Health Star Rating System
Five Year Review Report

May 2019

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Executive Summary

There are few topics that excite more passion and interest than food. Food provides us with energy, nutrition, enjoyment and connection to others. Every day we make choices about the food we eat – influenced by taste, price, access and convenience, as well as personal circumstances, dietary needs, cultural values and perceptions of quality and healthiness.

Unfortunately, our food and beverage choices are also contributing negatively to our health, with recent data showing that over two thirds of Australian and New Zealand adults are overweight or obese. While people are generally aware of the foods that are obviously healthy or unhealthy, there are many foods (particularly packaged foods) that sit somewhere in the middle, where it can be more difficult to identify the healthier option.

Against this backdrop, Australia and New Zealand (like more than 30 other countries worldwide) have introduced a simple graphic on labels to help consumers make healthier choices when purchasing packaged foods. The Health Star Rating (HSR) System rates the overall nutritional profile of packaged foods and assigns an interpretive rating from 0.5 to 5 stars – the higher the stars, the healthier the product. The objective being to *"provide convenient, relevant and readily understood nutrition information and/or guidance on food packs to assist consumers to make informed food purchases and healthier eating choices"*.

To calculate the HSR for packaged foods and beverages, the HSR System takes into account seven components (energy, sodium, saturated fat, total sugars, protein, fibre and fruit/vegetables/nuts/legumes (FVNL) ingredients). These components are based on healthy eating recommendations in Australian and New Zealand Dietary Guidelines and are considered in many other front-of-pack labelling (FoPL) schemes worldwide.

As stakeholder consultation revealed, there are a wide range of views about the factors that should be considered in calculating the HSR. Stakeholders variously suggested the HSR System should take into account the level of processing of the food, wholegrain content, certain vitamins, portion size and whether the food is organic. There are also differing views about the nutrition science that underpins the Dietary Guidelines and the HSR System.

The HSR System was not designed to meet the different information needs of all consumers. As one stakeholder succinctly and accurately summarised:

> *The HSR System itself is unaware of how a food is processed, how much it is processed, or who processes it, the origins of its nutrients, who eats the food or how much is consumed, where the food is sold and at what price, and the lifestyle of the consumer…..The HSR System very simplistically, in the face of all other possible causal factors and scenarios related to food risk, ranks the risk associated with a food's content relative to another, facilitating comparison of neighbours. And it does so within a category based ranking system, based on food groups of similar parentage, nutrient content and risk response as those described in Dietary Guidelines.*

The Five Year Review examined the impact of the System, against its specific objectives. In summary, the HSR System is performing well:

- Studies consistently show that the System is well aligned with Dietary Guidelines and effectively directs consumers towards foods lower in energy, saturated fats, sugars and sodium.
- The HSR is being displayed on approximately one third of packaged foods in Australian and New Zealand supermarkets, with uptake steadily increasing since implementation.

- Most Australian and New Zealand consumers view the HSR System as easy to understand and use and feel that it makes it easier to decide which packaged foods are healthier.
- In Australia, 23% of surveyed consumers were influenced by the HSR to change their purchasing behaviour and purchase a product with more stars. In New Zealand, 28% of surveyed consumers used the HSR to help choose a product, with the vast majority choosing the product with more stars.
- The HSR System is also encouraging positive reformulation of foods, with New Zealand research showing that 79% of products displaying the HSR had reformulated since 2014. In Australia, a study found that products displaying the HSR had made significant reductions in energy and saturated fat over the four years since the System was introduced, compared to those not displaying the HSR.

Given these positive results, it is not surprising that there is strong stakeholder support to continue the HSR System. This is also recommended by this Review. There is, however, opportunity to continue to improve the System. A package of changes is therefore recommended to:

- ***improve the operation of the HSR Calculator that drives the attribution of stars***. While the HSR System generally provides an accurate representation of the relative healthiness of packaged foods and beverages, some improvements can be made to better align with Dietary Guidelines and encourage further positive reformulation. The proposed changes increase the HSRs of certain Four/Five Food Group[1] (FFG) products (including certain fruits, vegetables and dairy products), more strongly penalise total sugars, improve sodium sensitivity and recategorise certain discretionary foods (such as jellies and ice confections) to decrease their HSRs. Recommended changes will also better support consumers to select non-dairy beverages closest in nutritional profile to water, specifically those low in energy and sugars.

- ***drive further uptake of the HSR by industry.*** Given the promising public health impact of the HSR System, a key focus for the coming years is increasing its uptake. Rather than mandating the System, the Review recommends removing some of the barriers to uptake, setting a clear uptake target (70% of eligible products within five years of a government decision on these recommendations) and stakeholders working together to drive uptake.

- ***improve the management and monitoring of the HSR System.*** The proposed changes are designed to ensure the critical infrastructure is in place to manage and monitor the System (particularly in the context of the broader public health and dietary patterns of Australians and New Zealanders) and improve the System's responsiveness to industry queries and consumer concerns.

Noting diverse stakeholder views about nutrition science and the appropriateness of the HSRs attributed to different foods, it is acknowledged that consensus regarding any changes to the HSR System is not achievable. Drawing on the invaluable input of stakeholders, the Review has identified a pragmatic package of changes that maintains the integrity of the HSR System whilst continuously improving it to better align with Dietary Guidelines, address consumer concerns and respond to changes in the food supply and the way that both industry and consumers use the HSR System.

We sincerely thank the wide range of academics, consumers, nutritionists and representatives from government, public health and industry who have shared their experiences and expertise and provided valuable information to the Review. We extend our gratitude to the HSR Secretariat, Health Star Rating Advisory Committee (HSRAC) and the Technical Advisory Group (TAG) for their significant contribution to the Review.

[1] FFG foods are described by Dietary Guidelines as the basis of a healthy diet. There are four food groups described in the New Zealand Eating and Activity Guidelines (fruit and vegetables, grain, meats, dairy) and five in the Australian Dietary Guidelines (which separate fruits and vegetables into two groups).

Recommendations

HSR System impact (Chapter 3)

Recommendation 1: The HSR System be continued.

There is substantial evidence demonstrating that the System is working well. The System is generally well used, recognised, reliable and is assisting consumers to make healthier choices when purchasing packaged foods and beverages. Most Australian and New Zealand consumers view the HSR as easy to understand, easy to use and making it easier to decide which packaged foods are healthier.

Of Australian consumers purchasing a product displaying the HSR, almost two thirds stated that the HSR influenced their decision and one third were influenced to purchase a product with more stars. This equates to 23% of consumers being influenced by the HSR to change their purchasing behaviour to select a healthier product.

Recommendation 2: HSR graphic Option 5, the energy icon, be removed from the HSR System.

One of five HSR graphic options currently available to manufacturers is Option 5, the energy icon (without the stars). This icon is most commonly used on non-dairy beverages and confectionery. However, the energy icon is not well understood by consumers and does not provide interpretive information to support choice. In surveys, only 2% of Australian consumers find the energy icon easy to understand.

Further, while some products may display the energy icon, others may display the stars, making it difficult for consumers to compare like products. In the non-dairy beverage category, stars are used more commonly for 5 star products and the energy icon for lower scoring products. The energy displayed is often based on serve size, which is not always comparable between products, further reducing the utility of the energy icon to support consumer choice.

HSR System promotion (Chapter 4)

Recommendation 3: Governments, industry, public health and consumer bodies continue to promote the HSR System. Government promotion over the next two years should:

- **communicate the reason for changes to the HSR System**
- **target specific areas of consumer misunderstanding or gaps in awareness**
- **highlight government endorsement of the HSR System**
- **position the HSR System in the context of broader healthy eating messages.**

Continued HSR System promotion by Government is necessary to communicate changes to the System and continue to address common misunderstandings. Once the System is further embedded into the broader public health culture and food system, specific campaigns about how to use the System will be less critical than positioning the System in the context of broader healthy eating messages. It is important that all stakeholders continue to play a role in constantly refreshing public understanding of the System and promoting its use.

HSR System enhancements (Chapter 5)

Recommendation 4: **A package of changes be made to the way the HSR is calculated for foods to better align with Dietary Guidelines, reflect emerging evidence, address consumer concerns and encourage positive reformulation.**

The following package of interrelated changes are proposed:

A. fruits and vegetables that are fresh, frozen or canned (with no additions of sugar, salt or fat) should automatically receive an HSR of 5
B. total sugars should be more strongly penalised, lowering the HSRs of 5% of products (including breakfast cereals, snack bars, sweetened milks, ice creams and sugar-based confectionery)
C. sodium sensitivity should be improved for products high in sodium, reducing the HSR of 1% of products (all with sodium in excess of 900mg/100g)
D. dairy categories should be redefined to increase the HSRs of Four/Five Food Group (FFG) dairy foods (such as cheeses and yoghurts) and decrease the HSRs of some dairy desserts and other chilled dairy products, improving comparability between dairy products
E. jellies and water-based ice confections should be recategorised to decrease their HSRs.

Based on modelling, these changes are expected to decrease the HSRs of approximately 10% of products (mostly discretionary foods) and increase the HSRs of approximately 6% of products (mostly FFG foods such as fruits and vegetables, yoghurts and cheeses).

It is recommended that a two-year transition period (starting from the date recommendations are accepted by governments) be provided for industry to implement the changes.

Recommendation 5: **Changes be made to the way the HSR is calculated for non-dairy beverages, based on adjusted sugars, energy and FVNL points, to better discern water (and drinks similar in nutritional profile to water) from high energy drinks.**

Non-dairy beverages contribute 27% of total sugars in Australian diets and 17% of total sugars in New Zealander diets. While the HSRs for sugar-sweetened soft drinks tend to appropriately reflect their limited nutritional value, the HSR System does not encourage consumption of low or sugar free flavoured waters or other drinks that are closer in nutritional value to water. For example, fruit juices with relatively high total sugars content generally receive HSRs of 4 to 5, while unsweetened flavoured waters generally receive HSRs of around 2 (despite having no sugars and being closer in nutritional profile to plain water).

The proposed changes mean that plain waters will have an HSR of 5, unsweetened flavoured waters 4.5, 100% fruit and vegetable juices between 2.5 and 4 (based on their sugars and energy content), diet drinks no more than 3.5 and sugary soft drinks between 0.5 and 2 (based on their sugars and energy content).

HSR System management (Chapter 6)

Recommendation 6: **HSR System implementation continue to be jointly funded by Australian, State and Territory and New Zealand governments for a further four years.**

The next few years will be critical to the HSR System – proposed changes better align the System with Dietary Guidelines and address consumer concerns, and uptake by industry is expected to increase considerably. Funding is necessary to support the governance arrangements during this period, educate consumers about the changes and monitor consumer response and industry uptake.

The Review acknowledges the considerable resources (including time, expertise, education, research and promotional materials) contributed by a range of stakeholders to date.

Recommendation 7: **Minor changes be made to the governance of the HSR System to:**

- **support greater consumer confidence in the System by transferring management of the HSR Calculator and TAG database to FSANZ**
- **clarify the role of governance committees**
- **increase the transparency of the System**
- **improve monitoring, enabling the System to be more responsive.**

As the HSR System moves into the next stage of implementation, adjustments to the governance arrangements are recommended to support greater consumer confidence; enable more effective monitoring; provide greater transparency; and improve responsiveness. Recommended changes include adjustments to the composition and role of the HSRAC and independent custodianship (by FSANZ) of the HSR Calculator and TAG database (including resourcing for this work).

Recommendation 8: **Enhance the critical infrastructure to support implementation and evaluation of food and nutrition-related public health initiatives, including the HSR System, through: regular updates to Dietary Guidelines; regular national health and nutrition surveys; establishment of a comprehensive, dataset of branded food products; and improved monitoring of the System.**

Expansion of FSANZ's existing data management system to enable the automated upload, validation and public reporting of branded food data (including the HSR) will: support public and industry confidence in the HSR System; enable automated validation of the HSR displayed on a product; track longitudinal reformulation of products; and support development of food and nutrition policy, surveys and regulation.

Optimising uptake of the HSR System (Chapter 7)

Recommendation 9: **The HSR System remain voluntary, but with clear uptake targets set and all stakeholders working together to drive uptake. If the HSR System continues to perform well but the HSR is not displayed on 70% of target products within five years of a government decision on these recommendations, the HSR System should be mandated.**

Consistent and widespread adoption of the HSR is required for the System to have a significant public health impact. The Review closely considered whether improved uptake should be achieved through mandating the System. On balance, the Review considers that attention should first be focused on improving the System, setting clear uptake targets and continuing to incentivise uptake.

This approach continues to build on the significant investment and goodwill of industry and others; is consistent with the principles of best practice regulation; and reflects international experience (where the majority of interpretive front-of-pack labelling schemes have been implemented on a voluntary basis).

Recommendation 10: **The existing *Guide for Industry to the HSR Calculator* and the *HSR System Style Guide* be combined, revised and strengthened, providing greater certainty for stakeholders.**

Changes will be required to the Guide for Industry to the HSR Calculator and HSR System Style Guide. The opportunity should be taken to combine, improve and strengthen these documents such that there is a single resource (similar to a Code of Practice) that describes the HSR System, its objectives and industry obligations.

Chapter 1 – About the Health Star Rating System

Development of the HSR System

In 2009, Australian and New Zealand food regulation Ministers agreed to a comprehensive independent review of food labelling law and policy. An expert panel, chaired by Dr Neal Blewett, AC, undertook the review and the panel's final report, *Labelling Logic*[2], was publicly released on 28 January 2011.

One of the recommendations of this report was that an interpretive FoPL scheme should be developed, as one of several preventative health initiatives designed to improve dietary intakes in line with a comprehensive nutrition policy. The intent was to help people to make better informed, healthier choices quickly and easily when comparing similar types of packaged foods. It was not intended to guide the portions or volumes consumed.

In December 2011, Australian and New Zealand Ministers responsible for the regulation of food and beverages agreed to the need for an easily understood, interpretive FoPL scheme for packaged foods. The stated aim of the FoPL scheme was to guide consumer choice towards healthier food options by:

- enabling direct comparison between individual foods that, within the overall diet, may contribute to the risk factors of various diet-related chronic diseases
- being readily understandable and meaningful across socio-economic groups, culturally and linguistically diverse groups and low literacy/numeracy groups
- increasing awareness of foods that, within the overall diet, may contribute positively or negatively to the risk factors of diet-related chronic diseases.[3]

In early 2012, the Food Regulation Secretariat (in the Commonwealth Department of Health) established a FoPL Steering Committee (comprising Australian, State and Territory and New Zealand government officials) and a FoPL Project Committee (comprising consumers and representatives from government, industry and public health) to develop a FoPL scheme. A Technical Design Working Group (TDWG) was established to work directly with FSANZ to research and develop the technical aspects of the FoPL scheme. An Implementation Working Group was also established to consider implementation options and frameworks for social marketing, monitoring and evaluation.

In investigating possible models for a single FoPL symbol that would provide convenient, readily understood nutritional guidance on food packs, the FSANZ and the TDWG considered:

- research previously undertaken by the United Kingdom (UK) government for a nutrient profiling system for identifying individual foods eligible to carry media advertising for children
- research undertaken in developing *Standard 1.2.7 Nutrition, health and related claims* of the Australia New Zealand Food Standards Code (the Code) and developing the Nutrient Profiling Scoring Criterion (NPSC)
- research undertaken in developing the Australian Dietary Guidelines (ADG)
- input provided by a range of stakeholders.

The decision was made that a modified NPSC would be the basis for a new, single symbol FoPL scheme. It was also agreed that the new scheme would retain relevant labelling conditions and food definitions prescribed in the Code, thus providing consistency for food manufacturers and messaging for consumers.

[2] Blewett, N, Goddard, N, Pettigrew, S, Reynolds, C & Yeatman, H 2011, *Labelling logic - the final report of the review of food labelling law and policy*, Canberra, Commonwealth of Australia

[3] Australia and New Zealand Food Regulation Ministerial Council, *Front of Pack Labelling Policy Statement*, endorsed by Ministerial Council on 23 October 2009

On 27 June 2014, the Australia and New Zealand Ministerial Forum on Food Regulation (the Forum) endorsed the HSR System to be voluntarily implemented in Australia and New Zealand for an initial five years.

The HSR graphic

The HSR System Style Guide describes a hierarchy of options for the elements to be displayed in the HSR System graphic.

1. Health Star Rating (stars) + energy icon + 3 prescribed nutrient icons + 1 optional nutrient icon.

2. Health Star Rating (stars) + energy icon + 3 prescribed nutrient icons.

3. Health Star Rating (stars) + energy icon.

4. Health Star Rating (stars) (for example, when pack size does not accommodate more complete versions).

5. Energy icon (for example, for small pack sizes and some confectionery and beverage products).

While the Style Guide encourages use of as many elements of the HSR System graphic as possible, any of the options may be used on any product. The Style Guide describes small pack sizes, confectionery and beverage products as examples where Option 5, the energy icon, might be used.

Calculating the HSR

The HSR System has been optimised for application to packaged food and beverage products presented for retail sale through supermarkets and similar retail outlets.[4]

HSRs are calculated using the HSR Calculator, derived from the NPSC, that assigns points based on the nutrient content of 100 grams (or millilitres) of a food. Products can score from half a star (least healthy) to five stars (most healthy) in half-star increments.

The Calculator considers the content of foods in terms of both negative components, that Dietary Guidelines recommend limiting (energy, saturated fat, sugars, sodium); and positive components that Dietary Guidelines recommend consuming (protein, dietary fibre and fruits, vegetables, nuts and legumes (FVNL)).

[4] Commonwealth Department of Health 2016, *Health Star Rating System Style Guide*, version 4, p. 1, accessed 29 January 2019

HSRs are calculated by awarding points for these negative and positive components of the food, whereby negative points can be partially offset by positive points. The hypothetical combination of maximum values for all risk-associated (negative) components has roughly twice the impact on final scores compared with the combination of all beneficial-offset (positive) components. There are also rules that ensure that adding small amounts of certain ingredients to a food will not disproportionally increase a food's HSR. For example, FVNL content must be over 40% of the total food before it starts counting towards the HSR.

The HSR Calculator is adjusted for different HSR categories to account for the differing nutrient compositions of different types of foods. There are six food categories in the HSR System: non-dairy beverages (Category 1); oils and spreads (Category 3); other non-dairy foods (Category 2); dairy beverages (Category 1D); cheeses (Category 3D); and other dairy foods (Category 2D). Separate dairy categories were created to account for the health benefits of eating basic dairy foods.[5]

The following provides an example of how to calculate a product's HSR:

To determine the HSR of a breakfast cereal:

Step 1. Determine the category of food.
Category 2 includes all foods not included in Category 1, 1D, 2D, 3 or 3D, including breakfast cereals.

Step 2. Using the points tables and guidance in the Guide for Industry to the HSR Calculator, calculate:

(a) baseline points for negative components

Component	Per 100 g	Baseline points
Energy	1125 kJ	3
Saturated fat	1.1 g	1
Total sugars	22.9 g	5
Sodium	142 mg	1
Total baseline points	-	***10***

(b) modifying points for positive components

Component	Per 100 g	Modifying points
FVNL (for example, nuts and dried fruits)	45%	1
Protein	6.1 g	3
Fibre	7.9 g	8
Total modifying points	-	***12***

Step 3. Calculate the final score (baseline points – modifying points).
Final score = – 2

Step 4. Assign the HSR based on the HSR Category.
This breakfast cereal is in Category 2, with an HSR score of – 2. Using the table on page 14 of the Guide for Industry, the product scores an HSR of 4.0.

For a comprehensive description of the HSR Calculator, refer to Appendix A or the Guide for Industry on the HSR website.

[5] TAG technical paper, October 2018, *History and development of the HSR algorithm*, p. 11

Products expected to display the HSR

The HSR System is a voluntary system and only appears on packaged products at the discretion of manufacturers and retailers. If a product carries a nutrition information panel (NIP), the use of the HSR System should be considered.

