Background information on evidence and options for interventions to address childhood obesity in New Zealand

Ministry of Health, July 2015

Contents

Introduction

The Ministry has reviewed the evidence for the effectiveness of interventions to address childhood obesity. This review is not comprehensive and is preliminary at this stage. We will build on it as the work progresses.

As a starting point, we considered the McKinsey Global Institute's report *Overcoming Obesity: An initial economic analysis*[1], and supplemented that with other published international and national material, including reports from the World Health Organization's Commission on Ending Childhood Obesity[2]. We also considered information held by the Ministry of Health, other government agencies, the Ministry of Health's Technical Advisory Group on Childhood Obesity[3] and participants in the Food Industry Forum[4].

This paper outlines our findings in the following areas:

- food and beverage sector, including marketing and advertising to children
- health sector
- parental education and support
- transport sector
- education sector
- community-based interventions
- workplace wellness
- research, monitoring and evaluation.

For each area that was reviewed, this paper:

- describes the area
- summarises the evidence and provides a snapshot of international experience, including examples where there is action, but no evidence of effectiveness to date
- sets out the current New Zealand situation
- outlines options that could be further considered.

The options section provides ideas on what could be done, not just by government but by other players also. The Ministry of Health does not necessarily recommend any of these options. If further work on any of these options is to be considered, more detailed analysis, such as cost and implementation issues, and consultation would need to be undertaken.

At a local level in New Zealand, *Healthy Families NZ* is being implemented in 10 locations across the country. It aims to improve people's health where they live, learn, work and play, by taking a dynamic systems approach to prevention. The key outcomes sought are improved nutrition, increased physical activity, and reduced tobacco consumption and alcohol-related harm. *Healthy Families NZ* is central to the government's approach to addressing obesity and chronic disease at the local level.

The evidence of effectiveness for interventions aimed at preventing and treating obesity is not settled. The following table summarises the effectiveness of intervention types, as assessed by the McKinsey Global Institute[5] and the interim report of the World Health Organization's Commission on Ending Childhood Obesity.[6] It also compares this evidence with frequency of media coverage.

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[1] Dobbs R, Sawers C, Thompson F, et al. 2014. *Overcoming Obesity: An initial Economic Analysis. Discussion Paper.* United Kingdom: McKinsey Global Institute

[2] World Health Organization. 2015. *Interim Report of the Commission on Ending Childhood Obesity.* Geneva: World Health Organization

[3] The Technical Advisory Group has not reviewed this paper.

[4] Convened by the Ministry of Health on 25 May 2015 and included a range of companies involved in the manufacture and sale of packaged and processed food and beverages.

[5] Dobbs et al. 2014

[6] WHO. 2015.

Summary of effectiveness of intervention types

Type of Initiative	McKinsey Global Institute Estimated Impacts (UK) DALYs Saved (Thousands)	$US Cost per DALY Saved	Strength of Evidence	Mentions in the Media	WHO Interim Commission
Portion control	2126	400			Implicitly supported
Reformulation	1709	2600			Supported
High calorie food/beverage availability	1137	200			Supported
Weight management programmes	967	1300			Supported
Parental education	962	2000			Supported
School curriculum	888	600			Implicitly supported
Healthy meals	868	14000			Not covered
Surgery	615	10000			Not covered
Labelling	575	1000			Supported
Price promotions	561	200			Supported
Pharmaceuticals	430	5600			Not covered
Media restrictions	401	50			Supported
10% tax on high-high/sugar/ high fat products	203	1800		930	Supported
Workplace wellness	139	2700			Not covered
Active transport	67	31000			Supported
Public-health campaigns	49	200			Supported
Early diagnosis of pre-natal conditions	Not covered				Supported
Promotion of breastfeeding	Implicitly supported				Supported
Initiative trials, supported by evaluation	Supported				Supported
Further research	Identified as needed				Identified as needed

Note that DALYs are calculated across the whole population – some low-scoring interventions are extremely cost-effective for individuals but apply to only a small number of people.

It is important to note that the evidence is not settled. There is, however, a high-level consensus in the literature on the broad approach that is needed to make an impact on obesity prevalence[7]:

- just as the causes of obesity are complex, so are the solutions; there is no “silver bullet”
- the key is changing people’s environments, particularly via social norms, so that people’s default settings are to make the healthier choices, which removes reliance on individuals making conscious choices
- interventions need to be targeted at key points across the life course, from pre-conception through to young people who are the next generation of parents
- all sectors of society need to be engaged – government needs to show leadership and coordinate action, but the community, industry, health and education, local government and others have a role to play
- we need to focus on long-term prevention strategies and weight loss in people who are already overweight or obese; for children, and particularly younger children who are overweight or obese, this will usually mean supporting them to grow into a healthy weight
- a systemic, sustained package of interventions, delivered at scale is needed
- as the evidence for effectiveness of interventions isn’t settled, we need to experiment and test interventions.

[7] *Ibid.*

Food and beverage sector

Reducing the total amount of kilojoules that people consume will contribute most to addressing obesity. While action is needed across society, the food and beverage industry has an important role to play as part of the solution.

All actions can be implemented either via voluntary actions, including signed-up commitments to actions and targets, or legislatively mandated. Regulating to mandate action may be favoured by companies that choose to comply with voluntary initiatives, as it creates a level-playing field, otherwise early adopters of change risk losing market share if their competitors do not follow suit.

Portion control

Description

Portion size is the intended or actual amount of food consumed by an individual at a meal/snack.

Portion sizes of meals, snacks and drinks have increased significantly since the 1970s, partially driven by perceptions of value and competition among providers[8].

Adults have difficulty regulating the amount they eat, particularly if offered larger portions. Children are less affected by portion size, suggesting that learning and adaptation play a role in society's norm of 'eating everything on one's plate'. It is not clear at what age the 'shift' of being influenced by portion size takes place.

Interventions that help adults and young people to control consumption through incremental reduction in portion size could have a significant subconscious impact without making them feel less full. For maximum impact, portion size should be reduced gradually so that consumers are not aware of the change and do not compensate.

Subconscious visual cues can be an effective tool to influence consumer perceptions of portion size and reduce the amount consumed. For example, use of smaller utensils, plates, and glasses, and plate colour.

Evidence/International situation

According to the McKinsey Global Institute's economic analysis on overcoming obesity, portion control is the most cost-effective intervention to address obesity[9]. However, its effectiveness is dependent on consumer reaction and competitive pressures.

The United Kingdom's Responsibility Deal, launched in England in March 2011, brings together public sector, academic, commercial and voluntary organisations in five networks (covering food, alcohol, physical activity, health at work and behaviour change) to help meet public health goals. The Deal brings about voluntary partnerships to produce specific pledges and voluntary agreements, including objectives to reduce portion size:

- Several companies reduced their chocolate bar calorie counts by cutting their size. One leading global confectionary manufacturer put in place a 250-calorie count limit for its confectionary products, reducing the size of several major lines by up to 10 percent. An initial flurry of media coverage and consumer complaints has largely given way to consumer acceptance.

[8] Young LR, Nestle M. 2002. The contribution of expanding portion sizes to the US obesity epidemic. *American Journal of Public Health* 92(2): 246-249.
[9] Dobbs et al. 2014.

- Evaluations of the Deal are unclear about the effectiveness of manipulating portion size and impact on consumption volume. However, other evidence from the same evaluation suggested that adults were accurately able to estimate portion size following education and training[10], suggesting that behaviour change could impact consumption volume.

A large fast-food company found, during consumer testing, that people did not notice incremental reduction in sizes up to a critical point. Research is required for different products to determine what this critical point is.

In New York, Mayor Michael Bloomberg's proposal to limit the size of sugar-sweetened beverages in the city's restaurants, movie theatres and sporting venues was overturned by the New York State Supreme Court.

New Zealand Situation

The Ministry of Health is currently reviewing its serving size advice. Serving size is a set quantity of a type of food recommended to be consumed. This may assist food producers, retailers, and the public to determine appropriate portion sizes.

Some food companies, such as Coca Cola and Cookie Time, have introduced smaller portion sizes as options.

Options that could be further considered

- Encourage agreement on portion size between food and beverage producers of certain product ranges, particularly products sold as single serves.
- Encourage appropriate consumption through incremental reductions in portion sizes of:
  - food by manufacturers
  - food in restaurants
  - high-energy beverages (eg, sugar-sweetened beverages).
- Design packaging to better delineate portion size to help consumers moderate their consumption.
- Eliminate "supersize" items from menus and product ranges (not necessarily relevant to younger children).
- Educate children and parents about appropriate portion sizes.

[10] Knai et al 2015.

Reformulation

Description

In the context of obesity, reformulation refers to changing the ingredients, or manufacturing process to improve the nutritional profile of the food, particularly kilojoule content.

Reformulation often requires investment in food science and technology, particularly for some product lines where changing the recipe may alter taste, texture, shelf life, appearance, palatability and price.

Evidence/International situation

There are a number of international and national examples of successful strategies to reduce the salt content of food. Salt reduction will impact on non-communicable disease prevention but is unlikely to affect obesity rates. Similar strategies could be considered to reduce saturated fat or sugar intake.

- The United Kingdom's Food Standards Agency used voluntary targets and a threat of regulation to encourage the food industry to reformulate products to remove salt. Daily salt intake reduced from 9.5 grams in 2005 to 8.1 grams in 2012.
- In 2009, New York City established voluntary salt guidelines for various restaurants and store-bought foods, which evolved into the National Salt Reduction Initiative in 2010. This encouraged nationwide partnerships among food manufacturers, restaurants and state health authorities to reduce excess sodium by 25 percent in packaged and restaurant foods and by 20 percent among the population by 2014.

Reformulation is reported to be most effective when it is not publicised[11] so that people are less likely to compensate for eating healthier food by rewarding themselves with other, less healthy options. While voluntary agreements on reformulation are sometimes criticised for an absence of transparency, public accountability, and conflicts of interest, there are examples where they have had an effect. For instance, Finland introduced a combination of voluntary agreements with industry to increase production of foods low in saturated fat, combined with modifications of taxation and restrictions on milk fat, resulting in an overall decline in energy derived from saturated fats.

Denmark introduced a law in 2003 to ban the sale of products containing greater than 2g trans-fat per 100g fat. Intake is now a tenth of the 2003 level. Within one year, most products on the Danish market were able to comply. The drop in trans-fat consumption may partly account for the significant decrease in mortality from cardiovascular diseases recently experienced in Denmark. Trans-fat levels in the New Zealand diet are already low.

Labelling requirements and voluntary initiatives have influenced companies to introduce lower-kilojoule options and reduce overall kilojoule counts, particularly for items that were unexpectedly high in kilojoules. For example, Starbucks has reduced its highest-energy cookie from 2562 to 1552 kilojoules, and the lowest-energy cookie contains 714 kilojoules.

Implementing reformulation without publicity is likely to require action by the entire food-service industry. Otherwise, consumers might compare nutrient content across brands or chains and opt for the less healthy option[12]. Reformulation to reduce salt, sugar and fat has already occurred in most of the major large fast-food chains and packaged-food companies, but in some cases there is additional scope to increase the healthiness of foods.

[11] Dobbs et al 2014
[12] *Ibid.*

New Zealand Situation

The Heart Foundation's food reformulation programme, based on industry-led voluntary collaboration between food companies, industry bodies and government has significantly reduced sodium in common products such as bread, cereal and margarine.

At the end of 2014, bread companies agreed to revise the sodium reduction target for the bread category from 450mg/100g to 400mg/100g. This will remove an additional 40 tonnes of salt per annum from the bread supply. The change is being made across low-cost high-volume packaged breads which make up over 80 percent of the market share and includes the $1 value breads.

The Chip Group initiative, which receives Ministry of Health funding, aims to improve the nutritional quality of deep-fried chips by reducing fat (total and saturated) and salt content. The Chip Group sets industry standards that are scientifically robust and achievable, including chip size, serving size, cooking oil temperature, salt addition, and oil type.

Options that could be further considered

The Health Star Rating system is already incentivising food manufacturers to reformulate their products.

Options that could be further considered include:

- Set additional sugar and saturated fat reduction targets with industry (incrementally reducing kilojoules), to complement the salt reduction target. The issue with having a single nutrient target is that food manufacturers may replace it with other unhealthy nutrients in food products.
- There may be scope to involve restaurants and food outlets to meet the voluntary targets.

