equity of focusing loss leaders on healthier choices was seen as positive “if do-able”, but would need to be supported by education for broader change in eating behaviour. The informants did not see any potential side-effects. Loss leaders were seen as acceptable generally, and acceptable to industry if done in a self-regulatory manner.

Other pricing strategies

Two informants talked about other pricing strategies. One informant commented on a strategy of making a 12.5 percent reduction on healthy food choices, as was being used in the Shop and Go study^a. Their opinion was that overall a 12.5 percent reduction “might not be enough to make people want to buy healthy food”. For example, “\$1.25 off the price of a good quality meat priced at \$10 per kg may not be enough incentive to lure you away from sausages, which are still cheaper than the discounted price of the quality meat”. Another informant saw opportunities for supermarket chains to reduce prices at supermarkets located in low-income areas.

Industry promotion of healthier foods

Four informants commented on the influence of marketing on food purchasing decisions. Two saw that the marketing of unhealthy foods had greater impact on vulnerable populations. An industry informant reported that industry had amended their Codes of Advertising to Children along with reducing “the amounts of fat, sugar and salt in all the major food categories so that choice is there for consumers”. A further informant saw a direct link between marketing and the cost of healthy nutritious food. The mechanism by which promotion of healthier foods reduces their cost was seen to be a consumer response. “If healthier foods become more mainstream the cost could come down”.

An informant who had been working with industry on the promotion of healthier products reported that this was feasible given that it was an industry-led idea. In terms of sustainability, the informant found it hard to comment at the time of interview. It was suggested that any such campaign be evaluated and sustainability would depend on whether it worked for the manufacturers commercially. The campaign proposed was mainstream (for all people) but the informant noted that potentially the “element of price reduction will benefit people on low incomes”. This informant indicated that, from

^a This reference is to the SHOP study which evaluated the effect of a 12.5% discount (equivalent to removal of GST) on purchases of healthier supermarket foods

research of similar campaigns, a potential side-effect was that the promotion of healthy foods can “make something undesirable because it is healthy”, because of pressure to replace the unhealthy food with the healthier option. Such a campaign was seen as acceptable to the Ministry of Health and industry at the time of interview.

Removing GST from healthy nutritious food

This is a focus of a separate chapter, Chapter 2.1 on the potential uses of economic instruments. However, as five informants commented on reducing or removing GST from healthy nutritious food, a summary of their comments is provided here. All informants saw this as problematic, with concerns including increased bureaucracy, lost revenue, complexity around deciding what foods to exempt from GST, and lack of firm economic data about whether this strategy has significantly altered the cost of healthy food in Australia. One Australian informant felt it was imperative for New Zealand to remove GST from healthy nutritious food, whereas another Australian informant saw the need for economic modelling to understand what has happened in the Australian context.

Nutrition knowledge and cooking skills

Three informants saw teaching of nutrition and cooking skills as a key intervention, particularly for those with limited incomes. A potential food industry intervention in this area was suggested by an industry informant of providing healthy eating recipes through supermarkets, and doing this in conjunction with a discount.

Reformulation of low cost foods to make them more nutritious

Two informants saw opportunities for making low cost foods more nutritious through product reformulation, eg, reducing salt in bread through partnership between industry and the National Heart Foundation.

Competitive mechanisms

Two comments were made around the influence of competition on the price of food, both in an Australian context. The role of competition in general was noted, with an example given of the effect on food prices of the introduction of the German supermarket chain ALDI into Australia. “Where there is an ALDI it has driven down the cost of food in nearby supermarkets”. Another comment was that monitoring food costs and making comparative cost information available to the public has the potential to lower food prices through increased competition. This was seen as difficult to do, however, as it required frequent updating of information. The informant stated that the cost to the Australian government of setting up such a system was \$AUS13 million per year. A limitation of this Australian system is that access to the information requires computer access, something low-income people are less likely to have. Initial enthusiasm from the public for this information reportedly declined because the information was not being updated frequently enough to be useful.

Food redistribution and minimising waste

One informant in an Australian context saw opportunities for reducing the cost of food through reducing food wastage. Some examples were given of supermarkets donating fruit to schools which they are unable to sell, and industry redefining their ideas of what is ‘fit for sale’. As this informant noted, “a lot of food is ‘turfed’ because it doesn’t meet the aesthetic demands of the customers”, eg, is bruised or blemished.

The same informant considered that reducing food wastage would be very feasible if presented to industry as win-win situation. Once a system was in place that was cost-effective, it would be sustainable because of ongoing benefits to industry. It would be likely to have a positive effect on equity if food that was fit for consumption was sold at a lower price. A potential side effect of donating food to community groups was that it could create dependency; but it could also be used as a hook to involve people in a community programme to improve their food skills, and engage them in community services. Acceptability to stakeholders would depend on how the initiative was presented.

Community-based food initiatives

Another Australian informant saw opportunities for industry bodies to fund community activities that make low cost food more available, rather than focusing on reducing the cost of their healthy products. In Australia, the Woolworths supermarket chain has reportedly provided community funding for projects such as food gardens. These were very feasible as they were usually quite well marketed, but sustainability was questionable given that the funding was one-off and for a limited timeframe. The effect on equity was likely to be positive given that selection criteria favoured disadvantaged communities. Potential side-effects were seen as creating capacity in a community where it did not exist previously, but there was also seen to be a risk of the funding causing “power issues in the community”. The initiative appeared to be well accepted by stakeholders.

Self regulatory approaches

It was reported that the Ministry of Health is currently working with industry in a self-regulatory environment, developing joint initiatives to improve the nutrition environment. This work was being done on multiple levels to have an impact on food available for Māori, Pacific and low-income people. “Our view is that the whole environment needs to change, not just what is available on the shelves, and includes making people more aware of what is available”. The main self-regulation approaches are around 1) reformulation (making low cost foods more nutritious, eg, the Heart Foundation industry partnership to reduce salt in bread); 2) marketing and communication (rebalancing the proportion of advertising for less nutritious versus more nutritious food); and 3) retail (covering supermarkets to food service outlets).

Research and information needs

Gaps in information and the need for further research in these areas were identified by informants. Most particularly, there is a need to better understand the influences on the cost of food so that effective intervention can occur.

In summary, all key informants considered influencing the pricing of healthy, nutritious food to be a complex and difficult area. Nevertheless, a range of potential interventions were mentioned where key informants saw a key role for industry.

Discussion

The literature review took a broad approach to considering the role of the food industry in reducing the cost of healthy food in order to improve food security. It examined interventions of price and improving the healthiness of the food supply at upstream, midstream, and downstream levels. Key informant interviews supplemented findings

from the literature review, focusing particularly on the role of the food industry at the downstream level.

The research highlights the *feasible* role of the food industry in reducing the cost of healthy food, although intervention appears complex and the literature suggests change will take time, especially when working at upstream and midstream levels of the food supply chain. Despite this, many of the interventions could lead to permanent improvements in the food supply, and thus could be highly *sustainable*. These initiatives should relate to both improving the affordability of healthy food, and increasing its availability. The more that healthy food is available and becomes the mainstream option, the more cost-effective it is likely to be.

The *effect on equity* may be problematic. It would be easy for changes to be made that adversely impact on equity, for example, if reformulated products are only sold at a price premium or if changes made at a primary production level only led to foods being available at premium prices. In some cases, this may be unavoidable, but the issue must be kept at the forefront to ensure it does not become the norm. In the ENHANCE focus groups, Māori and Pacific participants consistently noted that making healthy food more affordable would be one of the key supports to help improve food security. This should, therefore, be a focus with a view to a positive effect on equity. The burden of nutrition-related disease is greatest amongst Māori, Pacific, and low-income households,^{103 104 105} and thus improving access to affordable healthy food is likely to be vital to reduce health inequalities.

Initiatives to improve the affordability of healthy food are only likely to be *acceptable* to the food industry if they are voluntary or self-regulatory. However, there are limits to the degree and speed of change that can be expected from the food industry under a voluntary co-operative approach, and therefore the likely *effectiveness* of such an approach is questionable.

When considering the cost of healthy food, a distinction needs to be made between 'affordable' food and 'cheap' food. Cheap food has connotations of poor quality or poor nutritional value and may have important undesirable workforce or environmental (eg, soil degradation or pollution) *side effects*. To improve food security the concern is with the nutritional value of food as well as its affordability. The right foods, that is healthy foods, need to be affordable, otherwise changes may contribute to the obesogenic environment.

This chapter has examined the potential role of the food industry in reducing the cost of healthy, nutritious food, and what could be achieved through industry leadership. Another approach is for the government and the public health sector, including NGOs, to work with the food industry to instigate such interventions. Working successfully with the food industry on the cost of healthy food is to some extent a step into the unknown, although some examples of successful initiatives have been highlighted in the literature.⁹⁰ A combination of the detailed knowledge of the food industry combined with public health goals may lead to *feasible* and *sustainable* solutions. The *key components for effectiveness* are likely to be developing a transparent and constructive working relationship, and working towards a shared agenda. This approach may be more successful than an industry-led approach in addressing *equity* considerations, most particularly the needs of Māori, Pacific, and low-income families highlighted in this research. This is because of the explicit commitment of public health to equity in health.

However, fundamental underlying differences between the goals of public health and that of the food industry must be remembered. The primary goal of the food industry as a corporate entity is to make a profit for shareholders.^{17 106}

Another alternative is for government regulation of the food industry to ensure the provision of reasonably priced healthy, nutritious food. While this approach is likely to be much less acceptable to industry than the previous two, it is a policy intervention available to the Government that needs to be seriously explored, particularly if little progress is achieved through industry leadership (either voluntary or through self-regulation) or collaboration between health and industry.

This chapter has addressed the potential role of the food industry in addressing the cost of healthy food, highlighting numerous interventions such as proportional pricing of food packages, locating supermarkets in low-income areas, promoting private label products, reformulation of foods to improve healthiness, or targeting sales promotions at healthy foods, to name a few. Clearly, this is an area of considerable potential for change through industry leadership, collaboration between industry and health, or government regulation.

Recommendations

The role of the food industry is crucial in making healthy food affordable for low-income whānau/families. There is a wide range of areas where the food industry can act, at upstream, midstream, and downstream levels. Recommendations for areas where action can be taken have been identified in the literature and from key informants and these include the following.

Overarching

- Consider whether the best way forward for improving the affordability of healthy food is through industry leadership, developing collaborations between the food industry and public health and creating a shared agenda, or government regulation.
- Undertake a comprehensive review of the food supply chain looking at upstream, midstream and downstream factors in order to identify how cumulative food costs are incurred and areas where costs or profitability could be manipulated to favour healthy over less healthy foods.
- Ensure initiatives related to the development or availability of healthy foods are not just focused on premium products and consideration is given to providing affordable healthier products.

Upstream

- Invest in research across the entire food chain in order to ensure an integrated focus on health and economic outcomes for the New Zealand market.

Midstream

- Support continued product reformulation to make staple foods eaten by all socio-economic groups healthier, reflecting dietary guidelines.
- Implement proportional pricing in order to make smaller food package sizes more affordable. This could also have the advantage of decreasing overconsumption frequently associated with bulk buying.

Downstream

- Reorient food promotions and advertising to healthy food, eg, loss leaders; and determine the actual effect of promotions on food purchasing and consumption.
- Investigate the feasibility of providing unit pricing information in all food stores and assess effect on consumer purchasing behaviour.
- Locate budget supermarkets in low-income areas and/or provide transport support to budget supermarkets from low-income areas (see Chapter 4.3 on community markets, community gardens, access and transport).
- Evaluate availability and cost of healthy versus unhealthy foods by area-level deprivation and rural/urban location in New Zealand.
- Further develop and expand the range of healthy private label products available.
- Position affordable healthy foods in prime, strategic positions within supermarkets to promote their purchase
- Develop individual food industry sector nutrition policies which address planned actions in relation to provision and promotion of affordable healthy food.
- Ensure that adherence by the food industry to the code of practice on advertising to children and the Children's Food Classification System is monitored
- Explore opportunities for partnership with industry around food marketing and activities for promotion of healthier food
- Fast food industry to further develop healthier products and meal combinations equivalent or lower in cost than unhealthy products, and consider implementing menu nutrition labelling.

Additional

- Implement cooking skills interventions (see Chapter 3.1 on cooking skills).
- Explore the feasibility of initiatives to reduce food waste.

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Section B: Enhancing physical activity

To enhance physical activity for Māori, Pacific and low-income peoples the research team identified two areas for inclusion in this study. The first is an emerging field of research and practice internationally and was identified strongly in the literature review and suggested by focus group results. The second is an area of specific focus for New Zealand and was identified strongly in the focus groups and hinted at within the international literature.

The first section looks at improving urban design to facilitate more physical activity. The chapter (chapter 5.1) by Jamie Pearce and Sharron Bowers provides a wide-ranging discussion of the possible impacts of enhancing open space and street connectivity on physical activity. This questions whether promising international research translates into similar outcomes within New Zealand. Recommendations for action are focused on research and ensuring the potential for utilising urban design continues to be explored in policy while a more robust evidence base is established.

The second section looks at the provision of physical activity programmes that are culturally specific for Māori, Pacific and low-income peoples through three chapters. The first two chapters consider some of the infrastructure requirements for culturally-specific programmes. In Chapter 6.1 Ralph Maddison and Craig Heta examine capacity building amongst providers so that programmes are widely available and meet the needs of diverse communities. In the second chapter (chapter 6.2) Ralph Maddison continues this exploration with Christina McKerchar and focuses on evaluation and research to develop an evidence base of the impact of culturally specific programmes on physical activity. The third chapter (chapter 6.3) looks at the particular issue of the role of tikanga within culturally specific physical activity programmes. Of particular note in this chapter by Craig Heta, Leonie Matoe and Christina McKerchar is the use of tikanga not only in programmes by Māori for Māori, but in mainstream programmes that are likely to include both Māori and non-Māori.

Chapter 5: Improving urban design

5.1 *Enhancing open space and connectivity*

Jamie Pearce and Sharron Bowers

Summary

There are growing concerns about low levels of physical activity and the associated implications for health outcomes. Increasingly, it is appreciated that public health strategies focused on encouraging changes to individual behaviour have been insufficient. Long term and sustained improvements to physical activity levels are likely to require making a number of changes to residential settings, including to the urban built environment. This chapter evaluates the potential for implementing urban design initiatives (particularly open space and street connectivity) to address physical activity levels among Māori, Pacific and low-income communities in New Zealand.

The international evidence suggests that local access to open space and neighbourhood street connectivity exert a significant but modest effect on population-level physical activity. However, adjustments of these factors alone are unlikely to increase physical activity levels to recommended levels. There is a paucity of research evaluating the implication of these two area-level factors among disadvantaged groups. What evidence is available tentatively suggests that enhancing open space and street connectivity in more disadvantaged areas is particularly advantageous to these groups.

The evidence base in New Zealand for examining the effects of access to open space and street connectivity on physical activity is extremely limited. Most of the research that has been completed in this area was undertaken in the United States, and while the findings are compelling, the urban form of US cities (such as residential segregation, inequality, density etc) is distinct from the New Zealand situation. Therefore, the evidence from the US is unlikely to be transferable to the New Zealand context. Further investigation to develop the New Zealand evidence base is recommended.

New research should be targeted at exploring the influence of the built environment on physical activity and related health outcomes, with a particular emphasis on the three target communities. While new cross-sectional studies will make useful additions to the evidence base, it will be difficult to determine causality, which will limit the strength of evidence available in New Zealand. Perhaps the most fruitful line of research may come from collecting detailed longitudinal data that tracks individuals as they move between different settings in conjunction with sophisticated measures of the built environment. Current studies such as the 'Longitudinal Study of New Zealand Children and Families' as well as 'Survey of Family, Income and Employment, Statistics New Zealand' offer some opportunities. In addition, researchers should take advantage of various 'natural experiments' within the built environment that take place (eg. the opening of or improvement to urban parkland or adjustments to the road/cycle network).

While it is imperative to develop the New Zealand evidence base linking the pertinent components of the urban built environment and physical activity, it is also important to consider in parallel the policy levers that can be used to enhance these environments. The development of a National Policy Statement (NPS) in New Zealand offers considerable potential to enhance many characteristics of the built environment that potentially influence physical activity. It is important that the ongoing process of developing a NPS in New Zealand, underpinned by the research that is progressing in this area, explicitly incorporates an evaluation of the health implications of its recommendations. A significant strategic priority of a new NPS should be to specifically target the improvement of physical activity in Māori, Pacific and low income communities across the country.

Finally, while the Royal Commission on Auckland Governance recommends that governance structures should promote recreation⁷², relevant stakeholders need to keep a watching brief to ensure that any local government reforms maintain a focus on well-being that includes actions to enhance physical activity.

Recommendations are that:

- New research should be targeted at exploring the influence of the built environment on physical activity and related health outcomes, with a particular emphasis on the three target communities.
- Ensure that the ongoing process of developing a National Policy Statement on Urban Design incorporates an evaluation of the health implications of its recommendations, and specifically targets the improvement of physical activity in Māori, Pacific and low income communities.
- Keep a watching brief to ensure that any local government reforms maintain a focus on wellbeing that includes actions to enhance physical activity.

Problem definition

The emergence of the 'obesity epidemic' in recent years and the associated concerns about how levels of physical activity among populations are currently the focus of much research. Recent international evidence suggests that public health strategies focused on encouraging changes to individual behaviour, such as initiatives to increase participation in physical activity, have been insufficient. While explanations for the obesity epidemic are clearly multifaceted, it is increasingly appreciated that the role of the environment is pivotal in understanding the population-level decrease in energy expenditure. A strong case can be made for substantial and long-lasting environmental initiatives that provide easier opportunities for physical activity. Of course, advocating a successful public health agenda requires a robust evidence base, including a confident assessment of whether environmental interventions do influence physical activity.

There is growing international evidence that various physical features of the built environment are pertinent in understanding individual-level physical activity levels. Neighbourhood characteristics that potentially influence physical activity levels include: access to recreational facilities and open/green space; neighbourhood aesthetics; social capital; crime and incivilities; and transportation options. The focus of this document is to evaluate the potential for implementing urban design initiatives to address physical activity levels among Māori, Pacific and low income communities in New Zealand. In particular, and based on the prioritisation process that the research team has

undertaken, discussion centres on the issues of enhancing i) open space and ii) connectivity at the local level. Whilst these two issues will be the focus of this document, it is acknowledged that they cannot be considered in isolation from other key (and inter-related) neighbourhood-level urban design features such as the range of destinations (individuals need somewhere to go), population density (destinations have to be in close proximity), walkability (more amenable to walking) and landuse mix (eg., positioning workplaces, shops and homes in close vicinity). Therefore, in addition, this chapter will briefly consider the New Zealand-based evidence across these other domains. Although the focus of the current research is on physical activity it is recognised that the literature pertaining to the environmental determinants of obesity may also be pertinent. While many studies use measures of weight or weight gain as outcome measures, often physical activity is considered part of the causal pathway between the exposure of interest and the health outcome.

In the first stage of this chapter a detailed scan across the international literature pertaining to open space and connectivity and their implications for physical activity and related health outcomes is provided. For each of these characteristics of the built environment, consideration is given to their potential implications for inequalities in physical activity (ie, among disadvantaged groups). Next, an evaluation of the published research evidence in New Zealand is provided and the material is contrasted to the international literature. Third, an overview of current New Zealand-based research projects that are pertinent to these issues is provided. Some provisional results are included, as well as discussion of the knowledge gaps that these current research projects aim to fill. Finally, the findings from the literature and interviews are discussed before our key recommendations are provided.

Methods

The scan across the international literature was completed by searching for pertinent reviews (systematic and non-systematic) that have been completed on the built environment and their implications for physical activity levels. In addition, papers were sought using key search engines including PubMed, Scopus and Google Scholar to identify articles that either superseded or were beyond the scope of the published reviews and/or added additional insights. The search engines were used to identify research pertaining to connectivity and open spaces. Each of the papers included in the published reviews and those found using the search were examined to:

1. assess the strength of the evidence base that connectivity and open space are related to physical activity and/or related health outcomes at a population level, and to
2. evaluate whether there is evidence to suggest that these features of the built environment have a disproportionate effect on disadvantaged populations (and hence impact on inequalities in physical activity or related health outcomes).

We then provide an overview of the current research that is pertinent to this chapter. Using key contacts throughout New Zealand, we describe some of the current research that will assist in developing the urban design research base, and in some cases we provide some provisional (unpublished) findings.

Results: International context

Open space

There is a growing literature identifying a link between neighbourhood open space and the physical activity levels of local residents. Open space is variously defined. Definitions include designated urban parks which often include recreational facilities such as play areas for children, as well as broader designations that encompass some or all forms of green space. Locational access to open and green space provides the opportunity structures within the neighbourhood for walking, cycling and other forms of physical activity. This body of work has been the subject of a number of international reviews,¹⁻⁵ with much of the research undertaken in the United States. In general, the international evidence is supportive of an effect of open/green space on levels of physical activity and physical activity related health outcomes. Some studies have utilised direct (objective) measures of locational access to open space (eg, using Geographical Information Systems measures) and modelled the effects on the physical activity levels of local residents, whereas others rely on the perceptions of the recreational environment among local residents.² The research also covers a variety of outcome measures including total physical activity, vigorous activity and the amount of time spent walking for exercise or for transport.²⁻⁴ Studies in the United States have found that the density of recreational resources (including open space) are associated with the physical activity of both adults,⁶⁻⁸ older adults,⁹⁻¹⁰ and children.¹ In some instances, the quality of, and facilities available in, open spaces such as parks were found to be more important than simple locational access.¹¹ Similar findings have been found in other countries, with a particularly strong evidence base in Australia.¹²⁻¹⁹ Other types of open space, such as access to beaches have also been shown to be associated with increased physical activity levels.²⁰ Neighbourhood greenness (or sometimes defined as 'natural environments') has been associated with higher levels of physical activity and/or lower BMI scores among adults²¹⁻²⁶ and children.²⁷ In addition, there is compelling evidence that greenspace is associated with broader measures of health such as perceived general health,²¹⁻²⁶⁻²⁸⁻²⁹ an effect that is potentially mediated by increased physical activity levels.

In terms of health inequalities, there is mounting evidence from various countries that more socially deprived communities have poorer locational access to open/green space,³⁰⁻³² although this finding is not observed in all settings.³³⁻³⁴ Research has also found that the quality of the open space (eg, well lit, good quality facilities etc) varies between areas stratified by area-level deprivation with less disadvantaged areas tending to have better quality space.³⁵⁻³⁶

Fewer studies have directly considered (using health outcome data) the implications of differential access to open space on health inequalities. One US observational study in a selection of ethnic minority and low-income neighbourhoods found that, unlike the general population, public parks were the most common site for exercise.⁸ In turn, the utilisation of parks and physical activity levels were strongly influenced by the distance between a participant's home and the parks included in the study. These findings suggest that access to open space may influence physical activity levels to a greater extent for disadvantaged communities. Similarly, a study in Australia demonstrated that access to open space mediated women's educational inequalities (a proxy for socioeconomic status) in leisure-time walking (but not walking for transport).¹⁶ These latter findings were supported by a study of women in the US.³⁷

Together, these results suggest that women who are on a low income or living in low SES neighbourhoods may disproportionately benefit from greater availability of physical activity resources. A study in small areas across England found that, after adjustment for potential confounders, the level of greenness moderated the relationship between area-level deprivation for various health outcomes that are plausibly linked to physical activity.³⁸ The findings are significant because they suggest that good locational access to greenspace may attenuate health inequalities.

In summary, while there is a paucity of literature evaluating the influence of access to open space on disadvantaged groups, the evidence that is available suggests that better locational access in more disadvantaged areas is particularly advantageous to these groups and the implementation of suitably designed initiatives has potential to reduce inequalities in physical activity (and related health outcomes). However, while most studies have found neighbourhood open space to be associated with increased physical activity levels, the size of this effect suggests that improving access alone is unlikely to be sufficient in increasing physical activity levels to recommended levels.¹⁵ Therefore, interventions to improve access to open space require complementary strategies which aim to influence individual and social environmental factors.