Products exempt from NIP labelling under the Code *Standard 1.2.8 – Nutrition Information Requirements*, include:

- products with inherently low nutritional contribution such as herbs, spices, vinegar, salt, pepper, tea, coffee, herbal infusions, gelatine and setting compounds
- products in small packages (less than 100mm^2)
- 'fresh value-added products', such as packaged fruit, vegetables, meat, poultry and fish, and pre-packaged rolls and sandwiches
- products included under the Code Standard *Part 2.9 Special Purpose Foods*
- alcoholic beverages (>1.15% alcohol by volume)
- alcohol kits
- kava
- products ineligible to display nutrition content claims and health claims as outlined under 1.2.7-5 of the Code *Standard 1.2.7 – Nutrition, Health and Related Claims*, including products intended for further processing or labelled prior to retail sale, delivered to a vulnerable person by a delivered meal organisation, or provided as an institutional meal.

Products that are not eligible to display the HSR include:

- certain special purpose foods in the Code *Part 2.9 Special purpose foods* (infant formula products, foods for infants, formulated supplementary foods for young children, formulated supplementary sports foods or foods for special medical purposes)
- alcoholic beverages, alcohol kits and kava
- products listed in the Code section 1.2.7–5 of *Standard 1.2.7 Nutrition, health and related claims*, which include products intended for further processing, packaging or labelling prior to retail sale.

Governance of the HSR System

The HSR System is overseen by the Forum, the Food Regulation Standing Committee (FRSC) and a number of committees established for the specific purpose of managing, monitoring and implementing the HSR System. The current governance structure of the HSR System is illustrated at Figure 1.

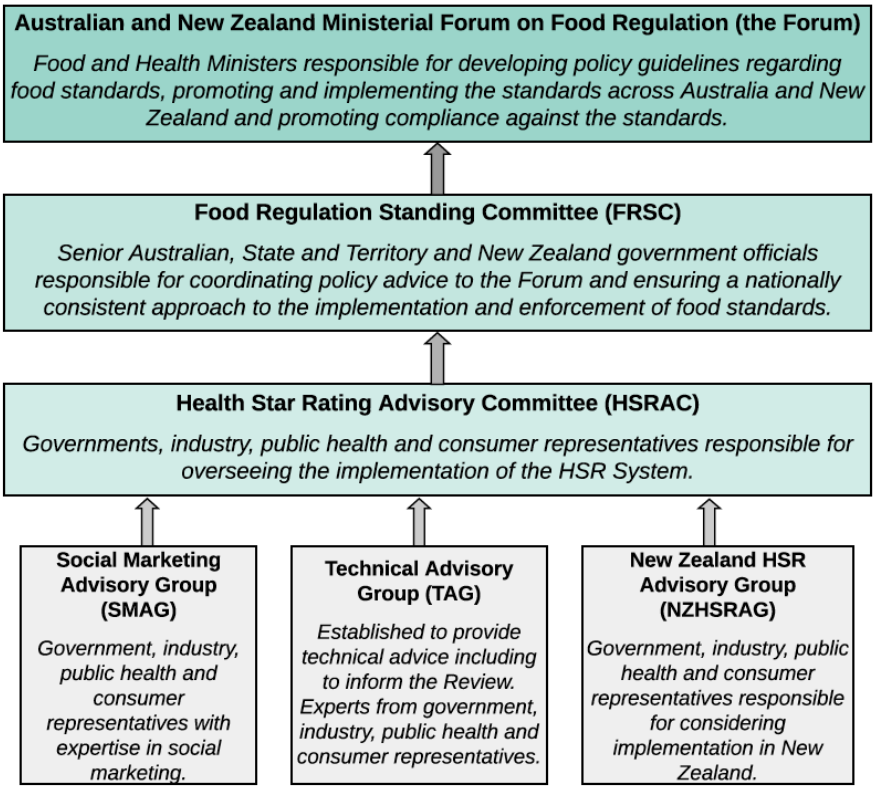

Figure 1: HSR System governance structure.

Health Star Rating Advisory Committee

The HSRAC is responsible for overseeing the implementation of the HSR System. This includes the social marketing campaign in Australia, monitoring and evaluation of the System and the assessment of potential anomalies that may be identified within the HSR Calculator. The HSRAC provides advice and reports to the FRSC.

The HSRAC consists of 10 members including the Chair: four members from government (New South Wales, South Australia, Australia and New Zealand); three members from industry; and three members from community (consumer and public health). Tenure for members is five years – the duration of the voluntary implementation period of the HSR System (from June 2014). The HSRAC makes decisions on a consensus basis and, where consensus cannot be reached, refers decisions to the Forum.

New Zealand Health Star Rating Advisory Group

The New Zealand Health Star Rating Advisory Group (NZHSRAG) oversees the implementation, monitoring and evaluation of the HSR System in New Zealand. The NZHSRAG is chaired by the Ministry for Primary Industries (MPI) and includes representatives from the food industry, academia, public health and consumer groups in New Zealand.

Social Marketing Advisory Group

The Social Marketing Advisory Group (SMAG) provides advice on communications on the HSR System in Australia, including campaigns and social marketing. The SMAG comprises members with expertise in communications and social marketing from relevant industry and consumer/public health groups, as well as jurisdictions and is chaired by a representative of the Commonwealth Department of Health.

Technical Advisory Group

The TAG's role was to analyse and review the performance of the HSR Calculator and respond to technical issues and related matters referred to it by the HSRAC. Advice provided by the TAG has supported the Review and the TAG has now been disbanded. Specifically, the TAG:

- analysed the HSRs produced by the HSR Calculator and considered whether they align with Dietary Guidelines
- responded to technical issues referred by the HSRAC, including anomaly submissions and issues raised by stakeholders
- analysed the implications of proposed amendments to the HSR Calculator.

The TAG consisted of a tripartite (government, food industry, public health) group of experts with backgrounds in food science and food labelling, clinical nutrition, regulation to prevent diet-related disease, public health law and health policy analysis. It included representation from FSANZ and was chaired by a representative of the Commonwealth Department of Health.

Refer to Chapter 6 for more information on the governance arrangements.

Funding of the HSR System

The HSR System is co-funded by the Australian Government, each of the States and Territories and the New Zealand Government. Each jurisdiction contributes to funding for administrative and evaluation activities. Australian jurisdictions provide additional funding for monitoring and marketing in Australia and the New Zealand government funds monitoring and marketing in New Zealand.

Australian, State and Territory and New Zealand Food Ministers agreed that cost sharing arrangements would be determined by the AHMAC cost sharing formula.

In November 2013, AHMAC agreed to initial financial contributions from Australian jurisdictions totalling $8,890,000 over three years from 2013 to 2016. In December 2015, AHMAC agreed to $11,426,500 over 2016-17 to 2018-19. More than 64% of this funding was apportioned to the social marketing campaign in Australia to promote uptake and use of the HSR System.

New Zealand has contributed approximately NZD$603,000 over the period 2016-17 to 2018-19 to the joint governance and operation of the HSR System. The New Zealand Government also separately funded approximately NZD$2,315,000 for monitoring, evaluation, social marketing and education in New Zealand.

There are no fees associated with using the HSR System or displaying the HSR graphic.

No fees are paid to members of the governance committees. Wages and expenses for HSR System-related business are the responsibility of the members' respective organisation, other than for the Chair of the HSRAC for whom some financial support is provided from the HSR System budget.

Refer to Chapter 6 for more information on the funding arrangements.

Support to use the HSR System

Guidance tools

Guidance tools were developed to help food manufacturers apply the HSR System to their products. These are available on the HSR System website and include:

- the Guide for Industry to the HSR Calculator, a technical guide for industry providing detailed information about how the HSR is calculated, including sample calculations
- the Online Calculator and Excel spreadsheet, which enables industry to enter the nutritional information for a product to calculate the HSR
- the HSR System Style Guide, which includes information on how to apply the graphic to product packaging
- an artwork file containing the HSR graphic to aid manufacturers when designing new packaging.

Anomalies and disputes

Anomalies occur when an HSR is inconsistent with Dietary Guidelines, or when the HSR is used to make comparisons within a food category (or across comparable food categories) in a way that is likely to mislead consumers (see the HSR System website). Anyone can apply to have the HSRAC consider an anomaly by using the form available on the HSR System website and providing the required evidence. A register of potential anomalies is also available, which includes a brief description of the application, the HSRAC's determination on the issue (including the rationale) and next steps.

The HSRAC also has a process for assessing and resolving disputes related to the HSR System. This process is separate to the process for assessing potential anomalies within the HSR Calculator. The dispute resolution process and form are available on the HSR System website. HSRAC considers all disputes in the first instance with support from the HSR Secretariat. No disputes have been raised since the implementation of the System.

There are no fees associated with applying to have an anomaly considered or a dispute resolved.

HSR System consumer campaigns

Consumer education and marketing campaigns in Australia and New Zealand have supported the implementation of the HSR System. The primary objectives of the campaigns were to:

- raise awareness of the HSR System
- support consumers to understand how to interpret and use the HSR System
- prompt consideration of nutrition and the role of the HSR System in influencing nutrition
- develop consumer confidence in the HSR System as an independent, informative and easy to use nutritional guide.

In Australia, the campaigns have included print and online advertisements, trolley advertisements and social media communications. Approximately $13 million was allocated to the HSR System campaign over the period 2014-15 to 2018-19.

In New Zealand, the campaigns have included online videos, outdoor posters, in-store advertising, customer mailers, cinema advertising and television advertising. New Zealand allocated approximately NZD$1.9 million to the HSR System campaign, including consumer research over the period 2015-16 to 2017-18.

Refer to Chapter 4 for more information about the campaigns.

Monitoring of the HSR System

The monitoring of the HSR System is overseen by the HSRAC. For the purposes of monitoring and evaluating the HSR, the HSRAC determined that key areas of enquiry (AoEs) are:

- **AoE1:** label implementation and consistency with the HSR System Style Guide
- **AoE2:** consumer awareness and ability to use the HSR System correctly
- **AoE3:** nutrient status of products carrying an HSR System label.

The National Heart Foundation of Australia (the NHF) developed a framework to guide monitoring and reporting against these three areas of enquiry in both Australia and New Zealand.

Australia

The Commonwealth Department of Health engaged the NHF to undertake data collection and analysis in Australia for the three key areas of enquiry. The NHF has published a series of reports covering each year of implementation of the HSR System, available on the HSR System website.

Market research company Pollinate was engaged to support the work being undertaken to assess consumer awareness and ability to use the system correctly and evaluate the performance of the HSR System campaign in Australia. Pollinate undertook an assessment against AoE2 early in 2015. The NHF continues to monitor against this area of enquiry. Pollinate has also undertaken evaluations of the HSR System social marketing campaign activity in Australia in 2015, 2016 and 2017.

New Zealand

The MPI leads the development, implementation and governance of the HSR System in New Zealand.

The Ministry of Health and the Health Promotion Agency (HPA) are responsible for the consumer education and awareness campaign. The Ministry of Health funded the HPA to develop, implement and monitor the consumer marketing and education campaign to help consumers understand the HSR System. HPA commissioned Colmar Brunton to conduct surveys to monitor awareness, recognition, understanding and correct use of the HSR System. A survey was conducted in 2015, with two follow-up waves in 2016 and 2018.

Refer to Chapter 3 for more information about the monitoring of the HSR System and its impact.

Chapter 2 – About the Five Year Review

Purpose of the Five Year Review

The Forum agreed that a formal review of the HSR System be carried out after five years of implementation. mpconsulting was engaged to undertake the review and present findings to the Forum, through the FRSC and the HSRAC.

The purpose of the Review was to consider:

- how well the objectives of the HSR System are being met, including by reference to the impact of the HSR System
- options for enhancing the HSR System, should continuation of the System be recommended.

mpconsulting also considered HSR System communications, monitoring and governance.

Five Year Review Process

During the course of the Review, mpconsulting consulted extensively with stakeholders, reviewed relevant literature and worked closely with the HSRAC and the TAG to determine the impact of the System, the extent to which it is meeting its objectives and identify options for improvements. Table 1 provides a synopsis of the activities undertaken over the course of the Review. A list of key resources is included in the Bibliography.

Table 1: Five Year Review timeline

Date	Description of activity
June 2017 (prior to engagement of mpconsulting)	Release of discussion paper by the HSRAC, seeking submissions on the merits of the HSR System in response to a series of consultation questions. Submissions were invited during the period 8 June to 20 July 2017.
October 2017	Review of 483 stakeholder submissions and published a summary of submissions.
October 2017 – May 2019	Review of primary references including relevant policy statements, guides (specific to the HSR System and also relating to diet more broadly), research, scientific articles and monitoring data developed by the NHF and the MPI.
	Meetings with the HSRAC and the TAG, including to observe operations and governance arrangements.
	Meetings and teleconferences with a wide range of stakeholders including government, public health, academic, consumer and industry across Australia, New Zealand and internationally.
January 2018	Release of a Navigation Paper providing background information about findings to date, principles guiding recommended changes to the HSR System and the direction of the Review.
February – April 2018	Facilitation of nine public forums across Australia and in New Zealand to hear from over 270 stakeholders on a number of key issues for the Review, including: objectives, impact and monitoring; communications; governance and consideration of possible enhancements.
August – September 2018	Review of detailed modelling provided by the TAG relating to how the HSR System aligns with Dietary Guidelines and modelling various options for System enhancement as identified by data analysis, research and stakeholders.

Date	Description of activity
October 2018	Release of Consultation Paper: Options for System Enhancement for public consultation, published the TAG technical papers and a Test Calculator (for stakeholders to test the effects of preferred options identified in the Consultation Paper).
November 2018	Facilitation of public forums in Sydney, Melbourne and Auckland to discuss the options outlined in the Consultation Paper.
December 2018 – January 2019	Review of stakeholder submissions on the Consultation Paper and undertook further modelling of options through the TAG, the University of Auckland and the George Institute for Global Health (George Institute).
February 2019	Release of the Draft Five Year Review Report for stakeholder comment.
March – May 2019	Review of stakeholder submissions on the Draft Review Report and undertook further modelling of options through the TAG, University of Auckland and the George Institute.
May 2019	Provision of the Final Five Year Review Report to the Forum for consideration.

Principles guiding the Five Year Review

In evaluating the HSR System and developing recommendations, the following principles have been applied:

1. **Clearly articulate the problem to be addressed and target solutions to the problem.**
   - Where stakeholders have generally described problems, the Review has sought to understand the underlying concern, understand why the problem (if any) manifests in the HSR System and recommend solutions that target the problem without unnecessarily impacting the HSR System more broadly.

2. **Retain the integrity of the HSR System and maintain alignment with Dietary Guidelines, the NPSC and other food regulation, where possible.**
   - Early in the Review it was established that the HSR System is generally performing well. As such, broad or large-scale changes (that would fundamentally disrupt or replace the existing System) are not warranted.
   - Where possible the Review has sought to continue alignment with the NPSC, the Code and Dietary Guidelines. Where this is not recommended, the Review explains why divergence is warranted.

3. **Be evidence based.**
   - The Review has drawn on the best available evidence. However, it is acknowledged that much of the evidence regarding nutrition and diet is disputed and, on some issues, there is either limited evidence or stakeholders have different interpretations of the evidence.

4. **Remain as simple as possible.**
   - The Review has focused on keeping the HSR System as simple as possible. Wherever possible, the Review has applied a systems-based approach to resolve issues rather than creating special rules and exceptions for certain products.

5. **Enable maximum discernment between like foods with different nutritional profiles.**
   - The HSR System is intended to support consumers to choose between like products. While the System needs to be broadly credible across the food supply, direct comparisons across HSR categories is discouraged (for example, comparing a dairy beverage to a biscuit). In evaluating how products are categorised, the Review has been mindful of how consumers are likely to compare products when they shop.

6. **Recognise the scope of the HSR System and avoid using the HSR System to address problems beyond its scope.**
   - The HSR System is not intended as a complete source of dietary advice. The System is intended to complement other guidelines, tools and campaigns that support consumers to make healthier dietary choices. The Review has been mindful that other levers (such as portion sizes) may be more appropriate to address some of the concerns highlighted by stakeholders.

7. **Continue to incentivise food manufacturers to decrease risk-associated nutrients.**
   - Changes recommended by the Review seek to encourage positive reformulation to reduce risk nutrients, while balancing this with the need for simplicity and alignment with Dietary Guidelines.

Important note

- The Review has drawn on a range of sources, including Australian Bureau of Statistics (ABS) data, modelling undertaken by the TAG, the University of Auckland and the George Institute and data and information provided by stakeholders.

- Unless otherwise specified, statistics referencing population level intakes of nutrients and/or foods refer to:
  - for Australia, the 2011-12 Australian Health Survey (AHS)[6]
  - for New Zealand, the 2008/09 New Zealand Adult Nutrition Survey (NZANS)[7].

  It is acknowledged that these datasets are dated and that in some cases more recent studies based on smaller datasets produce different results. However, these surveys are the largest, most comprehensive and reliable datasets available with regard to national health and nutrition.

- Where Dietary Guidelines are referred to, this applies collectively to the ADG and the New Zealand Eating and Activity Guidelines (NZEAG). It is acknowledged that these Dietary Guidelines differ in important respects, and where these differences are directly relevant to the discussion in this Report, they have been highlighted.

- The AHS Discretionary Foods List[8] is used by many stakeholders to classify foods as discretionary (foods for limited intake) or FFG foods. The list was developed based on the ADG and is unique to Australia. While it provides a general guide to whether foods are FFG or discretionary, it has a number of limitations and is not always a good guide to measuring the performance of the HSR System. The list is currently under review by the National Health and Medical Research Council (NHMRC).

- The recommendations regarding HSR System enhancements have been modelled in a number of databases, including:
  - the TAG database, using industry supplied data
  - the University of Auckland's New Zealand Nutritrack database
  - the George Institute's Australian FoodSwitch database.

- A number of stakeholders, including industry and public health organisations, have provided data and information to inform the Review. Where possible, we have used this information to corroborate or supplement modelling and analysis undertaken by the TAG.

[6] Australian Bureau of Statistics, *Australian Health Survey 2011-12*
[7] Ministry of Health, A Focus on Nutrition: Key Findings of the 2008/09 New Zealand Adult Nutrition Survey
[8] Australian Bureau of Statistics, 2014, 4363.0.55.001 - Australian Health Survey: Users' Guide, 2011-13, Discretionary Foods

Chapter 3 – Impact of the Health Star Rating System

Summary

The objective of the HSR System is:

> *To provide convenient, relevant and readily understood nutrition information and/or guidance on food packs to assist consumers to make informed food purchases and healthier eating choices.*

To inform an assessment of the impact of the HSR System, the Review considered the results of monitoring undertaken by the NHF in Australia[9] and the MPI in New Zealand[10] (along with studies by other researchers) to answer the following six key questions.

How many products display the HSR?

As at June 2018[11], approximately one third of products in Australia and New Zealand were displaying the HSR and uptake is steadily increasing:

- In 2017-18, the HSR appeared on approximately 31% of eligible products (5,448 products) in Australia and 21% of eligible products (2,997 products) in New Zealand.
- This has increased from 3% of eligible products in Australia and less than 1% of eligible products in New Zealand in 2014-15.

While this increase demonstrates a promising trend, there is more work to be done in increasing uptake of the HSR System such that it is consistently used on a wide range of products.

Are the HSRs displayed accurate (against the HSR System guidance materials) and appropriate (compared with Dietary Guidelines)?

For products displaying the HSR, there is strong compliance with the HSR System guidance and alignment with Dietary Guidelines:

- In Australia, approximately 90% display the correct HSR, with 5% of manufacturers overstating it and 5% understating it, generally only by 0.5 stars.
- FFG foods score an average HSR of 4 and discretionary foods score an average HSR of 2, indicating good alignment with Dietary Guidelines.[12] The HSR System enhancements proposed in Chapter 5 are designed to further improve alignment with Dietary Guidelines.

Are consumers aware of the HSR System and how to use it?

Most Australian and New Zealand consumers view the HSR System as easy to understand and use.

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[9] Unless otherwise referenced, all Australian data in this Chapter is drawn from National Heart Foundation 2019, *Report on the monitoring of the implementation of the HSR System in the first four years of implementation: June 2014 to June 2018*, prepared for the Commonwealth Department of Health, Canberra.

[10] Unless otherwise referenced, all New Zealand data in this Chapter is drawn from New Zealand Food Safety 2018, *Health Star Rating – Monitoring implementation for the Five Year Review,* New Zealand Ministry for Primary Industries.

[11] Note that there is a lag in the availability of formal monitoring results. To enable comparison between Australia and New Zealand (and best reflect trends since the HSR System was implemented), monitoring data to end June 2018 has been used.

