

Institution: Queen Mary University of London		
Unit of Assessment: 2		
Title of case study: Action on Salt: Preventing Cardiovascular Disease in the UK by Driving Salt Reduction in Food Products		
Period when the underpinning research was undertaken: 2012 - 2017		
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) Hannah Brinsden	4) Nutritionist	4) 11/2009 - 09/2012
5) Kawther Hashem	5) Nutritionist	5) 08/2012 - 2014
6) Sonia Pombo	6) Nutritionist	6) 01/2013 - present
7) Sarah Alderton	7) Assistant Nutritionist	7) 05/2016 - 06/2018
8) Mhairi Brown	8) Nutritionist	8) 01/2017 - present
9) Zoe Davies	9) Nutritionist	9) 06/2018 - present
Period when the claimed impact occurred: August 2013 - 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact (indicative maximum 100 words)		
<p>Queen Mary's Action on Salt team has been instrumental in influencing the government to implement a structured and highly cost-effective salt reduction programme. More than one in four adults in the UK have high blood pressure; over half of the disease burden ascribed to high blood pressure — including cardiovascular disease, a leading cause of death in the UK — is due to chronic excess salt consumption, with average salt intake in the UK being 40% higher than the recommended maximum. As a result of Queen Mary's work, the Department of Health set new voluntary salt targets in 2014 for industry to achieve by 2017. Industry analysis by Public Health England in 2018 also showed that 81% of food products consumed in the home fell within 2017 salt targets, with 71% of out-of-home food products meeting maximum per-serving targets — achievements driven by Action on Salt, which has continually maintained pressure on the food industry, and kept salt on the agenda.</p>		
2. Underpinning research (indicative maximum 500 words)		
<p>High blood pressure is a major risk factor for cardiovascular disease, with around half of this disease burden being due to chronic excess salt consumption. Average salt intakes in the UK are currently 40% higher than the recommended maximum of 6g per day.</p> <p>The Action on Salt research group, chaired by MacGregor and based at Queen Mary's Wolfson Institute, has extensively demonstrated the relationship between salt intake and blood pressure. In a meta-analysis of 34 trials, the group showed that a modest longer-term reduction in salt intake, as per current health recommendations, brings a significant and clinically meaningful reduction in blood pressure in both those with and without high blood pressure, irrespective of sex or ethnic group. This meta-analysis also demonstrated a dose-response relationship between reduction in salt intake and fall in systolic blood pressure, and indicated that a further reduced salt intake of 3g per day (in addition to the current 6g recommendations) would have a major effect on health [3.1].</p> <p>Based on the above findings, the group developed a salt reduction model to guide development of a voluntary salt reduction policy in the UK (Figure 1) [3.2]. This was subsequently adopted by the Food Standards Agency (FSA), which was given responsibility for nutrition policy following its formation in 2000.</p>		

Figure 1:

The key components of **Action on Salt's** model are:



As part of this voluntary policy, the FSA tasked Action on Salt with holding the food industry to account on their salt reduction progress, which they did by, inter alia, studying the main contributors of salt to the average UK diet, including:

- Bread, the leading contributor, which saw a 20% average reduction in salt content between 2001 and 2011 [3.3]
- Cheese, for which salt content was high but there was significant variation within the same type of cheese, highlighting the possibility of reformulation [3.4]
- Breakfast cereals, for which average salt content had decreased by 47% between the early 1990s and 2015 [3.5].

Evaluating the Government's salt reduction policy

In 2014, Action on Salt investigated the impact of the UK government's salt reduction policy on blood pressure, stroke and ischaemic heart disease mortality, using data from the National Diet and Nutrition and Health Surveys for England. They showed that a reduction in daily salt intake (of 1.4 grams between 2003 and 2011) caused population blood pressure to fall (by $3.0 \pm 0.33 / 1.4 \pm 0.20$ mm Hg – a reduction of 2.3%/1.9%), in turn reducing incidence of mortality from stroke and heart disease (for which there were decreases of 42% and 40%, respectively, across the same period) [3.6].

Following the government's decision to move nutrition policy responsibility from the FSA to the Department of Health and their Public Health Responsibility Deal (PHRD), MacGregor and colleagues published a 2015 article in the British Medical Journal [3.7] highlighting concerns about the UK's salt reduction programme. The article noted that the decision led to delays in salt reduction targets being reset, accompanied by a lack of official monitoring of food industry progress as the PHRD made the industry responsible for reporting its own progress. MacGregor and colleagues estimated that a delay in resetting salt targets effectively resulted in four years of the programme being lost, corresponding to approximately 6,000 deaths from stroke and heart attack — 4,000 of which were premature and preventable. As a result of the 2015 General Election, the PHRD was dissolved. Due in part to Action on Salt's lobbying, Public Health England (PHE) was given responsibility for the salt reduction targets in 2017.

