

Institution: Queen Mary University of London		
Unit of Assessment: 2		
Title of case study: Fighting Childhood Obesity in the UK through Sugar Reduction		
Period when the underpinning research was undertaken: 2014 - 2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
1) Graham MacGregor	1) Professor of Cardiovascular Medicine	1) 11/2009 - present
2) Feng He	2) Professor of Global Health Research	2) 11/2009 - present
3) Katharine Jenner	3) Head Nutritionist	3) 11/2009 - present
4) Kawther Hashem	4) Nutritionist	4) 08/2012 - present
5) Holly Gabriel	5) Nutritionist	5) 05/2018 - present
6) Jenny Rosborough	6) Nutritionist	6) 09/2015 - 02/2018
Period when the claimed impact occurred: 2016 - 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact (indicative maximum 100 words) In 2014, the Queen Mary-based research group, Action on Sugar, submitted a proposal to the UK government to reduce childhood obesity. Obesity causes >30,000 deaths and costs the NHS >GBP6,000,000,000 each year. In England, 10% of reception age children and 20% of children aged 10-11 are obese, facing increased adult risk of cardiovascular disease, type 2 diabetes, and cancer. Action on Sugar's proposal formed the basis of the UK Government's Childhood Obesity Plan, which incorporates the Soft Drinks Industry Levy and the Sugar Reduction Programme. The Levy has removed >45,000 tonnes of sugar from UK shop shelves, and reduced sugar in soft drinks by 42%. As part of the Sugar Reduction Programme, Action on Sugar monitors and thus contributes to the drive for sugar reductions and product reformulations in foods marketed towards children.		
2. Underpinning research (indicative maximum 500 words) Obesity causes >30,000 deaths and costs the NHS over GBP6,000,000,000 each year. In England, 10% of reception age children and 20% of children aged 10-11 are obese, facing increased risk of cardiovascular disease, type 2 diabetes, and cancer in adulthood. In a 2014 Lancet paper, Queen Mary's Prof. MacGregor called on the UK government to act on the problem of excessive sugar consumption in the UK, and announced the formation of the Action on Sugar research group, based at the Wolfson Institute at Queen Mary [3.1]. The Action on Sugar team of nutrition researchers, chaired by MacGregor, has published extensively on the excessive levels of sugar in the main contributors of sugar to children's diets, including drinks, breakfast cereals, and confectionary. The research group's focus falls into two key areas: Highlighting Excess Sugar Levels in Product Categories Frequently Consumed by Children		
<ul style="list-style-type: none"> • In 2015, Action on Sugar's research on fruit juices, juice drinks, and smoothies marketed towards children [3.2] revealed that more than half (57%) were high in sugar, and 42% contained at least a child's entire maximum daily intake of sugar. • In 2016, their study of carbonated sugar-sweetened beverages sold in the UK showed that the majority (91%) of those beverages were high in sugar, and 55% had more than an adult's recommended daily intake of free sugars per portion [3.3]. • In 2018, the group analysed sugar levels in energy drinks and showed that, on average, these contain 41g of sugar per serving - more than an adult's recommended daily limit of 30g sugar per day [3.4]. • In 2019, Action on Sugar's study of UK children's breakfast cereals found that a typical (30g) serving contained a third of the maximum daily recommendation for free sugars intake for a 4-6 year old child [3.5]. 		

Tracking Changes in Average Sugar Content of Product Categories Over Time

- In 2018, the group looked again at sugar-sweetened beverages, to compare the sugar and energy content of soft drinks in 2018, after the implementation of the 'sugar tax', with the same products sold in 2014. This analysis showed that the mean sugar content of the 83 products they studied decreased by 42% between 2014 and 2018, from 9.1 to 5.3 g/100 ml. The mean energy content also decreased by 40%, from 38 kcal/100 ml in 2014 to 23 kcal/100 ml in 2018 [3.6].