[12] Jones, A, Radholm, K & Neal, B 2018, 'Defining 'Unhealthy': a systematic analysis of alignment between the Australian Dietary Guidelines and the Health Star Rating System', *Nutrients,* vol. 10, no. 501.

- Consumer awareness and understanding of the HSR System is improving, with 83% of Australian consumers and 76% of New Zealand consumers aware of the HSR System when prompted.
- Most Australian and New Zealand consumers view the HSR as easy to understand (77% in Australia and 63% in New Zealand), easy to use (70% in Australia) and making it easier to decide which packaged foods are healthier (61% in New Zealand).

By contrast, HSR graphic Option 5, the energy icon is not well understood:

- Only 4% of Australian consumers find it provides sufficient information.
- Within the confectionery and non-dairy beverage categories, both the stars and energy icon are used, with the energy value based on various serve sizes, making it difficult for consumers to compare like products.

To best support consumers, the Review recommends that the HSR graphics with stars be displayed on products rather than the energy icon.

Do consumers trust the HSR System?

Consumer trust and confidence in the HSR System is higher in Australia than in New Zealand:

- 58% of consumers in Australia and 40% of consumers in New Zealand trust the HSR System.
- 67% of Australian consumers have confidence in the HSR System.

To support continued increase in consumer confidence, the Review proposes a number of improvements, along with continued, targeted promotion and a more responsive approach when issues are identified (refer Chapters 4 and 6).

Is the HSR influencing the purchasing decisions of consumers?

The most compelling evidence of the impact of the HSR is the influence it has on consumer purchasing:

- In Australia, 70% of consumers had purchased a product displaying the HSR in the last three months. Of these, the HSR influenced the decision of almost two thirds with one third influenced to purchase a product with more stars. This equates to 23% of all consumers influenced by the HSR to purchase a healthier product.
- Research published in 2017[13] similarly found that the HSR had influenced the product choice of more than three in five Australians who bought a product with the HSR. One in two purchased a product they would not normally buy due to the presence of the HSR and almost all of these shoppers said they would continue to buy that product.
- In New Zealand, 28% of surveyed consumers report using the HSR to help choose packaged food, with 88% choosing the product with more stars.

Are manufacturers reformulating products in response to the HSR System?

Research indicates that the HSR System is leading to some reformulation:

- Analysis of products in Australia showed that those displaying the HSR had statistically significant reductions in energy and saturated fat content over the four years since the System was introduced

[13] National Heart Foundation 2017, *Report on the monitoring of the implementation of the Health Star Rating system in the first two years of implementation: June 2014 to June 2016*, prepared for the Commonwealth Department of Health, Canberra.

compared to those not displaying the HSR (which showed no significant reductions in these components).
- Analysis of 929 products displaying the HSR in New Zealand shows that 79% have been reformulated since 2014 to change at least one key nutrient by a minimum of 5% (although this cannot be attributed solely to the HSR System).
- These results are consistent with feedback from industry and studies in Australia that have found the average energy density of products displaying the HSR was lower post implementation of the HSR System compared to products not displaying the HSR[14].

Despite challenges in measuring the public health impact of the HSR System, the monitoring data strongly indicates that the System has the potential to be a successful public health intervention by assisting consumers to make healthier choices when choosing packaged foods, and by encouraging reformulation of foods to reduce risk nutrients.

Recommendation 1:	**The HSR System be continued.**

Recommendation 2:	**HSR graphic Option 5, the energy icon, be removed from the HSR System.**

Uptake of the HSR and consistency with the HSR System guidance

Unless otherwise indicated, the data referenced in this Chapter is drawn from:

- For Australia – the NHF *Report on the monitoring of the implementation of the HSR System in the first four years of implementation: June 2014 to June 2018*[15].
- For New Zealand – the New Zealand Food Safety Technical Report, *Health Star Rating – Monitoring Implementation for the Five Year Review*[16].

Noting that these reports cover the period from implementation of the HSR System in 2014 to June 2018, there is a lag in the formal monitoring data available to the Review. It is reasonable to expect some figures may have altered in this timeframe, particularly in relation to uptake.

Appendix B provides a summary of the key statistics from these reports.

Uptake of the HSR System

Australia

Over 2017-18, 5,448 products displayed the HSR, representing 31% of all eligible products. This has increased from 363 (3%) of eligible products displaying the HSR in 2014-15.

[14] Mantilla Herrera, A, Crino, M, Erskin, H, Sacks, G, Anathapavan, J, Ni Mhurchu, C & Lee, Y 2018 'Cost-effectiveness of product reformulation in response to the Health Start Rating food labelling system in Australia', *Nutrients*, vol. 10, no. 614, pp. 2-16.
[15] National Heart Foundation 2019, Report on the monitoring of the implementation of the HSR System in the first four years of implementation: June 2014 to June 2018, prepared for the Commonwealth Department of Health, Canberra.
[16] New Zealand Food Safety 2018, *Health Star Rating – Monitoring implementation for the Five Year Review,* New Zealand Ministry for Primary Industries, October.

This is consistent with a study published in 2018[17], which used the George Institute's FoodSwitch database to analyse uptake and found that at July 2017, 4,348 out of 15,767 eligible products (28%) displayed the HSR.

To understand the market penetration of the HSR, uptake is weighted by sales data. Based on sales data from Nielsen, the products on which the HSR is displayed represent 38% of all household food purchases.

Product categories with the highest uptake of the HSR in Australia are:

- non-dairy beverages: 608 products (11% of products displaying the HSR)
- processed meat and seafood: 459 products (8%)
- processed fruits and vegetables including legumes: 386 products (7%)
- savoury snacks: 381 products (7%)
- dairy products including dairy alternatives: 367 products (7%)

As at June 2018, 134 manufacturers were using the HSR, with a small number of retailers and manufacturers responsible for a large proportion of the uptake of the HSR System. Coles, Woolworths and Aldi Private Labels collectively accounted for 56% of the total uptake and five manufacturers (Simplot Australia, Nestle Australia, Lion, Coca-Cola Amatil and Unilever Australia) collectively accounted for 16% of total uptake.

New Zealand

As at June 2018, 2,997 products displayed the HSR, representing 21% of all eligible products. This has increased from 37 eligible products displaying the HSR in 2015.

The following product categories have the highest uptake of the HSR:

- packaged fruit and vegetables: 450 products (15% of products displaying the HSR)
- cereals and cereal products: 400 products (13%)
- non-alcoholic beverages: 384 products (13%)
- sauces and spreads: 330 products (11%)
- dairy and alternatives: 256 products (9%).

In terms of the distribution of HSRs, in New Zealand in 2018:

- 77% of products displaying the HSR have HSRs of 3.0 to 5.0.
- the median star rating for products displaying the HSR was 3.5.
  - Compared to 2015, there have been small increases in proportions of products with an HSR of between 0.5 to 3.0 and a corresponding reduction in proportions with HSRs of 4.0 to 5.0.

It is reasonable to expect that the results of NHF and MPI monitoring (described above) underestimate the current uptake of the HSR System (given the formal monitoring data does not include the period from June 2018 to present).

- Since the formal monitoring data was published, further monitoring of the HSR System undertaken by the NHF in Australia, shows there has been an increase in the number of products displaying the HSR and 40 new manufacturers have joined the System.
- A number of large retailers in Australia and New Zealand have committed to display the HSR on 100% of their products. These companies are well progressed towards reaching 100% coverage by 2020 at the

[17] Jones, A, Shahid, M & Neal, B 2018 Uptake of Australia's Health Star Rating System, The George Institute for Global Health, *Nutrients*, vol. 10, no. 8, 997, pp. 1-13.

latest. Further progress has been made towards this target in the last six months, which has not been included in the formal uptake monitoring.

- The New Zealand Food and Grocery Council (NZFGC) has reported that over 4,700 products are currently displaying the HSR in New Zealand. Again, this number is likely underestimated, as it reflects only the products of those manufacturers that are NZFGC members.

Overall, the Review considers that uptake of the HSR is promising but more needs to be done to optimise uptake and set clear expectations regarding uptake targets. This is discussed in Chapter 7.

Compliance with HSR System guidance

In Australia in 2018, the NHF assessed 500 labels for design or technical variations using the HSR Style Guide assessment checklist. Design or technical variations occur when the system graphic or content is not exactly as described in the HSR Style Guide.

While compliance with the Style Guide has improved from 93% to 96% since 2014, the Review was keen to examine the nature of the non-compliance, and the reasons for the non-compliance. In the 4% of instances where non-compliance was identified, the areas of deviation from the Style Guide were:

- design variations – while these are not in line with the Style Guide, these do not change the meaning or content of the HSR graphic and are unlikely to mislead consumers. These variations include:
  - displaying a second HSR graphic on the back of the packaging (34% of the design variations in 2018)
  - rounding of nutrient values to the incorrect decimal place (27%)
  - including multiple HSR graphic options on the front of pack – usually the stars accompanied by a separate energy icon on the front of pack (17%)
- technical variations – which can change the meaning or content of the HSR graphic.
  - The most common technical variation was products displaying the incorrect Nominated Reference Measure (NRM). This was an error specific to non-dairy beverages and confectionery products, where the Style Guide allows the use of industry-agreed standardised serve sizes to inform the energy icon. This highlights an area of confusion for both industry and consumers, as detailed later in this Chapter.

Similarly, in New Zealand, very few inconsistencies were identified between the HSR displayed and the Style Guide. The most common area of design variation was related to the legibility and general visibility of the HSR graphic on the pack (4% of products sampled). The main source of technical variation was the use of incorrect NRMs, particularly in relation to non-alcoholic beverages and confectionery products.

As discussed in Chapter 7, it is recommended that the Guide for Industry and the Style Guide be combined, revised and strengthened to provide greater clarity and certainty for industry regarding HSR System expectations.

Compliance with the HSR Calculator

In Australia, the NHF independently verified the HSR on a sample of 500 products to assess whether manufacturers were correctly calculating the HSR (such verification did not occur in New Zealand). 10% of products sampled in 2018 displayed the incorrect HSR, with 5% overstating it and 5% understating it.

The NHF acknowledged that:

- information used to calculate the HSR was drawn from FoodTrack, which uses information from the NIP and ingredients label but does not include FVNL content and, in some cases, fibre content

- missing or incomplete information was imputed from other equivalent products, and depending on the information missing, different approaches were taken to its imputation.

While non-compliance appeared to increase over the four years from 2% in 2014 to 10% in 2018, over the same period the proportion of products assessed with missing or incomplete information (such that the NHF had to estimate values used to calculate the HSR) increased from 3% to 62%.

The Review acknowledges that verification of HSRs based on estimated values could impact the veracity of the NHF's findings.

Consumer awareness and ability to use the HSR System correctly

Awareness, trust and confidence

Awareness, trust and confidence in the HSR System are important predictors of a consumer's likelihood to use the HSR System in the future.

In both Australia and New Zealand, prompted and unprompted awareness of the HSR System has significantly increased over the last few years:

- prompted, 83% of Australian consumers and 76% of New Zealand consumers are aware of the HSR System. This has increased from 57% in Australia in 2016 and 38% in New Zealand in 2015
- unprompted, 20% of Australian consumers and 16% of New Zealand consumers recognise the HSR (increasing from as low as 3% in 2015 in New Zealand).

In Australia, trust and confidence in the HSR System has grown over time:

- trust has increased at 8% per year and there has been a 6% per year increase in the perceived credibility of the HSR System. In 2018, almost 60% of consumers trusted the HSR System
- confidence in the HSR System has also increased significantly over the three years. In 2016, a majority of consumers were not confident in the System. However, confidence had increased to just over half in 2017 and further increased to almost 70% in 2018.

In New Zealand, although there have been encouraging improvements in awareness, knowledge and use of the HSR since 2015, levels of trust have remained similar between 2015 and 2018 (40% say they trust the HSR System). The main reason cited for negative perceptions of the System was that the HSR 'is something companies use to sell more products'.

New Zealand monitoring data shows that consumers who had seen the Government campaign were significantly more likely to express confidence in the HSR System compared to those who didn't (52% compared with 42%).

Chapter 4 includes further information about government campaigns and the focus on addressing consumer perceptions.

Ease of use and correct use

In Australia, most consumers agree that the HSR System makes identifying healthier products easier (77%). The majority of Australian consumers understand that the HSR provides a rating of the product's healthiness (56%) and that a product with five stars is the healthiest choice (88%).

Similar results have been achieved in New Zealand, where ease of use was examined in the context of the 2018 HSR System campaign. Of consumers who had seen the campaign, 66% agreed it makes it easier to decide which packaged foods are healthier (compared to 56% of consumers who had not seen the campaign). 68% of New Zealand consumers correctly identified that the product with more stars within a food category is healthier.

However, Australians and New Zealanders are not always aware that the HSR should be used to compare similar products, with more than half of consumers in Australia and New Zealand agreeing that the HSR can be used across different categories.

While this seems concerning, in practice this may not be a significant issue. New Zealand monitoring data shows that, even though consumers think they can compare across categories, few shoppers actually do so.

Likewise, in Australia, when consumers are presented with two products and asked whether they could or would use the HSR to compare the products, they exhibited a better understanding that the HSR should only be used to compare similar products.

As discussed in Chapter 4, this misconception is being addressed through the publication of online materials and release of a new campaign in Australia in February 2019, which educates consumers about using the HSR to compare similar products. The HSR System Twitter feed also reinforces this message.

Other research consistently indicates that consumers find the HSR System easy to use and prefer it to other interpretive labelling:

- One study[18] assessed the effects of different FoPL schemes (the HSR System, multiple traffic light labels, DIG, recommendations/warnings) against the NIP. While recommendations/warnings resulted in more healthy food choices, participants reported that the HSR System was easier to understand than traffic lights or DIGs and that the HSR was more useful than the NIP.
- Other research published in 2016[19] found that the HSR System was the most preferred FoPL (against DIGs and traffic light labelling). Most participants reported being motivated to use interpretive FoPLs (particularly the HSR) to make choices about foods consumed as part of regular daily meals, but not for discretionary foods consumed as snacks or desserts.
  - This finding was supported by a similar study published in 2017[20], which explored Australian consumers' preferences for different types and attributes of FoPLs. It found that the HSR System was the most preferred FoPL at 44% (against DIG and traffic light labelling). Respondents found the HSR System easy to use, interpretive and prominent.
  - Subsequent research[21,22] found that the HSR better enabled Australians to determine healthier product options than the DIG and traffic light labelling and resulted in healthier choices in simulated choice scenarios compared to the DIG and traffic light labelling.

[18] Neal, B, Crino, M, Dunford, E, Gao, A, Greenland, R, Li, N, Ngai, J, Ni Mhurchu, C, Pettigrew, S, Sacks, G, Webster, J & Wu JHY November 2017, 'Effects of different types of Front-of-Pack Labelling information on the healthiness of food purchases – a Randomised Controlled Trial', *Nutrients*, vol. 9, no. 12, p. 1284.

[19] Talati, Z, Pettigrew, S, Kelly, B & Ball, K, 2016 'Consumers' responses to front-of-pack labels that vary by interpretive content', *Appetite*, vol. 101, pp. 205-213.

[20] Pettigrew, S, Talati, Z, Miller, C, Dixon, H, Kelly, B, & Ball, K 2017 'The types and aspects of front-of-pack food labelling schemes preferred by adults and children', *Appetite*, vol. 109, pp. 115-123

[21] Talati, Z, Pettigrew, S, Kelly, B, Ball, K, Hughes, C, Kelly, B, Neal, B, & Dixon, H, 2017 'The relative ability of different front-of-pack labels to assist consumers discriminate between healthy, moderately healthy, and unhealthy foods', *Food quality and preference*, vol. 59, pp. 109-113

[22] Talati, Z, Norman, R, Pettigrew, S, Neal, B, Kelly, B, Dixon, H, Ball, K, Miller, C, & Shilton, T 2017 'The impact of interpretive and reductive front-of-pack labels on food choice and willingness to pay' *International Journal of Behavioural Nutrition and Physical Activity*, vol. 14, no. 1, p. 171

A number of studies have also examined how consumers use the HSR and the particular products on which consumers find interpretive labelling most useful:

- A study published in July 2017[23] investigated how nutrition labels (including the HSR System and UK Traffic Light Labels, with the NIP as the control) are used in real-world shopping situations and how they affect dietary choices and patterns. The study found that use of FoPL, including the HSR, led to significantly healthier products being purchased.
- A related article[24] found there was significant association between FoPL use and the healthiness of products purchased, with shoppers most likely to use FoPL for convenience foods, cereals, snack foods, bread and bakery products and oils.

Influencing purchasing decisions

To determine the impact of the HSR as a public health intervention, a key consideration is whether the HSR is actually influencing purchasing decisions.

In Australia, almost 70% of surveyed consumers recalled purchasing an HSR product in the last three months. Of these, one third were influenced to purchase a product with more stars. This equates to 23% of all consumers being influenced by the HSR to change their purchasing behaviour to purchase a product with more stars.

Males, people with a university education, Aboriginal and Torres Strait Island peoples and people in the normal weight range are more likely to be influenced by the HSR of a product. At the household level, those in the metropolitan regions, those where a language other than English is spoken or households with gross income greater than $50,000 per year are also more likely to be influenced by the HSR of a product.

Likewise, in New Zealand three in five consumers (59%) who have used the HSR say it encouraged them to buy a product they would not normally purchase.

- Among shoppers in the general population who are aware of the HSR System, 37% report using the HSR to help choose a packaged food compared to 27% in 2015. This equates to 28% of all shoppers in the general population, which is significantly more than in 2015 (10%).
- Use of the HSR has also significantly increased as a percentage of all shoppers for low income earners (36% in 2018 compared to 14% in 2015), Māori people (33% in 2018 compared to 6% in 2015) and Pacific Islanders (39% in 2018 compared to 25% in 2015).

These results demonstrate that the HSR has significant potential as a public health intervention. Key to the ongoing success of the intervention is to continue increasing awareness and use of the HSR, building confidence in the HSR and encouraging its display across a wide range of products.

Reformulation

Of those products displaying an HSR in 2018 that were available prior to implementation of the HSR in Australia, 58% have been reformulated to some extent. Those displaying the HSR had statistically significant reductions in energy and saturated fat content over the four years since the System was introduced compared to those not displaying the HSR.

[23] Ni Mhurchu, C, Volkova, K, Jiang, Y, Eyles, H, Michie, J, Neal, B, Blakely, T, Swinburn, B & Rayner, M 'Effects of interpretive nutrition labels on consumer food purchases: the Starlight randomized controlled trial', *The American Journal of Clinical Nutrition*, vol. 105, pp. 695-704.

[24] Ni Mhurchu, C, Eyles, H, Jiang, Y & Blakely, T 2018, 'Do nutrition labels influence healthier food choices? Analysis of label viewing behaviour and subsequent food purchases in a labelling intervention trial', *Appetite*, vol. 121, pp 360-365.

Analysis of 929 products displaying the HSR in New Zealand shows that 79% have been reformulated since 2014 to change at least one key nutrient (energy, saturated fat, sugar, sodium, protein or fibre) by a minimum of 5%. While the majority of these changes could not be attributed solely to the HSR, there was a statistically significant reduction in sodium content in products displaying the HSR, compared to products that did not display the HSR.

A number of retailers and manufacturers provided the Review with examples of products that have been reformulated to reduce sodium, sugars and/or saturated fat as a direct result of the HSR System. For example:

- Woolworths has reformulated a number of private label products to increase the HSR and has set HSR targets to guide the development of a number of product ranges. This has resulted in some positive reformulation, including:
  - mueslis – reformulated to increase the HSR from 4 to 4.5 or 5
  - muesli bars – reformulated to increase the HSR from 3 to 3.5
  - processed cheese – reformulated to increase the HSR from 0.5 to 2
  - fresh ready meals and soups – all required to be formulated to have an HSR of at least 4
- One manufacturer conducted a program of work to reformulate their muesli bar range to ensure an average HSR of 4 across the range (where they previously received HSRs of between 2.5 and 3). The changes made included reductions in sugars, saturated fat and sodium and increases in wholegrain and fibre to boost the nutritional profile and the HSRs of these products. The manufacturer also reformulated one breakfast cereal to reduce sugar content by 12%, halve saturated fat content and double wholegrain and fibre.
- Another manufacturer undertook reformulation to improve the HSR of one of their breakfast cereals from 2.5 to 4 when the HSR System was first implemented. This included reducing total sugars and increasing dietary fibre content by adding wholegrain.

