

Sneaky salt

How Australia can shake its salt habit

Peter Breadon and Lachlan Fox

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Overview

Australians have a killer diet. We eat too much unhealthy food and too little healthy food. The rate of obesity has tripled since 1980. Diseases caused by, or made worse by, an unhealthy diet cost \$10 billion a year in healthcare and are a leading cause of death.

Poor diet is one of the biggest threats to Australians' health, but our food policies lag far behind those of leading countries. Australians want tougher policies that re-balance the scales and make it easier to stay healthy. But the policies we have are weak and ineffective. With diet-related disease growing each year, it's time for Australia to catch up. Part of that is getting serious about salt.

The average Australian eats far too much salt – almost double the recommended maximum. That raises our blood pressure, and condemns thousands of Australians to live with hypertension, heart disease, and the consequences of stroke. Each year, more than 2,500 Australians die from illnesses caused by high salt intake.

Australian governments know that salt is a big problem. That's why in 2021 they set a target to reduce salt intake by at least 30 per cent by 2030. But there has been almost no progress towards the target and there is no plan to get there.

There is a proven solution that can help. It helped the UK reduce salt intake by 20 per cent in about a decade. South Africa is making even faster gains. Best of all, the solution is cheap, easy to implement, and will get results fast.

Three-quarters of the salt in our diets is added during food manufacturing and invisible to consumers, making that the right place to focus. Many countries set limits on how much salt manufacturers can add to different types of food, such as bread, or sausages. If salt limits are

gradually made tougher, they can significantly reduce salt intake. And most consumers don't even notice the difference.

Australia has had voluntary salt limits since 2009, but they are badly designed, poorly implemented, and have failed. University of Melbourne modelling shows better limits could add 36,000 healthy years of life over the next 20 years, and prevent hundreds of deaths a year. Governments and the community would save money too. Governments would save \$35 million a year in healthcare spending, and higher incomes would far outweigh tiny food price changes.

To achieve this, the types of food covered by salt limits must more than double, covering foods the UK had targets for 10 years ago. A loophole that lets manufacturers exclude a fifth of their sales from salt limits should be closed. And some targets should be mandatory, since there has been no progress under Australia's entirely voluntary scheme.

These reforms would save many lives, but they aren't extreme. They build on a policy already we have. The targets are similar to ones the UK has set and met. Like those salt limits, and others around the world, Australia's salt limits should get more ambitious over time, saving many more lives.

But to reach our salt reduction goals, Australia will have to do more. Federal and state governments should encourage enrichment of salt with potassium, which can make salt less harmful without changing how it tastes. The federal government should investigate whether Australia can enrich all salt with potassium.

With better salt limits Australia can catch up to leading countries, and by making salt healthier we could lead the world. This will add thousands of healthy years of life, increase incomes, and take pressure off government budgets – a triple win.

Recommendations

Fix Australia's failed salt limit policy

The federal government should overhaul its salt reduction policy:

- Make Australia's existing voluntary salt limits mandatory, to be met by 2027.
- Add new, voluntary salt limits to cover more types of food, matching the breadth of the UK's 2014 targets. They should be as stringent as the UK's 2014 targets, with compliance assessed in 2027. If there is not meaningful progress by 2027, these targets should be made mandatory, to be met by 2030.
- Close a loophole which exempts 20 per cent of products in each food category.
- Expand menu-labelling for bakeries and fast-food restaurants to include salt, paving the way for salt limits there.

Keep progress on track

To make sure the scheme is credible, to enforce compliance, and to measure its impact, the federal government should:

- Monitor salt in food products.
- Measure population salt intake, with a sample big enough to assess changes to salt intake by age, gender, and socio-economic status.
- Review the accuracy of back-of-pack nutrition information labels, to determine if they are accurate sources of information for enforcement of mandatory salt limits.

Make salt healthier

Governments should promote healthier salt that is enriched with potassium:

- State governments should require use of potassium-enriched salt instead of regular salt in schools.
- The federal government should conduct a feasibility study on mandatory enrichment of salt with potassium, starting with bread and table salt.

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1 Australians have a killer diet

Most Australians eat too much unhealthy food, and not enough healthy food. In 2020-21, 38 per cent of our energy intake was from unhealthy, non-essential foods, and the average Australian ate only half the recommended amount of vegetables.

We are what we eat, and it's making us sicker. Poor diet contributes to many chronic diseases, such as heart disease, stroke, and cancer. Rates of these conditions are rising fast.

The costs for individuals and governments are enormous. Illnesses that are in large part caused by poor diet lead to healthcare spending of more than \$10 billion a year, and are a leading cause of death.

If we don't improve our diets, we will struggle to improve our health. Instead, we can expect more chronic disease, more disability, and rising hospital costs.

1.1 Australians have a poor diet, and it's not improving

According to Australia's national dietary guidelines, Australians should eat plenty of vegetables, legumes, beans, fruit, and grains, as well as lean meats, poultry, fish, eggs, tofu, nuts, and seeds, and dairy products such as milk, yoghurt, and cheese.¹ It's recommended that we should only eat junk foods 'sometimes and in small amounts'.² But what most of us eat looks nothing like these recommendations.

On average, our intake of healthier foods, such as grains, vegetables, and fruit, is far too low (Figure 1.1 on the following page). Only 9 per cent of Australian adults eat enough vegetables per day, and less than

half eat enough fruit.³ Meanwhile, junk foods make up more than a third of our daily energy intake, and our daily intake of salt, saturated fat, and sugar is much higher than recommended (Figure 1.1 on the next page).⁴

Over time, there have been improvements to Australian diets. Inadequate nutrition was a major challenge in the past, but today Australians stand taller because we tackled the problem.⁵ Many common foods have been fortified to include important nutrients, such as iodine and folic acid, improving population health.⁶

But our progress has stalled and some risks are increasing. We spend far more of our food budget than we used to on meals out and takeaway food, which tend to be higher in salt, sugar, and fats.⁷ And ultra-processed foods, such as packaged ready-to-eat meals, which carry big health risks, now make up about 40 per cent of our daily energy intake.⁸ In 2020-21, 38 per cent of our energy intake was from unhealthy, non-essential foods.⁹

Evidence shows that changing diet has been the biggest cause of climbing rates of obesity.¹⁰ The rate of obesity has more than tripled since 1980, to about one in three Australians today.¹¹ More than two

1. Dairy products are recommended to be mostly reduced-fat. We should also drink plenty of water: National Health and Medical Research Council (2013).

2. Ibid.

3. AIHW (2022a).

4. ABS (2014); and AIHW (2022a).

5. During the 20th Century, the average height of Australians increased as adequate nutrition became more affordable and available: Gruszyn et al (2012, pp. 85–91).

6. Ibid (p. 91).

7. Duckett et al (2016, pp. 18–19).

8. Heavily processed foods significantly increase the chance of weight gain, obesity, and chronic disease: Machado et al (2020) and Jardim et al (2021).

9. ABS (2022a).

10. Duckett et al (2016, pp. 18–19); and National Food Strategy (2021).

11. Duckett et al (2016).

thirds of Australians are overweight or obese.¹² And child obesity rates have also risen to alarming levels: in 2017, a quarter of Australian children were either overweight or obese.¹³

1.2 The health consequences of our poor diet are severe

Our poor diets cause chronic diseases.

Drinking sugar-sweetened beverages increases the risk of type 2 diabetes, coronary heart disease, and stroke, as well as poor dental health.¹⁴ Eating processed meats increases the risk of type 2 diabetes, cardiovascular disease, and colorectal cancer.¹⁵ Eating too much salt raises blood pressure, which increases the risk of heart disease and stroke.¹⁶

Being overweight or obese increases the risk of cardiovascular disease, high blood pressure, and type 2 diabetes.¹⁷ Obesity also greatly increases the risk of death from infectious diseases such as COVID-19.¹⁸ It all adds up. According to one estimate, in 2018, five of the top 10 causes of death in Australia were partially or wholly caused by a poor diet.¹⁹

Conversely, eating fruit and vegetables helps protect against stroke, coronary heart disease, and cancer.²⁰ And eating whole-grains helps protect against chronic heart disease and heart failure.²¹

12. ABS (2018).

13. AIHW (2020).

14. Bechthold et al (2019); Mozaffarian (2016); and Valenzuela et al (2021).

15. Qian et al (2020).

16. Lawes et al (2008); F. J. He and MacGregor (2018); Cappuccio and Sever (2019); and F. J. He et al (2021).

17. ABS (2018); and Bhaskaran et al (2018).

18. Sawadogo et al (2022).

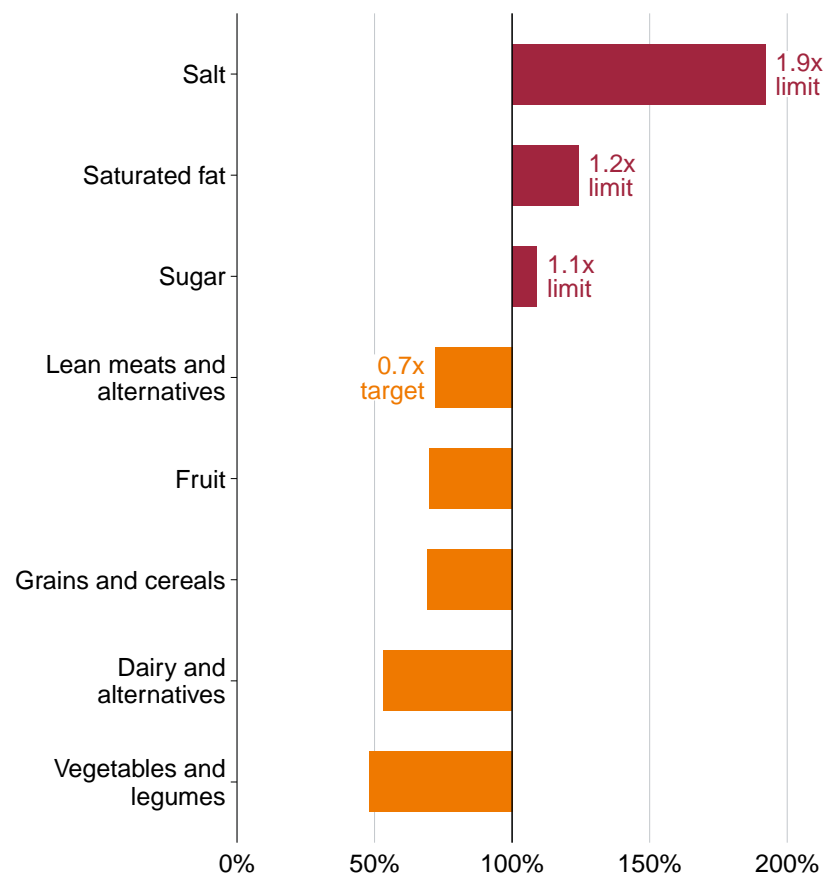
19. Excludes risks that could not be measured. Grattan analysis of IHME (2022).

20. Schulze et al (2018); and Bechthold et al (2019).

21. Bechthold et al (2019).

Figure 1.1: Australians eat too much salt, saturated fat, and sugar, and not enough healthy foods

Consumption of various foods relative to recommended diet



Notes: For foods not meeting targets (orange), estimates are based on retail purchase data, not consumption data, and therefore do not account for food purchased outside of the retail sector, or food wastage. Sugar and saturated fat intake and guidelines are calculated as a proportion of daily energy intake. Salt guidelines and intake are as grams per day. Sugar refers to free sugars.

Sources: ABS (2014, Table 2.1), Land et al (2018a), ABS (2017), ABS (2022a) and National Health and Medical Research Council (2021).

1.3 The financial consequences of our poor diet are enormous

Chronic diseases caused by an unhealthy diet result in illness, disability, or early death for millions of Australians.²² High rates of chronic disease caused by a poor diet also create significant costs for the healthcare system, and broader economy. In 2018-19, the total healthcare expenditure related to risks caused in large part by diets was more than \$10 billion (Figure 1.2).²³

Poor diet also leads to lost productivity, foregone tax revenue, and higher welfare expenditure.²⁴ The OECD estimates that between 2020 and 2050, obesity and overweight will reduce Australia’s GDP by more than 3 per cent.²⁵ In 2017, the economic costs of hypertension – a condition strongly linked to poor diet – was estimated at more than \$130 billion throughout the working life of the population.²⁶

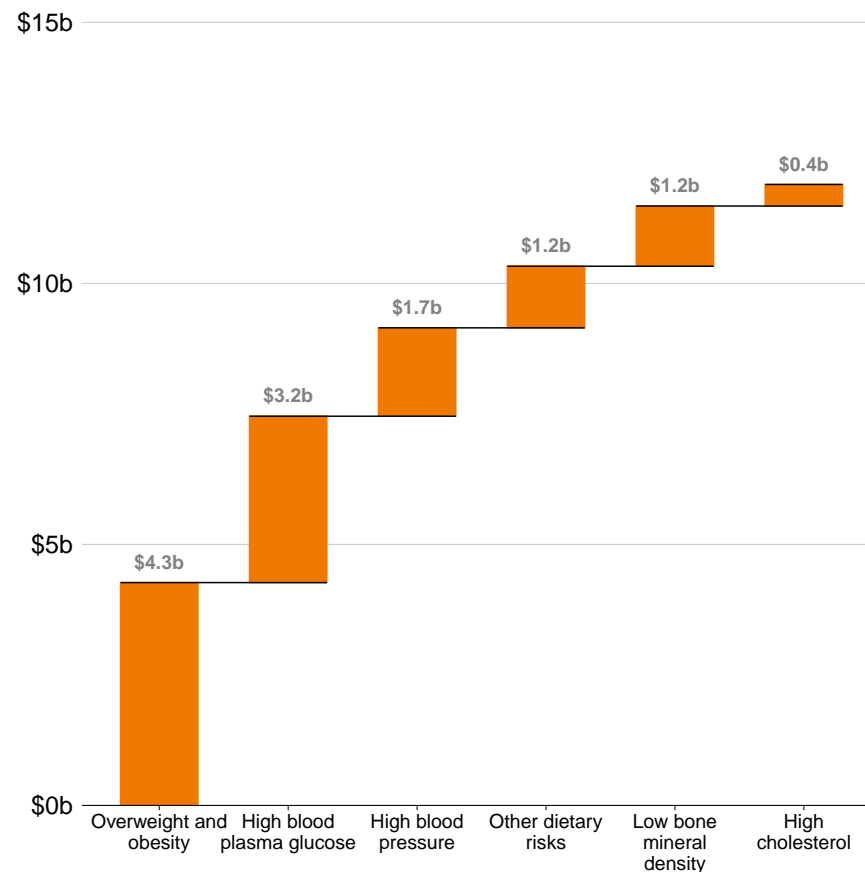
1.4 The burden falls most heavily on the most disadvantaged

The burden of poor diet is not only large and costly, it also falls most heavily on disadvantaged Australians.

Compared to the most advantaged fifth of Australians, the most disadvantaged fifth are less likely to eat enough fruit and vegetables, and almost 70 per cent more likely to drink sugar-sweetened beverages each day.²⁷ On average, they lose twice as many healthy life years to diseases caused by obesity, overweight, and dietary risks.²⁸

22. AIHW (2022b).
 23. AIHW (2022c, table 4).
 24. AIHW (2009); OECD (2019); and National Food Strategy (2021).
 25. OECD (2019, p. 27).
 26. Hird et al (2019).
 27. ABS (2022b, Table 5).
 28. AIHW (2021, Table S8.5-8.6).

