

An 'End-Game' for sugar sweetened beverages?

Sundborn G, Merriman TR, Thornley S, Metcalf P, Jackson R

ABSTRACT

Objective: The epidemic of unhealthy weight is now in its third decade. The multitude of initiatives designed to address this issue (globally) have predominantly been ineffective as the prevalence of unhealthy weight has continued to rise. Public health professionals have proposed an 'endgame' for tobacco smoking in New Zealand by 2025, which has received widespread support. Similarly, here, to control the prevalence of unhealthy weight, we consider whether a similar approach to tobacco is justified to restrict the intake of sweetened beverages.

Approach: This paper reviews the evidence relating sugar sweetened beverages to unhealthy weight and adverse health effects. Current initiatives aimed at reducing sugar sweetened beverage consumption both internationally and in New Zealand are reviewed.

Findings: Epidemiological evidence consistently links sugar-sweetened drink intake with unhealthy weight and other risk factors for cardiovascular disease, such as diabetes, gout, and raised blood pressure. Food disappearance data suggests that sugar intake continues to increase in New Zealand, and that a subtle addiction to sugar may underlie this trend. A number of successful initiatives to reduce sugary drink intake are described.

Implication/ conclusion: We argue that an 'endgame' to the consumption of sugar-sweetened beverages be supported as a means to address the issue of unhealthy weight at a population level. Finally, a preliminary draft endgame plan is presented for consideration, dialogue and debate.

AUTHOR INFORMATION:

Gerhard Sundborn, PhD. Section of Epidemiology and Biostatistics, University of Auckland, School of Population Health, PO Box 92019, Auckland, New Zealand.

E-mail: g.sundborn@auckland.ac.nz

Tony R Merriman, PhD. Biochemistry Department, School of Medical Sciences, University of Otago, PO Box 56, Dunedin 9054, New Zealand.

Tel.: +64 3 479-5798.

E-mail: tony.merriman@otago.ac.nz

Simon Thornley, MBChB, MPH, Section of Epidemiology and Biostatistics, University of Auckland, School of Population Health, PO Box 92019, Auckland, New Zealand.

Tel.: +64 9 3737-599.

E-mail: s.thornley@auckland.ac.nz

Patricia Metcalf, PhD, Section of Epidemiology and Biostatistics, University of Auckland. School of Population Health, PO Box 92019, Auckland, New Zealand.

Tel.: +64 9 3737-599.

E-mail: p.metcalf@auckland.ac.nz

Rod Jackson, MBChB, PhD, Section of Epidemiology and Biostatistics, University of Auckland, School of Population Health, PO Box 92019, Auckland, New Zealand.

Tel.: +64 9 3737-599.

E-mail: rt.jackson@auckland.ac.nz

CORRESPONDENCE:

Gerhard Sundborn

Section of Epidemiology and Biostatistics

School of Population Health

University of Auckland

PO Box 92019

Auckland

Corner of Merton and Morrin Roads, Glen Innes

Fax: +64-9-3737599 ext 88732

Phone: +64-211003989

Email: g.sundborn@auckland.ac.nz

Background

Sugar-sweetened beverages (SSBs) almost certainly contribute significantly to the epidemic of 'unhealthy weight' and many chronic illnesses while providing no necessary nutrients. Consumption of SSBs should therefore be minimised, especially in children and youth.¹ In this paper we propose an 'endgame' to the consumption of SSBs and offer practical solutions to achieve a gradual reduction and elimination of SSBs from the New Zealand diet.

Public health professionals have proposed an 'endgame' for tobacco smoking in New Zealand (NZ) by 2025.² This move has received widespread support.³ Given the magnitude of negative health consequences that SSB consumption can place on public health, and given that unhealthy weight is the only major risk factor for chronic disease that continues to increase worldwide, SSBs warrant a similar approach.