This feedback is consistent with published research:

- An Australian study published in May 2018[25] analysed the change in composition for products displaying HSR from 2013 to 2016. It found the average energy density of products displaying the HSR was lower following implementation of the HSR System. Products that did not display the HSR showed less reduction (or even some increases) in energy density. The study found that the impact of the HSR System on product reformulation has the potential to generate increasing health benefits and reduce mean population body weight.
- A New Zealand study published in August 2017[26] showed that products displaying the HSR had significantly lower mean saturated fat and sodium, and higher fibre content, than products not displaying the HSR. Small but statistically significant changes were observed in mean energy density, sodium and fibre contents of products displaying the HSR compared with their composition prior to their adoption of the HSR. Reformulation of products displaying the HSR was greater than that of products that did not display the HSR over the same period. It was concluded that the roll-out of the HSR System is driving healthier reformulation of some products.

[25] Mantilla Herrera, A, Crino, M, Erskin, H, Sacks, G, Anathapavan, J, Ni Mhurchu, C & Lee, Y 2018 'Cost-effectiveness of product reformulation in response to the Health Start Rating food labelling system in Australia', *Nutrients*, vol. 10, no. 614, pp. 2-16.
[26] Ni Mhurchu, C, Eyles, H & Choi, Y, 2017 'Effects of a Voluntary Front-of-Pack Nutrition Labelling System on packaged food reformulation: the Health Star Rating system in New Zealand', *Nutrients*, vol. 9, no. 918.

Alignment with Dietary Guidelines

What are the Dietary Guidelines?

Dietary Guidelines aim to promote the benefits of healthy eating to reduce the risk of diet-related disease and improve health and wellbeing. Dietary Guidelines provide advice on the types and amounts of foods and beverages people should consume, with recommendations based on whole foods rather than specific food components or nutrients (noting that they do recommend avoiding foods high in certain nutrients). The ADG classify foods as FFG (foods that form the basis of a healthy diet) or discretionary (foods to limit in the diet). While the NZEAG do not use these terms, advice is consistent regarding recommendations to limit intake of foods high in added sugars, sodium and/or saturated fats.

In contrast to Dietary Guidelines, the HSR System uses a product's nutritional composition to provide an empirical scale of its relative healthiness. Given the different focus of the HSR System, it cannot be expected to align entirely with the Dietary Guidelines, nor communicate all of the messages embedded in the Dietary Guidelines (including in relation to portion size/quantity or a person's whole diet).

One way of examining the alignment of the HSR System with Dietary Guidelines, particularly in the Australian context is to consider how well it scores products against the AHS Discretionary Foods List. The Discretionary Foods List was developed by the ABS for the purpose of the 2011-12 National Nutrition and Physical Activity Survey. It provides a binary system for classifying foods into FFG and discretionary (foods for limited intake) based on the ADG. While the List has some limitations (and is currently under review by the NHMRC), it provides a general indication of foods that are FFG or discretionary. A principle in the development of the HSR System was to ensure, where possible, that products eligible to carry a health claim and FFG foods score an HSR ≥ 3, while discretionary foods score an HSR < 3.[27] Recent monitoring data shows that 95% of consumers believe an HSR ≥ 4 is 'healthy', while 97% of consumers believe an HSR ≤3.5 is 'unhealthy'.[28]

A number of reviews have examined the alignment of the HSR System with Dietary Guidelines, consistently showing that healthy FFG foods receive higher HSRs than discretionary foods:

- Research undertaken by the George Institute published in April 2018[29] found there is 86.6% overall alignment with the ADG, with FFG foods scoring an average HSR of 4 and discretionary foods scoring an average HSR of 2.
  - Of the outliers, 83% were characterised as an ADG failure (based on the AHS Discretionary Foods List due to challenges in defining FFG and discretionary) rather than a failure of the HSR System.
  - 17% of the outliers were attributed to issues with the HSR System, including in relation to sauces, dressings, spreads and dips, savoury snacks, meats and meat products, convenience foods, fruits and sweetened yoghurts.
- A study published in January 2018[30] found the median HSR displayed on discretionary foods was 2.5, significantly lower than the median HSR of 4 for FFG foods.

[27] TAG technical paper, October 2018, *History and development of the HSR algorithm*, p.11
[28] National Heart Foundation, 2018, *Report on the monitoring of the implementation of the Health Star Rating system: Area of Enquiry 2 – Consumer awareness and ability to use the Health Star Rating system correctly*, prepared for the Department of Health
[29] Jones, A, Radholm, K & Neal, B 2018, 'Defining 'Unhealthy': a systematic analysis of alignment between the Australian Dietary Guidelines and the Health Star Rating System', *Nutrients,* vol. 10, no. 501.
[30] Lawrence, M, Dickie, S & Woods, J 2018, 'Do nutrient-based front-of-pack labelling schemes support or undermine food-based dietary guideline recommendations? Lessons from the Australian Health Star Rating System', *Nutrients*, vol. 5.

- Research commissioned by the NSW Ministry of Health in 2015[31] found that 79% of foods and beverages classified as FFG score an HSR of ≥ 3.5, while only 14% of foods and beverages classified as discretionary score an HSR of ≥ 3.5.
  - Outliers included discretionary products scoring ≥3.5 (snack bars, dairy desserts, ice confection and salty snacks) and FFG products scoring < 3.5 (some cheeses and yoghurts).
- A study published in May 2016[32] found that, for dairy products, the HSR System largely aligned with the NPSC used for determining eligibility for health claims. Both systems appeared to be consistent with the ADG for dairy products, with lower-fat products rating higher.
- A study published in August 2016[33] found the HSR System rated packaged dairy foods and beverages broadly in line with the ADG by assigning FFG foods higher HSRs and discretionary foods lower HSRs.

Modelling undertaken by the TAG also established 72% overall alignment with the ADG[34] (with 84% of FFG foods scoring an HSR ≥ 3 and 61% of discretionary foods scoring an HSR < 3):

- Outliers were classified as FFG foods with an HSR < 3 and discretionary foods with an HSR ≥ 3
  - FFG outliers were mainly cheeses and yoghurts.
  - Discretionary outliers were mainly savoury sauces and gravies (31%), soups and stocks (12%), ice creams and confections (11%) and muesli bars (8%).
- Of the 1,435 outliers:
  - 32% indicate potential issues with the HSR System. These products included some muesli/cereal bars, recipes/sauce mixes, ice confection, ice cream, dry gravy mixes, salty snacks, coffee-based beverages, sugar-based desserts (jelly and dairy desserts), processed meats and breakfast cereals
  - 68% indicate potential issues with the AHS Discretionary Foods List:
    - 31% had either a low HSR and a relatively poor nutritional profile but were categorised as FFG (for example, some rice crackers, instant noodles, peanut butter, smoked salmon products), or had a high HSR and a relatively healthy nutritional profile but were categorised as discretionary (for example, some tomato-based sauces, crumbed fish, vegetable and legume-based dips and oven baked potato products).
    - 37% had a low HSR and a poor nutritional profile *when compared with other products within their category* but were categorised as FFG (for example, full fat cheeses, yoghurts, flavoured milks, custards).

Examination of outliers has been one of the factors that has influenced the areas for focus in determining improvements to the HSR Calculator (refer Chapter 5).

HSR System graphics

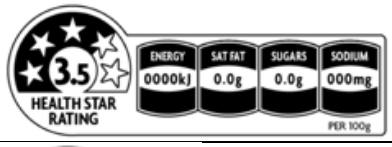
Manufacturers may choose to use one of five HSR graphics. As illustrated in the table below, Options 1 to 3 display the stars along with energy and/or nutrient icons, Option 4 is the stars alone and Option 5 is the energy icon without the stars.

The HSR Style Guide states that 'it is the responsibility of food companies to determine which presentation format is most suitable for their products, based on available pack size and label space. Food companies are encouraged to use as many elements of the HSR graphic as possible consistent with the above hierarchy'.

[31] Dunford, E, Cobcroft, M, Thomas, M, & Wu, J.H. 2015, *Technical Report: Alignment of NSW Healthy Food Provision Policy with the Health Star Rating System*, NSW Ministry of Health, Sydney.
[32] Wellard, L, Hughes, C & Watson, W 2016, 'Investigating nutrient profiling and Health Star Ratings on core dairy products in Australia', *Public Health Nutrition*, vol. 19, no. 15, pp. 2860-2865.
[33] Carrad, A, Louie, JCY, Yeatman, HR, Dunford, EK, Neal, BC & Flood, VM 2016 'A nutrient profiling assessment of packaged foods using two star-based front-of-pack labels', *Public Health Nutrition*, vol. 19, no. 12, pp. 2165-2174.
[34] TAG technical paper, October 2018, *Alignment of the HSR System with the Australian and New Zealand Dietary Guidelines: Analysis of alignment and identification of outliers.*

Monitoring data from the NHF and MPI is summarised in Table 2.

Table 2: HSR graphic options, proportion of products displaying and consumer preference for each option

	HSR graphic option	% products displaying the HSR using graphic	% products displaying the HSR using graphic	% consumers preferring graphic
		Australia	New Zealand	Data only available for Australia
1		5	7	63
2		23	18	10
3		17	17	5
4		39	42	21
5		15	16	< 1

While most preferred by consumers, Option 1, which includes an optional positive nutrient, is the least used icon. This is because only some foods are eligible to display the positive nutrient, as regulated by the Code *Schedule 4 – Nutrition, Health and Related Claims*[35].

The energy icon (Option 5), which is the least preferred graphic, is used on 15 to 16% of products displaying the HSR in Australia and New Zealand. It is most commonly used on non-dairy beverages (68%), confectionery (68%) and edible oils (38%) and is rarely used in other food groups.

In addition to low consumer preference for Option 5: only 2% of consumers find it the easiest graphic to understand; 3% find it easiest to recognise; and 4% find it provides sufficient information.

Based on discussions with decision makers at the time the HSR System was implemented, Option 5 was included in the System to accommodate non-dairy beverages and confectionery. It is the confectionery industry's preferred graphic because it can be calculated based on an industry agreed standardised serve size (discussed below) rather than 100g/100mL. Some public health professionals have also suggested the stars should not apply to non-dairy beverages or confectionery because it may denote a positive health status even when displaying low stars (suggesting that warning labels be used on these products to discourage their purchase)[36]. Some industry groups have also suggested that placing stars on confectionery has the potential to devalue the stars and reduce the integrity of the System.

[35] FSANZ, 2017, *Australia New Zealand Food Standards Code – Schedule 4 Nutrition, health and related claims*

[36] Lawrence, M, Pollard, C, Vidgen, H, Woods, J 2019 'The Health Star Rating system – is its reductionist (nutrient) approach a benefit or risk for tackling dietary risk factors?' *Public Health Res Pract*., vol. 29 no. 1.

The Review acknowledges these points but on balance considers that Option 5 does not align with the objectives of the HSR System to provide 'convenient, relevant and readily understood nutrition information and/or guidance on food packs to assist consumers to make informed food purchases and healthier eating choices'.

The Review considers that Option 5 should be removed from the HSR System for the following reasons:

- **monitoring data shows that consumers do not prefer or understand how to use the energy icon**
  - While kilojoule labelling is increasingly being used on menu boards and in the eat-out environment to support consumers to select lower energy food and beverages, the evidence illustrates that, in the context of the HSR, the energy icon does not provide consumers with meaningful interpretive information to enable them to make healthier choices.
  - A study published in March 2013 found that Australian consumers have a poor understanding of energy and kilojoules and, in some cases, perceive higher energy products as healthy and 'providing sustained energy'.[37]
  - A literature review of consumer understanding and use of food labels found that the relationship between calories and energy was poorly understood.[38]
  - A WHO Health Evidence Network report reviewed government endorsed FoPL in 15 member states and found that numerical information on the contribution that a serving of food made to an adult's daily recommended intake was poorly understood. It also found that presenting information on a per serve basis often resulted in consumer misunderstanding and overconsumption.[39]
  - Research exploring the consumer perspective on front of pack nutrition information looked at Guideline Daily Amounts, which provide FoPL information on energy and daily intake, such as the energy icon. It was found that these icons require considerable consumer interpretation and nutrition knowledge, that consumers may have difficulty in understanding energy needs, and they provide 'no help with relative healthiness'.[40]
  - A study exploring how consumers use and make sense of FoPLs, including reductive FoPL that does not provide an assessment of a product's nutritional quality, such as the energy icon or the DIG found that consumers strongly preferred evaluative FoPL with a summary indicator (the HSR stars) over reductive FoPL such as the energy icon.[41]

- **within the non-dairy beverage category, both the energy icon and stars are used**. The energy icon is generally used for low scoring products and the stars for high scoring products (see Figure 2). This suggests that the graphics are being differentially applied by industry which also makes it difficult for consumers to compare products
  - A study published in August 2018 found that of the 762 non-dairy beverages sampled, 6.8% displayed the stars while 28.5% displayed the energy icon. For beverages displaying the stars, 94.2% displayed an HSR of 5 and, of these, 85.7% were 100% fruit and vegetable juices.[42]

[37] Watson, W, Chapman, K, King, L, Kelly, B, Hughes, C, Chun Yu Louie, J, Crawford, J, Gill, T, 2011 'How well do Australian shoppers understand energy terms on food labels?' *Public Health Nutrition*, vol. 16, no. 3, pp. 409-417.
[38] Cowburn, G, & Stockley, L 2005 'Consumer understanding and use of nutrition labelling: A systematic review' *Public Health Nutrition*, vol. 8, no.1, pp. 21-28.
[39] Kelly, B, Jewell, Jo 2018 *What is the evidence on policy specifications, development processes and effectiveness of existing front-of-pack labelling policies in the WHO European Region?* Copenhagen: WHO Regional Office for Europe, Health Evidence Network (HEN) synthesis report 61
[40] Kleef, EV, Dagevos, H 2015 'The Growing Role of Front-of-Pack Nutrition Profile Labelling: A Consumer Perspective on Key Issues and Controversies' *Crit Rev Food Sci Nutr*., vol. 55, no. 3, pp.291-303.
[41] Talati, Z, Pettigrew, S, Kelly, B & Ball, K, 2016 'Consumers' responses to front-of-pack labels that vary by interpretive content', *Appetite*, vol. 101, pp. 205-213.
[42] Brownbill, A, Braunack-Meye, A & Miller, C 2018, 'Health Star Ratings: What's on the labels of Australian beverages?', *Health Promotion Journal of Australia,* vol. 29, pp. 1-5.

Figure 2: This illustrates the different graphics found on non-dairy beverages – HSRs are generally displayed for products that score an HSR of 5; otherwise, the energy icon is displayed. The mix of HSR graphics in this category does not support consumer decision making.

- unlike other products, non-dairy beverages and confectionery can use **industry agreed standardised serve sizes to display nutritional and energy information**, such that it is made even more difficult to compare the energy icon across these products
  - A product's HSR is based on a 100g or 100mL portion so the stars displayed on a product do not change depending on the portion size. This is not the case for the energy icon.
  - Generally, energy and nutrient information are presented on a 'per 100g' or 'per 100mL' basis. Where the product is presented as an individual serve for consumption by one person in a single sitting, the energy and nutrient information may be presented on a 'per 100g/100mL' basis or on a 'per pack' basis (see Figure 3).
  - Where an industry agreed standardised serve sizes exists, products may display the energy and nutrient information on a 'per 100g/100mL' basis, a 'per pack' basis or a 'per [serve size]' basis. Beverages and confectionery are the only products with industry-agreed standardised serve sizes:
    - for beverages with a product size > 600mL, the serve size is 250mL
    - for beverages with a product size ≤ 600mL, the serve size is the entire product
    - for confectionery the serve size is 25g +/-5g.
  - This means that the energy values displayed on the front of beverage and confectionery products can vary dramatically without there being a significant difference in the nutritional composition of the product. This further reduces the utility of the energy icon to support consumers in making comparisons between products in these categories (see Figure 4).

Figure 3: The energy and nutrient information of a product can generally be provided on a 'per 100g', 'per 100mL' or 'per pack' basis.

Figure 4: Berry & Coconut bar displays an HSR of 5; Bounty displays the energy icon based on a serve size of 'one piece' (28.5g) showing 592kJ; Kit-Kat displays the energy icon based on a serve size of 'two fingers' (22.5g) showing 490kJ; Turkish Delight displays the energy icon based on a serve size of 'one bar' (55g) showing 868kJ; Twirl displays the energy icon based on a serve size of 'one stick' (19.5g) showing 438kJ; and Nutella with breadsticks displays the energy icon based on a serve size of 48g showing 1012kJ. However, the Review considers it likely all of these items would be consumed as a single serve.[43,44]

- campaigns and promotional materials regarding the HSR System focus on recognising and understanding how to use the stars. **Few stakeholders recognise the energy icon as an alternative to the stars**.
  - Some industry stakeholders have suggested the energy icon could be better promoted as part of the HSR System and have offered to contribute to building awareness around the energy icon.
  - The Review does not consider it viable to promote both the stars and the energy icon as part of the HSR System and explain to consumers when they should look for one graphic or another.
  - It is not clear what message would be communicated to consumers about the energy value they should seek for different products. While some stakeholders have suggested that consumers could be encouraged to look across a range of products and select the lowest energy product, the Review does not consider this feasible in a supermarket setting where consumers are selecting many individual products and when the unit sizes being compared can differ markedly. While sugar and energy are significant drivers of the HSR in confectionery and non-dairy beverages, the energy icon does not consider other important components of the products (for example, saturated fat is also relevant for chocolate-based confectionery).
  - The energy icon is also easily confused with the DIG implemented by industry in 2006.

The confectionery industry has noted that confectionery is a treat food, contributes a small amount of total dietary energy to Australian diets (between 2 to 3%) and that Option 5 is necessary for flexibility, to align with other messaging including the *Be Treatwise* campaign in Australia and to accommodate small pack sizes.

In submissions to the Draft Review Report, industry provided research to demonstrate that the energy icon, in combination with the *Be treatwise* logo (see Figure 5), is well understood by consumers and provides relevant information to allow consumers to choose between confectionery items. It is acknowledged that the *Be treatwise* logo, in combination with the suggested serve size, may support consumers to understand serving size and to limit their intake of confectionery products. However, the HSR System is not intended to provide information about portion size but to help discriminate between two similar products. While the *Be treatwise* logo in combination with a suggested serve size is a useful tool, it is not reliant on the energy icon (many manufacturers display it alongside the DIG rather than the HSR energy icon), nor does it provide the same information as the stars.

[43] Vermeer, W, Bruins, B, Steenhuis, I, 2010 'Two pack king size chocolate bars. Can we manage our consumption?' *Appetite*, vol. 54, pp. 414-417.
[44] Hieke, S, Palascha, A, Jola, C, Wills, J, Raats, M 2016 'The pack size effect: influence on consumer perceptions of potion sizes' *Appetite*, vol. 96, pp. 225-238.

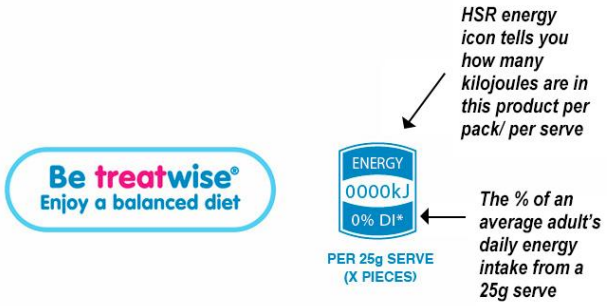


Figure 5: The confectionery industry's *Be treatwise* logo, which is often accompanied by the energy icon or the DIG and a suggested serve size (Image sourced from the Be treatwise website, April 2019).

Confectionery is not unique in terms of being a 'treat' or a discretionary food (noting that other foods such as chips, cakes and sweet biscuits generally do not use the energy icon). Further, removal of Option 5 from the HSR System does not preclude manufacturers from displaying the recommended portion size on the front of packaging for confectionery products, nor from using industry developed campaigns such as *Be Treatwise.*

It should, however, be clear that the energy icon in isolation is not akin to the stars (and should not be counted towards HSR uptake targets) because it does not provide interpretive information that supports consumers to quickly compare like products as they shop.

