

# SALT REDUCTION: WHAT WORKS?



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## Acknowledgements

This report was developed by Mhairi Brown RNutr, Policy and Public Affairs Manager for Action on Salt and WASSH Lead, with input and review by:

- Prof Feng He, Professor of Global Health Research, Queen Mary University of London
- Harriet Burt ANutr, Policy and Communications Officer, Action on Salt and WASSH
- Holly Gabriel RNutr, Nutrition Manager, Action on Sugar
- Katharine Jenner RNutr, Director, Action on Salt and WASSH
- Dr Monique Tan, Research Fellow, Queen Mary University of London
- Sonia Pombo, Campaign Manager, Action on Salt

The contents and opinions expressed in this report are those of the authors only.

## About Action on Salt

Action on Salt is a group concerned with salt and its effects on health, supported by 22 expert scientific members. Established in 1996, Action on Salt is successfully working to reach a consensus with the food industry and Government over the harmful effects of a high salt diet and bring about a reduction in the amount of salt in processed foods as well as salt added during cooking, and at the table.

## About World Action on Salt, Sugar and Health

World Action on Salt, Sugar and Health (WASSH) is a global group with the mission to improve the health of populations throughout the world by achieving a gradual reduction in salt, sugar and excess calorie intake. Established in 2005 to translate the success of the UK's salt reduction programme worldwide, WASSH provide resources and expert advice. WASSH have a network of more than 600 members in 100 countries, all of whom are working towards reducing population salt, sugar and calorie intake.

## Action on Salt and WASSH

Wolfson Institute of Population Health  
Queen Mary University of London  
Charterhouse Square  
London EC1M 6BQ

T: +44 (0)20 7882 5941

E: [cash@qmul.ac.uk](mailto:cash@qmul.ac.uk) | [wash@qmul.ac.uk](mailto:wash@qmul.ac.uk)

W: [www.actiononsalt.org.uk](http://www.actiononsalt.org.uk) | [www.worldactiononsalt.com](http://www.worldactiononsalt.com)

Registered charity no: 1098818

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# EXECUTIVE SUMMARY

Excess salt intake is a leading risk factor for high blood pressure, which in turn leads to cardiovascular disease (CVD, i.e. stroke and heart disease), the major cause of death and suffering in the UK and worldwide. Salt intake is also linked to kidney disease, osteoporosis, stomach cancer and obesity. The UK once led the way with salt reduction, setting salt targets for the food industry to work towards, across a variety of food categories, which led to a fall in salt content, population salt intake, average population blood pressure and deaths due to CVD. The majority of salt consumed in the UK is already present in food, which is why an industry-focused policy was so impactful. However, in recent years progress in salt reduction has stalled, with no change in population salt intakes since 2014.

This document sets out an overview of salt reduction policies to inform UK and global policy makers on how to strengthen policies, reduce population salt intake and prevent millions of deaths in the UK from CVD.

## Key Findings and Recommendations

- Bold and ambitious political leadership, committed to preventing ill health, is needed to implement and maintain salt reduction policies
- To create a level playing field, mandatory salt reduction targets for food products motivate the food industry to accelerate salt reduction, leading to greater reductions in population salt intake
- For greatest impact, mandatory front of pack nutrition labels are needed to incentivise reformulation
- Advocacy, i.e. having evidence-based NGOs dedicated to salt reduction, aids the prioritisation of salt reduction on political agendas and keeps the food industry accountable
- Consumer awareness campaigns help support the need for salt reduction policies, but are costly and their impact is transient
- Interventions in the out of home sector (e.g. restaurants, cafes, fast food outlets) are needed to ensure salt reduction occurs across the food sector
- More policy analysis research is needed to inform and support the development and implementation of new salt reduction policies, and the strengthening of existing policies
- Fiscal measures on added salt or high salt products may help ensure progress without the need for mandatory targets

## Action on Salt Recommendations

The evidence is clear: excess salt consumption is damaging health and leads to unnecessary suffering and death from CVD. Comprehensive salt reduction policies, with mandatory salt reduction targets as the central element are needed, with complementary measures such as mandatory front of pack nutrition labels and fiscal measures to accelerate progress.

# BACKGROUND

Excess salt intake is a leading risk factor for high blood pressure, which in turn leads to cardiovascular disease (CVD i.e. stroke and heart disease), the major cause of death and suffering in the UK and worldwide. Salt intake is also linked to kidney disease, osteoporosis, stomach cancer and obesity. A global study of the dietary risk factors associated with ill health and death found that excess salt intake was the key dietary risk factor, accounting for approximately two million deaths in 2019 (1). Many people are eating much more salt than they are aware of, as around 75% of the salt eaten in the UK has already been added to products such as bread, breakfast cereals, processed meats, and ready meals, in addition to food from restaurants and fast food outlets. Salt intake in England is on average 40% higher than the recommended limit of 6g per day, at 8.4g/day as measured in 2018/19 (2).

Reformulation - changing recipes to improve the nutritional profile of food and drinks by gradually reducing salt, sugar and saturated fat, while ideally increasing wholegrains, fibre, fruit and vegetables - is a powerful and cost-effective tool in the prevention of ill health, allowing consumers to eat less salt, sugar and excess calories over time without the need to rely on people consciously changing their eating and drinking habits. The nutritional value of food is improved before it even lands on the shelves, which stands to benefit everyone, particularly the most socially deprived, who are more at risk of poor health outcomes. Healthy food is three times more expensive than less healthy processed foods, which are much higher in fat, sugar and salt, and low in fibre and fruit and vegetables (3). The public want the Government to take a leading role in reformulation, with 9 in 10 people supporting Government working with the food industry to make food and drinks healthier (4).

Given that the majority of salt eaten in the UK has not been added by individuals, reformulation is a crucial intervention to protect health and prevent unnecessary death and suffering. The UK implemented a salt reduction programme in the early 2000s, with voluntary salt targets set across numerous processed and prepared foods for the food industry to work towards. Other measures such as consumer awareness campaigns and uniform front of pack labelling were also introduced to complement and support the programme. Despite initial success, with falls in population salt intake, average population blood pressure, and CVD mortality which inspired many countries to develop similar programmes, in recent years the salt reduction programme has stalled. A 2020 report found that many salt targets – due to be met by 2017 – had still not been met (5). This is reflected in population salt intakes, which have not decreased since 2014 (2). New, more ambitious salt targets were set in 2020 to be met by 2024 but there is no guarantee that these will see progress.

The UK's experience of salt reduction is internationally lauded and was called upon by the World Health Organization when setting their Global Sodium Benchmarks, designed to help accelerate salt reduction progress globally. However, with a strong focus on obesity prevention in the UK in recent years, salt reduction is no longer high on the political agenda.