All of Action on Sugar's published research has revealed significant variation in the sugar content of similar products, which clearly demonstrates that reformulation to reduce sugar levels is technically feasible. The researchers have also modelled the impact of this reformulation: their 2016 study predicted that a 40% reduction in free sugars added to sugar-sweetened beverages would lead to an average reduction in energy intake of 38.4 kcal per day, which would prevent 1,000,000 adults from being obese, and between 274,000 and 309,000 cases of obesity-related type 2 diabetes over the next two decades in the UK [3.7]. Thus, Action on Sugar has built an evidence base and strong health rationale to drive product reformulation with less sugar.

3. References to the research (indicative maximum of six references)

- [3.1] MacGregor, G. A. & Hashem, K. M. (2014). Action on sugar—lessons from UK salt reduction programme. *Lancet*, 383, 929-931. [https://doi.org/10.1016/S0140-6736\(14\)60200-2](https://doi.org/10.1016/S0140-6736(14)60200-2)
- [3.2] Boulton, J., Hashem, K. M., Jenner, K. H., Lloyd-Williams, F., Bromley, H. & Capewell, S. (2016). How much sugar is hidden in drinks marketed to children? A survey of fruit juices, juice drinks and smoothies. *BMJ Open*, 6, e010330. <https://doi.org/10.1136/bmjopen-2015-010330>
- [3.3] Hashem, K. M., He, F. J., Jenner, K. H. & MacGregor, G. A. (2016). Cross-sectional survey of the amount of free sugars and calories in carbonated sugar-sweetened beverages on sale in the UK. *BMJ Open*, 6 e010874. <https://doi.org/10.1136/bmjopen-2015-010874>
- [3.4] Hashem, K. M., He, F. J. & MacGregor, G. A. (2018). Cross-sectional surveys of the amount of sugar, energy and caffeine in sugar-sweetened drinks marketed and consumed as energy drinks in the UK between 2015 and 2017: monitoring reformulation progress. *BMJ Open*, 7, e018136. <https://doi.org/10.1136/bmjopen-2017-018136>
- [3.5] Pombo-Rodrigues, S., Hashem, K. M., He, F. J. & MacGregor, G. A. (2017). Salt and sugars content of breakfast cereals in the UK from 1992 to 2015. *Public Health Nutr*, 20 (8), 1500-1512. <https://doi.org/10.1017/S1368980016003463>
- [3.6] Hashem, K. M., He, F. J. & MacGregor, G. A. (2019). Labelling changes in response to a tax on sugar-sweetened beverages, United Kingdom of Great Britain and Northern Ireland. *Bulletin of the World Health Organization*, 97 (12), 818-827. <https://doi.org/10.2471/BLT.19.234542>
- [3.7] Ma, Y., He, F. J., Yin, Y., Hashem, K. M. & MacGregor, G. A. (2016). Gradual reduction of sugar in soft drinks without substitution as a strategy to reduce overweight, obesity, and type 2 diabetes: a modelling study. *The Lancet Diabetes & Endocrinology*, 4, 105-114. [https://doi.org/10.1016/S2213-8587\(15\)00477-5](https://doi.org/10.1016/S2213-8587(15)00477-5)

Evidence of the quality of the research

[EQR.1]: Action on Sugar (2018). Best Published Research Campaign. *Queen Mary's Media Relations Awards*. For work with the PR team to develop a successful media campaign for a research paper published in a peer-reviewed journal.

<https://www.qmul.ac.uk/publicengagement/reward-and-recognition/prizes/engagement-and-enterprise-awards-2018/media-2018/>

4. Details of the impact (indicative maximum 750 words)

Action on Sugar's researchers have built an evidence base to drive product reformulation with less sugar, and to monitor whether companies meet the Public Health England (PHE) sugar reduction targets in the product categories contributing the most sugar to the diets of children. As a registered health charity, Action on Sugar has taken on a leading role, as a key stakeholder, in the active promotion of evidence-based reformulation. Action on Sugar aims to reduce sugar levels in food available in supermarkets, thereby reducing sugar intake across the population, including in lower socio-economic groups, and in the long term to help to prevent obesity, type 2 diabetes and tooth decay.