Figure 1.2: Australia spends more than \$10 billion a year treating conditions largely caused by poor diet
 Total healthcare expenditure on conditions largely caused by diet-related risk factors, 2018-19



Notes: Because of the way risk factors are categorised, the categories other than ‘other dietary risks’ include cases where dietary factors, such as a high salt or calorific intake, are the underlying cause. The ‘other dietary risks’ category includes costs attributable to dietary risks not otherwise accounted for.

Source: AIHW (2022c).

For many, the consequence is dying young. The most disadvantaged Australians are twice as likely to die before the age of 75, compared to the most advantaged.²⁹

Poor diet may seem like a choice. But there is little evidence that people living in greater disadvantage have higher rates of diet-related diseases because they care less about their health. Instead, they face bigger barriers to eating well and staying healthy.

For example, poorer Australians are significantly less likely to have easy access to healthy, nutritious food, they can be exposed to more advertising of unhealthy products, and they are less able to afford fresh produce.³⁰

And there is considerable evidence that poverty and stress make it harder to make good day-to-day decisions such as choosing healthier options.³¹ For people facing significant financial and job insecurity, finding the time and mental energy to plan, purchase, and prepare healthy meals can be extremely challenging.³²

29. Adair and Lopez (2021).

30. Temple (2008), Kleve et al (2018), Winkler (2008) and Sainsbury et al (2017).
There is good evidence that cost is perceived as a barrier to healthy eating, and that following a healthy diet is not affordable for the lowest-income Australians:
A. Lee et al (2021) and A. J. Lee et al (2020).

31. Mani et al (2013).

32. Laraia et al (2017).

2 Governments need to act on diet

Our diets are harming our health, but not because we are lazy, weak-willed, or don't care. Our diets are unhealthy because the environments we live in steer us towards less healthy foods.

Individuals and businesses can't change this on their own. Instead, we rely on governments to make sure that the food we buy is safe to eat, and to make it easier to choose healthy options. But recent Australian governments have shirked this responsibility, implementing few policies to improve our diets.

There are many things governments can do that are cost-effective and appropriate, and most Australians support governments doing more to improve our health. But while other countries are pushing ahead with reforms to food labelling, taxation, and regulation, Australia is being left behind.

2.1 Poor diet is not only a matter of personal choice

Blaming unhealthy diets on individuals making poor choices doesn't stack up. It's hard to believe there was a collective loss of interest in being healthy, or a national (and global) crisis of willpower, that has led to obesity tripling in a few decades.

Australians aren't stuck with unhealthy diets because we are increasingly lazy, weak-willed, or don't want to be healthy. More than half of Australians are trying to lose weight, yet more than two thirds of us are overweight or obese.³³

33. ABC (2021) and Woodley (2021). About 67 per cent of Australian adults were overweight as of 2018: ABS (2018).

Instead, what has changed is the environment around us. For most Australians, it has become more difficult to make healthy choices, such as following a healthy diet.³⁴

Unhealthy foods are more widely available and cheaper than ever. More than half of the packaged foods in Australian supermarkets are classed as 'discretionary', meaning they have few nutrients, are typically unhealthy, and do not contribute to a healthy diet.³⁵ Almost three-quarters are ultra-processed.³⁶

Not only do they surround us, but we are pushed to buy them. Unhealthy supermarket foods go on sale almost twice as often as healthy options.³⁷ When they do, the discounts are about 65 per cent bigger.³⁸ Unhealthy foods are given more than twice the television advertising space as healthy options.³⁹ Most product space at the supermarket checkout is dedicated to unhealthy foods to tempt us at the last minute, and unhealthy options far outweigh healthy options in supermarket catalogues.⁴⁰

34. The National Obesity Strategy states that, 'our social circumstances and physical environments have the biggest impact on our individual behaviours', noting that 'our current food system promotes obesity by favouring the production and supply of unhealthy food and drinks, which are often highly processed and packaged, and can be cheaper than healthier products': Health Ministers Meeting (2022, pp. 11, 33).

35. George Institute (2021).

36. George Institute (ibid). Although definitions vary, ultra-processed foods are commonly considered to be foods made mostly or entirely from industrial products extracted from food: Gibney (2018).

37. Riesenberget al (2019).

38. Ibid.

39. Also, the frequency of ads spikes during children's programs and on the summer holidays: Smithers et al (2018).

40. Schultz et al (2020); and Cameron et al (2017).

Many external forces push us towards certain food products and away from others. These influences add up and today, many of the easiest options have become unhealthy ones.

2.2 It's part of governments' job to help us stay healthy

There are limits to what the private sector can do to improve Australians' diet and health. Without a level playing field, food companies that want to make their products healthier could be undercut by other companies that are less concerned about health.⁴¹ And while new medications to combat obesity will help, they won't be a panacea (Box 1).

There is clearly a government responsibility to help maintain public health, including by improving nutrition. Where governments can make cost-effective, proportionate interventions to reduce disease, they should.⁴² And as illness from poor diets keeps increasing, the case for cost-effective prevention only grows stronger.

2.3 Governments should be doing more

Australian governments' response to poor nutrition has been timid. They have mostly relied on individual responsibility or voluntary policies, as opposed to policies such as taxes or regulations.⁴³

41. National Food Strategy (2021, p. 146); and Food Standards Agency (2009a, p. 13).

42. See Breadon et al (2023) on cost-effective prevention interventions, which can be regulation, pricing, communication, or programs. See Section 6.2 on page 28 for the prerequisites for regulation.

43. Such as voluntary labelling through the Health Star rating system, and providing information to consumers, for example through the Eat for Health program: mpconsulting (2019) and National Health and Medical Research Council (2023).

Box 1: New drugs for obesity aren't a panacea

New drugs are helping many people, but better nutrition policies will still be crucial to improving our health.

For example, anti-hypertension drugs have revolutionised the treatment of high blood pressure over the past half century. More than three million Australians take them. The benefits have been enormous – in 1990, heart disease accounted for almost 20 per cent of the disease burden. By 2020, this figure had fallen to about 12 per cent.^a

But medicines cost money, don't work for everyone, and don't fix everything. Many Australians still suffer from high blood pressure and heart disease, which better nutrition policies can reduce.^b

Breakthrough drugs are promising to reduce obesity.^c These drugs will improve the lives of thousands of Australians but, as with hypertension, it's unlikely they will be a panacea.

Not everyone will want to, or be able to afford to, use medication to help reduce weight.^d One promising drug which can help reduce weight, semaglutide, costs more than \$1,500 per year for most patients.^e If all obese Australians were medicated, it would cost about \$10 billion a year.^f

Some weight-loss drugs can also have unpleasant side-effects. The risks of long-term use are unknown, and people's weight tends to return if they stop taking them.

a. Grattan analysis of IHME (2022).

b. AIHW (2017).

c. Chao et al (2022).

d. Ibid.

e. Coyler (2022).

f. About 30% of Australians are obese. In most cases, the medication must be taken on an ongoing basis to prevent weight gain. Chao et al (2022).

As Chapter 1 showed, relying on individual responsibility and voluntary policies has failed.⁴⁴ The average diet is still unhealthy, and obesity rates are higher than ever.

Other countries have shown that policies to improve diet can work.⁴⁵ For example, dozens of countries have introduced taxes on sugar-sweetened beverages, and policies to reduce consumption of trans-fatty acids, helping reduce consumption and improve health.⁴⁶ Hungary and Mexico have introduced taxes on junk food, with promising results.⁴⁷ Chile introduced compulsory labelling schemes for products high in calories, sodium, sugar, or saturated fat, and consumption of labelled products has since fallen.⁴⁸

2.4 Most Australians support a bigger government role

Most Australians believe that governments have a ‘large’ or ‘very large’ role to play in maintaining public health.⁴⁹

For example, surveys show a clear majority of Australians support warning labels on sugary drinks, and sugary drinks taxes.⁵⁰ Two-thirds of Australians support bans on junk food advertising during children’s viewing hours.⁵¹ And almost two-thirds of Victorians support mandated salt limits on supermarket foods.⁵²

As this chapter has shown, promoting healthy diets is an important role for governments, Australia has fallen behind other countries, and most people want stronger action. The rest of this report will show that salt is one area where tougher policies can save lives at low cost, without harming consumers.

44. There have been significant improvements to cardiovascular health over the past two decades: Australian Institute of Health and Welfare (2022, pp. 169–172). However, most are probably due to reductions in smoking rates and improvements in medication, such as widespread use of better blood-pressure-lowering drugs. Improvements to diet have been relatively minor: Ridoutt et al (2016).

45. Bredon et al (2023).

46. Andreyeva et al (2022), Jackson et al (2023) and Downs et al (2013). Grattan Institute recommends such a tax in Australia: Duckett et al (2016). Forty-three countries have policies to reduce trans-fatty acids in food (Iqbal (2014) and WHO (2023a)), but Australia has no such policies, and labelling is only mandatory where health claims are made: FSANZ (2017).

47. In Hungary, sales of taxed products fell at first, although long-run outcomes are less certain at present: WHO (2015) and Bíró (2021). In Mexico, household expenditure on taxed items has decreased, and there are signs of improved dental health: Taillie et al (2017) and Hernández-F et al (2021).

48. Taillie et al (2021).

49. Grunseit (2021, p. 4).

50. Miller et al (2019).

51. Australia Institute (2022).

52. Grimes et al (2017).

3 Governments should get serious about salt

Our diets need to improve, and there is a clear case for government action. Our governments should give priority to reforms which are achievable, supported by strong evidence, and lead to big health improvements. Salt reduction ticks all of these boxes.

Australians eat far too much salt. This raises our blood pressure, and condemns thousands of us to living with hypertension, heart disease, and the consequences of stroke. More than 2,500 Australians die each year from illnesses caused by high salt intake, more than double the national road toll in 2022.

Other countries have shown how salt intake can be reduced. Salt reform could be a ‘quick win’ for Australians’ health, and should be part of a new nutrition policy agenda.

3.1 Excess salt intake causes disease and death

Eating too much salt is bad for your health. It raises blood pressure, which increases the risk of heart disease and stroke.⁵³ It increases the risk of stomach cancer, and there is growing evidence that it causes or contributes to osteoporosis and obesity.⁵⁴

53. There is very strong evidence from randomised control trials and large cohort studies that demonstrate the link between salt intake, blood pressure, and adverse health outcomes: F. J. He et al (2013), F. J. He et al (2021), F. J. He and MacGregor (2018) and Cappuccio and Sever (2019). Although there has previously been debate about the association between low salt intake and rates of cardio-vascular disease, more recent evidence clearly demonstrates that reducing salt intake from current levels would provide substantial health benefits: J. He and Whelton (1999), Lawes et al (2008), F. J. He and MacGregor (2018), Cappuccio and Sever (2019) and F. J. He et al (2021).

54. Wu et al (2021) and Cappuccio et al (2000). Salt intake promotes greater intake of sugary drinks: F. J. He and MacGregor (2009) and WHO (2023b, p. 2).

Eating 10 grams of salt a day increases the chance of dying over a 20-year period by more than a fifth, compared to eating the recommended maximum of 5 grams per day.⁵⁵ Eating 15 grams of salt a day increases it by about 60 per cent (Figure 3.1 on the next page). Conversely, reducing salt intake brings health benefits for most people.⁵⁶

3.2 Australians eat too much salt, with bad consequences

Australians eat far too much salt. The recommended limit is 5 grams a day.⁵⁷ But the average Australian eats about 9.6 grams a day (Figure 3.2 on the following page), and the average Australian man eats more than 10 grams a day.⁵⁸

This has deadly consequences. About one in three Australians have high blood pressure, and eating too much salt is the biggest individual cause.⁵⁹ High blood pressure is the most common condition seen in Australian general practice, and is responsible for more than 1 in 20 of all the healthy years Australians lose to illness or dying early.⁶⁰

55. Recommended by the World Health Organisation (WHO), Cook et al (2016).

56. Huang et al (2020); F. J. He et al (2013); and Aburto et al (2013).

57. WHO recommendation, WHO (2023b).

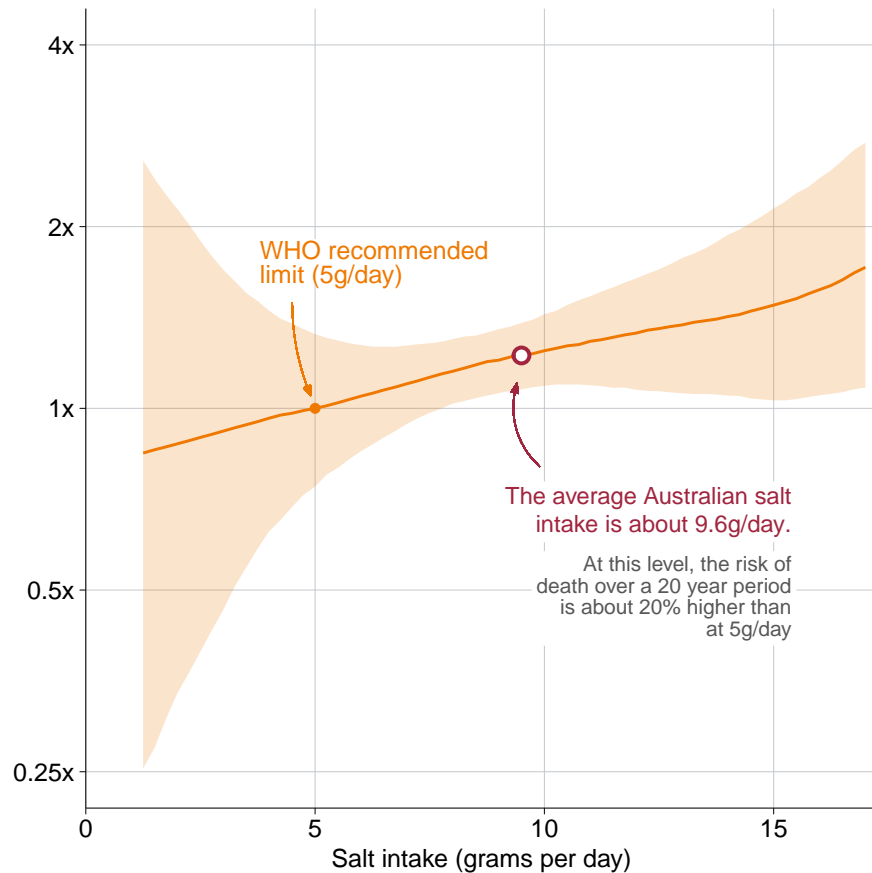
58. Land et al (2018a).

59. About 21 per cent of the high blood pressure burden in Australia is because of a diet high in salt. Of the 34 per cent of Australian adults with high blood pressure, only a third have their blood pressure controlled (to normal levels) with medication. AIHW (2019).

