Reformulation in response to the Health Star Rating nutrition-labelling system

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The intervention

- The Health Star Rating (HSR) system is a government-endorsed interpretative front-of-pack nutrition labelling initiative that provides customers with summary information on the nutritional value of foods.
- This intervention examined the potential impact of the HSR system on product reformulation (and energy content in particular) with voluntary and mandatory uptake of the system.

What we already know

- Evidence from New Zealand has shown that reformulation (to improve nutritional quality) of HSR-labelled products was greater than that of non-HSR-labelled products.
- In 2014, the HSR system was endorsed by the Australian government for voluntary implementation by the food industry.

Key elements of the modelled intervention

- Changes in energy density (kJ per 100g) between 2013 and 2016 of pre-packaged foods with and without the HSR were analysed to assess the extent of product reformulation that could be attributed to the HSR system.
- Changes in energy density were applied to food consumption data by food category, age, and sex from the 2011-12 Australian Health Survey. It was assumed that no compensatory changes to diet would take place in response to the intervention.
- Costs to industry included HSR implementation and monitoring costs. Costs to government included education and promotion, and ongoing costs of monitoring and evaluation.

Key findings

- Small (7.11 kJ/100g; 95% UI: 0.1 to 14.2) reductions in energy density were found in the 1,004 food products that displayed an HSR label in 2016.
- The intervention was estimated to result in mean reductions of population body weight of 0.01kg (voluntary uptake) and 0.11kg (mandatory uptake).
- The voluntary implementation of the HSR rating was estimated to cost $46 million, whereas the mandatory implementation was estimated to cost $686 million.
- The HSR system was estimated to be cost-effective under both the voluntary and mandatory implementation scenarios with a mean ICER of $1,728 per HALY gained for the voluntary scenario and a mean ICER of $4,752 per HALY gained for the mandatory scenario.

Conclusion

The intervention demonstrates significant potential for cost-effectiveness. Voluntary implementation of the HSR is more favourable to government and industry stakeholders than mandatory implementation.

Scenarios description and cost-effectiveness results

Table 1 *Description of selected scenarios*

	Base case Voluntary implementation of HSR	Scenario 1 Mandatory implementation of HSR
Risk factor(s) addressed by intervention	BMI	
Population targeted	Australian population, aged 2-100 years	
Weighted average reduction in body weight (95% UI)	0.01kg (0.006 to 0.012)	0.11kg (0.07 to 0.14)
Weighted average reduction in BMI (95% UI)	0.03kg/m^2 (0.02 to 0.04)	0.04kg/m^2 (0.03 to 0.05)
Effect decay	100% maintenance of effect	
Costs included	Administration and monitoring (government); implementation (industry)	Legislation, administration and monitoring (government); implementation (industry)
Type of model used	Population model with quality of life in children	

Notes: BMI: Body mass index; kg: kilogram; m: metre; UI: uncertainty interval

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

	Base case	Scenario 1
Total HALYs gained	4,207 (2,438 to 6,081)	49,949 (29,291 to 72,153)
Total intervention costs	$46.1M ($32M to $60M)	$686M ($483M to $849M)
Total healthcare cost savings	$41.6M ($22.1M to $61.6M)	$488.7 ($265.9M to $722.8M)
Total net cost *	$4.5M ($-21.2M to $28.2M)	$197M ($123.2M to $513.3M)
Mean ICER ($/HALY gained)	1,728 (95% UI: Dominant to 10,445)	4,752 (95% UI: Dominant to 16,236)
Probability of being cost-effective #	100%	100%
Overall result	**Cost-effective**	**Cost-effective**