# PURPOSE

This report reviews evidence from salt reduction policies in place globally, highlighting success factors and recommendations to strengthen global salt reduction policies, prevent ill health and save lives, and reduce the economic burden of disease.

# METHODOLOGY

A scoping review was conducted in January 2022 to identify all published and grey literature relating to salt reduction policies, programmes, or interventions with evidence of real world effectiveness.

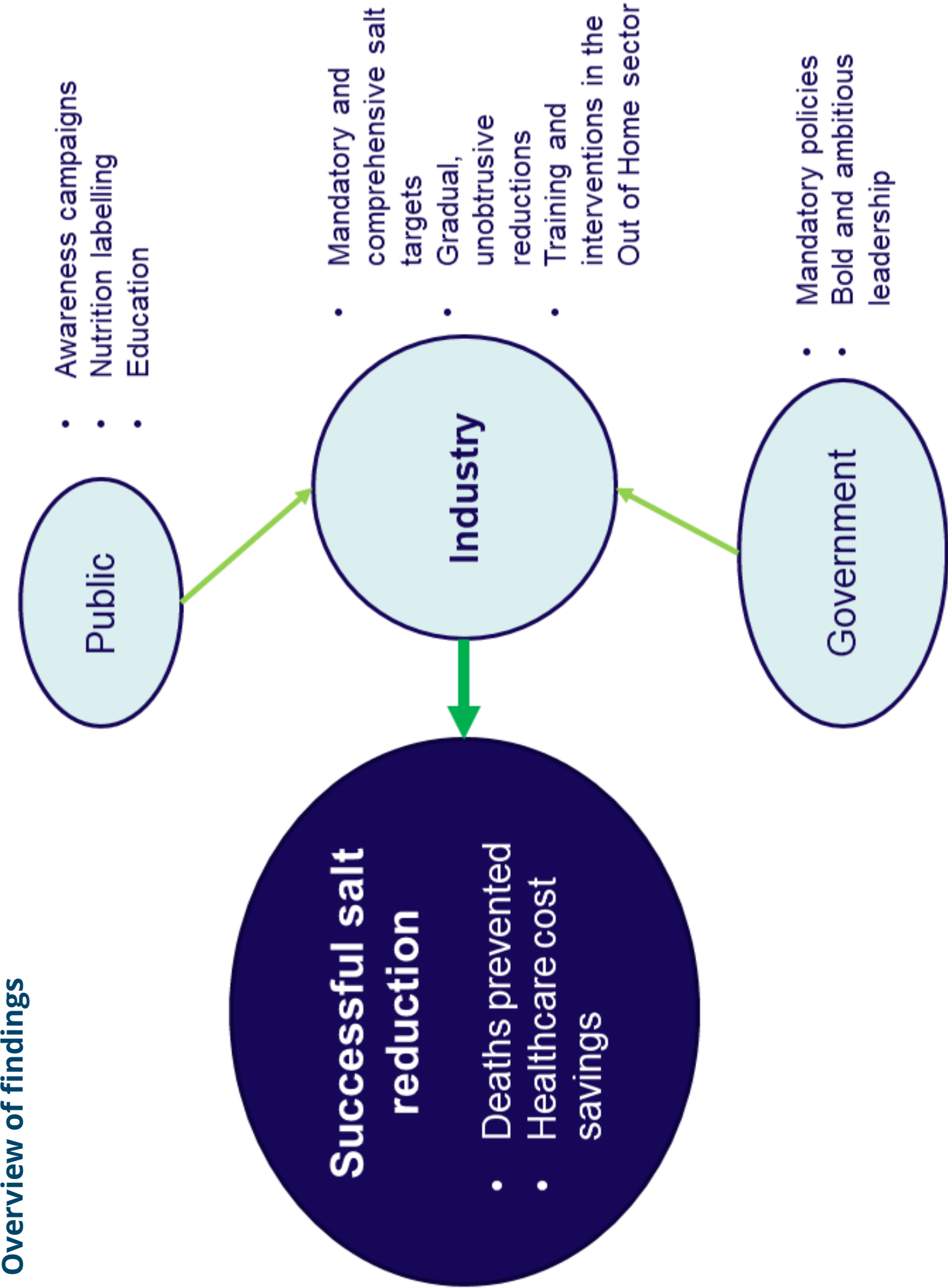
Electronic databases, including MEDLINE/Pubmed and Google Scholar were searched using a variety of terms e.g. (salt OR sodium OR sodium chloride) AND reduction (policy OR programme OR strategy) AND (effective OR impact OR success OR fail).

Targeted searches of government, agency and NGO websites (Office for Health Improvement and Disparities, Department of Health and Social Care, Food Standards Agency, World Health Organization and associated regional offices, Resolve to Save Lives) were conducted to identify grey literature.

Publications and documents were considered eligible for inclusion if they highlighted why particular real-world salt reduction policies had been successful or unsuccessful. Modelling studies, evidence relating to small scale interventions and studies reporting the outcome of an intervention without an explanation for the apparent success/failure were excluded.

Findings were summarised into key measures that form salt reduction policies: salt reduction targets, front of pack nutrition labels, consumer awareness campaigns, advocacy, political leadership and other potentially successful measures. It should be noted that while more countries have a salt reduction policy in place, many countries have not yet published research on the success factors and barriers of their specific salt reduction policies. Given the inclusion criteria of this report, a limited overview of global salt reduction policies is reported in the findings.

# Overview of findings



# RESULTS

## Salt Reduction Targets

### Voluntary Targets: UK

There is a wealth of evidence of the effectiveness of the UK's comprehensive and voluntary salt reduction targets in lowering salt levels in products as well as impacting population salt intake and health outcomes. Evidence shows that the fall in population salt intake was largely driven by reformulation, with just a small impact of consumers making healthier choices and choosing lower salt products (6).

Key to the success of the voluntary salt targets, originally set by the Food Standards Agency (FSA) was their comprehensiveness. Gradual and progressive reductions in salt content occurred, which are not detectable by taste receptors, with evidence showing that once salt intake is reduced, individuals prefer food with less salt meaning there would be no commercial benefit to producing products with high levels of salt (7,8). Consequently, there was no reported loss of sales or switching between products, or addition of salt at the table (9).

Strong leadership from the then Labour government, who were committed to addressing cardiovascular disease in the UK, alongside transparent monitoring reports from the FSA, were crucial in creating an environment where progress was expected. The FSA's reports publicly detailed progress and called out companies who had not made progress. Although voluntary and with partnership with the food industry at their core, the FSA's targets can be viewed as quasi-mandatory due to their enforcement.