60. NPS MedicineWise (2022, p. 7); and AIHW (2019).

Figure 3.1: Eating more salt increases the risk of dying younger

Relative risk of death by salt intake over a 20-year period

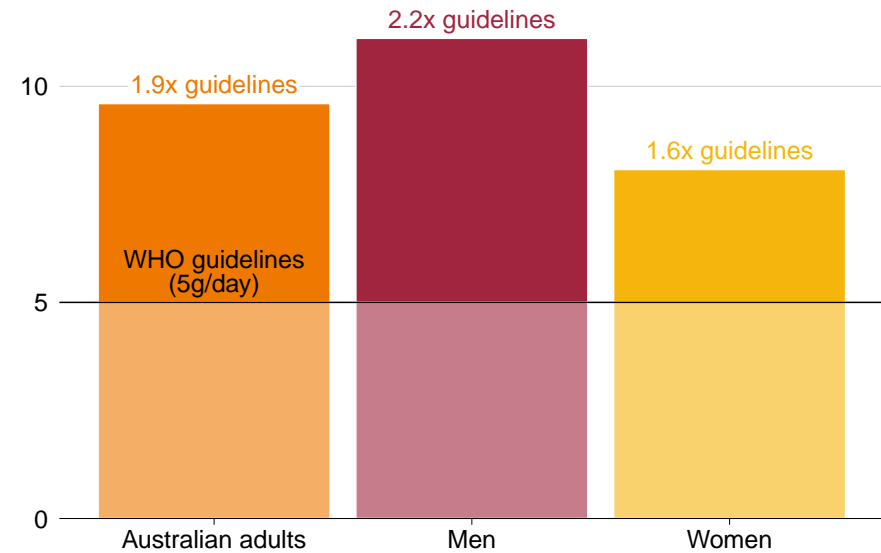


Note: Shaded areas represent 95 per cent confidence intervals; we can be 95 per cent sure that the relative risk of death falls within this range.

Source: Cook et al (2016).

Figure 3.2: Australians eat far more salt than the WHO recommends

Daily salt intake (grams per day) compared to World Health Organisation guidelines



Source: Land et al (2018a).

It is estimated that in 2018, excessive salt intake killed more than 2,500 Australians, mainly from heart disease or stroke (Figure 3.3). Thousands of other Australians live with chronic diseases caused by excessive salt intake.⁶¹ If excessive salt intake was eliminated, about 5,000 strokes, 10 per cent of the total, could be avoided each year.⁶²

Eating too much salt also has broader financial and economic consequences. In 2021, about 65 million prescriptions for blood-pressure lowering medication were filled.⁶³ It has been estimated that if the blood pressure of Australians with hypertension were brought down to the normal range, it would save \$179 million in hospital costs over five years.⁶⁴ And reducing rates of high blood pressure would also considerably improve productivity for the working-age population.⁶⁵

3.3 Poorer Australians eat more salt and have higher rates of disease

As with other aspects of diet-related illness (Section 1.4 on page 8), the burden of disease from a high salt intake is heaviest for disadvantaged Australians.

61. For example, hypertension, heart disease, stroke, (AIHW (2019)) and chronic kidney disease (Aminde et al (2022)).

62. Deloitte estimates that about 50 per cent of strokes could be avoided if high blood pressure was eliminated, and that there are about 51,000 strokes in Australia each year: McCullagh (2020, pp. i, 12, 20). Salt intake is estimated to be responsible for just over 20 per cent of the high blood pressure cases in Australia: AIHW (2019). Therefore, we estimate that about 10 per cent of strokes could be avoided if Australians stopped eating too much salt.

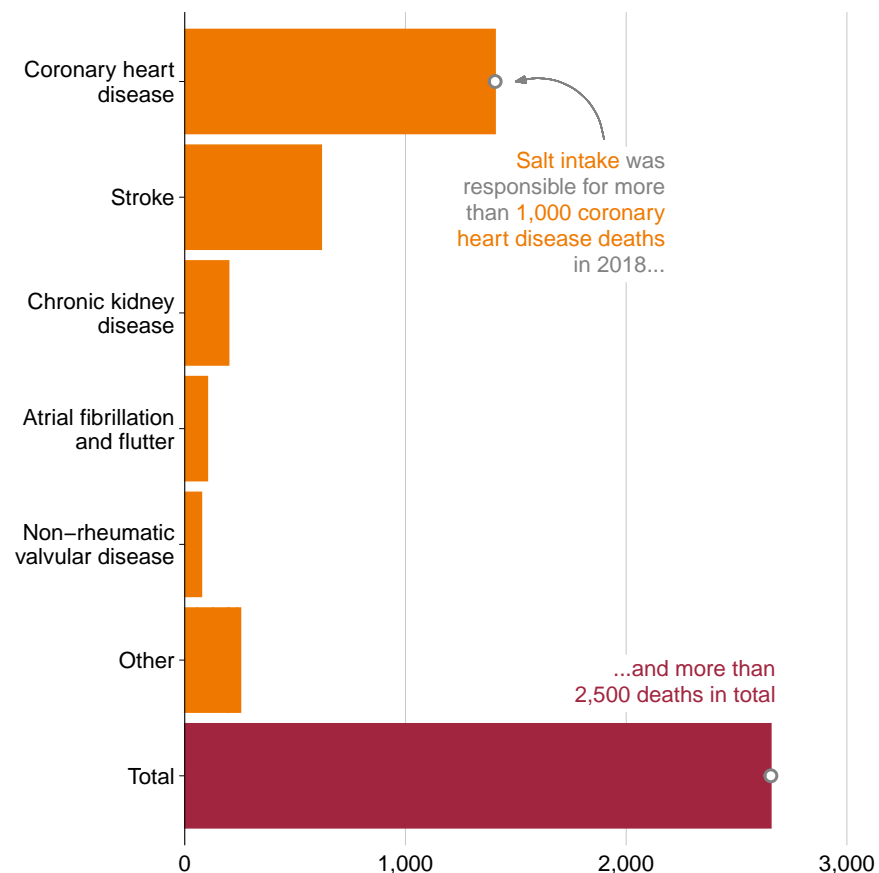
63. PBS (2022). Includes prescriptions for agents acting on the renin-angiotensin system, calcium channel blockers, beta-blockers, diuretics, and other hypertensives. Not all of these prescriptions may be prescribed for hypertension, but these drugs all lower blood pressure.

64. Roseleur et al (2023).

65. It has been estimated that a 25 per cent reduction in hypertension prevalence would lead to savings of \$34.3 billion in gross domestic product over Australians' working lifetimes: Hird et al (2019).

Figure 3.3: Thousands of Australians die each year because of high salt intake

Australian deaths attributable to excessive salt intake, by disease, 2018



Source: AIHW (2021).

Evidence shows that less-advantaged Australians are more likely to buy foods with more salt.⁶⁶ Children from lower socio-economic backgrounds have a daily salt intake almost 10 per cent higher than children from wealthier households.⁶⁷

And compared to the most advantaged fifth of Australians, the least advantaged fifth are 20 per cent more likely to have uncontrolled high blood pressure, and 60 per cent more likely to report having heart disease, both of which are linked to salt intake.⁶⁸

3.4 Other countries show how we can reduce our salt intake

Salt reduction programs are common around the world. One recent review found that 96 countries have national salt reduction programs, and 60 per cent of these programs include a regulatory component.⁶⁹

Salt reduction programs, when implemented well, can make great gains.⁷⁰

The UK had comprehensive salt reduction strategies between 2000 and 2014, and salt intake fell by about 20 per cent.⁷¹ Since the late-1970s, Finland has implemented a range of policies to reduce salt intake, and daily salt intake fell from 12 grams per day in 1979 to less than 9 grams per day in 2002.⁷² Japan, Ireland, Turkey, South Korea, and recently South Africa have each significantly reduced their dietary salt intake through various programs.⁷³

Salt reduction programs have been found to be very cost-effective. Because the upfront costs are often very small, but the potential health gains are so large, they are considered to be among the most cost-effective public health interventions.⁷⁴ The WHO describes salt reduction programs as a public health ‘best buy’.⁷⁵

In 2021, Australian governments set a target to reduce salt intake by at least 30 per cent by 2030.⁷⁶ But there has been no progress towards the target and there is no plan to get there. The rest of this report identifies the best policy options Australia has to reduce salt intake, the benefits these schemes could bring, and how they should be implemented for the best chance of success.

66. Coyle et al (2020).

67. Grimes et al (2013).

68. AIHW (2022d).

69. Santos et al (2021).

70. See Chapter 4 for more detail.

71. Alonso et al (2021) and F. J. He et al (2014). Salt intake has since rebounded in the UK, partly due to lapses in implementation: Alonso et al (2021).

72. Laatikainen et al (2006); and F. J. He and MacGregor (2009).

73. Santos et al (2021); Hyseni et al (2017); and Strauss-Kruger et al (2023).

74. Alonso et al (2021); Hope et al (2017); Collins et al (2014); and Webb et al (2017).

75. WHO (2017).

76. Department of Health (2021, p. 74).

4 Salt limits work

Most of the salt Australians eat is added to our food during manufacturing, making it largely invisible to consumers. In a perfect world, people would eat less manufactured food, but no country has worked out how to do this yet.

In the meantime, Australian governments should reduce the salt in manufactured foods by setting better salt limits.

Well implemented salt limits are the best policy option to reduce salt intake. Forty-three countries (including Australia) have voluntary or mandatory salt limits to reduce the salt in manufactured foods, and more are following. Countries such as the UK and South Africa have done it well, with impressive results, but Australia's scheme has failed.

4.1 Policy must target salt added during food manufacturing

Most of the salt Australians eat, about three-quarters, is added to our food during manufacturing and processing.⁷⁷ Many common meals and snacks, such as two-minute noodles or a meat pie, contain about half the recommended daily limit of salt in just one serve (Figure 4.1 on the next page).

Companies add salt to food during manufacturing for various reasons. Salt can make foods more palatable or tasty, and can do so cheaply.⁷⁸ Salt makes us thirsty, which helps companies sell more of other products such as sugar-sweetened beverages.⁷⁹ And adding salt

to foods such as meat can increase the amount of water in those products, increasing their weight at low cost.⁸⁰

Because salt added during food processing makes up most of the salt we eat, it must be a core focus of any successful policy to reduce salt intake.

Simply giving people more information or encouraging them to choose less-salty manufactured foods is unlikely to achieve big health gains. As Chapter 2 showed, policies which put the burden on consumers to choose healthier options have rarely succeeded in Australia or elsewhere.⁸¹

While people can easily control how much salt they add at the dinner table, they are often unaware of the salt content of items at the supermarket.⁸² People often lack the time, motivation, and knowledge to consistently check salt content information when buying food, it can be difficult to weigh up the risks of different alternatives, and low-salt options may not be available.⁸³

77. Estimates vary, but most suggest that about 70-to-80 per cent of salt intake is added during processing: Bhat et al (2020), K. Charlton et al (2010) and James et al (1987).

78. Magnusson and Reeve (2014); and Cappuccio et al (2011).

79. Magnusson and Reeve (2014), Zhu et al (2021) and Grimes et al (2021). Sugar-sweetened beverages are a key cause of obesity: Duckett et al (2016).

80. Magnusson and Reeve (2014), Cappuccio et al (2011) and Karppanen and Mervaala (2006).

81. Metcalfe and Sasse (2023).

82. Webster et al (2010); and Papadakis et al (2010).

83. Most Australians know that we eat too much salt, and that eating too much salt is harmful. But few are concerned about their own salt intake, and many significantly underestimate how much salt they eat. Few know the recommend daily limit for salt intake: Grimes et al (2017), Papadakis et al (2010) and Newson et al (2013). It can be especially difficult when eating out: Grimes et al (2017). In the US, even motivated people with hypertension struggle to reduce salt intake to recommended levels: Ayala et al (2012).

4.2 Salt limits are the best way to reduce salt consumption

There are three main ways governments around the world have encouraged manufacturers to put less salt in the foods they produce: salt limits, front-of-pack food labels, and salt taxes.⁸⁴

Salt limits restrict how much salt can be added to different foods. Mandated labelling schemes, for example as introduced in Chile, encourage companies to reduce salt in their products to avoid warning labels, or to get a more favourable label.⁸⁵ Salt taxes make salt more expensive, encouraging the food industry to use less.⁸⁶

Compared to salt limits, few countries have implemented mandatory labelling schemes or salt taxes as central policies to reduce population salt intake.⁸⁷ Where they have been introduced, reductions in salt have often been smaller than what salt limits can achieve.⁸⁸

84. Santos et al (2021) and National Food Strategy (2021). We have not included consumer education campaigns here, because they typically focus on changing consumer, not industry, behaviour. Other promising policy options, including mandatory reformulation of the salt supply chain with sodium substitutes, are being studied, but have not yet been implemented in any jurisdiction. This option is discussed in Chapter 7.

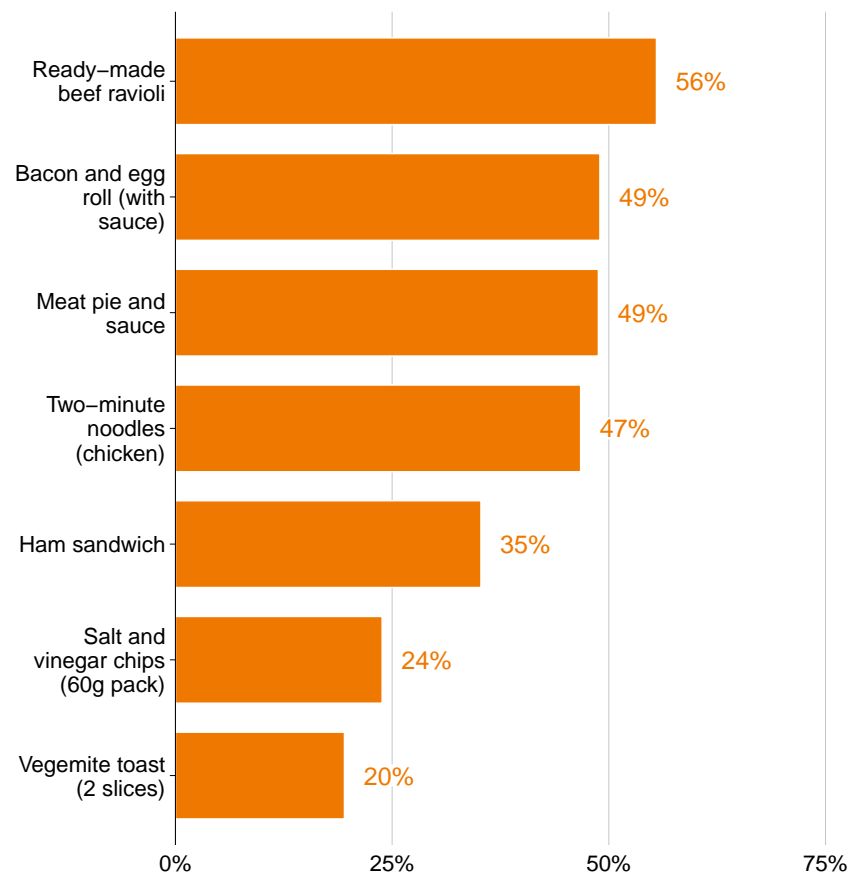
85. Taillie et al (2021).

86. National Food Strategy (2021, pp. 193–197).

87. Kanter et al (2018); and Dodd et al (2020).

88. Reviews of front-of-pack labelling effects on reformulation report good evidence that front-of-pack labels spur industries to reformulate foods, but the extent of sodium reductions are relatively uncertain and depend on the type of label, and gains have been smaller than those achieved in South Africa and the UK under salt limits (see Section 4.2.1 on the following page): Ganderats-Fuentes and Morgan (2023) and Roberto et al (2021). For salt taxes, real world evidence is limited, of poor quality, and doesn't demonstrate dietary sodium reductions: Dodd et al (2020). While modelling studies often predict substantial reductions in dietary sodium, there is significant uncertainty as to how consumers will respond to a tax: Dodd et al (ibid).