Low-nutrient, high-energy food and drink availability

Description

Consumption of food has a strong link to availability and access[13]. Low-nutrient, high-energy food and drinks are widely available in retail, school and workplace settings. Restricting access and availability in these settings can reduce overall energy intake.

'Energy density' is the amount of energy (or kilojoules) per gram of food. Lower energy-density foods provide less energy per gram of food, so you can eat more without consuming too many kilojoules.

Low-nutrient high-energy foods are not essential in the diet. They provide very few nutrients relative to their energy content. Examples include confectionary, biscuits and cakes, potato chips and sugar-sweetened beverages.

Evidence/International situation

In California, where some foods are banned at school, students eat about 672 fewer kilojoules per day than students in other states.

Providing low-fat options at point-of-purchase has been found to be a promising way to influence purchases and reduce consumption of saturated fat[14].

- The United Kingdom's Responsibility Deal sets clear expectations for retailers, for example, to remove prominently displayed sweets and chocolate from checkouts and give customers rewards for buying healthy food such as fruit and vegetables.
- The Change4Life Convenience Stores programme is a partnership between the United Kingdom Department of Health and the Association of Convenience Stores to increase availability of fresh fruit and vegetables in convenience stores in deprived, urban areas in England. This provides retail stores with a range of support and branded point-of-sale materials and equipment.

Limiting availability of low-nutrient, high-energy foods in public sector settings could also reduce consumption of unhealthy foods.

- Vending machines dispensing crisps, chocolate and sugary drinks are prohibited in National Health Service hospitals in Wales.
- New York City has set nutritional standards for all food purchased or served by city agencies, such as prisons, hospitals and senior care centres.

New Zealand Situation

New Zealand does not have any national policies/programmes relating to the prominence and space for healthy/unhealthy foods in supermarkets and convenience stores.

- Toi Te Ora Public Health Service in Tauranga has worked with fruit and vegetable retailers to increase fruit and vegetable sales by offering a weekly ordering system that offers customers convenience and good value ("Kai@The Right Price").
- Toi Te Ora has also developed a toolkit with options for local government to support improvements in healthy food access and the environment through advocacy, support, policy and planning. For example, councils are encouraged to take practical steps to encourage and facilitate farmers' markets.

[13] Dobbs et al 2014
[14] *ibid*

- Tairawhiti DHB has worked with one shopping area to promote low-fat milk, whole-grain bread and increased consumption of vegetables and fruit.
- Nearly all DHBs have healthy eating guidelines. Most DHBs also have policies on DHB owned and operated staff cafes and the stocking of vending machines. Fourteen DHBs have already taken action to ban sugar-sweetened beverages, four DHBs are planning to take action (Counties Manukau, Bay of Plenty, Whanganui, Southern), and two DHBs do not have any plans in place (West Coast, South Canterbury).
- The Department of Corrections states that meals provided to prisoners are in line with the guidelines for food and nutrition set by the Ministry of Health.
- All rest homes and aged residential care facilities are certified and audited to ensure they provide for the food, fluid and nutritional needs of consumers in line with recognised nutritional guidelines appropriate for the consumer group.

<u>Options that could be further considered</u>

There is scope for the health sector and wider public sector to set an example by promoting healthy lifestyles through workplace wellness initiatives.

Options for quick-service restaurants:

- Display water as the most accessible item and put sugar-sweetened beverages in a more inconvenient spot.
- Increase availability of healthy options.

Options for supermarkets and convenience stores:

- Increase shelf space for healthier foods.
- Redesign the choices available at point-of-sale and aisle ends.
- Increase availability of healthy options.
- Reduce prominently displayed calorie-dense, low-nutrient foods and replace with healthier options.
- Reduce in-store promotions of calorie-dense, low-nutrient foods and replace with healthier options.

Encouraging voluntary action in retail settings may disadvantage responsible retailers if competitors do not change. More formal options, such as monitoring, reporting or regulation could address this by creating a level-playing field.

Labelling

Description

In much of the developed world, regulations are in place to ensure basic nutritional labelling on packaged food. In New Zealand, requirements are set out in the Australia New Zealand Food Standards Code. All pre-packaged foods (excluding alcohol) are required to have a nutrient information panel.

Other forms of food labelling that may help educate consumers to make healthier food choices are front-of-pack nutrition labelling, and information on kilojoules at point-of-choice (eg, on menu boards in quick service restaurants, on menus, shelf edging and so on).

Evidence/International situation

The evaluation of the United Kingdom's Responsibility Deal found that there is limited evidence on the effect labelling has on improving people's diets[15]. It also found that people who are more aware of health concerns are more likely to report using front-of-pack labels to make purchasing decisions. There is also limited evidence on the type of labelling that is most effective[16]. However, the most significant impact from labelling may come from incentivising food retailers and manufacturers to introduce lower-kilojoule options and reduce overall kilojoule counts. Studies have estimated that reformulation can lead to a five percent reduction in fast-food kilojoules[17]. McKinsey outlines a range of international examples:

- A study in Norway found front-of-pack labelling influenced food manufacturers to reformulate existing products, as well as develop new, healthier products.
- In Washington, an uncontrolled study showed a reduction in energy, saturated fat and sodium within 6-18 months of implementing labelling regulation.
- "Guiding Stars" labelling in the United States resulted in an approximately six percent increase in the number of products bought with health-indicating stars.
- The United Kingdom Responsibility Deal evaluation[18] found that out-of-home labelling is "probably effective" in improving diets.
- In 2008, New York stipulated that all food-service establishments with more than 15 outlets should post calorie information prominently on menus and menu boards. While the evidence is mixed, the consensus is that there was some marginal impact on average intake from those establishments. Some smaller studies at fast-food chains have not found a statistically-significant reduction in kilojoule consumption.

New Zealand Situation

Front-of-package labelling: New Zealand is implementing the Health Star Rating (HSR) system. The HSR is an interpretive front-of-pack food labelling system. It uses a star rating of ½ to 5 stars and is available to be used on all packaged foods currently required to have nutrition labelling. Foods with more stars have better nutritional value. A small number of products with the HSR have been on the market since late 2014.

Planning is underway by the Health Promotion Agency for a consumer promotion campaign intended to commence later in 2015. A trans-Tasman evaluation is also being planned, with a "mini review" due in June 2016 and a full review in June 2019.

[15] Knai et al 2015
[16] Dobbs et al 2014
[17] *Ibid.*
[18] Knai et al 2015

The system is voluntary, with no suggestion in New Zealand that it might become mandatory. The Australian Government has, however, indicated that it may become mandatory in Australia if there is poor uptake after two years.

Kilojoule information at point-of-choice: There is no government-initiated mandatory or voluntary labelling of foods and meals in restaurants or outlets across New Zealand. Some chains provide voluntary information, in restaurants and on vending machines. A 2011 trans-Tasman review of food labelling has recommended that declaring the energy content of standardised food items on the menu/menu boards or in close proximity to the food display or menu should be mandatory in chain-food outlets and on vending machines.

Options that could be further considered

- Implementation of the HSR system is underway and, while there are currently few items with the HSR on shelves, this is expected to begin to increase significantly in the second half of 2015 as reformulated products come on stream. The public education campaign will be important in raising awareness.
- An industry target for uptake of the HSR could be considered.
- There is potential to explore greater uptake of labelling on menus, menu boards, vending machines and shelves as part of a voluntary industry package of initiatives, particularly given evidence of effectiveness in improving diet appears to be stronger for information at point-of-choice than for front-of-pack labelling.
- Consideration could also be given to following Australia's lead in not ruling out mandatory HSR labelling if uptake is poor.
- The introduction of nutrient information panels on alcoholic beverages is also an option.

Sugar

Description

Free sugars refer to monosaccharides (eg, glucose and fructose) and disaccharides (eg, sucrose or table sugar) added to foods by the manufacturer, cook or consumer, and sugars naturally present in honey, fruit juice and fruit juice concentrates.

Major sources of free sugar in the New Zealand diet include non-alcoholic beverages, sugar and sweets, and baked goods such as cakes and biscuits.

A new World Health Organization (WHO) guideline[19], issued in March 2015, recommends adults and children reduce their daily intake of free sugars to less than ten percent of their total energy intake. A further reduction to below five percent or roughly six teaspoons (25g) a day would provide additional health benefits.

Evidence/International situation

Adding sugar increases the energy content of food and drinks, but adds no other useful nutrients. A high or regular intake of foods and drinks with added sugar can lead to tooth decay. There is a significant relationship between obesity and dental caries in industrialised nations.

A 2008/09 survey of children and young people's physical and dietary behaviours[20] found:

- About half (52.6 percent) of children and young people drank regular (ie, sugar-sweetened) fizzy/soft drinks at least once a week. Overall, 7.3 percent of children and young people drank regular fizzy/soft drinks seven or more times a week, with no difference by gender (female 6.6 percent male 7.9 percent). The proportion of children and young people drinking regular fizzy or soft drinks five or more times a week increased with age.
- Most (73.1 percent) children and young people drank fruit juice/fruit drinks at least once a week. Overall, 18.1 percent drank fruit juice/drinks seven or more times a week. There were no differences in the proportion of children and young people drinking fruit juice or drinks seven or more times a week by gender or age group.
- The ongoing Pacific Islands Families Study[21] (in its 13th year) found three out of four 9-year-old Pacific children had consumed sugar-sweetened beverages in the previous week, and that 62 percent of 2-year-old Pacific children and 21 percent of one-year-old Pacific children had consumed a sugar-sweetened beverage in the previous week.
- The Youth 2007 study[22] found that 49 percent of Pacific youth consumed 4 or more soft drinks per week compared with 39 percent of Maori, 25 percent Asian and 23 percent European.

New Zealand Situation

- The *Food and Nutrition Guidelines for Healthy Children and Young People (Aged 2-18 years)*[23] recommend that New Zealand children and young people obtain 45-65 percent of their total energy from carbohydrates, in particular, foods and beverages low in free sugars.

[19] World Health Organization. 2015. *Guideline: Sugars intake for adults and children.* Geneva: World Health Organization.
[20] Ministry of Health. 2010. *A National Survey of Children and Young People's Physical Activity and Dietary Behaviours in New Zealand: 2008/09.* Wellington: Ministry of Health.
[21] Sundborn G, Savila F, Taylor S. Sugar sweetened beverage consumption patterns of Pacific Children in the Pacific Islands Families Study. (In Press).
[22] Sundborn G, Utter J, Tasileta T, et al. Fizzy-drink (carbonated beverages or soda) consumption among New Zealand youth and associations with BMI and waist circumference. (In Press).

- The Ministry is in the process of developing Eating and Activity Guidelines (to update the existing Food and Nutrition Guidelines). The statement on sugar will be (subject to peer review changes) "*Choose and/or prepare foods and drinks with little or no added sugar*". The New Zealand Guidelines will not follow the specific WHO recommendations because there is currently no analytical method to measure intakes of free sugars. The guidelines will be complemented with a consumer website and resources.
- The Health Star Rating, front-of-pack labelling system that is currently being implemented includes an assessment of sugar content.
- The Health Promotion Agency has developed a range of new resources promoting water and highlighting the amount of sugar in many beverages for use in workplaces and recreation settings.
- The Heart Foundation is re-introducing specific sugar rules for Tick products. The new requirements will initially apply to high-sugar products such as breakfast cereals and muesli bars. The new criteria are being developed in conjunction with the Australian Heart Foundation and are expected to be in place by the end of September 2015.
- The Heart Foundation's Two Ticks identifies the healthier products across all categories. Two Ticks looks at food as a whole, rather than just nutrient profiles, and includes a sugar criterion for some categories.
- Most DHBs have removed at least some forms of sugar-sweetened beverages from their sites (two have taken no action and four are considering action).
- The Beverage Council has a voluntary agreement (2014) not to provide sugar-sweetened beverages in schools.
- The community Oral Health Service which provides oral health care to 98 percent of school-aged children (5 years of age to Year 8) provides oral health education, including dietary advice. In addition, 73 percent of pre-school children are enrolled, with the target of 95 percent to be enrolled by June 2016.
- There is advice about healthy diets low in sugar (to prevent tooth decay and for general health) in the Well Child-Tamariki Ora Health Book, which was revised in 2014[24].

<u>Options that could be further considered</u>

- The most recent comprehensive data on children's diets is from the 2002 Children's Nutrition Survey. The nutrition module planned for the 2017/18 New Zealand Health Survey could include a focus on children's nutrition.

