

# POSITION STATEMENT

November 2015

## PREVENTION OF TYPE 2 DIABETES: WHOLE-SOCIETY INTERVENTIONS TO REDUCE OBESITY

### Introduction

**The prevalence of diabetes has trebled over the last 10 years. Approximately 3.5 million people in the UK are diagnosed with diabetes<sup>i</sup> and around 700 people are newly diagnosed every day<sup>ii</sup>. It is estimated that 5 million people in the UK will have diabetes by 2025.**

The increase in prevalence includes Type 1 diabetes and Type 2 diabetes. Type 1 diabetes is an autoimmune condition where the insulin producing cells in the pancreas have been destroyed, meaning that they can no longer produce insulin. The cause is unknown, but it is not to do with being overweight or any lifestyle factors and it isn't currently preventable. It is most commonly diagnosed under the age of 40 (though can appear in later life) and is the most common form of diabetes found in childhood. Type 1 diabetes is always treated with insulin, either by and injection or via an insulin pump.

In Type 2 diabetes, which can occur in both adults and children, the pancreas doesn't produce enough insulin or the insulin it does produce does not work properly. The main risk factors for Type 2 diabetes are: family history, age, ethnic background, being overweight, obese or having a large waist circumference. Type 2 diabetes is often treated with lifestyle factors initially – following a healthy balanced diet, getting regular physical activity and losing excess weight. However it is a progressive condition, and it is likely that medication will be required, which may include insulin.

**This Position Statement relates to the prevention of Type 2 diabetes.**

Whilst Type 1 diabetes cannot be prevented, we know that the majority of this increase in prevalence is due to Type 2 diabetes, of which some of the risk factors are modifiable. Obesity is the most significant risk factor for developing Type 2 diabetes, accounting for 80–85 per cent of the overall risk of developing the condition<sup>iii</sup>. The main modifiable risk factors of Type 2

diabetes are increased waist circumference and being overweight/obese.

Alarmingly, almost two in every three people in the UK are overweight or obese<sup>iv</sup>. Unless action is taken, the prevalence of Type 2 diabetes and the devastating complications associated with the condition including heart disease, stroke, blindness, kidney disease and amputations will continue to rise. There is also an enormous financial cost of diabetes – the condition accounts for 10 per cent of the annual NHS Budget<sup>v</sup> and 80 per cent of NHS spending on diabetes goes on managing complications associated with diabetes, most of which could be prevented<sup>vi</sup>.

If waist circumference and being overweight/obese is reduced in the general population, a significant percentage of Type 2 diabetes could be prevented. To do this, there is an urgent need to create greater awareness of the modifiable risk factors which contribute to an individual developing the condition; empower people to make informed decisions; and develop an environment which is supportive of healthy living and conducive to behaviour change.

This Position Statement is focused on population-level interventions to reshape the environment to help reduce obesity.

#### Diabetes UK advocate for action in the following areas:

- Labelling and transparency;
- Making products healthier;
- Encouraging healthy choices in the retail environment;
- Strengthening marketing restrictions to children;
- Incentivising healthy choices and fiscal regulation;
- Increasing physical activity levels;
- Improving health in the public sector; and
- Promoting healthy living.

## Current situation

Non-communicable diseases, such as Type 2 diabetes, are the growing health threat of our time. All people, some more than others, are at risk of developing a chronic condition during the course of their life. It is for this reason that there is a need for supportive environments – where making healthy decisions isn't always about making the difficult decisions and the default option is changed to be the healthy one.

Diabetes UK have called for, and continue to support, the development of a coordinated plan to reduce obesity across the general population. This will require that action is taken in a number of areas, including efforts by individuals; government; the food and drinks industry; employers and the voluntary sector.

In recent years, there have been welcome initiatives by the Government and industry to promote healthier living. Diabetes UK want to build on this work to ensure that meaningful, and sustainable, health benefits are delivered to the entire population.

In taking action, it is essential that decision-makers are cognisant that no one intervention designed to curb obesity, when enacted alone, will result in the impact required to significantly reduce the prevalence of Type 2 diabetes in the UK. The McKinsey Global Institute stated in their recent Discussion Paper *Overcoming obesity: an initial economic analysis* that

“Based on existing evidence, any single intervention is likely to have only a small overall impact on its own. A systematic, sustained portfolio of initiatives, delivered at scale, is needed to address the health burden”<sup>vii</sup>.