Figure 4.1: Common foods have lots of salt in them
Proportion of maximum recommended daily salt intake



Notes: All estimates are for a single serve, except for salt and vinegar chips. Estimates are based on particular products, and salt content is likely to vary between products and brands. The 'recommended' serving size for salt and vinegar chips is only about 12 chips: we believe a small, 60g bag is a more realistic representation of how Australians eat chips. All bread is assumed to be white bread.

Sources: Woolworths (2023a), Woolworths (2023b), Woolworths (2023c), Woolworths (2023d), Woolworths (2023e), Woolworths (2023f), Woolworths (2023g), Woolworths (2023h), Woolworths (2023i) and Woolworths (2023j).

There is some evidence that front-of-pack labels, such as Australia's health star ratings, can encourage manufacturers to reduce the amount of salt they use.⁸⁹ They have been found to be a cost-effective policy.⁹⁰

However, most of this evidence is from voluntary schemes, where the benefits have often been undermined by low uptake of labels.⁹¹ There is some promising evidence that mandatory front-of-pack warning labels can reduce the amount of salt sold in packaged foods, but reductions in salt have been lower than what countries with effective salt limits have achieved.⁹²

And while the theory behind salt taxes is sound, there is limited evidence about how producers and consumers might respond to a tax, and taxes can be complex to implement.⁹³

Instead, most countries that have recently reduced population salt intake have done it by setting salt limits.⁹⁴ These schemes are relatively simple: for relevant product categories, such as bread or processed meats, there is a limit on how much salt can be added to products,

89. Roberto et al (2021), Bablani et al (2020) and Bablani et al (2022). Or warning style labels implemented overseas, for example in Chile: Quintiliano Scarpelli et al (2020).

90. Mantilla Herrera et al (2018).

91. Ganderats-Fuentes and Morgan (2023).

92. In Chile a combined intervention of mandatory front-of-pack labelling schemes, restricting marketing, and banning school sales of high sodium foods was found to reduce sodium purchased in packaged foods by 4.7 per cent, equivalent to about a 3.6 per cent reduction in total dietary sodium: Taillie et al (2021). This reduction is less than what has been achieved through salt limits in the UK, and in South Africa (see Section 4.2.1). Other reviews of front-of-pack labelling effects on reformulation report good evidence that front-of-pack labels spur industries to reformulate foods, but the extent of sodium reductions are relatively uncertain and depend on the type of label: Ganderats-Fuentes and Morgan (2023) and Roberto et al (2021).

93. Dodd et al (2020); and Hyseni et al (2017).

94. Often in tandem with consumer education campaigns: Santos et al (2021) and Hyseni et al (2017).

which is lowered over time.⁹⁵ Manufacturers must reduce the salt in products with more salt than the prescribed limit.

When salt limits are set at the right level and implemented well, population salt intake can be significantly reduced without creating significant costs for industry or consumers, and without making foods less tasty.⁹⁶

4.2.1 Overseas schemes show that well-implemented salt limits work

The UK and South Africa both demonstrate that salt limits can be very successful.⁹⁷ Both countries have achieved big reductions in dietary salt intake.

In 2003, the UK Scientific Advisory Committee on Nutrition released a report recommending that the population salt intake should be reduced to 6 grams per day.⁹⁸ In 2006, the UK Food Standards Agency established voluntary salt limits for 85 categories of common foods.⁹⁹ The program was supported by food labelling, and public awareness campaigns about the dangers of excessive salt intake.¹⁰⁰

The program was highly successful. Between 2000 and 2014, the estimated daily salt intake for the UK population fell by almost 20 per cent, from 9.4 grams per day to 7.6 grams per day.¹⁰¹

95. Usually on a weight basis.

96. Griffith et al (2017). See Section 4.2.3 on the following page for further details on taste, and Appendix A on page 38 for details about costs.

97. K. E. Charlton et al (2021); and Alonso et al (2021).

98. Gilbert and Heiser (2005).

99. Food Standards Agency (2006).

100. Alonso et al (2021).

101. Alonso et al (ibid). However, the reductions in salt intake have been attributed almost solely to reformulation: Griffith et al (2017).

The benefits were enormous. Between 2000 and 2018, the program is estimated to have saved \$900 million in healthcare expenditure costs, and averted almost 40,000 premature cases of stroke and 28,000 cases of ischemic heart disease.¹⁰² This is estimated to have added over 33,000 healthy years of life to the UK population.¹⁰³

In 2016, South Africa imposed mandatory salt limits on a broad range of food categories.¹⁰⁴ Early results are very promising. In just three years, daily population salt intake fell by an estimated 1.15-to-1.2 grams per person, with greater reductions of 1.9 grams per person per day reported for lower socio-economic groups.¹⁰⁵

Under South Africa's mandatory program, salt intake has fallen even faster than it did under the UK's voluntary program.

4.2.2 Salt limits are affordable

There are costs associated with reformulating foods to reduce salt content. To meet salt limits, the food industry would need to adapt many recipes.

But these costs are small, and vastly outweighed by the benefits of introducing salt limits (as section 6.1 explains in more detail). To date, there is no evidence that successful salt-limit policies have reduced consumer demand for food products, or hurt industries' bottom line.

102. Alonso et al (2021). Figure has been converted from pounds, and adjusted for inflation. The total cost savings including social care costs are estimated to be about \$2.2 billion. The costs of the program were estimated to be about \$240 million.

103. Alonso et al (ibid). These results are based on modelling, but empirical studies have also found that there were substantial health improvements over the same period. The 2000-to-2018 period coincided with a large rise in the use of anti-hypertension drugs: F. J. He et al (2014).

104. Seager (2019); K. E. Charlton et al (2021); and Strauss-Kruger et al (2023).

105. K. E. Charlton et al (2021); and Strauss-Kruger et al (2023).

And there have been no reports of price rises caused by food reformulation policies where they have been successfully introduced, such as in South Africa or the UK.

Grattan Institute modelling shows that at most, the average Australian household would pay about 10 cents more for their entire weekly shop if better salt limits were introduced here, and these costs would last only a few years.¹⁰⁶

4.2.3 Salt limits won't significantly change how food tastes

There are three reasons that better salt limits won't result in unpalatable or bland food.

First, there is good evidence that food producers are able to reduce the amount of salt in many common foods without noticeably changing the taste. For example, many studies have consistently found that the amount of salt in breads can be reduced by 20-to-30 per cent without consumers noticing any difference.¹⁰⁷ There have been similar findings for many different types of common food products, including many processed meats, dairy products such as cheeses, some ready-to-eat meals, and soy sauce.¹⁰⁸

106. Costs are expected to last six years. This is the estimated cost of meeting Australia's existing limits by 2027, and meeting a broader set of limits equivalent to what the UK set in 2014, by 2030 (as we recommend in Chapter 6). Our cost estimates are very conservative, and real-world costs are likely to be below this figure. Costs are expected to be slightly higher (13 cents per week per household) for the first three years, and lower for the subsequent three years (nine cents per household per week). Appendix A explains our costing methodology in more detail. Our estimate assumes that all of the additional cost is passed through to consumers.

107. Levings et al (2014) and Bolhuis et al (2011). Or up to 60 per cent in some cases, such as for brown breads, and when salt substitutes are used: Levings et al (2014).

108. Levings et al (2014); Mitchell et al (2009); and Goh et al (2011).

Part of the reason is that food businesses can do much more than simply remove salt. For example, food companies have developed ways to change the crystal structure of salt to make it finer – giving the same taste with less salt.¹⁰⁹ Food technology will continue to evolve, particularly if companies have a strong incentive to find ways to make lower-salt foods tastier.¹¹⁰

Second, food businesses can reduce the salt in many products while holding on to a salty flavour, by using sodium substitutes such as potassium.¹¹¹

Salt substitutes are a promising way to reduce the amount of salt Australians eat, and are an important area for policy development (as Chapter 7 explains in greater detail). There is little to stop food business from using salt substitutes such as potassium chloride to meet salt limits.¹¹² Salt substitutes are affordable. Because Australians eat too much sodium and too little potassium, they are healthy too.¹¹³

Third, there is also good evidence that when we gradually reduce the amount of salt we eat over time, our tastes adjust to a lower-salt diet.¹¹⁴ Just as our taste-buds have adapted to high-salt diets, they can readjust to a lower salt intake over time, allowing us to enjoy lower-salt foods.¹¹⁵

For each of these reasons, consumers are unlikely to notice big changes in the foods they buy, or to switch to saltier products. The UK experience supports this. Between 2005 and 2011, the average salt content of UK supermarket foods dropped considerably, by 6.5 per cent. Consumers didn't significantly change their purchases in response – for every gram of salt taken out of the foods they bought, changes to what consumers bought only added 0.15 grams back in.¹¹⁶

109. McKay (2010); and Cargill (2023).

110. There are risks that reformulation to reduce sodium could be accompanied by increases in other ingredients that are harmful if consumed in excess, such as sugar and fat. Broader food policies should monitor this.

111. Consumers may be familiar with potassium-enriched salt as 'heart salt': Woolworths (2023k). Up to a quarter of the sodium in salt can be switched for potassium without any noticeable change to the taste: Saavedra-Garcia et al (2015). Recent evidence also suggests that potassium chloride may be able to be used with other compounds to improve flavour, allowing for higher rates of substitution: Lu et al (2022).

112. Salt substitutes are currently more expensive than traditional salt: Yin et al (2021a). However, given traditional salt is a minor expense in the food supply chain, the extra cost is likely to be small compared to the benefits: Taylor et al (2021).

113. Current intake of potassium in Australia is below dietary recommendations: Bolton et al (2019). The use of potassium chloride as a salt substitute has been proven to reduce blood pressure and the risk of developing hypertension: Yin et al (2022) and Bernabe-Ortiz et al (2020).

114. Bertino et al (1982); Blais et al (1986); Chung et al (2022); and Bobowski et al (2015).

115. Chung et al (2022); and Bobowski et al (2015).

116. The combined effect of less salty supermarket products and some consumer switching to higher-salt products was a 5.1 per cent less salty average shopping basket between 2005 and 2011: Griffith et al (2017).

5 Australia's salt limits aren't working

Policy makers in Australia understand that setting salt limits is the most promising and best-understood path to reducing population salt intake. That's why salt limits have been a central feature of salt reduction policies in Australia for nearly 15 years.

But these policies have been hobbled by four fatal flaws:

1. salt limits are voluntary, with low rates of industry participation and compliance
2. salt limits apply to too few types of food
3. many of the limits are lenient and
4. there is a big loophole.

5.1 Industry participation and compliance has been dismal

Australia has made two attempts at setting salt limits. Australia's first salt limit policy, which ran from 2009 to 2015, set salt targets for only nine food categories (Box 2). Many of the targets were lenient. Most were not met: by 2015, four had been partially met, but there had been no progress on the remaining five.¹¹⁷

The failure was predictable. The targets were voluntary, with no penalties, no rewards, and little monitoring of progress.¹¹⁸

An updated policy now covers a wider range of foods, but the same fundamental flaws remain (Box 2). Salt limits are still voluntary, and there is no clear downside for companies that opt out.

117. Jones et al (2016, Table 1).

118. Elliot et al (2014).

Box 2: 'Dialogue' and 'Partnership', but little progress

Australia first set salt limits in 2009, as part of the Food and Health Dialogue. The Dialogue was a partnership between the federal government and the private sector, including industry associations.^a It featured a voluntary reformulation program, with salt limits for just nine food categories.^b

In 2015, the federal government announced a successor to the Dialogue: the Healthy Food Partnership.^c It too set salt limits for common food categories.^d The Partnership is ongoing, with the aim of meeting the first wave of salt targets by 2024.

The Partnership improved on the Dialogue in some ways, for example by expanding the number of categories of food covered from 9 to 32.^e But the policy still shares key weaknesses with its predecessor.

It remains voluntary and the committee that oversees the scheme is skewed towards industry: it has three government representatives, three public health organisations, and nine food industry organisations.^f As this chapter explains, compared to policies in leading countries, Australia's approach has low participation, low ambition, and low impact on salt intake.

a. Elliot et al (ibid).

b. Department of Health (2016).

c. Jones et al (2016).

d. The Partnership also includes targets for the reduction of saturated fats and sugar in foods: Healthy Food Partnership (2021).

e. Department of Health 2016; Healthy Food Partnership 2021.

f. Department of Health and Aged Care (2022).

The Department of Health does not report on companies which do not comply with the voluntary limits.¹¹⁹ The stated reason is the risk that ‘companies may receive negative attention for not signing up to the Partnership, or failing to meet the reformulation targets within the agreed time-frames’.¹²⁰

Current salt limits are supposed to be achieved by the end of 2024. But interim results suggest few companies are making serious efforts to achieve the limits, and the proportion of food products manufacturers have put forward to ‘participate’ in the scheme is very low.¹²¹ In most categories, more than three quarters of products are not participating (Figure 5.1).

In some categories, such as savoury snacks, fewer than 1 in 10 products is participating. These non-participating products make up about 80 per cent of the salt in the categories covered by the salt limits scheme.¹²² Because participation is so low, only 8 per cent of the salt Australians eat is covered by participating products.¹²³

Even among products that are participating, there has been little progress towards the targets. Between June 2020 and June 2022, only 4 per cent of eligible products were reformulated to have lower salt content.¹²⁴ And where products have been reformulated, improvements

119. Healthy Food Partnership (2020, p. 7). The ABS now reports on compliance, but at an aggregate category level only: ABS (2023).

120. Healthy Food Partnership (2020, p. 7).

121. As of 7 September 2023, the Department’s website said a few large manufacturers had committed to participating in relevant categories, including Mars Food Australia, Nestlé Australia, Sanitarium, Tip Top Bakeries, PepsiCo, Kraft Heinz Australia, and Woolworths: Department of Health and Aged Care (2023).

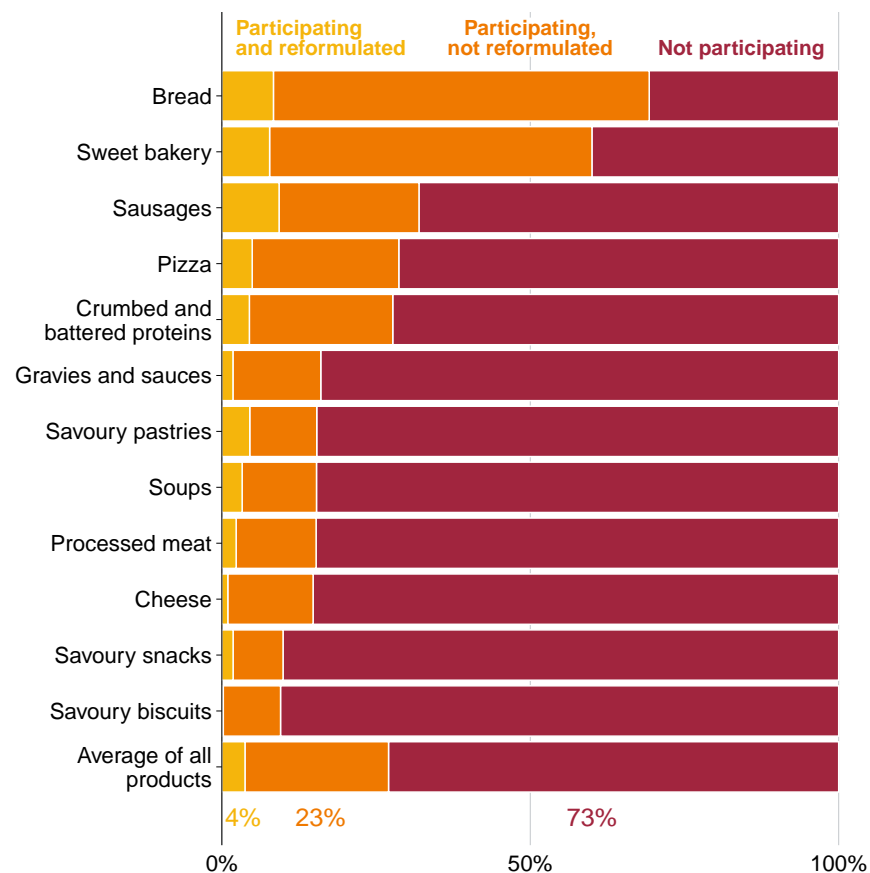
122. ABS (2023).

