

# Reformulation to reduce sugar in sugar-sweetened beverages

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## The intervention

- Reduction in sugar content of sugar-sweetened beverages (SSBs) in Australia to lower the average energy content (kJ) per 100g by 5% from current levels.
- Mandatory and voluntary reformulation targets were modelled.

## What we already know

- In 2011, SSBs contributed to 4% of total energy consumed and 17% of total sugars consumed.
- There is strong evidence that SSBs are associated with poor health.
- Evidence from other regions (e.g., the United Kingdom) indicates that sugar reduction in SSBs is highly feasible. The Australian government has identified product reformulation as a key focus area as part of the Healthy Food Partnership – a flagship food and nutrition initiative.

## Key elements of the modelled intervention

- Total consumption of SSBs by age and sex was estimated using the Australian Health Survey. Energy intake related to SSBs was reduced by 5% for each age and sex group. It was assumed that no compensatory changes to diet occurred in response to the intervention.
- Scenario analyses tested variations in the extent to which SSBs manufacturers implemented the intervention (all SSBs consumed for 'mandatory', 20% of SSBs consumed for 'voluntary').
- Costs to government included the costs of passing the legislation (where relevant), and for administering and monitoring implementation. Costs to SSB manufacturers were derived based on previous analyses of expected costs of implementation of a food labelling intervention affecting packaged food in Australia.

## Key findings

- Total consumption of SSBs by age and sex was estimated using the Australian Health Survey. Energy intake related to SSBs was reduced by 5% for each age and sex group. It was assumed that no compensatory changes to diet would take place in response to the intervention.
- Scenario analyses tested variations in the extent to which SSBs manufacturers implemented the intervention (all SSBs consumed for 'mandatory', 20% of SSBs consumed for 'voluntary').
- Costs to government included the costs of passing the legislation (where relevant), and for administering and monitoring implementation. Costs to SSB manufacturers were derived based on previous analyses of expected costs of implementation of a food labelling intervention affecting packaged food in Australia.

## Conclusion

The intervention demonstrates significant potential for cost-effectiveness, with expected positive equity effects. Voluntary implementation is likely to be favoured by government and industry stakeholders; whereas mandatory implementation is likely to be less acceptable to these groups.

## Scenarios description and cost-effectiveness results

Table 1 *Description of selected scenarios*

	<b>Base case</b> <b>Voluntary industry pledge to reduce kJ/100g by 5% for all SSBs</b>	<b>Scenario 1</b> <b>Government imposes legislation to reduce kJ/100g by 5% for all SSBs</b>
<b>Risk factor(s) addressed by intervention</b>	BMI	
<b>Population targeted</b>	Australian population, aged 2-100 years	
<b>Weighted average reduction in body weight (95% UI)</b>	0.06kg (0.05 to 0.07)	0.29kg (0.24 to 0.34)
<b>Weighted average reduction in BMI (95% UI)</b>	0.02kg/m <sup>2</sup> (0.01 to 0.03)	0.11kg/m <sup>2</sup> (0.10 to 0.12)
<b>Effect decay</b>	100% maintenance of effect	
<b>Costs included</b>	Cost of administration and support (government); implementation (industry)	Cost of passing legislation, administration and monitoring (government); implementation (industry)
<b>Type of model used</b>	Population model with quality of life in children	
Notes: BMI: Body mass index; kg: kilogram; m: metre; SSBs: sugar sweetened beverages; UI: uncertainty interval		

Table 2 *Cost-effectiveness results, mean (95% UI)*

	<b>Base case</b>	<b>Scenario 1</b>
<b>Total HALYs gained</b>	28,981 (21,884 to 37,976)	144,621 (109,050 to 189,848)
<b>Total intervention costs</b>	\$45M (\$31M to \$58M)	\$210M (\$148M to \$273M)
<b>Total healthcare cost savings</b>	\$295M (\$217M to \$391M)	\$1.5B (\$1.1B to \$1.9B)
<b>Total net cost *</b>	-\$251M (-\$347M to -\$217M)	-\$1.3B (-\$1.9B to -\$869M)
<b>Mean ICER</b>	Dominant (Dominant to Dominant)	Dominant (Dominant to Dominant)
<b>Probability of being cost-effective #</b>	100%	100%
<b>Overall result</b>	<b>Dominant</b>	<b>Dominant</b>
Notes: B: billion; Dominant: the intervention is both cost-saving and improves health; HALY: health adjusted life year; ICER: incremental cost effectiveness ratio; M: million; \$: 2010 Australian dollars; * Negative total net costs equate to cost savings; # The willingness-to-pay threshold for this analysis is \$50,000 per HALY.		