Notes: 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***

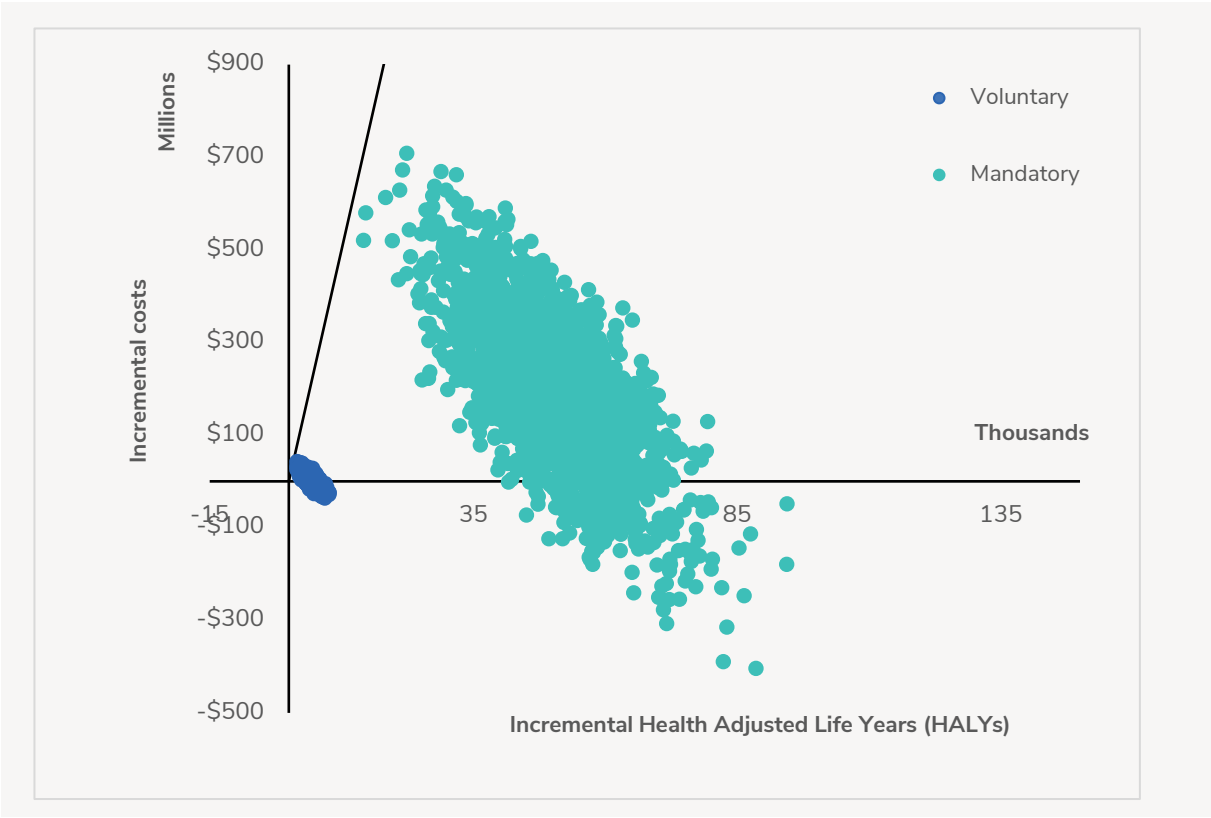
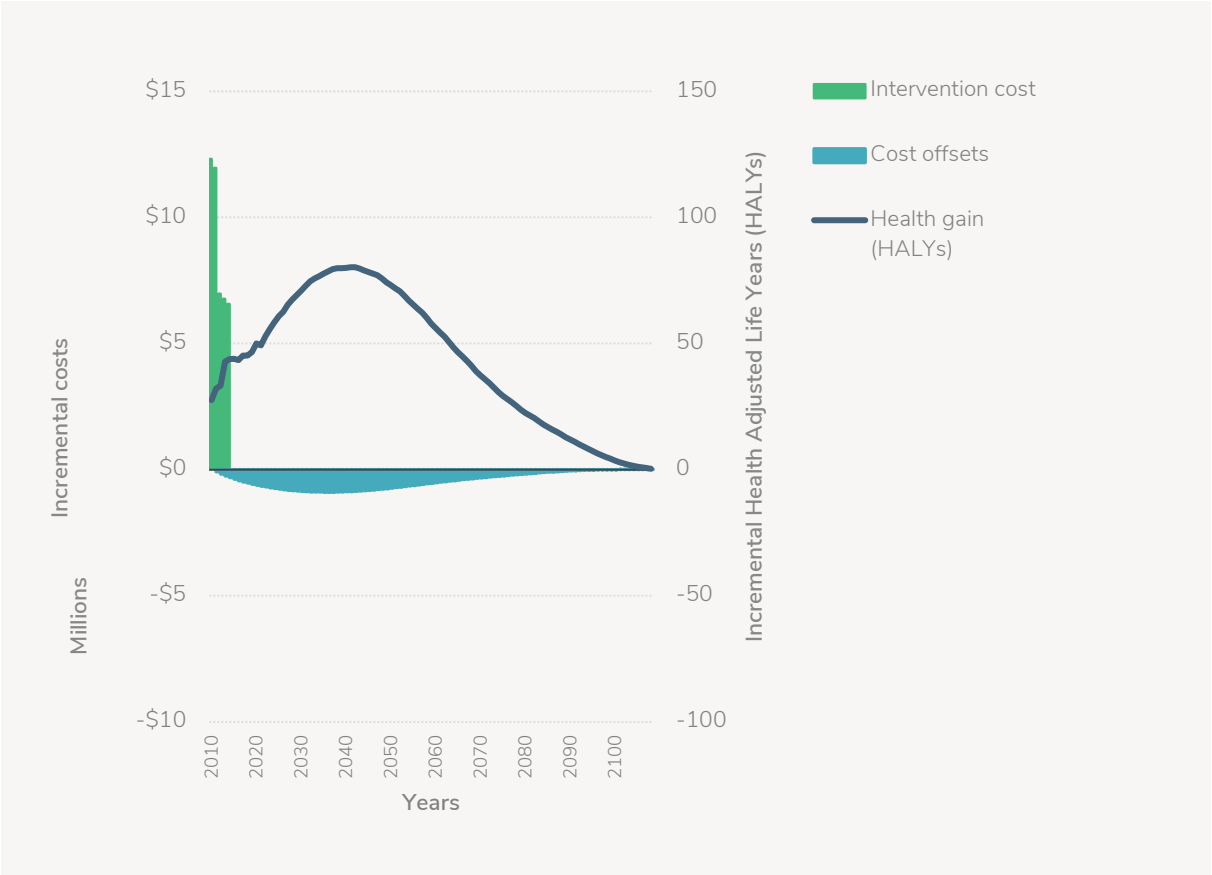