123. Ibid.

124. See Figure 5.1.

Figure 5.1: Most eligible products are not participating in Australia’s salt limits scheme, and even fewer have been reformulated

Proportion of products which are participating, and reformulated, by June 2022



Source: Grattan analysis of Coyle et al (2021, Supplementary table 3) and ABS (2023).

have been small: on average, a 3 per cent reduction in salt content per product.¹²⁵

The ABS has estimated that, at its halfway point, the program has reduced population salt by 0.3 per cent: about 0.008 grams of salt per person per day.¹²⁶

5.2 Australia's salt limits are narrow, weak, and undermined by a big loophole

Even if participation and compliance with salt limits improve, Australia's salt limits will still fall short because they are narrow, weak, and undermined by a big loophole.

In Australia, salt limits apply to only 32 food categories.¹²⁷ This is far short of leading countries, such as the UK, where salt limits apply to 84 food categories, Canada (117 categories), and the US (163 categories).¹²⁸ In the US and Canada, salt targets are set for virtually all manufactured foods.¹²⁹ But in Australia, targets cover only about 40 per cent of the salt sold in retail foods.¹³⁰

Australia's salt limits are far too lenient. More than half of participating products already met the limits by the time targets were set (Figure 5.2).¹³¹

125. ABS (2023).

126. Ibid.

127. Healthy Food Partnership (2021).

128. Public Health England (2020a); Health Canada (2020); and Center for Food Safety and Applied Nutrition (2023).

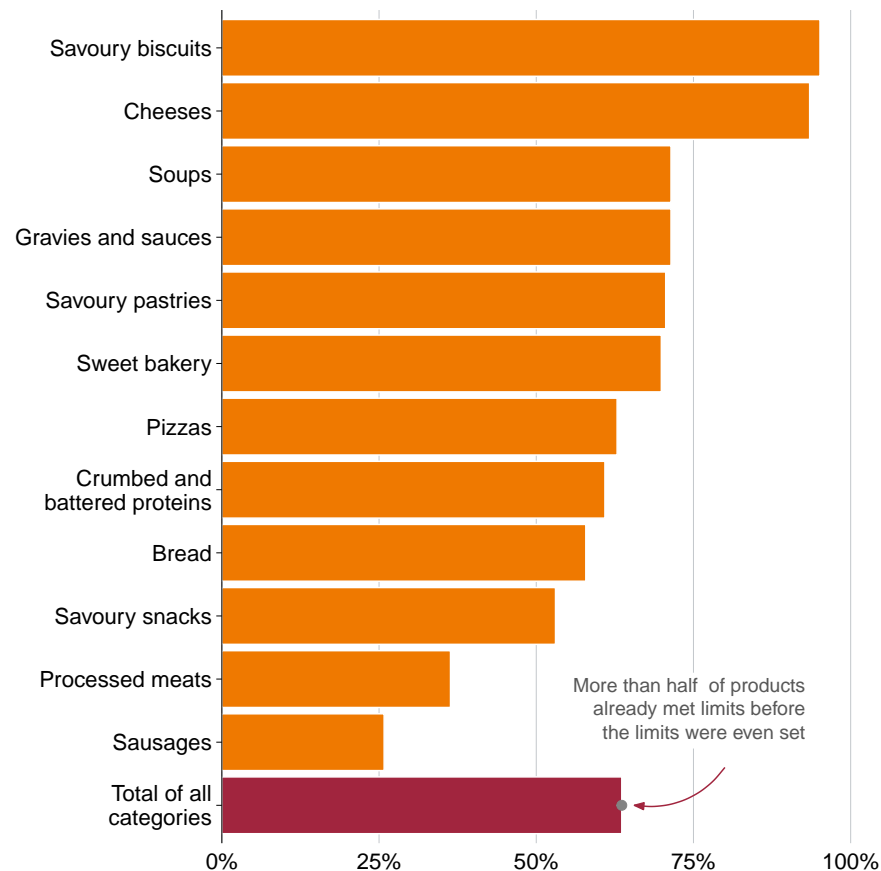
129. WHO (2020, p. 12); and Center for Food Safety and Applied Nutrition (2023).

130. Healthy Food Partnership (2021).

131. Targets were not intended to be this lenient. Targets aimed to set salt limits so that only one third of products met them when monitoring began. However, likely due to limitations with the data used to develop targets, they were substantially more lenient than this, and about half of products met them when monitoring began: Coyle et al (2021). In some categories, almost all products already met targets: Figure 5.2. Targets were not adjusted after this error became apparent.

Figure 5.2: Most eligible products already met salt limits by the time monitoring began

Proportion of products within each food category which met Australia's salt limits at the beginning of monitoring



Source: ABS (2023).

Even if all of the limits were met, population salt intake would fall by only about 3.1 per cent – a fraction of Australia’s goal of reducing salt intake by at least 30 per cent by 2030.¹³²

As well as being narrow and weak, Australia’s salt limits have a big loophole. The targets cover only 80 per cent of each category of food, by sales volume.¹³³ This means that within each food category, manufacturers can choose to exclude 20 per cent of their sales. There is nothing to stop companies from excluding their saltiest and most popular products. In fact, they are likely to do this, to reduce the cost and effort of complying with the scheme. No justification has been made for this loophole, which clearly undermines the goal of reducing population salt intake.

Australia has the right mechanism for reducing salt intake: setting salt limits. But our policies were set up to fail. The four challenges discussed in this chapter – low rates of industry participation, narrow coverage, lenient targets, and policy loopholes – have stymied progress. The next chapter shows how Australia can learn from leading countries to reform our approach, giving it the best chance of success.

132. Trieu et al (2021) and Rosewarne et al (2020). Compared to world-leading limits proposed by the WHO, Australia’s existing limits would avoid less than a third of the amount of death and disease if they were met: Trieu et al (2021).

133. Department of Health and Aged Care (2023).

6 How to fix Australia's salt limits

With tougher salt limits on more foods, almost 300 over deaths would be deferred each year by 2040, and an extra 3,000 healthy years of life would be added each year. But health gains will only be achieved if a new salt reduction program is well designed and implemented.

To ensure limits are achieved, the federal government should mandate Australia's existing voluntary salt limits, to be met by 2027. And the type of foods covered by limits should be expanded, with new voluntary salt limits set so that Australia's salt reduction program covers the same foods covered by the UK's 2014 targets.

If these is not meaningful progress towards these targets by 2027, they should be made mandatory, to be met by 2030. All limits should be periodically updated, and the current policy loophole which exempts 20 per cent of products in each food category should be closed.

The government should also commit to comprehensively monitoring salt intake to check that the program is succeeding.

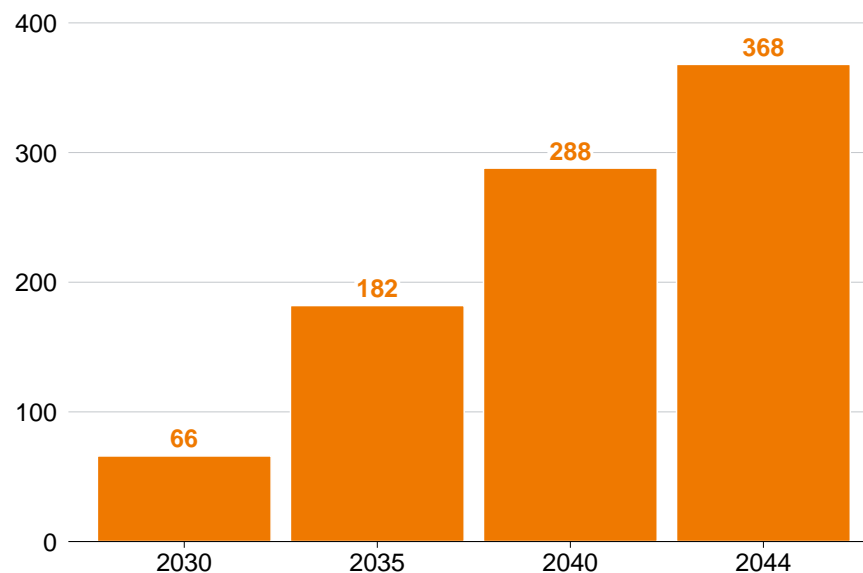
6.1 Better salt limits could avert hundreds of deaths, and thousands of years lived with disability

Modelling by the University of Melbourne's SHINE program found that meeting the salt limits we propose in this chapter would give Australians an extra 36,000 healthy years of life over the next 20 years.¹³⁴ Most of these gains are from reduced disease and disability,

134. Full modelling results from the University of Melbourne's SHINE program are available here: https://mbspgh.unimelb.edu.au/_data/assets/pdf_file/0004/4783405/The-Health-and-Cost-Impacts-of-Sodium-Reduction-Interventions-in-Australia.pdf. Gains are from 2024-2044. Most of the healthy years gained (about 32,000) are during the 2034-44 period. 'Extra healthy years' refers to the total health-adjusted life years (HALY) gained under the intervention, Blakely et al (2023).

Figure 6.1: Better salt limits would save lives

Estimated number of lives saved annually in select years, if our recommendations are implemented



Source: Blakely et al (2023).

but by 2035 nearly 200 deaths would be avoided each year, and by 2045 it would be over 300 (Figure 6.1).¹³⁵

Implementing effective salt limits has costs. But the costs are trivial compared to the benefits.

We estimate that over the next six years, implementing the recommendations laid out in this chapter would cost government less than \$4

135. Deaths are not deferred indefinitely. Based on modelled reductions in death rates in Blakely et al (ibid).

million per year, and industry costs would be less than \$60 million per year.¹³⁶ If these industry costs were passed through to consumers, the cost of the average weekly household shop would increase by about 10 cents at most, and only for a six-year period.¹³⁷

All effective health interventions have costs. When we pay for better medications or a surgical procedure, the cost is usually justified because it is worth the health improvement it brings.

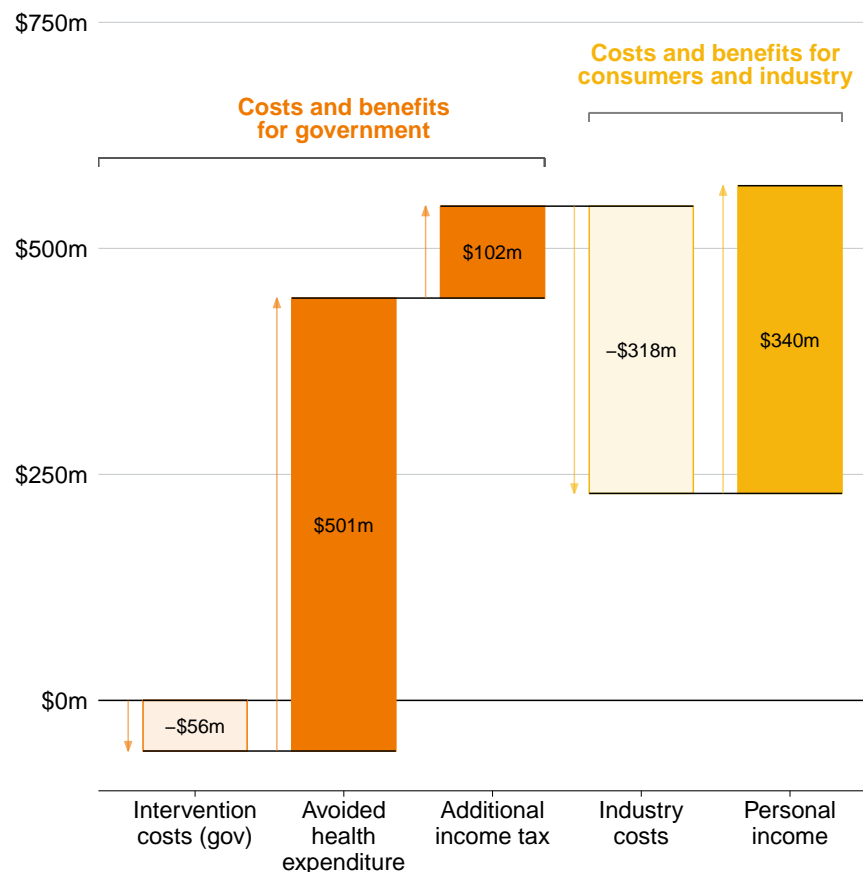
It is less common for a health intervention to improve health outcomes, while also saving money. Salt limits reach this higher bar. The combination of low costs and big economic gains mean that salt limits would ultimately save money, both for government and the wider community, as well as improving health outcomes (Figure 6.2).¹³⁸

Because fewer Australians would end up in hospital and other care, government would save more than \$35 million per year on healthcare expenditure over the next twenty years, about the same as what it

136. Costs are not discounted. For government, this includes the cost of funding a population salt monitoring program (\$0.7 million per year) and reviewing nutritional labels (\$3 million per year). The 2023 federal Budget allocated additional funding to the Healthy Food Partnership Program (an additional \$3.2 million over three years), in part to fund the new Australian Branded Food Database: Treasury (2023, p. 143). We assume that amount is adequate to fund the development of new salt limits and to strengthen reporting requirements. Industry costs are an average, and would apply for only six years, when products were being reformulated. See Appendix A for more details on costs.
137. We say ‘at most’, because our cost estimates are very conservative, and real-world costs are likely to be below this figure. We assume that all of the additional cost is passed through to consumers. See Appendix A for further details.
138. Blakely et al (2023). Between 2024 and 2044, government is estimated to save \$20,000 per health-adjusted life year gained. This estimate does not take into account changes to tax revenue or expenditure outside of the health system. When industry costs and increases to income from increased working years and productivity are included, the intervention is estimated to save \$25,000 per health-adjusted life year gained. These estimates assume a 3 per cent discount rate.

Figure 6.2: Stronger salt limits will save government and consumers money

Estimated costs and benefits of implementing our recommended salt limits, between 2024 and 2044



Notes: Estimates are discounted at a rate of 3 per cent. Financial savings from health expenditure reduction may not be realised, but instead allow improved access to care.

Source: Grattan analysis of Blakely et al (2023).

costs to fund 6,000 hospital visits.¹³⁹ These savings are significantly more than the \$4 million per year it would cost the government to set salt limits.¹⁴⁰ Australians would also be financially better off, because they would need less medication, such as anti-hypertensive drugs, and would need to make fewer visits to the doctor.¹⁴¹ Best of all, while the costs are one-off, the gains continue for decades.

The rest of this chapter shows how Australia can achieve them.

6.2 Existing salt limits should be mandatory

For the 32 types of food that have salt limits today, mandatory limits should be set.

Mandatory policies are a bigger imposition on businesses and consumers than self-regulatory or voluntary schemes, so they require stronger justification.¹⁴² They should be effective, publicly acceptable, proportionate to the risk being reduced, and there should be a demonstrated failure by the market to address the underlying health risks.¹⁴³ Mandatory salt limits clearly meet each of these criteria.