Chapter 4 – Promotion of the Health Star Rating System

Summary

There was limited promotional support when the HSR System was first implemented in June 2014. Since this time, a wide range of campaigns and other resources have been launched – some funded by the FRSC (formal campaigns in Australia and New Zealand), some implemented by jurisdictions and some led by industry and public health educators. These have included print and online advertisements and information, in-store advertisements, social media communications and an information phoneline and email address.

The formal HSR System campaigns have been evaluated at regular intervals with the results published and used to inform subsequent HSR System messaging. The results of HSR System campaign evaluations are available on the HSR System website. Overall, these evaluations found that the campaigns were well structured to suit the initial implementation of the HSR System. The evaluations also identified areas where consumer responses highlighted gaps in knowledge or understanding and assisted in setting the direction for subsequent phases of the campaigns.

The Review acknowledges stakeholders' concerns about the initial campaigns, including:

- the focus of the campaigns in promoting the HSR System, rather than positioning the System in the context of healthy eating more broadly or as 'one tool in the toolbox' to support healthy eating
- the level of investment (with some criticising the lack of investment and others criticising the perceived high level of investment to promote the HSR System relative to investment to promote healthy eating)
- the lack of promotion of Dietary Guidelines and the complementary value of the HSR System
- the tagline of the Australian campaign lacking nuance, i.e. 'the more stars the healthier' does not support consumers to understand that they should compare HSRs within rather than across categories.

Some of these concerns have since been addressed, with campaign messaging adjusted and a range of initiatives implemented (by governments and others) promoting the HSR System in the context of healthy eating more broadly.

The Review also acknowledges the significant investment of many retailers, manufacturers and public health professionals in promoting the HSR System, educating consumers and addressing queries and concerns regarding the System. Appendix C demonstrates the breadth of promotion in Australia and New Zealand.

It is important that all stakeholders continue to promote the HSR System, such that messages are communicated in a way that suits the specific needs and concerns of each stakeholder group. This enables the benefits of the investment to date to be fully realised.

Recommendation 3: **Governments, industry, public health and consumer bodies continue to promote the HSR System. Government promotion over the next two years should:**

- communicate the reason for changes to the HSR System
- target specific areas of consumer misunderstanding or gaps in awareness
- highlight government endorsement of the HSR System
- position the HSR System in the context of broader healthy eating messages.

The above recommendation relies on effective, responsive and appropriately resourced governance arrangements (refer Chapter 6).

HSR System campaigns

Australia

In Australia, the first HSR System campaign was launched in 2014 with online advertising. A second phase of the campaign was delivered from June to August 2015 and a third phase occurred from April to June 2016. The fourth phase of the campaign took place from February to June 2017. A further phase (launched on 6 February 2019) includes television, digital/online and in-store advertisements and stakeholder kits.

The initial phase of the campaign aimed to support the implementation of the HSR System through activities designed to educate consumers and encourage increased industry participation. More specifically, the primary objectives of the initial phases of the campaign were to:

- raise awareness of the HSR System's implementation
- develop an understanding of how to interpret the HSR
- prompt consideration of nutrition and how the HSR System can support decision making in this area
- develop consumer confidence in the HSR System as an independent, informative and easy to use nutritional guide.[45]

Campaign development is informed by the SMAG, while the messaging and delivery are informed by market research and testing, including to ensure that communication materials appeal to, and can be readily understood by key target groups. Target groups included groups experiencing, or at risk of, higher rates of obesity or nutrition-related chronic illness. This included lower socio-economic consumers, Indigenous people, culturally and linguistically diverse groups and rural and remote populations.

While the focus of the messaging differed depending on the phase of the campaign, the key messages communicated through the initial phases of the campaign included:

> *The more stars, the healthier the choice.*
>
> *Choosing healthier food is getting easier with the introduction of Health Star Ratings on the front of many packaged foods.*
>
> *Ranging from ½ to 5 stars, Health Stars help you make healthier choices at a glance.*
>
> *The number of stars is based on energy, nutrients such as saturated fat, sugars, sodium and protein and the fruit and vegetable content.*
>
> *To find out more, visit the Health Star Rating website.*

In more recent years, the campaign has focused on messages about how best to use the HSR and on addressing areas of confusion such as how the stars are calculated. In 2019, the messaging continues to focus on how to use the HSR to compare similar products in the context of a broader healthy diet.

Over the first four phases of the campaign (from 2013-14 to 2018-19) approximately $7.6 million[46] has been expended on the development and delivery of the social marketing including through:

- print advertisements

[45] *Objectives of the HSR campaign in Australia*, accessed 29 January 2019

[46] Note that a significant amount of funding was rolled over to the 2018-19 financial year such that total funding for social marketing and education in Australia to June 2019 is likely to be $12 million.

- out of home advertisements
- online advertisements (square and 'sky-scraper' formats)
- mobile specific advertisements
- online pre-roll videos (played in full before YouTube videos, within catch-up TV etc.)
- a taste.com.au Taste Health Hotline
- in-store shelf and trolley advertisements
- Twitter and Pinterest communications (including tips and links to Dietary Guidelines messaging).

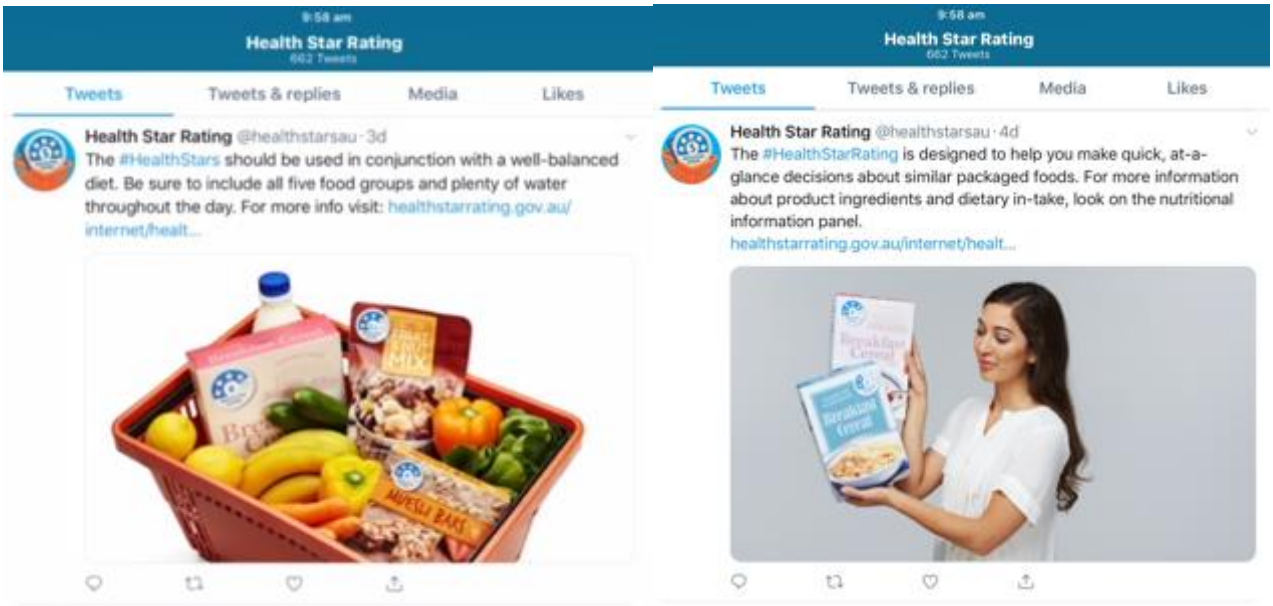


Figure 6: Examples of Twitter communications about the HSR System.

Throughout the campaign, monitoring and evaluations were undertaken to assess the impact of the campaign and to inform adjustments to the campaign materials. These included a number of surveys, each based on a nationally representative sample of approximately 1,000 main/joint grocery buyers aged 18 years and older across Australia, including representation from key target groups.

The results of campaign evaluations were reported to the HSRAC and the FRSC and were also made publicly available on the HSR System website.

From 2015 to 2017, the campaign evaluations found that:

- between 18% and 25% of respondents had seen the HSR System campaigns (with awareness levels relatively even across the population)
- respondents considered the campaign advertisements to be clear, easy to understand and informative
- over 73% (up to 77% in 2017) of respondents who recognised the campaign materials carried out at least one of the behavioural objectives of the campaign: using the HSR in-store and trying to eat healthier being the strongest outcomes.

The most recent evaluation found that messaging should no longer focus on driving awareness (with 75% of grocery shoppers aware of the campaign). Rather, future communications should focus on correct use of the HSR System and correcting areas of confusion and misconceptions, including clarification around:

- which products can display the HSR, given 41% of respondents agreed that 'food is healthy if it displays the HSR' and 35% of respondents agreed that 'you should only purchase foods with an HSR'
- how the HSR should be used to compare products within a category, given that 48% of respondents agreed that the HSR 'makes it easier for me to compare products that are in different sections of the supermarket'.[47]

The most recent phase of the campaign commenced in February 2019 and aims to address these misconceptions. The advertisements were accompanied by media kits available to industry, public health and consumer groups so that the key messages could be reinforced by these groups.

New Zealand

In New Zealand, a separate HSR System campaign was developed by the HPA, commencing in March 2016. The first phase of the campaign featured a series of videos playing as advertisements on TV-on-demand web channels and YouTube depicting animated breakfast cereal boxes.[48] The final phase from late 2017 to early 2018 included television advertisements featuring the animated breakfast cereal boxes from the online clips in the earlier phases. The early phases of the campaign aimed to set the scene, engage key stakeholders and initiate public awareness, whilst the later phase aimed to increase trust in the System.

The campaign also included:

- posters in bus shelters in Auckland, Wellington and Christchurch
- vertical fins and floor banners in the cereal aisle of 174 Countdown stores for one month and in 50 stores for approximately three months
- a targeted digital mailer to New World shoppers
- advertisements in Countdown's household grocery mailers (over three months)
- cinema advertising through Val Morgan for three weeks
- in-store radio advertisements
- online shopping web banners and bag inserts.

Key messages from the New Zealand campaigns were:

> *The more stars the healthier the food.*
>
> *The stars come from independent food experts.*
>
> *Stars give an indication of how healthy the ingredients of the food are.*
>
> *Healthier is easy when you look for the stars.*

[47] Brown, G 2017, Health Star Rating System: Campaign Evaluation Report June 2017, Pollinate Research, NSW.
[48] Health Star Rating Advisory Committee, April 2017, Two year progress review report on the implementation of the Health Star Rating system – June 2014 – June 2016, p. 25.

Figure 7: Examples of campaign print, web tiles and out of home advertising in New Zealand.

Ongoing evaluations of the campaigns were undertaken, relying on surveys each representing a cross section of over 1,600 New Zealand consumers. A baseline survey was conducted in 2015 with two follow up waves in 2016 and 2018. All three waves monitored awareness, recognition, understanding and correct use of the HSR System. The 2016 and 2018 survey waves also measured perceptions and possible impacts of the HSR System campaign. Evaluations are available on the MPI website.

Some of the key findings from the most recent evaluation of the campaign impacts include:

- respondents who had seen the 2018 campaign had higher levels of awareness, use, trust and understanding of the HSR System and generally found the System easier to use than respondents who had not seen the campaign
- when asked what the campaign advertising was trying to tell them, responses indicated that the majority of respondents broadly understood the key messages about the System (noting some specific areas of confusion highlighted below)
- amongst low income shoppers, those who had seen the campaign advertising were more likely to check whether packaged food is healthy compared with those who had not seen the campaign.

The evaluation further highlighted some areas of confusion that could be clarified by future communication around the HSR System, including:

- reinforcing that the HSR System was developed by government with industry and public health, given that only 29% of respondents agreed that 'the HSR System is backed by government' and close to half (44%) of respondents agreed that the HSR is 'just something companies use to sell more products'
- how the HSR should be used to compare products within a category, given that 33% of respondents understood that the HSR couldn't be used to compare dissimilar products.[49]

There are no further HSR campaign activities funded for New Zealand.

Other promotion of the HSR System

In addition to the campaigns, a wide range of resources have been developed by governments to support industry to implement the HSR System and to assist consumers to understand and use the HSR. The

[49] Colmar Brunton 2018, *2018 Health Star Rating monitoring and evaluation: Year 2 follow-up research report.* Wellington: Health Promotion Agency, p. 5.

development and dissemination of these resources is largely managed by the HSR Secretariat in Australia and the MPI in New Zealand.

Some of the activities and resources include:

- a consumer and industry information/enquiry service
  - Each year the service receives approximately 500 calls and 500 emails from industry, public health, consumer organisations and members of the public seeking information about the HSR System.
- HSR System stakeholder kits (for use in both Australia and New Zealand) that include:
  - media fact sheets and key HSR messages
  - industry and consumer frequently asked questions
  - example tweets and posts
  - infographics describing how to use the HSR System
- a range of fact sheets available on both the HSR System website and the MPI website
- a Nutrition and Activity Hub (through the HPA website) that includes campaign materials (videos, web tiles, articles for newsletters, webinars and other information about the System)
- regular workshops and public forums on the HSR System
  - In 2014 and 2015 these largely focused on disseminating information about the HSR System and obtaining feedback from stakeholders about their experiences or issues with the System. In 2016, 2017 and 2018 many of these workshops have focused on opportunities to improve the System, including in relation to the rules relating to the form of the food ('as prepared').
- presentations and posters at public health and industry conferences and forums
- a peer-reviewed paper on the development and implementation of the system to be published in an Australian and New Zealand journal on public health practice.

Over the course of the Review, non-government stakeholders have also provided numerous examples of how they promote the HSR. These have included:

- large retailers educating consumers about the HSR though in-store radio
- industry sponsored print materials, product inserts and packaging information about the HSR
- industry peak body support for manufacturers wanting to use the HSR
- HSR System related promotions in-store including on-shelf promotions
- information about the HSR on the websites of manufacturers and peak bodies (industry and public health)
- more than 35 peer-reviewed journal articles investigating various aspects of the HSR System
- presentations on the HSR System by public health experts and nutritionists at conferences.

Appendix C includes examples of the different ways stakeholders promote the HSR System.

Complementary initiatives

In the first round of submissions to the Review (2017), a number of stakeholders expressed concern about the lack of broader healthy eating initiatives. A range of initiatives now exist that promote healthier eating and drinking. This includes:

- joint initiatives between government, food industry bodies and public health groups focusing on increased health knowledge, healthier choices and better health outcomes. In both Australia and New Zealand this has included initiatives aimed at:
  - portion control
  - communication, education and meal planning on whole foods and total diet – based on Dietary Guidelines (including limiting intakes of added sugar, salt and saturated fat)

  - reformulation to optimise the appropriate balance of nutrients and ingredients in foods, including to reduce added sugars
- a dedicated Australian Government website (Eat for Health) promoting the ADG, including downloadable posters and brochures for use in different settings and tips for eating well
- a wide range of initiatives aimed at encouraging consumption of water and reducing consumption of sugary drinks. For example, the Australian Government 'Healthy Bodies Need Healthy Drinks' initiative, the Northern Territory 'Swap Soft Drinks for Water', the New Zealand Government '100% water' resources health promotion and the Tasmanian 'Think before you drink' campaign.

Further details about some of the initiatives are included at Appendix C.

Future promotion

Significant resources have been invested by governments, industry, public health professionals and others promoting healthy eating and the HSR System.

The Review recognises that many stakeholders consider this investment to be inadequate relative to the impact of diet on health and the burden of disease due to poor nutrition, whereas other stakeholders seek a wind-back of government investment in the HSR System and a redirection of resources to the promotion of healthy eating more broadly.

Like most stakeholders, the Review considers that with some changes (to better align the HSR System with Dietary Guidelines, improve public confidence and drive increased uptake), the System has significant potential as an ongoing, effective public health intervention.

The implementation of Review recommendations will result in changes to the HSR System and the graphics that consumers see on some products. This has the potential to generate confusion during the transition period, which must be addressed by clear messaging advising consumers that changes are being made to improve the System and make it easier for them to make healthier choices.

The Review recommends that the HSRAC and the SMAG in Australia and the MPI and HPA in New Zealand work with creative agencies to identify simple messages to explain to consumers that they may see changes to HSRs, and this reflects the fact that improvements have been made to the System to better meet their needs.

The Review recommends that governments, industry, public health and consumer bodies continue to promote the HSR System. To realise the benefits of investment to-date (and to support the system through the upcoming period of change) Government investment should be targeted over the next two years to:

- communicate simply the reason why changes are being made to improve the HSR System
- target specific areas of consumer misunderstanding or gaps in awareness and highlight government endorsement of the HSR System
- be responsive to the outcomes of monitoring and public criticism of the HSR System
- highlight government endorsement of the HSR System
  - Based on international practice, visible government endorsement of the HSR System has the potential to significantly improve consumer confidence in the System.[50]
- be positioned in the context of broader healthy eating messages
- continue to include a range of readily accessible, reliable resources that stakeholders can use to inform their own promotion of the HSR System.

[50] Kelly B, Jewell J, 2018 What is the evidence on the policy specifications, development processes and effectiveness of existing front-of-pack food labelling policies in the WHO European region?, WHO Regional Office for Europe: Copenhagen.

Chapter 5 – The Health Star Rating Calculator

Summary

As discussed in Chapter 3, the HSR System is generally performing well in terms of uptake, consumer awareness and use, and driving positive reformulation. TAG modelling and other research also indicates that the HSR System broadly aligns with Dietary Guidelines in terms of calculating HSRs in line with scientific evidence regarding nutrition. There are, however, some areas where:

- the HSR Calculator does not perform as expected
- Dietary Guidelines do not align with consumer expectations and consumers have expressed concerns about the HSR on certain products
- changes could be made to reflect current nutrition science, address legitimate stakeholder concerns about the System and further drive uptake and positive reformulation by manufacturers.

Based on the above, the Review recommends a package of System enhancements that achieve the following outcomes.

Improved alignment with Dietary Guidelines

The proposed changes better align with Dietary Guidelines by:

- ensuring that fruits and vegetables that are fresh, frozen or canned without added fat, sugars or sodium receive an HSR of 5
- increasing the HSRs of FFG dairy foods (such as yoghurts and cheeses), while reducing the HSRs for less healthy alternatives
- strengthening the negative impact of total sugars and high levels of sodium in the HSR Calculator, consistent with Dietary Guideline recommendations to limit intake of foods containing added salt and sugars
- providing a more nuanced way of calculating the HSRs for non-dairy beverages, such that products high in sugars have lower HSRs than water and similar products.

These changes would result in a greater proportion of FFG foods scoring HSRs of 3.5 and above, and a greater proportion of discretionary foods scoring HSRs of 3 and below. Based on modelling in the TAG database, the number of FFG foods scoring 3.5 and above would increase from 2,479 to 2,696 and the number of discretionary foods scoring less than 3.5 would increase from 1,568 to 1,592.

Increased influence of total sugars on a product's HSR

The most significant area of stakeholder concern with respect to the HSR Calculator relates to the treatment of sugars, with concerns raised around the perceived inappropriately high HSRs of some products with relatively high levels of sugars. This issue was most commonly raised in relation to breakfast cereals and ready to eat foods particularly in relation to some breakfast cereals with over 25g of sugars per 100g and some snack bars with over 20g of sugars per 100g scoring an HSR of 4.

While these HSRs are accurate based on the HSR Calculator, they do not align with consumer expectations, which has impacted confidence in the System.[51]

[51] National Heart Foundation 2019, Report on the monitoring of the implementation of the HSR System in the first four years of implementation: June 2014 to June 2018, prepared for the Commonwealth Department of Health, p. 48.

Strengthening treatment of sugars, while improving the HSRs of some fruits and vegetables and FFG dairy products (recognising their intrinsic sugars content), effectively targets foods with added sugars. This is consistent with Dietary Guideline recommendations to limit intake of foods with added sugars and the worldwide effort to reduce consumption of free sugars, noting the impact on energy and obesity.

A more nuanced way of calculating the HSRs for non-dairy beverages to better reflect their relative nutritional value

The HSR Calculator does not work effectively to support consumers to choose healthier options in the non-dairy beverages category. Dietary Guidelines clearly indicate water as the healthiest beverage and, due to a policy decision made prior to implementation of the System, water has an automatic HSR of 5. However, beverages closest in nutritional profile to water score HSRs of around 2, while high sugar fruit juices can score HSRs of 5. This is of particular concern given that 52% of free sugars in Australian diets[52] and 17% of total sugars in New Zealand diets[53] comes from non-dairy/non-alcoholic beverages. In Australia, the majority comes from soft drinks, electrolyte and energy drinks (19%), fruit and vegetable juices and drinks (13%) and cordials (5%)[54].