Although the proposition of an 'endgame' for SSBs may be ambitious, we believe that it is achievable. Furthermore, there are examples of initiatives in public health that have proposed similarly ambitious goals with positive outcomes. In 1997, the Swedish parliament introduced the "Vision Zero" policy that aimed to reduce road traffic related fatalities and serious injuries to zero by 2020.⁴ This policy was based on the view that serious injuries and fatalities from road traffic accidents are largely preventable and should not be tolerated. Policymakers acknowledged that human error is inevitable and that safer road environments were required to absorb instances when human error occurs. Instrumental to the "Vision Zero" policy was the responsibility taken for crashes by those who design the road transport environment. Sweden already had one of the lowest Road Traffic Fatality (RTF) rates in the developed world and yet experienced a halving of their RTF rate from 2005 to 2008, which in part is likely to be due to the "Vision Zero" policy.⁵

Although the adverse health consequences (unhealthy weight, diabetes and cardiovascular disease (CVD)) that high intake of SSBs cause is of high priority in New Zealand, SSB consumption receives little attention. Given that evidence supports SSB consumption as a direct link to adverse health, focus is lost in the tangled web of interventions and programmes that seek to reduce the epidemic of 'unhealthy weight'. Current initiatives that target 'unhealthy weight' comprise multi-faceted approaches to improve diet and exercise that are so broad they struggle to make any meaningful impact on any risk factors for 'unhealthy weight' at a population level.

This paper reviews the evidence relating SSBs to adverse health and thus the rationale to act specifically on SSBs. Current initiatives aimed at reducing SSB consumption both internationally and in New Zealand are reviewed. Finally, a preliminary draft endgame plan is presented for consideration, dialogue and debate.

'Unhealthy weight gain'

In this paper, the terms overweight and obesity are replaced with the single overarching term 'unhealthy weight gain'. Fundamental to this shift in reference is one important concept. This is the proposition that body weight or body fat metrics are only one of the components of the impact of excessive energy intake over energy output on physical health, and that what is of at least equivalent importance is the nutritional profile that

leads to unhealthy overweight. Acknowledging this point, two individuals of similar age, weight and Body Mass Index (BMI) can vary significantly in their respective health status depending on what they eat rather than just how much they eat. This concept places greater emphasis on the quality of the diet that is responsible for an individual's weight status. In practice, this means that messages about 'unhealthy weight' seek to reach the whole population rather than a subgroup of the population who's BMI exceeds an arbitrary threshold.

A Focus on Nutrition

Over the last few decades health researchers and practitioners have attempted to understand the drivers of the epidemic of 'unhealthy weight gain', and develop effective solutions to reduce and prevent the poor health outcomes associated with this state. Although solutions may seem obvious (eat less, be more active), most countries that have attempted to address this issue have failed.⁶ Average population body mass index (BMI) has continued to increase over time, so too the prevalence of 'unhealthy weight gain'.^{7,8} Although many individual interventions have been successful in their evaluation settings, they struggle to be transferable at a population level and are not sustainable long term as they require on-going investment from the public health budget.

'Unhealthy weight gain' is a consequence of a poor diet leading to energy imbalance. To restore energy balance one needs to i) reduce the amount of energy consumed, ii) increase the amount of energy used or iii) both. Many public health initiatives have been designed to influence either people's diet and/or physical activity levels. However, in order to get the most gain out of the public health budget, initiatives that prioritise nutrition over physical activity are increasingly preferred as the rise in 'unhealthy weight gain' is more likely to be attributable to the increased food supply and consumption, as physical activity levels have remained relatively constant since the 1970s.⁹⁻¹¹

