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How to cut down salt intake in populations

Francesco P Cappuccio,¹ Simon Capewell²

Cardiovascular diseases are the major cause of morbidity, disability and death in the world. Furthermore, approximately 62% of all strokes and 49% of coronary heart disease events are attributable to high blood pressure. High salt intake is one of the major potentially modifiable causes of the global burden of stroke and other cardiovascular events,^{1 2} mainly through its effect on population blood pressure. A 5 g/day difference in habitual salt intake is associated with a 23% difference in the rate of stroke (representing approximately 1.25 million deaths world wide each year) and a 17% difference in the rate of total cardiovascular disease (approximately 3 million deaths world wide).² Citizens in most countries eat salt far in excess of healthy physiological requirements. Substantially reducing dietary salt intake is therefore an important priority for public health. In recent years, the debate has shifted from 'whether reducing salt intake is of public health benefit' to 'how best to reduce population salt intake to save the most lives'. Several countries and health organisations have therefore developed recommendations for the reduction of salt intake in populations to reduce the increasing burden of cardiovascular disease. They have also provided evidence-based appraisals on how this might be achieved in specific settings.³⁻⁶ The current population salt targets set by the World Health Organization are 5 g/day,³ with some countries aiming for even less in the longer term.^{4 5} In most developed economies, however, the majority of salt in our diets is added during food production, long before it is sold. That excess is therefore not a matter of personal choice. Moreover, before acting, all countries will need to satisfy increasingly stringent cost-effectiveness criteria within a general climate of ageing populations,

escalating healthcare demands and recently reduced financial resources.

The study by Cobiac *et al*⁷ in this issue of *Heart* now examines some critical questions and provides further compelling evidence for public health action (*see page 1920*). Their study evaluated a range of salt reduction interventions intended to prevent cardiovascular disease in Australia. These ranged from changing individual dietary behaviour (in individuals at high cardiovascular risk or in those with hypertension) through programmes of 'voluntary' food reformulation by the industry to moderate 'mandatory' industry targets enforced by government legislation. The authors assessed the cost effectiveness of each intervention under different modelling scenarios. They included government and industry costs, patient's costs, costs of unrelated healthcare in added years of life and lag in risk reversal. Irrespective of the modelling scenario, all population-wide approaches were cost-saving interventions, whether using 'voluntary' or 'mandatory' reductions in the salt content of processed food. Dietary advice targeting individuals, however, was not cost effective, averaging AUS\$100 000 per disability-adjusted life year. Furthermore, the population health benefits under the 'mandatory' programme could be 20 times greater than those achievable under the 'voluntary' schemes.

This study raises at least three important considerations. First, consistency of the evidence. The present economic appraisal from Australia confirms studies from the USA,^{8 9} from the UK⁴ and from World Health Organization global estimates.¹⁰ Furthermore, each study used a very different methodology. Any reduction in national salt intake, with policies applied to the whole population rather than to a high-risk group, is undoubtedly cost saving. This is a crucial concept when evaluating health policies. Evidence is accruing of health benefits from using antihypertensive combination treatment in the management of moderately raised blood pressure levels. But with an ageing population, the cost of this prevention approach for high-risk individuals is

destined to escalate unless the increasing population prevalence of hypertension is somehow controlled. Action on the major causes of age-related rises in blood pressure, like excessive salt intake, will therefore be essential. Furthermore, the benefits of salt reduction may be even greater with primordial prevention, in other words maintaining the naturally low blood pressure seen in normal children through to adolescence and adult life.^{4 9}