The Review recommends that changes be made to the HSR Calculator such that those products closest in nutritional profile to water, with the same hydrating qualities and no or low kilojoules (for example, unsweetened flavoured waters) would score high HSRs, followed by low sugar fruit and vegetable juices (such as tomato or grapefruit juices) and other low sugar beverages, with high sugar beverages (for example, soft drinks, sports drinks and iced teas) scoring low HSRs.

This addresses ongoing stakeholder concerns and provides a solution in a category of products that are intrinsically difficult to nutritionally profile.

Changes to target some specific product categories identified as outliers

Research and modelling have identified some product types as outliers in that their HSRs are too low or too high relative to Dietary Guideline recommendations. Targeted changes have been made to address these areas of concern, including to:

- increase the HSRs of FFG dairy foods such as yoghurts and cheeses, such that comparability is improved between similar dairy products
- decrease the HSRs for jellies and water-based ice confections so their HSRs align with nutritionally similar non-dairy beverages.

The combination of recommended changes to the HSR Calculator described in this Chapter are interdependent to achieve the above outcomes and should be implemented as a consolidated package.

Over the course of the Review, many options for possible changes to the HSR System were explored. These were discussed in consultation papers published prior to the Review Report[55] and are outlined in summary at Appendix D.

Recommendation 4:	**A package of changes be made to the way the HSR is calculated for foods to better align with Dietary Guidelines, reflect emerging evidence, address consumer concerns and encourage positive reformulation.**

[52] Australian Bureau of Statistics, *Australian Health Survey 2011-12.*
[53] Ministry of Health, *A Focus on Nutrition: Key Findings of the 2008/09 New Zealand Adult Nutrition Survey.*
[54] Australian Bureau of Statistics, *Australian Health Survey 2011-12.*
[55] mpconsulting, 2018, Consultation Paper: Options for System Enhancement

Recommendation 5:	**Changes be made to the way the HSR is calculated for non-dairy beverages, based on adjusted sugars, energy and FVNL points, to better discern water (and beverages similar in nutritional profile to water) from high energy drinks.**

The HSR Calculator

The HSR Calculator is based on the NPSC algorithm, with modifications made to create a graduated system to describe the 'healthiness' of a food (the HSR). The same nutrient and ingredient information is required for calculating a food's HSR and for determining nutrition, health and related claims. This has the advantage of using the same risk associated (negative) and health benefit (positive) components across both labelling schemes.

The HSR Calculator requires consideration of the:

- category of the food (the HSR Calculator is based on six food categories)
- form of the food (specifically whether the HSR should be calculated for a product 'as sold' or 'as prepared')
- risk associated components of foods that Dietary Guidelines recommend reducing intake of (saturated fat, sugars, sodium) and energy
- positive components that Dietary Guidelines recommend eating (protein, dietary fibre, FVNL).

The Review considered the appropriateness of each of these elements of the HSR Calculator.

Categories of food

The HSR Calculator is adjusted for different HSR categories to account for the differing nutrient compositions of different types of foods. An overview of each of the HSR categories is provided in the Glossary to this Report.

When the HSR Calculator was adapted from the NPSC, three new dairy categories were created. Dairy categories were created to provide advantages to FFG dairy products relative to non-dairy products with similar nutritional content. The additional categories are based on definitions in the Code and have set criteria to distinguish dairy from other foods and a slightly different way of assigning HSRs so as to better align with Dietary Guidelines.[56]

For the most part, these categories are working well in distinguishing FFG dairy foods from discretionary foods. However, some issues have been raised by stakeholders regarding the treatment of dairy desserts and cheeses. These are discussed later in this Chapter.

Other stakeholders have suggested that Category 2 is too large and covers a diverse range of foods, which makes it difficult for the Calculator to accurately score all foods in this category. To address this, the Review explored the creation of additional categories or sub-categories. However, this would require further definition of what is included/excluded in each category, which in turn would likely exacerbate existing challenges experienced in determining which category certain foods belong to and the intersection between categories.

[56] TAG technical paper, October 2018, *History and development of the HSR algorithm*, p. 11.

A UK study published in 2010[57] found that nutrient profile models should be category specific but with a limited number of categories; models using a large number of categories are unhelpful for promoting a healthy diet.

The Review concluded that the HSR categories should remain as they are but, as discussed below, adjustments be made to address the specific issues in Category 2D and 3D.

Form of the food

The HSR Calculator requires users to determine the form of the food for which the HSR will be calculated. For example, whether the food requires preparation with other foods, consumed as sold, prepared and consumed according to the label directions, reconstituted with water or drained. This is commonly known as the 'as prepared' rules.

In parallel to the Review, the HSRAC has reappraised these rules. This issue was progressed in advance of the Review due to significant stakeholder interest.

In September-October 2017, the HSRAC consulted with stakeholders (through a public submission process and workshops) to discuss options and to seek feedback on proposed solutions. Four options were proposed and the potential impacts of each option were modelled by the TAG (further information is available at the HSR website). The HSRAC sought additional stakeholder feedback on these options before agreeing on a preferred option for recommendation to the Forum.

The Forum agreed in June 2018 to limit the application of the HSR System to the product 'as sold.' That is, the HSR should be calculated and displayed on the basis of the product as it appears on the shelf. Specific exemptions were proposed for products that must be rehydrated with water, diluted with water, drained of water or drained of brine.[58]

The Forum also agreed that this decision be implemented alongside any changes resulting from this Review.

Components of the HSR Calculator

The components of the HSR Calculator are the same as those considered in the NPSC and are those considered relevant to risk or prevention of diet-related chronic disease (energy, sodium, saturated fat, total sugars, protein, fibre and FVNL ingredients).[59]

Risk associated components

The rationale for the inclusion of the risk-associated components in the HSR Calculator is strong and relatively uncontested:

- Dietary Guidelines recommend limiting intake of foods containing added sugars, sodium and saturated fats
  - The reasons for including total sugars rather than added sugars in the HSR Calculator are discussed in Appendix D.
- these components are consistent with those most commonly used in international FoPL schemes

[57] Scarborough, P, Arambepola, C, Kaur, A, Bhatnagar, P & Rayner, M 2010, 'Should nutrient profile models be 'category specific' or 'across-the-board'? A comparison of the two systems using diets of British adults', *European Journal of Clinical Nutrition*, vol. 64, pp. 553-560.
[58] Department of Health, 8 August 2018, *Form of the Food ('As Prepared') Rules*, accessed 27 August 2018
[59] TAG technical paper, October 2018, *History and development of the HSR algorithm*, p. 11.

  - Based on a survey conducted by the WHO, the most commonly used nutrients and ingredients in FoPL schemes in Codex member countries across the world are: sodium/salt, energy, total sugars and saturated fats[60], which align with the negative components considered by the HSR System.
- these components all appear in the NIP.

Positive components

The positive components of the HSR Calculator are:

- FVNL
  - FVNL content may contribute to a product's HSR. A product must contain > 40% FVNL or ≥ 25% concentrated FVNL content before points can be received.
  - The inclusion of FVNL is intended to provide benefit to foods high in FVNL content and offset intrinsic sugars content (for instance, in fruit), which is captured as total sugars.[61]
  - Fruit and vegetable content are considered in the French Nutri-Score system and Finnish Heart Symbol.[62]
- protein
  - Protein provides a pragmatic, if indirect, surrogate for iron and calcium content[63], which are not mandated in the NIP and both of which are lacking to some degree in Australian and New Zealander diets.
  - The inclusion of protein also serves to offset the intrinsic sugars content (lactose) in dairy.
  - Many FFG foods (nuts, legumes, dairy, lean meats, cereals) are being appropriately promoted through the consideration of protein content.
- fibre
  - Dietary fibre is usually sourced from cereals, fruits and vegetables.
  - High dietary fibre intake has been linked to lower rates of overweight and obesity, Type 2 Diabetes, risk of cardiovascular disease and some cancers.[64,65]
  - Dietary Guidelines promote the consumption of wholegrain cereals, but the HSR Calculator does not directly account for wholegrain content. However, a wholegrain food may achieve a higher HSR than it otherwise would through the use of fibre modifying points as a proxy.

Proposed HSR System enhancements

Fruits and vegetables

The HSR Calculator currently attributes different HSRs to different fruits and vegetables based on their nutritional profile (for example, raspberries, spinach and beans score 5; apples, potatoes, zucchini and cabbage score 4.5; pineapples and lychees score 4), whereas Dietary Guidelines recommend eating a wide variety of fruits and vegetables without distinction. Fruits and vegetables are under consumed across

[60] Kelly, B, Jewell, Jo 2018 *What is the evidence on policy specifications, development processes and effectiveness of existing front-of-pack labelling policies in the WHO European Region?* Copenhagen: WHO Regional Office for Europe, Health Evidence Network (HEN) synthesis report 61, p. 41.
[61] TAG technical paper, October 2018, *Fruit, vegetable, nut and legume content*, p. 3.
[62] Kelly, B, Jewell, Jo 2018 What is the evidence on policy specifications, development processes and effectiveness of existing front-of-pack labelling policies in the WHO European Region? Copenhagen: WHO Regional Office for Europe, Health Evidence Network (HEN) synthesis report 61, p. 41.
[63] Rayner, M., Scarborough, P. & Lobstein, T 2009 The UK Ofcom Nutrient Profiling Model: Defining 'healthy' and 'unhealthy' foods and drinks for TV advertising for children
[64] NHMRC 2006 Nutrient Reference Values for Australia and New Zealand, accessed 10 January 2018.
[65] NHMRC 2013 Australian Dietary Guidelines (2013), accessed 10 January 2018.

Australia and New Zealand, with only 5.4% of Australians[66] and 41% of New Zealanders meeting their recommended daily intakes[67].

Research undertaken by Woolworths in 2016 and 2018 indicated that while consumers understand that fruits and vegetables are healthy, the range of HSRs across these products causes confusion.[68]

The different HSRs for different fruits and vegetables has become more obvious as fruits and vegetables are increasingly being packaged, with processed and/or packaged fruits and vegetables being among the product categories with the highest uptake of the HSR.

Recommendation 4A: Eligible fruits and vegetables automatically receive an HSR of 5.

This recommendation is intended to apply to packaged fruits and vegetables with a NIP including packaged fresh fruits and vegetables, as well as frozen and canned fruits and vegetables.

While the HSR may be used in connection with unpackaged foods or foods without a NIP (such as online and through in-store banners and shelf tags), this is not the primary aim of the System.

The Review recommends that an automatic HSR of 5 be awarded to the following packaged fruits and vegetables with a NIP ('eligible fruits and vegetables'):

- unprocessed fruits and vegetables (including legumes except peanuts)
- fruits and vegetables (including legumes except peanuts) that have been processed only to the extent they have been peeled, blanched, chopped or frozen such that their nutritional profile has not changed.

This excludes any fruits, vegetables or legumes that have been juiced, pureed, made into a concentrate, dried or have any additional ingredient including sugar, salt, fat, emulsifiers, colours, flavours or other additives (other than those as defined by the Code *Standard 1.3.1 Food additives*).

For fruit and vegetable products (such as dried fruits and vegetables, juices, purees, canned fruits with added sugar and canned vegetables with added salt), the HSR Calculator would continue to determine the relevant HSR. Table 3 provides examples of what would and would not be considered eligible for an automatic HSR of 5.

[66] Australian Bureau of Statistics, *National Health Survey: First Results, 2017-18, Fruit and vegetable consumption.*
[67] Ministry of Health New Zealand, *Eating and Activity Guidelines for New Zealand Adults*, p.12.
[68] Woolworths submission to the HSR System Review, October 2018.

Table 3: Examples of products that would and would not be eligible for automatic HSR of 5

Products eligible for automatic HSR of 5	Products not eligible for automatic HSR of 5
• salad mixes with no added dressing, croutons or other foods • chopped pineapple, watermelon and rockmelon • frozen peas or berries • apple slices covered in a glazing agent such as beeswax to improve appearance and prevent browning • canned water chestnuts with water and acidity regulator (citric acid) to improve shelf-life stability • canned corn in water • frozen coconut chunks • fresh mushrooms, fresh herbs	• dried fruits – higher energy density and 'stickiness' which may have implications for dental caries • fruit juice – low fibre content and higher energy and sugars density • pickled vegetables – higher sodium and reduced fibre content • canned pears in juice or syrup – free sugars with higher energy density • frozen chips – added oil/fat and sodium • canned vegetables in brine – added sodium • asparagus spears in water with added sugars and sodium • canned tomatoes in tomato juice – free sugars with higher energy density • peanuts – nutritional profile closer to that of nuts than legumes (high total fat content)

This recommendation:

- improves consistency with Dietary Guidelines in promoting the consumption of a variety of fruits and vegetables
  - 2% (103) of products in the TAG database would see an increase in their HSR (of between 0.5 to 1).
  - 97% (32) of fresh fruits and 48% (30) of fresh vegetables in the TAG database would see an increase in their HSRs.
  - 1% (1) of minimally processed fruits and 13% (40) of minimally processed vegetables in the TAG database would also see an increase in their HSRs (noting there is limited representation in this category in the TAG database, so the true proportion is likely higher).
- is supported by stakeholders
  - 72% of stakeholders responding to the October 2018 Consultation Paper supported this option, noting that it makes logical sense to consumers and will likely improve the public health impact of the HSR System.
- recognises that most consumers do not differentiate between the relative nutritional value of fruits (for example, comparing a pineapple to a raspberry)
  - While this approach would (to a small degree) lessen consumers' ability to differentiate between fruits and vegetables based on small nutritional differences, Dietary Guidelines do not distinguish between different types of fruits and vegetables, instead encouraging consumption of a wide range of these foods.
- ensures that fruit and vegetable juices would not score higher than their whole equivalents.

While not the objective of the HSR System, this recommendation would also:

- enable retailers to promote all fruits and vegetables as 5 stars
  - Researchers at Deakin University have trialled the promotion of fresh fruits and vegetables in supermarkets using posters to broadly indicate an HSR of 5 as part of the multicomponent Eat Well @ IGA intervention conducted in 2017-18.
  - Preliminary results from the trial indicate that it was easier to broadly promote all fruits and vegetables as 5 stars rather than promoting individual products.

- provide potential to increase sales and consumption of fruits and vegetables
  - Based on a survey conducted as part of the Eat Well @ IGA trial, both retailers and customers felt positively about promoting fruits and vegetables as 5 stars and noted it influenced purchasing.[69]
  - The trial found an overall increase of 0.2% for fresh fruit and vegetable sales in intervention stores compared with control stores in the intervention period, which translates to a relative increase of 1.5% given that 13% of all food sales were fresh fruits and vegetables.[70]

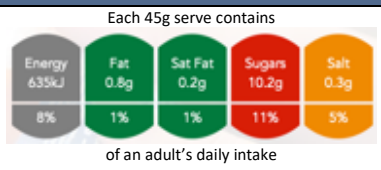
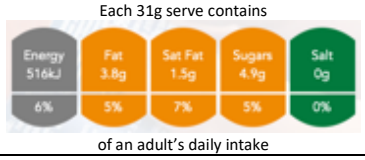
Sugars

Dietary Guidelines recommend limiting intake of foods and beverages containing added sugars to limit adverse health outcomes. The HSR Calculator indirectly targets added sugars through the inclusion of FVNL and protein in the Calculator, which offsets the intrinsic sugars present in fruits and dairy products.

The most significant area of stakeholder concern with respect to the HSR Calculator relates to the treatment of sugars, with concerns raised around the perceived inappropriately high HSRs of some products with relatively high levels of added sugars. Stakeholders referred to:

- certain breakfast cereals with 'high' levels of added sugars obtaining an HSR ≥ 3.5
  - TAG modelling highlights that the majority of products that score an HSR ≥ 4 and have a total sugar content of more than 15% are cereal products.[71]
  - Research conducted by the NSW Ministry of Health found that 35% of breakfast cereals rated as Amber (i.e. 'consume in moderation') by the NSW Health Traffic Light System score an HSR ≥ 3.5.[72]
- the HSR System failing to adequately distinguish between added sugars and intrinsic sugars (noting that Dietary Guidelines recommend limiting intake of added sugars)
- the WHO Guidelines[73], which strongly recommend reduced intake of free sugars throughout the life course.

The below table provides an example of how these products of concern to stakeholders are scored under the HSR System, the UK Traffic Light System and the French Nutri-Score System.

Product	HSR System	UK Traffic Light System	French Nutri-Score System
Breakfast cereal			
Muesli Bar			

The extent to which there is an issue with the treatment of sugars in the HSR Calculator is contested, with stakeholders having differing views about the appropriateness of the HSRs on certain foods. From the

[69] Cameron A, Sacks G, Brown A, Ngan W, Isaacs J 2017 *Customer and staff perceptions of a supermarket marketing intervention to promote healthy eating*. Paper presented at: 15th World Congress on Public Health, 3-7 April 2018, Melbourne.
[70] Cameron A, et al. *Health Star Ratings on supermarket shelf tags to promote sales of the healthiest products store-wide*. Manuscript in preparation.
[71] TAG technical paper, October 2018, *Sugars (Added and Total),* pp. 46-47.
[72] Dunford, EK, Huang, L, Peters, SAE, Crino, M, Neal, BC & Ni Mhurchu, C 2018, 'Evaluation of alignment between the Health Claims Nutrient Profiling Scoring Criterion (NPSC) and the Health Star Rating (HSR) Nutrient Profiling Models', *Nutrients*, vol. 10, no. 8, p. 26.
[73] World Health Organization, 2015, Guideline: Sugars intake for adults and children, Geneva

Review's perspective, it is not possible to scientifically establish the parameters of the 'sugars problem'. However, it is desirable to:

- better align the HSR System with Dietary Guidelines (including to better discern FFG and discretionary foods) wherever possible
- address some of the consumer perceptions around the HSR Calculator's treatment of sugars (where these perceptions risk undermining confidence in the HSR System)
- make incremental changes to the HSR in order to drive consumption of foods with lower added sugars and to encourage reformulation of foods to reduce added sugars.

Recommendation 4B:	**Total sugars be more strongly penalised by revising the sugars table for Categories 1, 1D, 2 and 2D to a maximum of 25 points for > 99g/100g.**

The Review recommends changes to the HSR Calculator to increase the weighting of total sugars by changing the existing 22 point table to a 25 point table. The proposed points tables are at Appendix E. Increasing the points for total sugars means that products would receive more baseline points for the total sugars content, and therefore generally lower HSRs in foods where total sugars is an operative component.

This approach:

- improves alignment with Dietary Guideline recommendations to limit foods containing added sugars by reducing the HSRs for products relatively high in total sugars
  - 5% (278) of products in the TAG database would see a decrease in HSR of between 0.5 to 1.5.
  - The average total sugars content of all products impacted is 30.5g per 100g.
  - Breakfast cereals are most strongly impacted, with the HSRs for 44 breakfast cereals (representing 16% of products impacted) decreasing by between 0.5 to 1.5. All of these products have more than 17g of sugars per 100g.
  - Other products impacted (with a decrease of 0.5 stars) include: yoghurts and soft cheeses (56 products; 20% of products impacted), snack bars (17 products; 6% of products impacted), confectionery, sweetened dairy beverages, ice cream, jelly and ice confections, custards and desserts, sauces and condiments, biscuits and bakery products and processed fruits.
- targets products that have been assessed as outliers or that are of concern to stakeholders
  - This includes breakfast cereals, ready to eat foods such as muesli and cereal bars and sweetened and flavoured milks and yoghurts (as well as cakes and sweet biscuits, confectionery, ice creams and desserts, some jams and mayonnaises and some savoury sauces).
- results in changes to the points table which will mean the HSR System will not completely align with the NPSC but will continue to use total sugars consistent with the NPSC.

The option of a 30 point sugars table was also considered. However, while this reduced the HSRs of 13% (756) of products in the TAG database, more than half of these were FFG foods (386). The impacted FFG foods included 43% of the processed fruits in the TAG database, 33% of the breakfast cereals, milks, yoghurts, cheeses, nuts and processed vegetables. While a stronger sugars table may address more of the discretionary products of concern than a 25 point table, it also disproportionally impacts negatively on FFG foods.

