

NZBGP

New Zealand Beverage
Guidance Panel

POLICY BRIEF:

A Sugary Drink TAX for New Zealand



POLICY BRIEF: A Sugary Drink Tax for New Zealand

New Zealand Beverage Guidance Panel

PURPOSE - The purpose of this document is to highlight the urgency for placing a tax on sugary drinks (SDs) in New Zealand. This brief will outline the effects and cost to New Zealand health care from high SD intake, along with the projected benefits from a SD tax. It will also: make recommendations for key stakeholders to work collaboratively together to reduce SD intake; show how nationwide and worldwide support for a SD tax has grown; and suggest where the revenue generated from the tax could be used to help address the burden of childhood obesity and dental decay in New Zealand. These goals align to the vision articulated by the advocacy group 'FIZZ' to achieve a sugary drink free New Zealand by 2025.

BACKGROUND - The NZ Beverage Guidance Panel (NZBGP) was modelled on the US Beverage Guidance Panel (USBGP).

The USBGP was established by Barry Popkin, Professor of Nutrition, in 2006.¹ The intention of the panel was to develop guidance to government and community groups to limit the intake of sugary drinks (SDs), which had broad societal support from relevant interest groups. Since then, similar groups have formed in China, Mexico, Spain, the United Kingdom, and New Zealand.

This document is the second policy brief prepared by the NZBGP. The first, titled Policy Brief: Options to reduce sugar sweetened beverage consumption in New Zealand, was presented to parliamentary representatives on 19 June 2014.²

“The Beverage Guidance Panel was assembled to provide guidance on the rationale and structure of a sugar sweetened beverage tax.”

Rationale for a Tax on Sugary Drinks

DEFINITION of a sugary drink: Any beverage that contains free sugars or other caloric sweetener. “Free sugars refer to monosaccharides (such as glucose or fructose) and disaccharides (such as sucrose or table sugar) added to foods and drinks by the manufacturer, cook, or consumer, and sugars naturally present in honey, syrups, fruit juices, and fruit juice concentrates.”³ The main categories of sugary drinks include fizzy-drinks (carbonated), soft-drinks (including sachet mixes), fruit juices, cordials, flavoured milks, and energy/sports drinks.

1.1 Why Target Sugary Drinks?

SDs are very popular in New Zealand, as they are in many countries around the world. In New Zealand, SDs are a leading source of sugar in the diet of youth and the second leading contributor for adults.^{4,5} Excess sugar intake increases the risk of developing unhealthy weight gain, type-2 diabetes, gout, non- alcoholic steatohepatitis and tooth decay.⁶⁻¹⁰ A reduction in SD intake will reduce the likelihood of developing these conditions. Policy and regulatory controls on SDs are likely to be the most effective strategy to reduce intake.¹¹⁻¹³ Such policies are also likely to be the most cost-effective.¹³

Studies have shown that energy consumed in beverages is not well compensated for by a reduction in food intake, meaning they increase net energy intake.¹⁴ A growing body of evidence shows that sugar and SDs have addictive characteristics among high intake consumers. Sugar has addictive-like properties and people coming off high sugar diets describe experiencing feelings of withdrawal similar to those experienced when coming off other addictive substances.¹⁵⁻¹⁸

Sugary drinks are easily identifiable, highly concentrated in sugar and the leading single product item contributing sugar to the diets of children and adults. These reasons provide a strong rationale for action to address them specifically.

1.2 Evidence of Health Effects of Sugary Drink Consumption

Since 2006, there have been at many systematic reviews of observational studies that have assessed the relationship between SD consumption, body mass index (BMI), unhealthy weight and related health consequences. The majority of these found a positive relationship between SD intake and unhealthy weight.¹⁹⁻²⁴ These reviews demonstrate a significant relationship between SD consumption,

raised BMI, the occurrence of ‘unhealthy weight gain’ and its related health consequences. Two randomised control trials conducted by de Ruyter and Ebbeling found that masked substitution of SDs with sugar free equivalents compared to usual intake, resulted in significantly less weight gain and fat accumulation in the sugar free group.^{11,12}

Intake of SDs increases the likelihood of developing type 2 diabetes mellitus and is a risk factor for cardiovascular disease, gout and dental caries.^{6-10, 19-30} There is also increasing evidence demonstrating a likely link between high SD intake, cancer and impaired cognitive development.^{31, 32} We see a high sugar diet as a form of malnutrition in which dental caries, unhealthy weight gain and type 2 diabetes are predictable results.