The FSA later worked with the out of home sector (venues where food is sold for immediate consumption e.g. restaurants, fast food outlets, pubs and workplace caterers) to encourage salt reduction and ensure that lower salt options were available regardless of where consumers chose to eat.

### What are salt reduction targets?

Salt reduction targets involve setting a target level of salt per 100g/ml of product for the food and drink industry to work towards. Different targets are set for different categories of food and drink.

Targets can be either a maximum (the maximum level of salt a product should contain), an average (set as the mean or a median salt level, depending on the distribution of salt content in the products within the category) or a percentage reduction target (e.g. a 20% reduction within 3 years).

All companies should be encouraged to meet the maximum or percentage reduction targets, while average/sales-weighted average targets provide companies with flexibility to prioritise further reformulation in best-selling products.

Targets can be mandatory or voluntary, and can be comprehensive across all food products with added salt, or specific to high contributing categories.

To date, 57 countries have salt reduction targets, of which 19 have mandatory targets (10). Many countries have chosen comprehensive targets e.g. UK, USA, Canada, Australia, while others have set targets on the main contributors of salt e.g. South Africa, Argentina, Oman, Uruguay.



## The UK's Voluntary Salt Targets

In 2003, the Food Standards Agency (FSA), with input from Action on Salt and other stakeholders, developed a Salt Model to demonstrate that reaching the recommended daily salt limit of 6g would require a substantial effort by the food industry and strong leadership from government (11).

The Salt Model collated the food groups that contribute to UK salt intake, with their average salt content and the percentage contribution to intake, along with a required reduction in salt content. The FSA estimated that if each of the average targets were met, together with a 40% reduction in discretionary salt use (i.e. the salt individuals add during cooking or at the table), then the 6g per day intake level could be achieved. This informed the development of maximum and average or sales-weighted targets for many key contributors to salt intake; a total of 85 food groups in 30 food categories (12). The first set of targets were set in 2006, to be met in 2010, and then subsequently reset to be lower in 2009, 2014 and 2020 with the aim of achieving a gradual, stepwise reduction across all products with added salt (13).

As a result, salt levels in many products fell, and by 2011, average population salt intake had fallen from 9.5g/day (as measured in 2000/2001) to 8.1g/day in 2011. This led to a fall in average population blood pressure and a consequent fall in deaths due to cardiovascular disease (14).

Independent analysis showed that the UK salt reduction programme cost ≈£15 million and the 0.9g per day reduction in salt intake achieved by 2008 led to ≈6,000 fewer CVD deaths per year, saving the UK economy ≈£1.5 billion per annum (15).

Several companies in the sector agreed to take action to reduce salt, including developing procurement standards, reviewing kitchen practices and providing nutrition information to consumers (16). Complementary measures, such as food labelling and public awareness campaigns, also supported the implementation and maintenance of the targets, which are discussed in more detail later in this document.

However, a change in political leadership and the establishment of a public-private partnership have been highlighted as factors that led to waning progress with salt reduction (17). Following the 2010 General Election, Conservatives took power and took responsibility for salt reduction from the FSA (established under the previous Labour government) to the government's Department of Health.

In 2011, the government launched the Public Health Responsibility Deal (PHRD) which the Conservatives had been developing while they were the opposition party since 2008, in partnership with food and alcohol companies. The PHRD's central aim was to make the alcohol and food industries responsible for reducing alcohol consumption and improving nutrition, respectively. Unfortunately, it also allowed industry to specify scope of action and the types of monitoring processes they would be willing to be subject to (18, 19). Businesses funded government campaigns, such as Change4Life, in return for 'an expectation of non-regulatory approaches' (20, 21). Evaluations found that companies could report they were pledging to undertake new actions, even if they were already undertaking this work, and monitoring reports submitted by companies were sparse, descriptive and did not have to follow a standardised format, allowing companies to report what they wished (22).

### Voluntary Targets: South Korea

South Korea's voluntary salt targets were also highlighted as successful (23). Implemented in 2012, population salt intake had fallen by 23.7% by 2014 (compared to a 2010 baseline), which was accompanied by reductions in average population blood pressure and prevalence of diagnosed hypertension.

Complementary measures were again highlighted as key to success, including a consumer awareness campaign and development of low salt recipes for food prepared at home. Another key factor was the anticipated pushback from the food industry which was countered by engaging companies in dialogues, inviting them to education events run by non-governmental organisations (NGOs), and providing research and technical support to enable development of products with lower salt levels. For example, the feasibility of salt reduction in kimchi (a traditional Korean dish of salted and fermented vegetables) was a key food industry concern but government-funded research helped support reduction solutions.

Additionally, support from consumer and parent associations helped drive momentum, and economic analyses which demonstrated benefits for healthcare costs helped to quell any concerns regarding the cost of the programme.

### **Mandatory targets: Argentina**

Argentina was the first country to adopt this approach in 2013, setting mandatory targets for 18 food groups that fall within the following broad categories which contribute the most salt to the Argentine diet: meat and meat products, bread products, and soups and stocks. By 2014, 15 of the 18 food groups had a median salt content below the target level and by 2019, 90% of products complied with their targets (24, 25). Between 2011 and 2016 the average daily consumption of salt fell from 11.2g/day to 9.2g/day, an 18% reduction (26).

Several factors have led to success. The Ministry of Health first implemented voluntary targets in 2009, alongside a consumer awareness campaign 'Menos Sal, Mas Vida' (Less Salt, More Life), which generated awareness of salt and the need to reduce it - but ultimately slow progress towards the voluntary targets. Early success in reducing salt in bread and training and support for the food industry were also crucial to gaining support of the industry.

Argentina's commitment to salt reduction is incorporated into the Healthy Argentina Plan as part of the National Strategy for the Prevention and Control of Non-communicable Disease (NCD), and the Pan American Health Organization and international experts helped to lobby for more action on salt. Interestingly, robust industry resistance to any action to reduce sugar consumption was also thought to have resulted in the food industry being more inclined to act on salt reduction to placate and maintain good relations with the government (27).

### **Mandatory Targets: South Africa**

In South Africa, mandatory targets were also signed into law in 2013, covering a wider range of categories: bread, breakfast cereal, butter/margarine, potato crisps, savoury snacks, raw sausage, processed meat, instant noodles, dry soup powder and stock cubes (28). An initial set of targets were to be met by 2016, with a stricter set to be met by 2019. Researchers found that 67% of products in South Africa were compliant with the targets before they came into force in 2016, suggesting that the mandatory nature of the targets gave the food industry the push to make a head start (29).

Evidence published in 2022 shows that population salt intake has fallen significantly by 1.2g/day compared to a 2013-2016 baseline (i.e. prior to the introduction of the targets), with higher reductions in black and low socioeconomic groups (30).

