



# Sugar and Health Policy



“We are eating too much sugar and it is bad for our health” is the opening statement of Public Health England’s latest report on sugar.<sup>1</sup> Consuming sugar increases the risk of tooth decay. There is an association between sugar-sweetened drinks and type 2 diabetes and evidence that these drinks lead to weight gain in children and adolescents.<sup>2</sup> This POSTnote considers policy options that might best enable people to limit their sugar consumption.

## Background

There is extensive research on the relationship between sugar consumption and health. The key findings are highlighted in Box 1 and discussed in detail in [POSTnote 493, Sugar and Health](#) (2015).<sup>3</sup> The Committee that advises the Government on nutrition and health recommends that the maximum daily intake of free sugars for those aged over 11 (Box 1) should not exceed 5% of total dietary energy (30 g or seven sugar cubes).<sup>4</sup> A recent World Health Organisation recommendation is that free sugars intake should not exceed 10% of daily energy intake, with further benefits likely if it is limited to 5% or less.<sup>5</sup> Analysis by Public Health England (PHE) indicates that if the 5% consumption level was realised, as well as improving public health, it would save the NHS around £500m every year.<sup>6</sup> The Government is developing a Childhood Obesity Strategy, which is likely to outline interventions to reduce sugar consumption. The Chancellor announced a levy on sugar-sweetened drinks in the March 2016 budget.<sup>7</sup>

Data from Defra show that sugar consumption per head in the UK has declined since 2009.<sup>8</sup> However, all age groups still consume sugar in excess of the recommended limit, ranging from 12-15% of daily energy intake.<sup>1</sup> UK and US data show that those from lower socioeconomic groups are most likely to consume a high-sugar diet.<sup>9,10</sup>

## Overview

- Scientific advice is that sugar consumption should be limited to under 5% of total dietary energy (seven cubes a day). On average, all age groups consume over double this.
- Public Health England recommends curbs on advertising and price promotions for high sugar foods, and reducing portion sizes and the sugar content of food and drinks.
- The Committee for Advertising Practice is consulting on the governance of online advertising of foods high in sugar.
- Researchers argue that agricultural policies that influence the commodity price of sugar, and therefore consumption, are overlooked in public health policy.
- A new levy on sugar-sweetened drinks will come into effect in April 2018.

## Public Health Sugar Reduction Policies

Policies to improve public health through diet generally consider all nutrients and dietary patterns, as well as physical activity, to encourage a healthy and active lifestyle. However, there is debate about whether sugar has particular negative health effects independent of its calorific value.<sup>11,12,13</sup> Recent public health efforts have been focused on interventions that target sugar consumption. The WHO published sugar guidelines in 2015 and has several ongoing projects to disseminate its findings and to examine the impact of policies such as fiscal measures, production quotas and food labelling.<sup>14,15,16</sup> In the UK, PHE has introduced initiatives like the Change4Life campaign ‘Sugar Swaps’, which encourages families to swap sugary foods for healthier alternatives.<sup>17</sup> Data are being collected on whether the observed reductions in sugar consumption are sustained over the longer term.<sup>17</sup> The PHE mobile phone app, ‘Sugar Smart’, scans product barcodes and tells users how much sugar a food or drink contains.<sup>18</sup>

A 2015 review of the evidence by PHE summarised eight actions that are most likely to reduce population-level sugar consumption: clearly defining what constitutes a high sugar food; restricting marketing and advertising and price promotions for high sugar foods; taxing sugar-sweetened drinks and high-sugar foods; reducing sugar content and

**Box 1. Key Evidence on Sugar and Health**

**Free sugars** is the term used by the Scientific Advisory Committee on Nutrition (SACN) and the WHO to describe all sugars added to foods by the manufacturer, and those naturally present in fruit juices, fruit concentrates, syrups and honey. It does not include sugar naturally present in whole fruit and vegetables.<sup>19</sup> SACN recently reviewed the evidence on sugar and health as part of a wider review on carbohydrates. The main findings focused on:

- **Tooth decay** – consuming sugar is detrimental to oral health.<sup>20</sup>
- **Weight gain and obesity** – increases in dietary intake of sugar lead to increases in energy intake. When energy intake exceeds requirements, it causes weight gain over time.<sup>21</sup> Greater consumption of sugar-sweetened drinks results in weight gain and increased Body Mass Index (BMI) in children and adolescents.<sup>22</sup>
- **Type 2 diabetes** – there is a significant association between sugar-sweetened drinks and type 2 diabetes.<sup>23,24</sup>

portion size; implementing government buying standards across the public sector to provide healthier foods; improving professional diet and health training; and continuing to raise awareness and provide practical steps to help people reduce their sugar intake.<sup>25</sup> The previous Government pursued some of these approaches through the Public Health Responsibility Deal. The current Government's approach will be set out in the forthcoming Childhood Obesity Strategy, expected in June 2016.

**The Public Health Responsibility Deal**

The Public Health Responsibility Deal (RD) was established as a voluntary partnership between government, business, the public sector and NGOs. It was characterised by public health bodies and campaign groups as ineffective.<sup>26</sup>

Diabetes UK and the British Heart Foundation deemed it unambitious and refused to participate.<sup>27</sup> A voluntary collaborative approach can be effective, as seen in the Food Standards Agency's (FSA) salt reduction programme, credited for a 15% decrease in average salt intake.<sup>28</sup>

Targets for salt reduction by food producers were closely monitored and enforced.<sup>29</sup> The last Government moved responsibility for nutrition from the independent FSA to the Department of Health, and there have since been calls for nutrition to be handed back to an independent agency.<sup>29</sup>

Some argue that where enforcement is not applied or is shown not to work, regulation or legislation is required.<sup>29</sup> Researchers have highlighted some similarities in the approaches used by the food industry and the tobacco industry to delay regulation.<sup>30,31</sup>

The Food Network is the component of the RD that focuses on diet. It includes the 'calorie reduction pledge',<sup>32</sup> which aimed to reduce calorie consumption through product reformulation, reduced portion sizes, education and information, and promoting lower calorie options.<sup>32</sup> Unlike pledges to reduce salt and saturated fat in foods, there are no explicit pledges for reducing sugar, and not all sectors of the food and drink industry engaged with the calorie reduction pledge.<sup>33</sup> The Department of Health (DH) funded an independent evaluation of the RD (see Box 2).<sup>34</sup>

**Box 2. Evaluating the Responsibility Deal (RD)**

The DH-funded evaluation of the Food Network examined the potential impact of pledges, made comparisons with data on similar approaches elsewhere and interviewed businesses.<sup>35,36</sup> The main findings were:

- Interventions on nutritional labelling, reducing calories and saturated fats, and promoting fruit and vegetable consumption, could be effective if fully implemented.<sup>36</sup> Many of the strategies deemed most effective by studies elsewhere – notably food pricing, marketing restrictions and an explicit focus on reducing sugar – were not part of the RD pledges.<sup>36</sup>
- RD participants generally reported signing pledges related to activities that they were already undertaking, had planned before joining the RD, or committed to 'safe', easy, deliverable pledges suggesting limited added value of continuing the RD.<sup>37</sup>
- Some businesses expressed concern about the development of 'uneven playing fields' between themselves and non-partners perceived to be 'free-riding' by not participating. They also highlighted the absence of small and medium sized enterprises (SMEs) from the RD.<sup>37</sup> Evidence suggests that agreements are more effective if they include formal sanctions for non-compliance and disincentives for non-participation.<sup>38,39,40</sup>

Industry-reported examples of good practice include retailers and manufacturers launching 'healthy option food ranges',<sup>41</sup> low calorie products, reduced portion sizes,<sup>42</sup> voluntary front-of-pack labelling,<sup>43</sup> (although not all businesses have participated<sup>44,45</sup>) and removing confectionery from check-outs<sup>46,47</sup> (although data shows that between 2006 and 2014 high sugar product purchases increased by 11%.<sup>48</sup>).