1.3 New Zealand’s Sugary Drink Consumption

New Zealand’s intake of SDs remains high. The most recent national nutrition surveys show that SDs contribute 26 percent of sugar to the diets of New Zealand children and 17 percent of sugar to the diets of New Zealand adults.^{4,5} Further, 29 percent of children consumed four or more SDs per week. This was markedly higher for boys (33 percent as opposed to 24 percent for girls), Pasifika (49 percent) and Māori (39 percent).²⁹ Oral health is directly impacted by high sugar and SD intake and oral health is the leading cause of avoidable hospitalisations in pre-school children.

Scragg et al, using the 2002 National Children’s Nutrition Survey, found a positive relationship between SD consumption and BMI in children.³⁰ Children who drank more than one SD per day had a significantly higher BMI compared to children who drank less than one SD per week (BMI: 19.7 verses 18.8 kg/m²).²⁹ Findings from the Obesity Prevention in Communities study showed that children who consumed more than one SD per day had a mean BMI of approximately 26.3 kg/m² compared to 25.3 kg/m² for non-regular SD drinkers.³

1.4 How will Sugary Drink Tax address childhood obesity and dental caries?

A tax on sugary drinks is a simple action that as part of a comprehensive suite of initiatives is likely to reduce the burden of dental caries, unhealthy weight gain, and type 2 diabetes. A sugary drinks tax is a straightforward action that would demonstrate that the government is serious in its efforts to address childhood obesity. It will also raise the public’s awareness of the harms sugar and sugary drinks pose to health.

Currently, sugary drinks are abundantly available to the public, including school children. Further, the majority of beverages offered for sale to the public are sugary. Bottled water and zero sugar alternatives are often difficult to find and frequently unavailable. The introduction of a tax of sugary drinks is likely to have a number of benefits including:

- increased cost of sugary drinks
- bottled water and zero sugar alternatives becoming cheaper by comparison
- incentivising industry to reformulate their products reducing sugar content to avoid the tax
- Increased likelihood that new products from the industry will have a lower sugar concentration
- increase availability of water and zero sugar beverages
- enhanced public awareness of why sugary drinks are detrimental to health.

1.5 Where have sugary drink taxes been implemented and what has been their effect on sales?

- ▶ **Mexico** – In 2014 Mexico adopted a 10 percent SD tax that saw a 12 percent reduction in SD sales and a 4 percent increase in sales of bottled water.³³
- ▶ **Berkley, USA** – In November 2014 Berkeley, California was the first US jurisdiction to pass a sizeable SD tax (\$0.01c/oz) designed to reduce intake rather than gather revenue. This saw a 9.6 percent drop in SD sales and a 15.6 percent increase in sales of bottled water. Surrounding areas that did not receive the tax showed a 6.9 percent rise in sales of SDs for the same period indicating a 16.5 percent relative difference.³⁴
- ▶ **Philadelphia, USA** – On 1 January 2017 Philadelphia brought in a \$0.015/oz SD tax. In some instances this more than doubled pre-tax prices (i.e. a gallon of sweetened tea that cost \$1.77 increased to \$3.69 because of an added \$1.92 in tax). A 27 percent decline in sales followed the introduction of the tax on sugar sweetened beverages.³⁵
- ▶ **Seattle, USA** – In July 2017 the Seattle government passed legislation for a SD tax of \$0.0175c/oz. This excludes artificially sweetened beverages and small companies are exempt, whilst medium sized companies pay a

reduced tax rate of \$0.01c/oz.³⁶

- ▶ **United Kingdom** – In April 2018 the UK will introduce a 20 percent tax on SDs. Revenue has been tagged to double the funding for sports programmes in primary schools and is estimated at £520 million per year.³⁷
- ▶ **Pacific Island Countries and Territories (PICTs)** – Thirteen of the 21 Pacific Island Countries and Territories that come under the auspices of the Secretariat of the Pacific Community have some form of SD tax. Those of significance to impact behaviour include:³⁸
 - Marshall Islands 16-23 cents
 - Cook Islands 24-32 cents
 - Tonga 16-23 cents
 - Tokelau*
 - Vanuatu 16-23 cents