Figure 2 ***Costs, cost offsets and health gains over time (base case)***



Implementation considerations

Consideration	Details	Assessment
Strength of evidence	Low certainty of effect on BMI / body weight outcomes due to absence of relevant studies.	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 resulting from product reformulation.	Medium
Equity	Reformulation will impact all consumers of the affected products without any differential impacts according to socio-economic group.	Positive
Acceptability	Government: The Australian government has demonstrated commitment to the HSR system, and has identified reformulation as a focus area for the Healthy Food Partnership. The government has indicated a preference for voluntary implementation.	High
	Industry: There is increasing uptake of the HSR system with approximately 10,000 products with the HSR in Australia in 2018. However, manufacturers preferentially apply the HSR on their healthier products. Industry has indicated that it prefers voluntary implementation.	Medium
	Public: Strong consumer support for widespread implementation of HSR [i]	High
Feasibility	Front of pack nutrition labelling initiatives have been implemented in several countries both on a mandatory and voluntary basis.	High
Sustainability	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
Other considerations	This analysis is limited to the impact of the HSR on product reformulation with respect to energy content. There may be additional benefits related to product reformulation with respect to other nutrients e.g., sugar, salt, saturated fat. The analysis did not take into account potential changes in consumer behaviour in response to the HSR system e.g. shifting purchases to products with a higher HSR.	
Notes: BMI: body mass index; HSR: Health Star Rating		

[i] Colmar Brunton, 2018, 2018 Health Star Rating monitoring and evaluation: Year 2 follow-up research report, prepared for the Health Promotion Agency