



Reducing salt to save lives: Advocacy, partnerships and research



For more than a decade, The George Institute has championed global action that has the potential to save many millions of lives and billions of dollars in healthcare costs. Our researchers have generated evidence that shows the tremendous health benefits and cost-effectiveness of a range of interventions to reduce the amount of salt people eat, and can guide government, industry and consumer behaviour towards healthier societies.

Most people consume around twice the recommended amount of salt a day (about 1 teaspoon), yet many are unaware that the amount they are eating is raising their blood pressure and potentially shortening their lives.

Each year, high blood pressure accounts for 10.4 million deaths, and eating too much salt – a well-established cause of high blood pressure – causes an estimated 3.2 million deaths. High blood pressure is one of the most serious risk factors for cardiovascular disease, the number-one killer of people worldwide.

One in five deaths globally are attributed to poor diets high in salt, sugar and harmful fats, with economic inequality being a factor in poor dietary choices in many countries.

“Over the last few decades, dietary patterns around the world have changed, with processed foods becoming more affordable and available, resulting in people eating more foods high in salt,” says Professor Jacqui Webster, Heart Foundation Future Leader Fellow and Head of the World Health Organization Collaborating Centre on Population Salt Reduction (WHO Collaborating Centre on Salt) at The George Institute.

Sodium, the main ingredient in salt and monosodium glutamate (MSG), is the substance harmful to health. Reducing overall salt intake or reducing the amount of sodium in packaged and processed foods by manufacturers are recognised as highly cost-effective interventions to improve population health.

In Australia alone, The George Institute’s research¹ shows that if population average salt intake was reduced by one gram per day for one year, there would be 2,526 fewer heart attacks and 2,626 fewer strokes, leading to \$120–154 million in savings to society. Government investment in salt reduction programs more than quadruples in returns to society, with mandatory salt targets delivering the greatest return.

¹ *The Potential Impact of Salt Reduction in Australia*, May 2020

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Professor Bruce Neal

“Getting people to eat less salt takes more than asking them to stop adding salt at the dinner table – in many countries like Australia, 75% of the salt we eat is hidden in processed foods such as breads, cereals and condiments,” explains Jacqui. “Proven population-scale approaches are necessary to change consumer and industry behaviour with lasting impact.”

Champions for change

During the 2000s, despite the known implications of eating too much salt, there was limited action to tackle the issue and a growing need for evidence-backed population salt reduction strategies.

“Even though this was a new area for us, we knew we had to do something because of the tsunami of disease and death heading our way,” explains Professor Bruce Neal, Executive Director, The George Institute Australia.

Bruce and other researchers from across Australia began to lay the foundations of The George Institute’s world-leading food policy program. In 2005, World Action on Salt & Health (WASH), a network of individuals and organisations committed to reducing population salt intake, was

Fast facts: Salt & health

- Cardiovascular disease, such as stroke and heart attack, kills 17.9 million people annually
- Globally every year, over 13 million people suffer a stroke, causing around 5.5 million deaths
- Over a billion people have high blood pressure
- More than half of strokes and heart attacks are from high blood pressure
- One in five deaths globally are due to poor diets high in salt, sugar and harmful fats
- Up to 75% of the salt consumed is hidden in processed foods such as breads, cereals, and condiments

Empowering consumers

In 2012 in Australia, The George Institute's salt reduction work led to the launch of the award-winning FoodSwitch app, which helps people choose healthier products when shopping, such as lower salt options. The FoodSwitch data platform tracks the overall healthiness of the food supply and uses the information to improve the health of packaged foods by helping governments set and implement policy and by changing food industry practice. FoodSwitch now tracks the packaged food supply in 12 countries with nutrient data on more than 700,000 products. In Australia, the platform has helped the government address much needed improvements to the national front-of-pack food labelling scheme known as the Health Star Rating.

established to leverage the success of programs that had lowered salt intake in the UK. Bruce led the establishment of the Australian division of WASH (AWASH), which was hosted by The George Institute.

Engaging industry, government

In May 2007, having recruited Jacqui from the UK Food Standards Agency's salt reduction program to help stimulate action in Australia, AWASH collaborated closely with the National Heart Foundation of Australia and other organisations to launch 'Drop the Salt!', a five-year campaign calling on government and industry to take substantial action to reduce salt intake in Australia.

The George Institute researchers facilitated discussions between the Australian Food and Grocery Council, the peak body for the food industry, and industry organisations in the UK. By demonstrating that a national salt reduction program could be implemented successfully without any adverse impacts to industry, as had been done in the UK, the researchers aimed to convince industry to act in Australia.

In 2008, AWASH released the Food Industry Salt Reduction Strategy. As a result, 20 food companies committed to reducing salt in their products and Yum! Restaurants in Australia (KFC and Pizza Hut) cited AWASH as the reason for a 10% salt reduction in its products.

"Drop the Salt! contributed to the Australian government establishing the Food and Health Dialogue (FHD) in 2009," says Jacqui.

Setting national salt reduction targets was one of the first priorities of the FHD. Since then, 27 voluntary reformulation targets² for salt have been set in Australia to guide salt reduction in processed and packaged foods.