[23] Ministry of Health. 2012. *Food and Nutrition Guidelines for Healthy Children and Young People (Aged 2-18 years): A Background Paper*. Wellington: Ministry of Health.
[24] Ministry of Health. 2014. *Well Child Tamariki Ora My Health Book*. Wellington: Ministry of Health.

Sugar taxes

Description

Added sugar is a material contributor to total energy intake, making it a significant driver of obesity and tooth decay. Sugar-sweetened beverages (SSBs) are of particular concern because they are cheap, energy-dense, nutrient poor, and consumption has risen to the point where they account for a significant proportion of sugar and energy intake.

A "sugar tax" which taxes sugar, or in particular SSBs, has been advocated by a number of public health commentators, and received recent media coverage. Such targeted taxes have been successfully used as part of a range of measures to reduce consumption of alcohol and tobacco, and the rationale for a sugar tax is straightforward:

- economic theory holds that, for most goods, the quantity consumed will fall as price increases
- a tax might encourage substitution away from sugar towards untaxed healthier alternatives.

Evidence/International situation

Excess consumption of SSBs is correlated with type 2 diabetes, and weight gain. A large study[25] of European adults showed that there was a 22 percent increase in diabetes incidence associated with habitual consumption of one daily serving of a SSB. SSBs are also associated with a higher risk of weight gain than similarly energy-dense solid foods, partly because they do not make a person feel full.

The 2002 National Children's Nutrition Survey[26] found that SSBs contribute 26 percent of total sugar intake to the diets of New Zealand children. Children who drank more than one SSB per day had a significantly higher BMI than children who drank less than one per week.

While theoretical models indicate a tax should lead to reduced consumption and consequently body weight, real-world evidence is less clear. A number of countries have introduced such taxes, but there isn't yet robust evaluative evidence on whether they are effective, or on the size and persistence of any impacts. In this regard:

- Some studies have claimed that when passed on through price rises such taxes can have an impact on obesity. However, those we have reviewed aren't conclusive and many have material shortcomings, such as:
  - being conducted over short periods
  - not controlling for behavioural effects such as substitution towards cheaper but still energy-dense products
  - failure to distinguish between correlation and causality
  - not disentangling the tax impact from other factors that might impact consumption (eg, income, increased availability of safe drinking water, and employment levels).
- McKinsey[27] reviewed the international evidence on the effectiveness of different intervention types in addressing obesity, and rated a 10 percent tax on high fat/sugar products as one of the least effective interventions in terms of its total impact on population health, albeit moderately cost effective for the impact it did have.
- A tax on SSBs has recently been introduced in Mexico, and has received some publicity. Preliminary data seems to indicate it was associated with a price rise. However, while the

[25] Fagherazzi G, *et al*. 2013. Consumption of artificially and sugar-sweetened beverages and incident type 2 diabetes in the Etude Epidemiologique aupres des femmes de la Mutuelle Generale de l'Education Nationale-European Prospective Investigation into Cancer and Nutrition cohort. *American Society for Nutrition* 97(3):517-523.
[26] Ministry of Health. 2002. *NZ Food NZ Children: key results of the 2002 National Children's Nutrition Survey*.
[27] Dobbs et al. 2014.

University of North Carolina and the Mexican National Institute of Health are conducting an evaluation, no findings on its impact on sugar consumption, energy intake or obesity are yet available.

- Advice commissioned from the University of Otago was generally supportive of fiscal measures to improve diets and considered that *"the conditions are very likely to be sufficient for a 20% tax on sugar-sweetened beverages"*[28]. They also recommend that further research is undertaken.
- Behavioural impacts are complex – eg, if a tax is narrowly framed then the impact on sugar and energy consumption could partly or wholly be negated if it caused people to just switch to lower quality equivalents, fruit juices and flavoured milks – or, in the case of adults, alcoholic drinks.
- Some preliminary findings on a Mexican SSB tax show that it may be associated with a fall in sugar-sweetened beverage sales, but this work has not yet been completed.
- Apart from some theoretical modelling, as referenced above, there is no New Zealand evidence on the likely impact of a sugar tax. Other than alcohol, tobacco, petrol and some vestigial import tariffs, New Zealand doesn't have targeted taxes.
- A team at the University of Waikato has been given a grant by the Marsden Fund to look at the impact of using taxes to raise the prices of unhealthy foods. This will involve several studies analysing data from Indonesia, Mexico and Vietnam. We understand that this is scheduled to be completed by 1 May 2018.

<u>Options that could be further considered</u>

A sugar tax potentially has a place in a childhood obesity strategy. However, substantially more work would need to be done by officials before a proposal could be considered by Cabinet. This would need to include a more detailed review of the evidence is required to establish that it would likely have a worthwhile impact, and working through detailed design issues such as:

- Which products should be taxed or exempt, and on what basis?
- Which type(s) of sugars should attract the tax, and should the tax be on total sugar content or only added sugar?
- At what level should the tax be set, and how should we balance considerations such as the rate of tax needed to achieve desired behavioural change against impacts on food affordability?
- Where in the supply chain should the tax be levied?
- Should the tax be set at a specific amount per gram or *ad valorem*?
- The systems that are needed (and what will they cost) to collect and enforce the tax?
- How to define the types of product that attract or are exempt from the tax, in a way that is robust and does not result in unintended consequences or protracted litigation?
- Are there any other complicating factors (eg, consistency with trade agreements)?
- What unintended consequences could result and how could they be managed?
- Working through the design and implementation options, and assessing the trade-offs involved.

[28] Personal Communication by Associate Professor Louise Signal, Department of Public Health, University of Otago on 11 May 2015. A Tax on Sugar-Sweetened Beverages – Might it Help Control Child Obesity in New Zealand? Associate Professor Nick Wilson, Professor Tony Blakely at University of Otago, Wellington (*unpublished*).

Price promotions

Description

Price promotions discount the price of a good or service to promote sales to cost-sensitive consumers. Examples include pricing discounts or promotions (such as two-for-one deals).

Reconfiguring promotional practices, such as reducing multi-buy or buy one/get one free in low-nutrient, high-energy foods, and increasing price promotions on healthier options could have an impact on obesity.

Reducing price promotions relative to portion size has been highlighted as an important area for action by the World Health Organization's Commission on Ending Childhood Obesity[29].

Evidence/International situation

The United Kingdom's Responsibility Deal evaluation[30] considered that use of price promotions at point-of-sale is "probably effective" in improving diets.

McKinsey[31] could not identify instances where price promotions have been considered in an obesity context. Examples given relate to alcohol:

- Scotland introduced a ban on multi-buy promotions of alcohol in 2011. Evaluations have found that the ban did not impact on the volume of alcohol purchased in Scotland by either the whole population or particular socio-economic groups.[32] Retailers responded to the multi-buy ban by enhancing other forms of promotions such as price-cuts and in-store displays.[33]
- Under the Sale and Supply of Liquor Act 2012, New Zealand introduced a ban on discounts of more than 25 percent and a limit to the number of locations within a store where promotions may be advertised, to help prevent the irresponsible promotion of alcohol.
- In 2014, England and Wales banned discounting in which alcohol is sold below cost, defined as the cost of duty plus value-added tax.

New Zealand Situation

Burger King recently launched a milk option for children's meals that is priced 25 cents cheaper than the sugar-sweetened beverage option.

Options that could be further considered

There is an opportunity for food retailers to reduce price promotions on unhealthy foods and beverages and increase price promotions on healthier alternatives.

[29] WHO 2015.
[30] Knai et al 2015.
[31] Dobbs et al 2014.
[32] Nakamura R, Suhrcke M et al 2013. Impact on alcohol purchasing of a ban on multi buy promotions: a quasi-experimental evaluation comparing Scotland with England and Wales. *Addiction* 109, 558-567.
[33] NHS Health Scotland 2013. *Monitoring and Evaluating Scotland's Alcohol Strategy: The Impact of the Alcohol Act on off-trade alcohol sales in Scotland.*

Restricting advertising, marketing and sponsorship

Description

Restrictions on the advertising, marketing and sponsorship of low-nutrient, high-energy foods and beverages to children has a role to play in preventing obesity.

Food preferences and eating patterns are established during childhood. Marketing influences children's food preferences, purchase requests ("pester power"), and consumption patterns.[34] The World Health Organization has stated that there is "unequivocal evidence" that marketing unhealthy food and drink to children is linked to childhood obesity.[35]

Establishing a positive relationship between children and brands is an important marketing objective. Children are heavily exposed to mass media; while television advertising is declining, use of social media and "advergaming" (advertising + gaming) for marketing to children is increasing. [36]

Evidence/International situation

In light of marketing's influence on children's understanding of healthy foods, media restrictions could reduce intrusion by unhealthy marketing into healthy preference learning. However, no studies have assessed the specific behavioural impact of media restrictions. [37]

- Evaluation of the United Kingdom's Responsibility Deal[38] considered restricting advertising in all forms of media and restricting sales promotions is "probably effective" in improving diets.
- The United Kingdom banned commercial food advertising during children's airtime and around programmes with a disproportionately high child audience. As a result, children were exposed to less advertising of high-fat, salt and sugar products, but still exposed to this advertising during adult television airtime, which accounted for 69 percent of high-fat, sugar and salt advertisements seen by children.
- Quebec has banned all commercial advertising to children under 13 years old. While research indicates that Francophone families in Quebec purchase fewer sugary cereals and eat fast food less often than English speaking families in Quebec and Ontario, obesity rates have continued to increase. This reinforces the point that media restrictions have only a small role to play as part of a comprehensive solution.[39]
- In Singapore, the government, food industry, media representatives and the Advertising Standards Authority agreed restrictions covering detailed common nutritional criteria, advertising platform and timing, and creative design (eg, use of licensed characters).
- Sweden and Norway banned all advertising to children before, during and after children's programmes.
- Ireland prohibits advertising and other forms of unhealthy food marketing, as defined by a nutrient profiling model, during children's television and radio programmes where over 50 percent of the audience are aged under 18. Food advertising to under-15 year olds cannot use celebrities.
- South Korea prohibits television and internet advertising for specific categories of food before, during and after programmes shown between 5 and 7 pm, during other children's programmes, and where advertising is presumed to target children (eg, toy giveaways). Children are defined as younger than 18 years.

[34] Agencies for Nutrition Action 2013. *Evidence Snapshot: Food and Beverage Marketing to Children.*
[35] WHO 2015.
[36] Dobbs et al 2014.
[37] Dobbs et al 2014.
[38] Knai et al 2015.
[39] Dobbs et al 2014.

New Zealand Situation

New Zealand research suggests marketing of unhealthy foods and beverages influences children's understanding of healthy foods. Sponsorship of sport is identified in New Zealand research as a particular concern, and parents report that this undermines their efforts to ensure that their children eat healthy food.[40]

Advertising in New Zealand is self-regulated by the Advertising Standards Authority (ASA), which is funded by industry to create and amend codes of practice, and to hear complaints about advertising from the public.

There are two voluntary codes relating to children's advertising: the Code for Advertising to Children and the Children's Code for Advertising Food 2010. These Codes define a child as under the age of 14 (the United National Convention on the Rights of the Child (UNCROC) defines a child as 18 and under).

The Children's Code for Advertising Food 2010 applies to those aged under 14 years. The Code for Advertising of Food requires advertisers to "*…exercise a particular duty of care with food advertisements directed at young people aged 14-17*".

Advertisements on broadcast media are required to comply with additional requirements. The *Broadcasters Code: Getting it Right for Children* for free-to-air television restricts advertising during children's programming times and bans advertising during preschool television programming times. Individual broadcasters determine children's viewing times – there is no standard definition.

In terms of legislative restrictions, the *Fair Trading Act 1986* and the *Consumer Guarantees Act 1993* prohibit misleading or deceptive advertising.

New Zealand research indicates that current self-regulatory measures may not adequately protect children (0-18 years) from exposure to the marketing of high-fat, salt and sugar foods and beverages. For example, broadcasters' definitions of children's viewing times have been found not to correspond with children's actual and peak viewing times, which are when unhealthy food is heavily marketed.[41]

Marketing of unhealthy food and drinks to children was identified as the most important issue to address childhood obesity by delegates at the recent Agencies for Nutrition Action[42] conference.