There is clear evidence that salt limits work (Chapter 4).

139. Blakely et al (2023). Estimates are not discounted. There may be other fiscal effects for government, such as lower benefit and disability payment expenditure, higher indirect tax revenue (for example from consumption taxes) and higher pension payments, but these effects are not estimated in this modelling. Visits calculated using the national efficient price of \$6,032 per visit: IHACPA (2023).

140. See Appendix A on page 38 for further details on cost estimates.

141. Watkins et al (2016) and Roseleur et al (2023). We estimate that in total, consumer costs will increase by less than \$320 million over the next 20 years. Melbourne university School of Population and Global Health modelling estimates over the next 20 million, income gains from better health and productivity would be about \$340 million (after income tax is applied). All figures are discounted using a rate of 3 per cent.

142. Hepple (2007, p. 41).

143. Magnusson and Reeve (2014, p. 16).

Surveys show that most Australians support mandatory salt limits,¹⁴⁴ and there has been no notable backlash against the voluntary limits here, or mandatory limits overseas.

Mandatory limits are proportionate to the risks posed by salt, since they could ultimately save hundreds of lives each year if met (Section 6.1), and the costs for industry are a tiny fraction of the benefits to the population (see Appendix A). There will be little impact on consumer choice and personal freedom.¹⁴⁵ Most consumers are unlikely to notice gradual reductions in salt content (Section 4.2.3). If they do, they can still add salt to their food.

Finally, as this report shows, successive voluntary salt limits have failed. Australians' salt intake has barely changed in decades, despite clear evidence of the harms caused, and multiple self-regulatory programs. This failure is not unique to salt: many industry-led or self-regulatory programs have failed or delayed genuine progress in Australia (Box 3).

Voluntary salt limits have often failed overseas, too. The US and Canada implemented voluntary reformulation programs, and in each case, compliance with limits has been very low. In the US in 2014, only 26 per cent of food categories had met 2012 targets, and 3 per cent met 2014 targets.¹⁴⁶ In Canada, a 2017 evaluation found that only 14 per cent of foods met targets.¹⁴⁷

144. National survey results show only a small minority of Australians (7 per cent) believe setting salt limits of processed foods demonstrates government going 'too far' to protect health. Forty-three per cent believe the intervention is 'about the right amount', and 50 per cent believe it is 'not far enough': Grunseit (2021). A survey of Victorians found that 61 per cent support mandatory salt limits and only 13 per cent oppose them. Grimes et al (2017).

145. Compared to existing, voluntary policies, Kaldor (2018).

146. Curtis et al (2016).

147. Health Canada (2018).

Voluntary limits did work for a time in the UK, but they are unlikely to work here. The credible threat of future regulation helped achieve change in the UK.¹⁴⁸ But similar threats will ring hollow here, because there is a history of not following through on them.¹⁴⁹ The UK also benefited from strong, independent governance of food policy, and prominent, long-running campaigns to reduce salt intake, both of which Australia lacks.¹⁵⁰

Many other countries have recognised that mandatory salt limits are needed. Fifteen countries have mandatory limits (Table 6.1).¹⁵¹ A further 14 countries are planning them.¹⁵²

Mandatory schemes have often worked. For example, in Portugal an estimated 98 per cent of bread sold meet legislated limits.¹⁵³ Compliance is similarly high in Argentina, and in the Netherlands, where the salt content of bread dropped by 19 per cent between 2011 and 2016, after gradual tightening of mandatory limits.¹⁵⁴ Compliance in South Africa has also been sufficient to achieve big reductions in salt intake.¹⁵⁵

148. F. J. He et al (2014).

149. For example, when the Health Star Rating Scheme was introduced in 2014, state and federal food ministers agreed that its voluntary status was subject to 'consistent and widespread uptake': Shahid et al (2020). But three years after its implementation, health stars appeared on only 23 per cent of products: Heart Foundation (2020).

150. Salt limits were developed by an independent health body, the Food Standards Authority, advised by a scientific committee: MacGregor et al (2015). Progress on salt intake reversed after responsibility transferred to a less independent agency: MacGregor et al (ibid). UK salt limits followed campaigns by Consensus Action on Salt and Health, and consumer education campaigns about salt risks: MacGregor et al (2015) and Just Food (2004).

151. As of 2020: Rosewarne et al (2022). Nine set limits for bread only, the other six set limits for a broader range of foods.

152. Ibid.

153. Cardoso et al (2019).

154. Allemandi et al (2019); and Temme et al (2017).

155. Westhuizen et al (2023); and K. E. Charlton et al (2021).

Table 6.1: A growing number of countries have salt limits

Mandatory

- Argentina*
- Bahrain
- Belarus
- Belgium*
- Bulgaria
- Greece*
- Hungary
- Iran
- Montenegro
- Netherlands*
- Oman*
- Palestine
- Paraguay
- Portugal*
- South Africa

Voluntary

- Australia
- Brazil
- Canada
- Chile
- Colombia
- Costa Rica
- Czech Republic
- Denmark
- Ecuador
- Fiji
- Germany
- Ireland
- South Korea
- Kuwait
- Lithuania
- Mexico
- New Zealand
- Norway
- Qatar
- Slovenia
- Spain
- Switzerland
- Tunisia
- Turkey
- United Arab Emirates
- UK
- US
- Uruguay

Notes: As of 2022. Countries with an asterisk () have both mandatory and voluntary limits. A further 14 countries are in the planning phase to implement mandatory salt limits, and a further 7 countries are in the planning phase for voluntary limits.*

Source: Rosewarne et al (2022).

Box 3: Self-regulation often fails and delays real action

If voluntary agreements work, they can avoid the cost, hassle, and complexity of legislation and enforcement. But voluntary, industry-designed policies are often weak, contain loopholes, and aren't adhered to. This only delays genuine action, as we have seen in several industry efforts to head off regulation in Australia.^a

Over the past decade, there have been many calls for a tax in Australia on sugar-sweetened beverages.^b In 2018, the Australian Beverages Council released a voluntary 'Sugar Reduction Pledge'.^c It was announced while a Senate committee developed recommendations to combat obesity, and included a voluntary goal to reduce the sugar in soft drinks by 20 per cent between 2015 and 2025.^d

The pledge was met, but only because it is weak, and includes progress made before it started. Between 2015 and 2022, the sugar in Australian soft drinks decreased by 18 per cent.^e That is less than half of the UK's 44 per cent reduction in just four years, which followed the introduction of a sugar-sweetened beverages tax.^f

In 2009, there were calls to limit marketing of unhealthy foods before 9pm, to reduce exposure to children.^g Soon after, industry bodies

launched voluntary policies to reduce marketing of unhealthy foods to children.^h Since then, clear domestic and global evidence has shown that such voluntary schemes do not work.ⁱ More than a decade later, advertising policy is still designed by industry, not government.

Health Star Rating labels were introduced in Australia in 2014. The Minister said the scheme was voluntary, subject to 'consistent and widespread uptake'. Three years later, ratings were on only 23 per cent of products. Mandatory ratings were threatened again in 2019, if star ratings appeared on less than 70 per cent of products by 2024. In 2020, ratings were on only 41 per cent of products.^j The scheme remains voluntary.

Restrictions on alcohol advertisements in Australia are also governed by an industry-developed, self-regulated code. But the code is regularly breached, with few consequences for companies.^k

Failures of self-regulation are far from new. In 1967, US Senator Robert Kennedy said of the tobacco industry: 'We have witnessed purported self-regulation for some years. The codes of self-regulation have largely been ineffective, and I see little hope for change.'^l

a. Magnusson and Reeve (2014).

b. Duckett et al (2016); Select Committee into the Obesity Epidemic in Australia (2018); and Australian Medical Association (2023).

c. KPMG (2023).

d. Select Committee into the Obesity Epidemic in Australia (2018). In its submission to the committee, the council highlighted the pledge to reduce sugar, and opposed a tax on sugar-sweetened beverages: Australian Beverages Council (2018).

e. KPMG (2023).

f. Institute for Government (2022).

g. Moodie (2008); and Breadon et al (2023, p. 29).

h. Palmer (2009); and Obesity Policy Coalition (2018).

i. Kelly et al (2019); Watson et al (2017); Kovic et al (2018); Hebden et al (2011); and Obesity Policy Coalition (2018).

j. Heart Foundation (2020) and Shahid et al (2020). See Shahid et al (2020) for further details.

k. ABAC (2021), Carah et al (2015) and Aiken et al (2018). There is evidence advertising exposure affects consumption: Noel et al (2020) and Noel et al (2017).

l. Daube (1993).

Because voluntary limits have failed, and mandatory limits are appropriate, Australia’s voluntary salt limits for 32 food categories should be made mandatory. If they are not achieved by 2027, there should be penalties for non-compliance.

6.3 Salt limits should cover more foods

Australia’s salt limits currently cover 32 food categories.¹⁵⁶ In 2014, the UK set salt limits for 76 food categories.¹⁵⁷ More than 80 per cent of retail products met these limits by 2018, and broader and more stringent targets have now been set in the UK, to be achieved by 2024.¹⁵⁸

The federal government should expand Australia’s existing scheme to cover the same range of foods as the UK’s 2014 limits, where those foods are a major source of salt in the Australian diet (Table 6.2).¹⁵⁹

If met, twice as much salt would be eliminated from our diets, and twice as many lives would be saved each year.¹⁶⁰

To begin, the new limits should be voluntary. But if there is not meaningful progress towards the new, voluntary, targets by 2027, mandatory limits should be implemented for those food categories too, to be met by 2030.

156. Healthy Food Partnership (2021).

157. Public Health England (2020b).

158. Public Health England (2020a).

159. Although exact definitions of food categories may differ between Australia and the UK, Australia should expand existing categories and add new categories to cover a similar range of foods. Some categories covered by the UK targets, such as scotch eggs, may not require limits in Australia because they are not a major source of salt in the Australian diet.

160. Trieu et al (2021); and Coyle et al (2021).

Table 6.2: UK salt limits cover more foods than Australia’s

Categories which overlap between both countries

Australia	UK
• Bread	• Bread
• Breakfast cereals	• Breakfast cereals
• Cheese	• Cheese
• Crumbed and battered proteins	• Meat
• Processed meat	• Table sauces
• Sausages	• Stocks and gravies
• Gravies and sauces	• Cook-in and pasta sauces
• Pizza	• Pizzas
• Ready meals	• Ready meals and meal centres
• Savoury biscuits	• Biscuits
• Savoury pastries	• Crisps and snacks
• Savoury snacks	• Soups
• Soups	• Cakes, pastries, and pastry based desserts
• Sweet bakery	

Categories unique to the UK (2014)

• Butter	• Processed puddings
• Fat spreads	• Canned fish
• Baked beans	• Canned vegetables
• Bought sandwiches	• Meat alternatives
• Pasta	• Other processed potatoes
• Rice	• Beverages
• Other cereals	

Notes: Categories with some or complete overlap do not necessarily cover the same range of foods in each country. For example, the ‘meat’ category in the UK is broader than the combination of the ‘crumbed and battered proteins’, ‘processed meat’, and ‘sausages’ categories in Australia. Scotch eggs is a category in the UK, but has been excluded from the table because they are unlikely to be a major source of salt intake in the Australian diet.

Sources: Healthy Food Partnership (2021) and Public Health England (2017).

6.4 Limits should get more ambitious over time

Australia should periodically update salt limits, to continually drive down the amount of salt in our manufactured foods. Other countries already do this, including the UK, the Netherlands, and South Africa.¹⁶¹

6.5 Existing loopholes should be closed

In Australia, manufacturers covered by the salt limit scheme should be required to comply across all relevant products, removing the loophole that lets manufacturers exclude one fifth of their sales.¹⁶²

6.6 Governments, not industry, should set policy

Australia's current salt reduction scheme is jointly managed by government, industry, and non-government stakeholders. A re-vamped scheme should not be designed this way.

There is no reason for industry to play a governing role in a new salt reduction scheme which has mandated targets.

The food industry has a fundamental conflict of interest when it comes to salt limits. While the public and the healthcare system stand to benefit significantly from salt limits, the food industry will face some costs, and has an incentive to oppose salt limits.¹⁶³

Industries should be able to tell governments and the community their views. But just as Australians would not accept tobacco companies

161. MacGregor et al (2015); Westhuizen et al (2023); and Temme et al (2017).

162. While all large manufacturers would be covered by salt limits, some small businesses below a threshold of turnover or sales volume could be exempt if compliance and monitoring costs are found to be prohibitive. To begin, salt limits would only apply to packaged foods which currently carry back-of-pack nutritional information panels.

163. Health benefits of meeting limits are substantial: Trieu et al (2021) and Coyle et al (2021). See Appendix A on page 38 for details about costs.

co-designing and governing regulations which aim to reduce cigarette sales, the food industry should not have a significant role in designing nutrition and food policy.

6.7 Better salt limits should be supported by strong monitoring

A stronger stance on salt should be accompanied by a comprehensive monitoring program.

Monitoring should measure manufacturer compliance with limits, and give policy makers and the public an accurate picture of their impact.

6.7.1 Monitor salt content for compliance

Measuring and enforcing compliance with salt limits requires accurate data about the amount of salt in foods.

Since 2002, most Australian food products have been required to carry back-of-pack nutrition labels, known as nutrition information panels.¹⁶⁴ These labels give consumers information about the ingredients and nutrients in the products. Information from these labels, combined with supermarket scanner data, is used to monitor compliance with Australia's voluntary salt limits.¹⁶⁵

But there is little evidence about whether the labels are reliable and accurate. The most recent publicly available study investigating the accuracy and precision of the labels was in 2006. It reported that in about 30 per cent of cases, measured nutrient values differed from the stated amount by more than 20 per cent.¹⁶⁶ Earlier reviews recommended strengthening the monitoring and enforcement of the labelling system.¹⁶⁷

164. FSANZ (2020) and Fabiansson (2006). *Australia New Zealand Food Standards Code – Standard 1.2.8 – Nutrition information requirements*.

165. ABS (2023).

166. Fabiansson (2006).

167. Blewett et al (2011).

The federal government should assess whether nutrition information labels are accurate enough to help enforce mandatory salt limits. If they are not, the government should investigate the costs and feasibility of regular audits, or requiring large manufacturers to use laboratory testing to improve the information on the labels.

6.8 Monitoring should go beyond compliance

Salt limits aim to reduce the salt in manufactured foods. But the ultimate aim is to reduce Australians' salt intake. If Australians respond to salt limits by eating saltier types of food, or adding more salt to their food, the health gains will be smaller than expected. Accurate information on salt intake is needed to determine if progress is being made.

Australian governments have committed to a 30 per cent reduction in salt intake by 2030.¹⁶⁸ But there is no monitoring program which tracks progress toward this goal.

The federal government should invest in a comprehensive monitoring program, with three key components.

The first is a population salt monitoring program, similar to the UK's.¹⁶⁹ This would give policy makers the information they need to track the amount of salt in Australians' diets. The sample should be big enough to assess salt intake by age, gender, and socio-economic status.

Second, the federal government should monitor the salt content of individual products in the food categories covered by salt limits. There is a risk that products below the salt limit might be made saltier, with salt added until they reach the maximum level allowed. If that happens too often, the average salt content in the food category could actually

increase, despite products above the limit being made less salty. This happened with bread in Australia from 2007 to 2010.¹⁷⁰ Monitoring the salt in products within food categories would detect this.