*Tokelau has banned sale of carbonated drinks

1.6 Who has recommended taxing sugary drinks to address obesity and dental health?

In 2016, the World Health Organization published a report by the Commission on Ending Childhood Obesity.³⁹ In this report, the second recommendation was to: ‘Implement an effective tax on sugary drinks.’ Other leading health groups and organisations in New Zealand have also called for a tax to address childhood obesity and dental caries. They include:

- New Zealand Medical Association⁴⁰
- New Zealand Dental Association⁴¹
- 74 Health Professors in a joint letter to the New Zealand Minister of Health⁴²
- Public Health Association of New Zealand²
- New Zealand Heart Foundation⁴³
- Toi Tangata²
- Hāpai te Hauora: Māori Public Health.²

See also: World Health Organisation Reports.^{44,45}

1.7 Increasing public support

Poll results in **SUPPORT** for and in **OPPOSITION** to a SD tax with revenue going to prevention of childhood obesity from February 2014 are highlighted below.

	SUPPORT	OPPOSITION
Feb 2014 (Horizon Research Poll)	44%	49%
June 2015 (Horizon Research Poll)	52%	32%
March 2016 (not representative) (New Zealand Herald Poll)	83%	17%
April 2016 (Colmar Brunton Poll)	66%	29%
July 2017 (UMR Poll)	67%	26%

This table shows that since February 2014 a strong increase in public support for a SD tax has occurred in New Zealand. The most recent poll shows the majority of New Zealanders support such a tax.⁴⁶

Of similar significance is the level at which opposition to a SD tax has fallen away. Initially, nearly half (49 percent) of those polled opposed a tax, (which clearly exceeded support). In July 2017, opposition dropped significantly. Over this three-year period, opposition halved, reducing from 49 percent to 26 percent.⁴⁶ Clearly these trends show that the New Zealand public strongly support a sugary drink tax and opposition to the tax is at low levels.

Summary

A tax on SDs is reasonable and necessary and will contribute to reducing the burden of obesity, type-2 diabetes, tooth decay and a number of other diseases. A tax on SDs will create an environment where healthier drink options are more attractive (in terms of cost) and more freely available to consumers. Taxing SDs is a cornerstone policy in many countries around the world which are serious about the prevention of childhood obesity. In New Zealand, public support for a SD tax is strong, with most people supporting a tax on SDs to address childhood obesity.

Structure of a Sugary Drink Tax

With permission, many of the recommendations made in this section have been strongly informed by a paper authored by Professor Michael Littlewood in the *New Zealand Law Journal*.^{47,48}

2.1 Who should pay?

We suggest the tax be targeted specifically at SD manufacturers and importers. This would be the simplest model to administer. It would be possible to design a tax to be paid by wholesalers and retailers, but there are far more of them so this would require far greater resources to design and administer.

There are already tax structures in place that target manufacturers and importers, which makes this option attractive to the government. Such a tax would be cheap to administer and the cost of compliance would also be very low. Any tax imposed on manufacturers and importers is likely to then be passed on to wholesalers and retailers, and finally to consumers.

Our recommendation:

- Manufacturers and importers should pay the tax.

2.2 What should be taxed?

Definition A – *the tax be imposed on any manufactured beverage with free sugars.* Free sugars refer to monosaccharides (such as glucose or fructose) and disaccharides (such as sucrose or table sugar) added to foods and drinks by the manufacturer, cook, or consumer, and sugars naturally present in honey, syrups, fruit juices, and fruit juice concentrates.

Definition B – *the tax be imposed on any packaged beverage product that has a free sugar content that exceeds 5g/100ml.* These include carbonated beverages, cordials, 100 percent fruit juices, fruit drinks, energy drinks, sports drinks, iced coffees, ice teas and flavoured milks. Because New Zealanders consume a high amount of fruit drinks and juices, moving from sugary soft-drinks to sugary fruit drinks and 100 percent fruit juices may negate any possible health benefits that underpin the reason for a tax. This is because fruit-drinks and 100 percent fruit juices have similar, and in some instances higher, sugar content than typical soft-drinks. Opposition to the inclusion of 100 percent fruit juices and flavoured milks in the tax is likely as these products provide some vitamins and minerals that are beneficial for health and we therefore offer a less encompassing

suggestion as an alternative.