Figure 1 Cost-effectiveness plane

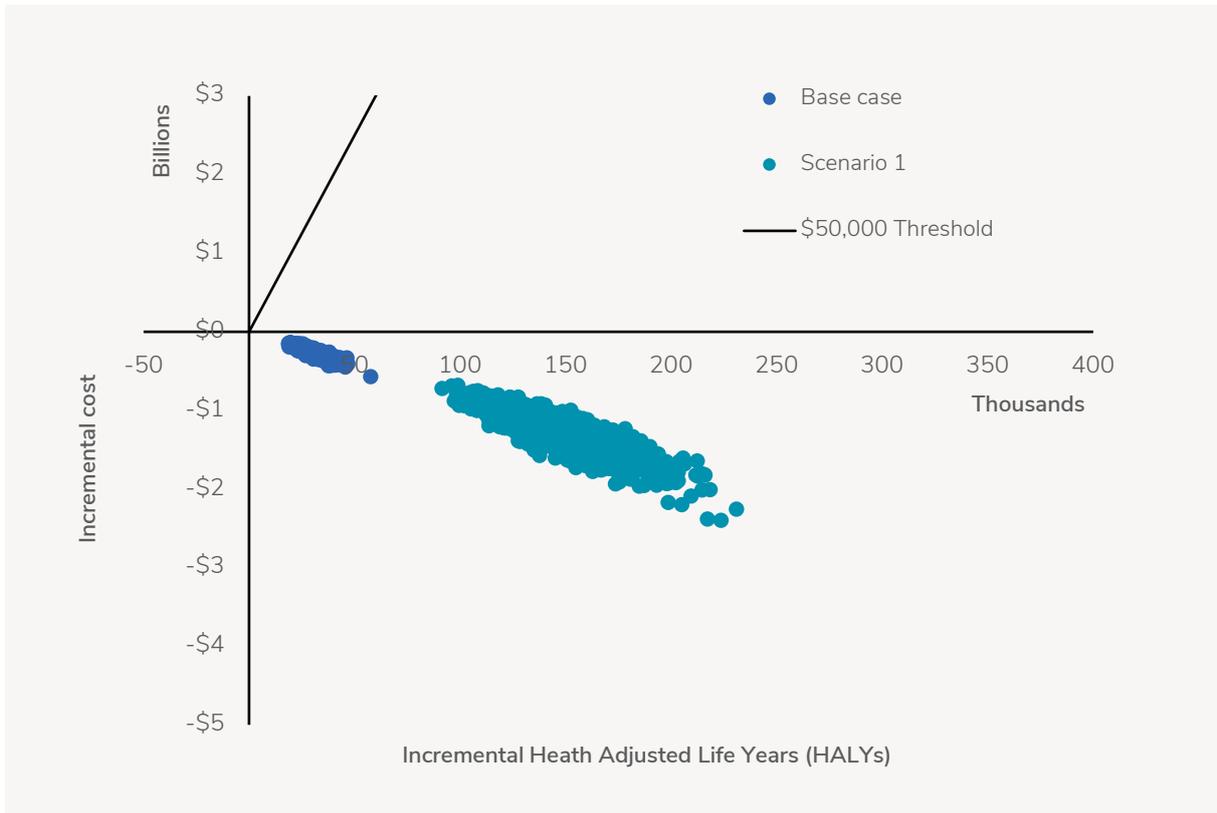
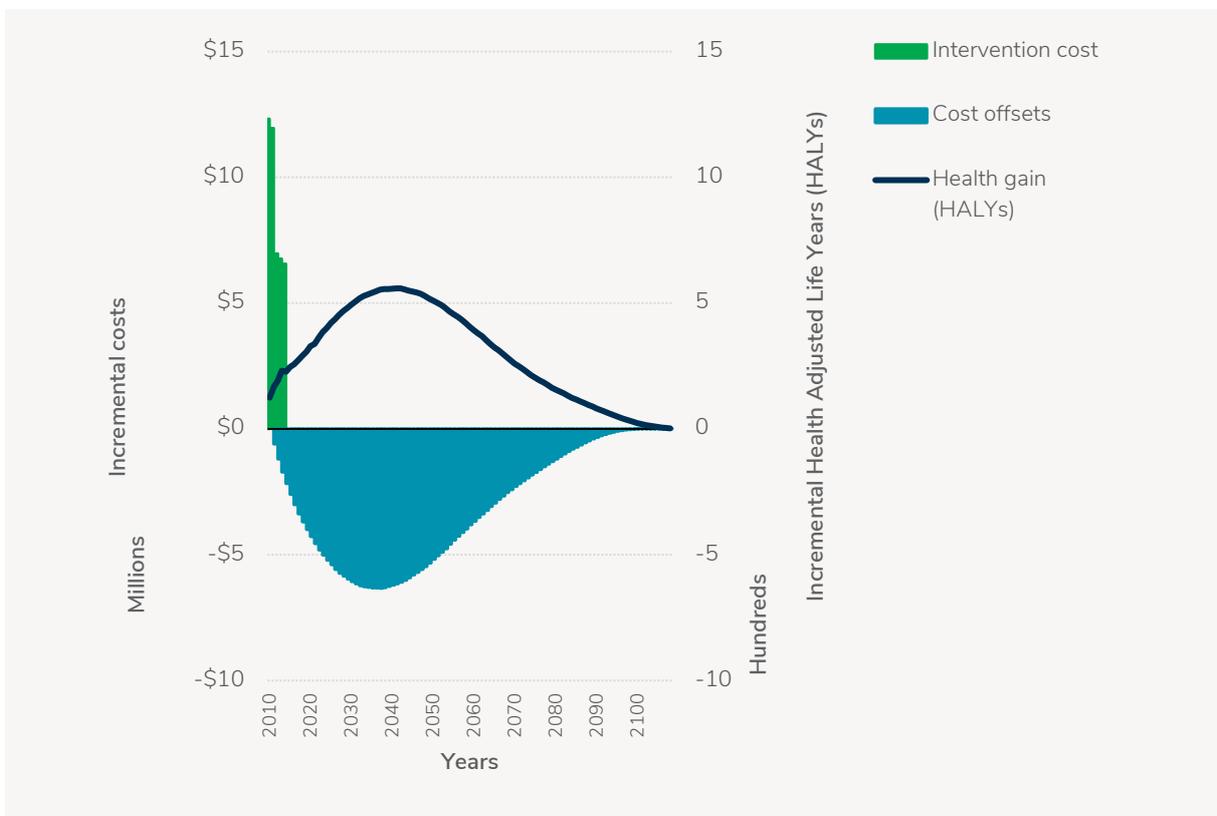