Options that could be further considered

1. Strengthen the self-regulatory system:

- expand the scope of marketing covered by rules (eg, sponsorship)
- review and standardise children's viewing times for television advertising
- introduce government monitoring of compliance with ASA Codes
- improve public knowledge of the improvements to the timeliness of the complaints' process
- align the Code's definition of a child with the United Nations Convention on the Rights of the Child (under 18 years).

2. Consider co-regulation: government regulations, enforced by government and industry:

- greater control on marketing by government
- administrative costs are increased

[40] Personal Communication by Associate Professor Louise Signal, Department of Public Health, University of Otago 12 May 2015. A systematic review of children's and parents' opinions on the sport-related food environment. Smith et al (*unpublished*).
[41] Personal Communication by Associate Professor Louise Signal, Department of Public Health, University of Otago 12 May 2015. Getting it wrong for children: self-regulation of unhealthy food advertisements on television. Jenkin et al (*submitted for publication*).
[42] Agencies for Nutrition Action are an umbrella group for public health NGOs with an interest in nutrition.

- unlikely to be popular with media industry.

3. A full government-regulated system could be adopted, where government sets and enforces the rules:

    - removes any perceived conflict of industry
    - administrative burden for government
    - unlikely to be popular with media industry.

Health sector

Public health campaigns

Description

A public health campaign is an effort to persuade a defined public to engage in behaviours that will improve health, or refrain from behaviours that are unhealthy. They are designed to provoke attention, raise awareness, provide information, and ultimately achieve behaviour shift in the population. Public health campaigns are often used where different population groups are likely to respond to different messages, or where the health issue relates to a specific population group.

Mass media campaigns (which may form a sub-set of a broader public health campaign) are a cost-effective way of reaching a very large section of the population. Television, radio, and the print media are traditionally the vehicles for mass media campaigns, but increasingly new media has become part of the mix.

Evidence/International situation

Evidence suggests that public health campaigns are an important component of a comprehensive approach to behaviour change, but in isolation are unlikely to be effective. Public health campaigns play an important role in raising awareness of an issue. In the area of weight management, it is important that campaigns do not increase stigma against obese people.

Public health campaigns to date have largely focused on increasing physical activity or encouraging healthy eating, rather than weight itself.

Campaigns and messages that make no mention of "obesity" and focus on making healthy behavioural changes have been found to be most likely to motivate behaviour change[43].

New Zealand's "Push Play" campaign is held up internationally as one of the most successful physical activity campaigns ever. An evaluation of the national Push Play campaign reported very high levels of awareness of the campaign and its key messages, together with an intention to become more active[44].

As a counterpoint to that finding, "shock tactics" can be extremely effective in drawing an issue to the attention of the audience: in the United States last year, a 90 second video featuring a 300 pound man having a heart attack in the emergency department as his life of overeating flashes in front of him went viral, with 3 million viewings over one weekend.

Media campaigns in isolation are unlikely to change behaviour. To be effective, media campaigns must be supported by a suite of activities that are tied into the campaign.

Other countries have taken these approaches:

- Michelle Obama is leading the high profile "Let's Move" campaign in the United States.
- Australia and the United States are mixing shock tactics with the "positive health action" approach.

[43] Puhl R, Peterson JL, Luedicke J. 2012. Fighting obesity or obese persons? Public perceptions of obesity-related health messages. *International Journal of Obesity.* DOI: 10.1038/ijo.2012.156 (accessed June 2015).
[44] Bauman A, MacLean G, Hurdle D, et al. 2003. Evaluation of the national 'Push Play' campaign in New Zealand – creating population awareness of physical activity. *NZ Medical Journal* 116(1179): 1-11.

- Australia's "LiveLighter" combines a visual shock tactic with an invitation to viewers to measure their own waist. Those who come into the risk category are offered ten tips for weight reduction. A website offers recipes and meal and activity planners.
- Last year, Singapore's Health Promotion Board launched a national campaign called the "1 Million KG Challenge." The campaign is conducting trials of financial and social incentives to encourage people to lose weight and is raising awareness about obesity.

New Zealand Situation

There are currently no national-level public health media campaigns aimed at reducing the level of obesity, or increasing physical activity and making healthy eating choices. A campaign to promote the Health Star Rating is likely to commence later in 2015.

Options that could be further considered

- A mass media campaign is likely to be a cost-effective way of reaching a broad cross section of the population. Push Play has very high awareness throughout New Zealand, especially as branded trailers and Push Play days for children are still offered by most Regional Sports Trusts. A cost-effective option could be to refresh this brand and build on existing awareness with a focus on children and families.
- More targeted messaging could be incorporated to reach specific audiences.
- A broad campaign to raise awareness about healthy weight and obesity, as has been conducted in some other countries, could be considered.

Information for the public

Description

Authoritative, accurate and easily understood information is required to support families to make healthy food and physical activity choices.

Evidence/International Situation

WHO recommends providing guidance on healthy living to children, adolescents, parents, caregivers, teachers and health professionals, particularly through improving nutritional literacy. This should be supported with nutrition information and front-of-pack labelling, and through advice on healthy movement, sedentary behaviour, sleep, benefits of breastfeeding, and introduction of complementary foods[45].

With the advent of the internet and mobile technologies, there are innumerable sources of information available to people on nutrition, physical activity, obesity and health. Information may be from all over the world, making it difficult for individuals to judge the reliability of the advice, and its relevance to the New Zealand environment.

Information alone does not lead to behaviour change. However, correct, consistent advice supported by environmental changes across settings can make a difference.

New Zealand Situation

Over eighty percent of children and young people aged 10-24 identified eating vegetables and fruit as a healthy behaviour. However, less than half identified not buying takeaways (37 percent), drinking water (28 percent), limiting fat (27 percent), and limiting sugar (21 percent) as healthy eating behaviours when unprompted (CTRU and Synovate 2010). This national survey data suggests that we still have some way to go to educate children and young people on healthy eating behaviours.

A 2010 evaluation[46] of food and nutrition initiatives in schools and early childhood education centres found that "*students wanted an increased focus on building student awareness and promotion of issues relating to food and nutrition*." Students also wanted colourful posters around the school, information at assemblies, school newspapers and newsletters and information in the library. They reported that posters and other information needed to be targeted to their age group.

The Ministry of Health provides population-level advice on nutrition and physical activity for the public through the Ministry's Your Health webpages, and through Health Education resources (http://www.health.govt.nz/your-health/healthy-living/food-and-physical-activity). More detailed advice for health practitioners and health professionals is provided through the Food and Nutrition Guidelines (soon to become the Eating and Activity Guidelines): http://www.health.govt.nz/our-work/preventative-health-wellness/nutrition/food-and-nutrition-guidelines.

The Ministry's Nutrition and Physical Activity webpages received 285,422 views in the past 12 months, with the Food and Nutrition Guidelines and Healthy Weight Gain in Pregnancy pages the most popular.

The Health Promotion Agency also produces resources for health professionals and the public (http://www.hpa.org.nz/npa-resources). Their recent sugar resources have been their most popular to date.

[45] WHO 2015.
[46] Clinton J, McNeill R, Ward L, Cairns K, King M, and Hattie J. 2010. *Evaluation of food and nutrition initiatives in schools and early childhood education settings. A report prepared for the Ministries of Health, Education and SPARC.* Auckland: Auckland UniServices.

New Zealander's receive information about eating and activity from a broad range of sources, even from within the health sector. Some of this information is conflicting and confusing. There is also duplication of educational materials, which wastes scarce resources. Some rationalization is needed.

Within New Zealand, there are a range of non-government organisations (eg, the National Heart Foundation), DHBs (eg, Sport Waikato/Waikato DHB's Project Energize resources), and other government agencies (eg, ACC, Sport NZ, NZTA) that produce nutrition and physical activity resources aimed at the public. There are also a range of resources in different languages, with culturally-appropriate examples and advice.

Options that could be further considered

- Review and rationalize health education resources.
- Produce easily understood eating and activity advice aimed directly at children and young people (in addition to existing advice for parents and caregivers).
- Work with the Ministry of Education to identify and strengthen healthy eating and activity messages in education settings.
- Identify ways to raise the profile of the information that the Ministry and other government agencies provide and to make sure that it is fit for purpose (health literacy, ease of navigation and use, associated apps, etc).
- Update the Ministry of Health's current serving size advice and develop a national food model and supporting resources that are easy to understand and relevant to the New Zealand population.
- Review the evidence on effective interventions to reduce the quantity of food consumed and communicate this to the public.
- Ensure that health practitioners and allied health professionals have the correct information and can communicate this to the public (eg, training in motivational interviewing, regularly weighing and measuring children to raise awareness with parents, basic nutrition and physical activity in undergraduate training, and continuing professional development courses).
- Identify opportunities for proactive communication of messages.

Breastfeeding

Description

The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months of life for the prevention of childhood obesity. Outcomes in New Zealand will be measured as part of the Well Child-Tamariki Ora Quality Initiative Framework indicators for breastfeeding.

Breastfeeding is core to optimising infant development and evidence supports its potential value as part of a comprehensive strategy for childhood obesity prevention. It may also be beneficial for postnatal weight management in women[47]. The evidence that breastfeeding reduces adult BMI is mixed.

Evidence/International situation

Interventions to improve child nutrition and movement behaviours are most effective if they are comprehensive and involve caregivers and the community at large. Societal changes and transitions require a more deliberate and concerted approach to interventions in this domain, including support for parents and other caregivers to enable them to contribute to the behaviour changes[48] [49] [50].

WHO's Ending Childhood Obesity Report[51] recommends protecting, promoting and supporting breastfeeding, according to guidelines, using regulatory measures as needed. Such measures include:

- the Code of Marketing of Breast-milk Substitutes and subsequent World Health Assembly resolutions
- protection of the right to breastfeed in public
- promotion of the benefits of breastfeeding for mother and child through broad-based education to parents and the community
- support to enable mothers to breastfeed, through regulatory measures such as maternity leave, facilities and time for breastfeeding in the work place[52].

A Canadian study showed that when paid parental leave was increased to fifty weeks, their exclusive breastfeeding rates at six months increased by nearly 40 percent[53].

New Zealand Situation

- New Zealand is a signatory to the WHO International Code of Marketing of Breast-milk Substitutes, which is administered as a voluntary code.
- The Baby Friendly Hospital Initiative is now in all hospitals in New Zealand.
- The Baby Friendly Community Initiative has limited coverage throughout New Zealand.
- Breastfeeding rates at six weeks are high, but decline rapidly after six weeks.
- Paid Parental Leave is 16 weeks.

[47] WHO 2015.
[48] Hesketh KD, Campbell K, Salmon J, et al. 2013. The Melbourne infant feeding, activity and nutrition trial (InFANT) program follow-up. *Contemporary Clinical Trials* 34(1): 145-151.
[49] Leon-Cava N, Lutter C, Ross J, Martin L. 2002. Quantifying the benefits of breastfeeding: a summary of the evidence. Washington, D.C: Pan American Health Organisation.
[50] Waters E, de Silva-Sanigorski A, Hall BJ, et al. 2011. Interventions for preventing obesity in children. *Cochrane Database of Systematic Reviews* 12. DOI: 10.1002/14651858.CD001871 (accessed June 2015).
[51] WHO 2015.
[52] International Labour Organization. 2000. *C183 - Maternity Protection Convention: Convention concerning the revision of the Maternity Protection Convention (Revised), 1952.* Geneva: International Labour Organization.
[53] Baker M and Milligan K. 2008. Maternal employment, breastfeeding, and health: Evidence from maternity leave mandates. Journal of Health Economics 27: 871-887.

Options for further consideration

- Refresh the National Strategic Plan of Action for Breastfeeding.
- Increase active monitoring of compliance with the WHO International Code of Marketing of Breast-milk Substitutes in New Zealand.
- Implement and monitor the Online Child Health Information Service (a new way of presenting the Ministry's information in a relevant and engaging way).
- DHBs to develop Breastfeeding Action Plans (National Strategy directs DHBs to establish community-specific breastfeeding support services (eg, lactation support outreach clinics).
- Promote breastfeeding-friendly public and work places.
- Evaluation of Well Child-Tamariki Ora advice on breastfeeding and infant feeding.
- New Pregnancy and Parenting Information and Education Service Specification.
- Consider further expansion of paid parental leave.