Third, the government should model how new salt limits would affect other dietary risks. The risk that salt limits could reduce consumption of iodine, causing iodine deficiency, is already assessed.¹⁷¹ Salt limits, and other policies recommended in Chapter 7, would encourage use of potassium as a substitute for sodium. As discussed in Section 6.1, this would have health benefits for the population. But increased potassium intake may create risks for a small minority of people, and these risks should be modelled to inform salt limits.¹⁷²

168. Under the National Preventive Health Strategy, Department of Health (2021).

169. 24-hour urinary estimates, as used in the UK, are the 'gold standard' measurement: Cappuccio and Sever (2019).

170. Under the Food and Health Dialogue: Dunford et al (2011).

171. Healthy Food Partnership (2018, p. 53).

172. For example people with impaired urinary excretion of potassium: Committee on Toxicity (n.d.).

7 Australia should lead on salt, not just catch up

Better salt limits are the best policy the federal government can implement today to reduce salt intake. Implemented well, they could save hundreds of lives each year. But even with ambitious salt limits, Australia is unlikely to reach its goal of a 30 per cent reduction in salt intake by 2030. So, as well as improving the salt limits we have, the government should go further.

The government should prepare to expand salt limits into the out-of-home food sector, focusing on fast-food restaurants, and bakery and cafe chains.

But even better, broader, and more ambitious salt limits won't touch a lot of what we eat. Australia should take the next step: making all salt healthier. There is good evidence that enriching the salt supply chain with potassium would avoid more illness and save more lives.

State governments can start to shift the market, by requiring potassium-enriched salt instead of regular salt in foods purchased by government funded services such as schools. And the federal government should assess the feasibility of requiring salt to be enriched with potassium across the salt food chain, which would be a world-first reform.

As Chapter 1 showed, too much salt is just one of the dietary risks Australians face. Salt reforms could break the decades-long deadlock on food policy, opening the way for more reforms. The new Australian Centre for Disease Control (ACDC) should be asked to advise governments on the next steps to take.

7.1 Our governments should prepare for out-of-home salt limits

The reformulation policies we recommend in this report focus on packaged foods, such as those sold in supermarkets and convenience

stores. But Australians also buy many high-salt foods from fast-food restaurants, bakeries, and cafes. This 'out-of-home' food sector is the next place the government should look.

Australians are spending more than ever on meals out and takeaway foods, which can be high in sugar, salt, and fat.¹⁷³ These foods are a significant source of daily salt intake.¹⁷⁴

Other countries, including the UK, the US, and Canada, have developed salt limit schemes for the out-of-home food sector, particularly for fast-food outlets.¹⁷⁵

Australia should do the same, but our governments will first need to develop the right monitoring and reporting systems.¹⁷⁶ Many out-of-home food outlets lack key nutritional information about their food, which will be needed to comply with salt limits.

The best way to bridge this gap is for governments to introduce a menu-labelling scheme for salt in fast-food outlets and large chain businesses.

Menu-labelling schemes for energy content (kilojoules) are already in place in NSW, Victoria, Queensland, South Australia, and the ACT.¹⁷⁷ Similar schemes are in place overseas, for example in the US.¹⁷⁸

173. Duckett et al (2016); and Garcia et al (2014).

174. A study of 18-30 year-olds – the group that eats the most out-of-home food – reported that out-of-home foods contributed more than 40 per cent of their daily salt intake: Wellard-Cole et al (2021).

175. Garcia et al (2014).

176. Such as nutritional information labels, as discussed in Section 6.7.1 on page 32.

177. FRSC (2018).

178. Alexander et al (2021).

The federal government should work with the states to implement consistent menu-labelling schemes that include salt content. The requirement should apply only to large chain businesses, such as fast-food outlets.

Giving people more information through menu-labelling might achieve some reductions in salt content, but the primary goal is to establish the information required to pursue salt limits in the the out-of-home food sector.¹⁷⁹

7.2 Salt enrichment policies are the next frontier

Extending salt limits to chain restaurants, such as fast-food outlets, would cover more food. But it is not feasible to set salt limits for all food, such as food served in smaller cafes or restaurants, or made at home.

Salt enrichment is a promising way to fill the gap. Under a salt enrichment policy, salt wholesalers would be required to include a nominated proportion of potassium in the salt they sell.¹⁸⁰ This is similar to regulations which require the salt used in Australian breads to be fortified with iodine, and regulations overseas which require all salt used in food to be fortified with iodine.¹⁸¹

As Chapter 4 explained, salt substitutes such as potassium can be used to replace some of the sodium in salt – the part that leads to health problems. Provided not too much sodium is switched for potassium, there is no noticeable change to the taste of the salt.¹⁸²

179. Similarly, our proposed salt reformulation schemes would not be possible without nutritional information labels.

180. Or other salt substitutes, but potassium is probably the best option because of its health benefits.

181. *Food Standards Code*, Standard 2.1.1, Cereal and cereal products. As of 2020, 124 countries have legislation for mandatory salt iodization and 21 have legislation allowing voluntary iodization: Zimmermann and Andersson (2021).

182. There is evidence that up to 25% of the sodium in salt can be replaced with potassium without any detectable affect on taste: Saavedra-Garcia et al (2015).

Because Australians eat too much sodium and too little potassium, enriching salt with potassium is a win-win.

There is strong evidence that eating more potassium reduces blood pressure and rates of related diseases, such as stroke.¹⁸³ A large randomised control trial found that the use of potassium-enriched salt reduced rates of stroke by 14 per cent, and major cardiovascular events by 13 per cent.¹⁸⁴ A recent systematic review reported that salt substitutes significantly lower blood pressure, contributing to a more than 10 per cent reduction in rates of common illnesses.¹⁸⁵

7.2.1 Public schools should be required to buy potassium-enriched rather than regular salt

Governments should use their purchasing power to start shifting the market towards healthier, potassium-enriched salt.

Policies that require public services, such as schools, to buy healthy food have been adopted in many countries.¹⁸⁶ State and territory governments in Australia already have such policies. For example, the ACT has has a policy that spans all government services, Victoria and Queensland have healthy food standards for public hospitals, and NSW has standards for government school canteens.¹⁸⁷

State governments should expand these policies to require that any salt bought by public schools, or used by contractors providing cooked or semi-prepared meals for them, is potassium-enriched salt.

183. Aburto et al (2013).

184. For a population where participants had a history of stroke, or were older than 60 and had high blood pressure. The potassium-enriched salt used was 75 per cent sodium chloride, 25 per cent potassium chloride: Neal et al (2021).

185. Yin et al (2022).

186. For a summary of evidence, best practices, and adoption, see WHO (2021).

187. CMTEDD (2016); Department of Health Victoria (2022); Queensland Health (2022); and NSW Government (2023).

This would provide healthier food to people using public services, without a meaningful increase in costs.¹⁸⁸ It would also increase demand for enriched salt, gradually increasing supply and helping to reduce prices.

7.2.2 The federal government should investigate broader policies for potassium-enriched salt

The federal government should also investigate regulations to require potassium salt both for table salt and in food manufacturing.

Fortification of the salt supply would complement salt limits. It would reduce the sodium in foods not subject to salt limits, and help foods with salt limits to meet their requirements.

There would be big health benefits. If 10 per cent of the sodium in Australia's salt supply was gradually replaced with potassium, it would ultimately save more than 400 lives each year.¹⁸⁹ Modelling results indicate it would be a cost-saving intervention, for governments and the public.¹⁹⁰

188. Although potassium-enriched salt is currently more expensive than regular salt, salt is a relatively small component of most food, and therefore is unlikely to considerably effect prices: Yin et al (2021a).

189. These results assume that, between 2027 and 2036, there is a one percentage point increase in the amount of sodium substituted for potassium each year, reaching ten per cent substitution by 2036 across the food chain (excluding the sodium naturally in food). The estimate of lives saved is for 2044, to allow time for the intervention to reach full effect, and for the health benefits to flow through to the population. This is likely an underestimate of the health gains, as modelling results only account for the benefits of reduced dietary sodium, and do not account for the additional benefit of increase potassium intake which may be substantial: Filippini et al (2020) and Marklund et al (2022).

190. Blakely et al (2023). Between 2024 and 2044, government is estimated to save \$22,500 per health-adjusted life year gained. However, this estimate does not take into account changes to tax revenue or expenditure outside of the health system. When industry costs and increases to income from increased working years and productivity are included, the intervention is estimated to save \$36,000

To make the switch, Australia could take a phased approach, beginning with table salt, and the salt used in bread.

Bread is the largest single contributor to salt intake, accounting for more than 10 per cent of the salt Australians eat.¹⁹¹ Australia has legislation which requires salt used in bread-making to be fortified with iodine.¹⁹² A requirement for potassium-enrichment could be added to this legislation. A similar amendment to the Food Standards Code could require table salt to be potassium-enriched.¹⁹³

No country has enriched the whole salt supply with potassium to date, and the switch could not be made overnight. The costs of requiring potassium salt to be used throughout the supply chain are unclear, as is the availability of potassium salts on a large scale.¹⁹⁴ The risks for people with kidney disease from increased potassium consumption would also need to be assessed.¹⁹⁵

Because of this uncertainty, the federal government should commission a study on whether mandatory enrichment of the salt supply with potassium is feasible, proportional to the health risk, and cost-effective.

7.3 Salt reforms should set a path to broader nutrition reform

Salt reforms are a quick way to cost-effectively improve Australians' health. But as Chapter 1 explained, salt is just one of many areas where our diets make us sick.

per health-adjusted life year gained. These estimates assume a 3 per cent discount rate.

191. Healthy Food Partnership (2018). Excluding mixed categories.

192. *Food Standards Code*, Standard 2.1.1, Cereal and cereal products. Bread flour is also required to be fortified with thiamin (Vitamin B1) and folic acid.

193. For example via an amendment to: *Food Standards Code*, Standard 2.10.2, Salt and salt products.

194. Yin et al (2021b).

195. Yin et al (ibid). For example, as it has been in India: Marklund et al (2022).

Australian governments have produced broad strategies to improve nutrition, but concrete policy proposals are lacking.¹⁹⁶ Evaluating the merits of nutrition policies beyond salt should be a top priority for the new Australian Centre for Disease Control (ACDC).

The ACDC should review the evidence on existing and potential nutrition policies. Some of these policies may focus on reformulation. But reformulation cannot be the only focus, because it can only do so much to improve Australians' diet. Policies which encourage Australians to eat healthier foods, such as fresh fruits and vegetables, will also be key to improving our health.

To inform its review, the ACDC should look at nutrition policies overseas, some of which are covered in Chapter 2. And in areas where evidence is limited, such as policies to reduce harms from ultra-processed foods, the ACDC should advise national research bodies on priorities for research funding.¹⁹⁷

196. Department of Health (2021); and Health Ministers Meeting (2022).

197. The National Health and Medical Research Council and the Medical Research Future Fund.

Appendix A: How we costed each policy option

This appendix explains how we costed the policies modelled in this report. Only details regarding costings are included in this appendix. For details about the epidemiological modelling results included in this report, see Blakely et al (2023). We costed mandatory salt limits, enriching the salt supply chain with potassium, consumer education campaigns, and population-wide monitoring of salt intake. Where relevant, we calculated both government and industry costs.

We did not calculate the costs of (and revenue from) a salt tax, because it is not a policy option we recommend.

A.1 How we estimated the costs of tougher salt limits

We estimated the costs to Australia of four salt-limit scenarios:

1. Making Australia's existing voluntary limits mandatory, to be met by 2027;
2. Adopting the UK's 2014 limits, to be met by 2027;
3. Making Australia's existing voluntary limits mandatory, to be met by 2027, and expanding targets to include the UK's 2014 limits, to be met by 2030;¹⁹⁸ and,
4. Adopting the World Health Organisation (WHO) benchmarks, to be met by 2027.

The costs and benefits in this report were all calculated relative to a business-as-usual scenario – that is, current policy settings.

A.1.1 Costs to government

The costs incurred by government to implement mandatory salt limits instead of the present voluntary limits include policy development, a review of nutrition information labels, and monitoring and compliance costs. We also recommend that the government invest in a population-wide salt monitoring program (see Appendix A.4 on page 45).

Policy development costs

The budget already allocates funding to the Partnership Reformulation Program, which broadly shares the same policy development functions as the salt limits proposed in this report.¹⁹⁹ It is unlikely significantly more funding would be required to develop a broader scheme, particular because we propose limits which have already been developed and implemented overseas.

While a mandatory scheme may require more sector involvement and risk management from government, we assume policy development costs could be managed within existing funding.

Costs of reviewing nutrition information labels

There is little data to suggest how much it would cost to develop a credible, robust, ongoing program to more closely monitor nutrition information labels on Australian foods to ensure they are accurate. In the absence of robust data, we assumed a monitoring program would cost \$3 million a year (but with wide uncertainty).

198. This is the scenario we recommend should be implemented.

199. Treasury (2023, p. 143).

Monitoring and compliance costs

Salt limits require ongoing monitoring to determine food industry compliance. We assumed that existing and newly funded infrastructure would be sufficient for this and that any additional investment required would be negligible.

Some of the monitoring and and compliance costs required to implement a mandatory salt limit scheme are likely to be covered under existing programs. For example, the ABS already reports on compliance with current reformulation efforts.²⁰⁰

The 2023 Budget allocated additional funding to the Healthy Food Partnership Program (an additional \$3.2 million over three years), in part to fund the new Australian Branded Food Database.²⁰¹ This database, while voluntary, will contain information from the nutrition information panels (therefore including sodium content).²⁰²

Participation in the database project may need to be made mandatory to enforce compliance with salt limits, but we assume that existing funds allocated to its development are sufficient.

A.1.2 Costs to the food industry

Broader and tougher salt limits may create additional costs for the food industry, because companies may need to reformulate their products to meet the limits.

We estimated the cost of reformulating products to meet salt limits using previously estimated costs of reformulating an individual product, and applying this to the number of products which would need to be reformulated to meet the limits in each scenario.

200. ABS (2023).

201. Treasury (2023).

202. FSANZ (2022).

This approach is likely to dramatically overestimate the costs of reformulation for industry. However, data to estimate more realistic costs is lacking.

How we estimated the industry costs of reformulation

To estimate the costs of product reformulation to reduce sodium content, we extracted prior cost estimates from a systematic review of population-based sodium reduction interventions.²⁰³ We recorded the methodology of each study where product reformulation was involved, and where a full cost-benefit or similar economic assessment was done (Table A.1 on the next page).

We also included other relevant studies (for example those published after the systematic review, and studies that included the cost of reformulation to reduce trans-fatty acid content). Because most studies use identical data sources for cost estimates, only the underlying data source or method was recorded.²⁰⁴

203. Hope et al (2017).

204. Final costs were drawn from: Food Standards Agency (2009b) (as used by Collins et al (2014) and Pearson-Stuttard et al (2017)); costs reported by various industries to the regulatory impact analysis in the UK: Food Standards Agency (2009a); United States FDA reformulation cost model: Muth et al (2015); (as summarised and used by WHO (n.d.)); and Mason et al (2014) (as used by Watkins et al (2016)). Costs reported by Eckel et al (2007) were recorded, but not included in the final cost estimate.

