



Editorial

Selling a sugar tax: the sweet smell of success?

Dr Ffion Lloyd-Williams and Professor Simon Capewell

Public Health and Policy, University of Liverpool, UK

This editorial briefly considers the increasing epidemic of obesity and Type 2 diabetes, the underlying drivers of junk food and sugary drinks, and the recent scientific and campaigning movements culminating in the UK Chancellor's surprise announcement of a Sugary Drinks Levy.

Type 2 Diabetes, Obesity, and Public Health

Type 2 diabetes is an increasing health problem in the UK, currently affecting over three million people diagnosed (Diabetes UK, 2012; NHS Choices, 2014) and increasing to over five million people by 2025. Obesity is the most powerful driver, and accounts for 86% of the overall risk of developing Type 2 diabetes; hence the current global epidemic. Furthermore, over the last two decades, the prevalence of obesity has increased two fold globally and threefold in the UK (WHO, 2015b).

The Health Survey for England (2011–2013) shows that approximately two thirds of UK adults are now overweight or obese: 66% of men, 58% of women (HSCIC, 2014). As are one in three children completing primary school: 30% of boys, 27% of girls (PHE, 2014b). Furthermore, obesity is two-fold higher in children from deprived households compared with affluent households.

If recent trends continue, 60% of UK men, 50% of women and 25% of children will be obese by 2050. This would generate massive additional costs to the NHS, and also increase the burden on social care, welfare and families because obesity drastically increases a person's future risk of cardiovascular disease, diabetes, dementia and many common cancers. The main contributors to obesity in the food system include the increased supply of inexpensive, energy-dense junk foods and sugary drinks, persistent and aggressive food marketing and physical inactivity (Health Committee, 2015; PHE, 2015a). Obesity is therefore a major public health challenge, principally reflecting an obesogenic environment with an increased consumption of energy dense, nutrient poor foods and sugary drinks (Kleinert and Horton, 2015; NICE, 2012; Swinburn *et al.*, 2015; WHO, 2013a).

The role of simple sugars in the aetiology of Obesity and Type 2 Diabetes

The excessive consumption of sugar hidden in fizzy drinks, fruit juices, confectionery and junk foods (Imamura *et al.*, 2015) represents one of the main causes of

the increasing obesity and diabetes rates. Worse still, UK and global populations are consuming increasing amounts of these sugary drinks and junk foods high in salt, sugar and animal fats (Monteiro, 2011). Furthermore, a high-sugar diet has been linked with an increased incidence of type 2 diabetes independent of obesity. Sugar consumption also increases dental decay (SACN, 2015) and coronary heart disease (Yang *et al.*, 2014). The recent Scientific Advisory Committee on Nutrition (SACN) Carbohydrates and Health Report reported several meta-analyses of prospective cohort studies. These indicated that greater consumption of sugar-sweetened beverages is associated with increased risk of type 2 diabetes mellitus and obesity. SACN concluded that drinking high-sugar beverages results in weight gain and increased body mass index (BMI) in teenagers and children and increases the risk of developing type 2 diabetes independently of obesity.

What to do?

If prevention was as simple as *eating less and doing more*, then none of us would be overweight. It is clearly not that simple.

The problem is that we live in an *obesogenic environment* (Swinburn *et al.*, 2015). The public health priority is therefore to create an environment which supports the increasing consumption of healthy foods, and decreasing intake of sugary drinks and junk foods. There is clear scientific evidence that reducing consumption is far more effective in obesity prevention than simply increasing physical activity levels (Lim *et al.*, 2012). Increasing consumption of healthier food can bring large benefits, as demonstrated in diverse populations in countries including Finland, France, Hungary, Latvia, the USA and Mexico (Mozaffarian and Capewell, 2011; PHE, 2015b).

Healthy foods lack the financial capacity to compete with junk food and sugar sweetened beverages (Federal Trade Commission, 2008; Harris *et al.*, 2009). Junk food and sugar-sweetened beverages are immensely profitable to the food industry. They are provided in cheap excess and are marketed aggressively. Companies are able to employ the best marketing agencies, buy multiple outlets and sponsor high profile sports. In contrast, healthy foods are less ubiquitous and can be more expensive or require valuable time to prepare (Faculty of Public Health, 2013).

The UK has been steadily moving towards a tax on sugar sweetened beverages since *Action on Sugar* (AoS) launched its campaign in January 2014. AoS involved leading experts uniting to tackle and reverse the obesity and diabetes epidemic (AoS).