Definition C – *A tax be imposed on any packaged beverage product that has a sugar content that exceeds 5g/100ml in free sugars.* These include carbonated beverages, cordials, fruit drinks, energy drinks, sports drinks, iced coffees, ice teas and flavoured milks. However, 100 percent fruit juice products would be exempt.

2.3 What should the rate of tax be?

Rather than an ‘ad valorem’ tax which literally means ‘according to the value’ and is usually expressed as percentage, we recommend a nominated ‘per unit’ tax – for example, one dollar per litre.

US cities Berkley, Philadelphia and Seattle have recently implemented or are planning to adopt per unit taxes of US\$0.01/oz, US\$0.015/oz and US\$0.0175/oz respectively. This type of tax is more likely to have the desired effect (an increased price to prompt behaviour change) regardless of whether a sugary drink is a well-known brand (and generally more expensive) or a cheaper generic version. Another advantage a ‘per unit tax’ has over an ‘ad valorem tax’ is that it would be cheaper and easier to administer.

We offer **THREE** tax rate options including:

Option 1 – *A tiered tax rate of NZ\$0.32/L for beverages with 5-8g sugar/100ml and NZ\$0.42/L for beverages with >8g sugar/100ml.* This is modelled on what the UK will implement in 2018 and has the advantage of incentivising greater product reformulation to below a threshold.⁴⁹

Option 2 – *NZ 0.50/L unit tax be set as the rate for a SD tax.* This amount would be enough to discourage consumption without being too prohibitive. With this tax in place, a standard 355ml can of soft-drink would increase in price by 18 cents. Further, a 1.5L soft-drink would be subject to an additional 75c tax. A budget brand 1.5L soft-drink that sells to \$1 and would therefore be subject to a 75 percent price increase, moving its price from \$1 to \$1.75. The rate proposed here of NZ 50c per litre would be lower than rates used in the US.

Option 3 – *NZ \$1.0/L unit tax be set as the rate for a SD tax.* This amount would be enough to discourage consumption without being wholly prohibitive. With

this tax in place a standard 355ml can of soft-drink would increase in price by 35cents. Further, a 1.5L soft-drink would be subject to an additional \$1.50c tax.

A budget brand 1.5L soft-drink that sells to \$1 would therefore be subject to a 150 percent price increase, moving its price from \$1 to \$2.50. In comparison to rates used in the US the rate proposed here of NZ \$1 per Litre is equal to that used in Philadelphia of 1.5c /oz.

Summary

Recommendations for a tax on Sugar Sweetened Beverages

- The tax be targeted to manufacturers and importers
- All beverages with sugar content exceeding 5g/100ml be subject to tiered tax
(Definition B - 100% juices and flavored milk included)
- The tax be a 'per unit tax' rather than an 'ad valorem tax'
- The tax rate be ideally set at \$1 per litre or \$0.5 per litre, or if the tiered system is preferred \$0.32 per litre for beverages 5-8g sugar/100ml and \$0.42 per litre for beverages >8g sugar/100ml.

Revenue

How much revenue could be generated from a sugary drink tax?

Estimates of revenue have been projected using consumption volumes (2017 data) and price per litre (2016 data) of relevant drink categories in the New Zealand market from Euromonitor⁵⁰ and the proportion of each drink category eligible for tax by using published data on sweetened and unsweetened beverage availability and sugar content in New Zealand – and have taken into account price elasticities. These estimates are approximate, and equally plausible assumptions could result in varying estimates.

Beverage categories included in these estimates have been kept as close as possible to those described in Definitions B and C and include carbonated drinks, juices, sports and energy drinks, bottled waters, and ready-to-drink (iced) teas and coffees. Flavoured milks are not included because of the lack of readily available consumption data for this category.

If the rate presented in **Option 2** of **NZ 50 c/L** is used, we estimate that the total tax revenue gathered on all sugary drinks with greater than 5g of sugar per 100ml (Definition B) in a single year would be approximately **\$100 million**. If 100 percent fruit juices were excluded (as in Definition C) tax revenue is estimated to be **\$65 million**.