Health workforce, focusing on primary care

Description

Primary health care providers, as the first point of contact with the health system for most parents and caregivers, are well placed to help parents identify whether their child is a healthy weight and support parents to help their child to attain and maintain a healthy weight.

Evidence/International situation

Collectively, the international evidence indicates that current primary health care interventions have little effect in reducing childhood obesity, due in part to the duration and frequency of interventions.

The following barriers have been identified for lack of intervention on weight gain: time, resources, pessimism about the long-term outcomes of intervention, lack of confidence in having weight-related conversations, and "normalisation" of excessive body weight.

In Canada, new evidence-based guidelines for primary care practitioners on preventing and managing overweight and obese children and young people[54] have recently been released. The general actions below are similar to the New Zealand Guidelines. They recommend primary care practitioners take these actions:

- *All children:* monitor their growth by weighing and measuring young people at all appropriate primary care visits.
- *Young people who are overweight and obese:* primary care practitioners should offer, or refer them to, structured behavioural interventions aimed at healthy weight management.
- *Young people who are a healthy weight*: do not routinely offer structured interventions aimed at preventing overweight or obesity.

In Australia, the United Kingdom and Germany, primary care providers are increasingly referring older teenagers and adults to private weight management programmes. Weight Watchers has been found to be more effective in randomised controlled trials than primary health care-based weight management programmes using current weight management guidelines[55].

New Zealand Situation

The Ministry of Health's *Clinical Guidelines for Weight Management in New Zealand Children and Young People*[56] provide evidence-based guidance for the management of overweight and obesity in children and young people.

The extent to which general practitioners (GPs) regularly measure weight and height of children and young people is unknown. Reports suggest that many GPs have difficulty initiating conversations about weight.[57] [58] Recognising this, the Ministry is funding a pilot at the Western Bay of Plenty Primary Health Organisation to provide tools and support for primary care practitioners. In addition, several

[54] Canadian Taskforce on Preventive Health Care 2015. Recommendations for growth monitoring, and prevention and management of overweight and obesity in children and youth in primary care. *CMAJ* 187 (6), 411-421.
[55] Jolly K, Lewis A, Beach J, et al. 2011. Comparison of a range of commercial or primary care led weight reduction programmes with minimal intervention control for weight loss in obesity: Lighten up randomised controlled trial. *BMJ* DOI: 10.1136/bmj.d6500 (accessed June 2015).
[56] Ministry of Health 2009.
[57] http://www.nzdoctor.co.nz/orphan-pages/primary-thinking-tony-dowell.aspx. Accessed on 9 July 2015.
[58] http://www.nzdoctor.co.nz/news/2014/september-2014/11/first-nz-study-of-its-kind-finds-gps-struggle-with-treating-obesity.aspx. Accessed 10 July 2015.

organisations have been funded under maternal and early childhood nutrition and physical activity contracts to develop workforce capability in motivational interviewing, with evaluations due shortly.

A Green Prescription (GRx) is a health professional's written advice to a patient to be physically active, as part of the patient's health management. GRx have been shown to increase physical activity levels and can help people lose weight. A similar family-based approach for children aged 5-17 years, *Active Families*, is available in some areas in New Zealand, and a pilot extending the programme to four-year-old children is being run in Hawkes Bay and a few other DHBs.

Options that could be further considered

We could provide better guidance and support for health professionals and other community providers who are in a position to support children to achieve and maintain a healthy weight. Options include:

- Review, update, and implement the *Clinical Guidelines for Weight Management in New Zealand Children and Young People* and provide supporting resources.
- Evaluate existing initiatives to improve workforce capability, and provide tools and support (eg, Bay of Plenty PHO pilot for obese adults; its evaluation is due in mid-2016). Successful initiatives that are cost effective and able to be adapted for children should be disseminated and considered for further expansion.
- Engage with health workforce professional and regulatory groups to consider opportunities to improve the training and on-going support for health professionals (eg, motivational interviewing skills). Competency requirements could also be considered.
- There is significant scope to better match the workforce composition and geographic distribution to the problem. Primary care and DHBs referring to specialist services (eg, from Before School Checks) report a lack of access to dietitians in primary care. Better use could be made of their specialist skills to work with families with higher or more complex needs, and to support other health professionals in the practice. The role of allied health professionals (dietitians, counsellors, community health workers and physiotherapists) in community-based weight management programmes is growing overseas. We could draw on exemplars of this approach to design and trial programmes for particular communities and populations.
- New models of care could increase the effectiveness of the primary health care response to weight issues, including through enabling the appropriate health professional (or multidisciplinary team) to spend adequate time with families and children to give advice and support on attaining and maintaining a healthy weight, and developing clearer referral pathways which provide access to services.
- Improve access to structured, multidisciplinary programmes for children and young people.
- Accountability documents and contracts could be used to drive a more explicit PHO focus on obesity (as has been done for smoking cessation).
- Increase referrals for families with children who are obese to specialist services such as Active Families; however, the capacity of Active Families would be increased to improve access.
- Several specific actions could be taken in primary care:
  - routinely weigh children and young people to monitor their growth and identify abnormal weight gain early.
  - improve communication from Before School Checks (at age 4) to primary care – the current method is paper-based requiring further work for the practice.

Motivational interviewing for weight management in children and young people

Description

Motivational interviewing is a patient-centred communication style that uses techniques such as reflective listening and shared decision-making to elicit why and how patients might change their health behaviours.

Evidence/International situation

Motivational interviewing is used effectively for smoking cessation, and with some success for weight management in adults. Evidence for effectiveness in children and young people is limited due to the small number of studies. A recent large scale randomised controlled trial demonstrated reductions in BMI[59].

Based on studies and summary reviews, the factors associated with effectiveness in children and young people are:

- patient motivation, which is associated with programme adherence
- parental involvement
- inclusion of dietitians in the care team
- increased number of sessions over a longer period of time.

A new app has recently been released in the United States called Change Talk. Change Talk is a childhood weight management, motivational interviewing skill building simulation for paediatricians, nurses, family physicians, and nutritionists.

New Zealand situation

The Ministry of Health is currently funding the Healthy Start Workforce Programme (Gravida, National Centre for Growth and Development). The programme has two components: the first component translates and explores the clinical and scientific evidence about *why* pregnancy matters so much to life-long health. The second is a training programme in skills that support behaviour change – showing *how* to successfully support women and families to make healthy choices. The programme aims to support maternity and child health professionals with additional tools they can use in their daily contact with women and families. The programme is being evaluated with draft evaluation results due in mid-2015.

While not explicitly funded by the Ministry, motivational interviewing is a recognised technique employed by quit smoking providers in New Zealand.

Similarly, within mental health, talking therapies (the term used in mental health for motivational interviewing) are an accepted tool, but are not explicitly funded by the Ministry of Health.

Whānau Pakari is a Health Research Council funded randomised controlled trial underway in Taranaki that includes motivational interviewing as one component of a 12 month multi-faceted approach to addressing childhood obesity, with an additional 12 month follow-up period. The researchers have

[59] Resnicow K, McMaster F, Bocian A, et al. 2015. Motivational interviewing and dietary counselling for obesity in primary care: An RCT. *Pediatrics* 135(4): 649-657.

recruited 179 children and young people (aged four to 17 years) to date, with results expected towards the end of 2016.

Options that could be further considered

Undertake research to fill the following gaps in knowledge:

- How much training is required for practitioners to be effective and competent at undertaking motivational interviewing?
- What is the optimum length of treatment/number of sessions (eg, brief intervention versus longer duration)?
- Duration of effect – how long does any reduction in weight persist upon cessation of treatment?
- What health care practitioner groups are most effective at delivering motivational interviewing, especially within the New Zealand context? Research published to date appears to focus primarily on paediatricians and primary care doctors, with or without the involvement of dietitians. However, in New Zealand practice nurses are a large provider of nutrition and physical activity advice to patients.
- Cost-effectiveness within the New Zealand context. Data from the United States cannot be easily extrapolated to New Zealand.
- Review evaluations of Healthy Start Workforce Programme, and Whānau Pakari when available. Should the evaluations appear favourable consider cost and scalability.
- Review, update, and implement the *Clinical Guidelines for Weight Management in New Zealand Children and Young People*[60]. The review should consider the evidence and role of motivational interviewing.
- While the evidence for effectiveness of motivational interviewing for weight management in children is currently limited, there is strong support for consistent nutrition and physical activity messages. There is evidence that mixed messages from health practitioners and academics in the areas of nutrition and physical activity result in public distrust and confusion. Hence it is important that New Zealand health practitioners are equipped with key messages and advice, and that the public have access to these messages in culturally-appropriate formats. The Ministry's Eating and Activity Guidelines will be released in 2015. It is important that they are disseminated widely and supported by a user's guide and public resources.
- Ensure all health practitioners and allied health professionals receive consistent nutrition and physical activity training at an undergraduate level, supported by ongoing professional development, and interview techniques.
- Explore tools that may assist in motivational interviewing such as online tracking and recording of height, weight and BMI with graphical representation on patient-care portals and primary care systems. This could also assist in monitoring effectiveness and change over time.

[60] Ministry of Health 2009.

Weight management programmes

Description

Weight management programmes are structured attempts to reduce the weight and improve the health of people who are overweight or obese. Typically, a programme will operate within a set timeframe, with defined goals. It will include guidance on healthy eating, together with strategies for increasing participants' level of physical activity. It will involve regular meetings with one or more health professionals. It may have a group support focus.

Weight management programmes occur in a range of settings – in primary health care practices, in summer camps, and on marae. Some programmes are commercial enterprises (like Weight Watchers); others are funded and provided by the health sector. The majority are targeted at adults, but an increasing number of programmes are being specifically developed for children and young people.

Evidence/International situation

A recent review concluded that the current approach to weight management in primary health care has limited effectiveness. On average, primary health care interventions do not produce clinically significant weight loss. The researchers hypothesised that this might be because the interventions used were of relatively low to moderate intensity, with a frequency of contacts ranging from one per six months to 1.5 per month. Constraints on health professionals' time, and their preference for a more peripheral role in dealing with obesity were identified as barriers to success in this setting.

Intensive, multidisciplinary approaches appear to be effective. These are supported in a number of reviews. For example,

- In Israel, a *6-month multidisciplinary approach* in a family healthcare centre has been found to have positively affected measures of childhood obesity in a four-year follow up with a comparison group[61]. The programme worked intensively with 100 obese or overweight children aged 5 – 14 years and their parents. At four years' post intervention, the rate of obesity had decreased by 55 percent compared with the non-intervention group. The impact was greater for the obese than for the overweight children.
- *Weight-loss residential camps* can be effective, but expensive. The United Kingdom "MoreLife" Camp is accredited by the United Kingdom Department of Health as a model of choice and has gone through a rigorous evaluation process. It runs five-week summer holiday camps for young people who are obese or overweight. In one year, the camp helped 200 young people lose an average of 1-2 kilograms in weight per week, a 0.5 reduction in BMI per week, a five percent reduction in body fat, and increased self-esteem and fitness levels.
- *"Weight Watchers"* has been found to be more effective in Britain than weight management programmes devised by the National Health Service[62]. Trials in Australia, Germany and the United Kingdom found that, after a year, people who took part in a 12 week Weight Watchers programme lost 2.5 kilograms more than those randomly assigned to standard care defined by national treatment guidelines. For older teens struggling with weight problems, this could be a viable option for subsidy in this country.

[61] Endevelt R, Elkayam O, Cohen R, et al. 2014. An intensive family intervention clinic for reducing childhood obesity. *Journal of the American Board of Family Medicine* 27(3): 321-328.
[62] Jolly et al 2011

New Zealand Situation

The Green Prescription *Active Families* programme is available on referral by health practitioners for inactive children and young people aged 5–18 with a BMI greater than 25, together with their whānau/families. It is an intensive 12 month community-based intervention, combining physical activity and information, education about healthy food, and general health and wellbeing. 1091 children from 941 families were referred during 2013/14 (with the target being 663 referrals). Most were referred by general practitioners, with many families being Māori and Pacific from low socioeconomic areas. Participants are regularly monitored. A 2014 survey found that almost half (46 percent) of participants lost weight, with participant satisfaction being high. There has been no formal evaluation of its long-term impact. Hawkes Bay is trialing an expansion of Active Families to include four year olds.

Whānau Pakiri, is a more intensive version of Active Families targeting obese Māori and Pacific children and adolescents aged 5–16 in Taranaki and runs for 12 months.