Replacing total sugars with added sugars was also considered. As discussed in more detail at Appendix D, this is not recommended in advance of any agreement by the Forum to include added sugars in the NIP. Should added sugars be defined and mandated on the NIP (a process that is likely take in excess of three years by the time changes are made to the Code) consideration could be given to changes to the HSR System.

Sodium

The HSR Calculator does not effectively discriminate between products within Categories 1 and 2 that have significantly different sodium levels. At levels greater than 900mg/100g, a large change in sodium is required to have any impact on the baseline points a product receives for sodium content. This means that products could have quite different sodium levels but receive the same HSR. It may also be a disincentive for manufacturers to reformulate to reduce sodium, as large and unrealistic decreases may be required before an increase in the HSR is achieved.

This is because, for HSR Categories 1 and 2, the NPSC table that allocates up to 10 baseline points for sodium content > 900mg was extended to cover the entire food supply to a maximum of 30 baseline points for sodium content > 8,106mg/100g. For Category 3, the table was extended to a maximum of 30 baseline points for sodium content > 2,700mg/100g.

Extending the tables to cover products with sodium content up to > 8,106mg/100g results in large differences in sodium between the cut-offs for baseline points (i.e. a large change in sodium is required to have any impact on the baseline points a product receives for sodium content). However, the majority of products in the food supply have a sodium content < 900mg/100g (only 7% of products in the TAG database have a sodium content > 900mg/100g), making this high upper limit unnecessary.

TAG modelling and stakeholder feedback has highlighted concerns regarding specific products high in sodium that present as outliers, i.e. are discretionary (and may be considered high in sodium) but receive an HSR of 3.5 or greater, including:

- salty snacks (with a mean HSR of 3.5 and mean sodium content of 500mg/100g)
- processed meats (with a mean HSR of 3.5 and mean sodium content of 740mg/100g)
- savoury sauces and gravies
- soups and stocks
- dips, relishes and chutneys.

Separate research undertaken by the George Institute identified the following discretionary foods with products receiving an HSR of 3.5 or more but with sodium content > 600mg/100g, (which would qualify as a red traffic light under the current UK traffic light labelling system): ready to eat meals; pickled vegetables, relishes and chutneys; processed meats; sauces, liquid recipe bases, pasta sauces; vegetable-based dips, salsa; and salty snacks. This analysis also noted there were more discretionary products scoring HSR $\geq$ 3.5 with a red light for sodium (510), than a red light for saturated fat (235) or total sugars (296)[74].

Recommendation 4C:	**Sodium sensitivity be improved for products high in sodium (by reducing the maximum sodium levels used to determine baseline points for sodium in Categories 1, 1D, 2 and 2D) to better reflect the range of sodium levels in the food supply.**

It is recommended that changes be made to the HSR Calculator to reduce the upper limit of the sodium table for Categories 1, 1D, 2 and 2D from a maximum of 30 baseline points for sodium content > 8,106mg/100g to a maximum of 30 baseline points for sodium content > 2,700mg/100g, as per the sodium table for Category 3. To retain alignment with the NPSC, there would be no changes to the sodium table below 900mg/100g. The proposed points tables are at Appendix E.

[74] Jones, A, Radholm, K & Neal, B 2018, 'Defining 'Unhealthy': a systematic analysis of alignment between the Australian Dietary Guidelines and the Health Star Rating System', *Nutrients,* vol. 10, no. 501.

This approach:

- would improve differentiation between products with different sodium levels
  - Improved sodium sensitivity for products with sodium content between 900mg/100g and 2,700mg/100g, means products in this range can incur baseline points faster.
- provides some increased alignment with Dietary Guideline recommendations to limit intake of foods high in sodium
- would encourage reformulation in products with sodium levels > 900mg/100g
  - Adjusting the sodium baseline points to reduce the gap between cut offs above 900mg/100g will address feedback from industry that large gaps in baseline points are less likely to incentivise reformulation as the change required to pass cut-points is not practically or technologically feasible.
- retains alignment with the NPSC and aligns the sodium tables across all HSR categories
- would only impact products with sodium levels > 900mg/100g, so will not necessitate changes to the HSRs of a wide range of products or the majority of the Australian Healthy Food Partnership reformulation targets
  - 1% (58) of products in the TAG database would see a decrease in their HSR of between 0.5 to 1.0 as a result of this change.
  - Products impacted include some savoury sauces, stocks, meal bases, processed meats and preserved vegetable products.
  - The Healthy Food Partnership has developed proposed targets for the reformulation of sodium across a range of product categories.
- more appropriately reflects the range and frequency of sodium values in the food supply.
  - Less than 1% of products in the TAG database have sodium content greater than 2,700mg/100g, so there is little need for the sodium table to go beyond this level.

It is acknowledged that many stakeholders supported this recommendation but suggested that changes should be extended to below the 900mg/100g level (to address products such as salty snacks). Options explored but not adopted are discussed in Appendix D.

Dairy desserts and surfaced-ripened cheeses

The six categories within the HSR Calculator were created to allow different scaling within each category to ensure appropriate discrimination between FFG and discretionary foods. Dairy categories were created so that dairy products (which are a valuable source of calcium in the diet and recommended by Dietary Guidelines) were not penalised for their intrinsic sugars and fat content. These categories are designed such that FFG dairy products generally receive HSRs > 3.

Two key issues have been raised in relation to the way the HSR Calculator deals with the dairy categories (i.e. HSR Categories 1D, 2D and 3D):

- some FFG yoghurts in Category 2D have a lower HSR than nutritionally similar dairy desserts in Category 2
- some cheeses have HSRs below 3.5, despite being FFG.

Category 2D

Category 2D includes all cheeses with calcium content ≤ 320mg/100g, yoghurt and fermented milk products. Custards, desserts, cream cheeses, ice-creams and creams are not considered dairy foods by the HSR Calculator and, as such, are classified as Category 2 foods.

Due to the way the HSR Calculator deals with different categories, products in Category 2 may receive higher HSRs than nutritionally similar products in Category 2D. Stakeholders have noted that some Category 2D products (such as yoghurts) receive an HSR that is too low for an FFG food, which is not appropriate when compared to other products in Category 2 such as custards.

Since the implementation of the HSR System, yoghurts have undergone innovation such that there is a wide range of relative healthiness and nutrient profiles, ranging from 'pure' yoghurts through to those that are more similar to dairy desserts. Yoghurts also tend to be in the same location of the supermarket as custards, creams, cream cheeses and other dairy desserts (see Figure 8). While the HSR System is intended to provide a measure of a product's nutritional value relative to other products in its category, it is likely these products would be compared by consumers.

A study published in August 2018[75] found that yoghurts were an area of misalignment between the HSR System and the NPSC; 335 yoghurts had an HSR < 3.5 but were eligible to display health claims under the Code[76].

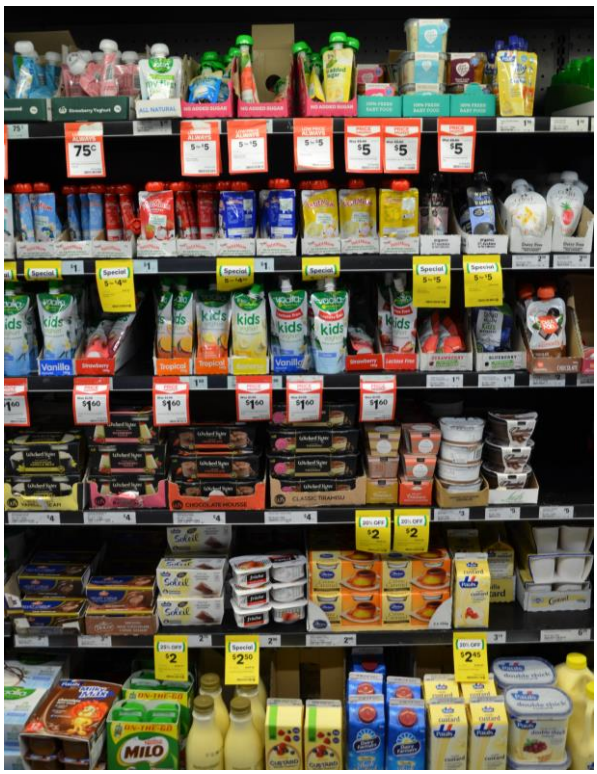


Figure 8: Yoghurts, custards and dairy desserts are found in the same section of the supermarket and are likely to be compared by consumers.

Category 3D

Category 3D includes all cheeses as defined in Standard 2.5.4 with calcium content > 320mg/100g[77].

Over the course of the Review, some stakeholders raised concerns regarding the treatment of cheeses under the HSR System, with some citing a study undertaken by the NSW Ministry of Health that found that 36% of cheeses have an HSR of < 3, despite all cheeses being classified as FFG[78].

The Review has found that this issue has predominantly arisen from a misinterpretation of the category inclusion criteria, stemming from the online HSR Calculator, which requires users to classify core dairy products as 'beverages' (Category 1D), 'yoghurt or soft cheese' (Category 2D) or 'cheese' (Category 3D). This has led users to inappropriately classify surface ripened cheeses (for example, brie and camembert, colloquially referred to as 'soft cheeses' by consumers) as Category 2D products. However, such products generally meet the calcium threshold to be included in Category 3D and are intended to be classified as such. Products intended to be captured as 'soft cheeses' for the purposes of Category 2D include cottage and ricotta cheeses, i.e. unripened cheeses.

[75] Dunford, EK, Huang, L, Peters, SAE, Crino, M, Neal, BC & Ni Mhurchu, C 2018, 'Evaluation of alignment between the Health Claims Nutrient Profiling Scoring Criterion (NPSC) and the Health Star Rating (HSR) Nutrient Profiling Models', *Nutrients*, vol. 10, no. 8, p. 1065.

[76] FSANZ, 2017, *Australia New Zealand Food Standards Code* – Schedule 4 Nutrition, health and related claims

[77] Calcium threshold defined in section S4-6 of *Australia New Zealand Food Standards Code* – Schedule 4 Nutrition, health and related claims.

[78] Dunford, EK, Huang, L, Peters, SAE, Crino, M, Neal, BC & Ni Mhurchu, C 2018, 'Evaluation of alignment between the Health Claims Nutrient Profiling Scoring Criterion (NPSC) and the Health Star Rating (HSR) Nutrient Profiling Models', *Nutrients*, vol. 10, no. 8, p. 60.

Recommendation 4D:	**Dairy categories be redefined (Category 2D to include dairy desserts and other chilled dairy products and Category 3D to include surface ripened cheeses) and rescaled to ensure healthier FFG options receive higher HSRs and improve comparability between dairy products.**

It is recommended that the definitions for Category 2D and Category 3D be amended and both categories rescaled.

Category 2D would include all 'spoonable' dairy foods, including yoghurts, custards, evaporated milks, dairy-based desserts (such as mousses, crème caramels, panna cottas) cream cheeses, creams, sour creams, crème fraiche and mascarpone. To be included in Category 2D, products still require ≤ 25% non-dairy ingredients. This excludes ice creams and gelatos and other dairy-based ice confections (i.e. those found in the freezer section of the supermarket) and condensed milks. Examples of products that would be included in and excluded from Category 2D are outlined in Table 4.

Table 4: Examples of products that would and would not be included in Category 2D

Cat 2D products	Products excluded from Cat 2D
Provided products contain ≤ 25% non-dairy ingredients: • cheeses with calcium content ≤ 320mg/100g • yoghurt (including those in squeezie pouches) • fermented milk products • custard • dairy desserts (mousse, crème caramel, panna cotta) • cream cheese • mascarpone • crème fraiche • evaporated milk • ricotta	• condensed milk • dairy-based ice confections • ice cream • gelato • pudding • rice pudding

The category would also be rescaled to maintain a spread of HSRs across products. Including additional discretionary products in Category 2D without rescaling would see a large cluster of products at the lower end of the HSR scale, which would not support consumers to choose between such products. Rescaling will redistribute the entire category: the addition of more 'unhealthy' products would condense the top end of the category (i.e. the HSRs would increase for some yoghurts, soft cheeses and healthier custards – those lower in total sugars and saturated fat); and the middle to lower end of the category would expand (i.e. the HSRs would decrease for some dairy desserts) to accommodate the new range of products.

Category 3D inclusion criterion would be clarified to include surfaced-ripened cheeses that meet the calcium content criterion (i.e. contain calcium > 320mg/100g[79]). This category would also require rescaling to maintain a spread of HSRs across products in the category. This effectively increases the HSRs for many FFG cheeses, while maintaining a range of HSRs such that consumers can differentiate the relative healthiness of different cheeses.

The rescaling for Categories 2D and 3D is included in Table E.3 at Appendix E.

These changes would generally ensure that less healthy products score lower HSRs than healthier alternatives. They would also:

[79] Calcium threshold defined in section S4-6 of *Australia New Zealand Food Standards Code* – *Schedule 4 Nutrition, health and related claims*.

- improve alignment with Dietary Guidelines in supporting consumers to discern between FFG and discretionary foods
  - As a result of these changes, 15% (806) of products in the TAG database would see a change in their HSR.
- improve comparability and discernment between yoghurts and other dairy products that consumers are likely to compare and consume in a similar way
  - 81% (336) of the yoghurts and unripened cheeses in the TAG database would see an increase in HSR of between 0.5 to 2.0. All but three of these products are considered FFG.
  - 44% (36) of healthier custards and dairy desserts within the custards and dairy desserts category would see an increase in HSR of between 0.5 to 1.0.
  - 82% (56) of creams, 70% (50) of cream cheeses and 16% (13) of custards and dairy desserts in the TAG database would see a decrease in HSR of between 0.5 to 1.5.
- recognise the health benefits of FFG cheeses, while retaining a spread of HSRs across the category.
  - 69% (304) FFG cheeses in the TAG database see an increase in HSR of 0.5.
  - Products in this category would still score HSRs of between 0.5 to 5, based predominantly on their sodium and saturated fat content.

Jellies and ice confection

Jellies and ice confections (for example, ice blocks, consisting primarily of water, flavouring and sugar) have been identified as outliers as they have an unhealthy nutritional profile but have HSRs of ≥ 3.[80] These outliers were confirmed by the George Institute[81] and NSW Health[82] who identified some jellies and ice confections scoring HSRs of ≥ 3.5 despite being discretionary foods with high sugar content.

While these products were not perceived as a significant area of concern for consumers, the HSRs they receive are inconsistent with Dietary Guideline recommendations to limit the intake of foods and drinks with added sugars.

Water-based ice confections and jellies are classified as Category 2, despite an ingredient and nutrient profile closer to non-dairy beverages (Category 1).

Recommendation 4E:	**Jellies and water-based ice confections be included in the Category 1 definition to decrease their HSRs and align them with nutritionally similar non-dairy beverages.**

This approach would redefine Category 1 to include water-based ice confections and jellies.

This would lower the HSRs for ice confection and jelly products and improve discrimination between high and low sugar products (better aligning with Dietary Guidelines). As a result of these changes, the HSRs of all water-based ice confections in the TAG database would decrease from between 3 to 3.5 to 0.5 to 1.0. The HSRs of all jellies in the TAG database would decrease from between 3 to 3.5 to between 0.5 to 1.0.

While the counter-intuitive classification of solid foods as beverages may confuse some consumers familiar with the workings of the HSR Calculator, the resulting HSRs on these products will be more logical.

[80] TAG technical paper, October 2018, *Alignment of the HSR system with the Australian and New Zealand Dietary Guidelines*.
[81] Jones, A, Radholm, K & Neal, B 2018, 'Defining 'Unhealthy': a systematic analysis of alignment between the Australian Dietary Guidelines and the Health Star Rating System', *Nutrients,* vol. 10, no. 501.
[82] Dunford, EK, Huang, L, Peters, SAE, Crino, M, Neal, BC & Ni Mhurchu, C 2018, 'Evaluation of alignment between the Health Claims Nutrient Profiling Scoring Criterion (NPSC) and the Health Star Rating (HSR) Nutrient Profiling Models', *Nutrients*, vol. 10, no. 8, p. 55.

Impact of all proposed System enhancements

To provide an indication of the potential impact of the combined System enhancements, modelling was undertaken using the TAG database. Based on best estimates, the TAG database represents approximately 37% of the reported 15,767 products eligible to display the HSR in the market[83].

As changes to non-dairy beverages have been modelled separately, the modelling described below was undertaken on a subset of the TAG database (of 5,522 food products) which excluded non-dairy beverages.

The modelling shows that the combined impact of preferred options resulted in changed HSRs (increase or decrease) to 1,235 (22%) of products in the TAG database, with HSRs changed by between 0.5 to 3 stars. Of these 1,235 products:

- **447 (8%) products** see a *decrease* in their HSRs:
  - More than 70% of these are discretionary foods, while the FFG products decreasing are those higher in sugars or sodium (such as breakfast cereals and processed fruits, vegetables and meats).
  - 11 (0.2%) decrease by 3 stars – these products are all jellies.
  - 54 (1%) decrease by 2.5 stars – these products are all jellies and ice confections (for example, ice blocks and sorbets).
  - 2 (0.1%) decrease by 2 stars – one dairy dessert and one ice confection.
  - 30 (0.5%) decrease by 1.5 stars – mostly creams, cream cheeses, custards/dairy desserts and two breakfast cereals.
  - 39 (0.7%) decrease by 1 star – these products are mostly creams, cream cheeses, breakfast cereals, custards/dairy desserts, muesli bars, processed meats and yeast spreads.
  - 311 (5.6%) decrease by 0.5 stars – these products are mostly creams, cream cheeses, custards/dairy desserts, breakfast cereals, sweetened milks, muesli bars, sugar-based desserts, biscuits, confectionery, dips, ice creams, savoury sauces, salty snacks and processed fruits, vegetables and meats.

- **788 (14%) products** see an *increase* in their HSRs:
  - More than 96% of these are FFG, while the discretionary products are mostly custards.
  - 6 (0.1%) increase by 2 stars – these products are all yoghurts.
  - 39 (0.7%) increase by 1.5 stars – these products are mostly yoghurts and unripened cheeses.
  - 165 (3%) increase by 1 star – these products are mostly yoghurts and unripened cheeses, some custards, fruits and vegetables.
  - 554 (10%) increase by 0.5 stars – these products include cheeses, yoghurts, some custards/dairy desserts, fruits and vegetables.

Figure 9 illustrates the proportion of products in the TAG database impacted by the proposed System enhancements outlined in Recommendation 4.

[83] Jones, A, Shahid, M & Neal, B 2018 'Uptake of Australia's Health Star Rating System', *Nutrients*, vol. 10, no. 8, 997, pp. 1-13.

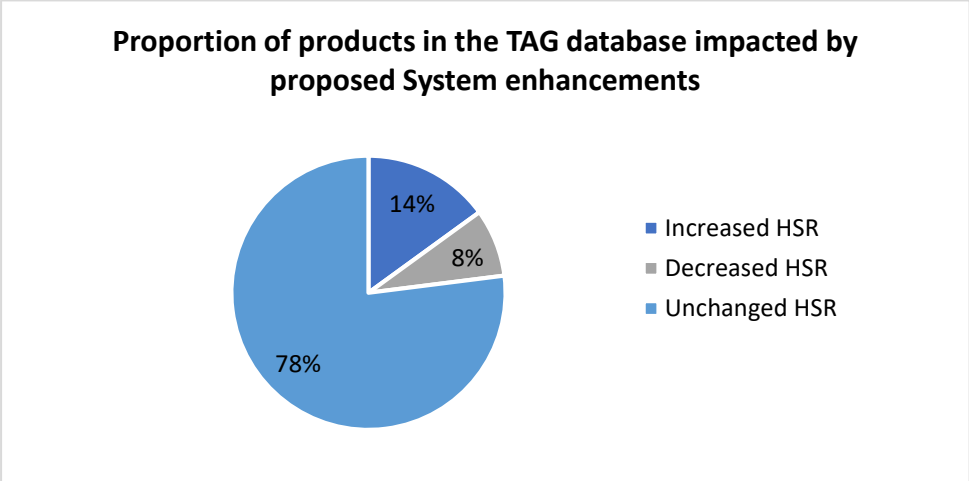


Figure 9: Proportion of products in the TAG database impacted by the recommendations for System enhancements.