Success has been attributed to a collaboration between the government, academia and the food industry (31). The government started this process by gathering country-specific data on health impacts e.g. blood pressure prevalence, and modelled the impact of salt reduction on health and cost savings. International experts such as Professor Graham MacGregor from World Action on Salt, Sugar and Health (WASSH) provided evidence to the South African Department of Health, based on experience of salt reduction around the world.

While consulting on proposals for the mandated targets, many food companies told the Department of Health that they preferred a regulated approach to create a necessary level playing field where they and their competitors would be expected to make the same progress. Companies did note that discretionary salt use was high in South Africa, which the government addressed by directing the Heart and Stroke Foundation to implement a consumer awareness campaign titled Salt Watch.

Industry also pushed back against draft regulations, stating they were too ambitious for categories such as bread, but the Government relied on international examples such as Canada, which had a lower salt target than was proposed in South Africa, and looked at the portfolios of multinational companies who were able to make lower salt breads in other countries.

## Summary

Political leadership (or lack thereof) can make or break a salt reduction policy. Experience of mandatory targets in Argentina and South Africa found government leadership to be one of the most crucial success factors, and necessary to coordinate and lead multi-sectoral action. Government leadership is also needed in the advocacy for mandated targets, and in allocating appropriate resources for target development, accessing technical guidance and monitoring.

Voluntary targets can be effective if monitored and enforced but in countries like the UK, health has been at the mercy of political decisions and prioritisation of partnership with food companies. An independent agency free from political influence would be best placed to oversee salt reduction, ensuring continuous progress if the government changes following election periods.

Across examples of both voluntary and mandatory targets, additionally measures such as consumer awareness campaigns or nutrition labelling have been implemented to support the targets.

# Nutrition Labelling

Front of pack nutrition labelling is recommended by the World Health Organization as a tool to promote healthy choices and prevent diet-related NCDs such as heart disease, stroke and cancer. Front of pack labels display key nutritional information, typically including calorie, saturated fat, salt, and sugar content. To date, there are 31 different formats of front of pack labels in place globally (32). Examples include:

## UK

- 'Traffic light' labels use traffic-light colours to indicate high (red), medium (amber) or low (green) levels of fat, saturated fat, sugars and salt in products with 'high', 'medium' or 'low' text and percentage reference intake values.

## Australia and New Zealand

- Health Star Rating - HSR calculates the overall nutritional profile of products, based on the levels of positive nutrients e.g. fibre and protein and negative nutrients e.g. salt, sugar and saturated fat in the product, and assigns a rating from ½ a star to 5 stars
- Pick the Tick - products could display the National Heart Foundation of New Zealand's Pick the Tick logo if they met nutritional criteria which was set for a range of product categories.

## Netherlands

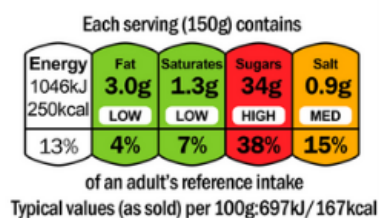
- Choices International Federation launched a 'Healthy Choice' logo in 2006, which has been implemented in several countries, including the Netherlands

## Belgium

- Nutri-score - calculates the overall nutritional profile of products and assigns a colour score (dark green for healthier products through to orange for less healthy products) and a score between A (most healthy) and E (least healthy).

## Chile

- Warning labels - mandatory front of pack warning labels on all food and drinks to indicate high levels of salt, fat, sugar and/or calories with the use of a black octagon featuring 'High in...' text.



## Front of Pack

In the UK, traffic light labels are in place on many products available in the retail sector, but due to the voluntary nature of the labelling, several products still do not display the labels. Tracking the impact of front of pack labels on salt reduction in the UK is difficult as salt targets were implemented at the same time, however leading UK retailers Sainsbury's and Asda submitted evidence to the House of Lords Science and Technology Committee in 2011 that front of pack labels increased the demand for healthier foods, which in turn stimulates manufacturers to reformulate their products to achieve a healthier profile – and colour code – to meet this demand (33). Sainsbury's state on their website that they were the first retailer to introduce traffic light labels in 2005, and since 2015 they have been committed to reducing the number of 'red lights' displayed on their own-brand products, with an ambition to reach just one in five (21%) products displaying any red label by 2020. The Co-operative defines 'healthy' products as those without red labels and Tesco also use red label thresholds when applying their Healthy Choice logo.

Evidence also highlights the potential of nutrition labels to encourage food companies to reformulate products and demonstrate they are healthier than other, similar products (32 - 34). A meta-analysis found that a range of food labelling initiatives (including back of pack and menu labelling) were associated with significantly reduced levels of salt in products (34).

Voluntary front of pack labels have also been used in other countries; the Health Star Rating (HSR) is used in Australia and New Zealand. Research has shown that two years post-implementation, products displaying the HSR had significantly lower levels of salt, saturated fat and total sugar on average than products without the HSR (35-37). Prior to implementing the HSR, food companies could voluntarily display a 'tick' label – the National Heart Foundation of New Zealand's Pick the Tick programme – if their products met nutrition criteria which was set individually for a range of product categories. Several studies found that this logo led to salt reduction, particularly in breakfast cereals (61% reduction), bread (26% reduction) and margarine (11% reduction) (38-40). The Pick the Tick programme was also adopted in Australia, leading to an average 40% reduction (range = 12-88% reduction) in the salt content of breakfast cereals that displayed the logo (41).

Similar to the Pick the Tick programme, the global Choices 'tick' logo launched in 2006 has been implemented in Poland, the Czech Republic and the Netherlands. Studies show that the logo led to reformulation to reduce salt, energy, saturated fat and sugar content in the Netherlands (42). Most products carrying the logo as a result of reformulation and new product development were soups and snacks, and salt reduction was most common in processed meats, sandwiches, soups and sandwich fillings (43).

Nutri-score labels are another emerging front of pack labelling system, which has been increasingly adopted across Western Europe. In Belgium, Nutri-score was implemented by the Ministry of Health as a voluntary initiative in 2018. Evidence shows that this led to reformulation in breakfast cereals between 2017 (pre-implementation) and 2018 (post-implementation), with a 20% average reduction in salt content (44).

In 2016, Chile adopted mandatory warning labels. Studies demonstrate that following implementation, companies reformulated products to avoid displaying a warning label (45,46). A cross-sectional analysis found a decrease in the proportion of products that were required to display a warning label from 51% to 44% after implementation, with large decreases in 'high in salt' products i.e. savoury spreads, ready meals, soups and sausages, from 74% to 27% (46).