Use of Sugary Drink Tax Revenue

SD tax revenue could be earmarked in the following ways:

- ▶ Provision of better infrastructure to support availability of water such as water fountains located where children/adults work, learn, live and play
- ▶ Initiatives to work with schools in challenged areas to enhance better nutrition at school
- ▶ Promotion of more sports in schools while displacing beverage and food industry sponsorship agreements in youth sporting ventures (in both school and club settings)
- ▶ A social marketing campaign be funded promoting Wai Ariki and wai Māori (drinking water) as not only a healthier option but also the more appealing

‘cool’ drink of choice

- ▶ Funding be used to roll-out Healthy Families New Zealand initiatives in other high needs communities

Revenue should be targeted or prioritised to need and be delivered by and for communities using their own culturally relevant approaches and methodologies. Community engagement should be conducted in a culturally relevant manner - for example with Māori communities within a kaupapa Māori framework and acknowledging and respecting the mana, tapu and mauri of wai Māori. Funds should be used to support Sustainable Development Goals (SDGs) as identified by the United Nations.⁵¹

Other Considerations of a Sugary Drink Tax

3.1 Regressive considerations

Those opposing a SD tax say it will disproportionately impact on poorer communities. However, the health complications of high sugary drink intake are significantly more regressive as these diseases disproportionately impact on poorer communities. A tax that will address part of this imbalance is therefore a progressive measure. Furthermore, revenue from a SD tax could create new programmes to promote child health and wellbeing in challenged communities. SDs are not a necessary in a healthy balanced diet and deliver empty calories with little or no nutrition. There are many other options here in New Zealand, including readily available high quality tap-water as a no-cost alternative. For these reasons a SD tax is pro-equity measure as it would reduce health inequities. A similar rationale has been used in the introduction of significant taxes on tobacco. A UMR poll from July 2017 found that New Zealanders on the lowest income bracket were most supportive of a SD tax which refutes the notion that such a tax is regressive.⁴⁸

3.2 Employment considerations

Industry and other opposition to a SD tax make the assertion that any type of SD tax will cause people to lose their jobs. However, as there are many industry owned alternatives that comprise an increasing proportion of any beverage manufacturer’s portfolio, this is unlikely to be significant. A tax will incentivise the beverage industry to develop more zero sugar drinks and reformulate

their current products – reducing their sugar content to avoid any added tax. Considering the cost high sugar diets have to our health system, this argument is flawed. Obesity and nutrition related disease cost our health system in excess of \$1 billion per year. High sugar intake and sugary drink intake is a significant contributor to these issues and will impact negatively on workers' health and productivity.⁵²

3.3 The law

Currently our Customs and Excise Act 1996 provides guidance for taxes on liquor, tobacco and fuels. A SD tax could easily be incorporated into this Act. This would mean the tax would be an excise duty (a tax on the sale of specified classes of goods manufactured within a jurisdiction) and also called an “excise equivalent duty” (in effect, the same as an excise duty on imports).

3.4 Administration

The taxes provided for by the Customs and Excise Act (that is, the taxes on liquor, tobacco and fuels) are administered by the Customs Service – which could easily also administer a SD tax. A SD tax would be very similar to the taxes on liquor, tobacco and petrol, and would not present any administration difficulties.

3.5 Exemption

For very small scale manufacturers and importers it would be reasonable to provide an exemption from such a tax – for example, a manufacturer of small quantities of fruit drinks to be sold at a festival of sorts. It would be appropriate to exempt such producers from the tax because to require them to pay would be unreasonably expensive considering likely costs of administration and compliance. We suggest the threshold be the same as that for GST, \$60,000 per annum. This would mean a producer whose business is less than the GST threshold per annum would not need to pay any SD tax.

3.6 Sugary drinks tax and GST

Already SD products are subject to GST so adding a new tax would mean they are then taxed twice. While double taxation is seen as objectionable because it

alters the behaviour of both producers and consumers, it should be remembered that this change in behaviour is its very purpose. The same situation occurs with taxes on liquor, tobacco and petrol that result in double taxation.

Summary

The proposition that a SD tax be adopted is not new and is becoming standard practice in many parts of the world. The health benefits of reducing sugar intake provide compelling reasons for why a SD tax is necessary. In this document a number of suggestions have been made on the structure, rate and administration of how such a tax may be achieved relatively easily in New Zealand.