Policy Interventions are Essential

Two distinct approaches have been taken to address the epidemic of unhealthy weight gain. The most common being an approach that aims to motivate behavioural change of individuals or groups of individuals to improve their diet and exercise patterns. Interventions developed from this approach have been shown to be effective, however individual-focussed interventions are costly and therefore difficult to sustain. Furthermore, they are unlikely to reverse the epidemic of unhealthy weight gain that is borne by an increasingly larger proportion of any given population. This approach impacts primarily on moderators of the epidemic rather than what drives it. The alternative approach that is more likely to address the epidemic of unhealthy weight gain, at a population level, is through the use of policy interventions (enforceable laws, regulations, taxes) targeted towards drivers.⁶ Populations are passive recipients of policy interventions that can create more healthful environments. Policy interventions are also generally cheaper to implement, making them more cost-effective, sustainable and wide reaching. However, policy is difficult to introduce as the great majority of these policies will need government leadership and are often unattractive to the politically well-connected

business sector (food industry in particular). A recent study that assessed the cost effectiveness of 20 obesity interventions in Australia, showed that the three policy-based interventions were ranked highest in terms of their cost-effectiveness and breadth of coverage.¹²

Children and Youth

Improving the status of an individual and/or population group that is already at an unhealthy weight is extremely hard and becomes increasingly difficult with age. Infants with high birth weight are more likely to become overweight children, and overweight children are more likely to develop unhealthy weight in adulthood.^{13,14} Therefore, strategies aimed at making an impact on unhealthy weight gain should prioritise children and youth with prevention taking precedence over treatment.

Why Sugar-sweetened beverages?

Sugar-sweetened beverages (SSBs) include any beverage that has added sugar and comprise sugar sweetened i) fruit-juices, ii) flavoured milks, iii) carbonated soft-drinks, and iv) energy/sports drinks. Sugar (sucrose) is a disaccharide consisting of equimolar glucose and fructose. Although some of these beverages have nutritional value, all pose an increased health risk to individuals (if consumed on a regular basis) due to their high sugar content. Given that carbonated soft-drinks are both the most widely consumed and provide the lowest nutritional value, this category of SSBs should be the main focus of efforts to reduce consumption.¹

The American Heart Association (AHA) recommends a daily allowance (RDA) of 6 teaspoons (24 grams or 100 calories or 0.42kJ) of sugar for women, 9 teaspoons (36 grams or 150 calories or 0.63kJ) for men, and 3 teaspoons (12 grams or

more than half a can per day provided no other sugar was consumed and a child would meet their RDA for sugar by consuming one third of a 330ml can.

New Zealanders are among the largest consumers of sugar/ per capita in the world. In 2009, New Zealand (NZ) consumed 53.80 kg/capita/yr of sugar compared to 38.0 kg/capita/yr in Australia, 33.1 kg/capita/yr in the US, 36.6 kg/capita/yr in the United Kingdom, 36.0 kg/capita/yr in Samoa and 17.2 kg/capita/yr for Japan.¹⁶ The median daily sugar intake for NZ men (120g or 30 teaspoons), women (96 g or 24 teaspoons) and children (103-140 g or 26-33 teaspoons) far exceeds the AHA recommendations described above.^{17,18} In 2002, NZ and Australia ranked as the 9th and 6th highest consumers of carbonated soft-drinks globally. New Zealanders were estimated to consume 84.2 Litres per person per year and Australians 100.1 L per person per year.¹⁹

Beverages are the leading food item that has contributed to the high sugar intake of NZ children and adults.^{17,18} Similar to other western countries, in NZ the 600 ml bottle is the most common size soft-drink sold,²⁰ which contains approximately 16 teaspoons (64 grams) of sugar. The largest volume soft-drink available at a fast-food chain in NZ is 1100mls. A beverage this size would contain 30 teaspoons of sugar (117 grams), over three times the RDA for an adult man. Understandably, over-consumption of sugar is easily achieved if SSBs are consumed regularly. Sugar-sweetened beverages contribute more energy to diet than any other single type of food or beverage.^{17,18,21,22}

Industry pushback - Ideological pull

Two significant factors that must be considered about the acceptability of policies to restrict SSBs are the pressure of industry push-back and ideological-pull. Predictably, industry

Table 1. Positive association between SSB intake and weight, risk factors for CVD, and poor health outcomes