Connectivity

There is a small but growing body of research examining the effects of street connectivity on physical activity and related health outcomes. While precise operational definitions of connectivity vary, neighbourhoods with a high degree of connectivity are designed with a well-connected street network with plentiful intersections, small block sizes and few cul-de-sacs. High levels of connectivity can facilitate walking through active transport and increase overall physical activity through providing shorter trips, a larger range of destinations within easy reach, reducing the speed of traffic, and decreasing reliance on private forms of transport.^{39 40}

Most research into the influence of street connectivity on individual-level physical activity comes from the US. This body of research has overwhelmingly demonstrated that in the US context, greater levels of connectivity are related with higher levels of physical activity and lower prevalence of physical activity-related morbidity and mortality measures. Studies in the US have generally found small but statistically significant associations between street connectivity and total and/or vigorous physical activity.^{9 41-44} For example, using data collected from children wearing accelerometers and GIS measures of neighbourhood connectivity it was found that street connectivity accounted for an additional six percent (after adjustment for sex) of the variance in objectively measured physical activity.⁴³ Similar findings were found among older women.⁴⁵ Some studies have found the effects of connectivity on physical activity to be limited to leisure activity rather than utilitarian forms.⁴⁶ Others have found the effects to be limited to younger people.⁴⁷ However, not all US studies have found a significant association between connectivity and physical activity.⁴⁸ For instance, a study in Atlanta found that while other characteristics of the built environment were significant, local street connectivity was not associated with overall physical activity levels of local residents, although there was evidence of an effect among white males.⁴⁹

Outside the US there is a paucity of research into street connectivity and physical activity. One study in an urban area in Queensland, Australia using GIS-derived measures of street connectivity to local parkland found counterintuitive associations with

self-reported measures of achieving sufficient levels of physical activity.⁵⁰ The results suggested that respondents who had unacceptable connectivity to parkland were more likely to attain sufficient levels of physical activity than those who had more direct locational access. In a sample of 705 adolescent girls (mean age 14.7) in the Aveiro District of Portugal, street connectivity was a predictor of active transportation.⁵¹

Other research has considered physical activity-related health outcomes such as obesity. Studies examining the effect of neighbourhood connectivity (objectively measured using GIS) on body weight are scarce and many,^{49 52-54} although not all,⁵⁵⁻⁵⁷ have found there to be an association. However, even when a positive association was noted the effect was not consistent across all social and demographic groups and/or all measures of weight/obesity.

Few studies have explicitly compared the effects of connectivity on different social groups, and considered the implications for health inequalities. In a sample of 1282 Australian women it was found that street connectivity in each participant's neighbourhood mediated inequalities (measured between educational groups: a proxy for socio-economic status) in physical activity for transport but not for leisure.¹⁶ The authors suggested that public health strategies to reduce social inequalities in physical activity could usefully focus on environmental strategies such as modifications to the built environment.

In summary, the review of the international literature suggests that neighbourhood connectivity has a modest but important role to play in influencing physical activity and related health outcomes. However, the total number of studies is low with very few completed outside of the US. Unsurprisingly, few researchers have considered the implications of street connectivity for inequalities in physical activity and related health outcomes. This area is clearly a key area for future investigation.

Results: National context

While the evidence base around open space, connectivity, and physical activity is well developed in countries such as the US and Australia, in New Zealand the field of research is in its infancy. Access to open space and health has received attention from one team of researchers based at Massey, Otago and Canterbury Universities. The group used a GIS approach to develop a national index of access to a variety of health-related 'community resources' for neighbourhoods across the country. Among the community resources of interest were access to open space and beaches, which were measured using the travel time from the centroid of each neighbourhood (n=38,254) to the closest park and beach (from the Land Information New Zealand dataset).⁵⁸ Analysis of the index found that locational access to open space (parks) was better in more deprived neighbourhoods (measured using NZDep) across New Zealand, suggesting a pro-equity distribution.⁵⁹ For beaches there was no relationship with area deprivation. However, these national-level trends were not consistent in rural areas and in some regions of the country with large Māori and low income populations (eg, Northland, West Coast), where the opposite pattern could be observed for some resources.⁶⁰

With regards to any association between access to open space and physical activity related health outcomes, the research team used the New Zealand Health Survey (12529 participants in 1178 neighbourhoods across the country) and appended the

neighbourhood measures of access. They found that neighbourhood access to parks was not associated with BMI, sedentary behaviour or physical activity, after controlling for individual-level socio-economic variables, and neighbourhood-level deprivation and urban/rural status. There was some evidence of a relationship between beach access and BMI and physical activity in the expected direction.⁶¹ Although this is the only local study and uses only a single measure of open space, it suggests that there is little evidence of an association between locational access to open spaces and physical activity in New Zealand. The authors speculate that the discrepancy between the international findings and those in New Zealand may be because of the lack of variation in neighbourhood exposure variables. In other words, most neighbourhoods in New Zealand have relatively good access to open space.

Studies of physical activity and street connectivity in New Zealand are equally scarce. One study was undertaken on the North Shore, Auckland and used a measure of the node ratio (derived by dividing the number of street intersection nodes by the number of intersections and cul-de-sac nodes contained within a 500m buffer zone of a respondent's commute route) to investigate transport-related physical activity behaviour.⁶² Using logistic regression, the authors found evidence that street connectivity was related to transport-related physical activity. Respondents who commuted through the most connected streets were more likely to engage in transport-related physical activity modes to access their occupation (OR=6.9) when compared with those travelling along the least connected. None of the other urban design variables that the authors used were found to be related to physical activity.

Most recently, a study was conducted in Auckland, New Zealand to determine the feasibility of integrating environmental, individual-level, and psychosocial variables to better understand adolescents' physical activity.⁶³ Although small (n = 110), this study included objective (GIS) (walkability and accessibility) and perceived measures (access to physical activity facilities) of the environment. Using structural equation modelling, results showed that walkability and accessibility were not related to physical activity, measured both with accelerometers and self-reports.

In summary, the New Zealand evidence base for the effect of the built environment on health is extremely limited. There has been no research that has explicitly examined the effects of the built environment on our target populations. This is perhaps unsurprising given that even in the US where this literature is relatively well developed, there have only been 10 studies to examine the effects of the built environment (all components, not just open space and connectivity) on the largest ethnic minority group in that country (African American).⁶⁴ The New Zealand studies that have evaluated associations between connectivity, open space and physical activity are not generally consistent with the international literature and are not supportive of an effect. Nonetheless, it would be unwise to dismiss these urban design variables as being unimportant in the New Zealand context. Because of the small number of studies (n=3), as well as the methodological limitations and the data constraints of previous work, the evidence base is not sufficiently developed for definitive conclusions. Further New Zealand research into the built environment and physical activity is a priority.

Current and Ongoing Research

While there is a limited evidence base with regards to urban design and physical activity in New Zealand, there are a number of recently initiated and ongoing research collaborations that will begin to address this important research gap. Details of the projects that we are aware of are detailed below and include projects that are close to completion (but yet unpublished) and the provisional findings from ongoing work.

URBAN Study

Funded by the Health Research Council (2008-11), a large team of researchers from the Universities of Auckland, Massey and Canterbury, as well as Auckland University of Technology, are collaborating on a study that is focusing on physical activity in and beyond neighbourhoods, using in-depth qualitative and quantitative research methods. The collaboration (named Understanding the Relationship between Activity and Neighbourhoods (URBAN) research project) aims “to determine strengths of association between detailed measures of neighbourhood built environment with physical activity and body size measures in adults and children, based on data collected according to a common protocol in the international collaborative study”. The research will sample adults and children living in diverse neighbourhoods located in four New Zealand cities (North Shore, Waitakere, Wellington, and Christchurch). Physical activity will be used as a case study to determine how environmental factors interact with individual factors to become intermediary pathways to inequalities – both as drivers and as part of the solution.

At present the team is focusing on developing indices of walkability (how conducive a neighbourhood is for walking) and opportunity structures (a range of destinations such as shops, parks, workplaces etc that can be reached on foot and hence encourage walking). Both of these indices are related to connectivity. These indices will be used to identify neighbourhoods that vary in terms of their conduciveness to physical activity, and these areas will be the focus of further work. Provisional results from the index of neighbourhood opportunity structures are available. A Geographical Information System (GIS) analysis was used to calculate a composite neighbourhood variable of available destinations that promote physical activity.

Four Territorial Local Authority (TLA) areas comprising North Shore City Council, Waitakere City Council, Wellington City Council, and Christchurch City Council were included in the analysis. Destinations were compiled from community amenities located in the vicinity of census meshblocks (neighbourhoods) in these four TLAs. The eight community resource domains collected were: education, transport, recreation, social & cultural, food retail, financial, health and other retail. GIS was used to define catchment areas (800m buffers) for each neighbourhood in the four TLAs. These catchments were used to calculate the number of physical activity-promoting destinations within these neighbourhoods. The measures for different sub-domains were combined into a single weighted score.

Provisional findings suggest that the availability of destinations is patterned by neighbourhood deprivation. More deprived neighbourhoods tend to have a larger number and better range of destinations, and this pattern is linear. Further, the socio-spatial pattern is not confounded by population density as this linear trend is consistent in low, medium and high population density areas. The neighbourhood index of walkability is close to completion.

Greenspace and Health

Recent work in the GeoHealth Laboratory, University of Canterbury is contributing to international debates on greenspace and health through developing an area-level measure of greenspace and considering the implications for health inequalities. More specifically, the aims of this project are threefold. First, to develop a small-area classification of greenspace types for urban areas of New Zealand, and in particular to differentiate between 'usable' and 'non-usable' areas. Usable greenspace refers to green areas that are accessible for recreational use such as parks, beaches and some forests. Non-usable greenspace refers to land in agricultural use, forestry or wetlands. Second, to examine whether the different types of greenspace were distributed equitably between areas stratified by area-level social deprivation. Third, to investigate the implications of access to greenspace for health inequalities in New Zealand.

Three datasets were used to identify different types of greenspace. All had national coverage but differed in their positional accuracy and level of information provided (Department of Conservation; Land Information New Zealand; and the Ministry for the Environment's Land Cover Database). The greenspace measures were appended to mortality records (1996-2005) for those aged 15-44 provided by the Ministry of Health. Negative binomial regression was used to model the relationship between greenspace and health, and whether there were any significant interactions with social deprivation.

Provisional (and unpublished) findings from this research suggest that greenspace availability varies linearly across areas stratified by social deprivation. The availability of total and non-usable greenspace decreases with increasing area-level deprivation. In contrast, availability of *usable* greenspace increases with deprivation, indicating that although deprived areas have less greenspace in total, proportionally more of it is usable. Regression analysis suggests that greenspace (usable, non-usable and combined) is associated with mortality. Further, in the most socially deprived areas of New Zealand greenspace dilutes inequalities in health. These findings require further interrogation.

National Policy Statement

Historically, city zoning ordinances have tended to be implemented with a view to separating residential neighbourhoods from industrial facilities, to limit residents from the harmful effects (particularly health) of exposure to negative externalities such as infectious disease and industrial air pollution. However, with the shift in focus over the course of the 20th century from infectious to chronic diseases such as obesity, public health concerns have largely become absent from major planning or land use decision making. Perhaps unsurprisingly, many urban environments are not well designed to enable healthy lifestyles, and hence many residents of urban areas suffer poorer health due to badly designed physical environments.

With regard to improving physical activity among our three target populations, a National Policy Statement (NPS) may provide a useful framework for urban design. The Ministry for the Environment (MfE) is currently working on an NPS under the Resource Management Act 1991 (RMA). According to Perdue et al (2003) an NPS on urban design 'can be a potent tool in creating a built environment that is conducive to public health' (p9).⁶⁵ Various avenues are possible within an NPS framework including zoning,

enhancing greenspace and ensuring that neighbourhoods have high degrees of connectivity.

In August 2008 the MFE released a background scoping paper on an NPS on urban design, inviting feedback on aspects such as what issues an NPS should address, the structure and level of detail to be included in the statement, how directive it should be, its scale, and what other qualities should be reflected in an NPS. This followed consultation with a range of stakeholders^a in 2006-2007 on the desirability of an NPS. Views expressed in this consultation were presented in the scoping paper.

A summary of submissions on the scoping paper was made available in March 2009.⁶⁶ The feedback identified urban design issues supported by submitters. These included connectivity, walkability and active transport; quality of place, public spaces, and access to open spaces; and providing for the inclusion of Māori values in an NPS. This feedback was used to inform a report to the Government on the potential scope of an NPS on urban design in early 2009. The process for further development of the NPS includes seeking and hearing submissions on the proposed NPS, although no specific dates have been given for this process.⁶⁷

The scoping paper and submitters supported the use of the Urban Design Protocol (UDP) developed by MFE⁶⁸ in 2005, to form the basis of the NPS. The UDP provides a comprehensive set of principles and processes for urban design in New Zealand⁶⁷ and is supported by case studies.⁶⁹ Signatories to the UDP make a voluntary commitment to carry out specific urban design actions. 'Places, spaces and networks' and the ways they are used are among key concerns of the UDP, as are the 'economic, social and cultural consequences of design'.⁶⁸

There are other areas of work related to urban design which may influence the NPS and/or provide further opportunities to enhance physical activity for Māori, Pacific and low income people. The Sustainable Urban Development Unit (SUDU)^b released a discussion document exploring a possible approach to sustainable urban development in September 2008.⁷⁰ Hui were held to seek Māori views and a summary of all submissions was made available in March 2009.⁷¹ The discussion document does not identify practice around connectivity and open space specifically. Under barriers to implementation, the submissions mention connectivity and open space as being an example of 'community good' that is often not delivered through market mechanisms.

City and District Councils currently develop and oversee most urban planning processes. Within Auckland, the Government established The Royal Commission on Auckland Governance 'to investigate, and make recommendations on, local and regional government arrangements for the Auckland region in the future'⁷². A recommendation from the Commission's final report is that 'Auckland needs governance arrangements for the region's built and natural environments to ensure Auckland's quality of place is

^a Organisations participating in the consultation were from a range of central and local government agencies, professional bodies, academic institutions, developers and consultants.

^b The Sustainable Urban Development Unit is an interagency unit hosted by the Department of Internal Affairs, with support from Local Government NZ, Department of the Prime Minister and Cabinet, State Services Commission, The Treasury, Ministry for the Environment, Ministry of Social Development, Department of Building and Housing, Housing New Zealand, Ministry of Transport, and Ministry of Economic Development.

maintained and enhanced'. This recommendation was followed by a statement that 'the Auckland Council should establish an Urban Design Panel to review all major developments throughout the Auckland region, with sign-off for major projects'. The report also recommended governance structures that promote recreation, along with the benefits of diversity and support culture. It is important that local government reforms keep a focus on well-being that include actions to enhance physical activity.

The Department of Building and Housing is hosting an Urban Intensification Taskforce which was established in 2008. The purpose of the taskforce is to 'propose a way forward for achieving better urban intensification outcomes for New Zealand and, in particular, the Auckland region'.⁷³ Characteristics of successful intensification were identified in a taskforce scoping paper and included that: 'it provides access to open spaces and other civic amenities'; and that 'it is integrated with the provision of public transport and provides for a range of other transport options, including foot and bicycle'. The taskforce has set up a working party to develop proposals which will be discussed at the next Construction Leaders Forum in the first half of 2009.

In conclusion, the current development of an NPS may provide opportunities for input from the ENHANCE research around improving open space and connectivity in favour of Māori, Pacific and low income people. Work to date on the NPS shows support for inclusion of connectivity and open space as design issues. There are other areas of work related to urban design, outlined in this chapter, which may influence the NPS and/or provide further opportunities to enhance physical activity. Local government reforms appear to be a key area to watch to ensure that focus is kept on actions to enhance physical activity.

Discussion

The international research into the effects of the open space and connectivity on physical activity and related health outcomes is promising. Residents living in neighbourhoods that are characterised by having good locational access to greenspace and which have networks of streets, paths and cycleways that are highly connected are often more physically active.

Most research on the influence of the built environment (including open space and connectivity) has been undertaken in the US. This work is generally supportive of a significant and positive effect. However, due to the difficulty of capturing detailed longitudinal data, the vast majority of studies are cross-sectional or, at best, use a repeated cross-sectional design. This study design is a major impediment to developing successful urban design policy initiatives to combat low levels of physical activity. It is not possible to determine causality from cross-sectional analyses due to the possible effects of reverse causality (or 'endogeneity'). Reverse causality could occur, for example, when residents who are physically active preferentially locate in areas that are conducive to physical activity.

Further, the evidence base in New Zealand is extremely limited, with only three completed to date. Results have generally not found a significant relationship between the built environment and physical activity. There has been no published research in New Zealand on the built environment and health among the three target populations. However, there are a number of key pieces of work underway in New Zealand that are

likely to address this knowledge gap. It will be important that the results of these findings underpin the development of a National Policy Statement (NPS) on urban design. There is considerable scope for an NPS (underpinned by the Urban Design Protocol developed by the Ministry of the Environment) to support changes to the urban built environment to enhance physical activity.

Feasibility (level of evidence of effectiveness)

At an international level, there is reasonably strong evidence that localities with good access to greenspace and high levels of connectivity have a positive effect on physical activity-related health outcomes. However, the evidence mainly comprises cross-sectional studies (which in isolation cannot determine causality) and was almost exclusively conducted in the US and Australia. There has been very little research completed in New Zealand on the relationship between any aspect of the built environment and physical activity (or related health outcomes).

Sustainability

Adapting the built environment (including open space and connectivity) is potentially a long term and sustainable approach to addressing physical activity levels at the population level. Interventions to alter aspects of the built environment are likely to prove far-reaching and durable. They are likely to support positive changes to behaviour, practices and attitudes to physical activity.

Effect on equity for Māori, Pacific and low-income peoples

There is a limited amount of international research examining the influence of the built environment on the levels of physical activity (and related health outcomes) among disadvantaged populations. What research there is tends to be set in the US and examines low income and/or African American populations. In New Zealand, there is a dearth of information evaluating the effect of any component of the built environment (including open space and connectivity) on the three target populations. Whilst the spatial targeting of policy initiatives may address the physical activity levels of residents in those localities, it is important to note that compared with North American cities for example, Māori, Pacific and low-income peoples in New Zealand are not heavily segregated.

Acceptability to stakeholders

There has been little New Zealand evaluation of the acceptability to various stakeholders of altering the built environment for the purpose of addressing health concerns.

Key components for effectiveness

There is little research in this area. Clearly though, addressing issues relating to the built environment will require collaboration across a range of sectors, including those working in planning/urban design at the national and local level, architects, sports and recreation, and transportation, as well as the public health community.

Potential side-effects

There is limited evaluation of the potential side-effects of adapting built environments to enhance physical activity. Possible side-effects may include changes to traffic flows in New Zealand cities and the associated costs for businesses and households. However, these effects are likely to be minimal. A variety of positive side effects may also be envisaged, such as the development of more sustainable cities and higher levels of

social capital and social cohesion, as well as a reduction in car dependency and the associated lowering of pollution levels.

Cost benefit analysis

No cost benefit data are available.

Recommendations

The evidence base in New Zealand for examining the effects of access to open space and street connectivity on physical activity is extremely limited. Most of the research that has been completed in this area was undertaken in the United States, and while the findings are compelling, the urban form of US cities (such as residential segregation, inequality, density etc) is distinct from the New Zealand situation. Therefore, the evidence from the US is unlikely to be transferable to the New Zealand context. Further investigation to develop the New Zealand evidence base is recommended.

New research should be targeted at exploring the influence of the built environment on physical activity and related health outcomes, with a particular emphasis on the three target communities. While new cross-sectional studies will make useful additions to the evidence base, it will be difficult to determine causality, which will limit the strength of evidence available in New Zealand. Perhaps the most fruitful line of research may come from collecting detailed longitudinal data that tracks individuals as they move between different settings (over the course of the day as well as over the lifecourse) in conjunction with sophisticated measures of the built environment. Current studies such as the 'Longitudinal Study of New Zealand Children and Families' as well as 'Survey of Family, Income and Employment, Statistics New Zealand' offer some opportunities.

In addition, researchers should take advantage of various 'natural experiments' within the built environment that take place (eg. the opening of or improvement to urban parkland or adjustments to the road/cycle network). Undertaking natural experiments will require the collection of robust and timely data to monitor interventions. Longitudinal studies and natural experiments offer opportunities to better understand the influence of the built environment on physical activity of Māori, Pacific and low income communities. But both approaches will require targeted funding streams as well as multi-sectoral collaborations.

While it is imperative to develop the New Zealand evidence base linking the pertinent components of the urban built environment and physical activity, it is also important to consider in parallel the policy levers that can be used to enhance these environments. The development of a National Policy Statement (NPS) in New Zealand offers considerable potential to enhance many characteristics of the built environment that potentially influence physical activity. It is important that the ongoing process of developing a NPS in New Zealand, underpinned by the research that is progressing in this area, explicitly incorporates an evaluation of the health implications of its recommendations.

A significant strategic priority of a new NPS should be to specifically target the improvement of physical activity in Māori, Pacific and low income communities across the country. Given the paucity of research in this area, it will be important to evaluate the implications of the implementation of NPS-related policies on practice.

Finally, while the Royal Commission on Auckland Governance recommends that governance structures should promote recreation⁷², relevant stakeholders need to keep a watching brief to ensure that any local government reforms maintain a focus on well-being that includes actions to enhance physical activity.

In summary, recommendations are that:

- New research should be targeted at exploring the influence of the built environment on physical activity and related health outcomes, with a particular emphasis on the three target communities.
- Ensure that the ongoing process of developing a National Policy Statement on Urban Design incorporates an evaluation of the health implications of its recommendations, and specifically targets the improvement of physical activity in Māori, Pacific and low income communities.
- Keep a watching brief to ensure that any local government reforms maintain a focus on wellbeing that includes actions to enhance physical activity.

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Chapter 6: Culturally specific physical activity programmes

6.1 *Developing capacity*

Ralph Maddison and Craig Heta

Summary

Developing capacity to design, implement, and evaluate culturally-specific physical activity opportunities was highlighted as a key area of interest from the ENHANCE project. We conducted a review of international literature and a scan of the New Zealand (NZ) literature, as well as key informant interviews to (1) identify and summarise the key components of successful capacity building; and (2) to provide recommendations for future work.

There is a wide breadth and depth of international literature on developing capacity. A number of theoretical approaches have been applied to better understand capacity building. Moreover a number of conceptual models have been developed as a tool to help guide capacity development.

In NZ, the NZ Health Workforce Framing Future Directions discussion document provides a summary of workforce issues for Māori and suggestions for building Māori health workforce capacity. The national scan of evidence highlighted a number of examples of capacity building from existing culturally-specific programmes.

Considered in concert with the responses from the key informant interviews the following key factors were highlighted:

1. A collaborative approach based on a community development model is required. This would need to take into consideration a Māori for Māori or Pacific for Pacific delivery approach
2. The presence of suitable expertise to facilitate mentoring strategies
3. Education and training for those delivering the programme, which should be extended into the community
4. Champion roles and leadership actions are required, with Māori and Pacific representation on advisory boards, and governing bodies where research funding priorities are determined
5. Increase or maintenance of resources to ensure basic infrastructure is available
6. Sources of funding need to be available and accessible for Māori and Pacific to ensure sustainability of any initiatives.

To conclude, capacity development is important for the sustainability of current and future culturally-specific physical activity programmes. There are a number of physical activity or lifestyle initiatives currently in place in New Zealand, many of which have included some element of capacity development.

It is recommended that:

- where strategic development of capacity building for culturally-specific physical activity programmes should be located within government is identified and adequately funded
- funding for culturally-specific physical activity programmes explicitly includes stated capacity development elements, with subsequent evaluation
- a proportion of funding of physical activity programmes delivered in community settings be ring-fenced for capacity building
- existing culturally-specific physical activity programmes are evaluated for capacity development
- a community development model of capacity building is used that takes into consideration the Treaty principles and a by Māori for Māori or by Pacific for Pacific delivery approach
- suitable expertise to facilitate mentoring strategies is sourced and funded
- education and training for those delivering programmes is undertaken, ideally linked with qualifications and a career pathway, which is extended into the community, particularly to the voluntary workforce
- impact evaluation of capacity building programmes will need to be built in to further refine this work over time
- champions and leadership actions continue to be developed with Māori and Pacific representation on advisory boards and governing bodies where funding priorities are determined. This should include all areas where capacity development funding is available.