Diabetes UK shares this view, and is therefore proposing a suite of reforms, each supported by local or international research, to create supportive environments for healthier living and subsequently reduce the risk of individuals developing Type 2 diabetes.

## Recommendations

### LABELLING AND TRANSPARENCY

- The Government should continue to support a consistent front-of-packet (FOP) colour-coded (red, amber & green) labelling system which includes % daily reference intake amounts, to assist consumers make informed decisions when purchasing food and drinks. In the long term the British people need to have the benefit of mandatory FOP labelling. The Government should negotiate to secure this either through its current renegotiation or any future revision of EU Food Information for Consumers Regulation for UK consumers.
- Large-medium sized businesses in the 'out of home' environment should provide consistent hybrid

colour-coded labelling on their menus and menu boards.

- The Government needs to adopt a universal Nutrient Profiling Model to define 'High fat, sugar, salt' (HFSS) products. This could then be utilised by regulators as a mechanism for a range of policy interventions.

### Why is this important?

- Providing consumers with clear and consistent labelling assists individuals to make an informed and healthy decision when purchasing like-for-like food and drinks products.
- Recent research demonstrates the value of clear labelling, stating: "...any structured and legible presentation of key nutrient and energy information on the FOP label is sufficient to enable consumers to detect a healthier alternative within a food category when provided with foods that have distinctly different levels of healthiness"<sup>viii</sup>.
- The House of Lords Science and Technology Select Committee Behaviour Change (2nd Report of Session 2010-12) Report<sup>ix</sup> highlighted evidence from retailers that the purchases of the healthier-labelled products increased and sales of less-healthy products decreased following introduction of labelling.
- FOP colour-coded labelling is not only beneficial for the purposes of providing consumers with enhanced information when they're making decisions, but it also may play a role in encouraging manufacturers to reformulate their less-healthy products<sup>x</sup>.
- Supplementary written evidence from Sainsbury's to the House of Lords Science and Technology Select Committee Behaviour Change noted that labelling plays a role in driving reformulation of products .
- Education campaigns should accompany new labelling initiatives.

### MAKING PRODUCTS HEALTHIER

- The Government should introduce time-bound mandatory targets for large manufacturers of processed foods and drinks and large businesses in the 'out of home' environment to reformulate their products to reduce energy-density. This should include reducing sugar, saturated fat and salt and increasing fibre. If necessary, penalties should be set if the targets are not achieved by manufacturers. An Expert Panel (with representatives from Government, academics and industry) should be established to develop the targets, oversee implementation and monitor progress.
- Reformulation targets should be set for small and medium-sized enterprises (SMEs), with guidance provided across a range of food and drink products.
- Where possible, manufacturers and retailers should reduce food and beverage portion sizes (and be provided with guidance on what standard sizes are) and make it clearer to their customers

what an appropriate portion size is for a product (for example, by introducing portion-controlled packaging). The Government should explore a regulatory approach to create a level playing field for industry.

### Why is this important?

- The McKinsey Global Institute (2014)<sup>vii</sup> indicate that portion control and reformulation are the two intervention groups with the highest estimated impact across the full population (based on Disability-adjusted Life Years [DALYs] saved). The World Health Organisation defines a DALY as: “One DALY can be thought of as one lost year of “healthy” life. The sum of these DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability”<sup>xi</sup>
- Studies<sup>xii,xiii,xiv</sup> repeatedly demonstrate that larger portion sizes can result in an increase in food consumption.
- It also appears that the amount of food available to an individual unconsciously influences intake, and may be setting norms for what is appropriate to consume<sup>xv</sup>.
- Research also tells us that portion-controlled packaging may reduce the calorie intake of individuals<sup>xvi</sup>.
- Public Health England’s Evidence Review ‘Sugar Reduction: The evidence for action’<sup>xvii</sup> notes that: “Robust evidence from RCTs suggests non-caloric sweeteners are useful in weight maintenance/loss as they enable the calorie content of foods and drinks to be reduced while maintaining the same sweet taste desired by consumers.”
- SMEs (such as independent cafés and restaurants) who are reformulating their products in line with the reformulation targets will require practical written guidance (designed by food technologists and dietitians) on how their chefs can reduce saturated fat, salt and sugar from their recipes and increase fibre and wholegrain content.

