

<b>Institution:</b> Robert Gordon University		
<b>Unit of Assessment:</b> 03 -Allied Health Professions, Dentistry, Nursing and Pharmacy		
<b>Title of case study:</b> Impact on Scottish Government Diet and Health Policy		
<b>Period when the underpinning research was undertaken:</b> 2009-2018		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Dr Lindsey Masson	Lecturer in Nutrition	April 2014 - present
Dr Wendy Wrieden	Reader	September 2009 - October 2014
<b>Period when the claimed impact occurred:</b> 2014-2020		
<b>Is this case study continued from a case study submitted in 2014?</b> No		
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)</p> <p>This 10-year rolling programme of research monitored progress towards the Scottish Dietary Goals (the Goals) from 2001-2015. It was the only method identified by the Scottish Government for monitoring progress towards the majority of the Goals. The research provided evidence<sup>[O1-O6]</sup> to inform the development, implementation, and evaluation of Scottish Government's policies to reduce diet-related health inequalities and to combat overweight and obesity which costs NHS Scotland between £363-600 million per year. The research influenced many policy documents which support challenges to the food and drink industry to create a healthier food environment for Scotland<sup>[C1-C9]</sup>.</p>		
<p><b>2. Underpinning research</b> (indicative maximum 500 words)</p> <p><u>Policy background</u></p> <p>This research is the only method identified by the Scottish Government (SG) for monitoring progress towards the majority of their Scottish Dietary Goals (the Goals), which indicate the dietary change required to reduce the burden of obesity and diet-related diseases. The Goals (set in 1996; revised in 2013 and 2016) exist for calories (energy), fruit and vegetables, oily fish, red meat, total fat, saturated fat, non-milk extrinsic sugar (free sugar), and fibre.</p> <p>The Goals underpin the SG's diet and health policies, particularly in relation to overweight and obesity, which costs NHS Scotland £363-600 million/year. The prevalence of overweight and obesity in adults in Scotland has not changed since 2008: 66% overweight (including obese) and 29% obese in 2019 (Scottish Health Survey 2019).</p> <p><u>Research</u></p> <p>Food Standards Scotland (FSS) commissioned a rolling programme of research to obtain robust estimates of food consumption, nutrient intakes, and mean energy density of the diet using Scottish data from the Living Costs and Food Survey (the Survey). Six grants were awarded in excess of half a million pounds in 2009-2018 to the Principal Investigators at RGU and collaborators at Abertay, Dundee, Glasgow, Glasgow Caledonian, and Newcastle universities.</p> <p>The Survey collects food purchase data from every person over seven years of age in a representative sample of Scottish households for 14 days. Estimates of food waste were made before estimating consumption for a typical average household member. This was carried out using general linear models within the complex samples module of SPSS (Statistical Package for the Social Sciences) to weight to the Scottish population and account for sampling methods. This rigorous analysis ensured figures were representative of the national population.</p> <p>Data for nutrients and foods were analysed for changes over time, and for differences by deprivation level using Scottish Index of Multiple Deprivation quintiles. Main contributors to intakes</p>		

of energy and nutrients were explored to inform SG and FSS policy on reformulation and further explain differences in intakes of some foods by deprivation which may not translate into differences in nutrient intakes.

#### Findings

The Scottish population is not meeting the Goals for energy density, fruit and vegetables, oily fish, total and saturated fat, free sugar, and fibre. This is evidenced in peer-reviewed reports which describe the monitoring of the Scottish diet (from 2001-2009<sup>[O1]</sup>, 2001-2012<sup>[O2-03]</sup> and 2001-2015<sup>[O4]</sup>) and estimation of mean energy density<sup>[O5-06]</sup>. Discretionary foods (sweet biscuits; confectionery; crisps and savoury snacks; cakes, pastries, and puddings; and sugar-sweetened beverages) contribute almost 20% of the Scottish diet's energy, fat, and saturated fat intakes and more than 50% of free sugar intake.

Significant inequalities in diet also exist across Scotland, with households in more deprived areas consuming significantly less fruit and vegetables, oily fish, and fibre than households in less deprived areas. There was no progress towards meeting the Goals between 2001 and 2015 for fruit and vegetables, oily fish, total fat, or fibre. While there was a small reduction in red meat, saturated fat and free sugar intake, the energy density of the diet increased<sup>[O4]</sup>.

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

[O1] BARTON, K.L. & WRIEDEN, W.L., 2012. Estimation of food and nutrient intakes from food survey data in Scotland: 2001-2009. Aberdeen: Food Standards Agency in Scotland. Available from: [https://www.foodstandards.gov.scot/downloads/Final\\_Report\\_01-09.pdf](https://www.foodstandards.gov.scot/downloads/Final_Report_01-09.pdf) [Accessed 10 December 2019].