## Labelling in the Out of Home Sector

Nutrition labels at the point of sale (e.g. on menus) in the out of home sector also have an impact on reformulation. Evidence from King County, Washington, where full nutrition content was added to menus in 2009, found that the average salt content in main dishes decreased by up to 0.58g 18 months after implementation (47). The US Food and Drug Administration introduced mandatory calorie labelling for large restaurant chains (i.e. with more than 20 outlets) in 2018. Research shows that the calorie content of meals sold in restaurant chains with the largest revenue in the US didn't change between 2012 and 2018, but declined by up to 25% throughout 2018 after the calorie labels were introduced (48).

The UK is similarly due to implement mandatory calorie labelling in April 2022, but voluntary initiatives have had an impact. A 2019 study found that out of 100 leading UK restaurants, 42 provided some form of energy and nutritional information online and of those, 13 voluntarily provided full nutrition content on menus. Meals from restaurants with menu labelling had 60% less salt than those without labels (49).

## Summary

Front of pack nutrition labels and nutrition labels at point of sale in the out of home sector appear to incentivise reformulation via the simple mechanism of forcing the food industry to display key nutrient content in an interpretive format. Food companies reduce negative nutrients such as salt to avoid red or warning labels on their products, to enable the display of a 'healthy' choice logo, or to avoid stating 'high salt' content on menus. Mandatory labelling would ensure all products display the same information.

## Action on Salt

Action on Salt are the leading charity in the UK championing salt reduction, established in 1996 following the government's rejection of their advisory committee's recommendation to reduce salt intake to less than 6 g per day for the UK adult population, due to pressure from the food industry.

Action on Salt are supported by 22 expert members and use a range of advocacy and public affairs measures, including press releases to publicise ongoing cross-sectional 'name and shame' surveys of the salt levels in popular food categories and resulting in widespread media coverage, organising the annual Salt Awareness Week, lobbying MPs and food industry via meetings and letters, responding to consultations, and developing consumer resources to engage the public.

## Advocacy

Since inception, the work of Action on Salt has been key to the success of the UK's salt reduction policy. Action on Salt convinced the Chief Medical Officer in 1996 to accept the dangers of a high salt diet, which resulted in the Department of Health endorsing recommendations to reduce population salt intake to 6g/day. Action on Salt also worked with several large supermarkets e.g. Asda, Sainsbury's, Marks and Spencer to encourage them to start reducing salt levels in their food, and also lobbied Parliamentarians in 1999 – including the then public health minister Tessa Jowell – to give the newly formed FSA responsibility of salt reduction (9).

Action on Salt supported the development, implementation and monitoring of the FSA's policy, and were instrumental in securing continued commitment to salt reduction from the Department of Health at a time when responsibility for salt reduction was transferred from the FSA to the Department of Health, and placed under the PHRD. The Health Minister at the time – Andrew Lansley – refused to set new salt targets to continue salt reduction momentum. However, in 2012,



Lansley was replaced by Jeremy Hunt and Action on Salt managed to convince the new Public Health Minister - Anna Soubry - to set new targets in 2014, to be achieved by 2017.

In 2017, the Victorian Salt Reduction Partnership (VSRP) launched a campaign titled Unpack the Salt which aimed to raise public awareness of the dangers of salt, stimulate reformulation by the food industry and lobby the national government to implement salt targets (50).

As part of the campaign, six media releases were issued between March 2017 and November 2018, following a similar model to Action on Salt in calling attention to salt levels in different food categories including bread, cooking sauces, ready meals, dips and crackers, processed meats and cooking sauces. Each release generated 36 to 274 media items (i.e. print and online news, radio and TV) with an audience reach of 2.3-7.5 million Australians per release.

The VSRP was able to arrange meetings with one to three food companies per release, seven companies were referred to resources to support reformulation and three companies produced case studies on their salt reduction efforts.

The VSRP's lobbying activities to encourage national action, including parliamentary events and meetings with ministers and influencing government-led initiatives, including the Federal government's Healthy Food Partnership saw some success.

Positive responses from ministers and good attendance at parliamentary events were gained, along with the release of national salt reduction targets by the Healthy Food Partnership (51). However, an evaluation has since found that the salt targets are too conservative to achieve meaningful progress (52).

## Summary

Advocacy aids the prioritisation of salt reduction on political agendas, via a range of activities including lobbying Parliamentarians, encouraging food companies to commit to salt reduction, independent scrutiny of progress and leading regular public awareness events, and media work. However, strong political leadership is needed to ensure action.

### Victorian Salt Reduction Partnership

In Australia, population salt intake is 9g/day but national action to reduce salt intake has been lacking. In response, the Victorian Salt Reduction Partnership (VSRP) was established in 2014 to coordinate action to reduce salt in the state of Victoria.

The VSRP's aim was to reduce average salt intake by 1g per day by 2020 (50).

Members include several key health organisations including:

- The George Institute for Global Health
- Australian Heart Foundation,
- Deakin University
- Baker IDI
- Kidney Health Australia
- Australian Stroke Foundation

## Consumer Awareness Campaigns

Consumer awareness campaigns have been shown to be an important lever in supporting the implementation of salt reduction policies by highlighting widely the need for action.

In the UK, the FSA launched a consumer awareness campaign in 2004, prior to implementing the salt reduction targets, to raise awareness of salt across television, radio, leaflets, and digital advertising. The FSA's campaign ran in four stages:

- Stage 1 (September 2004) featured 'Sid the Slug' to raise awareness that too much salt is damaging to health
- Stage 2 (October 2005) titled 'Talking Food' highlighted that adults should eat less than 6g of salt per day
- Stage 3 (March 2007) was the 'Full of It' campaign which aimed to raise awareness that most salt comes from processed food and consumers should check product labels to find the lower salt option
- Stage 4 (October 2009) reinforced previous stages, and also focused on hidden salt in products.

By the end of 2009, compared to a 2004 baseline, the number of adults making an effort to eat less salt increased by 26%, the number of adults checking food labels to find lower salt options doubled and awareness of the 6g per day limit of salt intake increased 10-fold (53).

However, awareness does not equate to action. The campaign was costly to run and the impact was transient; once the campaign ended, levels of awareness fell (9, 16). The FSA's Food and You survey, a biannual survey involving more than 4,000 households across England, Wales and Northern Ireland, has found that the salt content of food products has fallen from a top priority for consumers, to the 5th concern in 2022 (54).

Stakeholders in Argentina have highlighted the importance of World Salt Awareness Week and the media in creating the need for salt reduction and mandatory salt targets (27). The Ministry of Health Argentina also implemented a consumer awareness campaign which aimed to raise awareness of the health risks of a high salt diet and encouraged the use of less table salt, but this could not be sustained due to a lack of funding.