Problem Definition

Physical activity has been shown to be associated with numerous physical and mental health benefits,¹⁻³ including assisting with weight management and weight reduction.^{4 5} The importance of physical activity for Māori and Pacific was discussed at two hui conducted by the ENHANCE team. Māori and Pacific representatives were invited to discuss the topic of 'provision of culturally-specific physical activity programmes'. Building capacity for Māori and Pacific was consistently highlighted in the hui as an important step in the development of culturally-specific physical activity programmes.

Given the broad scope of this topic, this chapter will define capacity building and provide examples of capacity building from successful international and national initiatives. To do this, we conducted a review of international literature pertaining to developing capacity, an environmental scan of the New Zealand literature, and key informant interviews to one, identify and summarise the key components of successful capacity building; and two, to provide recommendations for future work.

The first part of the chapter presents findings from the international literature related to building capacity. In this section, we primarily focus on reviews and include capacity building literature from different topic areas. The next section presents the findings from the environmental scan of New Zealand literature pertaining to programmes or initiatives that have detailed components of capacity development. Each of these initiatives is presented separately with an outline of the capacity development aspects provided. Next we summarise findings from key informant interviews. The overall findings are summarised before key recommendations are provided.

Methods

A brief review of the international and national literature on developing capacity was conducted using Scopus. The literature scan was undertaken in March 2009. The Scopus bibliographical database was searched for papers since 1990 with combinations of keywords: capacity, building, development, workforce, research, indigenous, Māori, Pacific, and culture. A Google search was also undertaken. Titles of articles were scanned for relevance. Grey literature reports were also used for the national review only.

Four key informants well placed to comment on this issue (three Māori and one Pacific) were also interviewed to supplement the literature review. These were health practitioners and/or researchers who have experience in establishing, planning, delivering and evaluating capacity development initiatives for Māori (n=3) and Pacific (n=1).

International Literature Review/Scan

The literature consistently highlighted the need to develop capacity building in indigenous people, minority and disenfranchised groups. In particular, the development of a culturally competent workforce to provide services or implement programmes for Pacific^{6 7} and indigenous people was recommended.^{6 8 9} The concept of building capacity is common in international development literature.¹⁰

The terms ‘developing capacity’ or ‘capacity building’ are frequently used and, depending on the context, can have numerous meanings. Capacity has been defined as “the abilities, behaviours, relationships and values that enable individuals, groups, and organisations at any level of society to carry out functions and tasks and to achieve their development objectives over time” (p.37).¹¹ In relation to public health change, capacity building has also been defined in terms of interventions which have changed an organisation’s or community’s ability to address health issues by creating new structures, approaches and/or values. These will be ongoing without the need for further funding.¹² The latter definition overlaps with typical definitions of sustainability. With respect to this chapter, both these definitions suggest that successful capacity building will result in changes to the organisation’s “structures, approaches and/or values”. This implies that successful efforts to develop sustainable programmes will only result from a dynamic process of organisational change in response to the new programme.¹³

Building capacity involves micro (individual), meso (organisational), and macro (systemic) level changes over time.¹¹ Long-term changes are required to support sustainable systemic or structural improvements.¹⁴ Thus, building capacity should be considered a process rather than a single action or intervention. Central to this process are notions of time, human agency, social structures, change and sustainability.¹⁰ Within the international literature, capacity building has often been examined in the context of developing countries in which technological and infrastructural improvements are necessary to support human capacity building. These various components of capacity building will now be discussed.

How do you build capacity?

At a practical level, suggestions have included working with counterparts, creating strong partnerships, attending to training, empowerment, and policy development.¹⁰ Based on previous reviews of literature two relevant theoretical content areas have been identified

as central to capacity building: (a) physical, human, organisational, social, and cultural capital; and (b) empowerment. Each of these is defined in turn.

Physical, human, organisational, social and cultural capital

Building capacity in its broadest sense encompasses the development of physical, human, organisational, social and cultural capital. All are important and all require attention in the planning, implementation and evaluation of development projects, such as culturally-specific physical activity programmes. Viewing capacity building through the lens of different levels of capital implies concern with resources and possible power distribution.

Within these different levels, physical capital relates to infrastructural needs (computers, equipment, internet resources etc.). Human capital refers to individual change through skills acquisition. Organisational capital relates to the internal structure, systems, strategy and skills of an organisation. Very little research refers to the development of social capital; however, if human capital refers to individual change through skills acquisition, social capital comes about through changes in the relations among persons who facilitate action. Finally, cultural capital refers to the habitus of cultural practices, knowledge, and demeanour learned through exposure to role models in the family and other environments.¹⁰ Empowerment is vital to building capacity. It is necessary that the parties involved believe they have, or can acquire, the knowledge and skills and power to help others make change.

From the nursing literature, there are a number of examples of building capacity for nursing practice and research.^{10 15 16} An international collaborative project¹⁰ between the University of Alberta in Canada, and the Department of Nursing in Ghana sought to develop capacity by addressing the various forms of capital highlighted above, and empowering nurses. Initial verbal communication between the respective parties was followed by reciprocal visitations which provided the foundation for a mutually empowering relationship. From this starting point, identification of existing capacity was highlighted, with identification of appropriate strategies for encouraging participation between the two organisations, and ways of addressing physical and human capital. While the initial strategies were deliberately planned, organisational, social and cultural capital strategies were more organic. This project aimed to develop capacity among nurses at an individual, group and organisation level through a collaborative approach, and provides a useful example of a theoretically grounded systematic approach to capacity building.

The development of nurses' research capacity was a frequently addressed topic in the international literature. A review¹⁵ highlighted the factors that have influenced the development of research capacity among nurses in low and middle income countries. Barriers to conducting research included lack of training and education in this area, scarcity of resources, which was also driven by lack of funding, and hierarchies of power, which limited exposure to research opportunities. The authors of the review recommended a three-pronged approach to help build capacity. The first was to provide greater opportunities and access to graduate and post-graduate training. This could involve research and policy practicums, establishment of training opportunities, including PhD programmes, and exposure to essential research skills such as writing peer-reviewed publications, developing knowledge translation skills, and improving grant writing abilities. The second approach was to develop and enhance mentoring strategies. Opportunities to work alongside senior researchers, on-site and with distance

programmes should be encouraged. Formalised links to decision makers would help ensure the research question tackled priority health services and policy issues. Third, there should be improvement in access for funding for research projects, and strengthening of research networks. Access to physical capital in the form of infrastructure such as computers, databases and personnel was also recommended.

Key elements from the nursing literature above have been applied to build sustainable research capacity in a rural brain injury rehabilitation service in Australia.¹⁷ The project involved a partnership with a university organisation, which helped develop a multidisciplinary reference group. Key steps for the programme included appointing a project coordinator, establishment of a cross-institutional skills database to match staff with relevant experience, offering competitive small project grants, assistance for staff to develop project ideas, and support to identify and apply for external research grants. This project represents a successful partnership between academics and clinicians to develop research capacity.¹⁷

The improvement of human capital of community health workers has been a priority area in some countries, mainly due to the lack of access to healthcare services in culturally, economically, and geographically isolated communities. A national survey of community health worker training and certification programmes highlighted the importance of improving human capital. Specifically, schooling at the community-college level provided career advancement opportunities. On-the-job training was associated with improved standards of care. Certification at the US state level recognised the work of community health workers and resulted in medical insurance reimbursement.¹⁸ Training has been a common approach for developing capacity among health care workers. For example, a four-hour training curriculum was developed and implemented for community health workers working with Native Hawaiian and Pacific people on diabetes prevention, control, and management.¹⁹ The curriculum developers incorporated teaching strategies shown to be effective with this population and included culturally-relevant material. Nineteen health organisations participated in the training that reached 111 community health workers over a three-year period. Results showed significant gain in diabetes knowledge. A five-day short course in health promotion was implemented and evaluated in Australia,²⁰ and resulted in increased confidence and skills of participants to engage in collaborative opportunities. Positive effects were also reported in health promotion practice and on organisational capacity to conduct health promotion. Other qualitative research,²¹ however, has suggested that training alone is insufficient for capacity development. Providing additional support to help workers manage their workload and maintaining the fidelity of the intervention is important.

Capacity development has been a key focus in projects that aimed to develop partnerships with indigenous people for community-driven health initiatives.⁹ An international partnership between indigenous people in Canada (Musqueam) and Ecuador (Totoras) provided a useful framework to develop capacity among indigenous people internationally, and to facilitate indigenous knowledge mobilisation and translation to promote cultural community. A number of elements of this framework are pertinent to this chapter. The development of partnerships with key stakeholders, establishing the needs of the community and their commitment to developing community health support was considered an important first step in supporting the process of capacity building. As with previous research, mentoring of community health workers was considered a critical step, as was the need to secure funding to ensure the sustainability of the programme. Wahbe et al⁹ discussed the desire to implement project activities that

were based primarily on local cultural knowledge of each community and were designed to revitalise indigenous culture and skills. Participation in these activities also increased capacity via community-based training. Other international collaborative partnerships have been successfully implemented to develop capacity among community health workers in Uganda.⁸

One review presented the MuSCLE (multi-stakeholder capacity building and learning for empowerment) framework, which incorporates a multi-stakeholder process to foster social learning to strengthen social capacity.²² This paper was presented in response to delays in achieving the Millennium Development Goals for substantial reductions in poverty and hunger, child mortality and disease, as well as significant improvements in maternal health, gender equality, primary education, and environmental sustainability. The aspects of the MuSCLE approach most salient to this chapter are (a) having communities act as agents of change, (b) the need to develop enabling environments, (c) negotiating partnerships to make progress, and (d) moving from technical experts in outside agencies to a process in which people within the community play a central role. The MuSCLE process is focused on developing social capital to sustain interventions and to respond to changing conditions. It utilises a participatory approach which has been used successfully in Mexico to sustain urban water supply.²²

This review highlighted evidence which showed that to sustain net benefits over time requires the co-strengthening of six interdependent levels of social capital:

1. Political will and financial seed capital to initiate transitions and improve policies and practices.
2. Human resource strengthening – education, training, communication, and raising awareness within formal and informal institutions and among stakeholder groups.
3. Information resource strengthening – monitoring, data synthesis, analysis and modelling to characterise baseline conditions, identifying priority problems and inform future direction.
4. Policy-making and planning – the design, enactment and enforcement of responsive policies, practices, laws, regulations, and rights with equity, accountability and incentive mechanisms.
5. Basic infrastructure and appropriate technologies – health care facilities and prevention technologies.
6. Enterprise and development and investment stimulation – provision of products and services, stimulation of entrepreneurial activities that provide economic sustainability to the programme and substitute seed finance.

These six levels interact with each other to support the intervention and programme objectives. Although this model was developed for interventions to help address Millennium Development Goals, it provides a useful conceptual framework for developing capacity, and given the participatory focus, might be useful for New Zealand.

The effectiveness of other models for developing capacity has also been investigated. These models have included many of the strategies or components already presented. Two are relevant here because of their focus on indigenous and Pacific people. The first study²³ presented the community readiness model for developing Native Americans' capacity to implement community interventions for the management of HIV/AIDS. The author stated that the nine-stage model provides communities with a user-friendly 'diagnostic tool' that identifies multidimensional stages of readiness that support the

development of strategies that are more successful and are cost-effective. An important point of difference of this model is that it is stage based and relies on community information to identify readiness to address a health issue (such as HIV/AIDS). The implementation process and level of capacity building differ according to each stage. Three case studies were presented which demonstrated the effectiveness of the model.

The second paper⁷ outlined the use of a conceptual model for culturally-appropriate HIV prevention capacity building among Asian Pacific Islander (API) providers in southern California. The three-year programme provided by an Asian Pacific AIDS Intervention Team to API providers included the following strategies. One was technical assistance in organisational stability/viability: one-on-one contacts/organisational 'coaching' (at least once per quarter with API staff) and workshops (about one per month on topics such as board development, project management, collaboration, needs assessments/research and strategic planning). These provided strategies and skills for enhancing stability and viability. Also, two symposia, which led to further meetings between participating organisations and other agencies, thereby increasing potential partnerships. The second was technical assistance on HIV knowledge environments: workshops on HIV prevention and diverse populations, knowledge about cultural norms and obstacles to HIV prevention; and programme meetings held once per quarter at the different organisational partner sites.

The effectiveness of the programme was assessed via an organisational survey and staff observations. The organisations were mostly small, targeted diverse populations, served a large geographic area, and were knowledgeable about HIV. Organisations became more viable (more capacity in human resources, financial, external relations, and strategic management), but also more unstable (large growth in paid staff and board members), and showed more capacity in HIV knowledge environments. The results suggest that capacity can expand over a short period of time, but as capacity increases, organisational viability/stability and HIV knowledge environments change, meaning that different types of technical assistance would be needed for sustainability.⁷

Feasibility (level of evidence of effectiveness)

The international research into research and workforce capacity building is encouraging and highlights the development and implementation of conceptual and theoretical frameworks. These models have been implemented in a variety of settings and with indigenous people and minority groups. Very few evaluations of the effectiveness of capacity building approaches have been conducted. Of these, surveying workers has been the preferred method. Generally, there was sufficient evidence to support the development of capacity; however, more robust evaluation is required with quantitative data to support the effectiveness of capacity building initiatives. There is no reason to believe that the components of workforce development cannot be applied in the NZ environment to develop capacity for culturally-specific physical activity programmes.

Sustainability

Sustainability is important; however, few high quality evaluations have been conducted to provide data on this issue. From the limited knowledge available there is a need to provide ongoing support in the form of education and training, mentoring, advice etc, as well as adequate and sustained funding to ensure ongoing development of capacity. More research is required to determine the sustainability of capacity building. One of the capacity building initiatives⁷ was implemented over three years, providing some support

for sustainability. The issues raised internationally are relevant to the ongoing sustainability of physical activity programmes in NZ.

Effect on equity

Development of capacity will have a positive impact on equity, provided the right capacity is developed. There is evidence of improvements in capacity among indigenous and minority populations. There is an ethical consideration, which may impact on equity. Cash²⁴ asked is it ethically defensible for society to train people and then not support them at the most basic level? Society and communities must ensure that whoever is trained develops skills that can be supported by sustained work. To do otherwise would be a waste of resources, and potentially exacerbate inequitable distribution of these resources.

Acceptability to stakeholders

Engagement of stakeholders is a fundamental step for developing capacity. A number of frameworks and models have been proposed, all of which reinforce the need for stakeholder engagement using a participatory approach. Engagement of stakeholder groups will increase the sustainability of the programme and acceptance by participants and community members. Qualitative data exists to support the acceptability for those who have been recipients of capacity building initiatives.²¹ Lessons learned from the international arena are particularly relevant to the NZ environment. Consultation and thoughtful engagement of key stakeholder groups would be a fundamental principle.

Key components for effectiveness

Theoretical and conceptual models exist for developing capacity and creating strong links within the community and include:

- collaborative community participation and consultation ,
- early, meaningful and ongoing engagement with community leaders and diverse stakeholder advisory groups to encourage alignment between the innovation and stakeholder needs; positive relationships among key stakeholders; and ownership of the innovation among stakeholders,
- political support and adequate funding to provide both seed capital and sustainability,
- human resource strengthening, through education, formal and informal training, mentoring, and communication,
- information resource strengthening such as monitoring, data synthesis, analysis and modelling to characterise baseline conditions,
- provision of infrastructure and appropriate technologies, and
- ongoing support in the form of enterprise and investment stimulation, which will ensure the economic sustainability to the programme.

Potential side-effects

There are generally no anticipated side-effects of developing capacity. As highlighted above, it is unethical to train people and then not provide support for them at the most basic level. This issue is particularly salient in the New Zealand environment, in which the opportunities and career pathways for those trained in delivering physical activity programmes might be limited.

Cost benefit analysis

No cost-benefit analyses were identified in the international literature.

National Literature Review/Scan

The terms 'developing capacity or 'capacity building' are frequently used and depending on the context can have numerous meanings. In New Zealand, the development, implementation and evaluation of culturally-specific physical activity programmes are potentially challenged by a lack of Māori and Pacific human resource, particularly with the desire for Māori and Pacific culturally-specific programmes to be delivered by Māori and Pacific people. The literature scan identified ten physical activity or healthy lifestyles initiatives that included an element of capacity development. This list is by no means exhaustive, but rather provides examples of successful approaches.

The New Zealand Health Workforce *Framing Future Directions* discussion document²⁵ provides a summary of workforce issues for Māori and suggestions for building Māori health workforce capacity (for the entire document see www.hwac.govt.nz/publications/discussiondocument/4BuildingMāoriHealthWorkforceCapacity.pdf). Many of these suggestions are relevant to this chapter and will be summarised here. The document defined 'capacity' to include the "development of people, structures and resources so that communities have the necessary sustainable competencies and expertise to develop and maintain their desired level of health and wellbeing" (p.63). Capacity building supports 'bottom-up' development and Māori efforts to develop their own solutions for local issues. The development of the Māori workforce was identified as a key strategy for supporting Māori participation in the health sector and improving Māori health. The aim of developing Māori capacity is to ensure that the numbers, skill mix and qualifications of the Māori health workforce are available to meet the health needs of Māori communities and New Zealand society generally.

The Tertiary Education Advisory Committee (TEAC) provided the following high-level strategies for developing workforce capacity.

- Enhanced co-ordination of workforce strategies and initiatives through development of a national Māori workforce strategy. It recommended that this be developed and agreed by Māori and the Crown with stakeholder support. This national Māori workforce strategy would need to have the support of all key stakeholders. National strategy and co-ordination of funding could assist DHBs, in collaboration with Māori development organisations, to establish local Māori workforce development plans and to meet local needs.
- District Health Boards (DHBs) were highlighted as the key stakeholders in terms of employing Māori health workers. It was recommended that DHBs work with Māori health development organisations and other key stakeholders to identify current workforce capacity and population needs, as well as to develop a Māori health workforce development plan, including identification of funding, specific targets or key performance indicators, and timeframes.
- The development of a knowledge base on which workforce initiatives work best for Māori. The commission of research that evaluates the implementation of current workforce policy and interventions should provide an evidence base for future planning.

- Enhanced Māori health workforce data collection, which could be used to facilitate Māori workforce development.
- Greater opportunities to educate the Māori health workforce. This could be enhanced through Māori participation in collaborative mechanisms between the health and education sectors, outcome-based incentives for Māori, as promoted by TEAC, development of Māori health trainers, and development of second-chance education opportunities.
- Greater opportunities for training and education for Māori. Health services could develop Māori train-the-trainer programmes. Recruitment of Māori into health education and the health workforce could be facilitated by a comprehensive marketing and communication strategy.

In New Zealand there are a number of examples of capacity building for health-related issues such as gambling²⁶ alcohol and drugs²⁷, physical activity,^{28 29 30} and obesity prevention.³¹ Those related to physical activity are presented below. Because physical activity has been included with healthy lifestyles and obesity prevention programmes, these were also considered for this section, as it is likely that lessons can be learnt from capacity building in these related arenas.

Korikori a Iwi

Korikori a Iwi was a community development action project that used Māori culture as a basis for encouraging good nutrition and regular physical exercise in five Northland Māori communities. The Whāriki Research Group²⁸ was contracted by the Ministry of Health to undertake formative evaluation during the first year. Workforce development was an important issue early on in the project, and a key aim of the Korikori a Iwi project coordinators was to support, nurture, and empower local people to build their skills and capacity to run the various community initiatives. Coordinators worked with local people and provided training and education on various aspects of the programme. Despite this, the evaluation highlighted the need for ongoing investment in local human capability and capacity building to ensure the sustainability of the programme. Site coordinators also expressed the need for more professional development to maintain and extend their skills and knowledge. Although generic public health training opportunities were available for the coordinators, there were not the same opportunities within the context of Te ao Māori.

Ngati Whatua Nga Rima o Kaipara Marae Arataki Project

The Ngati Whatua Nga Rima o Kaipara Marae Arataki Project²⁹ utilised a community development approach within a Māori conceptual framework to improve the well-being of Māori in the South Kaipara region, including promoting physical activity, according to the formative evaluation.²⁹ The project staff consisted of a coordinator and five marae arataki (leaders), who were specially selected by the marae communities they represented. The Marae Arataki programme was developed and delivered with support from the ProCare Network North Promotion (PNNP) Advisor, who helped provide an overview of the programme as it developed and also acted in a key mentoring role for the programme staff. The marae arataki in turn, were responsible for developing and implementing a programme for their respective marae and whānau communities. Regular meetings between the PNNP advisor and arataki provided ongoing feedback and help to identify and address issues such as workforce development needs, management of workloads, identifying and responding to whānau needs, and evaluation literature and resources, tools and techniques.

Te Whai Matauranga o te Ahua Noho

The evaluation of Te Whai Matauranga o te Ahua Noho sought to examine the effectiveness of a comprehensive lifestyle intervention programme (which included culturally-specific physical activity initiatives) which was acceptable to local Māori.^{32 33} An important component of this project was that it was led and delivered by a Māori Diabetes Educator, who also approached Māori participants and promoted the programme in the community. There was also an extensive consultation period (6-12 months) with local Māori, and approval was obtained from a number of community groups to initiate the lifestyle programme. Given the complexity of making lifestyle changes, this study required both a dietitian and exercise trainer to deliver the intervention who were Māori. Because potential candidates had not completed their training or were unavailable for these positions, this approach was not possible early on in the project. To address this, non-Māori personnel were used initially; they were introduced to the Māori community and attended immersion Te Reo weekends on the marae. This approach, however, illustrates a viable approach for developing capacity in non-Māori or non-Pacific people, and in showing how to transition as capacity develops.

Obesity Prevention in Communities (OPIC)

The OPIC project is part of a regional collaboration involving Deakin University (Australia), Fiji School of Medicine, the Tongan Ministry of Health and the University of Auckland, aimed at reducing obesity. A major objective of the Pacific OPIC study³¹ was to build research capacity, especially for Pacific researchers. Four approaches were used to achieve this objective including nurturing a research culture; increasing research skills via workshops; mentoring and role modelling; and supporting higher degrees. Pacific researchers (existing or recruited) were exposed and encouraged to participate in a variety of research activities piloting instruments (questionnaires etc.), critical analysis, applications for funding, and presentations. Training in health promotion, interviewing, data analysis was also provided. Obesity prevention short courses were also conducted in Australia, New Zealand and Fiji. Researchers were also support and encouraged to undertake higher degrees (PhD and Masters)

Shake It – Beat It - Learn It Pacific Exercise Programme

This multi-component intervention is targeted at Pacific People with the aims of reducing obesity, improving nutrition, reducing blood pressure, and increasing mobility and physical activity.

A key component of the project logic was workforce development. Specifically, 'Learn It' sought to improve development and capacity building by allowing students from the NZ Institute of Sport to experience a Pacific setting for fitness training, assisting with recruitment of future fitness professionals from within the Pacific community, and training people to supervise the fitness sessions. A programme leader provided support and mentoring for the NZIS, who in turn provided support for the programme leader. An evaluation³⁴ of Shake It – Beat It - Learn It highlighted the need for additional personnel support for the programme leader. It was suggested that sharing responsibilities and leadership with others might deliver more variety and engage different participants in different ways.

Te Hotu Manawa Māori

Te Hotu Manawa Māori³⁵ delivers health services 'by Māori for Māori'. The aim of the Kai Totika me Whakapakari Tinana (Nutrition and Physical Activity) service to provide leadership, support, education and advocacy to empower Māori communities to improve

health through good nutrition and participation in regular physical activity. A number of initiatives have been established to help develop capacity for Māori and include training and education, provision of resources, facilitating networks and dissemination, as well as an advisory role.