**Other Policy Approaches****Reducing Sugar Content in Food and Drinks**

One intervention is to reduce the sugar content of products through reformulation and reduced portion size.<sup>25</sup>

Reformulation can involve decreasing the energy density of foods (energy or calories per gram)<sup>49</sup> by:

- reducing fat and/or sugar content
- adding fruits and vegetables to processed foods
- adding dietary fibre (a low energy component that provides bulk)
- using wholegrain ingredients
- adding water or air (aeration).<sup>49</sup>

Reformulation has succeeded for sugary drinks, with sugar replaced by low-calorie or calorie-free sweeteners such as polyols, aspartame, steviol extracts and saccharin.<sup>50</sup> Sugar plays a functional role in food, contributing to products' structure, acting as a preservative, bulking agent, and texture modifier.<sup>51,52</sup> For processed foods such as breakfast cereals, replacing sugar with starch does not affect calorific content because starch has the same energy value as sugar.<sup>49</sup> Replacing sugar with fat (to maintain the bulk and mouthfeel of a product) can increase calorie content, as fat is more energy dense.<sup>52</sup> More effective reformulation therefore involves improving the whole nutrient profile of the food. A combination of reformulation (to reduce sugar content) and reducing portion size is more effective in reducing the energy density of food.<sup>53</sup>

Further technological innovation may be needed to achieve product reformulation to reduce sugar content. However, similar concerns were raised about salt reduction, as it is

also used as a preservative to prolong shelf life. The FSA's salt reduction campaign took account of food safety and technical issues,<sup>49</sup> to overcome industry concerns.

Although removing sugar in foods may not always reduce calorific content, it has other benefits such as helping people to meet SACN's new 5% limit on consumption, reducing tooth decay and encouraging a preference for less sweet foods.<sup>4</sup> The experience of tackling salt consumption shows that gradual changes made to the salt content of food, without replacement with lower-sodium alternatives, have gone largely unnoticed by consumers and led to an adjustment in the nation's palate towards less salty tastes.<sup>54</sup>

### **Retail Environment**

Price, promotions and marketing in the retail environment are key influencers of food choices.<sup>1</sup> A review found that promotions are more common for high sugar products (particularly drinks, biscuits and cakes) and that price discounting significantly increase sales of high sugar products. In addition, end of aisle displays increase purchases of carbonated soft drinks.<sup>55</sup> Around 40% of household expenditure on food and drink is on goods on promotion,<sup>56</sup> twice that seen in Germany, France, and Spain. PHE recommends reducing the number and type of promotions in all retail outlets including supermarkets, convenience stores and the out-of-home sector (restaurants, cafes and takeaways).<sup>56</sup>

#### *Availability of High Sugar Foods*

Confectionery is increasingly being sold in non-food shops, potentially targeting people who did not intend to purchase food, and at times of the day when they are not considering eating.<sup>57</sup> A 2015 survey of a large shopping centre found that 15% of non-food shops, such as clothing stores, displayed food at the tills. Most of this food (80.6%) was 'less healthy food' according to the FSA's Nutrient Profiling Model, including sweets and chocolate, and displayed at child height.<sup>57</sup> Local authorities have a statutory duty to promote public health;<sup>58</sup> some local public health initiatives are described in Box 3. It is argued that a localised approach can result in inequalities, as areas with fewer resources or less knowledge do not benefit.

### **Regulation of Advertising**

PHE reports that all forms of marketing consistently influence food preference, choice, and purchasing by children and adults.<sup>59</sup> WHO guidelines from 2010 recommended that governments restrict marketing of high fat, salt and sugar (HFSS) foods to children.<sup>60</sup> PHE has called for a significant reduction in advertising of HFSS products to children across all media, including digital platforms, and through sponsorship.<sup>59</sup>

The regulator is required to balance the protection of children from advertising against the right of marketers to promote products of interest to adults (which may also be

### **Box 3. Local Initiatives to Reduce Sugar Consumption**

There are several local authority schemes in progress:

- the PHE sugar report highlighted West Sussex County Council's action plan to reduce the accessibility of sugary food and drink, Nottingham City Council's 'eatwell for life' healthy eating course, and Greater Manchester's community food co-ordinator programme, a healthy eating and weight management initiative.<sup>61</sup>
- Brighton & Hove's 'Sugar Smart City' initiative involves encouraging food outlets to adopt a voluntary 10p levy on drinks with added sugar and to provide healthy options in vending machines in local authority and health care settings.<sup>62</sup>
- Blackpool Council has signed a Local Authority Declaration on Healthy Weight. Working with Public Health Directors, its initiatives include the Gulp campaign, to encourage children to swap sugary drinks for healthier alternatives and a universal free school breakfast programme.<sup>63</sup>

seen by children). Ofcom has restricted TV advertising of HFSS foods during children's programming and other programming likely to appeal to children since 2007.<sup>64,65</sup> Restrictions apply to products that exceed thresholds set by the FSA for salt, sugar and fat content. A 2010 Ofcom analysis reported a 37% reduction in children's exposure to advertising of these foods in 2009 compared with 2005.<sup>65</sup> However, the thresholds still allow advertising of products that are relatively high in salt, sugar or fat; PHE intends to review the nutrient profile model. One study showed that children's relative exposure to HFSS advertising did not change since restrictions came into force.<sup>66</sup> NICE and other public health bodies argue that imposing a 9pm watershed on HFSS adverts would greatly reduce children's exposure to advertising.<sup>67</sup> A recent survey by Cancer Research UK found that 74% of the public support this intervention.<sup>68</sup>

#### *Exposure to Food Advertising Online*

A recent review for the Committee of Advertising Practice (CAP) found that online advertising has increased significantly in recent years.<sup>69</sup> Advertising online is diverse and includes 'advergames'; adverts that immerse the user in a game sponsored by a food manufacturer. Internet advertising expenditure (including online, mobile and tablet) increased by 15.6% from 2012-2014,<sup>69</sup> but there is little evidence about children's actual exposure to online advertising or on how it influences behaviour.<sup>70</sup> CAP recently announced a public consultation on the introduction of new rules governing the non-broadcast advertising of HFSS foods to children.<sup>71</sup> The use of nutrient profiling, currently in place for TV advertising, is one possible outcome which might place greater restrictions on marketing 'less healthy' products.

The Food and Drink Federation has announced it supports ending all advertising of HFSS foods to under-16s<sup>72</sup> and suggests using age-gating to restrict children's access to websites. However, this restriction is easily bypassed and is not under consideration by CAP. It is suggested that children might benefit from improved media education from parents, teachers, broadcasters and regulators, in order to develop a more critical perspective of advertising.<sup>73</sup> The organisation Media Smart produces free educational materials for schools and youth organisations.<sup>74</sup>

## Fiscal Measures

Fiscal measures to reduce sugar consumption include examining agricultural subsidies that affect sugar production, commodity price and availability (and thus its use in processed foods) and taxing high-sugar products.

### *Agricultural Policy*

Agricultural policy influences public health through its influence on the price and availability of foods.<sup>75,76,77</sup> The European Common Agricultural Policy may influence sugar consumption in the UK through minimum price guarantees that paid EU producers above world price for sucrose within set production quotas, and export subsidies that made it profitable to produce an excess of sucrose.<sup>78</sup> These policies will end in 2017.<sup>79,80</sup> Defra models predict that total EU sugar production will increase, and that the commodity price of sugar will fall.<sup>81</sup> Researchers argue that a price drop makes the use of sugar in processed foods more likely, increasing both the sugar content in existing products, and the diversity of products containing sugar.<sup>78</sup>

The reforms also remove a production cap on high fructose corn syrup (HFCS). Although not widely used in Europe, HFCS is cheaper than sucrose, and could potentially drive down prices of sugar-sweetened drinks relative to food, as has been seen in the US.<sup>82</sup> Some argue that this might negatively affect initiatives to reduce sugar consumption,<sup>78</sup> and that agricultural policies should be subject to health impact assessments.<sup>78</sup> Reform of agricultural policy was highlighted by NICE in 2010 as a potential lever by which to improve health at a population level, in the context of cardiovascular disease.<sup>83</sup>