Action on Sugar's initial aims were:

1. to achieve a reduction in free sugars intake in the UK and ensure it contributes to less than 5% of total energy intake
2. to ensure the body of scientific evidence about the dangers of excessive refined free sugars consumption becomes translated into policy by the Government and relevant professional organisations.

Since then, AoS has been successfully working to reach a consensus with the food industry and Government over the harmful effects of a high sugar diet, and bring about a reduction in the amount of sugar in processed foods. In 2014, AoS began by highlighting the vast and unnecessary amounts of sugar currently being added to junk food and soft drinks. This very successful and effective strategy has continued. For instance, their most recent survey targeted hot drinks available in popular coffee shop outlets. They found that 98% of hot flavoured drinks would receive a 'red' (high) label for excessive levels of sugars per serving, with a third containing more sugar than a can of cola (AoS, 2016).

Recent Developments

The World Health Organization (WHO) Global Action Plan 2013-2020 set a global target of a 25% relative reduction in non-communicable diseases by 2025 (WHO, 2013). This included policies to reduce the content of free and added sugars in non-alcoholic beverages, as well as reducing the impact on children of marketing of non-alcoholic beverages high in free sugars (WHO, 2013).

Scientific evidence to support substantial reductions in sugar consumption, has been steadily increasing, with notable reports by WHO, SACN, Public Health England (PHE) Faculty of Public Health and other agencies (AoS, 2014; 2016; Faculty of Public Health, 2013; Mozaffarian and Capewell, 2011; PHE, 2014a;b; SACN, 2015). PHE, SACN and WHO recently recommended substantially reducing the intake of free sugars from the current level of approximately 15% of total energy intake in adults and children, (almost 20 teaspoons of sugar a day) to less than 10% initially, then 5%. That 10% recommendation for children would equate to six teaspoons per day for children aged 5-11 years and four per day for children aged 4-6 years (WHO, 2015a). The subsequent target of less than 5% of daily energy (Faculty of Public Health, 2013; Mozaffarian and Capewell, 2011; SACN, 2015) would equate to a reduction to just six teaspoons in an adult, and three in a nine year old child. This is the equivalent of a small glass of fruit juice and a flavoured yoghurt per day.

Powerful and persuasive scientific evidence has therefore accumulated in leaps and bounds in the last two years. Fearing a threat to their profits, the processed food and beverage industries have bitterly opposed any form of regulation or taxation. The parallels with tobacco industry tactics have thus become increasingly clear, hence the suggestion that *Sugar is the New Tobacco*.

However, in spite of this bitter corporate opposition, public awareness and support for action have grown steadily in England and the devolved countries. Thus in

December 2015, the Welsh Assembly Government supported the idea of introducing a tax on sugary drinks in Wales to cut rates of obesity and diabetes (The Guardian, 2015). Northern Ireland did likewise in February 2016, and a tax has also been recently discussed in Scotland.

In England, the Parliamentary Health Select Committee recently reviewed extensive evidence and then urged the UK government to finalise and publish their comprehensive, evidence-based Childhood Obesity Strategy. One which ideally included *bold and brave* measures to reduce the consumption of sugar-sweetened carbonated soft drinks (AoS, 2014). Initially promised in early 2016, that strategy launch was postponed and eventually published on 18th August 2016, raising accusations of industry lobbying and government backsliding.

The HSC and myriad of charities recently working together as the Obesity Health Alliance also continued to highlight the urgent necessity of introducing a sugary drinks tax in the UK (Health Committee, 2015). This was initially without any apparent effect. And then suddenly, out of the blue, on the 16th March 2016, the Chancellor included in his Budget an announcement of a levy on sugary drinks manufacturers equivalent to a 10% excise tax. However, implementation would be delayed until 2018 "*to give the industry time to respond and reformulate*".

For the wide collaboration of health campaigners, this was a sweet victory indeed however, in the light of the government's recently published obesity strategy, clearly much remains to be done.