Te Hotu Manawa Māori provides 'train-the-trainer courses' which offer training in food, nutrition and physical activity for people working with Māori communities. Regular courses are conducted throughout the country. Specifically designed nutrition and physical activity resources have also been developed and are freely available. A website provides the means for disseminating information. A key aspect of Te Hotu Manawa Māori is the provision of advice and support to develop research projects, resource development and other proposals on issues affecting Māori. The service has been externally evaluated.

Pacific Islands Heartbeat, National Heart Foundation

The National Heart Foundation (NHF)³⁶ incorporates the 'Pacific, by Pacific' philosophy, which seeks to build and develop capacity for Pacific people. Specifically, Pacific Islands Heartbeat (PIHB) is a community health promotion initiative that offers a number of services in Auckland and Wellington, including the Health Promoting Churches programme, training for Pacific people in health-related areas such as nutrition (Certificate in Pacific Nutrition), and smoking cessation ([Pacific Smokefree Train the Trainer course](#) and [Pacific Smoking Cessation Training](#)).

Tongan Community Action Programme

The aim of the Tongan Community Action programme is to reduce health inequalities of Tongan people living in Christchurch. The specific objective is to reduce obesity and associated long-term health problems by improving nutrition, increasing physical activity levels and reducing the levels of smoking among the participants. A key focus of this project is to develop capacity within the community to ensure sustainability and less reliance on external support.

Training and work experience for Pacific people in the Tongan Community Action programme were the two primary approaches used to develop capacity. A Tongan exercise trainer was employed to facilitate the exercise sessions. Funding was sought from the National Heart Foundation to initially support this role, with the Tongan community and local community leaders seeking ongoing funding and resources.

Although not directly related to physical activity, five Pacific people in support and leadership roles completed the NHF Certificate of Pacific Nutrition Training. A subsequent course was scheduled but cancelled due to insufficient participant numbers. A programme³⁰ evaluation highlighted the need for greater flexibility to support workforce development that meets the needs of the Pacific community in Christchurch, particularly the Tongan community.

The NHF has also had a pivotal role in developing the capacity of this intervention.³⁰ They have continued to engage and work with the Free Church of Tonga and developed a community champion through the support of a church minister to act as advocate for improving Tongan health in Christchurch. The NHF also provided financial support for education and training necessary to upskill people. These included support for food demonstrations, edible gardens, physical activity sessions and shared meals as part of the Tongan Community Action Programme. Reportedly, advocacy by the NHF enabled a

church leader to transfer from Christchurch to Auckland to establish a Tongan community health outreach project.

Summary

The programmes above were chosen to provide examples of current initiatives within the New Zealand environment. The list was not intended to be exhaustive but rather to highlight how capacity building has been incorporated into culturally-specific physical activity and related programmes. What these examples do highlight is that capacity building is clearly 'on the radar'; however, the implementation and approaches used to develop capacity have not been very systematic. There does appear to be an underlying philosophy of training project coordinators to support, nurture, and develop the capacity of local people to run community initiatives. Also, utilising a Māori for Māori or Pacific for Pacific people approach permeates many of the existing programmes. Consistent with the international literature, most of the New Zealand programmes have incorporated a community development and support model. Within the national context, capacity building does not appear to be based on any conceptual framework or theoretical approach. There is also a clear lack of evaluation to determine the effectiveness of capacity development approaches. These issues should be considered in future projects.

Feasibility (Level of evidence of effectiveness)

There is some evidence within New Zealand that it is feasible to build capacity to develop, implement and evaluate culturally-specific physical activity intervention programmes. There is a variety of culturally-specific physical activity or lifestyle interventions that have incorporated some degree of capacity building. From the examples presented few appear to use any type of framework or systematic approach for developing capacity. The OPIC study incorporated many of the strategies for developing research capacity highlighted in the international literature. A number of evaluations of the interventions have been conducted and some are in progress. Many of these have included some documentation of capacity issues. As with international literature, there is a lack of robust evaluation or quantitative data to support the effectiveness of capacity development approaches.

Sustainability

Sustainability is an important component of capacity building; however, few high quality evaluations have been conducted to provide data on this issue. From the limited knowledge available there is a need to provide ongoing support in the form of education and training, mentoring, advice etc, as well as adequate and sustained funding to ensure ongoing development of capacity. More research is required.

Effect on equity

Development of capacity in culturally-specific physical activity programmes will likely have a positive impact on equity.

Acceptability to stakeholders

Engagement of stakeholders is a vital aspect of developing capacity and will likely increase acceptability by participants, whānau, and the greater community. There are few data to support the acceptability for those who have been recipients of capacity

building initiatives. However, key stakeholders urged this development in ENHANCE workshops.

Key components for effectiveness

There are limited data on the effectiveness of building capacity in New Zealand. This is due in part to the inconsistency in workforce data and a general lack of timely information to inform long-term workforce planning and trend analysis. Notwithstanding this, the following approaches have been highlighted from the New Zealand literature for effective capacity development.

- Establishing strong links within the community.
- A collaborative community participatory approach.
- Early, meaningful and ongoing engagement with community leaders and diverse stakeholder advisory groups.
- Education and training to provide the requisite knowledge and skills to initiate programmes, compete for funding, and develop effective knowledge translation strategies. Undergraduate and graduate-level training for Māori and Pacific people is critical, and more opportunities for people to obtain some form of practical experience are essential. Research and policy practicums would support trainees to more fully develop the skills required for health services and policy work.
- Mentoring strategies are critical in helping develop capacity and increase the quality and rigour of future and existing programmes. Opportunities to work alongside programme leaders, senior researchers, etc., both on-site and by distance provide a venue for discussing ways to balance research with teaching, clinical and administrative demands, and developing supervisory skills.
- Strengthening existing networks is critical.
- Those working in culturally-specific programmes require access to basic research infrastructure (eg, computers, databases, personnel support etc.).
- Private sources of funding also need to be tapped, and major funders of health research need to be made aware of Māori and Pacific people's rising capacity to undertake health services and policy-relevant research. Targeted funds for research should also be considered.
- The ability to compete successfully for peer-reviewed research funds is fostered by relevant practical experience.
- Continued Māori and Pacific representation on advisory boards, and governing bodies where research funding priorities are determined is required.

Potential side-effects

Similar to the international literature, there are generally no anticipated side-effects of developing capacity. However, it is unethical to train people and then not provide support for them at the most basic level. There is a responsibility for organisations and communities to ensure that whoever is trained develops skills that can be supported by sustained work. To do otherwise would be a waste of resources, and potentially exacerbate inequitable distribution of these resources.

Cost benefit analysis

No cost-benefit analyses were identified in New Zealand literature.

Key informant interviews

Informants reported that many of the current programmes and policies were failing Māori. Specifically it was stated that 'New Zealand hasn't done much in the "as Māori" space for physical activity'. The term 'as Māori' was explained as being either an environment like the marae or a philosophical space.

Two informants commented on the lack of cultural capacity in mainstream physical activity programmes. One commented that programmes currently offered by the Regional Sports Trusts 'are not responsive to the diverse realities of many Māori families' such as access to facilities, the time of day that the programmes are offered, safety issues, and affordability. The Pacific informant commented that a barrier for Pacific people is 'cultural shyness' and that people who run, or plan to run physical activity programmes for Pacific people need to consider this when planning or sharing facilities with mainstream use. As they noted, 'we don't work out in our bikini in the pool'.

Two key themes around capacity development emerged from the interviews, one, the need for up-skilling the workforce, and two, utilising a community development approach to best achieve the up-skilling, as well as other aspects of capacity development. One informant noted that, 'there needs to be an integrated multi-agency approach that includes more training and access to funding with a community development approach'.

Up-skilling the workforce

Specific areas of skill development were identified. For example, one informant reported that there was currently 'a large gap in training at more practical levels'. Skill shortages such as coaching, event management, administration, coordination, advocacy, and technical skills such as those needed by fitness and aerobics instructors were recommended by two informants. Another informant suggested including training for skills in dance styles such as crumping, to allow young people to feel more comfortable about coming onto the marae to participate in marae-based programmes. The Pacific informant stressed the importance of advanced first aid training as they saw that Pacific people were often injured when starting physical activity programmes.

Two informants stressed the importance of linking training with qualifications and the need for a career pathway in physical activity for Māori who have qualifications in sport and recreation. One informant also saw value in extending these pathways into management and community development areas. The other informant believed that qualifications should be offered to whānau, hapu and iwi. 'This should include a mechanism to allow the knowledge and skills to be shared'.

One informant commented that the voluntary workforce for Māori physical activity was large and connected through whānaungatanga (family relationships). There were seen to be issues around maintaining voluntary input, such as people being 'time poor', and this informant saw the need to increase recognition of the value of this workforce.

Utilising a community development approach

Three of the four informants identified community development as a key process for developing capacity. 'Community development is the model that will be most successful for getting more Māori physically active'. Comments included that 'strategies should allow communities to become self-sufficient', and 'that the most successful training programmes for community workers follow a community development approach'. One

Māori informant noted that 'the skills and knowledge that are passed on to community leaders are used to bring about change within the community, usually through the marae'.

One informant highlighted the importance of the type of community development framework used. They considered that community development needed to fit into a framework of human rights and social justice, which from a Māori perspective 'comes back to the principles of the Treaty of Waitangi'. This was seen as one of the reasons why community development works for Māori, because community development principles and Treaty principles are consistent with each other, provided the right framework is used. This informant also reported that kaupapa Māori initiatives have enabled Māori to have the korero as Māori, to discuss and articulate what culturally-appropriate physical activity programmes should look like. For example, defining what physical activity looks like in a Māori context and why it is relevant. This informant stated that 'going diving for seafood creates opportunity for physical activity, although it is not seen that way, whereas no value is seen in walking around the block'. The national network of kaiwhakahaere (Māori sports coordinators), which was established under He Oranga Poutama, (<http://www.sparc.org.nz/partners-and-programmes/he-oranga-poutama/overview>) was cited as a good example of capacity building. The primary role of kaiwhakahaere is to facilitate physical activity initiatives in different regions and help in their implementation.

Two other informants commented on components of an effective process for community development. One believed that it should include a mechanism for allowing the extended family to participate and should place emphasis on matua (parental) involvement. The other stressed the importance of using the marae as a vehicle for culturally-appropriate physical activity programmes. Using training as an example, this informant commented that people who have undergone training on the marae would be in a better position to facilitate culturally-specific physical activity programmes appropriately.

Feasibility

A community development approach to capacity development was seen as feasible provided that there were adequate resources, that it was community led, that programmes were evaluated to find out what works and why, and that 'the rhetoric was actually transferred into action'.

Sustainability

Programmes were considered sustainable if they were well organised, supported and controlled by iwi, a wide range of skills was developed, there was a range of pathways for funding and other forms of support, there was strong leadership, and there was workforce development with recognised qualifications. One informant commented that there was a risk of communities becoming reliant or being left unsupported if there are priority changes in funding.

Effect on equity

Capacity development through community development approaches would have a positive effect on equity, 'as long as adequate funding was provided for Māori focused activity' and that skills developed on the marae were linked with the community. The need for evaluation was highlighted, such as, that evaluations should focus attention on participation in the programmes, and those whānau ora indicators should be used to

ensure inequalities were not increased. Potential side-effects could include positive outcomes in other areas such as health, education and employment. Marae-based programmes could increase the number of people connected with their marae.

Acceptability to stakeholders

One informant commented that the programmes would be acceptable if people saw the benefits of participation. Another stressed the importance of acceptability to Māori stakeholders.

Conclusion

Capacity development is an essential component of culturally-specific physical activity programmes. A variety of approaches and recommendations for developing capacity exist. Many of these have focused on developing capacity in health care workers in developing countries or among indigenous populations. Despite this, there are number of consistent themes that were highlighted through the New Zealand environmental scan and key informant interviews.

From an action-focused perspective, six 'capacity-building factors' have been highlighted that need to be considered for developing capacity:

1. A collaborative approach based on a community development model. This would need to take into consideration a Māori for Māori or Pacific for Pacific delivery approach and the Treaty principles.
2. The presence of suitable expertise to facilitate mentoring strategies.
3. Education and training for those delivering programmes, ideally linked with qualifications and a career pathway, which is extended into the community particularly to the voluntary workforce.
4. Development of champions and leadership actions, with Māori and Pacific representation on advisory boards, and governing bodies where funding priorities are determined or funding decisions are made. This would include all areas where capacity development funding is available.
5. Increase of resources to ensure basic infrastructure is available.
6. Need for sources of funding to be available and accessible for Māori and Pacific people to ensure sustainability of any initiatives.

There have been few evaluations of the effectiveness of developing capacity approaches. Most have used surveys or qualitative approaches, but have not provided quantitative data regarding the success of capacity building strategies.

Some of the six factors listed above, such as education and training for those delivering programmes, will be programme specific actions. Others, such as championing Māori and Pacific representation on advisory boards and governing bodies, will be more strategic than ongoing activities. It is not clear where leadership for such policy development work would be located. There is, however, clear cross-over with both the Health and Disability NGO Working Group (http://www.ngo.health.govt.nz/moh.nsf/indexcm/ngo-aboutus?Open&m_id=3) and the capacity building with work undertaken by the Office for the Community and Voluntary Sector (<http://www.goodpracticefunding.govt.nz>). There is also likely to be cross-over

with activities lead by Te Puni Kokiri and the Māori potential framework (<http://www.tpk.govt.nz/en/about/mpa/>).

Recommendations

In relation to developing capacity for the delivery of culturally-specific physical activity programmes it is recommended that:

- Where strategic development of capacity building for culturally-specific physical activity programmes should be located within government is identified and adequately funded.
- Funding for culturally-specific physical activity programmes explicitly includes stated capacity development elements, with subsequent evaluation.
- A proportion of funding of physical activity programmes delivered in community settings be ring-fenced for capacity building.
- Existing culturally-specific physical activity programmes are evaluated for capacity development.
- A community development model of capacity building is used that takes into consideration the Treaty principles and a by Māori for Māori or by Pacific for Pacific delivery approach.
- Suitable expertise to facilitate mentoring strategies is sourced and funded.
- Education and training for those delivering programmes is undertaken, ideally linked with qualifications and a career pathway, which is extended into the community, particularly to the voluntary workforce.
- Impact evaluation of capacity building programmes will need to be built in to further refine this work over time.
- Champions and leadership actions continue to be developed with Māori and Pacific representation on advisory boards and governing bodies where funding priorities are determined. This should include all areas where capacity development funding is available.

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6.2 Evaluation and research

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Summary

Physical activity has been shown to be associated with numerous physical and mental health benefits, including assisting with weight management and reduction. The need to develop culturally-specific physical activity opportunities has been highlighted as a key area of interest from the ENHANCE project. A review of international and New Zealand literature was conducted to summarise what is known about research and evaluation of culturally-specific physical activity interventions.

From an international perspective most of the research has focussed on physical activity intervention for targeted ethnic groups, rather than culturally-specific approaches. In New Zealand, there are a wide variety of culturally-specific initiatives that aim to increase physical activity or aim to improve one's healthy lifestyle. Existing initiatives are at various stages of development; with some evaluated and some yet to be evaluated.

Overall, there is a lack of high quality evidence supporting the effectiveness of culturally-specific physical activity interventions. Despite this, international and national evidence highlights the potential for this approach. Many studies or programmes have incorporated physical activity as part of a lifestyle intervention and it is difficult to disentangle the effect on activity. However this lifestyle approach is more consistent with the holistic approach for Māori and Pacific people.

There is a need to conduct more rigorous research to determine the impact of culturally-specific interventions on healthy lifestyles and behaviour change. Provision of ongoing support and education for those planning, delivering, and evaluating future interventions is required to ensure rigorous design and evaluation is maintained. Building on the more successful examples (e.g., Korikori a Iwi) with proper evaluation to refine and enhance the programmes, and adequate resourcing for wider implementation is recommended.

Recommendations

- evaluate existing culturally-specific physical activity programmes for their impact on target populations
- continue to fund culturally-specific physical activity programmes while the evidence base is building
- ensure funding is provided to physical activity programmes targeted to low-income people as well as Māori and Pacific people
- culturally-specific physical activity programmes need to be adequately funded, including evaluation activities
- the Request for Proposal process from contracting bodies should require information on implementation logic and evaluation methods
- evaluation activities should be supported by evaluation templates/toolkits and workforce training.

Problem Definition

Physical activity has been shown to be associated with numerous physical and mental health benefits,¹⁻³ including assisting with weight management and reduction.^{4 5} The importance of physical activity for Māori and Pacific was discussed at two hui, which were conducted by the ENHANCE team. Māori and Pacific representatives were invited to discuss the topic of 'provision of culturally appropriate physical activity programmes'. From this discussion a number of suggestions were generated to address this issue. Of these, the need for 'Evaluation and Research' was highlighted. This topic area incorporated the following: to evaluate current interventions; report and publicise effective programmes; to support community organisations to design and conduct evaluation research; and to consider kaupapa Māori research methods.

The aim of this chapter is to summarise what is known about the evaluation and research of existing culturally-specific physical activity interventions. The first part of the chapter involves a brief scan of the international literature related to the overall effectiveness of interventions to increase physical activity and a summary of ethnic-specific research initiatives that have included physical activity as part of the programme. The next section of the chapter will present a brief environmental scan of New Zealand-based research projects that are pertinent to these issues. When available, the key results from the respective programmes are provided. Finally, the findings from the literature are then discussed before key recommendations are provided.

Physical activity levels in NZ

The recommendation for adult physical activity is a minimum of 30 minutes moderate to vigorous intensity activity (MVPA) per day, on at least five days per week. In children and young people the recommendation is 60 minutes MVPA. In 2007/8, approximately half of the adult population (50.5 percent, 49.2–51.9) met the definition of being regularly physically active. After adjusting for age, Māori men (age standardised rates ratio, 1.05) were more likely to meet the recommendations than European men, and Pacific people were the least likely (age standardised rates ratio, 0.91) to meet the recommendation compared with men and women in the total population.⁶ However, Māori (CI=14.0; 12.4–15.7) and Pacific (CI=19.4; 16.6–22.2) people were more likely to be involved in sedentary behaviours compared with European/other (CI=13.8; 12.8–14.7).⁶ All the physical activity data suggest few differences in physical activity and sedentary behaviours between Māori and European/other. The overall percentage for all adults meeting the recommendation of 2.5 hours of physical activity per week is low (approximately 50 percent), which suggests there is still a lot of work to do. These values are similar to the Sport and Recreation (SPARC) Active NZ survey (48 percent).⁷

Data from the Youth 07⁸ study showed that only 7.4 percent of Māori females and 15.8 percent of Māori males met current recommendations for 60 minutes of daily physical activity. Sixty-five percent (65.6%) of Māori students reported 20 minutes or more of moderate or vigorous activity at least three times in the past seven days. This proportion was slightly (but significantly) lower than that reported by Pākehā/NZ European students (67.2%).

Various reviews of the effectiveness of physical activity interventions have been conducted.^{9 10} A limitation of these previous reviews is that they have focused on interventions in North America, United Kingdom, Europe and Australia. Very few have

included New Zealand research and almost none have reported on the conduct and effectiveness of culturally-specific interventions to increase physical activity. To address this gap in the evidence we conducted a brief environmental scan to identify culturally-specific interventions in NZ, and to determine the effectiveness of these.

Methods

A brief review of the literature on physical activity programmes was conducted in Scopus, alongside the author's existing collection of papers on the topic. The literature scan was undertaken in March 2009. For the international and national scans of literature, the Scopus bibliographical database was searched for papers since 1990 with combinations of keywords: physical activity exercise, intervention, Māori, Pacific, culture. A Google search was also undertaken. For the New Zealand scan a review of the HEHA Knowledge library (www.heha.org.nz/index.php?id=346) was conducted, as well as making direct contact with physical activity researchers from Sport and Recreation New Zealand, Ministry of Health, and the Auckland University of Technology to identify pertinent literature. Titles of articles were scanned for relevance. Grey literature reports were also used for this review.

Literature scan: International context

The effectiveness of physical activity interventions

There is a growing body of evidence to support the effectiveness of interventions to increase physical activity participation in general populations. One review⁹ of the effectiveness of various approaches to increasing physical activity found that two informational interventions ('point-of-decision' prompts to encourage stair use, and community-wide campaigns) were effective; as were three behavioural and social interventions (school-based physical education, social support in community settings, and individually-adapted health behaviour change); and one environmental and policy intervention (creation of or enhanced access to places for physical activity combined with informational outreach activities). The review also concluded that there was insufficient evidence to assess the effectiveness of a number of interventions, including classroom-based health education focused on information provision, and family-based social support (because of inconsistent findings); mass media campaigns and college-based health education and physical education (because of an insufficient number of studies); and classroom-based health education focused on reducing television viewing and video game playing (because of insufficient evidence of an increase in physical activity).⁹

A review of evidence among adolescents⁹ identified 57 studies: 33 aimed at children and 24 at adolescents. Twenty-four studies were of high methodological quality, including 13 studies in children. Interventions that were found to be effective achieved increases ranging from an additional 2.6 minutes of physical education related physical activity to 283 minutes per week of overall physical activity. Among children, limited evidence for an effect was found for interventions targeting children from low socioeconomic populations, and environmental interventions. Strong evidence was found that school-based interventions with involvement of the family or community and multi-component interventions can increase physical activity in adolescents.

While a number of studies have targeted specific ethnic groups such as African-American adults^{11 12}, adolescents (The Memphis GEMS)^{13 14}, or Latinos (Hip Hop to health),^{15 16} there is limited description or evidence for culturally-specific interventions. Physical activity intervention research among minority populations has been limited and not without methodological problems; however, more recent and well-designed studies have begun to show positive results for interventions targeted to specific ethnic populations¹⁷. A meta-analysis¹⁸ of psycho-behavioural(?) interventions to prevent weight gain or reduce weight among US multi-ethnic and minority adults was recently conducted and included physical activity and nutrition components. Results showed small effect sizes (n=5, d = 0.08, 90% CI = -0.04, 0.35) for change in body weight with single component physical activity interventions and two component interventions (a combination of physical activity and/or nutrition and/or lifestyle change, and/or counselling) (n=13, d = 0.22, 90% CI = 0.05, 0.4). Three component interventions, however, had a large effect size (n=6, d = 0.52, 90% CI = 0.39, 0.65). Interventions conducted in individual sessions (n=15, d = 0.40, 90% CI = 0.24, 0.56) showed a higher mean effect size than group interventions (n=9, d = 0.08, 90% CI = -0.04, 0.30). Interventions focused on an individual delivery basis would not be as consistent with a Māori or Pacific perspective, compared with group or whānau-based delivery.

Based on the international studies reviewed, the following areas were highlighted for consideration in future research:

- theory-based intervention research,
- more robust experimental design,
- development and use of instruments that are valid and meaningful for the targeted population,
- longer follow-up,
- investigation of the impact of matching same ethnicity interventionist to participants' ethnicity, and
- examination of the importance of tailoring interventions to each cultural subgroup.

Feasibility

Only a few studies have assessed the effectiveness of interventions to increase physical activity in minority groups; however, there is a dearth of evidence for the effectiveness of cultural-specific interventions.

Sustainability

A few examples of sustained interventions exist; however, issues related to sustainability were not specifically addressed. Given adequate and ongoing resourcing and responsiveness to community need, physical activity interventions would be sustainable.

Effect on equity

Physical activity interventions have typically targeted non-ethnically diverse population groups or specific populations (those with cardiovascular disease, obesity etc.). The development and implementation of culturally-specific interventions are likely to have a positive impact on equity.

Acceptability to stakeholders

Targeted physical activity interventions have been generally received positively by participants.

Key components for effectiveness

The following processes have been highlighted as contributing to the success of interventions. Involvement of communities and building coalitions from inception; targeting audiences that are already assembled; engaging 'cultural insider' investigators in leadership roles; mobilising social networks; cultural tailoring of messages and messengers; and family-based involvement.

Potential side-effects

There are no anticipated side effects of developing culturally-specific interventions.

Cost benefit analysis

There are no cost benefit data.