Disease or Risk factor for disease	Nature of evidence / study	Population	Strength of association and comparison
Weight gain	Systematic Reviews ²⁹⁻³³ Randomised controlled trials ³⁴	International literature, children and adults 224 adolescents	Majority (3 of 5) found a positive association. At 1 year significant between-group differences for changes in BMI (-0.57, P=0.045) and weight (-1.9 kg, P=0.04).
Type 2 diabetes and metabolic syndrome	Meta-analysis of observational studies ³⁵	11 studies in total, 8 on diabetes n=310,819 and 3 on metabolic syndrome n=19,431.	1-2 SSB/day versus <1 serving/month; relative risk 1.26 (95%CI 1.12 - 1.41)
Gout	Cohort study ³⁶	Health Professionals, 46, 393 men	Comparing highest and lowest quintile Multivariate RR for gout: 2.02 (1.49-2.75; P for trend 0.001)
Coronary heart disease	Cohort study ³⁷	Health Professionals 42,883 men.	Compared upper quartile of consumption to lower quartile adjusted RR 1.20; 95%CI: 1.09 - 1.33
Systolic blood pressure	Cross sectional ³⁸	Adolescents aged 12 - 18 years.	Blood pressure z-score increased by 0.17 from lowest to highest category of SSB consumption (P for trend, 0.03)

50 calories or 0.21kJ) for children.¹⁵ These recommendations are due to the increased risk that higher intake of sugar place on the development of unhealthy weight, diabetes and cardiovascular disease (and CVD risk factors). In a standard can of carbonated soft-drink (330ml) there are approximately 9 teaspoons of sugar - meaning that to obtain one's RDA of sugar an adult man could drink one can per day provided no other sugar was consumed. An adult woman could drink a little

is likely to oppose any measures that may threaten the commercial success of their products and this has been seen in the commissioning of reports and research papers that attempted to undermine the validity of the reported relationship between SSBs and unhealthy weight gain by beverage companies and the beverage industry.²³⁻²⁷ Ideology will vary amongst stakeholder groups and may vary between political parties. A recent example of an ideological shift in successive NZ governments

from 2007 to 2009 saw the repeal of a clause developed to regulate that only healthy foods were to be made available in New Zealand schools.²⁸

The Evidence linking SSBs to an Unhealthy Weight and Poor Health

Since 2006, there have been at least 5 systematic reviews of observational studies that have assessed the relationship between SSB consumption, BMI, unhealthy weight and related health consequences. Three of these found a positive relationship between SSBs and unhealthy weight.²⁹⁻³¹ One systematic review (funded by the beverage industry) found the evidence to be inconclusive, equivocal and/or in need of further investigation,³² whilst a single review (also funded by the beverage

drank more than one SSB per day had a significantly higher BMI compared to those children that drank less than one SSB per week (BMI: 19.7 versus 18.8 kg/m²). Furthermore, findings from the Obesity Prevention in Communities (OPIC) study showed that children who consumed more than one SSB per day had a mean BMI of approximately 26.3 kg/m² compared to 25.3 kg/m² for non regular SSB drinkers.⁴⁰ A third study has reported no association between sugar intake and body weight in NZ children,²⁶ although that study has been criticized on the basis of its cross-sectional design and the study was funded by the sugar industry.²⁶ Tables 1, describes a number of studies that have shown a positive association between SSB intake and weight, risk factors for CVD and poor health outcomes. Table 2, describes a number of studies that shown successful