References

- Action on Sugar, AoS. www.actiononsugar.org
- Action on Sugar, AoS (2016): *Shocking amount of sugar found in many hot flavoured drinks* www.actiononsugar.org/News%20Centre/Surveys%20/2016/170865.html
- Action on Sugar, AoS (2014): *Childhood Obesity Plan*. www.actiononsalt.org.uk/actiononsugar/Press%20Release%20/133979.pdf
- Diabetes UK (2012): *Key Statistics on diabetes*. www.diabetes.org.uk/documents/reports/diabetes-in-the-uk-2012.pdf
- Faculty of Public Health (2013): *A duty on sugar sweetened beverages: A position statement* www.fph.org.uk/uploads/Position%20statement%20-%2020ssbs.pdf
- Federal Trade Commission (2008): *Marketing food to children and adolescents: a review of industry expenditures, activities, and self-regulation: a Federal Trade Commission report to congress*. <https://www.ftc.gov/reports/marketing-food-children-adolescents-review-industry-expenditures-activities-self-regulation>
- Harris, J.L., Pomeranz, J.L., Lobstein, T. and Brownell, K.D. (2009): A crisis in the marketplace: how food marketing contributes to childhood obesity and what can be done. *Annual Review of Public Health* **30**, 211-225.
- Health and Social Care Information Centre, HSCIC (2014): *Health survey for England: 2013*. <http://www.hscic.gov.uk/catalogue/pub16076>.
- Health Committee (2015): *Childhood obesity inquiry - publications*. <http://www.parliament.uk/business/committees/committees-a-z/commons-select/health-committee/inquiries/parliament-2015/inquiry/publications>
- Imamura, F., O'Connor, L., Ye, Z., Mursu, J., Hayashino, Y., Bhupathiraju, S.N. and Forouhi, N.G. (2015): Consumption of sugar sweetened beverages, artificially sweetened beverages, and fruit juice and incidence of type 2 diabetes: systematic review, meta-analysis, and estimation of population attributable fraction. *British Medical Journal* **21**, 351.