Literature scan: National context

A variety of culturally-specific sports and physical activities (eg, kapa haka (Māori performing arts, waka ama (outrigger canoes)), kilikiti (Pacific cricket), taiaha (Māori weaponry) exist. Participation numbers during the previous 12 months for Māori and Pacific activities were low. Of the participants who responded the following participation percentages were found. Kapa haka were 1.1 percent; kilikiti 0.3 percent, and waka ama 0.3 percent compared with activities such as rugby league with 2.1 percent, netball 3.7 percent and walking 64 percent.⁷

A wide variety of interventions have been implemented in New Zealand, which have focused on improving physical activity and nutrition and/or decreasing obesity. Many of these initiatives have been developed in response to the Healthy Eating Healthy Action (HEHA) strategy. In terms of interventions to increase physical activity, a total of 14 initiatives were identified in this environmental scan. This list is not exhaustive but rather provides examples of the types of interventions that have been implemented to date. These interventions will be briefly described and where possible, a summary of the evaluation will be provided.

Korikori a Iwi

Korikori a Iwi was a community development action project that used Māori culture as a basis for encouraging good nutrition and regular physical exercise in five Māori communities in the Te Taitokerau region (Northland). The broad aim of the project was to improve health and well-being through health promotion programmes that promote healthy lifestyles. At a local level the objective was to develop community physical exercise and nutrition initiatives based on an integrated and holistic kaupapa Māori framework with Māori in the participating communities. The Whāriki Research Group¹⁹ was contracted by the Ministry of Health to undertake formative evaluation during the first year (May 2003 to 2004) of the five-site Te Taitokerau Korikori a Iwi projects. The evaluation highlighted a number of important areas for the development of this project, including: the local and Māori cultural basis of the programme; combining exercise with nutrition validated the Māori holistic perspective; rekindling Māori knowledge and practices; repackaging of Māori traditional games, activities and weaponry as forms of exercise, entertainment, learning and coordination skills development; and local knowledge of the community and high levels of innovation in applying Māori frameworks and coordinators. Extending the understanding of healthy lifestyles also had additional

spin-offs to the community in terms of education, whānau/hapū well-being and development, and longer-term economic development and tourism opportunities. Issues of sustainability were highlighted, given the short-term funding and time frames, whilst trying to address long-term issues. It was concluded that building community capacity for these types of interventions was crucial, and required a mix of effective leadership, advocacy, skills development, and the sharing of knowledge.

Ngati Whatua Nga Rima o Kaipara Marae Arataki Project

The main aim of the programme was to use a community development approach within a Māori conceptual framework to improve the well-being of Māori in the South Kaipara region, as outlined in a formative evaluation.²⁰ The programme staff consisted of a programme coordinator and five marae arataki (leaders), who were specially selected by the marae communities they represent. This was a critical aspect providing credibility and integrity to the programme and ensuring maximum programme uptake. Participating marae were Puatahi, Kakanui, Araparera, Reweti and Haranui, all in South Kaipara. Each of the marae arataki was responsible for developing and implementing a programme for their respective marae and whānau communities. The programmes were intended to support marae and whānau to develop improved and increased awareness and behaviours around healthy eating and physical activity, to address health and well-being issues. Programme activities, events and services were designed in response to information gathered from whānau through a needs assessment process. These were promoted, supported and facilitated by the marae arataki and included modified Green Prescription, mau rakau (traditional Māori weaponry, te reo, Māori games, walking groups, national Push Play events and other traditional activities. A programme logic was developed as part of the evaluation but no quantitative or cost-effectiveness data are available.

Te Wai o Rona: Diabetes Prevention Strategy

Te Wai o Rona was a four-year randomised cluster-controlled trial of intensive lifestyle change with the aim of reducing the incidence of diabetes among Māori. An initial pilot study²¹ assessed an intensive lifestyle change approach among a Māori community, delivered by a personal trainer (Māori Community Health Worker, MCHW). The intervention included physical activity and nutrition components. Baseline assessments included lifestyle questionnaires, anthropometric measurements and blood collection. The pilot study (Vanguard Study) cohort of 160 participants were weighed before and during MCHW intervention, and compared with 52 participants weighed immediately before intervention and with 1,143 participants from the same geographical area. Results from the Vanguard Study showed the messages, toolkit and delivery approach acceptable to participants. Significant weight loss occurred during the Vanguard Study amongst all participants. The researchers concluded that community-wide prevention programmes are feasible among Māori and are likely to result in significant reductions in the incidence of diabetes. Unfortunately, physical activity data were not reported.

Ngati and Healthy

Ngati and Healthy²² is a collaborative community intervention between Ngati Porou Hauora and the Edgar National Centre for Diabetes Research, aimed at reducing the incidence of insulin resistance in the short term and type 2 diabetes in the long term. Implementation of the diabetes prevention community intervention began in 2004. The intervention aims to increase the consumption of fruit and vegetables; increase the consumption of wholegrain foods; to reduce the consumption of fat, increase exercise levels; reduce level of smoking; and reduce alcohol intake. In the first two years, the

community intervention raised awareness of diabetes and emphasised the preventable nature of the condition. A participatory approach has been used to mobilise the community and members who have been involved in the design to set up and implement community initiatives (eg, walking groups, water only schools).

For the remaining three years, the intervention will seek to consolidate work already initiated and to embed the intervention into all parts of the community, including workplaces and schools. Surveys²³ have been conducted to compare the prevalence of insulin resistance, impaired fasting glycaemic, impaired glucose tolerance, T2DM, cardiovascular risk factors and health behaviours, which will be used to determine the effectiveness of the intervention. Formative and process evaluation methods are currently in progress; however, a final written report was unable to be obtained. Based on information extracted from a conference presentation,²⁴ Ngati Porou Hauora kaiawhina (community health workers) have been a vital link between the health professional/research team and the community throughout all stages of the project and also for the implementation of the prevalence surveys.

The Healthy Lifestyle Programme (HLP)

THE HLP is an interagency, multidisciplinary, family-based obesity intervention based in Northland. Rather than a culturally-specific programme, this intervention targeted Māori, which incorporated a healthy lifestyle approach (including physical activity) with an aim to decrease body mass. The programme was structured as an eight-week block of 90-minute group education and activity sessions. Following this block families were offered optional involvement in the Green Prescription Active Families (GRxAF) programme. An evaluation²⁵ was conducted and included 57 families (seven groups) who completed the two-year programme. Participants were all severely obese (BMI greater than the 99th centile) with high rates of metabolic complications at baseline. Results from the study showed sustained improvements in standardised BMI scores and percentage body fat (PBF). Improvements in these outcomes were greatest for the youngest age group (<9 years). Outcome on the programme was not affected by gender, ethnicity, deprivation index or baseline BMI. Physical activity data were not provided.

Te Hikoi Hauora Whānau Challenge (THHWC)

The Te Hikoi Hauora Whānau Challenge is a four-week physical activity programme conducted in collaboration with Sport Taranaki.²⁶ The programme was designed for kōhanga reo, kura kaupapa and their whānau and has been an annual event since 2005. A multi-method evaluation has been conducted which included face-to-face questionnaires with event participants, follow-up interviews with kaiako and kaimahi, and self-completion activity cards to measure physical activity of whānau. Findings for the past three years have shown that participants increased both the duration and type of physical activity they engage in as a result of THHWC. The intervention was of a short duration and was not part of a larger intervention; therefore, the sustained impact of THHWC could not be determined. There are no cost-effectiveness data.

Green Prescription Active Families

One of the ten *Mission-On* initiatives involves the expansion of Sport and Recreation New Zealand's (SPARC's) Green Prescription (GRx) programme to allow more New Zealanders, especially children and young people and their families, to access the service. The GRx programme was established in 1997 to provide general practitioners (GPs) and practice nurses with the option of prescribing physical activity where it may be

considered beneficial to adults' long-term health care. Research shows that GRx is an inexpensive way of increasing activity for inactive people.²⁷

In 2004, the GRx programme was extended to better target the needs of young people and their families. This resulted in the GRx Active Families (GRxAF) initiative, which now operates in eight regions. The GRxAF programmes are designed to increase physical activity in children and young people aged 5-18 years of age and their whānau/families, and are therefore more likely to appeal to Māori and Pacific communities. The aim of GRxAF is to decrease body mass by enabling families to embrace healthier and more active lifestyles that are sustainable, through encouragement and education, nutritional guidance and advice, realistic goal setting and ongoing support. Regular group activity sessions are held at community facilities and include goal setting and review, nutrition advice, a physical activity session, and working as a group on individual goals/achievements. Physical activities include fitness circuits, modified games, sports and aquatic activities. Information and education about health, well-being and physical activity is provided.

Waitemata District Health Board (WDHB) has provided funding for the development of Māori and Pacific-specific Active Families programmes. These programmes are coordinated respectively by Māori and Pacific providers who recruit participants and deliver the intervention. Each culturally-specific programme is underpinned and supported by their respective steering groups. An independent qualitative and quantitative evaluation²⁸ has been commissioned by SPARC and the WDHB, with results available by December 2009.

GRxAF Otago South Auckland

Health Incorporated is a not-for-profit, stand-alone organisation that has been operating for ten years in the Otago, South Auckland community and has been delivering GRxAF since 2007. The programme has been modified in consultation with the Māori and Pacific communities and utilises a whānau approach to improve physical activity and healthy nutrition. A programme evaluation, including information from focus groups with families, is due for completion in June 2009.

Obesity Prevention in Communities (OPIC) and Let's Beat Diabetes (LBD)

Two large multi-component interventions (Obesity Prevention in Communities and Let's Beat Diabetes) have been implemented in NZ to reduce obesity and diabetes among Māori and Pacific populations. While these interventions target Māori and Pacific people, they have also incorporated the development of culturally-specific physical activity initiatives.

Obesity Prevention in Communities (OPIC)

The OPIC project is part of a regional collaboration involving Deakin University (Australia), Fiji School of Medicine, the Tongan Ministry of Health and the University of Auckland. OPIC was based on a youth participation model which involved young people initiating and developing interventions within their school environments to improve physical activity and nutrition. For physical activity several initiatives were developed, including breakfast clubs in which students were able to sign-out sporting equipment for use during lunches and recess, breakfast clubs with opportunity to practice hip-hop and play games, and after-school dance classes. Preliminary results of the OPIC study were available in July 2009.

Let's Beat Diabetes (LBD)

LBD is a community intervention project with a *five-year plan to prevent and manage Type 2 diabetes in the Counties Manukau region*. A fundamental component of LBD is the 'whole society, whole life course-whole family/whānau' approach to preventing and managing diabetes. Improving physical activity and nutrition are key components of the LBD strategy. Various aspects of LBD are currently being evaluated.²⁹

Tongan Community Action Programme

The purpose of the Tongan Community Action programme was to reduce health inequalities of Tongan people living in Christchurch. The objectives were to reduce obesity and associated long-term health problems by improving nutrition, increasing physical activity levels and reducing the levels of smoking among the participants. The project also aims to develop capacity within the community to ensure sustainability and less reliance on external support. It was coordinated and facilitated by two members of the Christchurch Tongan Community Association. Physical Activity sessions were provided throughout the 18-month intervention and were delivered by a Tongan fitness instructor. An evaluation of the programme³⁰ showed some changes in BMI and also in physical activity participation. This approach appears to be sufficiently funded and has extensive community and stakeholder support to ensure its sustainability.

LotuMoui

The LotuMoui is a programme based within the Counties Manukau region aimed at improving the health and well-being of Pacific peoples and communities. It is delivered by Pacific churches. One aspect of LotuMoui is to promote increased physical activity levels for Pacific families. An evaluation of this programme is currently in progress.

Enea Ola

The Enea Ola lifestyle intervention, targeting Pacific families, is funded by HEHA and based within the Waitemata District Health Board. A component of Enea Ola is to promote increased physical activity levels for Pacific families. An evaluation of this programme is currently in progress.

Kids in Action

The Kids in Action programme is an after-school physical activity intervention targeted at overweight Pacific and Māori children (aged 5-18 years). Participants attend twice a week during one school term with their family/whānau. Within the sessions, children and family receive information about physical activity and healthy lifestyles, and participate in physical activities and age-specific games. A mixed method evaluation³¹ has been completed, which included interviews with children and parents, analysis of kids in action data, physical measures, and self-administered questionnaires. The evaluation found that compliance to the programme was mixed with more than half (52 percent) of participants attending less than 40 percent of available sessions. While there were positive effects on participant's reported self-esteem and enjoyment, the assessment of objective outcomes such as physical fitness and physical activity were not standardised, which limits the interpretation of the effectiveness of the intervention. Drop-out rates, parents not getting involved in the activities, other competing outside influences, and limited capacity are all factors that could potentially affect the sustainability of this programme.

Shake It – Beat It - Learn It Pacific Exercise Programme

This multi-component intervention is targeted at Pacific People with the aims of reducing obesity, improving nutrition, reducing blood pressure, and increasing mobility and physical activity. The Shake It component includes a regular healthy lifestyle and exercise programme for Pacific peoples, delivered by a NZ Institute of Sport personal trainer. Participation in this programme is free. The programme has three main components. Beat It involves an initial baseline fitness check of programme participants, which is repeated regularly. Learn It is aimed at improving development and capacity building by allowing NZIS students to experience a Pacific setting for fitness training; assisting with recruitment of future fitness professionals from within the community; and training people to supervise the fitness sessions. The pilot of this programme was implemented in three communities: Tuvalu community, Porirua; Cook Island community, Porirua; and Lupe Fa'alele (Elderly Group), Newtown, Wellington South.

A mixed method evaluation was conducted³² and included key stakeholder interviews, interviews with programme participants, and analysis of health information collected in the pilot. Results showed high levels of enjoyment and satisfaction for participants and some reported increases in physical activity participation for older people; however, no quantitative data were provided. The programme logic was considered adequate; however, the programme implementation was poor, with only two of the five implementation goals achieved. Other issues which hampered this intervention were the relatively low and decreasing numbers of participants in some groups; lack of workforce development; and lack of inter-sectoral collaboration, which limit the sustainability of this approach.

Feasibility (Level of evidence of effectiveness)

There is sufficient evidence nationally that it is feasible to develop culturally-specific physical activity interventions; however, the effectiveness of these has not yet been determined. Many of the interventions lack a robust design and quantitative data to determine the effectiveness of key outcomes.

Sustainability

A few evaluations specifically highlighted the issues of sustainability, such as an adequate and sustained funding source; development of capacity and capability; and continued engagement of the target population and community. If these are adequately addressed then culturally-specific physical activity interventions could be sustainable.

Effect on equity

There is a wide variety of physical activity and lifestyle interventions that have been developed to address cultural-specific needs or have targeted Māori or the Pacific population. The continued development and refinement of these interventions are likely to have a positive impact on equity. Culturally-specific programmes would have to be implemented alongside other strategies that included a focus on low-income people to prevent lack of equity for this group.

Acceptability to stakeholders

Evaluations have generally shown that these culturally-specific interventions have been received well by participants, whānau, and the greater community.

Key components for effectiveness

The following processes have been highlighted as contributing to the success of interventions, which have similarities with international research.

- Strong links within the community.
- Collaborative community participation and consultation.
- Early, meaningful and ongoing engagement with community leaders and diverse stakeholder advisory groups.
- A holistic approach (eg, to combine physical activity and nutrition behaviours).
- Adapting or including activities that are relevant to the population of interest

Potential side-effects

There are no anticipated side effects of developing culturally-specific interventions.

Cost benefit analysis

No cost-benefit analyses were identified in New Zealand literature.

Conclusion

There is a lack of high quality evidence supporting the effectiveness of culturally-specific physical activity interventions. Despite this, international and national evidence highlights the potential for this approach. Many studies or programmes have incorporated physical activity as part of a lifestyle intervention and it is difficult to disentangle the effect on activity. However, this lifestyle approach is more consistent with the holistic approach and health needs for Māori and Pacific people.

There is a need to conduct more rigorous research to determine the impact of culturally-specific interventions on healthy lifestyles and behaviour change. Provision of ongoing support and education for those planning, delivering, and evaluating future interventions is required to ensure rigorous design and evaluation is maintained. Building on the more successful examples (eg, Korikori a Iwi, OPIC, Tongan Community Action Programme), with proper evaluation to refine and enhance the programmes, and adequate resourcing for wider implementation is recommended.

In terms of training and supporting rigorous evaluation of future culturally-specific programmes, some of this will be programme specific; however, it is not clear how other forms of support will be provided. There is potential for government and non-government organisations to fill this void.

Recommendations

- Evaluate existing culturally-specific physical activity programmes for their impact on target populations.
- Continue to fund culturally-specific physical activity programmes while the evidence base is building.
- Ensure funding is provided to physical activity programmes targeted to low-income people as well as Māori and Pacific people.
- Culturally-specific physical activity programmes need to be adequately funded, including evaluation activities.

- The Request for Proposal process from contracting bodies should require information on implementation logic and evaluation methods.
- Evaluation activities should be supported by evaluation templates/toolkits and workforce training.

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6.3 Using tikanga to encourage physical activity in Māori

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Summary

Following Māori specific workshops held by ENHANCE research team and discussions with leaders in Māori public health, it was decided that the inclusion of Tikanga would aid the provision of culturally appropriate physical activity programmes for Māori. Defining tikanga is a difficult task as definitions are varied and have changed over time however it would appear from the literature that tikanga is not a set of rigid rules, but a set of values that should govern the most appropriate way to act in a given situation.

As Tikanga operates from a Māori world view and incorporates many other aspects of wellbeing there is consensus that policies and interventions aimed at Māori be based on Tikanga Māori. Traditional activities e.g Mau Taiaha have their own tikanga, however modern activities e.g touch rugby, netball can apply tikanga to suit the situation e.g use of karakia and haka in game preparation. In essence, there needs to be a strong understanding of how to put tikanga into practice.

Korikori a Iwi was a community development action project that used Māori culture as a basis for encouraging good nutrition and regular physical exercise in five Māori communities. Tāia Te Kawa is an educational programme that is being developed at Te Wānanga-o-Raukawa and draws on two key aspects utilising Māori health perspectives to endorse health and wellbeing as integral to everyday living; and highlighting Māori cultural components as vehicles for health promotion. The underlying emphasis of the initiative is on successful and regular engagement in health and fitness programmes.

This is an important area that requires research and support to confirm if, and how, Tikanga can improve adherence to modern and traditional forms of physical activity.

It is recommended that:

- Funding is made available for traditional and modern forms of physical activity programmes that use tikanga and that these programmes are evaluated in order to build an evidence base.
- Funding is allocated to research into the use of tikanga in physical activity programmes and how this may improve adherence to traditional and model forms of physical activity.
- Funding is provided for training of the Māori physical activity workforce on tikanga and its application within activity programmes. This is likely to require partnership with tertiary providers to develop training capacity.
- A review is undertaken of tikanga use within mainstream physical activity programmes to ensure tikanga is delivered appropriately. Investigate ways for Māori to lead development of such programmes.

Problem definition

In order to reduce the incidence and prevalence of obesity and its related diseases in Māori it makes sense to address physical activity levels as part of the solution. The ENHANCE team conducted two Māori specific workshops and asked what interventions would aid in the provision of culturally-appropriate physical activity programmes. A key finding was the inclusion of tikanga in physical activity programmes for Māori, the issue that this paper explores in more depth.

Tikanga is an area that has been well defined.¹⁻⁸ The link between philosophies of tikanga and health and inequalities is also well established.⁶⁻¹¹ In contrast, there appears to be little research on how tikanga can be used as a vehicle to promote physical activity in Māori. This chapter will briefly define tikanga and consider various aspects of its application to physical activity programmes.

Methods

A brief literature review was performed utilising these databases: INNZ, Ebsco Australian and New Zealand Reference, Google Scholar, Te Puna and the Otago Library Catalogue. The search terms used were Māori, tikanga, Te Ao Kori, hauora, manaakitanga, whānaungatanga, rangatiratanga, kōtahitanga, kaitiakitanga, maramatanga and wairuatanga. In addition, five key informant interviews were conducted to inform this chapter. Interviewees were recognised academics with expertise in Māori culture and physical activity, and developers and deliverers of culturally appropriate physical activity programmes.

Literature Review: National context

Defining tikanga is a difficult task as definitions are varied and have changed over time.¹² Tikanga is often translated into English as 'custom or culture'; however, this is only one part of the meaning.¹³ The root word for tikanga is 'tika' which translates as right.^{14 15} The second part of the word 'nga' makes the word a plural.¹⁵ The act of practicing tikanga means that one's behaviour must be in a manner that is appropriate for the given situation,¹⁴ and meeting the obligations that any situation may impose on you.¹⁶ Tikanga has also been described as essentially the Māori way of doing things, from the mundane to the most sacred or important field of human endeavour.¹⁷ Durie states that tikanga, in an environmental context, 'refers to the preferred way of protecting natural resources, exercising guardianship, determining responsibilities and obligations, and protecting the interests of future generations'.⁷ Mead believed tikanga to be a set of beliefs and values contributing to how Māori think, understand and act.¹² However, Durie stated that traditional values provide future direction and this direction should not be restricted by tradition.⁶ Hence, from the above definitions it would appear that tikanga is not a set of rigid rules, but a set of values that should govern the most appropriate way to act in a given situation.

Although aspects of tikanga are common to all Māori, the way in which they are upheld may differ from iwi to iwi, hapū to hapū, and even whānau to whānau. Every iwi with its hapū and whānau has a rich heritage with its own set of tikanga.¹⁸ Also, it is important to consider that although tikanga is based on acting in a fashion that is appropriate with the situation, it generally has several key Māori philosophies that underpin such actions. These philosophies have been described as whānaungatanga (relationships), mana

(power, influence), tapu (sacred; forbidden), utu (value), kaitiakitanga (custodianship)^{16 17} manaakitanga (show respect or kindness to), kōtahitanga (unity) and noa (free from tapu).^{16 12 a}

Use in New Zealand

Korikori a Iwi

Korikori a Iwi was a community development action project that used Māori culture as a basis for encouraging good nutrition and regular physical exercise in five Māori communities. The community's knowledge base, in this case that of te ao Māori, was used to achieve the programme's objectives. Furthermore, formative evaluation was utilised to explore the significance of tikanga and related strategies as a vehicle for change, increased capacity and community resource development.¹⁹

The local and cultural basis of the programme was seen as the critical strength of the success of the Korikori a Iwi programme. In a formal evaluation to determine the effectiveness of Maori models of practice within Korikori a Iwi, it was stated that *'it would not have happened without the cultural approach – culture is the binder of exercise and nutrition'*.¹⁹

Māori traditional games and weaponry were repackaged as forms of exercise, learning and coordination skills development. For example:

- kapa haka and the use of te reo Māori was used to develop personal skills and leadership,
- marae were used by whānau for wananga (learning sessions) which focused on increasing mental, physical, and spiritual wellness, practical nutrition sessions and peer sports training,
- waka ama activities catered for all age groups and levels of ability, and
- regular hikoi (walks) to historic places of local significance not only provided exercise, but also encouraged a deeper understanding of the natural environment and led to identification of native plants and sharing of knowledge around traditional Māori practices.

Many examples throughout the first year of Korikori a Iwi demonstrated the huge potential for grounding healthy lifestyles programmes in cultural practices such as tikanga. This was displayed by the increased uptake of traditional activities, the ability of locals to embrace whakapapa and community links and aspirations, and the training of several trainers who increased the number of whānau exposed to cultural forms of exercise and well-being.¹⁹

Tāia Te Kawa

Tāia Te Kawa is an educational programme that is being developed at Te Wānanga-o-Raukawa and introduces both theoretical and practical aspects of health and fitness. Tāia Te Kawa draws on two key aspects of Māori health promotion: first, it utilises Māori health perspectives to endorse health and well-being as integral to everyday living; second, it highlights key Māori cultural components including kawa (protocol), tikanga

^a Please note all translations from Māori to English use the following reference source: Ryan, P.M., P.M. Ryan's dictionary of modern Māori. 4th ed. 1994, Auckland, N.Z.: Heinemann.

(custom, rule, principles) and te reo (Māori language), as vehicles for health promotion. The underlying emphasis of the initiative is on successful and regular engagement in health and fitness programmes.