Table 2. International and local policy interventions to reduce SSB intake

Outcome measured	Nature of evidence / study	Nature of policy intervention	Population	Magnitude of change
Total soda consumption from diaries	Randomized control study 43	Healthy lifestyle education programme implemented that focussed on encouraging water intake rather than SSB. 7 month intervention.	1140, 9-12 year old students (435 intervention, 608 control)	statistically significant decrease in the daily consumption of carbonated drinks in the intervention compared to control (mean difference -56ml; 95% CI -119, -7 ml)†
Daily carbonated drink intake measured by 24 hour recall from diaries	Randomized control study 44	Focussed educational programme that aimed to eliminate SSB intake and promote healthier diet. 6 Educational sessions over 1 year.	644, 7-11 year old children from 6 schools. 29 classes (15 intervention, 14 control)	Significant decrease in consumption by 0.6 glasses in the intervention group but increased by 0.2 glasses in the control group (mean difference 0.7, 95% confidence interval 0.1 to 1.3)†
Mean SSB consumption per day	Cross sectional survey administered three times over a 5 year period 45	State Bill introduced in 2003 banned soda sales from elementary and middle schools and restricted their sale at high schools	2003 = 4,010 children 2005 = 4,029 children 2007 = 3,638 children	Significant reduction in SSB intake from 2003-07 were for age 2-5 16% to 5%, age 6-11 22.5% to 9.9%, age 12-17 35.7% to 25.7%.†
Servings of soda per week	Cross sectional survey 46	Taxation (excise and import)	Find paper to determine	Reduction in number of servings per week from 2.5 to 2.
Sales data	Industry trade publication 47	Price increase	Total sales data - general population	As carbonated soft-drinks increased by 6.8% sales dropped by 7.8%, when Coca-Cola prices increased by 12% sales dropped by 14.5%.
SSB sales*	Beverage project 48	School based interventional study banning SSB sales in school canteen.	High school	Reduced sales within a single school of 1,172L of SSB per week
Sales data*	Cross sectional 49	Change in default beverage option to zero sugar substitute	26 Fast food restaurants in a fast food chain restaurant.	Reduced SSB sales by 17%.

industry) found no such relationship.³³

Having evaluated these systematic reviews, we consider there is sufficient evidence to demonstrate a significant relationship between SSBs consumption, raised BMI, the occurrence of 'unhealthy weight gain' and its related health consequences. In general, studies that employed a better study design found a greater effect size in this relationship (clinical trials compared to cross sectional studies). In terms of the public health impact of SSBs on weight gain, Woodward-Lopez et al. estimated that consumption of SSBs accounts for 20% of the weight gained (increase) by the US population over the 30 year period from 1977 - 2007.²⁹

In New Zealand, few studies have assessed the relationship between SSBs and obesity. Scragg et al using the 2002 National Children's Nutrition Survey found a positive relationship between SSB consumption and BMI in children.³⁹ Children who

policy interventions that have reduced SSB intake.

From this evidence, we consider that sugar-sweetened beverages are the most obvious dietary item to prioritise to address 'unhealthy weight gain' at the population level. The relative affordability (compared to water and milk) and cost-benefits of purchasing larger sizes make SSBs of larger volumes more economically attractive. One study found that SSB consumption had a stronger association with unhealthy weight than any other food item.⁴¹ These factors combined make it highly likely that SSBs are the '*the single largest driver of unhealthy weight*'.⁴²

Consumption of SSBs increases the likelihood of developing type 2 diabetes mellitus, is a risk factor for cardiovascular disease, coronary heart disease and gout.³⁰⁻³² For example, ingestion of greater than 3 cans of SSB is associated with a 2.1-fold increased risk of developing gout in Maori, 2.4 in Pacific Island people and 3.5 in Caucasian, independent of potential

confounding factors.⁵²

Possible mechanism(s) responsible for SSBs driving an unhealthy weight

In the United States, soft drinks are sweetened with high fructose corn syrup (HFCS; ~55% fructose), which highlights fructose as the agent causing weight gain and increasing the risk of metabolic disease.⁵³ Sugar is also the most concentrated form of fructose available in countries outside the US. Biochemically fructose is entirely metabolized by the liver, in an unregulated fashion.⁵³ Most of the fructose is metabolized to triglycerides which are transported to adipose tissue by low density lipoprotein (LDL) and very low density lipoprotein (VLDL).⁵⁴ Biochemical changes to the insulin receptor promote insulin resistance and hyperinsulinemia (increasing risk of type 2 diabetes), and one by-product of hepatic fructose metabolism is the production of uric acid, high levels of which are a strong risk factor for gout. This hepatically-driven metabolic profile for fructose is different to that of glucose (which is utilized for energy in tissues throughout the body, the metabolism of which is regulated and which can be stored in the liver as glycogen), yet is very similar to the hepatically-driven metabolic profile of ethanol.