The New Zealand Beverage Guidance Panel (NZBGP)

Panel Members:

Dr Gerhard Sundborn	Professor Michael Littlewood
Dr Simon Thornley	Dr Rob Beaglehole
Megan Tunks	Professor Boyd Swinburn
Professor Cliona Ni Mhurchu	Dr Lisa Te Morenga
Professor Elaine Rush	Dr Corina Grey
Margie Fepuleai	Warren Lindberg
Dr Robyn Toomath	Dr Colin Tukuitonga
Jo Fitzpatrick	Professor Jim Mann
Mafi Funaki-Tahifote	Dain Guttenbeil

Public consultation

Public consultation was undertaken in the development of this document. The consultation lasted for 4 weeks and submissions were received on the draft policy brief approved by the NZBGP for circulation.

Submissions were called for via email communication to those previously registered at FIZZ symposiums, University email networks, beverage industry contacts, health websites/networks and finally using the extensive networks of NZBGP members.

A total of 14 submissions were received from various stakeholders. Of these submissions 6 were from individuals and 8 were from health related organisations. With one exception all submissions were highly supportive of the document. Most voiced a preference for the higher tax rate of \$1/L, and use of the stronger definition of a sugary drink including 100% fruit juice and flavoured milks (definition B).

A number of strong themes emerged regarding how revenue should be spent, with a strengths-based initiative on the promotion of water a priority. The better provision of quality drinking water in settings was also highlighted by many as a priority. Many expressed preferences that revenue is targeted or prioritised to need and be delivered by and for communities using their own culturally relevant approaches and methodologies.

References

1. Popkin BM, Armstrong LE, Bray GM, Caballero B, Frei B, and Willett WC. A new proposed guidance system for beverage consumption in the United States. *Am J Clin Nutr* 2006; 83:529–42.
2. NZ Beverage Guidance Panel. (2014) Policy Brief: options to reduce sugar sweetened beverage consumption in New Zealand. *Pac Health Dialog*.
3. World Health Organization. WHO urges global action to curtail consumption and health impacts of sugary drinks (news release) Website: <http://www.who.int/mediacentre/news/releases/2016/curtail-sugary-drinks/en/> Accessed 12 Mar 2017.
4. Ministry of Health. 2003. NZ Food NZ Children: Key results of the 2002 National Children's Nutrition Survey. Wellington: Ministry of Health.
5. University of Otago and Ministry of Health. 2011. A Focus on Nutrition: Key findings of the 2008/09 New Zealand Adult Nutrition Survey. Wellington: Ministry of Health.
6. Malik VZ, Popkin BM, Bray GA, Despres J-P, Willett WC, Hu FB. Sugar sweetened beverages and risk of metabolic syndrome and type 2 diabetes. *Diabetes Care* 2010; 33: 2477–83.
7. Choi HK, Curhan G. Soft drinks, fructose consumption, and the risk of gout in men: prospective cohort study. *BMJ* 2008; 336: 309–12.
8. Malik VS, Schulze MB, Hu FB. (2006) Intake of sugar-sweetened beverages and weight gain: a systematic review. *Am J Clin Nutr*, 84: 274 – 88.
9. Mishra MB, Mishra S. Sugar-Sweetened Beverages: General and Oral Health Hazards in Children and Adolescents. *International Journal of Clinical Pediatric Dentistry*. 2011; 4(2):119-123.
10. Ouyang X, Cirillo P, Sautin Y, McCall S, Bruchette JL, Diehl AM, Johnson RJ, Abdelmalek MF. Fructose consumption as a risk factor for non-alcoholic fatty liver disease. *Journal of Hepatology* 48 (2008) 993–999.
11. de Ruyter JC, Olthof MR, Seidell JC, & Katan MB (2012). A Trial of Sugar-free or Sugar-Sweetened Beverages and Body Weight in Children. *The New England journal of medicine* PMID: 22998340
12. Ebbeling CB, Feldman HA, Chomitz VR, Antonelli TA, Gortmaker SL, Osganian SK, & Ludwig DS (2012). A Randomized Trial of Sugar-Sweetened Beverages and Adolescent Body Weight. *The New England journal of medicine* PMID: 22998339
13. Gortmaker SL, Swinburn BA, Levy D, Carter R, Mabry PL, Finegood DT, Huang T, Marsh T, Moodie ML. Changing the future of obesity: science, policy, and action. 2011. *The Lancet*, Volume 378, Issue 9793, Pages 838 – 847.
14. Mourao DM, Bressan J, Campbell WW, Mattes RD. (2007) Effects of food form on appetite and energy intake in lean and obese young adults. *Int J Obes (Lond)*. 2007; 31: 1688-95.
15. Avena NM, Rada P, Hoebel BG. (2009) Sugar and Fat Bingeing Have Notable Differences in Addictive-like Behavior. *J Nutr* 2009; 139(3):623-628.
16. Rada P, Avena NM, Hoebel BG. (2005) Daily bingeing on sugar repeatedly releases dopamine in the accumbens shell. *Neuroscience* 2005;134(3):737-744.
17. Thornley S, McRobbie H. (2009) Carbohydrate withdrawal: is recognition the first step to recovery? *N Z Med J* 2009; 122(1290):133-134.