Tāia Te Kawa incorporates five central kaupapa:

1. the utilisation of a distinctive approach to healthy living based on Māori health frameworks including tikanga, kaupapa and kawa
2. a purpose-built health and fitness facility
3. engagement in customised exercise programmes incorporating cardiovascular and resistance elements and based on pre-assessment and analysis with ongoing evaluation
4. provision of lifestyle modification strategies, including promotion of healthy eating, smoking cessation strategies and support, weight management strategies and support, and risk management advice, and
5. integration of both theoretical and practical aspects of the programme into an academic curriculum.

Feasibility

Tikanga, and the philosophies behind it, is inherent to many Māori. Māori are increasingly seeing the value of using tikanga to guide a variety of practices.¹² Utilising tikanga as a mechanism to aid Māori to be more physically active appears to have merit.¹⁹⁻²⁶ For example, the 'Health Through the Marae' initiative, developed by Ngāti Te Ata, utilises their marae (Tahuna marae) and tikanga as a forum to promote physical activity and health promotion.²⁶ Part of the appeal of this programme is that it is based on manaakitanga, with the added emphasis on promoting good health, as the founding principle of the programme.¹¹

Te Papa Takaro of Te Arawa also promotes healthy lifestyles through exercise and sports events which are marae based. Such activities include mahinga kai for example seafood gathering and eeling, mau rākau wānanga (traditional weaponry training sessions), tī rākau (traditional stick game), kapa haka and Pā Wars (sport, intellectual and cultural competitions between the different hapū of each iwi).¹¹ The phenomenon of Pā Wars is not limited to Te Arawa with many iwi engaging in Pā Wars and gathering significant support from their people.

It is important to note that not all activities held on the marae that are enabling more Māori to be physically active are traditional based activities. Tahuna marae, mentioned previously, has a programme called 'maraerobics'. Maraerobics is a form of aerobics that is performed on the marae using traditional Māori movements and is framed in a Māori world view.²⁰ This example of the combination of Māori traditional domains being combined with more contemporary forms of activity is not limited to Tahuna marae with many marae-based non-traditional activities being promoted around the country. Furthermore, there has been an explosion of other cultural activities (eg, Tai Chi and Line-Dancing) also being utilised in the marae setting.

The marae is completely central to the Māori way of life and is a focal point for those who share kinship, ie, whānau, hapū and iwi.⁶ One of the traditional functions of the marae was to act as vehicle for whānaungatanga and whakapapa which promotes a sense of relatedness.¹¹ Relatedness to each other and the hapū or iwi in physical activity programmes provides a sense of belonging²⁶ and acts as a motivational driver for

Māori to be physically active.²⁷ Further to whānaungatanga is another fundamental concept of marae, manaakitanga. Manaakitanga is primarily about caring for each other and is vital for creating a sense of belonging in a group.¹¹ The combination of whānaungatanga and manaakitanga or relatedness and belonging are key aspects that are required to obtain group cohesion.¹¹ Cohesion is promoted on the marae via group and team work, as there is a strong emphasis on whānaungatanga, manaakitanga and kōtahitanga in order to maintain the mana of the marae and hapū.¹² Maintaining the mana of the marae is based on correctly carrying out the tikanga of the marae to care for its visitors and provide a culturally safe environment for both the tāngata whenua and their manuhiri. It is important to note that a strong body of evidence exists that shows the more cohesive a group is the more likely its members will exhibit increased attendance and motivation to attend.¹¹

Although the previous examples are based in a marae setting, they have been used as an example of how tikanga can aid in providing more opportunities for Māori to be physically active. It seems fair to assume that the successes of the aforementioned programmes are more than likely due to the use of tikanga and the underpinning philosophies. Hence, it is more than likely that programmes that are not held on the marae and are not based on traditional activities have every chance of increasing the number of Māori who are physically active if they are based on tikanga.

Sustainability

There is high level political support for the use of Māori principles and values in the form of He Korowai Oranga: Māori Health Strategy.² The overall aim of He Korowai Oranga is whānau ora: Māori families supported to achieve their maximum health and wellbeing. The Crown acknowledges that this requires an approach that recognises and builds on the integral strengths and assets of Māori both individually and collectively.²⁸ One of the key threads of this strategy is 'rangatiratanga'. This provides recognition that whānau, hapū and iwi have the right to have direct control over the direction and shape of their own institutions, communities and development as a people. Furthermore, it acknowledges that Māori communities need to be supported to develop initiatives that meet their needs across the social, economic and cultural sectors.²⁹ The main point that needs to be considered is how is this policy being implemented and is it having a meaningful influence on the provision of culturally-appropriate programmes for Māori.

Effects on equity

There is currently a large body of literature that describes tikanga¹⁻⁸ and how various philosophies of tikanga are linked to health and reducing inequalities.⁶⁻¹¹ However, there appears to be little research into utilising tikanga as a vehicle to improve Māori physical activity rates. This is an area that requires more research.

Potential side effects

The utilisation of tikanga as a vehicle to increase physical activity in Māori has the potential to have both negative and positive side effects.^{19 25 30 31} In the realm of mainstream physical education the introduction of tikanga primarily through the use of 'Te Reo Kori' has been met with mixed reactions. Te Reo Kori has been described as the combination of aspects of Māori cultural values, language, movement and music via the use of a range of Māori activities.³² Satler saw Te Reo Kori as an opportunity for Māori students to access traditional knowledge, values and practices while affirming personal identity and self-worth in the context of mainstream education. In addition, he believed it provided non-Māori students with the opportunity to access culture and

knowledge that is specific to Māori.³² However, there has been criticism that the physical education curriculum has made the practice of tikanga too simplistic, tokenistic and lacking in context which served only to damage the Māori culture.^{30 33} Māori female secondary school students have found Te Reo Kori to only be of use to Pākehā students and Māori who do not have any connection to their culture.³⁴ Similarly, it has been reported that Te Reo Kori was most beneficial to students who have no link to tikanga Māori.³⁰ Hence, it would seem that in order for tikanga to be effective in increasing Māori participation in physical activity in a school setting it needs to be meaningful, challenging and complex to be valued. Perhaps, it is fair to assume that these same criteria would aid in increasing the delivery of tikanga based programmes that would increase the number of Māori partaking in physical activity in other settings.

There have been several positive side effects documented from programmes utilising tikanga.^{19 24 25} Eketone observed the bringing together of a wider section of the community, anecdotal evidence of increased self-respect amongst those involved in the programme and increased pride in the local community.²⁴ Furthermore, Henwood observed positive spin-offs in education, community and whānau/hapū well-being and development, and longer-term economic development and tourism opportunities.¹⁹

Acceptability to stakeholders

As mentioned in the previous section, acceptability to stakeholders is dependent on how the tikanga is delivered and what level of understanding is required to make it meaningful to those participating.^{30 33} This is an area that requires further research.

Key Informant Interview Results

Value of physical activity programmes based on tikanga

There was general consensus amongst key informants that it is imperative that physical activity programmes, policies and interventions aimed at Māori are based on tikanga and traditional Māori philosophies. Furthermore, four key informants agreed that it is even more important that there is an understanding of what tikanga Māori actually is and where tikanga comes from. Four key informants agreed that tikanga is about doing what is right for the situation that you are applying it to; with one key informant stating that, more importantly, the principles of tikanga are guided by kawa, which in turn is governed by the atua (gods) that tikanga has whakapapa to.

Putting tikanga into practice

Four of the key informants believed that understanding the concept of tikanga and where it comes from is 'only half the battle'. There needs to be an understanding of how it is put into practice. Tikanga has been described as a set of guidelines, but 'it is also a way of life'. However, if people are going to stick to the tikanga that is being enforced they need to understand why it is being used. Two key informants went on to add there are different levels of tikanga, such as whānau and individual. In addition, there are differing levels of understanding of the principles of tikanga. For example, some may be happy just utilising te reo and whānaungatanga and that is all they are able to understand or use. However, this may not be enough for others who require a greater level of understanding to feel they are able to follow the tikanga that is being laid down.

One aspect that all of the key informants agreed on was that one of the most important aspects of tikanga is that it operates from a Māori world view and incorporates many other aspects of well-being such as wairuatanga (spirituality), te reo, manaakitanga, whānaungatanga, kaitiakitanga and tino rangatiratanga (self determination).

Pre-European and Post-European Games and Activities

There appear to be differing opinions on the best use of tikanga in relation to pre-European and post-European games and activities. One key informant stated that:

traditional activities such as Mau Taiaha, Waka Ama, etcetera, have their own specific tikanga. For this reason it is important that we focus on promoting and funding traditional activities and programmes. They are already rich in tikanga so we do not need to try and create new tikanga to suit the activity. Furthermore, focusing on traditional activities allows Māori people to not only enjoy the physical benefits of being physically active, but also allows spiritual growth and fulfilment through learning about who we are and where we come from. Achieving total wellbeing can only be realised through tikanga.

In contrast, all the other informants believed that it is important that policy does not place Māori physical activity into a box of traditional or pre-European activities (such as waka ama, kapa haka, etcetera) or team-based activities, but allows for funding of a wide variety of activities that can utilise tikanga philosophies and practices. More specifically, pre-European activities provide an excellent medium for the practice of tikanga principles such as use of te reo Māori, karakia, whānaungatanga or manaakitanga; however, such activities may only appeal to a small proportion of Māori.

It is important that policy recognises that any game or activity can be used as a medium to apply tikanga. If Māori are partaking in skating or surfing, a karakia or haka can be used as a pre-sport activation process equally as much as it can be used before waka ama. One key informant added that there is a general misconception that '*tikanga is only meant for the past but it definitely can be applied to the modern environment*'.

Use in New Zealand

All key informants believed that tikanga has proven to be an effective model to help more Māori to be physically active. One key informant stated that Māori touch (rugby) has doubled the number of participants in the last ten years and has also managed to provide Māori development at a local, regional and national level. Furthermore, it has now gone international by hosting a world indigenous touch tournament. Part of this success is based on Māori governing their own affairs and having buy-in from players, referees and management of the importance of using tikanga to guide all dealings with internal and external stakeholders.

Another key informant stated that Ngāti Porou Hauora is utilising the principles of tikanga in the work that they do. So to are Ngāti Hine Trust.

Feasibility

All the key informants believed that utilising tikanga as a vehicle to help more Māori to be physically active is feasible. Two informants stated that they are already using these philosophies with great success and the communities they serve are asking for more. Another key informant stated that tikanga is inherent in Māori and is highly transferable to the general population. One key informant stated that tikanga would be successful

only if the interventions were community-based, followed a community development approach, and acknowledge that people are the driving force.

Sustainability

All key informants believed that utilising tikanga as a vehicle to help more Māori to be physically active is sustainable. Two of the key informants believed that there would need to be up-skilling of the workforce to ensure sustainability. One key informant stated that tikanga is highly sustainable as it has been sustained for hundreds of years. Another key informant believed that tikanga is intergenerational and *'helps to undo the damage that the western society has done to the Māori world view'*. For example, we used to show manaaki by providing the best that we had to ensure manuhiri were healthy; now we provide lots of kai and health is no longer a concern.

Effects on equity

Three key informants stated that there would be effects on equity. One key informant stated that tikanga has an equitable approach as it welcomes all. Another key informant stated there would only be an effect on equity if the Government understands what they are buying into. Money alone is not enough. Furthermore, another key informant stated that in order for the programmes to be equitable there needs to be research to ensure it will work and foster community ownership and buy-in. One key informant believed there would be no effects on equity.

Potential side effects

All key informants believed there would be potential side effects. One key informant believed that the intervention would promote reciprocity and participants would pass on what was learnt. Another stated that this would lead to discussions on how the various kawa around the country can be used. One key informant stated that there are good and bad tikanga. Many people can make their own tikanga based on their own world view or the environment that they are in. This has the potential to have a negative impact.

Acceptability to stakeholders

All key informants believed that tikanga would be acceptable to stakeholders. Two stakeholders stated that it would only be successful if the participants were aware of the reasons behind its use and how it would benefit more than just Māori people. One key informant stated that *'our most important stakeholders are the communities that we serve'*. They are constantly looking for more programmes'. One informant believed that tikanga was highly acceptable especially once fiscal benefits line up with reported psychological benefits. The key informant went on to state that the ideal is to utilise mainstream activities within a Māori medium of participation for those who choose, and a mainstream approach without tikanga for those who are Māori but prefer no tikanga. In contrast, one key informant stated *'Why do we need to justify tikanga to stakeholders anyway? It is our world view they should just accept it'*.

Discussion

There was general consensus between the literature and the key informant interviews that tikanga is a Māori way of approaching things based on acting in the most appropriate way for any given situation.^{7 14 16 17} There was also strong agreement that if tikanga is to be used to improve the provision of culturally-appropriate physical activity programmes it needs to be done in a way that is meaningful^{30 33} but also flexible enough

to cater for all levels of understanding. In essence, there needs to be a strong understanding of how to put tikanga into practice or it runs the risk of becoming superficial and detrimental to the goal of increasing physical activity in Māori.

Tikanga and the philosophies behind it are inherent in many Māori, with more Māori seeing the value of using tikanga to guide a variety of practices.¹² The philosophies that underpin tikanga have been described as whānaungatanga, mana, tapu, utu, kaitiakitanga¹⁷, manaakitanga, kōtahitanga and noa¹² and are essential to the central focus of many Māori, the marae. Physical activity programmes, both traditional and contemporary, administered on the marae have proven to be highly successful.^{11 20 26}

However, nearly all key informants expressed the view that policy should not place Māori physical activity into a box of traditional or pre-European activities or team-based activities but allow for a wide variety of activities that can utilise tikanga philosophies and practices. This view is supported by Durie who states traditional values provide future direction and this direction should not be restricted by tradition.¹⁶ Furthermore, several key informants believe that new tikanga can be made to suit modern activities. Hence, policy should continue to support the delivery of physical activity programmes that are based on traditional activities and delivered through traditional mediums. This should not, however, be at the expense of tikanga being applied to mainstream activities that have the potential to improve Māori physical activity rates. Tikanga could be incorporated into mainstream physical activities that many Māori enjoy such as touch rugby, mountain biking, rugby league, netball or surfing and even many less well known activities like snowboarding or skateboarding.

It is important to note that there are many Māori driven physical activity programmes around the country that are utilising tikanga and are highly successful for Māori and non-Māori alike. However, there appears to be a lack of research and evaluation being undertaken on such programmes at this time.

This research indicates that there is currently a large gap in the literature with regards to using tikanga as a vehicle to encourage Māori to be physically active. This is an important area that requires research and support to confirm if, and how, tikanga can improve adherence to modern and traditional forms of physical activity. While empirical evidence may not exist, common sense and cultural learning suggest that we should promote tikanga in physical activity until the evidence-base is built.

There appear to be no institutions that concomitantly provide tertiary level education on tikanga and how to apply it to physical activity and physical activity programmes. This research suggests the need for government support to allow the Māori physical activity workforce to be up-skilled and strengthened in these areas, while providing opportunities for Māori to create career pathways.

Mainstream physical activity programmes that are incorporating tikanga need to be done in a way that is not degrading or demeaning to Māori culture. It is imperative that the Crown acknowledges its Treaty of Waitangi obligations and provides opportunities for appropriately skilled Māori to lead the development of such programmes. If physical activity programmes are delivered using tikanga as a tokenistic or overly simplistic concept they have the potential to decrease the numbers of Māori participating in physical activity.

There is general consensus from key informants and many in the Māori public health and physical activity arenas that resourcing for Māori physical activity favours traditional activities. While it is important that such resourcing is carried on and increased, it is important to note that many Māori are partaking in modern forms of activity. Hence, it is important that Māori providers are given adequate resourcing to allow the provision of modern activities which can be delivered following traditional philosophies such as tikanga to help more Māori to be physically active.

Tikanga is used throughout New Zealand to encourage Māori participation in physical activity. Despite an absence of empirical evidence, common sense and cultural learning suggest that there is considerable potential to enhance Māori participation in physical activity through the inclusion of tikanga in both traditional and modern physical activity programmes. Such initiatives appear feasible, sustainable (with appropriate funding), likely to positively contribute to equity for Māori, have more positive side-effects than negative and be acceptable to Māori if undertaken with due care.

Recommendations

It is recommended that:

- Funding is made available for traditional and modern forms of physical activity programmes that use tikanga and that these programmes are evaluated in order to build an evidence base.
- Funding is allocated to research into the use of tikanga in physical activity programmes and how this may improve adherence to traditional and modern forms of physical activity.
- Funding is provided for training of the Māori physical activity workforce on tikanga and its application within activity programmes. This is likely to require partnership with tertiary providers to develop training capacity.
- A review is undertaken of tikanga use within mainstream physical activity programmes to ensure tikanga is delivered appropriately. Investigate ways for Māori to lead development of such programmes.

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Chapter 7: Cross-cutting Themes

This last section of the book focuses on two intervention areas that impact on both food security and physical activity. These are: the use of Health Impact Assessment (HIA), and building on current initiatives.

In Chapter 7.1 Sharron Bowers and Louise Signal explore the potential of HIA to enhance food security and physical activity for Māori, Pacific and low-income people. In Chapter 7.2 Louise Signal argues that there are many effective current initiatives on food security and physical activity that should be maintained and/or strengthened to meet the needs of the target populations of this research.

7.1 The potential use of Health Impact Assessment

Sharron Bowers and Louise Signal

Background

This chapter provides an overview of the potential use of Health Impact Assessment (HIA) as a tool for enhancing physical activity and food security for Māori, Pacific and low-income peoples in New Zealand. HIA was identified as an intervention at two of the ENHANCE workshops: money available in households, and improving urban design. It is, in essence, a cross-cutting intervention as it can be applied to all of the policy areas being focused on in the ENHANCE programme.

HIA is 'a systematic way of identifying the potential impacts on the wellbeing and health of the population of any proposed policy, strategy, plan or project, prior to implementation. International experience has found that without an explicit process, such as HIA, the availability of technical information on the expected health and wellbeing impacts is unlikely to be sufficient to influence decision-making to any significant degree'.¹

HIA uses both qualitative and quantitative evidence to systematically assess the impact of proposed initiatives on the health and wellbeing of population groups. Its primary focus is on health and its determinants. 'HIA is based on the recognition that the health status of people and communities is greatly influenced by factors that lie outside the health sector, for instance, through social and economic policies'.² HIA provides recommendations to decision-makers about ways to enhance the positive aspects of policies and to mitigate the negative aspects.

There is a growing body of evidence that HIA has a positive impact on the policy process. A review of the effect of international policy-level HIA found that many member states of the EU and Thailand were aware of changes to policies developed or implemented as a result of information provided by an HIA.³

Since the establishment of the Ministry of Health based Health Impact Assessment Support Unit (HIASU) in 2007 the use of HIA has grown substantially in New Zealand. In mid-2009 there were 35 HIAs either completed or in progress (personal communication Matt Soeberg, HIASU, June 2009). New Zealand HIA is supported by two HIA tools developed for New Zealand, *A Guide to Health Impact Assessment*¹ and *Whānau Ora Health Impact Assessment*.⁴ Both HIA tools have a strong emphasis on equity and, in particular, promoting the health and wellbeing of Māori /whānau. The HIASU not only raises awareness about HIA but provides support, builds capacity, develops evidence and builds partnerships to promote HIA in New Zealand.⁵

Methods

This chapter is based on a scan of international and national literature on HIA, particularly in relation to food security and physical activity. Physical activity is a determinant of health identified in at least half of the HIAs undertaken in New Zealand (personal communication Matt Soeberg, HIASU, June 2009). New Zealand-based HIAs

with a physical activity component were identified from key websites including: www.moh.govt.nz/hiasupportunit and www.quigleyandwatts.org.nz. No food security-related HIAs were identified. It appears that none have been undertaken in New Zealand to date (personal communication, Matt Soeberg, HIASU, June 2009).

Results

Most transport-related HIAs and urban planning or land use HIAs have a strong physical activity component to them (personal communication, Rob Quigley, Quigley and Watts Public Health Specialists, June 2009). The HIASU reported that transport HIAs (n=3) and urban planning and growth HIAs (n=9) accounted for about half of all HIAs either completed or in progress in New Zealand in 2008. Transport is a focal area for the HIASU in 2009 and 'there has been a positive development with the transport sector in promoting an HIA approach to decision-making'.⁶

The following is a summary of key transport and urban development HIAs undertaken in New Zealand. It covers the purpose of the HIA, the population groups and determinants of health^a being focused on, and identifies any recommendations of relevance to enhancing physical activity for Māori, Pacific and low-income people. Information from impact evaluations is included where available.

Avondale's Future Framework Rapid HIA

The purpose of Avondale's Future Framework Rapid HIA was to identify the positive and negative health and wellbeing impacts of the Avondale Liveable Communities Plan and to inform the writing of the plan by Auckland City Council so that connected communities were enhanced. Five key strategy areas in the plan covered population growth, transit, community engagement, physical environment and the economy. Population groups of interest included Pacific people, and determinants included transport, social cohesion, community facilities, open spaces, and urban design. Recommendations were made for each of the key strategy areas in the plan and those influencing physical activity appeared under all strategy areas. Those most relevant to enhancing physical activity for Māori, Pacific and low-income people included: reviewing the use of open space and aligning open space with cultural mix, and linking open spaces and facilities together with community travel plans and safe pedestrian and cycle routes (recommendations consistent with the argument made in chapter 5.1); and using a community development approach to developing recreation that reflects the needs of different groups in the community (a recommendation consistent with arguments made in section six of this report).⁷ Thirty-three of the 35 HIA recommendations were accepted by the Auckland City Council.⁸ The planner in charge of implementing the HIA expressed the following view at the conclusion of the process:

*HIA is a useful policy development tool, it is a robust tool for rigorously evaluating policy from a wide range of perspectives using a health lens. It also provided another opportunity to engage stakeholders and involved them in the development of the Framework in a tangible manner.*⁸

^a The range of personal, social, economic and environmental factors that determine the health status of individuals and populations. Ministry of Health 2002. *Reducing Inequalities in Health*. Wellington, Ministry of Health.

Wairau/Taharoto Corridor Road Widening Project Mini HIA

The objectives of the 'mini' HIA on the Wairau/Taharoto Corridor Road Widening Project included promoting and maintaining a safe and active environment for corridor users and nearby populations. Evidence of health impact covers physical activity, benefits of physical and activity friendly environments, community severance/social cohesiveness, and access and mobility. Recommendations include specific design considerations to promote cycling and pedestrian safety. Children and older people were considered in the recommendations but there was no specific mention of Māori, Pacific, or low-income people⁹.

The Mangere Growth Centre Plan HIA

The objectives of the Mangere Growth Centre Plan HIA included 'assist the strategic and staged development of an increasingly active dynamic and exciting Mangere community'.¹⁰ Māori make up 19.9 percent of the population of Mangere, and Pacific 70 percent, and the median personal income in the area is \$13,600. Within the growth plan, the HIA focused on the Pershore precinct because it was likely to be the first to be implemented. Housing New Zealand was the dominant landowner, and the link to the town centre (and other key locations) from the precinct (via transport) was considered an important social-geographical component of the precinct to assess. Determinants of health included physical activity and social connectedness/isolation. Lack of connectivity of the street network was identified as an issue for Mangere in general (an issue discussed in Chapter 5.1 of this report). One of the main purposes of the Pershore Precinct Plan was to improve connectivity through pedestrian and cycle access between the Pershore precinct and the Mangere town centre. The development was seen to have potential to increase physical activity for all people, including people from vulnerable groups. A large number of stakeholder specific recommendations were made, including those to address connectivity.¹⁰

The Greater Wellington Regional Land Transport Strategy HIA

In the Greater Wellington Regional Land Transport Strategy (RLTS) HIA determinants of health that were assessed included physical activity and accessibility to services and the community. Population groups of interest to stakeholders included: those with access issues, low socio-economic groups, those affected by geographical location, and Māori. The HIA found that the draft RLTS objectives had the potential to positively impact on public health; but that overall the draft RLTS is unlikely to protect and promote public health for the region's population; and that the draft RLTS was likely to increase inequalities in health, particularly between socioeconomic groups. It was concluded that 'increasing modal share for public transport use and walking and cycling, and reducing private motor vehicle modal share are the best ways for transport to promote health, and the draft RLTS is not predicted to achieve these changes. If the RLTS is to meet its objective of protecting and promoting public health it must shift its focus to increasing public transport and TDM (travel demand management such as travel plans and bus priority measures) use'.¹¹

Wellbeing Assessment of the Draft Far North District Council Kerikeri-Waipapa Structure Plan.