The physiological mechanism by which SSBs increase body weight is thought to be due to their high energy density resulting in high energy intake. Studies have found that energy consumed in liquid form is not well compensated for by a reduction of energy consumed in food intake, which results in higher overall energy intake,⁵⁵ with surplus energy then stored by the body as fat.⁵⁴ Studies have found that SSBs may suppress satiety, and stimulate appetite allowing individuals to consume more food in a sitting. Furthermore, high consumption of SSBs may condition people to a preference for a high taste of sweetness that will impact on subsequent food selection, resulting in higher caloric intake. Support for this proposition is shown in several studies where SSB intake is associated with a higher overall energy intake, more than what can be explained by the added SSB consumption alone.⁵⁶⁻⁵⁸

The addictive properties of sugar

High levels of sugar intake are likely to provoke an addiction syndrome, characterised by greater need for the substance, and unpleasant withdrawal symptoms when an individual attempts to cut-down. The evidence for such a syndrome is drawn from both rodent and human studies. In rodents, prolonged increasing concentrations of sugar in the diet have been associated with the provocation of a withdrawal syndrome that was not reproduced with a high fat diet.⁵⁹ Sugar stimulates the rodent nucleus accumbens, a part of the mid-brain, linked to motivation, that is stimulated by drugs of abuse, such as cocaine, alcohol and amphetamines.⁶⁰ In humans, we note anecdotal reports of individuals who experience withdrawal symptoms, similar to opiate withdrawal, after restricting intake of foods with high concentrations of both sugar or white flour.⁶¹ Foods with high levels of sucrose or glucose are also known to reliably relieve tobacco cravings in smokers who are undergoing a quit attempt.⁶²

Although evidence points to the addictive properties of SSBs, how does this relate to public policy to restrict these products? Addiction leads to automatic behaviour, prompted by the availability of the substance and sensory cues which

prompt the addict to satiate withdrawal. Tolerance (need for larger quantities of the substance) with time is also characteristic of other addiction syndromes. Elements of the environment, amenable to legislative control, are likely to affect intake of the substance. Just as tobacco control policies have aimed to remove cues to smoke, such as advertising and displays, similar policies may be justified, using addiction as a premise, for SSBs. In addition, tax increases, which aim to reduce initiation, have been successfully used to reduce the intake of two addictive drugs: tobacco and alcohol. Introduction of a sugar tax or soft-drink tax could result in a similar lowering of the population intake of sugar. Age-based sales restrictions, enforced for alcohol and tobacco may also be justified for SSBs, by arguing that consistent legislation is required for substances with similar addictive potential, with the potential to cause significant burden of disease. We review the international experience with such initiatives later in this document.

Influence of Marketing

The marketing of nutritionally poor beverages and foods and to children is receiving increasing attention in many countries, including NZ.⁶³⁻⁶⁸ Marketing SSBs (especially those that offer little to no nutritional value) to children is common and can create an unhealthy desire for these products. Although regulations have been introduced to limit this practice, many are not adequately monitored and have therefore been ineffective in reducing children's exposure to these products.^{67,69,70} Furthermore, industry has developed creative approaches to penetrate their target audience through the use of stealth marketing and sponsorship deals.^{71,72}

In the US in 2010 the marketing budget for SSBs in traditional media forms exceeded \$948 million US\$. Product placement (a form of stealth marketing as described above) of SSBs specifically targeted to the 2-17 year age group accounted for 87% of monies used in this form of advertising technique.⁷³ In 2010, a deal between Coca-Cola and American Idol was estimated to be between 50-60 million US\$ in value. This deal saw Coca-Cola branded cups placed in front of each of the three judges for the entire season. A similar deal between rival soft-drink company Pepsi-Cola and TV programme the X-factor in 2012 is reported to be valued at 50-100 million US\$.⁷⁴ Marketing budgets for healthy foods and beverages are insignificant when compared to these vast sums of money.