## Summary

Consumer awareness campaigns help create a need for salt reduction by generating public support, which can then help support the implementation of additional policy measures, but they are not known to change behaviour, can be costly and therefore unsustainable.

## Other Measures

As highlighted above, menu labels can stimulate reformulation to reduce salt levels in meals, but a range of measures are needed to help reduce salt levels in the out of home sector. Salt reduction education for restaurant staff and low-salt cooking training for chefs can improve knowledge, awareness, and practical skills for salt reduction. Training can include education on the links between salt and health, development of low salt dishes, practical methods and expert demonstrations (55,56).

Countries such as Argentina and Uruguay have removed salt shakers from tables in restaurants, so that consumers have to consciously request salt (57). Public health departments can also provide assistance to restaurants, such as free information sessions, advice on nutritional analysis and toolkit development (e.g. low salt recipes and standard measuring spoons) (55,56). Local governments in New York state also set up a group purchasing organisation which created buying power for restaurants by increasing volume and decreasing the cost of low salt ingredients (56).

### Enablers and Barriers to Salt Reduction in the Out of Home Sector (58)

#### ENABLERS

- Chef training to raise awareness of salt and develop skills to enable low-salt recipe development
- Gradually reducing salt levels and using herbs and spices to replace salt, using salt replacers e.g. potassium salt
- National level interventions such as salt targets and advocacy campaigns
- Analysis of salt levels in meals reveals variation and potential for reformulation
- Monitoring by the government to hold the sector to account
- National and multi-component interventions which create an environment where the dangers of salt are known and addressed across the industry

#### BARRIERS

- Accessing lower salt versions of common ingredients such as cooking sauces
- Lack of technical skills and expertise to develop lower salt recipes
- Lack of salt content data for the sector
- Worries of decreased sales and maintaining profit margins
- Microbial safety in meat

## Fiscal Measures

To date, few countries have implemented fiscal measures on salt or high salt products (59). Hungary implemented a Public Health Product Tax in 2011, an excise levy applied on the salt, sugar and caffeine content of sugar-sweetened drinks, energy drinks, confectionery, salted snacks, condiments, stock cubes, flavoured alcohol and fruit jams (60). A 2015 evaluation found that 11–16% of those consuming salty snacks and condiments reported changing their behaviour due to the tax, but of these, only 5% switched to healthier alternatives (61).

The majority switched to cheaper brands, and overall levels of salty food consumption remained high. However, industry representatives confirmed that the tax had contributed to the reformulation of taxed products, with 40% of companies stating that the tax caused them to change their recipes (61).

In 2016, Tonga implemented an excise tax on unhealthy products, including instant noodles, salted mutton and sugar-sweetened drinks. Tonga recorded steep declines in the import of instant noodles in the year after excise tax introduction, and the following year 30% of those surveyed reported reducing their consumption of instant noodles. However, locally manufactured instant noodles, which are not subject to excise tax, became a key substitute for imported instant noodles (59).

Clearly, neither the Hungary nor the Tonga examples have led to a large impact although there have been some positive changes. Fiscal measures should not be ruled out however; countries could consider adopting fiscal measures for salt that builds on the UK's Soft Drinks Industry Levy (SDIL) which has been instrumental in the reformulation of sugar-sweetened drinks. Due to the tiered structure of the levy, companies have been incentivised to reformulate their drinks to avoid paying the levy.

By 2018, the estimated revenue from the SDIL was downgraded as more than half of companies had reduced the sugar content of drinks since it was announced in March 2016 – the equivalent of 45 million kg of sugar every year - to avoid paying the levy (62).

Public Health England found that there had been a 43.7% reduction in total sugar content between 2015 and 2019. Sales of drinks subject to the levy increased, allaying industry fears that the levy would lead to a loss of sales and profit, but the total sugar purchased per household from drinks decreased across all socio-economic groups (63).

## Summary

Interventions in the out of home sector are needed to ensure salt reduction across the board. Few countries have implemented fiscal measures specific to salt, but the successful SDIL provides a model that could lead to reformulation and raise money for health prevention activities.

### Soft Drinks Industry Levy

The SDIL is a tiered levy:

- drinks with more than 8 grams of sugar per 100ml are charged a rate of 28p per litre
- drinks with a sugar content of between 5-8g/100ml are charged 24p per litre
- drinks with less than 5g/100ml are not subject to the levy.

Announced in 2016 and implemented in April 2018, the SDIL applies to manufacturers and importers of sugar-sweetened drinks.

In the year following implementation (2019), revenue was spent on funding school sport, the Healthy Pupils Capital Fund and school breakfast clubs.

# OUR RECOMMENDATIONS

The evidence is clear: excess salt is damaging health and leads to unnecessary suffering and death from CVD. However, there is a scarcity of real-world evidence that investigates the success factors and barriers of salt reduction policies in the UK and worldwide, including the impact of wider health policies such as advertising and promotion restrictions.

Comprehensive salt reduction policies, with mandatory salt reduction targets as the central element and supported by complementary measures such as mandatory front of pack nutrition labels, are needed to create a level playing field for the food industry to operate on, prevent ill health and death and reduce economic burden.

- Bold and ambitious political leadership, committed to preventing ill health, is needed to implement and maintain salt reduction policies
- To create a level playing field, mandatory salt reduction targets for food products motivate the food industry to accelerate salt reduction, leading to greater reductions in population salt intake
- For greatest impact, mandatory front of pack nutrition labels are needed to incentivise reformulation
- Advocacy, i.e. having evidence-based NGOs dedicated to salt reduction, aids the prioritisation of salt reduction on political agendas and keeps the food industry accountable
- Consumer awareness campaigns help support the need for salt reduction policies, but are costly and their impact is transient
- Interventions in the out of home sector (e.g. restaurants, cafes, fast food outlets) are needed to ensure salt reduction occurs across the food sector
- More policy analysis research is needed to inform and support the development and implementation of new salt reduction policies, and the strengthening of existing policies
- Fiscal measures on added salt or high salt products may help ensure progress without the need for mandatory targets

# USEFUL RESOURCES

World Health Organization (WHO). [The SHAKE Technical Package for Salt Reduction](#). 2016

WASSH and WHO South East Asia Region. [Setting Salt Reduction Targets](#). 2021

WHO. [WHO global sodium benchmarks for different food categories](#). 2021

Pan American Health Organization (PAHO). [Updated PAHO Regional Sodium Targets: A Tool to Tackle the Burden of Diet-related Noncommunicable Diseases](#). 2021

WASSH and WHO South East Asia Region. [Salt Reduction in the Out of Home Sector](#). 2021

LINKS. [Sodium Reduction Framework](#).