The Wellbeing Assessment of the Draft Far North District Council Kerikeri-Waipapa Structure Plan was a mini Wellbeing Impact Assessment focused on housing density and its effects on the wellbeing of young people and families, particularly whānau. The Structure Plan was seen to have potential influence on social cohesion and subjective wellbeing, access and opportunities for young people, road safety and physical activity

via active transport, and inequalities. Recommendations were made around addressing the influences.¹²

Christchurch Urban Development Strategy (UDS) HIA

The Christchurch UDS is a community-based project with the purpose of preparing 'a strategic plan to manage the impact of population growth and change within the greater Christchurch area'. Areas of Christchurch have significant deprivation, with a concentration of Māori, Pacific and low-income populations. Transport and social connectedness were two of six determinants being focused on. Engagement with Māori was considered to be an essential component of the HIA. Transport-related recommendations included to 'actively promote active transport'. There were also a number of recommendations under the social connectedness determinant with potential to influence open space and connectivity in favour of Māori, Pacific and low-income people.¹³

An impact evaluation of the Christchurch UDS HIA concluded that the HIA was 'broadly successful' and that it had a significant impact on the final UDS, with 24 out of the 32 recommendations being included. These included five of seven transport-related recommendations and the recommendation that Māori values are incorporated into urban design. One significant omission was the set of recommendations around intersectoral working groups. The HIA evaluators conclude that 'these omissions in the UDS could lead to negative health impacts over time'.¹⁴

Discussion

This chapter has briefly defined HIA and identified its value in enhancing physical activity through assessment of proposed policies, strategies, plans and projects on transport and urban planning and growth. Unfortunately, there have been no HIAs undertaken in New Zealand to date that impact directly on food security.

Feasibility

The HIAs identified here demonstrate the potential of HIA to enhance physical activity through assessment of the health and wellbeing impacts of proposed policies and projects in areas of transport and urban planning and growth. Of the six HIAs highlighted here, all made recommendations to enhance physical activity for some, or, all of the priority groups the ENHANCE research is concerned for (ie, Māori, Pacific and low-income peoples). In the case where impact evaluation has been undertaken, the Christchurch UDS HIA, a significant number of the recommendations were accepted by the decision-making body. With the growth in HIAs, and the subsequent growth in HIA expertise in New Zealand, and with on-going support from the HIASU, the feasibility of undertaking HIAs to enhance physical activity for Māori, Pacific and low-income communities appears to be strong. The feasibility for using HIA to enhance food security remains untested, but trials appear likely to be successful, given the experience in the physical activity arena.

Sustainability

There is international and local evidence to support the positive impact of HIA information on improving the health, wellbeing and equity outcomes of policy, strategies, plans and projects in a wide range of areas, including physical activity. As mentioned above, an impact evaluation of the Christchurch UDS HIA concluded that it had a

significant positive impact on the final policy. Further evidence from upcoming impact evaluations would strengthen this picture.

Effect on equity for Māori, Pacific and low-income peoples

HIA has a proven track record in addressing the needs of Māori, Pacific and low-income communities. This is no doubt in part due to the emphasis on equity in the New Zealand HIA Guides.^{2,4}

Acceptability to stakeholders

In recent years there has been increasing engagement by key stakeholders in HIA in New Zealand, particularly in public health and at local government level. Acceptability of this approach at central government continues to be much slower in building, with only a few pilot HIAs at central government to date.² However, progress is currently being made in the transport arena, an area highly relevant to this current research, and one that could provide a good example of the potential of the technique at this level.¹⁵

Potential side-effects

HIA has a strong focus on the potential side-effects of its process and outcomes. As a result, it is likely that any negative side-effects would be carefully considered during the process and that positive side-effects would be identified and enhanced where possible.

Cost-benefit analysis

No cost-benefit data was identified in New Zealand, although a small study of 16 HIAs in the United Kingdom found that the benefits of HIA outweigh the costs, suggesting that HIA is 'a cost effective use of NHS [National Health Services] resources'.¹⁶

Conclusion

There is evidence that HIA is a valuable tool for enhancing physical activity for Māori, Pacific and low-income New Zealanders. It is likely that it would also be useful in enhancing food security for these groups. It seems sensible to continue to undertake HIAs in the physical activity arena and to trial HIAs in relation to food security. Evaluations of HIA have been limited to date, although a number are underway at the time of writing. Analysis of the findings from these evaluations will provide further evidence of the value of HIA and likely identify ways to strengthen the work that is undertaken in this country. The HIASU provides leadership and support to the HIA community. An evaluation of its initiatives is currently underway. Given the value that HIA appears to have across a wide range of policy arenas, careful consideration of the findings of this evaluation is needed to ensure that HIA continues to be promoted and well supported in this country..

Recommendations

- Continue to undertake HIA to enhance physical activity for Māori, Pacific and low-income New Zealanders.
- Trial and evaluate HIAs to enhance food security for Māori, Pacific and low-income New Zealanders.
- Assess the impact of evaluations of HIAs that are currently underway in order to strengthen HIA in New Zealand.

- Routinely undertake impact evaluations of HIAs to assess their impacts, including cost-benefit analysis as appropriate.
- Consider the findings of the current evaluation of the HIA Support Unit to ensure that HIA continues to be promoted and well supported in New Zealand.

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7.2 Building on current initiatives

Louise Signal

Building on current initiatives was a strong recommendation from key stakeholders who participated in the workshops on enhancing both food security and physical activity for Māori, Pacific and low-income communities. Participants were clear that there are many initiatives underway that should be maintained and/or strengthened to meet the needs of the target populations of this research, including programmes run by Pacific Islands Heartbeat and Te Hotu Manawa Māori. A number of these initiatives have been identified throughout this report. A key aspect of maintenance is the need for sustainable funding from the Government.

It is important that capacity is developed to ensure high quality programmes are maintained, expanded and evaluated, both for food security and physical activity. This issue is discussed, in part, in Chapter 6.1 which outlines the need to build capacity for culturally-appropriate programmes to enhance physical activity. It is also critical that programmes are based on good research evidence and effectively evaluated. This issue is discussed in Chapter 6.2 in relation to research and evaluation of culturally specific programmes to enhance physical activity.

Funding of nutrition and physical activity programmes has been higher in recent years in response to the Government's Healthy Eating Healthy Action Strategy.¹ This has resulted in an increase in relevant programmes throughout the country. The extent of these programmes has been captured as part of an evaluation of the Healthy Eating Health Action Strategy. While this information was not in the public domain at the time of writing, it is likely to provide evidence of effectiveness in relation to physical activity programmes. The evidence for food security promotion may be less clear as it is likely that most programmes focus on healthy eating, rather than food security specifically. An additional environmental scan of effective food security programmes for Māori, Pacific and low-income communities would be a valuable complement to the evaluation. The results of the Healthy Eating Healthy Action evaluation should, nevertheless, be examined carefully to determine which programmes should be maintained or built on and how they can be strengthened to best serve the needs of Māori, Pacific and low-income New Zealanders.

Going forward, it is important that all food security and physical activity programmes are based on, and informed by, robust independent research and evaluation in order that programmes are effective for Māori, Pacific and low-income communities. The inclusion of measures of cost-effectiveness will provide funders with the confidence needed to ensure sustainable funding.

Recommendations

- Provide sustainable Government funding to maintain and develop effective programmes promoting food security and physical activity for Māori, Pacific and low-income communities.

Enhancing Food Security and Physical Activity for Māori, Pacific and Low-income Peoples

- Ensure capacity is developed to build on effective programmes promoting food security and physical activity for Māori, Pacific and low-income communities.
- Review the findings of the evaluation of the Healthy Eating Healthy Action Strategy to identify effective programmes promoting food security and physical activity for Māori, Pacific and low-income communities.
- Undertake an environmental scan of effective current initiatives in relation to food security to complement the information in the evaluation of the Healthy Eating Healthy Action Strategy.
- Ensure robust independent research and evaluation is undertaken of all food security and physical activity programmes for Māori, Pacific and low-income communities. Such evaluation should include measures of cost-effectiveness.

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Chapter 8:

Discussion and recommendations

Mat Walton, Louise Signal, Sharron Bowers, Kristie Carter, Delvina Gorton, Craig Heta, Tolotea Lanumata, Ralph Maddison, Christina McKerchar, Cliona Ni Mhurchu, Des O’Dea, and Jamie Pearce.

8.1 Overall discussion for ENHANCE

This research project, ENHANCE, began two years ago to clarify the contribution and interaction of various environmental factors to food security and physical activity for Māori, Pacific and low-income families/whānau; and to identify how these factors might be modified to improve food security and physical activity. This multi-phase research drew its findings from a range of methods, including two initial literature reviews; focus group research with Māori, Pacific and low-income people; seven workshops with key stakeholders; and 16 further literature reviews or literature scans and a series of key informant interviews. Findings were triangulated using theoretical frameworks in order to identify factors with most influence on food security and physical activity for Māori, Pacific and low-income people and to highlight those that should be targeted for intervention.

Results suggest that key areas to intervene to enhance food security for Māori, Pacific and low-income families relate principally to availability of money within households; the cost of food; and food purchasing factors (the control parameters in the food security system). In relation to enhancing physical activity, important areas for intervention relate to improvements to urban design, and development of culturally-specific physical activity programmes (the control parameters in the physical activity system). A total of 16 potential interventions relating to these five principal areas were identified and are presented in detail in this report. While each intervention was reviewed individually, collectively they form a multi-component ‘portfolio’ of interventions to enhance food security and physical activity for Māori, Pacific and low-income people.

In this final chapter the overall findings of the ENHANCE research are summarised and conclusions, and recommendations for action are brought together from across the component chapters in the book. This discussion considers how interventions may interact, and through the interaction, identify timing or prioritisation of interventions to maximise impact on physical activity and food security outcomes. Given the necessary specificity of the research focus, this is not an exhaustive portfolio; however, it is one that attempts to address the places to intervene for greatest effectiveness (control parameters) in the system in ways that best meet key policy criteria of feasibility, sustainability, effects on equity, potential side-effects, acceptability to stakeholders¹ and cost-benefit.

Impacting of the food security and physical activity 'systems'

Combining complexity theory² and the ANGELO framework³ enabled the research team to identify interventions to enhance food security and physical activity. Complexity theory suggests that multiple interventions will be required to impact on multiple key places (control parameters) operating across complex social systems, such as the systems that determine food security and physical activity.² The ANGELO framework suggests that interventions should also seek to work across political, socio-cultural, economic and physical environments within complex systems.³

When developing an implementation plan, it is recommended that interventions which impact on control parameters should be prioritised because they are likely to have most impact on the system. Moreover, interventions, such as the development of a 'smart card' food voucher system, that impact on multiple control parameters should be prioritised because of the extent to which they impact on the system. It is important to note that the full impact of any intervention may not be realised until the portfolio of interventions is implemented. Within each intervention area displayed in Tables 8.1 and 8.2, a number of recommended actions have been made. The full set of recommendations is provided at the end of this chapter. Each recommendation includes a suggestion of the organisations that may have a role in its implementation. Each recommendation also includes a suggested prioritisation which is intended to assist in informing the timing of resource allocation but not to signal the two or three interventions to be cherry-picked from the portfolio and implemented in isolation.

The portfolio of interventions was developed according to methodology developed by Swinburn et al¹ that involved the clearly articulated and transparent judgement of groups of experts. This was further supported by literature reviews or scans and detailed interviews with key stakeholders. The success of any intervention portfolio will be the inclusion of multiple interventions, across multiple environments, encompassing action across sectors, with a focus on changing the food security and physical activity systems. A coherent complex systems intervention logic and evidence of intervention efficacy will increase the likelihood of successfully enhancing physical activity and food security. While the portfolio of interventions is based on the best evidence to date, it does not rule out the inclusion of additional interventions that impact on the control parameters in the food security and physical activity systems, nor alternative interventions being considered if current ones prove unachievable or research evidence changes.

ENHANCING Food Security

To enhance the social system for food security, three control parameters were identified in phase two of the research. In phase three, eleven potential interventions were then selected from the workshops in phase three to impact on the three control parameters. The control parameters and interventions are shown in Table 8-1 below. Five interventions were selected to impact on the money available in households to spend on food, three interventions focused on food purchasing influences, and three interventions were selected to impact on the cost of healthy nutritious foods. Removing Goods and Services Tax (GST) from healthy basic foods is included in the chapter on the potential use of economic instruments.

Table 8-1 – Food security control parameters and selected interventions

Control Parameter	Intervention
Money available in households	Potential uses of economic instruments
	Increasing the statutory minimum wage rate
	Full and correct benefit entitlements
	Fringe lender responsibility
	Provision of free or subsidised food in schools
Food purchasing influences	Enhancing cooking skills
	Iwi pan tribal development of traditional Māori food sources
	Community markets, community gardens, and improving access to food
Cost of healthy nutritious food	Community-based initiatives
	The potential role of the food industry
	Removing GST from healthy basic foods

From the detailed analysis of the selected interventions (see relevant chapters for full discussion), recommendations are made for action in all except removing GST from healthy nutritious food.

Figure 8-1 below shows a representation of the food security system that indicates where the selected interventions are likely to impact (interventions are entered in multiple places as appropriate). The food security system description included in Figure 8-1 is based on the focus group information from phase one of the research, altered to integrate information from the literature review; and the final control parameters chosen as the focus for phases three and four of this study. It reflects the final control parameters chosen for analysis (in bold), the identified interventions (in pale blue) and the type of environment being impacted on according to the ANGELO framework.³ Some system elements impact on more than one environment. Those with influences on multiple environments are illustrated with two coloured boxes (eg, in this figure overlap between political and economic environments is identified).

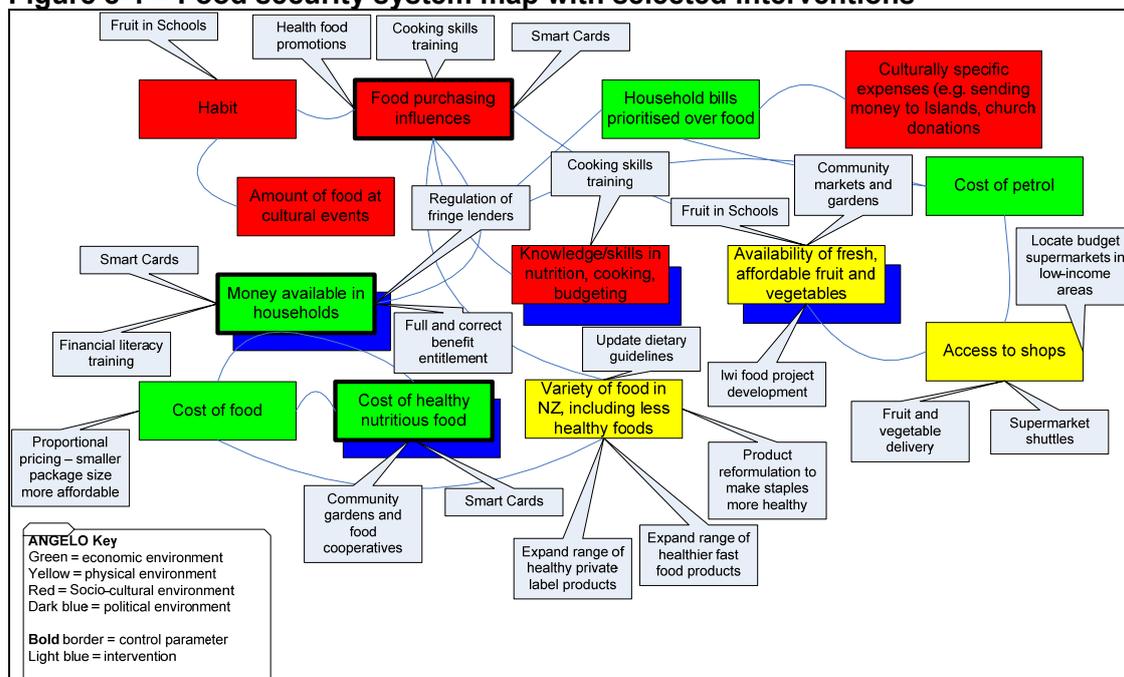
As can be seen in Figure 8-1 at least two interventions impact on each of the three control parameters. Most interventions not only impact on control parameters but on other system elements as well, strengthening their likely impact on the system as a whole. Elements across the four ANGELO framework environments are also being impacted upon.

While the selected interventions clearly impact on a range of system elements, there are a few gaps not impacted upon. No intervention was selected at the production or retail level to impact on the variety of foods available in New Zealand, although the intervention on the role of the food industry indirectly covers some of these areas. Also, no interventions were selected to impact on culturally-specific expenses, such as church or extended family commitments. These omissions in part reflect gaps in the evidence. They also reflect the prioritisation of experts at the phase three workshops, and to some extent the skills of the research team.

All interventions are important for enhancing food security. Some interventions may be better implemented before others to increase their impact. For example, teaching cooking skills may not alter food purchasing practice until availability of healthy foods

and cost of healthy nutritious foods have been addressed. Likewise, when evaluating the impact of interventions to reduce the cost of healthy nutritious foods, full effectiveness may not be seen until accessibility of healthy nutritious foods and cooking skills programmes have been implemented.

Figure 8-1 – Food security system map with selected interventions



ENHANCING Physical Activity

To enhance the social system for physical activity, two control parameters were identified from phase two of the research. Four interventions that impact on the two control parameters were selected from the workshops in phase three, one for improving urban design and three for the provision of culturally-specific physical activity programmes. The control parameters and interventions are shown in Table 8-2 below.

Table 8-2 Physical activity control parameters and selected interventions

Control Parameter	Intervention
Improving Urban Design	Enhancing open space and connectivity
Culturally-specific physical activity programmes	Developing capacity to deliver programmes
	Evaluation and research on the impact of programmes
	Using tikanga to encourage physical activity in Māori

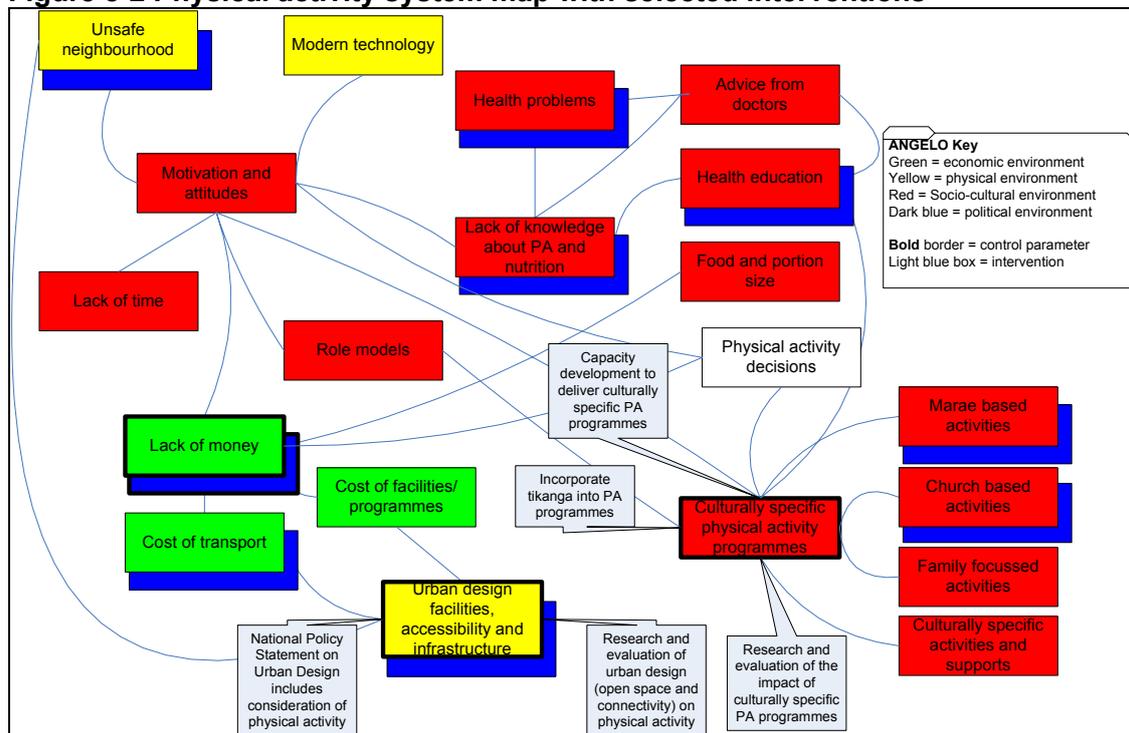
Given that the level of available research evidence to support interventions in the selected areas was relatively weak, research and evaluation activities feature prominently across the recommendations. Inclusion of research and evaluation within physical activity programmes requires political leadership, research and evaluation expertise, and adequate funding. While the evidence for effectiveness of improving urban design and connectivity is not strong in New Zealand, it is argued that New

Zealand research is needed, with a particular emphasis on the three target communities. From an intervention logic perspective, the selected interventions are likely to have a positive impact on physical activity for Māori, Pacific and low-income communities.

The intervention logic of the selected physical activity interventions areas can be seen in Figure 8-2, which maps the selected interventions against a description of the physical activity system. The physical activity system description included in Figure 8-2 is based on the focus group information from phase one of the research, altered to integrate information from the literature review and the final control parameters chosen as the focus for phase three and four of this study. It reflects the final control parameters chosen for analysis (in bold), the identified interventions (in pale blue) and the type of environment being impacted on according to the ANGELO framework.³ Some system elements impact on more than one environment. Those with influences on multiple environments are illustrated with two coloured boxes (eg., in this figure overlap between socio-cultural and political environments is often identified).

As illustrated in Figure 8-2, no interventions impact on both physical activity control parameters. Promoting physical activity through urban design and providing culturally-specific physical activity programmes occupy disparate areas of the physical activity system. This suggests minimum cross-over in the organisations involved to implement interventions, and few issues of prioritisation between the interventions.

Figure 8-2 Physical activity system map with selected interventions



Research and evaluation activities are included across all four interventions. There is a likely sequence of action within each intervention area where significant policy

development will follow from research and evaluation activities. Inclusion of street connectivity and urban design principles to enhance physical activity within a National Policy Statement on urban design is one example. More research is needed before urban design practice is directed to impact on physical activity. However, minor policy development work is required in the shorter term for all interventions. For example, it is not clear where responsibility currently resides for leadership and strategic development for capacity building amongst providers of culturally-specific physical activity programmes. Without leadership and coordination in this area the knowledge transfer between evaluation activities and policy development is likely to be ad hoc at best.

The full set of recommendations relating to physical activity is presented at the end of this chapter. An attempt has been made to identify organisations with a responsibility for advancing action in these areas. Providers, iwi, pan tribal organisations, local government, research organisations and central government departments all have a role to play. Overall, strategic leadership may best rest with central government, as the ability to join the dots between disparate programmes, natural experiments, and research activities is required. The recommendations also have implications for tendering and funding of physical activity programmes, which will require refinement of processes in the short term.

Interventions to ENHANCE food security and physical activity

While enhancing food security and physical activity require very different interventions from each other, there is also cross-over. For example, in the focus group work with Māori, Pacific and low income people the link between diet and physical activity was raised by a number of participants. Interventions such as ensuring full and correct benefit entitlement may also facilitate greater participation in physical activity programmes. Physical space is required for community markets and gardens. Land use mix and transport links within a community will impact on accessibility and, ultimately, effectiveness of community food initiatives.

Throughout the five workshops in phase three of the study, two interventions were commonly identified to enhance both food security and physical activity. These were Health Impact Assessment (HIA) and building on current initiatives, as indicated in Table 8-3. Both interventions have the potential to impact on more than one control parameter, depending on the context in which they are employed.