### ENCOURAGING HEALTHY CHOICES IN THE RETAIL ENVIRONMENT

- Retailers should reduce the display of unhealthy food and drinks in prominent positions in-store. Where possible, these products should be replaced with healthy products.
- Incentives and penalties should be introduced to increase the number of price promotions offered by retailers for healthy products.

### Why is this important?

- Rebalancing the number of price promotions of unhealthy products and reducing their placement in prominent locations, such as end of aisles or near the checkout, will encourage healthier diet decisions. This policy proposal endeavours to make the healthy choice not the difficult choice when people are doing their grocery shopping.
- Food and beverages should be defined by using updated nutrient profiling which is based on current healthy eating evidence, for example the Scientific Advisory Committee on Nutrition (SACN) recommendations in the ‘Carbohydrates and Health’ Report<sup>xviii</sup>.
- We understand the important role that price promotions play in influencing buying behaviour, with 41 per cent of shopper expenditure being spent on price promotions in Britain<sup>xvii</sup>. We also know that price promotions result in consumers purchasing more than they otherwise would<sup>xvii</sup> and that products higher in sugar, or those that are ‘less healthy’, are more likely to be promoted<sup>xix</sup>. In light of this, rebalancing price promotions to favour healthier products would help encourage people to buy healthier food and drinks, or at the very least, take home fewer unhealthy foods.
- The McKinsey Global Institute (2014)<sup>vii</sup> states that changing price promotions by restricting promotional activity in high-calorie impulse foods will decrease consumption and has a positive health impact across the full population.
- To accompany these changes, retailers can work closely with the voluntary sector to promote the benefits of eating a healthy, balanced diet and the benefits that this can have for improved health outcomes.

### STRENGTHENING MARKETING RESTRICTIONS TO CHILDREN

- Restrict the marketing of High Fat, Sugar, Salt (HFSS) products on television until after 21:00 (the Watershed).
- The Government should conduct a review of digital marketing of HFSS products aimed toward children (online, on-demand programmes and advergames) and act on the findings.
- Manufacturers and Retailers should develop ‘Responsible Marketing to Children’ strategies for the sale of food and beverages, including consideration of the use of animated characters when promoting unhealthy products.

### Why is this important?

- Strengthening the existing Ofcom advertising restrictions to children will ensure that exposure to products that are high in fat, sugar and salt is reduced.

- It is reported that young children lack understanding of the persuasive intent of advertising<sup>xx</sup>. The American Academy of Pediatrics states that children under the age of eight "...are cognitively and psychologically defenceless against advertising"<sup>xxi</sup> and that they do not understand the intent to sell products.

- A strong justification for extending the restriction until the Watershed is that many children watch what may be classified as 'family broadcasting', which is not subject to the current regulations. This has been addressed by the World Health Organisation who state:

"In many cases children's exposure to television advertising may occur during programmes which do not fall within an applied definition of 'children's programmes'. In the United Kingdom study, it was found that 67.2 per cent of children's viewing in 2009 occurred during adult airtime"<sup>xxii</sup>.

- Ofcom research of viewing trends suggests that children's viewing peaks during the time slot between 20:00 and 20:59<sup>xxiii</sup> – which is now later in the night than has previously been the case.
- Extending the restrictions of advertising to products that are high in fat, salt or sugar are supported by NICE Public Health Guidance 25 (Prevention of Cardiovascular Disease), under Recommendation Four<sup>xxiv</sup>. It is stated that:

"...evidence shows that a 9pm watershed for such TV advertisements would reduce children and young people's exposure to this type of advertising by 82 per cent"<sup>xxiv</sup>.

- As children are also exposed to digital marketing, consideration needs to be given to the marketing techniques which are targeting children in the online environment. This includes 'advergaming', which is when advertisements or product branding is embedded within a game, either online or for download. Public Health England's Evidence Review on sugar reduction reports that: "...playing advergaming with an unhealthy food cue significantly increased consumption of, or preference for high sugar products, or a selection of unhealthy foods which contained a high sugar option"<sup>xvii</sup>.
- The impact of branded mascots or cartoon media characters can be both positive (increasing sales of healthy foods and drinks) and negative (increasing sales of unhealthy foods and drinks). Current regulations prohibit the use of licensed characters for promoting HFSS products to young children, but not brand characters.
- Diabetes UK therefore urge manufacturers and retailers to develop more stringent restrictions in their marketing practices when using their animated brand characters to promote unhealthy products to children. Following an established period of time, Ofcom should review the current situation and if necessary propose stronger advertising restrictions.