Evaluations are underway for trials of Green Prescriptions for pregnant women, and *Active Families* for under 5 year olds (in the Hawkes Bay), with results due in July 2015.

Options that could be further considered

- Work to increase access to Lead Maternity Carers, Well Child Tamariki Ora services by Māori, Pacific, and high-deprivation populations is already underway. They provide key access points to mothers of infants and children, and there is scope to better link them to information and referrals to services.
- Feedback from DHB referrers, the Ministry of Health's programme stocktake, and policy work within various parts of the Ministry has *identified services gaps* – in particular for under 5 year olds (identified in the Before School Checks at age four); for young people; and to meet unmet demand for *Active Families* (which is available in 14 locations).
- There is an opportunity to consider extending *Active Families* nationally, and programme variants, after the *Whānau Pakiri* randomised controlled trial evaluation is completed, if outcomes are favourable (due August 2016).
- *School Based Health Services* are provided by registered nurses in decile 1-3 secondary schools, teen parent units and alternative education centres. They carry out a health and wellness check at secondary school entry (12 to 13 year-olds) which, from July 2015, will include measuring BMI, and reporting this to DHBs. Service-related options include: expanding the service beyond deciles 1-3; making the service more intensive by providing health messages and interventions to support behaviour change; and developing referral pathways and access to services for young people who are overweight or obese.
- *Active Families* would benefit from a national measurement system and database.
- The administration of referrals from *Before School Checks* could be further improved.

Pharmaceuticals and surgery

Pharmaceuticals

Orlistat, a selective inhibitor of pancreatic lipase, reduces digestion and absorption of fat. It can reduce the onset of diabetes and improve total cholesterol, low-density lipoprotein, blood pressure and glycaemic control. However, it can have adverse effects on the gastrointestinal tract, and result in slightly lower concentrations of high-density lipoprotein. Orlistat is not licenced for use in children in New Zealand[63]. In New Zealand the only medicines approved for use as anti-obesity agents are unsubsidised.

In Canada, new evidence-based guidelines for primary care practitioners on preventing and managing overweight and obese children and young people have recently been released[64]. They recommend primary care practitioners take these actions:

- *Overweight children aged 2 -11*: Do not offer Orlistat
- *Overweight or obese children 12 -17*: Do not routinely offer Orlistat.

Surgery

The new evidence-based guidelines for primary care practitioners in Canada recommend that practitioners do not routinely refer overweight or obese children and youth for surgical intervention.

Bariatric surgery is not usually appropriate in young people. It may be considered if the young person is physiologically mature, very obese, and committed to lifestyle change, and all other measures have been tried and failed. Bariatric surgery is substantially more effective than non-surgical interventions in achieving weight loss among obese patients, but still requires lifestyle change. Robust data relating to children and adolescents are limited. Most evidence comes from studies on obese adult populations where weight loss may reach 40–50 kg at one year post-surgery. There is also evidence of improvements in major co-morbidities such as blood pressure, lipid levels, and diabetes, and also other conditions such as obstructive sleep apnoea and gastro-oesophageal reflux.

Surgical intervention is not generally recommended, but may be considered for young people in exceptional circumstances[65].

Bariatric surgery for very obese women, undertaken at least one year prior to pregnancy, is associated with improved outcomes, including a reduced risk of obesity for the baby.

Options that could be further considered

- Anti-obesity pharmaceuticals and surgical options for the management and treatment of obesity in children and young people could be considered as part of a review and update of the *Clinical Guidelines for Weight Management in New Zealand Children and Young People*[66].
- Consider funding to support bariatric surgery for very obese women who are considering pregnancy.

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[63] Roche Ltd. 2014. *New Zealand data sheet: Xenical*. URL: http://www.medsafe.govt.nz/profs/datasheet/x/Xenicalcap.pdf (accessed June 2015).

[64] Brauer P, Connor Gorber S, Shaw E, et al. 2015. Guidelines: Recommendations for prevention of weight gain and use of behavioural and pharmacologic interventions to manage overweight and obesity in adults in primary care. *CMAJ* 187(3).

[65] Ministry of Health, 2009.

[66] *Ibid.*

Parental education and support

Description

Parent education and parenting programmes aim to provide information, strategies, and support to help families to establish and maintain healthy lifestyles. They vary in form and intensity, ranging from antenatal classes, conversations with general practitioners and Plunket nurses, to parent-oriented websites, community-based healthy lifestyle programmes, and intensive interventions involving a multi-disciplinary team of professionals, spanning the health, education and welfare sectors.

Evidence/International situation

Parents have a powerful influence on their children's eating and activity patterns. The food parents put on the table and the example they set through their own eating and lifestyle habits can shape their child's behaviour over a lifetime[67].

Parents and prospective parents need good information and effective strategies to guide their children into healthy patterns of eating and physical activity. However, many of today's parents are not getting the right information and fail to recognise that their children are overweight or obese[68]. In New Zealand, over half of all obese children aged 2-14 years (56 percent) were perceived to be neither under nor overweight by their parent in 2011-2013. Parents of younger children, parents of Māori children and parents living in deprived areas were least likely to perceive their obese child to be overweight (including obese)[69].

The McKinsey Report[70] rates intensive parental education as a "high impact" intervention. While intensive parenting programmes are not yet widely used they "show considerable potential for improving childhood obesity".

- A United Kingdom initiative (EMPOWER), providing intensive counselling for parents of babies at risk of obesity, is in the exploratory stage. Early feedback suggests a high acceptance by families.
- Programmes offering intensive education for parents of pre-school children are proving effective. In the United Kingdom, an eight week course for parents (HENRY) is significantly changing families' behaviour, including increasing their consumption of fruit and vegetables and reducing consumption of sugar-sweetened beverages. Parents express greater confidence in dealing with lifestyle change and parenting generally[71].
- Programmes focusing on parents as the sole agents of change appear to be more effective than those focusing on parents *and* children, or on children alone[72]. The approach encourages an authoritative parenting style, where parents are encouraged to make all the decisions about what food is bought, while children determine the amount they will eat.
- Australia's Lifestyle Triple P targets parents as the exclusive agents of change. Its group sessions focus on increasing parental skills and parental confidence to manage children's weight-related

[67] Savage JS, Orlet Fisher JO, Birch LL, et al. 2007. Parental Influence on Eating Behavior: Conception to Adolescence. *J Law Med Ethics* 35(1): 22-34. DOI: 10.1111/j.1748-720X.2007.00111.x (accessed June 2015).
[68] Lundahl A, Kidwell KM, et al. 2014. Parental Estimates of Child Weight: A Meta-Analysis. *Pediatrics* 133(3). DOI: 10.1542/peds.2013-2690 (accessed June 2015).
[69] Ministry of Health. 2014. *Annual update of key results 2013/14: New Zealand Health Survey.* Wellington: Ministry of Health.
[70] Dobbs et al 2014
[71] Willis TA, George A, Hunt C, et al. 2014. Combatting child obesity: impact of HENRY on parenting and family lifestyle. *Pediatric Obesity* 9(5): 339-350.
[72] Golan M. 2006. Parents as agents of change in childhood obesity – from research to practice. *Int J Pediatric Obesity* 1(2): 66-76.

behaviour. A trial with 101 families found significant reductions in child BMI and further improvements at six-month follow up[73].

New Zealand Situation

New *Eating and Activity Guidelines for Adults* will be released later this year. These will be accompanied by updated consumer resources. Additional modules on a range of topics (eg, serving size advice) will be considered based on priorities and resources. Over time, advice related to children will be incorporated. The *Food and Nutrition Guidelines for Children and Young People (Aged 2-18 Years)*[74] provide the Ministry's current advice for this population group.

The Ministry is undertaking scoping work to review the evidence for physical activity, sedentary behaviour and sleep for under 5 year olds, and the best way to communicate these to parents, caregivers and others who care for under 5 year olds. New advice and/or resources may be developed depending on the scoping report recommendations.

Parents have access to information and advice from a variety of sources: antenatal classes, Lead Maternity Carers, Well Child-Tamariki Ora providers, Primary Health Organisations, and community-based programmes such as SKIP, Early Start and Family Start. The effectiveness of these initiatives in conveying nutritional advice or support is unknown.

The more intensive parenting programmes have a primary focus on behaviour management and modification. Highly regarded programmes such as the Incredible Years and Triple P are designed to support parents to manage their children's behaviours and could be of use where children have both behaviour problems and high BMI. The extent to which they focus on eating behaviours or nutrition is unknown.

Options that could be further considered

Options that could improve the information and support available to parents include:

- Work with the Ministry of Social Development and the Ministry of Education to improve multi-agency parenting programmes.
- Issue clear, understandable, authoritative advice that is easily accessible to everyone through refreshing the *Clinical Guidelines for Weight Management in New Zealand Children and Young People*[75] to include the latest evidence. These need to be implemented with supporting resources.
- Update physical activity advice for under-5 year olds along with appropriate resources.
- Review and incorporate up-to-date advice on nutrition and physical activity in existing parenting resources.
- Refresh the existing information on optimal child nutrition that is used in antenatal classes and Well Child-Tamariki Ora visits.
- Maximise existing opportunities for health services and wider social sector services to support parents and caregivers with simple, clear nutrition and physical activity messages.
- Offer intensive nutrition counselling in the first year of life for parents of babies at risk of obesity.
- Invest in evidence-based parenting programmes for parents of children who are overweight or obese.
- Reduce duplication of resource development across health sector organisations through improved coordination and sharing.

[73] West F, Sanders MR, Cleghorn GJ, Davies PSW. 2010. Randomised clinical trial of a family-based lifestyle intervention for childhood obesity involving parents as the exclusive agents of change. *Behaviour Research and Therapy* 48: 1170-1179.
[74] Ministry of Health. 2012. *Food and Nutrition Guidelines for Healthy Children and Young People*.
[75] Ministry of Health 2009.

Transport sector

Active transport

Description

- Active transport refers to walking, cycling, and other active means of getting from place to place (eg, to and from school, shops, or sport).
- Less than 45 percent of children usually use active transport to get to or from school. This means that over 330,000 children (aged 5-14 years) are usually driven to and from school every day (car, bus or train)[76].

Evidence/International situation

- Active transport can improve physical activity levels and contribute to obesity outcomes as well as reducing traffic congestion and pollution and improving the general health of the population[77].
- The cost-effectiveness of increasing active transport solely to have an impact on obesity is low[78], however, its benefits are wider than just obesity.

New Zealand Situation

Ministry of Transport

The Urban Cycleways Programme and Fund ($100 million over four years) established in 2014, aims to make significant improvements to cycling infrastructure in the main urban centres.

This Programme supports the development and enhancement of urban cycleways and could be expected to increase the number of children and young people (particularly secondary school students) cycling to school if it makes routes safer and invests in routes near schools.

New Zealand Transport Authority (NZTA)

- NZTA invests in active transport, particularly through Model Communities, research, and Bikewise.
- Investment in two communities (Hastings and New Plymouth) to develop a range of programmes, including skills training for children, infrastructure and enhancements to encourage more walking and cycling has resulted in increased cycling relative to other New Zealand cities (reversed the decline in cyclist numbers and increased total number of cyclists).
- New Plymouth's Let's Go programme[79] reported a 62.5 percent increase in increase in active travel to and from school over a one year period (2011-2012). There was an increase in self-confidence and independence among pupils.

Accident Compensation Corporation (ACC)

ACC's focus for cycling is reducing the number of deaths and injuries (prevention) and on regular cycling as exercise which assists recovery from injury.

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[76] Ministry of Health 2014. *Annual Update of Key Results 2013/14: New Zealand Health Survey*. Wellington: Ministry of Health.
[77] Dobbs et al 2015.
[78] *Ibid*.
[79] New Zealand Transport Agency 2013.*The Walking and Cycling Model Communities Story With New Plymouth and Hastings*.

Schools

Schools are not required to organise active transport. Any school-based organisation of walking buses (groups of children walking together accompanied by adult volunteers), cycling programmes, etc. is at the complete discretion of each school and Board of Trustees pursuant to s.75 of the Education Act 1989.