How are SSBs being tackled internationally?

Taxation

Many initiatives have been developed to reduce the consumption of SSBs internationally. The most significant level of activity has been in the United States; however, there is also significant activity in France, Hungary, and Australia. There is a wide range of mechanisms used to reduce consumption of SSBs, the most notable being taxation. In the US, fifteen states have introduced taxes on SSBs.⁷⁵ Furthermore, there is ongoing debate in many other states on whether to introduce a soft-drink tax and for those that already have - there is continued debate about the form of such taxes. On the 1st January 2012 France introduced a 'soda tax' that some industry commentators suggested may increase the cost of their beverages by 35%.⁷⁶ In Hungary, a tax on foods high in sugar, fat or salt was introduced in 2011.⁷⁷ The debate about taxing unhealthy food and beverage items is now

receiving greater attention in the United Kingdom, Australia and New Zealand, however to date no 'soft-drink tax', 'soda tax' or 'fat tax' has been successfully introduced in these countries.

Policy

Many local and state governing bodies in the US have introduced a policy eliminating SSBs from publically funded schools, hospitals, correctional facilities, property, and organisational bodies. Some have introduced policy and regulations needed to be adhered to sector wide (regardless of state ownership). Other organisations/sectors where SSBs policies are found include: day care centres, after school programmes, day programmes for the mentally unwell, senior care centres and churches. Many of these initiatives have been developed independently by groups rather than in response to a directive from an authoritative body.⁷⁸

Varied policy solutions address SSB consumption. These range from a complete ban (of SSBs), to ensuring that non-sugar sweetened options are also available, to making ONLY non sugar-sweetened beverages available, as well as prescribing rules about the consumption of SSBs (SSBs are not permitted for children). Examples of this can be seen in beverage options available in vending machines.⁷⁸

Recently, New York Mayor Michael Bloomberg proposed a ban on the sale of SSBs above 16 ounces from restaurants, movie theatres, delis, concession stands and food carts. The ban however would not apply to supermarkets, grocery and convenience stores as they are not regulated by the board of health.⁷⁹ This proposal has received a raft of publicity from both supporters and opponents.^{80,81} The proposal was successfully passed on September 13th 2012, despite strong opposition from two councillors and their request to the board of health not to pass the mandate.⁸¹

Social Marketing and Media Campaigns

Although the marketing of SSBs receives seemingly unlimited (and unmatched) funds, there is an increasing growth in the level of social marketing and media campaigns directed at reducing consumption of SSBs also. Some initiatives have held Video and Art contests urging likely contestants (mainly youth) to prepare art or visual segments portraying novel messages and ways of promoting a healthier consumption or alternative to SSBs. The majority of these actions derive from health organisations and have used novel slogans to promote their cause such as:

*Re-Think Your Drink,*⁸² *Are you Pouring on the Pounds?,*⁸³
*Fat Smack,*⁸⁴ *Sugar Shocker,*⁸⁵ *Sip Smart,*⁸⁶
*Soda Sucks,*⁸⁷ *Stop the Pop,*⁸⁸ *Hidden Sugar,*⁸⁹

What has and is happening in New Zealand?

DHB-based initiative

In New Zealand, a school based initiative called the 'Beverage Guidelines Project', a collaboration between a number of organisations including the Auckland Regional Public Health Service, the National Heart Foundation, Waitemata District Health Board (WDHB), and more than twenty schools across the Waitemata District, was launched in 2005 by the WDHB. It encouraged schools to replace beverages that were of limited nutritional value and energy dense with healthier beverages options that offered nutritional benefits and/or were energy free. In one school alone this project saw 125kg of sugar per week or

greater than 1 tonne per term being removed from the school canteen in the form of SSBs.⁴⁸

Industry based initiative

The Counties Manukau District Health Boards (CMDHB) 'Let's Beat Diabetes' programme, in 2006 developed a novel intervention that likely resulted in the most significant reduction in consumption of SSBs ever to be seen at a population level in New Zealand. The Let's Beat Diabetes (LBD) team in conjunction with the Food Industry Group formed a relationship with two of the Food Industry's key players: Coca-Cola, and McDonalds. The shared vision of these partners was to address the increasing prevalence of diabetes in the CMDHB population.