- Kleinert, S. and Horton, R. (2015): Obesity Rethinking and reframing obesity. *The Lancet* **385**, 2326–2328
- Lim, S.S., Vos, T., Flaxman A.D., Danaei, G., Shibuya, K., Adair-Rohani, H., AlMazroa, M.A., Amann, M., Anderson, H.R., Andrews, K.G., Aryee, M., Atkinson, C., Bacchus, L.J., Bahalim, A.N., Balakrishnan, K., Balmes, J., Barker-Collo, S., Baxter, A., Bell, M.L., Blore, J.D., Blyth, F., Bonner, C., Borges, G., Bourne, R., Boussinesq, M., Brauer, M., Brooks, P., Bruce, N.G., Brunekreef, B., Bryan-Hancock, C., Bucello, C., Buchbinder, R., Bull, F., Burnett, R.T., Byers, T.E., Calabria, B., Carapetis, J., Carnahan, E., Chafe, Z., Charlson, F., Chen, H., Shen Chen, J., Tai-Ann Cheng, A., Child, J.C., Cohen, A., Colson, K.E., Cowie, B.C., Darby, S., Darling, S., Davis, A., Degenhardt, L., Dentener, F., Des Jarlais, D.C., Devries, K., Dherani, M., Ding, E.L., Dorsey, E.R., Driscoll, T., Edmond, K., Ali, S.E., Engell, R.E., Erwin, P.J., Fahimi, S., Falder, G., Farzadfar, F., Ferrari, A., Finucane, M.M., Flaxman, S., Fowkes, F.G.R., Freedman, G., Freeman, M.K., Gakidou, E., Ghosh, S., Giovannucci, E., Gmel, G., Graham, K., Grainger, R., Grant, B., Gunnell, D., Gutierrez, H.R., Hall, W., Hoek, H.W., Hogan, A., Hosgood III, H.D., Hoy, D., Hu, H., Hubbell, B.J., Hutchings, S.J., Ibeanusi, S.E., Jacklyn, G.L., Jasrasaria, R., Jonas, J.B., Kan, H., Kanis, J.A., Kassebaum, N., Kawakami, N., Khang, Y.-H., Khatibzadeh, S., Khoo, J.-P., Kok, C., Laden, F., Lalloo, R., Lan, Q., Lathlean, T., Leasher, J.L., Leigh, J., Li, Y., Lin, J.K., Lipshultz, S.E., London, S., Lozano, R., Lu, Y., Mak, J., Malekzadeh, R., Mallinger, L., Marcenes, W., March, L., Marks, R., Martin, R., McGale, P., McGrath, J., Mehta, S., Memish, Z.A., Mensah, G.A., Merriman, T.R., Micha, R., Michaud, C., Mishra, V., Hanafiah, K.M., Mokdad, A.A., Morawska, L., Mozaffarian, D., Murphy, T., Naghavi, M., Neal, B., Nelson, P.K., Nolla, J.M., Norman, R., Olives, C., Omer, S.B., Orchard, J., Osborne, R., Ostro, B., Page, A., Pandey, K.D., Parry, C.D.H., Passmore, E., Patra, J., Pearce, N., Pelizzari, P.M., Petzold, M., Phillips, M.R., Pope, D., Pope III, C.A., Powles, J., Rao, M., Razavi, H., Rehfuss, E.A., Rehm, J.T., Ritz, B., Rivara, F.P., Roberts, T., Robinson, C., Rodriguez-Portales, J.A., Romieu, I., Room, R., Rosenfeld, L.C., Roy, A., Rushton, L., Salomon, J.A., Sampson, U., Sanchez-Riera, L., Sanman, E., Sapkota, A., Seedat, S., Shi, P., Shield, K., Shivakoti, R., Singh, G.M., Sleet, D.A., Smith, E., Smith, K.R., Stapelberg, N.J.C., Steenland, K., Stöckl, H., Stovner, L.J., Straif, K., Straney, L., Thurston, G.D., Tran, J.H., Van Dingenen, R., van Donkelaar, A., Veerman, J.L., Vijayakumar, L., Weintraub, R., Weissman, M.M., White, R.A., Whiteford, H., Wiersma, S.T., Wilkinson, J.D., Williams, H.C., Williams, W., Wilson, N., Woolf, A.D., Yip, P., Zielinski, J.M., Lopez, A.D., Murray, C.J.L. and Ezzati, M. (2012): A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* **380**, 2224–2260.
- Monteiro, C.A., Levy, R.B., Claro, R.M., de Castro, I.R.R. and Cannon, G. (2011): Increasing consumption of ultra-processed foods and likely impact on human health: evidence from Brazil. *Public Health Nutrition* **14**, 5-13.
- Mozaffarian, D. and Capewell, S. (2011): United Nations' dietary policies to prevent cardiovascular disease. *British Medical Journal* **14**, 343.
- National Institute for Health and Care Excellence, NICE (2012): *Obesity - working with local communities*. <http://www.nice.org.uk/guidance/PH42>
- NHS Choices (2014): *Diabetes*. www.nhs.uk/conditions/diabetes/pages/diabetes.aspx
- Public Health England, PHE (2014a): *From evidence into action: opportunities to protect and improve the nation's health*. <https://www.gov.uk/government/publications/from-evidence-into-action-opportunities-to-protect-and-improve-the-nations-health>
- Public Health England, PHE (2014b): *Sugar reduction: responding to the challenge*. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/324043/Sugar_Reduction_Responding_to_the_Challenge_26_June.pdf
- Public Health England, PHE (2015a): *Written evidence submitted by Public Health England (IDH0063) 2015*. <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/health-committee/impact-of-physical-activity-and-diet-on-health/written/16776.html>
- Public Health England, PHE (2015b): *Sugar Reduction: The evidence for action*. www.gov.uk/government/uploads/system/uploads/attachment_data/file/470179/sugar_reduction_the_evidence_for_action.pdf
- Scientific Advisory Committee on Nutrition, SACN (2015): *Carbohydrates and Health Report*. <https://www.gov.uk/government/publications/sacn-carbohydrates-and-health-report>
- Swinburn, B., Kraak, V., Rutter, H., Vandevijvere, S., Lobstein, T., Sacks, G., Gomes, F., Marsh, T. and Magnusson, R. (2015): Strengthening of accountability systems to create healthy food environments and reduce global obesity. *Lancet* **385**, 2534–2545.
- The Guardian (2015): *Welsh government backs plan for 'pop tax' on sugary drinks*. <http://www.theguardian.com/society/2015/dec/10/welsh-government-backs-plan-pop-tax-sugary-drinks>
- World Health Organization, WHO (2013): *Global action plan for the prevention and control of noncommunicable diseases 2013–2020*. Geneva: WHO. http://apps.who.int/iris/bitstream/10665/94384/1/9789241506236_eng.pdf
- World Health Organization, WHO (2015a): *Guideline: Sugars intake for adults and children*. Geneva: WHO. http://www.who.int/nutrition/publications/guidelines/sugars_intake/en
- World Health Organization, WHO (2015b): *Noncommunicable diseases*. Geneva: WHO. <http://www.who.int/mediacentre/factsheets/fs355/en>
- Yang, Q., Zhang, Z., Gregg, E.W., Flanders, W.D., Merritt, R. and Hu, F.B. (2014): Added sugar intake and cardiovascular diseases mortality among US adults. *JAMA Internal Medicine* **174**, 516-524.