Table A.1: Previously published cost estimates of product reformulation

Study(ies)	Methodology	Costs
British retail consortium estimates: Food Standards Agency (2009b) (as used by Collins et al (2014) and Pearson-Stuttard et al (2017))	Company reported average cost of reformulating a product. Prices have been adjusted for inflation and converted to Australian dollars.	Average cost of \$71,000 per product reformulated.
Costs reported by various industries to the regulatory impact analysis in the UK: Food Standards Agency (2009a)	Company reported costs of product reformulation. Prices have been adjusted for inflation and converted to Australian dollars.	Per product cost estimates: <ul style="list-style-type: none"> • Non-complex reformulation: \$7,000 • High-complexity reformulation: \$1,263,000. We assume that 10% of products will require high complexity reformulation, giving an average cost of \$133,000 ²⁰⁵
United States FDA reformulation cost model: Muth et al (2015) (as summarised and used by WHO (n.d.))	Cost estimates from expert panel, developed into a 'reformulation model'. Average values for critical and non-critical reformulations used, from WHO (ibid). Cost estimates have been adjusted for inflation and converted to Australian dollars.	Per product cost estimates: <ul style="list-style-type: none"> • Non-critical reformulation: \$77,000. • Critical reformulation: \$217,000 We assume that half of products will require critical reformulation (WHO (ibid)), giving an average cost of \$147,000.
Frito-Lay reported costs: Eckel et al (2007)	Company reported costs of a novel and reasonably complex effort to reformulate 187 product lines for reduced trans-fatty acid content. Cost estimates have been adjusted for inflation and converted to Australian dollars.	Average reported cost of \$242,000 per product line.

Continued on next page

205. According to the Food Standards Agency, the big variation in cost between non-complex and high-complexity reformulation is predominantly due to whether consumer testing panels are required (and to what extent): Food Standards Agency (2009a). Reports by Frito-Lay on food reformulation to reduce use of trans-fatty acids indicate that 25 consumer tasting panels were conducted in order to reformulate 187 products – slightly more than 10 per cent of products. But this reformulation process was complex, as detailed in Eckel et al (2007). It is likely many reformulations to reduce salt content will be far simpler, particularly because food companies have already reduced salt content overseas. We use 10 per cent as a conservative estimate to reflect this.

Table A.1 – continued from previous page

Study(ies)	Methodology	Costs
Mason et al (2014) (as used by Watkins et al (2016))	Company surveys of reformulation costs for salt limits expected to reduce salt intake by 10 per cent in Tunisia, Syria, Palestine, and Turkey. A 10 per cent salt reduction is similar to what WHO benchmark targets would achieve in Australia: Trieu et al (2023). To estimate a 'per product' reformulation cost, we divided the average total program cost by the number of products which would require reformulation to meet WHO benchmarks. ²⁰⁶ Values have been adjusted for inflation and converted to Australian dollars.	Average cost of \$18,000 per product reformulated.

206. We implicitly assume the number of products on offer for that population is similar to the number of products available in Australia. If significantly fewer products require reformulation to reduce salt intake by 10 per cent, this will lead to a relative under-estimation of the per-product reformulation costs (and vice-versa).

We transformed each of the costs into an estimate of how much it costs to reformulate an individual product line. All costs were converted to Australian dollars, and adjusted for inflation. We excluded from our subsequent analysis the cost estimate reported in Eckel et al (2007), because it was specific to a highly novel, complex-to-reformulate product.

We used the average of the cost estimates, \$92,000 per product reformulated, as a central cost estimate for the reformulation of a single unique product line. However, the cost estimates that informed this average are widely distributed. To account for the wide uncertainty, we used the costs to generate a distribution. We assumed that the average of the cost estimates was the mean of the distribution, and that the highest and lowest cost estimates were two standard deviations from the mean (Figure A.1 on page 44).²⁰⁷

To apply these estimates of reformulating a single product to the reformulation scenarios we costed, we multiplied the cost by the number of products estimated to require reformulating. We assumed that the cost of reformulating an individual product remained constant between each salt limits scenario.

In line with previous estimates, we assumed that:

- The existing Australian salt limits cover about 4,300 products.²⁰⁸ It is estimated that 47 per cent of eligible foods currently meet Australia's existing targets. Therefore, 53 per cent of eligible products (about 2,280 products) must be reformulated to comply with the limits.²⁰⁹

207. Again, we excluded Eckel et al (2007).

208. Coyle et al (2021, Supplementary material, p. 6).

209. Coyle et al (ibid) estimated that across all categories, 47 per cent of food already met limits at the beginning of the program, and therefore do not require further reformulation.

- The 2014 UK categories cover about 10,000 Australian products.²¹⁰ It is estimated that 62 per cent of eligible Australian foods currently meet the 2014 UK salt limits. Therefore, 38 per cent of eligible products in Australia (about 3,800 products) would require reformulation to comply with the 2014 UK limits.²¹¹
- The WHO targets cover about 10,000 Australian products.²¹² It is estimated that 36 per cent of eligible Australian foods currently meet the WHO targets. Therefore, 64 per cent of eligible products in Australia (about 6,400 products) would require reformulation to comply with the WHO targets.²¹³

In this report, we recommend that Australia's existing salt limits should be mandated, to be met by 2027. We also recommend that new, voluntary salt limits should be introduced, so that Australia's salt reduction program covers the same foods covered by the UK's 2014 targets. These new, voluntary targets should be as stringent as the UK's 2014 targets, with compliance to be assessed in 2027. If not met voluntarily by 2027, targets should be made mandatory, to be met by 2030.

To estimate the cost of this 'phased' approach to meeting the UK's 2014 salt limits, we assume that all Australian limits are met by 2027 as required, but that there is no progress on the additional voluntary UK targets within this time-frame. We assume that the additional UK targets are met from 2027, and completely complied with by 2030.

The total cost of meeting our recommended approach is the same as the cost of meeting the 2014 UK limit scenario. However, because limits are met through a phased approach lasting 6 years, as opposed

210. Ibid (Supplementary material, p. 6).

211. Ibid.

212. Trieu et al (2023, Supplementary material, table S4).

213. Ibid (Supplementary material, table S4).

to 3 years, the annual costs are half those estimated to meet the UK’s 2014 limits by 2027. The annual cost over this six year period is included in Table A.2.

We estimate that over the 2024-2029 period, the estimated increase to weekly household grocery costs will average 11 cents per week. Costs are estimated to be higher (\$0.13 per week per household) in the first three years of the scheme, compared to the final three years (\$0.09 per week per household).

Table A.2: Estimated annual industry costs of meeting our recommended salt limits

Scenario	Estimated annual cost (central estimate)	Estimated increase to household grocery costs
Phase 1 (2024-2026): Making Australia’s existing voluntary limits mandatory	\$70m per year, for 3 years	\$0.13 per week, for 3 years
Phase 2 (2027-2029): Expanding targets to the same range of foods as the UK’s 2014 limits	\$47m per year, for 3 years	\$0.09 per week, for 3 years
Combined, phase 1 + phase 2 (2024-2029)	\$58m per year, for 6 years	\$0.11 per week, for 6 years

Notes: Costs are not discounted. Total cost estimates have been rounded to the nearest million. Estimates of increased household grocery bills assume that all industry costs are passed through to consumers.

Each of the other scenarios we modelled, we assumed that all salt limits are met by 2027. Table A.3 shows our final estimates for these scenarios, including the estimated cost to consumers if all industry costs were passed through.

Table A.3: Estimated annual industry costs of meeting other salt limit scenarios

Scenario	Estimated annual cost (central estimate)	Estimated increase to household grocery costs
Making Australia’s existing voluntary limits mandatory	\$70m per year, for 3 years	\$0.13 per week, for 3 years
Adopting the UK’s 2014 limits	\$117m per year, for 3 years	\$0.21 per week, for 3 years
Adopting WHO benchmarks	\$196m per year, for 3 years	\$0.36 per week, for 3 years

Notes: Costs are not discounted. Costs would be incurred annually, for three years. Total cost estimates have been rounded to the nearest million. Estimates of increased household grocery bills assume that all industry costs are passed through to consumers.

Why our estimates of industry costs are likely to significantly overstate costs

Our estimates of industry reformulation costs are like to significantly overestimate costs, for four reasons.

First, each of the previously reported cost estimates we aggregate (Table A.3) rely on industry reported costs of reformulating products.²¹⁴ Industries tend to oppose mandatory reformulation targets, and so have an incentive to exaggerate the costs of reformulation. There is little that researchers or governments can do to validate industry-provided costs.

214. Collins et al (2014); Alonso et al (2021); Food Standards Agency (2009a); Food Standards Agency (2009b); Watkins et al (2016); Mason et al (2014); and Muth et al (2015).

Second, salt limits are not the only reason that companies reformulate products. It is commonly reported that most food products are reformulated at some point in a three- to four-yearly product cycle, and products can often be reformulated faster if there is a strong incentive to do so.²¹⁵ If this is the case, the additional cost of reformulating products to reduce salt is likely to be lower than we estimate.

Third, under more-stringent salt limits, manufacturers would need to reformulate many products. Many of these products are likely to be similar and could be reformulated together, reducing costs.

Fourth, the costs of reformulation in lagging countries such as Australia are likely to be significantly smaller than in leading countries. Many reformulation solutions are known and do not need to be tested.

A final limitation of our costing method is that we assume reformulation costs (per product) are the same in all reformulation scenarios. This assumption may understate the difference in cost between targets which are less stringent (such as Australia's) and more stringent (such as the WHO's), but this is highly uncertain.

A.2 How we estimated the cost of enriching the salt supply chain with potassium

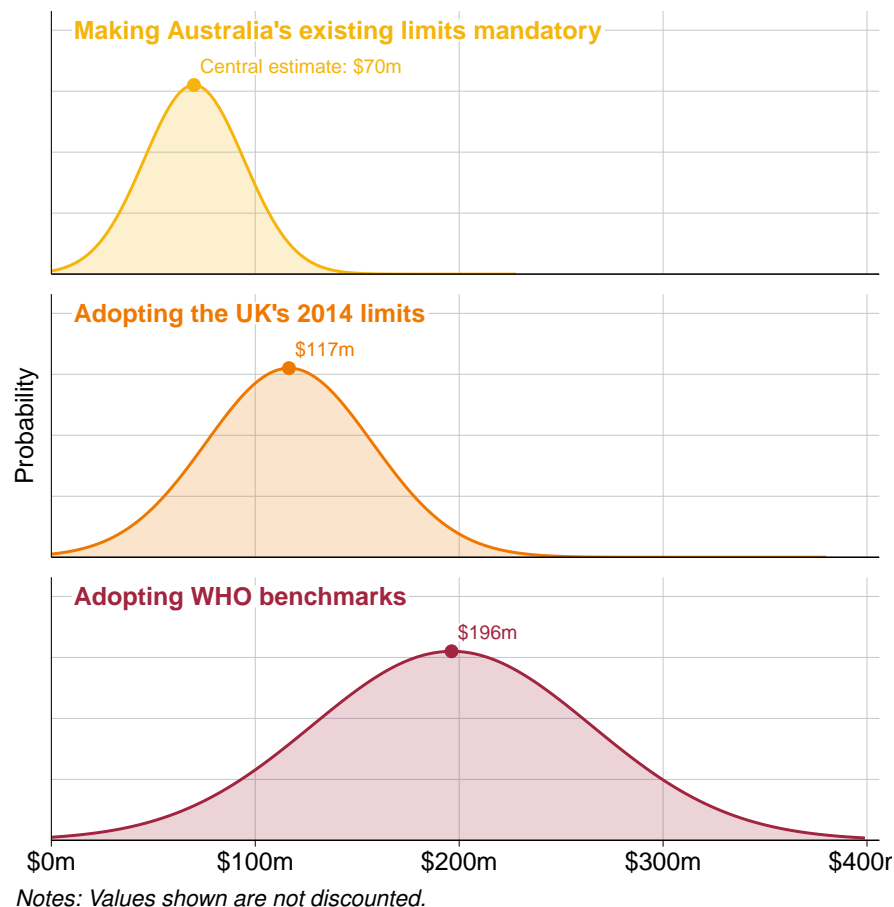
We estimated government and industry costs of mandatory enrichment of the salt supply chain with potassium chloride, a salt substitute.

A.2.1 Costs to government

We assumed that the costs of developing a potassium-enrichment scheme for Australia's salt supply chain could be absorbed within existing departmental budgets.

Figure A.1: Industry cost estimates are wide-ranging

Estimated annual cost (over three years) to industry of meeting salt limits, by limit scenario



215. European Commission (2020); and WHO (2020, p. 29).

But enrichment would require ongoing monitoring to determine compliance. There is little data to suggest how much it would cost to enforce a potassium enrichment scheme. We indicatively assumed a cost of \$3 million a year, with a wide uncertainty.

A.2.2 Costs to industry

We modelled the industry costs of mandatory potassium enrichment policies by estimating the additional cost of potassium salts, and multiplying the additional cost by the amount of potassium salt needed.

We assumed that salts were required to be enriched with potassium in 2027, beginning at a 1 per cent substitution rate. We assumed that the enrichment increases by 1 per cent per year (in absolute terms), reaching a rate of 10 per cent in 2036. We assumed the rate remains at 10 per cent from 2036 onward.

To estimate the cost of potassium salts, we used data from Yin et al (2021a).

We calculated the median and 25th percentile price ratios between sodium and potassium chloride salts included in the study. We multiplied these price ratios by the estimated wholesale cost of sodium chloride used in food manufacturing, to determine the cost of substituting one tonne of sodium chloride for potassium chloride.²¹⁶ We assumed that the median cost applied in 2027, and the additional cost decreased linearly to the 25th percentile cost by 2036 as the industry grew and potassium salts were sold at greater scale. The median cost of substituting a single tonne of NaCl for KCl was estimated to be \$845, and the 25th percentile cost was estimated at \$513 per tonne.

216. We used a wholesale food grade salt price estimate of \$387 per tonne, from Garside (2023). The published price has been converted to \$AUD and from US to metric tonnes.

We assumed that the total amount of salt requiring enrichment grows in line with the Australian population (at 1.5 per cent per year), from a baseline intake of 8.6 grams per person per day.²¹⁷

This cost would decline if salt consumption reduced due to our other recommendations being adopted.

A.3 How we estimated the cost to government of consumer education campaigns

We assumed the scale of consumer education campaigns would be of the same magnitude as the scheme implemented in the UK between 2003 and 2009. The total cost of that program has been estimated at \$1.13 per person, or about \$30 million in total.²¹⁸

We assumed that 50 per cent of this cost is incurred in the first two years of the scheme, and the remaining 50 per cent is spread evenly over the remaining four years. After discounting,²¹⁹ the total cost is estimated to be about \$26 million.

A.4 How we estimated the cost of a population-wide salt monitoring program

We assumed Australia's population-wide salt monitoring program would be of a similar scale and cost to the program implemented in the UK. In 2014, the cost of that program was estimated to be about \$770,000 a year.²²⁰ We assumed the cost in Australia to be the same.

217. We calculated this from an estimated intake of 9.6 grams per person, on the assumption that about 10 per cent of daily salt intake is from natural sources: Mattes and Donnelly (1991) and Land et al (2018b).

218. Nghiem et al (2015). The figures have been converted from pounds and adjusted for inflation, but are not discounted over the six-year implementation period.

219. Using a discount rate of 7 per cent.

220. Briggs et al (2019). The figure has been converted from pounds and adjusted for inflation.

We also recommend that the federal government invest in monitoring how the salt content of individual food products changes in response to salt limits. But this is likely to incur negligible additional cost, because Australia already monitors the salt content of foods through the ABS,²²¹ and funding has already been allocated for the development of an Australian Branded Food database, which could be used for this purpose.²²²

221. ABS (2023).

222. Treasury (2023).

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