## INCENTIVISING HEALTHY CHOICES AND FISCAL REGULATION

- The Government should introduce a subsidy on fresh fruit and vegetables to increase purchases and regular consumption.
- Diabetes UK supports calls to introduce a 20 per cent tax on sugar-sweetened beverages. However, the introduction of such measures must ensure that increasing prices of sugar-sweetened beverages does not negatively impact on people and families living with Type 1 and Type 2 diabetes who may rely on high-sugar products to treat hypoglycaemia. It is for this reason that we call for consultation on such fiscal measures prior to their enactment.

### Why is this important?

- There is a body of evidence which suggests that increasing the cost of sugar-sweetened beverages reduces their purchases, and that decreasing the price of fresh fruit and vegetables increases consumption.
- By incentivising a higher intake of fruit and vegetables, this policy proposal seeks to increase the amount of fibre, vitamins and minerals in diets. Further, if more vegetables are added during home-cooking the energy-density of many home-made meals is likely to reduce.
- Contemporary research indicates that a subsidy on vegetables and fruit will increase purchases, and have positive impacts on health<sup>xxv</sup>.
- Research suggests that combinations of tax reductions on fibres/fruits/vegetables and increased taxes on unhealthy foods is seen to have "desirable effects"<sup>xxvi</sup>.
- Children and adolescents particularly need help in cutting back their consumption of sugar. The National Diet and Nutrition Survey programme indicates that average sugar intake is approximately three times higher in school-aged children and teenagers than the recommended maximum 5 per cent level of intake<sup>xvii</sup>. In particular, soft drinks provide on average 29 per cent of daily sugar intake for those aged 11 to 18 years<sup>xvii</sup>.
- Adults also stand to benefit from a reduction in consumption of sugar-sweetened beverages, with research<sup>xxvii</sup> suggesting that a 20 per cent tax on sugar-sweetened beverages may reduce the number of obese adults in the UK by 1.3 per cent (approximately 180,000 people) and the number who are overweight by 0.9 per cent. It was reported however that this would predominantly affect those under 30 years of age.
- A study conducted in 2012 concluded that "the tax would need to be at least 20 per cent to have a significant effect on population health"<sup>xxviii</sup>. Similarly, Public Health England<sup>xvii</sup> claims that: "...a tax of 10 per cent to 20 per cent would be necessary to have a significant impact on purchases, consumption, and ultimately population health".

- In implementing fiscal measures that increase the cost of high-sugar products, such as taxation, the Government will need to carefully consider the design and impact it may have more broadly. In particular, the World Health Organisation (Regional Office for Europe)<sup>xxix</sup> cites: price elasticity of demand; potential substitution effects; impact on health inequalities; passing on of the tax or subsidy to the consumer; and choice of mechanism as areas for consideration.
- Many people with Type 1 and Type 2 diabetes using insulin choose to use sugar-sweetened beverages to treat hypoglycaemia and they should not have to pay more for these products.

## INCREASING PHYSICAL ACTIVITY LEVELS

- The Department for Communities and Local Government, in conjunction with Public Health England, must provide planning guidance to Councils to enable active travel at a local level. If appropriate, the Government should introduce legislation for an Active Transport Act for England.
- The Department for Education should evaluate how physical education programmes in the National Curriculum in England are working to enhance the opportunities for young people to increase levels of physical activity.