18. McRobbie H, Hajek P. (2004) Effect of glucose on tobacco withdrawal symptoms in recent quitters using bupropion or nicotine replacement. *Human Psychopharmacology* 2004; 19(1):57-61.
19. Te Morenga L, Mallard S, Mann J. Dietary sugars and body weight: systematic review and meta-analyses of randomised controlled trials and cohort studies. *BMJ* 2013;346:e7492
20. Woodward-Lopez G, Kao J, Ritchie L. (2010) To what extent have sweetened beverages contributed to the obesity epidemic? *Public Health Nutr*, 1-11.
21. Malik VS, Schulze MB, Hu FB. (2006) Intake of sugar-sweetened beverages and weight gain: a systematic review. *Am J Clin Nutr*, 84: 274 – 88.
22. Vartanian LR, Schwartz MB, Brownell KD. (2007) Effects of Soft Drink Consumption on Nutrition and Health: A Systematic Review and Meta-Analysis. *Am J Public Hlth*, 97/4: 667 – 675.
23. Gibson S. (2008) Sugar-sweetened soft drinks and obesity: a systematic review of the evidence from observational studies and interventions. *Nutrition Research Reviews*, 21, 134 – 147.
24. Forshee RA, Anderson PA, Storey ML. (2008) Sugar-sweetened beverages and body mass index in children and adolescents: a meta-analysis. *Am J Clin Nutr*, 87: 1662 – 71.
25. Malik VS, Popkin BM, Bray GA, Després J, Hu FB. Sugar-Sweetened Beverages, Obesity, Type 2 Diabetes Mellitus, and Cardiovascular Disease Risk. *Circulation*. 2010;121:1356-1364.
26. de Koning L, Malik VS, Kellogg MD, Rimm EB, Willett WC, Hu FB. (2012) Sweetened Beverage Consumption, Incident Coronary Heart Disease and Biomarkers of Risk in Men. *Circulation*. published online March 12, 2012 <http://circ.ahajournals.org/content/early/2012/03/09/CIRCULATIONAHA.111.067017>
27. Merriman TR, Dalbeth N, Stamp LK, Merriman ME, Topless R, Gow PJ, et al. (2011) Association Between Sugar-Sweetened Beverage Consumption and Gout in the New Zealand Population. *Arthritis Rheum* 2011;63 Suppl 10:1622 DOI:
28. Sundborn G, Utter J, Tasileta T, Metcalf P, Jackson R. 2013. Fizzy-drink (carbonated beverages or soda) consumption among New Zealand youth and associations with BMI and waist circumference. (In Press)
29. Scragg R, Wilson N, Schaaf D, et al. (2004) Risk factors for obesity in New Zealand children aged 5 – 14 years: results from the 2002 national Children’s Nutrition Survey. *Australasian Epidemiologist*, 11: 23 – 24.
30. Utter J, Scragg R, Ni Mhurchu C, Schaaf D. (2007) What effect do attempts to lose weight have on the observed relationship between nutrition behaviours and body mass index among adolescents? *International Journal of Behavioral Nutrition and Physical Activity*. 4:40.
31. Schernhammer ES, Hu FB, Giovannucci E, Michaud DS, Colditz GA, Stampfer MJ, Fuchs CS. Sugar-sweetened soft drink consumption and risk of pancreatic cancer in two prospective cohorts. *Cancer Epidemiol Biomarkers Prev*. 2005 Sep; 14(9):2098-105.
32. Nyaradi A, Li J, Hickling S, Whitehouse AJ, Foster JK, Oddy WH. Diet in the early years of life influences cognitive outcomes at ten years: a prospective cohort study. 2013. *Acta Paediatr*. doi: 10.1111/apa.12363.
33. Colchero MA, Molina M, Guerrero-López CM. (2017) After Mexico Implemented a Tax, Purchases of Sugar-Sweetened Beverages Decreased and of Water Increased: Difference by Place of Residence, Household Composition, and Income Level. *JNutr*. 2017 Jun 14. pii: jn251892. doi: 10.3945/jn.117.251892.
34. The Guardian Website reference. Accessed June 2017. <https://www.theguardian.com/society/2017/apr/18/first-us-sugar-tax-sees-soft->