Following publication of Prof. MacGregor's 2014 Lancet paper calling on the UK government to act on excessive sugar consumption, the Secretary of State for Health approached Action on Sugar to produce a plan to tackle childhood obesity in the UK. Action on Sugar presented their plan to the Prime Minister's advisors, PHE CEO Duncan Selbie and NHS England CEO Simon Stevens, and also provided evidence to the Health Select Committee [5.1]. The Action on Sugar proposal formed the basis of the Government's Childhood Obesity Plan, published in 2016. The Childhood Obesity Plan consisted of two elements: a proposal for a fiscal incentive to reduce sugar levels in sugar-sweetened beverages (the Soft Drinks Industry Levy); and a programme to reduce sugar intake to be run by PHE.

The Soft Drinks Industry Levy

Action on Sugar's cross-sectional studies on the sugar content of soft drinks [3.2, 3.4] led to the announcement of the Soft Drinks Industry Levy (SDIL) in 2016, as outlined above. Since its announcement, the SDIL has successfully removed the equivalent of over 45,000 tonnes of sugar from the UK's shop shelves with 457 live traders registered for the levy. In its first year (2018-19), the levy raised GBP240,000,000, due to manufacturers reformulating their drinks to include less sugar and avoid paying, as was the intended consequence of the levy [5.2].

The Sugar Reduction Programme

As a key stakeholder, Action on Sugar was invited to attend PHE meetings with industry throughout 2016 and 2017. These meetings fed into the setting of the sugar targets per 100g of product and calorie caps for specific single serving products, released in 2017. All sectors of the food and drinks industry have been challenged to reduce overall sugar, across a range of products that contribute to children's sugar intakes, by at least 20% by 2020, including a 5% reduction in year one. An evaluation of the sugar reduction programme found that if the sugar targets could be achieved by 2020, obesity prevalence would be reduced by 5.5% in 4-10 year olds, 2.2% in 11-18 year olds and 5.5% in 19-80 year olds, as adults will eat the same products as children. This would result in healthcare savings of GBP285,800,000 over 10 years [5.3]. The programme's progress was reviewed every 6 months and 2015 data were used as baseline for the reduction programme [5.4].

In 2018, Action on Sugar's analysis of the sugar content of breakfast cereals [3.3] was widely utilised by public health charities to inform their campaigns. This led to sugar reduction commitments announcements by Kellogg's, Waitrose and Nestle [5.5]. The publication of the Sugar Awareness Week (November 2018) survey on the sugar and calorie content of 'freakshake' drinks prompted Channel 4 to feature this topic in their Tricks of the Restaurant Trade programme. 'Freakshakes' are very high calorie milkshake drinks typically combining ice cream, chocolate bars and slices of cake in the drink and subsequent to this coverage, in 2019, both Frankie & Benny and Toby Carvery announced they would remove freakshakes from their menu [5.6]. In 2019, following Action on Sugar's published research on the sugar content of energy drinks and consumption levels of these drinks in children and teenagers [3.4], and with support for a ban from high profile individuals such as Jamie Oliver, the UK government banned the sale of energy drinks to those aged under 16 years [5.7]. In advance of the bill being passed, UK supermarkets voluntarily introduced a ban on sales of these drinks to under 16s [5.8]. In January 2020, following Action on Sugar's 2019 report on the nutritional content of products with cartoon animations on packaging [5.9], Lidl and Asda announced that they were removing cartoon characters from the packaging of children's breakfast cereals [5.10]. In response to the Action on Sugar September 2020 survey on sugar levels in children's processed fruit snacks, the UK leader in baby and toddler snack foods (Organix) removed misleading marketing tactics from their packaging, including claims that the products contain 'naturally occurring sugar' and '100% real fruit'. Furthermore, Organix added a dental health message to packaging due to the products' high sugar content [5.11].

Action on Sugar's highly publicised research generates high levels of media coverage ensuring that it reaches national policymakers, health professionals, journalists, academics, advocacy organisations, the food industry, regulatory authorities and consumers. This creates consumer demand for lower sugar products. This is evidenced by the Food Standards Agency's Public

Attitudes Tracker. The findings are based on 2,150 interviews from a representative sample of adults aged 16 and over across England, Wales and Northern Ireland carried out in May 2019, in which 49% of respondents were concerned about the amount of sugar in our food [5.12].