WHO Europe. [Accelerating salt reduction in Europe: a country support package to reduce population salt intake in the WHO European Region](#). 2020

Johns Hopkins Bloomberg School of Public Health. [Global Sodium Reduction Strategies course](#).

World Cancer Research Fund International. [Building momentum: lessons on implementing a robust front-of-pack food label](#). 2019



# REFERENCES

1. GBD 2019 Risk Factors Collaborators. Global burden of 87 risk factors in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet*. 2020;396(10258):1223-49.
2. Public Health England. National Diet and Nutrition Survey. Assessment of salt intake from urinary sodium in adults (aged 19 to 64 years) in England, 2018 to 2019. London, UK; 2020.
3. Public Health England. National Diet and Nutrition Survey. Results from Years 7 and 8 (combined) of the Rolling Programme (2914/2015 to 2015/2016). 2018.
4. Public Health England. Calorie reduction: The scope and ambition for action. 2018.
5. Public Health England. Salt targets 2017: Second progress report. 2020.
6. Gressier M, Sassi F, Frost G. Contribution of reformulation, product renewal, and changes in consumer behavior to the reduction of salt intakes in the UK population between 2008/2009 and 2016/2017. *Am J Clin Nutr*. 2021;114(3):1092-9.
7. Girgis S, Neal B, Prescott J, Prendergast J, Dumbrell S, Turner C, et al. A one-quarter reduction in the salt content of bread can be made without detection. *Eur J Clin Nutr*. 2003;57(4):616-20.
8. Blais CA, Pangborn RM, Borhani NO, Ferrell MF, Prineas RJ, Laing B. Effect of dietary sodium restriction on taste responses to sodium chloride: a longitudinal study. *Am J Clin Nutr*. 1986;44(2):232-43.
9. He FJ, Brinsden HC, MacGregor GA. Salt reduction in the United Kingdom: a successful experiment in public health. *J Hum Hypertens*. 2014;28(6):345-52.
10. Santos JA, Tekle D, Rosewarne E, Flexner N, Cobb L, Al-Jawaldeh A, Junsuk Kim W, Breda J, Whiting S, Campbell N, Neal B, Webster J, Trieu K. A Systematic Review of Salt Reduction Initiatives Around the World: A Midterm Evaluation of Progress Towards the 2025 Global Non-Communicable Diseases Salt Reduction Target. *Adv. Nutr* 2021; 12(5):1768-1780. Doi:10.1093/advances/nmab008
11. Food Standards Agency. Effects of reducing salt in processed food on the population's salt intake - the salt model. 2005
12. Food Standards Agency. Salt reduction targets: March 2006. 2006
13. Public Health England. Salt reduction targets for 2024. 2020.
14. He FJ, Pombo-Rodrigues S, Macgregor GA. Salt reduction in England from 2003 to 2011: its relationship to blood pressure, stroke and ischaemic heart disease mortality. *BMJ Open*. 2014;4(4):e004549.
15. National Institute for Health and Care Excellence. Cardiovascular disease prevention. Public health guideline [ph25]. 2010
16. Wyness LA, Butriss JL, Stanner SA. Reducing the population's sodium intake: the UK Food Standards Agency's salt reduction programme. *Public Health Nutr*. 2012;15(2):254-61.
17. MacGregor GA, He FJ, Pombo-Rodrigues S. Food and the responsibility deal: how the salt reduction strategy was derailed. *BMJ*. 2015;350:h1936.
18. Department of Health. Public Health Responsibility Deal. 2011
19. Panjwani C, Caraher M. The Public Health Responsibility Deal: brokering a deal for public health, but on whose terms? *Health Policy*. 2014;114(2-3):163-73.
20. Gilmore AB, Savell E, Collin J. Public health, corporations and the new responsibility deal: promoting partnerships with vectors of disease? *J Public Health (Oxf)*. 2011;33(1):2-4.
21. Department of Health. Secretary of State for Health's speech to the UK Faculty of Public Health Conference - 'A new approach to public health'. 2010.
22. Knai C, Petticrew M, Durand M, Eastmure E, James L, Mehrotra A, et al. Has a public-private partnership resulted in action on healthier diets in England? An analysis of the Public Health Responsibility Deal food pledges. *Food Policy*. 2015;54:1-10.
23. Park HK, Lee Y, Kang BW, Kwon KI, Kim JW, Kwon OS, et al. Progress on sodium reduction in South Korea. *BMJ Glob Health*. 2020;5(5).