drink-sales-fall-by-almost-10-study-shows

35. City of Philadelphia. <https://beta.phila.gov/services/payments-assistance-taxes/business-taxes/philadelphia-beverage-tax/>

36. The Seattle Times. (2017) Seattle will tax sugary soda — but not diet. <http://www.seattletimes.com/seattle-news/politics/seattle-city-council-says-yes-to-soda-tax/>

37. The Telegraph. Sugar tax to pay for treating obesity. <http://www.telegraph.co.uk/news/health/news/11622500/Sugar-tax-to-pay-for-treating-obesity.html>

38. McDonald A. (2015) What the Pacific & Mexico can tell us about soft drink taxes and public health. Public Health Expert Blog. University of Otago. <https://blogs.otago.ac.nz/pubhealthexpert/2015/08/18/what-the-pacific-mexico-can-tell-us-about-soft-drink-taxes-and-public-health/>

39. World Health Organization. (2016) Report of the commission on ending childhood obesity. http://apps.who.int/iris/bitstream/10665/204176/1/9789241510066_eng.pdf?ua=1

40. New Zealand Medical Association. . Position Statement: Taxes on sugar-sweetened beverages December, 2016. <http://www.nzma.org.nz/data/assets/pdf/0005/52547/Taxes-on-Sugar-Sweetened-BeveragesDecember-2016.pdf>

41. New Zealand Dental Association. <http://www.healthysmiles.org.nz/assets/pdf/Consensus%20Statement%20on%20Sugary%20Drinks.pdf>

42. University of Auckland. (2016) An open letter to Cabinet Ministers from 74 health professors calling for a sugary drinks tax. [online]. Available: <http://www.fmhs.auckland.ac.nz/assets/fmhs/faculty/ABOUT/newsandevents/docs/SSBtaxopenletter>

43. Heart Foundation. Tax to reduce intake of sugar sweetened beverages: Position statement. March, 2016. [http://assets.heartfoundation.org.](http://assets.heartfoundation.org.nz/shop/submissions/sugary-drink-tax-position-statement)

[nz/shop/submissions/sugary-drink-tax-position-statement](http://assets.heartfoundation.org.nz/shop/submissions/sugary-drink-tax-position-statement)

44. World Health Organization. (2016) Taxes on sugary drinks: Why do it? <http://apps.who.int/iris/bitstream/10665/250303/1/WHO-NMH-PND-16.5-eng.pdf>

45. World Health Organization. (2016) Fiscal Policies for Diet and Prevention of Noncommunicable Disease. <http://apps.who.int/iris/bitstream/10665/250131/1/9789241511247-eng.pdf>

46. New Zealand Herald. 1st August 2017. Sugar tax on fizzy drinks: Majority want it. http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11897296

47. Littlewood, M. Taxing sugary drinks. New Zealand Law Journal 2016(11):422-424 2016

48. Littlewood, M. Taxing Sugary Drinks (November 24, 2016). Available at SSRN: <https://ssrn.com/abstract=2875486>

49. Arthur R. UK sugar tax confirmed in Budget 2017. 8th March 2017. <http://www.beveragedaily.com/Regulation-Safety/UK-sugar-tax-confirmed-in-Budget-2017>

50. Blakely T, Ni Mhurchu C. June 2017. Personal communication.

51. New Zealand Foreign Affairs and Trade. Sustainable Development Goals. <https://www.mfat.govt.nz/en/peace-rights-and-security/work-with-the-un-and-other-partners/new-zealand-and-the-sustainable-development-goals-sdgs/>

52. Powell, L. M., Wada, R., Persky, J. J., & Chaloupka, F. J. (2014). Employment impact of sugarsweetened beverage taxes. American Journal of Public Health, 104(4), 672-677. DOI: 10.2105/AJPH.2013.301630