"Ultimately, you can only have a substantial, sustainable impact on diet-related health if governments are leading reforms and industry is engaged," says Jacqui. "Drop the Salt! was an important start in raising the profile of salt reduction in Australia, but we knew much more was needed to stimulate government action."

Raising public awareness

In 2014, in response to alarmingly high levels of salt consumption in Victoria, Australia – more than 15,000 tonnes a year – the Victorian Health Promotion Foundation (VicHealth), in collaboration with The George Institute and the National Health Foundation of Australia, established the Victorian Salt Reduction Partnership – the first-of-its kind in Australia.

Based on research from The George Institute, *The Case for State Action on Salt* was launched to push for government and industry action to reduce salt intake by 30% by 2025 and save thousands of lives each year.

Through the partnership, The George Institute researchers have contributed to numerous reports and nutrient analyses of everyday foods to help Victorians eat less salt as part of a public health campaign, 'Unpack the Salt', from 2017–2019.

The campaign raised awareness in 80% of targeted consumers, generated over 1,500 media mentions, and led to 19 collaborations with major food manufacturing companies. In 2019, the partnership launched Australia's first salt reformulation guide for food manufacturers.

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Dr Kathy Trieu

Partnerships to reduce salt

By 2010, salt reduction had gained traction on the global health agenda and countries began seeking assistance from The George Institute to develop salt reduction strategies. Our researchers were invited by the World Health Organization (WHO) to participate in a series of high-profile stakeholder meetings to inform WHO's population salt reduction strategy, which culminated in the United Nations (UN) setting a global target for salt reduction as part of its efforts to prevent non-communicable diseases in 2010.

In 2013, the World Health Assembly agreed to nine global voluntary targets for the prevention and control of non-communicable diseases. This included a 30% relative reduction in salt intake by 2025. The same year, The George Institute was designated as a WHO Collaborating Centre on Salt to support countries to achieve this target.

The WHO Collaborating Centre on Salt has since worked with 33 countries to evaluate, measure and implement salt reduction strategies and establish salt targets, including 10 Pacific Island countries, as well as Australia, Switzerland, South Africa, Vietnam, Cambodia, Malaysia and Mongolia.

"It was the first time that salt reduction had been so robustly evaluated and measured in many of these countries," says Jacqui, Director of the WHO Collaborating Centre on Salt. "For Fiji and Samoa, it was a first for the Pacific as a whole."

Working locally for global change

The WHO Collaborating Centre on Salt has helped to develop regional guidance for Europe and the Western Pacific Region, and its latest review, published in *Advances in Nutrition*, shows that 96 countries have now developed a national salt reduction strategy – triple the number of countries since 2013 – and 31 countries have reported some reductions of salt levels in food.

² In 2015, the FHD was replaced by the Healthy Food Partnership (HFP).

High blood pressure is the leading risk factor for death in Malaysia. In 2018, Dr Kathy Trieu, Research Fellow at The George Institute, led work with the Ministry of Health to evaluate their Salt Reduction Strategy and provide recommendations on how their strategy could be strengthened during the next two years of implementation. The evaluation identified three priority recommendations: mandate sodium labelling on packaged foods, monitor salt levels in street foods, and develop a communication strategy for salt reduction. Its findings helped secure funding from Resolve to Save Lives to support the implementation of the three recommendations in a collaborative project between The George Institute, the Ministry of Health, WHO Malaysia, and the University of Malaysia.

“Through the WHO Collaborating Centre on Salt, we have been able to generate hard-to-get evidence to guide governments to effectively implement and measure the progress of salt reduction strategies,” says Kathy. “Millions of lives and billions in healthcare costs could be saved if more governments act and this research is translated into policy.”

Tackling the food supply

In parallel, The George Institute was growing its research program to address evidence gaps by working with communities.

Our researchers are currently conducting a range of interventions in Australia, China, Fiji, India, Vietnam and the Pacific that have the potential to transform how communities reduce their salt consumption.

Interventions range from using salt substitutes (where some of the sodium in salt is replaced with potassium) in foods such as fish sauce, to reformulating processed and restaurant foods, to empowering communities to reduce salt intake themselves through consumer education and school programs.

Stroke is the leading cause of death in China, accounting for 1.57 million deaths and salt intake is well above recommended levels, mainly due to the amount of salt used at home.

While salt substitutes have been known to lower blood pressure, their effects on heart disease, stroke, and death were unclear until the Salt Substitute and Stroke Study (SSaSS), one of the largest dietary interventions ever conducted as well as one of the largest health research studies ever undertaken in China. With over 20,000 participants from 600 rural villages in five provinces, the five-year study showed that replacing table salt with a reduced-sodium, added-potassium ‘salt substitute’ reduced the risk of stroke by 14%, total cardiovascular events (strokes and heart attacks combined) by 13%, and the risk of premature death by 12%. The results of SSaSS, published in the *New England Journal of Medicine* in August 2021, confirm the health gains projected by a 2020 modelling study that estimated a 10% decrease in risks through nationwide use of salt substitutes could avert 460,000 premature deaths every year in China.