24. Allemandi L, Tiscornia MV, Ponce M, Castronuovo L, Dunford E, Schoj V. Sodium content in processed foods in Argentina: compliance with the national law. *Cardiovasc Diagn Ther.* 2015;5(3):197-206.
25. Allemandi L, Tiscornia MV, Guarnieri L, Castronuovo L, Martins E. Monitoring Sodium Content in Processed Foods in Argentina 2017-2018: Compliance with National Legislation and Regional Targets. *Nutrients.* 2019;11(7).
26. International Food Policy Research Institute. *Global nutrition report 2016: from promise to impact: ending malnutrition by 2030.* 2016.
27. Webster J, Santos JA, Hogendorf M, Trieu K, Rosewarne E, McKenzie B, et al. Implementing effective salt reduction programs and policies in low- and middle-income countries: learning from retrospective policy analysis in Argentina, Mongolia, South Africa and Vietnam. *Public Health Nutr.* 2021:1-12.
28. Charlton K, Webster J, Kowal P. To legislate or not to legislate? A comparison of the UK and South African approaches to the development and implementation of salt reduction programs. *Nutrients.* 2014;6(9):3672-95.
29. Peters SAE, Dunford E, Ware LJ, Harris T, Walker A, Wicks M, et al. The Sodium Content of Processed Foods in South Africa during the Introduction of Mandatory Sodium Limits. *Nutrients.* 2017;9(4).
30. Strauss-Kruger M, Wentzel-Viljoen E, Ware LJ, Van Zyl T, Charlton K, Ellis S, et al. Early evidence for the effectiveness of South Africa's legislation on salt restriction in foods: the African-PREDICT study. *Journal of Human Hypertension.* 2022.
31. World Health Organization Regional Office for Africa. *Intersectoral Case Study. Successful sodium regulation in South Africa.* 2013.
32. Jones A, Neal B, Reeve B, Ni Mhurchu C, Thow AM. Front-of-pack nutrition labelling to promote healthier diets: current practice and opportunities to strengthen regulation worldwide. *BMJ Glob. Health* 2019;4(6):e001882. doi: 10.1136/bmjgh-2019-001882.
33. House of Lords Science and Technology Select Committee. 2nd report of session 2010-12. *Behaviour Change.* 2011.
34. Afshin A, Peñalvo JL, Del Gobbo L, Silva J, Michaelson M, O'Flaherty M, et al. The prospective impact of food pricing on improving dietary consumption: A systematic review and meta-analysis. *PLoS One.* 2017;12(3):e0172277.
35. Bablani L, Ni Mhurchu C, Neal B, Skeels CL, Staub KE, Blakely T. The impact of voluntary front-of-pack nutrition labelling on packaged food reformulation: A difference-in-differences analysis of the Australasian Health Star Rating scheme. *PLoS Med.* 2020;17(11):e1003427.
36. Mhurchu CN, Eyles H, Choi YH. Effects of a Voluntary Front-of-Pack Nutrition Labelling System on Packaged Food Reformulation: The Health Star Rating System in New Zealand. *Nutrients.* 2017;9(8).
37. Morrison H, Meloncelli N, Pelly FE. Nutritional quality and reformulation of a selection of children's packaged foods available in Australian supermarkets: Has the Health Star Rating had an impact? *Nutr Diet.* 2019;76(3):296-304.
38. Ning SX, Mainvil LA, Thomson RK, McLean RM. Dietary sodium reduction in New Zealand: influence of the Tick label. *Asia Pac J Clin Nutr.* 2017;26(6):1133-8.
39. Young L, Swinburn B. Impact of the Pick the Tick food information programme on the salt content of food in New Zealand. *Health Promot Int.* 2002;17(1):13-9.
40. Thomson RK, McLean RM, Ning SX, Mainvil LA. Tick front-of-pack label has a positive nutritional impact on foods sold in New Zealand. *Public Health Nutr.* 2016;19(16):2949-58.
41. Williams P, McMahon A, Boustead R. A case study of sodium reduction in breakfast cereals and the impact of the Pick the Tick food information program in Australia. *Health Promot Int.* 2003;18(1):51-6.
42. van der Bend DLM, Jansen L, van der Velde G, Blok V. The influence of a front-of-pack nutrition label on product reformulation: A ten-year evaluation of the Dutch Choices programme. *Food Chem X.* 2020;6:100086.
43. Vyth EL, Steenhuis IH, Roodenburg AJ, Brug J, Seidell JC. Front-of-pack nutrition label stimulates healthier product development: a quantitative analysis. *Int J Behav Nutr Phys Act.* 2010;7:65.
44. Vermote M, Bonnewyn S, Matthys C, Vandevijvere S. Nutritional Content, Labelling and Marketing of Breakfast Cereals on the Belgian Market and Their Reformulation in Anticipation of the Implementation of the Nutri-Score Front-Of-Pack Labelling System. *Nutrients.* 2020;12(4).
45. Quintiliano Scarpelli D, Pinheiro Fernandes AC, Rodriguez Osiac L, Pizarro Quevedo T. Changes in Nutrient Declaration after the Food Labeling and Advertising Law in Chile: A Longitudinal Approach. *Nutrients.* 2020;12(8)

- .46. Reyes M, Smith Taillie L, Popkin B, Kanter R, Vandevijvere S, Corvalán C. Changes in the amount of nutrient of packaged foods and beverages after the initial implementation of the Chilean Law of Food Labelling and Advertising: A nonexperimental prospective study. *PLoS Med.* 2020;17(7):e1003220.
47. Bruemmer B, Krieger J, Saelens BE, Chan N. Energy, saturated fat, and sodium were lower in entrées at chain restaurants at 18 months compared with 6 months following the implementation of mandatory menu labeling regulation in King County, Washington. *J Acad Nutr Diet.* 2012;112(8):1169-76.
48. Bleich SN, Soto MJ, Dunn CG, Moran AJ, Block JP. Calorie and nutrient trends in large U.S. chain restaurants, 2012-2018. *PLoS One.* 2020;15(2):e0228891.
49. Theis DRZ, Adams J. Differences in energy and nutritional content of menu items served by popular UK chain restaurants with versus without voluntary menu labelling: A cross-sectional study. *PLoS One.* 2019;14(10):e0222773.
50. Rosewarne E, Trieu K, Farrand C, Reimers J, Potter J, Davidson C, et al. Unpack the Salt: an evaluation of the Victorian Salt Reduction Partnership's media advocacy activities to highlight the salt content of different foods. *Nutr J.* 2020;19(1):102.
51. Rosewarne E, Moore M, Chislett W-K, Jones A, Trieu K, Webster J. An evaluation of the Victorian Salt Reduction Partnership's advocacy strategy for policy change. *Health Research Policy and Systems.* 2021;19(1):100.
52. Rosewarne E, Huang L, Farrand C, Coyle D, Pettigrew S, Jones A, et al. Assessing the Healthy Food Partnership's Proposed Nutrient Reformulation Targets for Foods and Beverages in Australia. *Nutrients.* 2020;12(5).
53. Food Standards Agency. Food Standards Agency - UK Salt Reduction Initiatives. 2009.
54. Food Standards Agency. Food and You 2 - Wave 3. 2022
55. Ma GX, Shive SE, Zhang G, Aquilante J, Tan Y, Pharis M, et al. Evaluation of a Healthy Chinese Take-Out Sodium-Reduction Initiative in Philadelphia Low-Income Communities and Neighborhoods. *Public Health Rep.* 2018;133(4):472-80.
56. Levings JL, Gunn JP. From menu to mouth: opportunities for sodium reduction in restaurants. *Prev Chronic Dis.* 2014;11:130237.
57. Center for Science in the Public Interest. International action on sodium. 2016.
58. Michael V, You YX, Shahar S, Manaf ZA, Haron H, Shahrir SN, Majid HA, Chia YC, Brown MK, He FJ, MacGregor GA. Barriers, Enablers, and Perceptions on Dietary Salt Reduction in the Out-of-Home Sectors: A Scoping Review. *Int. J. Environ. Res. Public Health* 2021; 18(15):8099. <https://doi.org/10.3390/ijerph18158099>
59. Dodd R, Santos JA, Tan M, Campbell NRC, Ni Mhurchu C, Cobb L, et al. Effectiveness and Feasibility of Taxing Salt and Foods High in Sodium: A Systematic Review of the Evidence. *Adv Nutr.* 2020;11(6):1616-30.
60. UK Health Forum. Case study: The Hungarian public health product tax. 2019
61. World Health Organization Regional Office for Europe. Assessment of the impact of a public health product tax. 2016
62. Public Health England. Sugar reduction: progress report, 2015 to 2019. 2020
63. HM Treasury. Soft Drinks Industry Levy comes into effect. 2018