Table 8-3 Cross cutting interventions

Control Parameter	Intervention
A range of control parameters	HIAs on issues related to food security and physical activity
A range of control parameters	Building on current initiatives

It has been established that food security and physical activity emerge from complex social systems. HIA is a policy tool to assess potential interaction of draft or proposed policies or practices.⁴ HIA utilises a wide range of information to predict possible positive and negative impacts of interventions and is therefore appropriate for examining the potential impact of interventions within complex systems. It is impossible to have perfect information regarding complex social systems so tools like HIA, which sit between initial intervention design and implementation, are vital.

There appear to be many nutrition and physical activity initiatives underway that could be built on, including programmes run by Pacific Islands Heartbeat and Te Hotu Manawa Māori. A number have been identified throughout this report. In order for this to occur sustainable government funding is required; capacity needs to be built to strengthen and extend such programmes; effective programmes need to be identified, either through the Healthy Eating Healthy Action evaluation or an environmental scan, particularly in relation to food security initiatives; and robust research and evaluation needs to be undertaken of current programmes.

This research has built on previous international and national research on food security and physical activity.⁵ It has added innovative New Zealand research to strengthen evidence in relation to Māori, Pacific and low-income New Zealanders. It has taken a comprehensive approach to these challenging social issues and provided a suite of interventions to address them. In doing so, it has moved away from individual solutions to complex social problems. It has also taken an environmental focus, emphasising the need to impact on the environment in which people live their lives.³

Strengths and weaknesses of this research

A key strength of the ENHANCE research project is its mixed methods design and breadth. It has integrated two comprehensive literature reviews; focus group data; theoretical development using complexity theory and the ANGELO framework; outputs from workshops with relevant experts; research on specific interventions; and, feedback on draft findings and recommendations from leaders in the food security and physical activity areas. The research process has also been strengthened by its iterative approach. That is, each stage of the research was developed sequentially but went back to, and incorporated, the previous research findings, thus building the final research outcomes.

Another strength is that ENHANCE had a strong equity focus. The research questions posed by the HRC and the MoH began this process, with a focus on Māori, Pacific and low-income people. This was continued with leadership throughout the project from Māori and Pacific researchers on the research team. Equity considerations were a major concern in all stages of the research including in the research design; in the development of research tools, such as interview schedules and literature review search strategies; in who participated in the research, such as focus groups with Māori, Pacific and low-income communities; in how the research was undertaken, such as establishing Māori (and where possible Pacific) caucuses in the phase three workshops, and in focus groups led by Māori and Pacific researchers in their own languages, as appropriate; the data analysis and write-up which included peer review across the project by the Māori and Pacific researchers; external peer review; and seeking feedback on draft findings and proposed recommendations from leaders in food security and physical activity based across the country, including Māori and Pacific community leaders.

A third strength of this research has been the breadth of expertise in the research team. Disciplines represented include nutrition, physical activity, health economics, Māori research, Pacific research, social policy, public health, clinical trials, epidemiology, and health geography. All team members have taken an active role in the entire research process enabling the team to learn from each other and to construct an in-depth

understanding of the issues and potential solutions that no individual could have arrived at alone.

However, even with the range of expertise represented in the research team, taking a holistic view of food security and physical activity meant that some interventions were outside the team's existing knowledge base. Considering iwi/ pan tribal development of traditional food sources, for example, or the market of fringe credit lending institutions, are outside the direct experience of research team members. As a result, a weakness of the research is the lack of detail in some of the intervention recommendations, which could be improved by more specific expertise. Key informant interviews were used when considering interventions, where resources allowed, as an attempt to address this weakness.

Whilst a comprehensive systems view was taken of food security and physical activity causation and solutions, it was necessary to limit the scope of the research at each phase. From the inclusion criteria of the initial comprehensive literature reviews, through to the selection of interventions for focused exploration, possible areas of study have been excluded. While limiting the study scope has resulted in a more realistic set of recommendations, the weakness is the exclusion of potential interventions that may be effective in enhancing physical activity and food security. One example may be subsidising household expenses, other than food, to increase food budgets. For example, an association has been noted between both the costs of home heating and housing and food security.^{6 7} With physical activity, issues of time for activity, motivation or technology were identified within the system (see Figure 8-2), but not considered in relation to interventions. Because of the need in any complex area of investigation to limit the scope of the study to that which is achievable within a set timeframe and budget, the current research should not be considered the final word on enhancing physical activity and food security for Māori, Pacific and low income whānau/families.

Conclusion

This book presents the outcomes of a multi-phase, multi-disciplinary, multi-method research project to examine the environmental influences on food security and physical activity for Māori, Pacific, and low-income families/ whānau (ENHANCE). The original Request for Proposal from the Ministry of Health and the Health Research Council set out a strong rationale for action in these areas. The ENHANCE research suggests that action must include multiple interventions designed to impact across the social systems from which food security and physical activity emerge. It identifies the need for action to influence a range of physical, economic, political and socio-cultural factors within those social systems. The research recognises that action is required across government, iwi, pan tribal organisations, community and the food industry. A portfolio of interventions is suggested as a starting point for improving food security and levels of physical activity for Māori, Pacific and low-income people. The suggested interventions are not the end point for addressing these issues. Instead the suggested interventions present a roadmap to begin coordinated and comprehensive action. Action needs to be supported by research, evaluation and continual refinement and improvement. Importantly, a coordinated portfolio of interventions requires strong government leadership to ensure that those least privileged in New Zealand are not food insecure, nor miss out on physical activity, but live long productive lives in good health.

8.2 Recommendations

*Immediate timeframe = next 12 months
 Medium timeframe = 12 to 24 months
 Long timeframe = 2 years +

8.2.1 Overall recommendations

Interventions	Actors	Timeframe*
Action is needed to enhance food security and physical activity for Māori, Pacific and low-income people	Government, iwi/pantribal organisations, NGOs and the food industry.	Ongoing
Action must include multiple interventions across the social systems from which food security and physical activity emerge	Government, iwi/pantribal organisations, NGOs and the food industry.	Ongoing
Action is required across a range of physical, economic, political and socio-cultural factors within these social systems	Government, iwi/pantribal organisations, NGOs and the food industry.	Ongoing
Action is required by government, iwi, pan tribal organisations, community and the food industry	Government, iwi/pantribal organisations, NGOs and the food industry.	Ongoing
A portfolio of recommendations follows in this report that provides a comprehensive roadmap for co-ordinated action	Government, iwi/pantribal organisations, NGOs and the food industry.	Ongoing
Action needs to be supported by research, evaluation and continuous improvement	Government, iwi/pantribal organisations, NGOs and the food industry.	Ongoing
Government leadership is required to ensure that those least privileged in New Zealand are not food insecure, nor miss out on physical activity, but live long productive lives in good health	Government, iwi/pantribal organisations, NGOs and the food industry.	Ongoing

8.2.2 Food Security

Money available in households

Potential uses of economic instruments

Interventions	Actors	Timeframe*
The concept of a Smart Card for subsidising food costs and thereby reducing food insecurity has attractive features and should therefore receive further detailed investigation. Particular issues to be resolved include: rate of subsidy; choice of foodstuffs subsidised; and eligibility.	Ministry of Social Development	Immediate

Increasing the statutory minimum wage rate

Interventions	Actors	Timeframe*
Further work be undertaken to obtain better information on the work status, income levels, and benefit eligibility of food insecure households, and also on the ethnic composition and other characteristics of such households, to assist in identifying the most effective remedial interventions. Potential sources of such information include Statistics New Zealand surveys such as the Household Economic Survey and the Household Labour Force Survey, and past and current national health and nutrition surveys, and longitudinal income studies such as SoFIE.	Statistics NZ, Ministry of Health, & Ministry of Social Development	Medium

Full and correct benefit entitlements

Interventions	Actors	Timeframe
That MSD strengthens its policy of ensuring full and correct benefit entitlements for all beneficiaries	Ministry of Social Development	Immediate, continuing
That MSD enhances case management to ensure the policy is fully and fairly implemented	Ministry of Social Development	Immediate
That MSD and other agencies undertake further research to find effective ways to ensure the policy is fully and fairly implemented	Ministry of Social Development	Medium
That there is on-going monitoring by MSD and other agencies of the effectiveness of this policy	Ministry of Social Development	Immediate, continuing

That MSD and other agencies support local and community initiatives to educate communities about benefit entitlement	Ministry of Social Development	Medium
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Fringe lender responsibility

Interventions	Actors	Timeframe
Introduce regulation of fringe lenders	Ministry for Consumer Affairs	Medium
Improve access to affordable credit for low-income households	NZ Budgeting Services, Ministry of Pacific Island Affairs, Pacific community leaders	Immediate
Increase financial literacy for users of the fringe lending market.	NZ Budgeting Services, Ministry of Pacific Island Affairs, Pacific community leaders	Immediate

Provision of free or subsidised food in schools

Interventions	Actors	Timeframe
Maintain existing Fruit in Schools scheme, with an option to increase coverage based on evaluation findings.	Ministry of Health, Ministry of Education	Immediate to Medium
Maintain watching brief on evidence for impact of school food programmes on student health, education and food security outcomes.	Ministry of Health, Ministry of Education	Medium
Implement a comprehensive pilot programme of school breakfast provision to test impacts on student health, education and food security outcomes.	Ministry of Health, Ministry of Education, research funding bodies	Medium to Long

Food purchasing influences

Enhancing cooking skills

Interventions	Actors	Timeframe
Teach practical cooking skills in schools, with a focus on preparing affordable healthy meals (for example, the NZQA standard to 'provide nutritious low cost food for a family'). The focus in the curriculum should be on practical, hands-on, cooking skills rather than a focus on food technology.	Ministry of Education	Immediate
Implement flexible community-based cooking skills courses at a national level, with ability to tailor to audiences. These should incorporate the key components for effectiveness identified in the chapter.	Ministry of Health, Ministry of Education, Te Puni Kōkiri, Tertiary Education Commission	Medium
Evaluate community-based cooking skills courses to determine their impact on food security.	Contracting bodies Providers	Immediate – medium, on-going

Iwi/pan tribal development of traditional Māori food sources

Interventions	Actors	Timeframe
Funding is allocated to research into the role of iwi and pan tribal organisations in food security and economic development through the development of traditional Māori food sources.	Te Puni Kōkiri, Ministry of Health, Ministry of Economic Development, research funding bodies, Iwi and pan tribal organisations	Immediate
The Crown engages with iwi and pan tribal organisations about how development of traditional food-related projects can be supported.	Te Puni Kōkiri, Iwi and pan tribal organisations	Medium
Iwi and pan tribal organisations further investigate opportunities to develop traditional food-related projects to enhance food security and economic development.	Iwi and pan tribal organisations	Immediate

Community markets, gardens, and improving access to food

Interventions	Actors	Timeframe
Support community gardens where there is community demand for them. Alongside this, evaluation or research should be conducted to determine their true impact on food security and nutrition.	Ministry of Health, local councils	Medium
Trial and evaluate community/farmers' markets in low-income areas, along with consideration of suitable transport options to attend markets.	Local councils, growers and food producers	Medium
Conduct economic analyses of supermarkets providing shuttles in low-income areas.	Supermarkets, local councils	Immediate
In some areas, if a community market is not feasible, subsidised fruit and vegetable delivery boxes or mobile vendors could be considered as an alternative.	Local councils, Ministry of Health	Medium

Cost of healthy nutritious food

Community-based initiatives

Interventions	Actors	Timeframe*
Community-instigated and led gardening and food cooperative projects should be supported. A formalised means of providing funding and support in setting up the projects, for example, from a Nutrition Fund for communities, is recommended.	Ministry of Health, Ministry of Education (school gardens), councils	Medium
Further investigation and evaluation of gardening projects and food cooperatives is recommended to determine whether they should be part of a more comprehensive population-based approach to improving food security.	Research funding agencies, Ministry of Health	Long

The potential role of the food industry

Interventions	Actors	Timeframe*
Consider whether the best way forward for improving the affordability of healthy food is through industry leadership, developing collaborations between the food industry and public health and creating a shared agenda, or government regulation.	Ministry of Health (MOH), Food Industry, Public Health Association	Medium
Undertake a comprehensive review of the food supply chain looking at upstream, midstream and downstream factors in order to identify how cumulative food costs are incurred and areas where costs or profitability could be manipulated to favour healthy over less healthy foods.	Relevant government departments such as New Zealand Food Safety Authority (NZFSA), MOH, FSANZ, Ministry of Consumer Affairs, Ministry of Fisheries, Ministry of Agriculture & Forestry	Immediate
Ensure initiatives related to the development or availability of healthy foods are not just focused on premium products and consideration is given to providing affordable healthier products.	Food industry, Ministry of Research, Science and Technology, Ministry of Foreign Affairs and Trade	Immediate
Invest in research across the entire food chain in order to ensure an integrated focus on health and economic outcomes for the New Zealand market.	Ministry of Research, Science and Technology	Long
Support continued product reformulation to make staple foods eaten by all socio-economic groups healthier, reflecting dietary guidelines.	Food industry, National Heart Foundation, FSANZ, MOH	Immediate
Implement proportional pricing in order to make smaller food packages more affordable. This could also have the advantage of decreasing over-consumption frequently associated with bulk buying.	Food industry	Medium
Reorient food promotions and advertising to healthy food, eg, loss leaders; and determine the actual effect of promotions on food purchasing and consumption.	Food industry, Food and Grocery Council (FGC), Advertising Standards Authority, CAANZ, Research organisations	Immediate

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Investigate the feasibility of providing unit pricing information in all food stores and assess effect on consumer purchasing behaviour.	FGC, food industry	Medium
Locate budget supermarkets in low-income areas and/or provide transport support to budget supermarkets from low-income areas (see Chapter 4.3 on community markets, community gardens, access and transport).	Food industry, local and regional councils, Local Government NZ	Long
Evaluate availability and cost of healthy versus unhealthy foods by area-level deprivation and rural/urban location in New Zealand.	Universities and research organisations	Immediate
Further develop and expand the range of healthy private label products available.	Food industry	Medium
Position affordable healthy foods in prime, strategic positions within supermarkets to promote their purchase	Food industry	Immediate
Develop individual food industry sector nutrition policies which address planned actions in relation to provision and promotion of affordable healthy food.	Food industry	Immediate
Ensure that adherence by the food industry to the code of practice on advertising to children and the Children's Food Classification System is monitored.	MOH	Immediate
Explore opportunities for partnership with industry around food marketing and activities for promotion of healthier food	DHBs, MOH	Immediate
Fast food industry to further develop healthier products and meal combinations equivalent or lower in cost than unhealthy products, and consider implementing menu nutrition labelling.	Food industry, MOH, FSANZ	Medium
Implement cooking skills interventions (see Chapter 3.1 on cooking skills).	MOH, Ministry of Education, Te Puni Kokiri, Tertiary Education Commission	Medium
Explore the feasibility of initiatives to reduce food waste.	Food industry, NZFSA, Ministry of Fisheries, Ministry of Agriculture and Forestry	Medium

8.2.3 Physical Activity

Improving urban design

Enhancing open space and connectivity

Interventions	Actors	Timeframe*
New research should be targeted at exploring the influence of the built environment on physical activity and related health outcomes, with a particular emphasis on the three target communities.	Research funders, Ministry of Health, SPARC	Immediate
Ensure that the ongoing process of developing a National Policy Statement on Urban Design incorporates an evaluation of the health implications of its recommendations, and specifically targets the improvement of physical activity in Māori, Pacific and low income communities.	Ministry for the Environment, Ministry of Health, SPARC	Immediate
Keep a watching brief to ensure that any local government reforms maintain a focus on wellbeing that includes actions to enhance physical activity.	Ministry of Health, SPARC	Immediate

Culturally specific physical activity programmes

Developing capacity

Interventions	Actors	Timeframe
Where strategic development of capacity building for culturally-specific physical activity programmes should be located within government is identified and adequately funded.	Ministry of Health and SPARC to lead identification process	Immediate
Funding for culturally-specific physical activity programmes explicitly includes stated capacity development elements, with subsequent evaluation.	Contracting bodies	Immediate
To ring-fence a proportion of funding of physical activity programmes delivered in community settings for capacity building.	Contracting bodies	Immediate
Existing culturally-specific physical activity programmes are evaluated for capacity development.	Contracting bodies	Immediate

A community development model of capacity building is used that takes into consideration the Treaty principles and a by Māori for Māori or by Pacific for Pacific delivery approach.	Contracting bodies	Immediate
Suitable expertise to facilitate mentoring strategies is sourced and funded.	Contracting bodies	Immediate
Education and training for those delivering programmes is undertaken, ideally linked with qualifications and a career pathway, which is extended into the community, particularly to the voluntary workforce.	Contracting bodies	Immediate
Impact evaluation of capacity building programmes will need to be built in to further refine this work over time.	Contracting bodies	Immediate
To continue to develop champions and leadership actions, with Māori and Pacific representation on advisory boards, and governing bodies where funding priorities are determined. This should include all areas where capacity development funding is available.	Contracting bodies	Immediate

Evaluation and research

Interventions	Actors	Timeframe
Evaluate existing culturally-specific physical activity programmes for their impact on target populations.	Contracting bodies Providers	Immediate
Continue to fund culturally-specific physical activity programmes while the evidence base is building.	Contracting bodies	Immediate
Ensure funding is provided to physical activity programmes targeted to low-income people as well as Māori and Pacific people.	Contracting bodies	Immediate
Culturally-specific physical activity programmes need to be adequately funded, including evaluation activities.	Contracting bodies Providers	Immediate
The Request for Proposal process from contracting bodies should require information on implementation logic and evaluation methods.	Contracting bodies	Immediate
Evaluation activities should be supported by evaluation templates/toolkits and workforce training.	Contracting bodies	Immediate

Using tikanga to encourage physical activity for Māori

Interventions	Actors	Timeframe
Funding is made available for traditional and modern forms of physical activity programmes that use tikanga and that these programmes are evaluated in order to build an evidence base.	Contracting bodies Providers	Immediate
Funding is allocated to research into the use of tikanga in physical activity programmes and how this may improve adherence to traditional and model forms of physical activity.	MoH/TPK/HRC partnership	Immediate - medium
Funding is provided for training of the Māori physical activity workforce on tikanga and its application within activity programmes. This is likely to require partnership with tertiary providers to develop training capacity.	Tertiary Education Commission/ MOH/SPARC partnership	Immediate policy work for medium to long term implementation
A review is undertaken of tikanga use within mainstream physical activity programmes to ensure tikanga is delivered appropriately. Investigate ways for Māori to lead development of such programmes.	Contracting bodies Providers	Immediate

8.2.4 Cross cutting themes

The potential use of Health Impact Assessment

Interventions	Actors	Timeframe*
Continue to undertake HIA to enhance physical activity for Māori, Pacific and low-income New Zealanders.	Central and local government agencies, community groups, academics	Immediate
Trial and evaluate HIAs to enhance food security for Māori, Pacific and low-income New Zealanders.	Central and local government agencies, community groups, academics	Immediate

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Assess the impact of evaluations of HIAs that are currently underway in order to strengthen HIA in New Zealand.	Central and local government agencies, community groups, academics	Immediate
Routinely undertake impact evaluations of HIAs to assess their impacts, including cost-benefit analysis as appropriate.	Central and local government agencies, community groups, academics	Immediate
Consider the findings of the current evaluation of the HIA Support Unit to ensure that HIA continues to be promoted and well supported in New Zealand.	Ministry of Health	Immediate

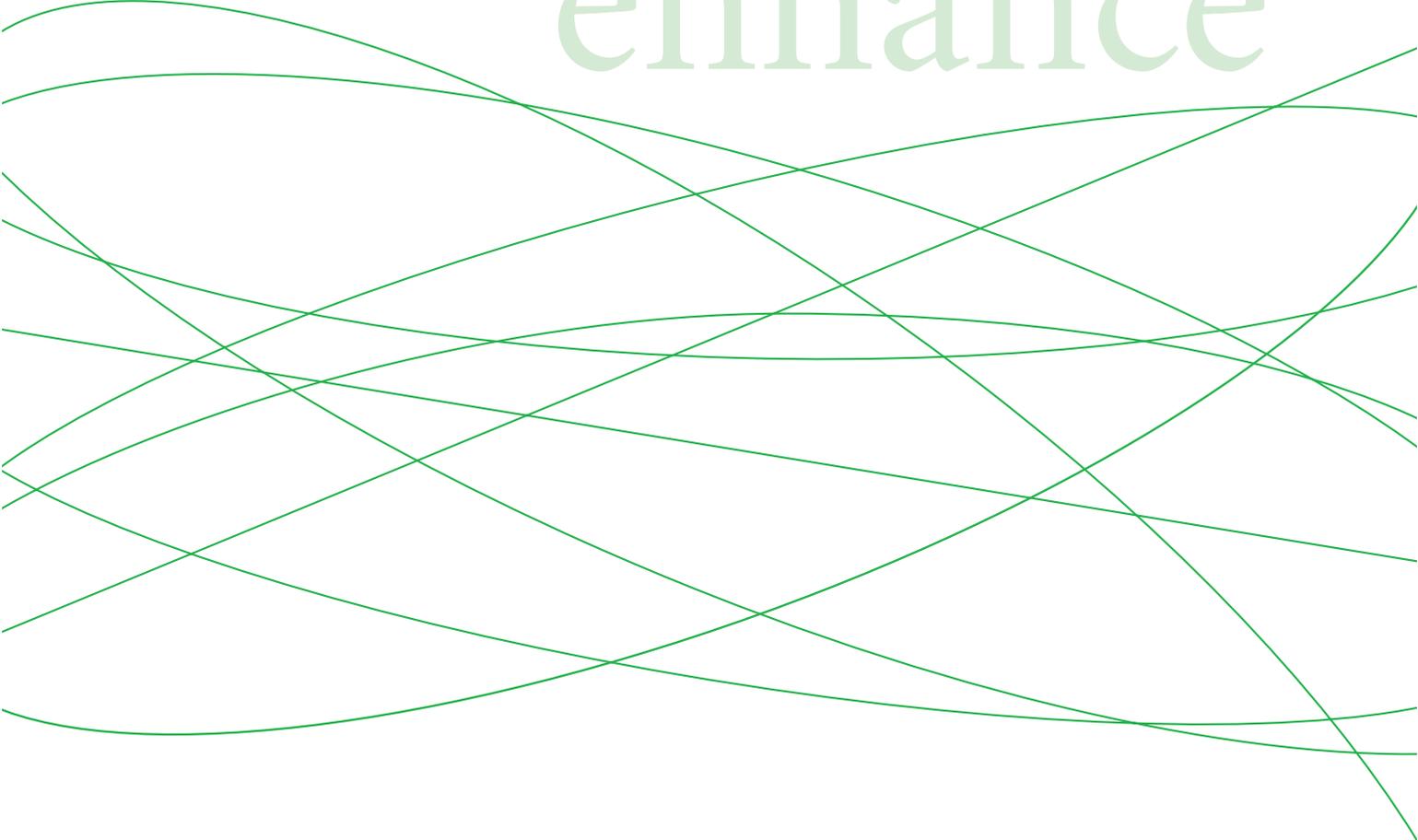
Build on current initiatives

Interventions	Actors	Timeframe*
Provide sustainable Government funding to maintain and develop effective programmes promoting food security and physical activity for Māori, Pacific and low-income communities.	Ministry of Health, Ministry of Social Development, SPARC	Immediate
Ensure capacity is developed to build on effective programmes promoting food security and physical activity for Māori, Pacific and low-income communities.		
Review the findings of the evaluation of the Healthy Eating Healthy Action Strategy to identify effective programmes promoting food security and physical activity for Māori, Pacific and low-income communities.	Ministry of Health, SPARC	Immediate
Undertake an environmental scan of effective current initiatives in relation to food security to complement the information in the evaluation of the Healthy Eating Healthy Action Strategy.	Ministry of Health, Ministry of Social Development	Immediate
Ensure robust independent research and evaluation is undertaken of all food security and physical activity programmes for Māori, Pacific and low-income communities. Such evaluation should include measures of cost-effectiveness.	Contracting bodies	Immediate

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Sharron Bowers, Kristie Carter, Delvina Gorton, Craig Heta, Tolotea Lanumata,
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