[O2] WRIEDEN, W.L. & BARTON, K.L., 2015. Estimation of food and nutrient intakes from food purchase data in Scotland: 2001-2012. Aberdeen: Food Standards Scotland. Available from: [https://www.foodstandards.gov.scot/downloads/Monitoring\\_Scottish\\_Dietary\\_Goals\\_Final\\_Report.pdf](https://www.foodstandards.gov.scot/downloads/Monitoring_Scottish_Dietary_Goals_Final_Report.pdf) [Accessed 14 October 2019].

[O3] BARTON, K.L. & WRIEDEN, W.L., 2015. Contribution of foods and selected nutrients using food purchase data in Scotland: 2001-2012. Aberdeen: Food Standards Scotland. Available from: [https://www.foodstandards.gov.scot/downloads/Contributing\\_Foods\\_Final\\_Report\\_300416.pdf](https://www.foodstandards.gov.scot/downloads/Contributing_Foods_Final_Report_300416.pdf) [Accessed 14 October 2019]

[O4] BARTON, K.L., MASSON, L.F. & Wrieden, W.L., 2018. Estimation of food and nutrient intakes from food purchase data in Scotland, 2001-2015: report to Food Standards Scotland. Aberdeen: Food Standards Scotland. Available from: [https://www.foodstandards.gov.scot/downloads/D19-01\\_Final\\_Draft\\_Report\\_2001-2015\\_-\\_Following\\_Peer\\_Review\\_150818.pdf](https://www.foodstandards.gov.scot/downloads/D19-01_Final_Draft_Report_2001-2015_-_Following_Peer_Review_150818.pdf) [Accessed 14 October 2019].

[O5] WRIEDEN, W.L. & BARTON, K.L., 2011. The Scottish Diet: Estimations of Energy Density and Expenditure. Aberdeen: Food Standards Agency in Scotland. Available from: [https://www.foodstandards.gov.scot/downloads/Energy\\_Density\\_Report.pdf](https://www.foodstandards.gov.scot/downloads/Energy_Density_Report.pdf) [Accessed 12 March 2021].

[O6] BARTON, K.L., WRIEDEN, W.L., SHERRIFF, A. et al., 2014. Energy density of the Scottish Diet estimated from food purchase data: relationship with socio-economic position and dietary targets. *British Journal of Nutrition*, 112, 80-88.

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

This research informed the development, implementation, and evaluation of Scottish Government (SG) policy and Food Standards Scotland (FSS) recommendations for improving the Scottish diet<sup>[C1]</sup>. In particular, the research provided evidence to support engagement with food and drink

industry stakeholders in order to reduce health harms associated with excessive consumption of calories, fat, and sugar.

#### Benefit to Scottish Government

In 2014, the research<sup>[O1]</sup> played a significant role in supporting SG's challenges to the food and drink industry and other partners to create a healthier food environment. These challenges were set in 'Supporting Healthy Choices: a framework for voluntary action'<sup>[C2]</sup>. The impact of this research included suggested actions for reformulation, rebalancing promotions, labelling, and marketing of food and drink. In particular, our findings showing the population's high consumption of sugary soft drinks and confectionery supported SG's challenge to retailers and out-of-home caterers to remove confectionery and sugary drinks from till points, checkout aisles and areas around checkouts.

The value of our research was confirmed in 2016 when SG revised the Scottish Dietary Goals (the Goals)<sup>[C3]</sup>. The government continued to identify the secondary analysis of Scottish data from the Survey as the preferred method of monitoring change and referenced the research as "relevant reports published by FSS"<sup>[O1, O5]</sup>.

In 2018, this research<sup>[O4]</sup> informed SG's strategy to address obesity as part of its policy monitoring and evaluation cycle. The 2018 progress report on obesity indicators<sup>[C4]</sup> is informed by the findings for two of its indicators of progress: (i) total and saturated fat and (ii) free sugars. It describes population intakes in comparison with the Goals and changes from 2001-2015 using our data. Also, in 2018, the research contributed to SG's Diet and Healthy Weight Delivery Plan<sup>[C5]</sup>, which aims to change the environment to impact everyone in Scotland while reducing diet-related health inequalities by working towards five key outcomes. The findings influenced outcome 2 (the food environment supports healthier choices) by supporting the implementation of action 2.1 (a consultation on plans to restrict the promotion and marketing of discretionary foods<sup>[C6]</sup>). The consultation used the study's data, on the contribution of discretionary foods to calorie, fat and sugar intakes, as the rationale for proposing the restriction of various forms of promotion and marketing of confectionery, sweet biscuits, crisps, savoury snacks, cakes, puddings and soft drinks with added sugar.

#### Benefit to Food Standards Scotland

FSS has a remit to improve the extent to which the public have diets conducive to good health, and they advise SG, other authorities, and the public on food.

This research benefited FSS by providing evidence that highlighted the scale of the challenge to improve the Scottish diet, as cited in their Situation Report 'The Scottish Diet: it needs to change' published in 2015, 2018 and 2020<sup>[C7]</sup>. The report is designed to inform policymakers, the food industry, health professionals and consumers, so the research reaches a wide variety of stakeholders.