### Why is this important?

- Setting ambitious targets for delivering active travel routes in local communities and sustained investment to support changes in the environment will make it more favourable for individuals to be physically active. This may include more well-lit and safe footpaths and cycling tracks, increased green spaces for recreational outdoor activities, and leisure centres.
- Increasing physical activity levels are important to support weight loss management. The objective of the above-mentioned policy proposals is to increase the number of people who meet the Chief Medical Officer's recommendations for physical activity.
- Adults should be active every day and minimise sedentary time. Over a week, adults should spend at least 150 minutes engaging in moderate intensity activity (or 75 minutes of vigorous intensity activity). This should be coupled with muscle-strengthening activity twice a week.
- Children and young people (aged 5–18) should engage in moderate-vigorous physical activity for at least an hour each day. Activities that strengthen bones and muscles should occur on three or more days a week.
- However, we know that many adults are not meeting the recommendations, and that, perhaps of even greater concern, 77 per cent of children are not meeting them<sup>xxx</sup> either.
- It is important that there is enhanced communication of the Chief Medical Officer's guidelines for various age-groups (that is for Early Years; Children and

Young People; Adults; and Older Adults) so that people are aware of what is recommended.

- Increased and sustained investment in active transport provides better opportunities for all individuals, no matter their age, to be more physically active and may also have beneficial flow-on effects for local communities.

## IMPROVING HEALTH IN THE PUBLIC SECTOR

- The Government should swiftly adopt Public Health England's recommendation to adopt, implement and monitor the Government Buying Standards for Food & Catering Services (GBSF).
- The voluntary and private sectors should lead by example by supporting their staff to be healthy in the workplace.

### Why is this important?

- The public sector should play a more active role in improving the health of public sector workers, who make up a considerable portion of the UK workforce, and for people who visit Government buildings.
- It should be the case that when Government money is spent providing catering in the public sector it should be appropriately promoting a healthy, balanced diet. The public sector spends approximately £2.4 billion per year on procuring food and catering services<sup>xxxi</sup>. This provides an enormous opportunity for Government to invest in the health of the population through the supply of nutritious food and drinks.
- The GBSF will not only have a benefit for the health of employees in the public sector, but also a direct impact on the millions of individuals who visit NHS hospitals, Government buildings, and any other service which is delivered by Government.
- These policy proposals are designed to 'reset the defaults' so that eating and drinking healthily is not a difficult option when visiting a Government building.

## PROMOTING HEALTHY LIVING

- The Government and the voluntary sector must continue to invest in national education and awareness-raising campaigns to promote healthy diets and physical activity.
- The Department for Education should monitor the effectiveness of existing programmes in the National Curriculum in England which promote nutrition and cooking skills and continue to invest in the health education of children.

### Why is this important?

- Diabetes UK welcome the progress made to date by the Government in promoting health awareness campaigns such as 'Change4Life', '5 A Day', and 'Eatwell'. These play a significant role in educating the wider community about the benefits of a healthy lifestyle, and tips to make improvements to diet and levels of physical activity.

- A Review conducted to measure the success of awareness campaigns<sup>xvii</sup> reported that during Change4Life there was an eight per cent decrease in the purchases of sugary fizzy drinks (compared with January 2013). It was further reported that there was significant awareness of the campaign and that 'sugar swaps' were particularly effective for C2DE communities. It should be noted that this data is reporting on short-term changes in response to the campaign.
- Ongoing investment in awareness-raising activities will continue to reinforce the value of eating a healthy, balanced diet and of regular physical activity. In addition to this, promoting information disseminated by the NHS (such as the Eatwell Plate and '5 a Day') will ensure ongoing education, and tips, to the UK population.
- It is also essential that schools continue to invest in the future of young people by educating children about healthy diets and cooking skills. The National Curriculum in England for Design and Technology currently states the aim that pupils (in Key Stages 1–3) will understand and apply principles of nutrition and learn how to cook. The Department for Education must monitor, and where necessary improve, the curriculum to ensure all children are aware of healthy diets and are taught the value of cooking nutritious meals.

## Conclusion

There is no silver bullet to reducing the prevalence of Type 2 diabetes in the United Kingdom. Bold action must be taken across a number of priority areas, and Diabetes UK will seek to influence change with this package of proposed reforms. If enacted, these interventions will provide a supportive environment that will enable society to find it easier to make healthier choices. We will continue to advocate for change that does not stigmatise or penalise people who already live with Type 1 or Type 2 diabetes.