Options that could be further considered

- Expand the Model Communities approach to other New Zealand cities, or around schools. This could be undertaken as a cross-government initiative (NZTA, Ministry of Health, Ministry of Education, ACC) or be linked with Healthy Families NZ. An umbrella brand for this work could be considered.
- Support interventions to road design around schools and on routes to schools (traffic lights, no car zones, no stopping zones, speed restrictions, speed bumps, pedestrian crossings, bike lanes) to make active transport more attractive. These also increase the perception of safety which is a major issue for parents.

Education sector

As children and young people spend approximately a third of their waking hours during the school term at school, education settings are an important environment for influencing their food and activity choices. Particular areas of influence are the nature and availability of food, the curriculum, physical activity outside of class time, and zoning.

The education sector was identified as the most important sector in which to intervene to address childhood obesity by delegates at the recent Agencies for Nutrition Action conference.

Curriculum

Description

- *The New Zealand Curriculum (NZC)*[80] is a statement of official policy relating to teaching and learning in New Zealand schools. Its principal function is to set the direction for student learning and to provide guidance for schools as they design and review their curricula.
- The *NZC* specifies eight learning areas:
  - English
  - the arts
  - health and physical education
  - learning languages
  - mathematics and statistics
  - science
  - social sciences
  - technology.
- The Health and Physical Education curriculum has seven key areas of learning:
  - mental health
  - sexuality education
  - food and nutrition
  - body care and physical safety
  - physical activity
  - sport studies
  - outdoor education.
- While nutrition and physical activity is traditionally considered under the health and physical education curriculum area, it can also be integrated into other curriculum areas, such as science.
- All seven areas are included in teaching and learning programmes at both primary and secondary levels. It is expected that all students will have had opportunities to learn practical cooking skills by the end of Year 8.
- While every school's curriculum must be aligned with the intent of the *NZC*, schools have flexibility when determining the detail.
- After Year 10, health and physical education are not compulsory, although the Ministry of Education advises that most schools still require students to take physical education.

Evidence/International situation

- The McKinsey Report found that (in the United Kingdom) the school curriculum was an intervention area where there was "sufficient evidence for behaviour change".

[80] Ministry of Education 2007. *The New Zealand Curriculum* (for English-medium teaching and learning in years 1–13).

New Zealand Situation

- *The NZC* is under continuous review by the Ministry of Education and there are well-defined processes for making changes to it. Any intervention at this level will be relatively slow to have an impact because of the nature of curriculum development processes.
- There is no evidence of any deficiencies in the New Zealand health and physical education curriculum or of any systemic issues with the way the curriculum is interpreted and taught by schools.

Options that could be further considered

- The expectation that all students will have had opportunities to learn practical cooking skills by the end of Year 8 could be monitored through Education Review Office (ERO) reviews. ERO could be asked to review compliance with this requirement.
- The Ministry of Education could require schools to provide Health and Physical Education teaching throughout all school years (currently only compulsory to Year 10), with a focus on healthy eating, nutrition, and selecting, preparing, cooking, and serving food. This would have to be carefully looked at first as it could have implications for NCEA subjects and timetabling.

Physical activity outside the curriculum

Description

This refers to physical activity that takes place in a school setting but out of class time (eg, breaks, after school).

Evidence/International situation

Free play was the most important contributor to total physical activity time for five to 14 year olds in the National Survey of Children and Young People's Physical Activity and Dietary Behaviours in New Zealand 2008/09[81].

Edible gardens have been shown to keep participants physically active, promote students' motivation to learn, enhance psychosocial development (eg, responsibility, self-esteem), improve cooperation with peers, and create a sense of pride in, and ownership of the education setting. They also improve access to and increase knowledge and consumption of healthy food (eg, vegetables and fruit), and tend to be community oriented. All of these factors have been associated with positive long-term health and educational outcomes[82].

Recent evidence from a randomised controlled trial of an eight-week curriculum-based physical activity and nutrition intervention in New Zealand suggests that increased physical activity outside of school (both during the week and on weekends) for children aged 6 to 11 years results in:

- decreases in the level of weight gain (not negating the independent effects of dietary intake)
- accelerated neurocognitive development
- increased academic performance (including literacy and numeracy)
- positive behaviour[83].

New Zealand Situation

Boards of trustees are responsible for the control of school grounds, playground facilities, equipment the school provides, and policies governing playground activity (s.75 Education Act 1989), but are subject to health and safety legislation. "Bans" on activities like "bull rush" or tree climbing are on a school-by-school basis and are based on perceived health and safety risks. Parents' and schools' concerns about safety often drive school policies restricting activity in the playground.

A number of schools are trialling more adventurous, unstructured play outside class time.

The Ministry of Education's curriculum website provides guidance on play within the curriculum that could also be utilised by schools for unstructured play outside the curriculum.

Over half of primary schools have edible gardens. A number of programmes and organisations support edible gardens including Enviroschools, Garden to Table and Kids Edible Garden Programme.

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[81] Clinical Trials Research Unit and Synovate 2009. *A National Survey of Children and Young People's Physical Activity and Dietary Behaviours in New Zealand: 2008/09 Key Findings*. Ministry of Health 2009. Accessed on 11 June 2015: www.health.govt.nz/publication/national-survey-children-and-young-peoples-physical-activity-and-dietary-behaviours-new-zealand-2008.

[82] Health Outcomes International, 2011. South Island District Health Boards Evaluation of Edible Gardens in Education Settings. Health Outcomes International (Unpublished): 2011. Accessed on 11 June 2015: www.rph.org.nz/content/9f679791-c587-45e0-a968-180264657346.cmr.

[83] Duncan S. Summary of the current body of knowledge around the impact of physical activity on body composition, cognition, academic achievement, and behaviour management in children: Evidence from the Healthy Homework Study (*unpublished*).

Options that could be further considered

- Identify and share best-practice use of school grounds to facilitate increased physical activity opportunities.
- Consider strategies and support for schools to increase the provision of edible gardens, such as expansion of existing programmes that have been evaluated as effective.
- Encourage schools to introduce a homework syllabus for promoting children's physical activity outside of school.

School food environment

Description

The school food environment refers to the provision of food and drink by schools (eg, school canteens, tuck shops, vending machines).

Evidence/International situation

- Poor nutrition and obesity is associated with poor school attendance as well as lower academic achievement. Teachers report improvements in attendance, attention, behaviour, and levels of concentration in schools and early childhood education centres (ECEs) where healthy eating has become accepted practice.
- A meta-analysis of school-based interventions to prevent or manage obesity found that combined nutrition and physical activity interventions were the most effective. Nutrition interventions, and interventions to reduce television viewing were also effective, but physical activity alone was not effective for weight reduction[84].
- The 2009 New Zealand Food and Nutrition Environments Survey (FNES)[85] of ECEs, primary and secondary schools found:
    - Most ECE services (74.7 percent) made drinking water freely available to children at all times during the day. Of those ECE services that provided food, half (50.2 percent) used educators to prepare food or beverages for children, while three quarters involved children in preparing food onsite (74.8 percent).
    - Food or beverages were made available through sale in most primary schools. Sales of both had decreased from 2007 (food from 78.6 percent to 71.6 percent and beverages from 55.4 percent to 47.1 percent). There was no significant difference by decile in the proportion of schools selling or providing food or beverages during the school day.
    - Nearly all secondary schools sold food (87.6 percent) or beverages (82.4 percent) to students. Most schools were likely to provide food or beverage to students during a celebration (63.4 percent), as a reward (51.0 percent), or via a sponsorship agreement (25.7 percent). The proportion of schools selling or providing food or beverages (of any type) during the school day did not vary by decile.
    - In conjunction with the Ministry of Education, the Ministry of Health is currently undertaking a brief survey of school food environments, however, the results of this are not yet available.
- In January 2009, the ERO[86] reported that, of the 199 primary and secondary schools reviewed between June and December 2008, over 90 percent were promoting healthy food and making healthy options available on school premises.

New Zealand Situation

- The Voluntary Schools Beverage Agreement between the New Zealand Government and beverage industry leaders, Coca-Cola Amatil New Zealand and Frucor Beverages, has resulted in both companies completely withdrawing the direct supply of full sugar carbonated soft drinks and full-sugar energy drinks from all New Zealand schools. This has removed an estimated 52.8 kilograms of sugar from the diet of every New Zealand child since its introduction in 2009. However, there is nothing to stop schools bypassing this agreement (eg, by purchasing from local supermarkets).

[84] Katz DL, O'Connell M, Njike VY, Yeh MC, Nawaz H., 2008. Strategies for the prevention and control of obesity in the school setting: systematic review and meta-analysis. *Int J Obes (Lond)* 32(12):1780-1789.
[85] Pledger M, Black J, Cumming J and McDonald J. 2010. *2009 School and early childhood education services food and nutrition environment survey: Phase III report*. Wellington: Victoria University of Wellington. Accessed on 11 June 2015 at: www.weightmanagement.hiirc.org.nz/page/21629/2009-school-and-early-childhood-education/?contentType=166&section=13874.
[86] Education Review Office. 2009. *Schools' Progress Towards Meeting National Administration Guideline 5 on Food and Nutrition: Part 2 January 2009*. Wellington: Education Review Office.

- The Ministry of Education has developed resources in consultation with the Ministry of Health to assist schools and ECE services, eg, *Food and Nutrition for Healthy, Confident Kids: Guidelines to Support Healthy Eating Environments in New Zealand Early Childhood Education Services and Schools*.
- The Children's Commissioner's 2014 guidelines[87] for schools wishing to introduce food programmes focus on feeding hungry children at school rather than consumption of poor quality food, however a school food programme can also be used to promote good nutrition.
- Fuelled4Life (formally called the Food and Beverage Classification System) is designed as a practical tool to support ECE services and schools in implementing the Ministry of Education's guidelines, *Food and Nutrition for Healthy, Confident Kids*. Fuelled4Life identifies 'everyday' and 'sometimes' foods/beverages for ECEs and schools wishing to provide, sell or promote healthy food and beverages.
- Proposed regulations under the Food Act 2014 would see canteens and tuck shops subject to a food control plan or one of three national programme levels depending on their food activity. There is a risk that this may encourage tuck shops to provide only items of food and drink which do not require regulation, potentially decreasing the consumption of healthy foods.

<u>Options that could be further considered</u>

- Conduct an informal survey of schools to obtain an up to date picture of the current food environment, pending the full repeat of the FNES that is planned by Auckland University (INFORMAS group) in 2016 (funded by Health Research Council).
- Identify what resources and information would assist schools to improve their food environment, and establish a website with examples of best practice, sample policies and links to tools.
- Establish a new National Administration Guideline clause requiring that only healthy food options be available on school grounds (which could be monitored by the Education Review Office).

[87] Children's Commissioner 2014. *Guidelines for School Food Programmes: Best Practice Guidance for Your School*.

Zoning around schools

Description

- The proximity of fast-food (eg, quick service restaurants, fish and chip shops) and convenience stores (dairies, small food markets, petrol stations) to schools may enhance access to unhealthy foods and have a negative impact on diet.

Evidence/International Situation

- A 2011 study[88] found that New Zealand primary/intermediate schools had a total proportion of 19.3 outlets per 1000 students within 800m, compared to 6.6 for secondary schools. The most socially-deprived quintile of schools had three times the number and proportion of food outlets compared to the least-deprived quintile.
- North American studies also found a high concentration of fast-food and/or convenience stores in close proximity to schools.
- An unpublished New Zealand PhD thesis also identified a significantly higher density of unhealthy food sources (convenience stores, fast food and takeaways) around low-decile schools in comparison to higher-decile schools[89].
- Internationally, some efforts have been made to limit school student exposure to fast-food outlets through urban planning measures, but the impact of such interventions on obesity is uncertain.

New Zealand Situation

- No council in New Zealand has tried to limit fast-food outlets and dairies through their planning and zoning rules and it is unclear whether this is possible under the Resource Management Act (RMA).
- The Auckland Regional Public Health Service (ARPHS) wants to limit what dairies can sell to children and place restrictions on how many dairies can be in one area. Healthy Auckland Together (which includes ARPHS) plans to lobby for changes to the Resource Management Act to give Councils the power to stop new dairies, convenience stores and takeaways being opened (although this has not been tested yet and may be possible under the RMA).
- The Wellington Regional Public Health Service recently submitted a similar recommendation on Wellington City Council's Long Term Plan to review food retail zoning conditions.
- Voluntary agreements on sales of food and drink by dairies or fast-food outlets to children on their way to and from school, or while in school uniform, are in place in some schools in New Zealand. For example, six out of seven dairies near Hamilton's Rhode Street School agreed not to sell junk food to children in school uniform after the student council asked them not to. The Principal, Shane Ngatai[90], said the effect was visible very quickly with many children not bringing high-sugar foods to school anymore.