### *Taxation of High Sugar Products*

Sugar-sweetened drinks and fruit juices are the biggest source of sugar in the diet of school-age children.<sup>84</sup> A tax on sugary drinks could reduce consumption and encourage further reformulation. It is predicted that reducing the amount of sugar in sweetened drinks by 40% over five years could prevent 300,000 cases of type 2 diabetes and one million cases of obesity over two decades.<sup>85</sup> Taxes on alcohol and tobacco have reduced consumption,<sup>86,87</sup> with data from a recent European Commission report supporting a similar effect on consumption for specific taxes on sugar, salt and fat content.<sup>88</sup> Analyses indicate that product price has to increase by at least 20% to influence consumption.<sup>89</sup> This level of tax has been advocated by the British Medical Association, PHE, Cancer Research UK and the UK Health Forum, as part of a comprehensive childhood obesity strategy. According to YouGov and Cancer Research polls, 55% of the public support the tax on sugary drinks.<sup>68</sup>

The Government announced a soft drinks industry levy in the March 2016 budget. Evidence outlining its likely impact and the response are discussed in Boxes 4 and 5. The levy comes into effect in April 2018, will apply to soft drinks that contain added sugar and is close to the recommended 20% tax rate.<sup>7</sup> However, it will not apply to milk-based drinks or fruit juices (even those

### **Box 4. Evidence on Taxing Sugar-Sweetened Drinks**

It has been suggested that studies on the impact of taxation are often incomplete, undertaken by interested parties, and provide varying results.<sup>90</sup> A 2014 report by McKinsey found that the most effective obesity interventions were portion control and reformulation, which would be ten and eight times more effective than a 10% tax on high-sugar and high-fat products in the UK.<sup>91</sup> Cancer Research UK estimates that a 20% tax on sugar sweetened drinks could avoid 3.7m people becoming obese by 2025, equivalent to a 5% decrease in obesity prevalence, and saving the NHS £10m in the year 2025 alone.<sup>92</sup> Data for the UK come from modelling studies, but evidence from Mexico, where a 10% tax on high-sugar drinks was implemented in 2014 as part of an anti-obesity strategy, shows that it reduced purchases by an average of 6% across 2014, and by as much as 12% in the last part of the year.<sup>93</sup> The effect was greatest on lower-income households, who reduced purchases by an average of 9% across the 12 months, and by 17% in the later months.<sup>93</sup> It is argued that this may not be indicative of how behaviours might change in the UK. France implemented a sugar and artificial sweetener drinks tax in 2012, leading to a 2% drop in sales in the first year.<sup>94</sup> Increasing evidence suggests that taxes on soft drinks, sugar and snacks can change diets and improve health, especially in lower socioeconomic groups, who are more affected by price changes.<sup>95</sup>

that are high in sugar). Two tax levels will apply according to sugar content: a lower rate of 18p per litre for drinks with more than 5g of sugar per 100ml, and a higher rate of 24p for those with 8g or more of sugar per 100ml.<sup>96</sup> The Treasury expects that this will raise £520 million in the first year, with revenue anticipated to decline as manufacturers reformulate products, so that fewer drinks attract the levy.<sup>7</sup> Revenue will be used to fund school sport and breakfast clubs.<sup>7</sup>

Some academics argue that any tax should also apply to fruit juice, and that juice should be removed from the recommended list of five-a-day portions of fruit or vegetables because of its high sugar content.<sup>97</sup> A recent study found that over a quarter of 203 fruit juices marketed to children contain the same amount, or more sugar than Coca Cola.<sup>98</sup> Some researchers argue that taxation should be applied to other products such as confectionery, and yoghurt and breakfast cereals that are high in sugar.<sup>99</sup>

### **Box 5. Responses to the Sugar-Sweetened Drinks Tax**

Industry re-iterated its long-held opposition to the tax arguing that it is unlikely to lead to long-term dietary change or reduce obesity.<sup>100</sup> It has also refused to rule out legal action against the Government, which could be undertaken on the basis that other types of high sugar drinks, like fruit juices and milkshakes, are excluded.<sup>101</sup> The Food and Drink Federation dismissed the tax as 'political theatre', arguing that it will be costly to manufacturers, result in less innovation, and make no difference to obesity.<sup>102,103</sup> Other industry bodies argue that education about diet and emphasising moderation are the best strategies to address obesity and type 2 diabetes.<sup>104</sup> The Institute for Fiscal Studies argues that although the levy could be a good starting point to reduce sugar consumption, unintended consequences might include consumers switching to other high-sugar products.<sup>105</sup>

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