## Further information

- Position Statement: Early identification of people with, and at high risk of Type 2 diabetes and interventions for those at high risk.  
[www.diabetes.org.uk/About\\_us/What-we-say/Type-2-diabetes-prevention-early-identification/Early-identification-of-people-with-Type-2-diabetes/](http://www.diabetes.org.uk/About_us/What-we-say/Type-2-diabetes-prevention-early-identification/Early-identification-of-people-with-Type-2-diabetes/)
- Diabetes UK Food Labelling Briefing  
[www.diabetes.org.uk/food-labelling](http://www.diabetes.org.uk/food-labelling)
- State of the Nation (England) 2015  
[www.diabetes.org.uk/About\\_us/What-we-say/Statistics/State-of-the-nation-challenges-for-2015-and-beyond/](http://www.diabetes.org.uk/About_us/What-we-say/Statistics/State-of-the-nation-challenges-for-2015-and-beyond/)

## References

- i This figure was worked out using the diagnosed figure from the 2014/5 Quality and Outcomes Framework and the AHPO diabetes prevalence model. A figure for Northern Ireland was not predicted by the AHPO model, so undiagnosed prevalence for Northern Ireland was extrapolated on the % undiagnosed figure for Scotland.

Country	QOF diagnosed 2014/15	APHO Estimate Total 2015	Undiagnosed Estimate 2015
England	2,913,538	3,348,320	434,782
N. Ireland	84,836	98,089	13,253
Scotland	271,312	313,695	42,383
Wales	183,348	241,973	58,625
Total	3,453,034	4,002,077	549,043

- ii Figure based on newly diagnosed figures from the 2012/13 National Diabetes Audit, extrapolated up to the whole population with diabetes indicated by the AHPO diabetes prevalence model.
- iii Hauner H (2010). Obesity and diabetes, in Holt RIG, Cockram CS, Flyvbjerg A et al (ed.) Textbook of diabetes, 4th edition. Oxford: Wiley-Blackwell.
- iv IHME: Prevalence of obesity and overweight by year among people 20 years and older. [https://docs.google.com/spreadsheets/d/1jfUSFVuyMnrD69W4H5DWJBS4PDfjsTK3Yv-\\_ouM4oQ/edit?pli=1#gid=2097889834](https://docs.google.com/spreadsheets/d/1jfUSFVuyMnrD69W4H5DWJBS4PDfjsTK3Yv-_ouM4oQ/edit?pli=1#gid=2097889834)
- v Hex, N., et al (2012) Estimating the current and future costs of Type 1 and Type 2 diabetes in the United Kingdom, including direct health costs and indirect societal and productivity costs. *Diabetic Medicine*. 29 (7) 855– 862.
- vi Kerr, M. (2011). Inpatient Care for People with Diabetes – The Economic Case for Change.
- vii Overcoming obesity: an initial economic analysis. McKinsey Global Institute, 2014.
- viii Hodgkins, CE, Raats, MM, Fife-Schaw, C et al. (2015). Guiding healthier food choice: systematic comparison of four front-of-pack labelling systems and their effect on judgements of product healthiness. *British Journal of Nutrition*, pp. 1 – 12.
- ix The House of Lords Science and Technology Select Committee Behaviour Change (2nd Report of Session 2010-12). Published 19 July 2011. [www.publications.parliament.uk/pa/ld201012/ldselect/ldsctech/179/179.pdf](http://www.publications.parliament.uk/pa/ld201012/ldselect/ldsctech/179/179.pdf)
- x Supplementary written evidence from Sainsbury's (21 February 2011) to the House of Lords Science and Technology Select Committee Behaviour Change. [www.parliament.uk/documents/lords-committees/science-technology/behaviourchange/BCOralandWrittenEvCompiled180711.pdf](http://www.parliament.uk/documents/lords-committees/science-technology/behaviourchange/BCOralandWrittenEvCompiled180711.pdf)
- xi World Health Organisation. Health statistics and information systems – Metric: Disability-Adjusted Life Year (DALY). [www.who.int/healthinfo/global\\_burden\\_disease/metrics\\_daly/en/](http://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/)
- xii Hollands, GJ, Shemilt, I, Marteau, TM, Jebb, SA, Lewis, HB, Wei, Y, Higgins JPT & Ogilvie, D (2015). Portion, package or tableware size for changing selection and consumption of food, alcohol and tobacco. *Cochrane Database of Systematic Reviews*, 9.
- xiii Diliberti, N, Bordi PL, Conklin, MT et al. (2004). Increased portion size leads to increased energy intake in a restaurant meal. *Obesity Research*, 12(3), pp. 562 – 568.
- xiv Rolls, BJ, Roe, LS, Kral, TV, Meengs, JS & Wall DE (2004). Increasing the portion size of a packaged snack increases energy intake in men and women. *Appetite*, 42(1), pp. 63 – 69.
- xv Raynor, HA & Wing, RR (2007). Package unit size and amount of food: do both influence intake? *Obesity*, 15(9), pp. 2311 – 2319.
- xvi Stroebele, N, Ogden, LG & Hill, JO (2009). Do calorie-controlled portion sizes of snacks reduce energy intake? *Appetite*, 52(3), pp. 793 – 796.
- xvii Public Health England (2015). Sugar Reduction: The evidence for action. [www.gov.uk/government/publications/sugar-reduction-from-evidence-into-action](http://www.gov.uk/government/publications/sugar-reduction-from-evidence-into-action)
- xviii Scientific Advisory Committee on Nutrition, 2015. Carbohydrates and Health Report. [www.gov.uk/government/publications/sacn-carbohydrates-and-health-report](http://www.gov.uk/government/publications/sacn-carbohydrates-and-health-report)
- xix Wright, J, Kamp, E, White, M, Adams, J & Sowden, S (2015). Food at checkouts in non-food stores: a cross-sectional study of a large indoor shopping mall. *Public Health Nutrition*, 18(15), pp. 2786 – 2793.
- xx American Psychological Association (2004). Report of the APA Task Force on Advertising and Children.
- xxi American Academy of Pediatrics (2006). Children, adolescents, and advertising. *Pediatrics*, 118(6), pp.2563 – 2569.
- xxii World Health Organisation (2012). A Framework for Implementing the Set of Recommendations on the Marketing of Foods and Non-Alcoholic Beverages to Children. [www.who.int/dietphysicalactivity/framework\\_marketing\\_food\\_to\\_children/en/](http://www.who.int/dietphysicalactivity/framework_marketing_food_to_children/en/)
- xxiii Ofcom (2013). Report: 'Children's and young people's exposure to alcohol advertising'. <http://stakeholders.ofcom.org.uk/market-data-research/other/tv-research/alcohol-advertising/>
- xxiv NICE Public Health Guidance 25: 'Prevention of Cardiovascular Disease'. <https://www.nice.org.uk/guidance/ph25>