“SSaSS is the first trial to definitively prove that reducing salt consumption leads to a reduction in cardiovascular disease, which could transform the way stroke is prevented globally,” says Dr Maoyi Tan, Senior Research Fellow, The George Institute China.

Lead Investigator, Professor Bruce Neal said: “This is quite simply the single most worthwhile piece of research I’ve ever been involved with. As most people eat more salt than they should, switching to a salt substitute is something that everyone could do if salt substitutes were on supermarket shelves and is a highly feasible and low-cost opportunity to have a massive global health benefit.”

“Almost everyone in the world stands to gain from switching to using salt substitute, particularly the billions living in low- and middle-income countries where most dietary salt is added at home during food preparation and can be easily substituted,” explains Bruce. “And, the food industry can use them in processed foods, which is particularly important in high income countries.”

“Salt reduction interventions present a genuine opportunity to save millions of lives each year worldwide – what we need now is global action.”

Professor Bruce Neal

A call for global action

In just over a decade, The George Institute has established a world-leading, multi-faceted salt reduction research and advocacy program. Our researchers have generated much-needed evidence for interventions that have the potential to save many millions of lives and billions in healthcare costs; established strong partnerships with communities, multilateral organisations, governments and industry; and are influencing national policies through reformulation targets and labelling policies. They are also contributing to global targets developed by WHO, and informing salt substitute guidelines following years of advocacy and research.

However, much more work needs to be done to achieve global targets and reap the true potential of proven interventions.

“While salt reduction is higher on agenda in many countries, most people around the world still eat the same amount of salt as they were 10 years ago, or more,” says Bruce. “Our research shows we need radical action by government and industry if we are to realise the massive health benefits available by reducing salt intake. Salt reduction interventions present a genuine opportunity to save millions of lives each year worldwide but real change will only come when industry and government act upon the evidence – what we need now is global action.”

Saving lives, reducing costs

In Vietnam, The George Institute analysed three potential salt substitution strategies for their health and cost-savings benefits. The research⁴ found that, if implemented, a voluntary strategy would prevent 32,595 strokes and 22,830 heart attacks; a government-subsidised strategy would prevent 768,384 strokes and 537,157 stroke attacks; while a regulatory strategy would have the greatest benefit, preventing 2,366,480 strokes and 1,648,590 heart attacks.

⁴ *Cost-effectiveness of introducing low-sodium food products in Vietnam, May 2020*



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Jacqui Webster (third from the right) participated in a Ministry of Health expert consultation on salt reduction in Mongolia at the Talkh-Chikher bakery.

Projects: Australian World Action on Salt & Health (AWASH), VicHealth Salt Partnership, WHO Collaborating Centre for Population Salt Reduction (WHO CC Salt), WHO CC Salt collaboration with 33 countries, China Salt Substitute and Stroke Study (SSaSS), Salt Reduction in the Pacific Islands, Feasibility and Cost Effectiveness of Introducing Salt Substitutes in Vietnam, Community Intervention to Reduce Salt in India

Research leads: Jacqui Webster, Bruce Neal, Kathy Trieu, Maoyi Tan

Project cycle: Since 2007

Partners and supporters: World Action on Salt & Health (WASH); Mongolian Ministry of Health; World Hypertension League; World Health Organization (WHO); Malaysian Ministry of Health; University of Malaysia; Peking University Health Science Center; Imperial College London; Northwestern University Medical School; Resolve to Save Lives; National Medical and Health Research Council (NHMRC) Australia; Victorian Health Promotion Foundation; National Heart Foundation of Australia; NSW Health; Food and Agriculture Organization; United Nations.

About The George Institute for Global Health: The George Institute for Global Health is focused on generating robust evidence to create better treatments, better care and healthier societies. This means not only generating evidence to determine what works, and doesn't work, but also which health service or treatment is value for money and where the cost of healthcare can be reduced. Paramount to our work is finding new ways to fund healthcare so health systems can become more sustainable, as well as operate more equitably.

About The PRISM Initiative: Through interviews with investigators and research partners, project staff and peers in the research community, The Project & Research Impact Story Mapping (PRISM) Initiative examines key research milestones of The George Institute and explores the impact of its projects on health sectors and systems, government policies, communities and more. Join us as we explore key research achievements of the past 20 years, examine how conventional thinking was challenged, who benefitted and what led the research to be transformed into practice.

Impact at a glance: salt reduction

- Designated a World Health Organization Collaborating Centre on Population Salt Reduction in 2013
- Helped inform UN global targets to reduce salt by 30% by 2025
- Worked with 33 countries to reduce salt intake
- 96 countries now have national salt reduction strategies, 31 have reported food salt level reductions
- 19 salt reduction PhD students since 2011
- Conducted the largest study of a dietary intervention for stroke prevention worldwide, and one of the largest health research projects ever undertaken in China. SSaSS was the first study to prove consuming less salt reduces the risk of cardiovascular disease and death
- Generated ground-breaking evidence of the health benefits and cost-effectiveness of salt reduction strategies



The 2018 Malaysian Ministry of Health stakeholder meeting, part of the evaluation of the national salt reduction strategy.