5. Sources to corroborate the impact (indicative maximum of 10 references)

[5.1] Health Committee (UK). *Oral evidence: Childhood Obesity Strategy*. 13 October 2015.

<https://old.parliament.uk/business/committees/committees-a-z/commons-select/health-committee/news-parliament-20151/childhood-obesity-strategy-first-evidence-session/>

[5.2] HM Revenue and Customs. (October 2019). *UK Soft Drinks Industry Levy Statistics*.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/848936/2019_Oct_SDIL_Comm.pdf

[5.3] Amies-Cull, B., Briggs, A. D. M. & Scarborough, P. (2019). Estimating the potential impact of the UK government's sugar reduction programme on child and adult health: modelling study. *BMJ*, 365, l1417. <https://doi.org/10.1136/bmj.l1417>

[5.4] Public Health England. (2017). *Sugar Reduction: Achieving the 20%*.

<https://www.gov.uk/government/publications/sugar-reduction-achieving-the-20>

[5.5] Sugar reduction commitments. Kellogg's. (2017, November). *Better Starts*.

https://www.kelloggsbetterstarts.co.uk/en_GB/better-starts-plan.html. Accessed 16 November

2020. Waitrose. (2016, November 16). *Waitrose cuts sugar in over twenty cereals by 15%*.

[Press release]. http://waitrose.pressarea.com/pressrelease/details/78/NEWS_13/7971.

Accessed 16 November 2020. Nestle. (2017, July 4). *Nestle Breakfast Cereals to reduce a further 10% of sugar by end of 2018*. [Press release].

<https://www.nestle.co.uk/media/pressreleases/nestle-breakfast-cereals-to-reduce-a-further-10-of-sugar-by-end-of-2018>. Accessed 16 November 2020.

[5.6] Cliff, M. (2019, 13 May). Novelty freakshakes contain up to 39 teaspoons of sugar – five times the recommended daily amount, C4 show finds. *The Sun* (monthly unique browsers: 24,438,000; print circulation: 1,210,915).

<https://www.thesun.co.uk/fabulous/food/9068244/novelty-freakshakes-contain-up-to-39-teaspoons-of-sugar-five-times-the-recommended-daily-amount-c4-show-finds/>. Accessed 16 November 2020.

[5.7] Department of Health and Social Care. (2019). *Advancing our health: prevention in the 2020s*. (Chapter 2, pp. 29).

<https://www.gov.uk/government/consultations/advancing-our-health-prevention-in-the-2020s/advancing-our-health-prevention-in-the-2020s-consultation-document#chapter-2-challenges>

[5.8] Smithers, R. (2018, 5 March). UK supermarkets ban sales of energy drinks to under-16s.

The Guardian (print circulation: 111,953; print readership: 3,600,000; monthly unique online browsers: 25,100,000). <https://www.theguardian.com/lifeandstyle/2018/mar/05/uk-supermarkets-ban-sales-energy-drinks-under-16s>. Accessed 16 November 2020.

[5.9] Action on Sugar. (2019). *Nutrition, Health and Cartoon Animation on Food and Drink Packaging*.

<http://www.actiononsugar.org/media/action-on-salt/Children's-Packaging-Report.pdf>

[5.10] Media stories on the removal of cartoon characters. Barr, S. (2020, 3 January). Lidl to remove cartoon characters from cereal packaging to help parents cope with 'pester power'. *The Independent* (monthly unique browsers: 26,000,000). <https://www.independent.co.uk/life-style/food-and-drink/lidl-cereal-packaging-cartoon-characters-children-parents-a9268901.html>.

Accessed 16 November 2020. Bakar, F. (2020, 7 January). Asda is removing cartoon characters from cereals to tackle childhood obesity. *Metro* (monthly unique browsers: 12,284,000; print

circulation: 1,426,535). <https://metro.co.uk/2020/01/07/asda-is-removing-cartoon-characters-from-cereals-to-tackle-childhood-obesity-12015051/>. Accessed 16 November 2020.

[5.11] Organix. (2020). *Action on Sugar - Only Organix*.

[5.12] Food Standards Agency (2019). *Public Attitudes Tracker*. <https://www.food.gov.uk/about-us/biannual-public-attitudes-tracker#latest-survey>