Second, population approaches to dietary salt reduction are consistently cost saving,⁸⁻¹⁰ whereas attempts to change individual dietary behaviour are not.⁵ This is perhaps not surprising when some 80% of the salt we eat is added to the food before we buy it. Furthermore, a high-risk individual approach altering food-purchasing behaviour is destined to widen social inequalities by delivering better diet to the educated and affluent, whereas a population approach will probably narrow the inequalities gap.^{4 11} In the USA for instance, the food industry has fuelled a fake controversy in order to confuse the public.¹² Average salt intake in the US population has thus risen rather than declined.⁵ Conversely, in countries where effective public health actions have been implemented, like Japan, Finland and the UK,¹ significant reductions in population salt intake have been paralleled by long-term reductions in blood pressure, and in stroke rates.¹ Many governments and health organisations are therefore now contemplating population approaches to cardiovascular disease prevention by developing and implementing population-wide salt reduction public health strategies. Following the historical examples given by Finland and Japan, and the general guidance of the World Health Organization, the USA, UK and Canada have, among others, recently developed far-reaching recommendations based on the three-pronged approach of communication (establishing and evaluating public awareness campaigns), reformulation (setting salt targets for many food items and collaborating with the industry) and monitoring (surveying population salt intake, reformulation progress and effectiveness of communication).⁴⁻⁶

Recently in the UK, some progress has been made with the support of the Food Standard Agency and other voluntary organisations to reduce population salt intake towards the government target of 6 g/day.¹ The population salt intake in Britain has fallen to 8.6 g/day, 1 g less than 4 years earlier. This reduction is likely to translate into an approximate 3%

¹University of Warwick, WHO Collaborating Centre for Nutrition, Warwick Medical School, Coventry, UK;

²University of Liverpool, Liverpool, UK

Correspondence to Professor Francesco P Cappuccio, University of Warwick, WHO Collaborating Centre for Nutrition, Warwick Medical School, UHCW Campus, Clifford Bridge Road, Coventry CV2 2DX, UK; f.p.cappuccio@warwick.ac.uk

reduction in stroke rates in the next few years.² These historical achievements then inspired other countries to implement similar actions. Ironically, and despite this impressive evidence, the new British government has made a U-turn by moving back to the idea that policies on food and healthy eating should rely on 'people's freedom of making healthy choices', and has rejected the 'state intrusion' of making food safer or healthier. The major restructuring of the Food Standard Agency will further undermine the progress previously made in the UK. This is all considered by some as both worrying and potentially dangerous.¹³

This leads to our third consideration. Any effective public health policy using a population approach is dependent on government actively using legislation or regulation.¹⁴ Previous 'nanny state' successes are numerous and obvious. They include safe drinking water, effective sanitation, immunisation, seat belts, and smoke-free public places. We are now healthier and live much longer than a century ago. Conversely, a well-grounded, self-regulatory voluntary system has apparent distinct benefits: it spares government resources, is less confrontational, more flexible and quicker than government regulation.¹⁵ Indeed, softer 'voluntary' codes of practice between governments and the food industry have been introduced in many countries.¹ But through less confrontational than regulation, self-regulation tends to be less effective than legislation.¹⁵ Furthermore, when promises are not fulfilled, harm occurs. For instance, in the UK, the embryonic collaboration with the industry produced positive steps in the reformulation of a variety of food items, which led to an initially impressive 1 g/day reduction in population salt intake. However, the speed of the reduction has been slowing, and

now falls far short of that needed to reach the agreed 6 g/day target by 2015.¹⁴ Furthermore, the continuing and intense industry lobbying for the rejection of the 'traffic light' proposal for food labelling at both UK and European levels indicates the unsurprising behaviour of an industry focused on profit not public health. It also clearly demonstrates the predictable limitations of self-regulation.¹⁵ Conversely, the 5 g/day salt reduction in Finland clearly suggests that legislation adds considerable value. Moreover, there is no evidence of harm from small and gradual reductions in salt consumption.

There is also a clear ethical justification for public health interventions to reduce salt consumption, because governments have a clear duty of care, particularly to children.¹⁶ Cobiac *et al* provide further powerful evidence that a 'mandatory' application of salt targets might be almost 20 times more effective than a voluntary approach. Crucially, it would also be cost saving. In the USA, the Institute of Medicine is therefore suggesting that salt should be a regulatory target of the Food and Drug Administration.⁵ But in the UK, the government pledge that 'policy will be strictly evidence-based' is apparently now being progressively replaced by an evidence-free ideology. Indeed, the new British government seems willing to ignore extensive scientific evidence and instead hand responsibility back to the industry.

In conclusion, Cobiac *et al* provide further evidence that: '*lives can be saved by cutting salt. How many depends on whether politicians choose to accept the evidence, or instead cave in to industry pressure*'.¹²

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