As a result of this collaborative effort, a novel trial was undertaken whereby McDonalds and Coca-Cola would replace the beverage Sprite with its sugar free version Sprite Zero for a 26 week period in all 21 McDonald restaurants in the CMDHB area. A 17% reduction of SSBs consumption occurred; and importantly, the change did not prompt negative consumer feedback or impact business viability. Such positive outcomes saw Sprite Zero become the default lemonade served in all McDonalds' restaurants throughout New Zealand.⁴⁹ This change remains to date and is unlikely to be reversed. Such an outcome is a success for health advocates and is an excellent example of how the food industry and health advocacy can positively work together for a positive outcome.

All partners of this initiative deserve recognition for their efforts and vision and provide leadership in the gains that can be achieved by mutually beneficial partnerships. However future initiatives should be accompanied by research to evaluate that health benefits accrue, and that there are, for example, no compensatory increases in energy intake.

Government initiative

Although SSBs consumption is generally not perceived as a specific and/or significant driver of 'unhealthy weight' status of New Zealanders, there have and continue to be a limited number of initiatives that either specifically or inclusively address consumption of SSBs. The most well known (although, now redundant) of which was the introduction of a clause into the National Administration Guidelines by the then Minister of Education. The clause required that 'only healthy foods be sold in schools'. This clause was introduced in 2007 and saw the elimination of SSBs from school canteens and a banning of them from school premises. Unfortunately, after a change in government this clause was revoked in 2009.⁹⁰

Church based initiatives

Many Pacific churches have strong relationships with their respective District Health Board (DHB) and are sites for much health promotional activity. Encouraging healthier nutrition is a standard component across all programmes. The majority of member churches have adopted nutrition policies that address SSBs within them. In some churches a separate SSBs policy has been developed and adopted independent of the overarching nutrition policy.⁹¹⁻⁹³

Social Marketing

In 2007, under the 'Feeding our Futures' campaign undertaken by the Health Sponsorship Council of New Zealand (now

merged with Alcohol Advisory Council and renamed The Health Promotion Agency) a series of resources and televised advertisements were developed to promote water and milk as preferred healthy drinks as opposed to sugar-loaded drinks.⁹⁴ The then Health Sponsorship Council's primary function was to use social marketing to promote healthier lifestyle choices for New Zealanders.

Although the presence of these initiatives was promising, there has been no co-ordinated approach to building on these gains and unfortunately many of these initiatives (healthy food guidelines (revoked), Feeding our Futures campaign (over), Beverage Guideline Project (unfunded)) have ceased. Below we offer some recommendations that, if pursued, may strengthen policy to reduce SSB intake in New Zealand.

Recommendations

- Develop 'National Beverage Guidelines' requiring schools to provide healthy beverages or the re-introduction of the clause requiring the provision of healthy food in schools into the National Administration Guidelines.

- Determine the SSB tax options and the feasibility of each as a prelude to introducing a beverage tax on SSBs.
- Raise public awareness about the negative effects of SSBs through social marketing initiatives.
- Work with Industry to recruit other fast-food restaurant chains to replicate the McDonalds/Coca-Cola - SpriteZero initiative.
- Augment the above initiative to make CokeZero the default Cola served in place of the sugar-sweetened drink in McDonalds and other fast-food chains.
- Establish a 'Beverage Panel' to conduct a review on SSBs in NZ/Australasia and to offer policy advice to government and industry, as well as co-ordinate activities around SSB policy.

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