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

[3.1] He, F. J., Li, J. & MacGregor, G. A. (2013). Effect of longer term modest salt reduction on blood pressure: Cochrane systematic review and meta-analysis of randomised trials. *The BMJ*, 346, f1325. <https://doi.org/10.1136/bmj.f1325>

- [3.2] He, F. J., Brinsden, H. C. & MacGregor, G. A. (2013). Salt reduction in the United Kingdom: a successful experiment in public health. *Journal of Human Hypertension*, 28 (6), 345-352. <https://doi.org/10.1038/jhh.2013.105>
- [3.3] Brinsden, H. C., He, F. J., Jenner, K. H. & MacGregor, G. A. (2013). Surveys of the salt content in UK bread: progress made and further reductions possible. *BMJ Open*, 3, e002936. <http://dx.doi.org/10.1136/bmjopen-2013-002936>
- [3.4] Hashem, K. M., He, F. J., Jenner, K. H. & MacGregor, G. A. (2014) Cross-sectional survey of salt content in cheese: a major contributor to salt intake in the UK. *BMJ Open*, 4, e005051. <http://dx.doi.org/10.1136/bmjopen-2014-005051>
- [3.5] Pombo-Rodrigues, S., Hashem, K., He, F. J. & MacGregor, G. A. (2017). Salt and sugars content of breakfast cereals in the UK from 1992 to 2015. *Public Health Nutrition*, 20 (8), 1500-1512. <https://doi.org/10.1017/S1368980016003463>
- [3.6] He, F. J., Pombo-Rodrigues, S. & MacGregor, G. A. (2014). Salt Reduction in England from 2003 to 2011: its Relationship to Blood Pressure, Stroke and Ischaemic Heart Disease Mortality. *BMJ Open*, 4, e004549. <http://dx.doi.org/10.1136/bmjopen-2013-004549>
- [3.7] MacGregor, G. A., He, F.J. & Pombo-Rodrigues, S. (2015). Food and the responsibility deal: how the salt reduction strategy was derailed. *The BMJ*, 350, h1936. <https://doi.org/10.1136/bmj.h1936>

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

Salt reduction is recommended by the WHO as a 'best buy' intervention to prevent death and disability from non-communicable diseases due to its feasibility and cost effectiveness [5.1]. For every GBP1 spent on salt reduction in the UK, GBP300 is saved in healthcare costs [5.2]. Led by MacGregor, Queen Mary's Action on Salt is heavily involved in the development and implementation of the UK's salt reduction policy, and the only UK non-governmental expert group to visibly and consistently highlight the need for salt reduction.

Influencing the UK's salt reduction policy

Based on Action on Salt's salt reduction model, summarised in Figure 1, the UK Government implemented a multifaceted salt reduction programme. In 2014, the Department of Health set new voluntary salt targets for industry to achieve, following numerous meetings with members of the food industry and Action on Salt (as an independent monitor) [5.3].

In 2015, when it was evident that the Department of Health's voluntary Public Health Responsibility Deal was not working successfully, MacGregor and colleagues published criticism in the British Medical Journal and via press releases [3.7]. Action on Salt maintained pressure and kept salt on the agenda, resulting in PHE taking responsibility for salt reduction [5.4]. Due in large part to Action on Salt's lobbying, salt was mentioned as a priority in the Secretary of State for Health's Prevention Green Paper [5.5]

Action on Salt also worked with the Chief Medical Officer's (CMO) team to ensure that salt reduction was mentioned in the CMO Annual Report for 2018 [5.6]. Following this, in February 2020, PHE released a closed consultation on their new salt reduction targets for 2020–2024 to key stakeholders, including Action on Salt [5.7].