Options that could be further considered

- Approaches designed to restrict access to food outlets near schools could include provisions for territorial local authorities to change land use zoning policies in school catchment areas or to introduce exclusion zones with prescribed minimum distances for food outlets located near schools. It would take a very long time for this to have any impact.

[88] Peter L. Day PL, Pearce J, 2011. Obesity-Promoting Food Environments and the Spatial Clustering of Food Outlets Around Schools. *Am J Prev Med* 40(2):113–121.
[89] Mahesh, R. 2015. "The Relative Contributions of Food Policies to Improving Population Nutrition – Weighing System for the INFORMAS Food-SPI Tool: A Delphi Study. University of Auckland. Unpublished thesis.
[90] "Dairy limit part of anti-obesity plan", Radio New Zealand website, 18 May 2015.

- Encourage voluntary agreements between schools and local retail outlets to manage sales of unhealthy food and drink to students on their way to and from school.

Community-based interventions

Description

Community-based interventions are multi-component interventions and programmes, typically applied across multiple settings, tailored to the local environment and implemented locally[91].

Evidence/ International Situation

Community-based interventions have been demonstrated to be successful when applied in multiple settings, including early childcare settings, schools and other community settings. However, single-component interventions may still form an important part of a step-based approach to obesity prevention. WHO has identified the following elements as important when designing and implementing community based interventions:

- strong community engagement at all stages of the process
- careful planning of interventions to incorporate local information
- integration of the programme into other initiatives in the community.

WHO also highlights the importance of programmes being culturally appropriate, and inclusive of vulnerable groups, such as children with disabilities.

A systematic review[92] of nine community-based interventions to address childhood obesity in the United States and high-income countries concluded that there was moderate evidence for a combined nutrition and physical activity approach, conducted in the community with a school component.

A 2010 New Zealand review[93] of the cost-effectiveness of ten public health interventions to prevent obesity concluded that the most cost-effective interventions were a school-based programme for children, and general health screening and advice for adults in a primary care setting.

A 2013 review by Canterbury DHB[94] concluded that interventions to prevent obesity in children under 12 years of age tended to result in no change or a modest (and sometimes significant) reduction in adiposity. They were unable to identify the specific strategies (or combinations of strategies) that were most effective. However, multicomponent interventions which combined both diet and physical activities, involved other family members, included multiple settings, and were of longer duration, tended to be most effective.

New Zealand Situation

District health boards (DHBs) are responsible for providing or funding the provision of health services in their district. Many community-based nutrition, physical activity and obesity prevention interventions are funded by DHBs. Examples include culturally-appropriate services, cooking programmes, breastfeeding support, and Green Prescriptions/Active Families.

The Ministry also funds a range of national, and some community-level initiatives. The Ministry is currently reviewing its investment portfolio in this area.

The Ministry has established a new whole of community initiative, Healthy Families NZ in 10 locations around New Zealand. Healthy Families NZ aims to encourage families to live healthy lives – by making good food choices, being physically active, sustaining a healthy weight, being smokefree and reducing alcohol-related harm.

[91] WHO 2012. *Population Based Approaches to Childhood Obesity*. Geneva: WHO.
[92] Bleich S, Segal J, Wu Y, Wilson R, and Wang Y. 2013. Systematic Review of Community-Based Obesity Prevention Studies. *Paediatrics* 132(1) e201-210.
[93] Mernagh P, Paech D, Coleman K, Weston A, McDonald J, Cumming J, and Green T. 2010. *Assessing the Cost-Effectiveness of Public Health Interventions to Prevent Obesity: Overview Report.* Health Research Council of New Zealand Partnership Programme. Wellington: Victoria University of Wellington.
[94] Mulrine H. 2013. *Interventions to Prevent Childhood Obesity. A Literature Review*. Christchurch: Canterbury DHB.

The Healthy Families NZ approach is supported by a growing body of evidence – for example from Healthy Together Victoria and Colac in Australia and the EPODE pilots in Europe – which suggests that concentrated, community-led health promotion, tailored to specific community needs and where people live, learn, work and play, can be successful in addressing the underlying causes of chronic disease.

Other community based initiatives and infrastructure may impact on obesity. These include:

- provision of affordable, accessible recreation facilities (eg, swimming pools and community recreation centres, parks and playgrounds)
- programmes to improve access for low-income families to sporting opportunities (eg, Sporting Chance (Otago))
- provision of affordable, accessible healthy food such as farmers' markets and community gardens/orchards, and programmes provided by Regional Sports Trusts, local and regional councils, other government agencies, non-governmental organisations, volunteer and community groups, businesses and primary health organisations.

Community festivals and events provide an opportunity to showcase healthier foods. There are a few local examples of sugar-sweetened beverage free events such as Porirua's Creekfest, Auckland's Polyfest and Hutt City's Pasifika Choice Festival Fun Family Touch Tournament (2014).

The train the trainer approach (eg, by Toi Tangata) is often used in New Zealand to upskill community health workers.

<u>Options that could be further considered</u>

- The evaluation quality of small community obesity prevention initiatives is often limited/poor.
- Many DHBs are currently reviewing or developing obesity plans for their areas. There is an opportunity to reduce duplication of resources by providing the background evidence of effective interventions, links to resources that can be adapted and shared, and a communication channel to share what works and what doesn't. The Ministry will trial a Weight Management microsite over the next 12 months with an accompanying survey of users to determine whether it is an effective tool to support collaboration and sharing and reduce duplication.
- Identify opportunities to link with other community partners such as the Model Communities initiative funded by the New Zealand Transport Agency.
- Identify opportunities with local, district and regional councils to improve the nutrition and physical activity environment for children and their families.
- Ensure that consideration is given to vulnerable groups within the community, particularly advice and support, and infrastructure for children with disabilities.
- Identify ways to support women to continue to breastfeed their babies within the community, particularly upon return to work.
- Identify ways to support community health workers, such as increased opportunities for professional development, and use of the "Train the Trainer" model.
- Develop an Educator's Guide (planned as part of the Eating and Activity Guidelines) to support those in the community who provide nutrition and physical activity advice to their communities.
- Encourage more community events, and public places to become sugar-sweetened beverage free.
- Encourage collaboration between agencies and organisations at a local and regional level to identify opportunities to improve the food and activity environment particularly for children.

Workplace wellness

Description

Typically, workplace wellness campaigns, like media campaigns, combine a mix of strategies designed to work both directly and indirectly to encourage healthy lifestyles.

While children are not in the workplace, parents, grandparents and future parents *are*. As part of an overall package, it helps to reinforce messaging around the importance of healthy eating and maintaining a good level of physical activity.

Cues to use stairs instead of lifts, opportunities for walking meetings, standing desks, lunchtime dance classes, nutrition counselling, and healthy food and drink options in the staff cafeteria all reinforce healthy behaviour.

Like schools, workplaces have a captive audience for healthy lifestyle messaging. The messaging that occurs in the workplace has the same potential to shape learning and behaviour as a media campaign.

Evidence/International situation

The World Health Organization recognises the workplace as a key channel for health promotion.

Workplace wellness programmes are included in McKinsey's suite of cost-effective interventions to reduce obesity[95].

While there is no evidence yet to link workplace wellness campaigns directly to improved child health, logic (and evidence) suggests that changing parental lifestyles will have an impact on their children:

- eating habits are typically passed on by parents early in the child's life[96]
- a mother with a high BMI is a significant predictor of obesity in her children[97].

New Zealand Situation

Many workplaces have health and wellbeing programmes of some description.

Healthy Families NZ supports local leaders in 10 New Zealand communities to implement voluntary initiatives that encourage families to live healthy, active lives. Activities focus on settings where people live, learn, *work* and play.

The Health Promotion Agency (HPA) produces resources specifically for use in the workplace.

HPA, along with ACC and the Health and Productivity Institute, periodically host forums designed to provide evidence on the benefits of workplace wellbeing programmes and to share practical ideas and case studies of how to do it well.

Options that could be further considered

There is an opportunity for Government agencies to lead the way in obesity prevention, by trialling and evaluating a range of workplace-based programmes. This would generate a range of proven exemplars for the private sector to adopt.

[95] Dobbs et al 2014.
[96] Savage et al 2007.
[97] Eriksson J, et al. 2001. Size at birth, childhood growth and obesity in adults life. *International Journal Of Obesity And Related Metabolic Disorders* 25(5): 735-740.

Research, monitoring and evaluation

Description

There are gaps in our knowledge of effective interventions.

Research on the causes and effects of obesity, and interventions for the prevention and management of obesity, particularly within New Zealand, will improve our understanding of obesity and the best combination of interventions required to address it.

Monitoring population trends enables identification of issues and at-risk groups, target setting, monitoring progress towards achieving goals or targets, reporting on national and international obligations, and making comparisons.

Evaluations of interventions, from population-level initiatives (eg, public health campaigns) through to weight management programmes, is required to ensure we enable, promote and invest in interventions that work for all people in New Zealand.

Evidence/International situation

While New Zealand obesity rates are similar to many other developed countries, the make-up of our population (particularly ethnic composition), our geography, and our education, health, and other sectors differ. This means that interventions that are effective in other countries may not be effective in New Zealand.

Both McKinsey[98] and WHO[99] have highlighted the need to continue to build our understanding of what works and not to wait for a "silver bullet", hence the need for research, on-going monitoring and evaluation.

New Zealand Situation

The New Zealand Health Survey (NZHS) provides information about the health and wellbeing of New Zealanders. The NZHS became a continuous survey in 2011, enabling the publication of annual updates on the health of New Zealanders. BMI and waist circumference are measured as part of the core NZHS. A detailed nutrition module is planned for 2017/18, and a detailed physical activity module is planned for 2018/19.

The last detailed analysis of children's nutrition was undertaken in the 2002/03 Children's Nutrition Survey. The first and only national analysis of objectively measured children's physical activity occurred in the 2008/09 Children and Young People's Survey (5-24 year olds). Currently, there are no plans to repeat either survey.

Evaluations are underway for several weight management programmes in the community (eg, Whānau Pakiri, the more intensive approach to Active Families).

An interim evaluation of the Healthy Eating – Healthy Action Strategy identified the range of activities that were underway in 2008, along with a number of smaller evaluations of community interventions such as Project Energize, community gardens, workplace wellness, education initiatives and breastfeeding support. These findings could be used to further our understanding of what works within New Zealand.

[98] Dobbs et al 2014.
[99] WHO 2015.

Options that could be further considered

We can draw on best practice and research from other countries. There are large scale studies which New Zealand is not likely to carry out but could learn from. We can, however, focus our investment in research and evaluations related to New Zealand's populations and programmes. In particular, a focus on what works for Māori and Pacific peoples is important in the New Zealand context, as these population groups have relatively high rates of overweight and obesity, and limited research is done elsewhere that is applicable to these groups.

Research:

- Health Research Council (HRC) – Ministry of Health joint partnership to support research into prevention and management of childhood obesity in New Zealand.

Monitoring:

- Develop nutrition and physical activity modules for the NZHS in 2017/18 and 18/19 that include measures for children.
- The University of Auckland has secured HRC funding to repeat the 2007 and 2009 Food and Nutrition Environments Survey (FNES) in 2016, to provide updated information about what is actually going on in schools.
- An informal survey of schools could be done in 2015, pending results from the FNES (above).
- Develop a mechanism for primary care providers to electronically record children's growth (height, weight and waist circumference) and national monitoring of this data.
- Develop a mechanism for Lead Maternity Carers to electronically record a woman's BMI at booking visit and 36 weeks and national monitoring of this data.
- Active Families programme:
    - develop a national measurement and recording system and database to ensure consistent monitoring across New Zealand (like that for Before School Checks)
    - develop a process for monitoring families' progress 6-12 months after graduation, with further support available if needed.

Evaluation:

- There are gaps in our knowledge of effective interventions. We would need to fill these gaps to inform programme development, and guidance to funders (eg, DHBs) and primary care providers.
- Build outcome evaluation into the funding of all new initiatives, so we can learn from them and consider those found to be effective for wider implementation.
- Consider an overarching evaluation of the child obesity work that either includes, or is linked with, the evaluation of Healthy Families NZ.