- xxv** Mhurchu, CN, Eyles, H, Genc, M, Scarborough, P, Rayner, M, Mizdrak, A, Nnoaham, K & Blackely, T (2015). Effects of health-related food taxes and subsidies on mortality from diet-related disease in New Zealand: an econometric-epidemiologic modelling study. *PLoS ONE*, 10(7), pp. 1–17.
- xxvi** Powell, LM & Chaloupka FJ (2009). Food prices and obesity: evidence and policy implications for taxes and subsidies. *The Millbank Quarterly*, 87(1), 229 – 257.
- xxvii** Briggs ADM, Mytton, OT, Kehlbacher, A, Tiffin, R, Rayner, M & Scarborough, P (2013). Overall and income specific effect on prevalence of overweight and obesity of 20 per cent sugar sweetened drink tax in the UK: econometric and comparative risk assessment modelling study. *British Medical Journal*, 347(f6189), 1–17.
- xxviii** Mytton, OT, Clarke, D & Rayner, M (2012). Taxing unhealthy food and drinks to improve health. *British Medical Journal*, 344(e2931), 1–7.
- xxix** World Health Organisation: Regional Office for Europe (2015). Using price policies to promote healthier choices.
- xxx** Media Release – Three quarters of children aren't doing enough physical activity (23 September 2015)  
[www.diabetes.org.uk/About\\_us/News/Three-quarters-of-children-arent-doing-enough-physical-activity/](http://www.diabetes.org.uk/About_us/News/Three-quarters-of-children-arent-doing-enough-physical-activity/)
- xxxi** Bonfield, P (2014). A plan for public procurement. Enabling a healthy future for our people, farmers and food producers.  
[www.gov.uk/government/publications/a-plan-for-public-procurement-food-and-catering](http://www.gov.uk/government/publications/a-plan-for-public-procurement-food-and-catering)