Reducing salt content in food

Action on Salt has worked to stimulate the food industry to reformulate products by publicly highlighting poor performance. PHE's analysis of the industry's progress towards the 2017 salt reduction targets found that 81% of foods consumed in-home (retailer own label and manufacturer-branded products) met maximum salt targets, and just over half met average targets. For the out-of-home sector, 71% of products met maximum per-serving targets [5.8]. A Queen Mary health economics analysis showed that the 2003-2018 salt reduction programme in England achieved a reduction in salt intake of 1g/day/adult from 9.38g/day in 2000 to 8.38g/day in 2018. Compared with a scenario of persistent 2000 levels, assuming that the population-level salt intake is maintained at 2018 values, by 2050 the programme will have avoided 83,100 premature deaths due to heart disease and 110,700 premature strokes, generating 542,900 extra

quality-adjusted life-years and GBP1,640,000,000 healthcare cost savings for the adult population of England [5.9].

Raised awareness and industry support for Action on Salt's annual Salt Awareness Week

Each year, Action on Salt organises a national 'Salt Awareness Week' to raise awareness of the damaging effect of excess salt on public health. The annual campaign enables Action on Salt to directly engage key stakeholders. Posters, leaflets and factsheets are made available for order by hospitals, GP surgeries, health charities, schools, universities and the food industry. In 2019, there were more than 300 supporting events throughout the UK. Salt Awareness Week has increased public awareness, as evidenced by the FSA's Public Attitudes Tracker, which continues to highlight salt as a top concern for consumers [5.10]. Additionally, Action on Salt has gained support for their annual Awareness Week from multiple food companies, which have committed to further salt reduction work. Following their continued involvement in the Awareness Week, McCain, Waitrose, Aldi, the Co-op and Mars Food had met most of the 2017 salt reduction targets [5.11].

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

[5.1] World Health Organisation. (2017). *Tackling NCDs*.

<https://apps.who.int/iris/bitstream/handle/10665/259232/WHO-NMH-NVI-17.9-eng.pdf?sequence=1&isAllowed=y>

[5.2] NICE. (2010). *Cardiovascular Disease Prevention*.

<https://www.nice.org.uk/guidance/ph25/chapter/3-Considerations>

[5.3] Department of Health. (2013, 1 October). *Salt Targets review meeting, Category 12: Cakes, Pastries, Fruit Pies and other pastry-based desserts; Category 16: Biscuits*. Department of Health (2013, 16 October). *Salt Targets review meeting, Meat Extracts*.

[5.4] Public Health England. (2017). *Salt reduction: targets for 2017*.

<https://www.gov.uk/government/publications/salt-reduction-targets-for-2017>

[5.5] Department of Health and Social Care. (2019). *Advancing our health: prevention in the 2020s*. <https://www.gov.uk/government/consultations/advancing-our-health-prevention-in-the-2020s>

[5.6] Annual Report of the Chief Medical Officer. (2018). *Health 2040 – Better Health Within Reach*.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/767549/Annual_report_of_the_Chief_Medical_Officer_2018_-_health_2040_-_better_health_within_reach.pdf

[5.7] Public Health England. (2020). *Salt reduction targets for 2024*.

<https://www.gov.uk/government/publications/salt-reduction-targets-for-2024>

[5.8] Public Health England. (2018). *Salt targets 2017: Progress Report*.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765571/Salt_targets_2017_progress_report.pdf

[5.9] Alonso, S., Tan, M., Wang, C., Kent, S., Cobiac, L., MacGregor, G. A., He, F. & Mihaylova, B. (2021). Impact of the 2003 to 2018 population salt intake reduction program in England: a modelling study. *Hypertension*, 77, 1086-1094.

<https://doi.org/10.1161/HYPERTENSIONAHA.120.16649>

[5.10] Food Standards Agency (2019, May). *Biannual public attitudes tracker*.

<https://www.food.gov.uk/about-us/biannual-public-attitudes-tracker#previous-surveys>. Accessed 11 December 2020.

[5.11] 2017 salt reduction targets met. Waitrose. (2014, 22 September). *Waitrose among first to sign up to latest salt reduction targets*. [Press release].

https://waitrose.pressarea.com/pressrelease/details/78/NEWS_13/3559. Accessed 11 December 2020. Mars. (2019, July). *Report: Mars Food Expect to Meet One Billion More Healthy Meals Target By End of 2019 – One Year Ahead of Target*. <https://gbr.mars.com/news-and-stories/articles/mars-food-launches-global-health-wellbeing-ambition>. Accessed 11

December 2020. Aldi. *Lowering the salt whilst maintaining the product quality.*
<https://www.aldi.co.uk/salt-reduction>. Accessed 11 December 2020. Co-op. *Reducing Salt.*
<https://www.coop.co.uk/health-wellbeing/healthy-lifestyles/reducing-salt>. Accessed 11 December 2020.