Figure 2 Costs, cost offsets and health gains over time (base case)



## Implementation considerations

Consideration	Details	Assessment
<b>Strength of evidence</b>	Low certainty of effect on BMI / body weight outcomes due to absence of relevant studies and lack of real world implementation.	Low
	Medium certainty of effect on dietary outcomes. Experimental studies have shown that consumers continue to consume the same quantity of foods and beverages (post reformulation) without compensating for any changes in kJ.	Medium
<b>Equity</b>	Consumption of SSBs is known to be higher in lower socio-economic groups. Accordingly, this intervention is likely to have a greater health impact in lower socio-economic groups.	Positive
<b>Acceptability</b>	<b>Government:</b> The Australian government has identified reformulation as a focus area for the Healthy Food Partnership. The government is likely to prefer voluntary implementation.	High
	<b>Industry:</b> Beverage manufacturers are actively committing to some voluntary reformulation targets, but are likely to oppose mandatory reformulation targets.	Medium
	<b>Public:</b> There is no available evidence regarding the level of public support for this intervention. However, as the intervention does not directly affect consumer behaviour, and past reformulation efforts (when brought into place slowly over time) have been shown to be widely accepted by consumers.	Medium
<b>Feasibility</b>	Reformulation to lower the sugar content of SSBs has been demonstrated as feasible in a number of other countries.	High
<b>Sustainability</b>	If this intervention was implemented on a mandatory basis, sustainability is likely to be high, although there may be ongoing pressure from the food industry to remove the regulations. If this intervention was implemented on a voluntary basis, relying on industry commitments to implement and maintain the intervention, sustainability is likely to be lower and subject to competitive pressures on the industry.	Medium
<b>Other considerations</b>	SSB consumption has been slowly declining over recent years. If this trend continues, the contribution of SSBs to mean population energy intake may be lower than estimated in this analysis.	
Notes: BMI: body mass index; SSBs: sugar-sweetened beverages		