The study also informed a FSS Board meeting in January 2016, which included a discussion on whether a tax on sugar-sweetened beverages may help address health inequalities (item 7.5.7). The analysis showed that sugar-sweetened beverage consumption and free sugar intake was higher in more deprived areas than in the least deprived areas<sup>[O2-O3]</sup> and influenced FSS's discussions on the direction of the Scottish diet<sup>[C8]</sup>.

Finally, this research<sup>[O4]</sup> informed FSS's strategy for 2021-26, and was included as one of their 'diet and nutrition achievements 2015-20' (section 4, annex B)<sup>[C9]</sup>.

#### Reach and knowledge exchange

The research had substantial reach and facilitated knowledge exchange among both the general public and health professionals in the UK and internationally in Malta. A press release issued in July 2018 resulted in interviews on BBC Radio Scotland and STV News, and 33 newspaper articles: calculated reach 1,947,132 people and advertising equivalent value £123,608 (RGU Communications Office).

The public was engaged in the research at an Aberdeen city centre exhibition for 'Explorathon 2018' (Scottish European Researchers' Night project). Findings were also communicated to health professionals via eight abstracts presented at Nutrition Society conferences in 2015-2018, an annual lecture on 'Surveys' from 2014-2020 at RGU (reach ~200 future health professionals: BSc (Hons) Nutrition and BSc (Hons) Nutrition and Dietetics students), and a public lecture and workshop in 2018 at the University of Malta (reach ~50 lecturers and health professionals). This led to collaboration with the Head of the Department of Food Sciences & Nutrition at the University of Malta to produce an invited commentary for the Malta Journal of Health Sciences on the challenges shared by both countries on meeting population dietary goals<sup>[C10]</sup>.

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

[C1] FOOD STANDARDS SCOTLAND, 2021. Letter of support.

[C2] THE SCOTTISH GOVERNMENT, 2014. Supporting Healthy Choices: A framework for voluntary action. An invitation to the food industry to work in partnership with Government in Scotland. Edinburgh: The Scottish Government. Available from: <https://www.gov.scot/publications/supporting-healthy-choices-framework-voluntary-action/> [Accessed 14 October 2019].

[C3] SCOTTISH GOVERNMENT, 2016. Revised Dietary Goals for Scotland. Available from: <http://www.scotland.gov.uk/Topics/Health/Healthy-Living/Food-Health/DietaryGoalsScot> [Accessed 14 October 2019].

[C4] SCOTTISH GOVERNMENT, 2018. Obesity Indicators: Progress Report - October 2018. Available from: <https://www.gov.scot/publications/obesity-indicators/> [Accessed 26 November 2019].

[C5] SCOTTISH GOVERNMENT, 2018. Improving Scotland's Health: A Healthier Future – Scotland's Diet & Healthy Weight Delivery Plan. Available from: <https://www.gov.scot/Publications/2018/07/8833> [Accessed 14 October 2019].

[C6] SCOTTISH GOVERNMENT, 2018. Reducing health harms of foods high in fat, sugar or salt: consultation paper. Available from: <https://www.gov.scot/publications/reducing-health-harms-foods-high-fat-sugar-salt/> [Accessed 26 November 2019].

[C7] FOOD STANDARDS SCOTLAND, 2020. Situation Report: The Scottish Diet: It needs to change. 2020 update. Aberdeen: Food Standards Scotland. Available from: <https://www.foodstandards.gov.scot/publications-and-research/publications/the-scottish-diet-it-needs-to-change-2020-update> [Accessed 12 March 2021].

[C8] FOOD STANDARDS SCOTLAND, 2016. Diet and nutrition: proposals for setting the direction of the Scottish diet. Board meeting 20 January 2016. Available from: [https://www.foodstandards.gov.scot/downloads/Diet and Nutrition Proposals for setting the direction for the Scottish Diet 1.pdf](https://www.foodstandards.gov.scot/downloads/Diet%20and%20Nutrition%20Proposals%20for%20setting%20the%20direction%20for%20the%20Scottish%20Diet%201.pdf) [Accessed 26 November 2019]

[C9] FOOD STANDARDS SCOTLAND, 2020. Diet and nutrition update and strategy proposals for 2021-26. Board meeting 21 October 2020. Available from: [https://www.foodstandards.gov.scot/downloads/5 - Diet and Nutrition Update and Strategy Proposals 2021-26.pdf](https://www.foodstandards.gov.scot/downloads/5_-_Diet_and_Nutrition_Update_and_Strategy_Proposals_2021-26.pdf) [Accessed 04 November 2020]

[C10] MASSON, L.F. & COPPERSTONE, C., 2019. Meeting population dietary goals in Scotland and Malta: shared challenges and opportunities for learning. Malta Journal of Health Sciences, 6, 29-34. <https://doi.org/10.14614/DIETSCOTLANDMALTA/10/19>