While the TAG provides a representative sample of products and contains actual food composition data provided by industry (including real FVNL values rather than estimates), its limitations are acknowledged. As such, the impact of changes in Recommendation 4 has also been tested by the University of Auckland using the Nutritrack database and by the George Institute using the FoodSwitch database.

Modelling in Nutritrack indicated that the recommended changes impacted 15% (1,801) of products in the database, with the HSRs of 5.4% of products increasing and 9.6% decreasing. This is consistent with modelling in FoodSwitch, which showed that 16% (2,163) of products in the database were impacted, 6% increasing and 10% decreasing. Average results are illustrated in Figure 10.

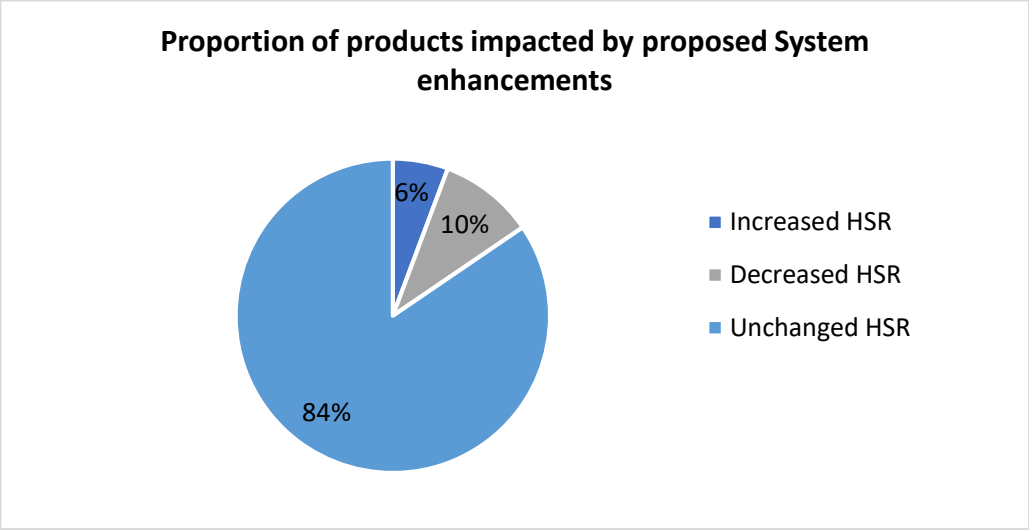


Figure 10: Proportion of products impacted by the recommendations for System enhancements based on modelling in the Nutritrack and FoodSwitch databases.

This modelling indicates that the TAG database overestimates the proportion of products impacted by Recommendation 4. This is likely due to the high proportion of dairy products (yoghurts and cheeses) present in the TAG database. Given the significantly different sizes of the databases (e.g. approximately 11,987 products modelled in Nutritrack, 14,691 in FoodSwitch, and 5,522 in the TAG database), for the purposes of estimating overall impact, the Review considers the Nutritrack and FoodSwitch databases provide a more meaningful estimate of the total proportion of products likely to be impacted by Recommendation 4.

While this provides a valid estimate of the proportion of products that could be impacted by the change, the actual number of products requiring a labelling change is much lower. This is because most products do not currently display the HSR. In 2017-18, the HSR appeared on approximately 31% of eligible products in Australia[84] and 21% of eligible products in New Zealand[85]. Given these statistics, actual labelling changes would only be required for approximately 5% of the products that are eligible to display the HSR in Australia and 3% of the eligible products in New Zealand.

Modelling in the TAG database, Nutritrack database and FoodSwitch database (including breakdown by food category) is at Appendix F.

Non-dairy beverages

Context

Non-dairy beverages are intrinsically difficult to profile nutritionally, as many have minimal nutritional value and the HSR Calculator depends on a balance of positive and negative components in order to derive an HSR.

As the result of a policy decision to encourage consumption of water prior to implementation of the System, packaged plain or carbonated water with no additives receives an automatic HSR of 5. For all other non-dairy beverages, the HSR is awarded based on the combination of nutrients. Non-dairy beverages with higher FVNL content (such as fruit juices) generally receive HSRs of 4 to 5, despite an average total sugars content of 9g/100g[86]. For other non-dairy beverages, the operative components of the HSR Calculator are energy and total sugars, which is why they generally receive lower HSRs.

Research highlights that non-dairy beverages are a major source of total sugars and the leading source of free sugars in Australian and New Zealander diets:

- 27% of total sugars in Australian diets comes from non-dairy beverages[87]
- 52% of free sugars in Australian diets comes from non-dairy beverages, with the leading contributors being soft drinks, electrolyte and energy drinks (19%), fruit and vegetable juices and drinks (13%) and cordial (5%)[88]
- 17% of total sugars in New Zealand diets comes from non-dairy beverages[89].

Given this significant contribution to total sugars in Australian and New Zealander diets, it is important that the HSR promotes healthier beverages that are lower in total sugars.

International FoPL schemes (such as the French Nutri-Score System) have encountered similar challenges in determining appropriate labelling for non-dairy beverages. Specific adaptations to the way the ratings are calculated in this category were made to the original Nutri-Score model to be consistent with French official nutritional recommendations.

The key issues in profiling non-dairy beverages relate to how the HSR Calculator deals with flavoured waters and fruit juices.

[84] National Heart Foundation 2019, *Report on the monitoring of the implementation of the HSR System in the first four years of implementation: June 2014 to June 2018*, prepared for the Commonwealth Department of Health, Canberra.
[85] New Zealand Food Safety 2018, *Health Star Rating – Monitoring implementation for the Five Year Review,* New Zealand Ministry for Primary Industries.
[86] Based on modelling in the TAG database
[87] Australian Bureau of Statistics, *Australian Health Survey 2011-12.*
[88] Australian Bureau of Statistics, *Australian Health Survey: Consumption of Added Sugars*, 2011-12.
[89] Ministry of Health, *A Focus on Nutrition: Key Findings of the 2008/09 New Zealand Adult Nutrition Survey.*

Flavoured waters

Flavoured waters generally receive HSRs of around 2, despite having no total sugars and being close in nutritional profile to plain water (see Figure 11). This is because they do not contain sugars, sodium, saturated fats, FVNL, fibre or protein and so do not score either baseline or modifying points in the HSR Calculator.

Figure 11: The Lightly Sparkling Mineral Water receives an HSR of 5, due to a policy decision made prior to implementation of the System, however the Lightly Sparkling Lemon Flavoured Mineral Water (which is almost identical in nutritional profile, with only 1kJ per 100g) receives an HSR of 2.

However, flavoured waters without added sugars are a healthy, low kilojoule alternative to plain water including for those who find plain water unpalatable. It is confusing for consumers to see plain water with an HSR of 5, while water with a small amount of flavouring has an HSR of 2. Further, it is misleading for flavoured waters to score lower HSRs than other non-dairy beverages with higher sugars and energy content, such as fruit juices.

Industry has highlighted that flavoured waters are one of the fastest growing non-dairy beverage product categories, so it is important to ensure the HSR System accurately reflects their nutritional quality and encourages innovation in this area.

Fruit juices

A contentious topic throughout the Review, is the extent to which the HSR should encourage consumers to choose fruit juices. Both Dietary Guidelines recommend water as the healthiest beverage, however with regard to juices:

- the ADG note that whole fruit is preferable to fruit juice, however the occasional 125mL serve of fruit juice may assist with nutrient intake when fresh, frozen or canned supply of fruit is sub-optimal. The ADG note that fruit juice is energy dense and, if consumed in excess, can displace other nutritious foods from the diet and lead to health concerns such as obesity
- the NZEAG note fruit juice is a high-sugar drink as it contains all the naturally occurring sugar found in the many pieces of fruit required to make one glass of juice. The NZEAG recommend eating fresh fruit and drinking plain water rather than drinking fruit juice.

Fruit juices currently score HSRs of between 4 and 5, despite generally being high in sugars.

WHO recommends limiting daily intake of free sugars to less than 10% of total daily energy intake[90]. This includes the sugars in juices. The average sugars content of 100% juice on the Australian market is 10g/100mL, comparable with other sugary non-dairy beverages, such as soft drinks.[91] A 500mL bottle of fruit juice can contain up to 12 teaspoons of free sugars, which, for the average person, equates to the total daily free sugars intake in one drink (based on WHO recommendations).

[90] World Health Organization, 2015, Guideline: Sugars intake for adults and children, Geneva

[91] Brownbill AL, Miller C, Braunack-Mayer A, 2018 'Industry use of 'better-for-you' features on labels of sugar-containing beverages', *Public Health Nutr*., vol. 21, no. 18, pp. 3335-43.

Some stakeholders have noted that fruit and vegetable juices provide beneficial fibre, vitamins and nutrients, warranting higher HSRs. There is evidence to suggest that consumers perceive fruit juices as healthier than other similarly sugary non-dairy beverages.[92,93,94,95] One study found that 41% of South Australians believed juices contain less sugars than other sugary non-dairy beverages, despite being comparable in sugars content.[96]

Despite differences of opinion regarding the value of fruit juices in the diet, stakeholders broadly agreed the HSR System is not working well for non-dairy beverages and that consumers should be encouraged to:

- drink water or those beverages closest in nutritional profile to water, with the same hydrating qualities and no or low kilojoules (for example, flavoured waters with no sugars)
- select beverages low in sugars and energy.

A wide range of options were tested throughout the Review to improve the relative HSRs of non-dairy beverages when compared across the category. These are detailed at Appendix D.

Based on modelling and in response to stakeholder feedback on the draft Review Report, the Review recommendation has been further refined.

Recommendation 5:	**Changes be made to the way the HSR is calculated for non-dairy beverages, based on adjusted total sugars, energy and FVNL points to better discern water (and beverages similar in nutritional profile to water) from high energy drinks.**

It is recommended that the HSR Calculator be adjusted specifically for the non-dairy beverages category (HSR Category 1) to account for the limited variety of nutrients driving the HSRs in this Category. This is achieved by:

- maintaining the current policy position such that an automatic HSR of 5 applies to packaged plain still or carbonated water as regulated in the Code *Standard 2.6.2 Non-alcoholic beverages and brewed soft drinks*
- including an additional policy position to increase the HSRs of still or carbonated flavoured waters (with no added sugar) to HSR of 4.5. As waters (flavoured and unflavoured) have no nutrients, this result cannot be reached solely through manipulation of the existing HSR Calculator
- using a new points table for all other non-dairy beverages. The proposed points table is based on the French Nutri-Score System (focused on total sugars and energy) but with adjustments for FVNL based on Australian and New Zealand regulations regarding fruit and vegetable drinks and juices.

Definition of flavoured waters

It is proposed that flavoured waters be tightly defined as:

- Products must be sold as flavoured waters as appropriate and can be uncarbonated, carbonated, mineralised or soda waters that are unsweetened (as defined by the Code *Schedule 4-3 Conditions for*

[92] Hattersley L, Irwin M, King L, Allman-Farinelli M. 2009 'Determinants and patterns of soft drink consumption in young adults: a qualitative analysis', *Public Health Nutr*., vol. 12, no. 10, pp. 1816-22.
[93] Eli K, Hornell A, Etminan Malek M, Nowicka P. 2017 'Water, juice, or soda? Mothers and grandmothers of preschoolers discuss the acceptability and accessibility of beverages' *Appetite*, vol. 112, pp. 133-42.
[94] Bucher T, Siegrist M. 2015 'Children's and parents' health perception of different soft drinks' *Br J Nutr*., vol. 113, no. 3, pp. 526-35.
[95] Munsell CR, Harris JL, Sarda V, Schwartz MB. 2016 'Parents' beliefs about the healthfulness of sugary drink options: opportunities to address misperceptions.' *Public Health Nutr*. vol., 19, no. 1, pp. 46-54.
[96] Miller C, Wakefield M, Braunack-Mayer A, Roder D, O'Dea K, Ettridge K, et al. 2019 'Who drinks sugar sweetened beveragesand juice? An Australian population study of behaviour, awareness and attitudes' *BMC Obesity*, vol. 6, no. 1.

nutrient content claims) and contain only the addition of substances at Good Manufacturing Practice (GMP) as per the Code *Schedule 16 Types of substances that may be used as food additives*, with nothing else added.

The Code *Schedule 16 Types of substances that may be used as food additives* describes the types of ingredients that may be added to foods at GMP[97] for specific purposes.

> GMP, with respect to the addition of substances used as food additives and substances used as processing aids to food, means the practice of:
>
> - limiting the amount of substance that is added to food to the lowest possible level necessary to accomplish its desired effect
> - to the extent reasonably possible, reducing the amount of the substance or its derivatives that:
> - remains as a component of the food as a result of its use in the manufacture, processing or packaging
> - is not intended to accomplish any physical or other technical effect in the food itself
> - preparing and handling the substance in the same way as a food ingredient.[98]

The substances listed in Schedule 16 include additives permitted at GMP, colourings permitted at GMP and colourings permitted to a maximum level. This includes 'permitted flavouring substances' as defined in the Code *Standard 1.1.2 Definitions used throughout the Code*, such as fruit essences or extracts. These are the additives that FSANZ has not deemed it necessary to place a specific limit on, while the Code *Schedule 15 Substances that may be used as food additives* lists a wider range of additives and places restrictions and permitted levels on these.

The effect of using the above definition is that:

- if sugars or sweeteners are added to the water, it would not meet the definition and would not be eligible to automatically score an HSR of 4.5. This ensures that the flavour and nutrient profile of flavoured waters scoring high HSRs remain as close as possible to that of plain waters
- natural or artificial flavourings, typically added in small amounts (<0.5%) with minimal impact on kilojoules, may be added to the flavoured water to improve taste
- products such as sparkling waters with natural lemon flavour will score HSRs of 4.5, while excluding non-dairy beverages closer in nutritional profile to fruit drinks or diet soft drinks.

The following case study illustrates how this may apply to products in the market.

[97] GMPs are the basic operational and environmental conditions required to produce safe foods. They ensure that ingredients, products and packaging materials are handled safely and that food products are processed in a suitable environment.
[98] FSANZ, 2017, *Standard 1.1.2 – Definitions used throughout the code*, accessed 12 March 2019.

Case study

Product 1.

Mount Franklin Lightly Sparkling Lemon contains carbonated water and natural flavour.
This product would meet the proposed definition of 'flavoured water' and be eligible for an automatic HSR of 4.5, as it:

- contains only carbonated water and flavouring substances permitted at GMP under Schedule 16 of the Food Standards Code (in this instance natural lemon flavour)
- is marketed and sold as a 'flavoured water'.

Product 2.

Deep Spring Orange & Mango contains carbonated water, sugar, juices from concentrate (orange and mango), food acid (330), natural flavour, preservative (211) and natural colour (120).

This product would not meet the proposed definition of 'flavoured water' and would not be eligible for an automatic HSR of 4.5, as it contains sugars, juice, preservative (211) (not permitted under Schedule 16) and is marketed and sold as a 'fruit drink'.

Deep Spring Orange & Mango would use the HSR Calculator for Category 1 to determine the HSR and would score an HSR of 1.5 stars.

Points tables

The proposed points tables for calculating HSRs for non-dairy beverages (HSR Category 1) are at Appendix E.

The points tables for energy and total sugars were developed as part of the French Nutri-Score System to reflect the distribution of energy and total sugars in beverages.[99] This provides improved discrimination within this category across the full spectrum of HSRs (from 0.5 to 5).

While the Nutri-Score System determines FVNL points based on the French food regulations, the FVNL points table for non-dairy beverages has been adjusted to reflect the Code and how it defines fruit and vegetable drinks and juices:

- Under the Code *Schedule 17 Vitamins and minerals*, fruit drinks, vegetable drinks and fruit and vegetable drinks containing at least 25% of the juice, puree or comminution (the reduction of a solid material to fragments) of the fruit or vegetable or both are permitted to make certain vitamin claims. As such, 25% has been selected as the lower limit for claiming FVNL points in non-dairy beverages.
- The Code *Standard 2.6.1 Fruit juice and vegetable juice* defines a product as a juice at 96% or more juice content. As such, 96% has been selected as the upper limit for claiming FVNL points to allow all 'juices' to receive the maximum number of modifying points for non-dairy beverages.

This recognises the nutritional value of juices containing fruit and vegetable content, while ensuring these products do not receive the same ratings as low energy waters and ensures the upper and lower FVNL content for non-dairy beverages is grounded in current Australian and New Zealand food regulations.

Outcome

Under this approach, plain waters would score 5, unsweetened flavoured waters would score 4.5, 100% fruit and vegetable juices would score between 2.5 and 4 (based on their sugars and energy content), diet drinks would score no more than 3.5 and sugary soft drinks would continue to score between 0.5 and 2 (based on their sugars and energy content).

Based on modelling, this would result in a spread of beverages against HSRs as follows:

HSR	Examples of beverages likely to receive this rating	
5	• still or carbonated water with no additives	
4.5	• unsweetened flavoured still, carbonated, mineral and soda waters	
4	• fruit drinks (< 4% sugars) • fruit juices (< 7% sugars)	• coconut waters (< 5% sugars)
3 – 3.5	• diet soft drinks with no sugars • sweetened flavoured waters with no sugars • fruit juices (7-8% sugars)	• diet energy drinks with no sugars • kombuchas with no sugars • coconut waters (5-6% sugars)
2 – 2.5	• diet soft drinks (< 2% sugars) • flavoured waters (2-3% sugars) • fruit drinks (5-11% sugars)	• fruit juices (9-11% sugars) • iced teas with added sugars • diet sports drinks
1 – 1.5	• soft drinks (5-9% sugars) • flavoured waters (5-9% sugars) • fruit drinks (7-10% sugars) • fruit juices (> 11% sugars)	• sports drinks with added sugars • iced teas with added sugars • kombuchas with added sugars • coconut waters with added sugars
0.5	• soft drinks (> 9% sugars) • flavoured waters (> 9% sugars) • fruit drinks (> 9% sugars)	• energy drinks with added sugars • iced teas with added sugars

[99] Chantal, J, Ducrot, P, Peneau, S, Deschamps, V, Mejean, C, Fezeu, L, Touvier, M, Hercberg, S & Kesse-Guyot, E 2015, 'Discriminating nutritional quality of foods using the 5-Color nutrition label in the French food market: consistency with nutritional recommendations', *Nutrition Journal*, vol. 14, no. 100, pp. 1-12.

The significant impact of this recommendation across the non-dairy beverage category is acknowledged – the HSRs for unsweetened flavoured waters would increase (from 2 to 4.5) and the HSRs for many fruit and vegetable juices would decrease (from between 4 and 5 to between 2 and 4). However, the Review considers that these changes would better support consumer choice across this product category as this approach:

- promotes those beverages closest in nutritional profile to water, with the same hydrating qualities and no or low kilojoules (for example, unsweetened flavoured waters) as healthy non-dairy beverage options
- is adapted specifically for beverages and their particular nutrient profile
  - It spreads beverages across the full range of HSRs and enables consumers to distinguish between products with varying levels of energy and sugars, as well as encouraging reformulation by manufacturers.
- provides recognition for the fruit and vegetable content in juice, while positioning high sugar juices below water and other low sugar beverages
  - 100% fruit and vegetable juices would receive HSRs between 2.5 and 4. This would be a significant change for many fruit juices (which currently receive HSRs of 5) and would result in higher HSRs for juices inherently lower in sugars (for example, grapefruit or lemon juices) and lower HSRs for juices with high sugars content (for example, apple or pear juices).
  - This effectively guides consumers towards lower energy juice options.
- positions beverages with no sugars (such as diet soft drinks) above full sugar options.
  - Some stakeholders have raised concerns regarding emerging evidence on the possible adverse health outcomes from consumption of non-nutritive sweeteners.[100] However, this is not settled science and the presence or absence of non-nutritive sweeteners is not taken into account for any other food category. Sweeteners are also an important factor in reformulation, enabling manufacturers to reduce the added sugars and energy content of products while maintaining sweetness.

Transition period

It is recommended that a two-year transition period (starting from the date recommendations are accepted by government) be provided for industry to implement the changes described in this Chapter. This:

- is consistent with many other food regulation and labelling transition periods
- acknowledges common contracting periods between suppliers and large retailers (minimising the need for mid-contract renegotiations where labels are affected by changes in HSRs)
- provides a reasonable period within which manufacturers could reformulate should they wish to avoid label changes
- enables adjustments to be made by organisations implementing other initiatives that complement the HSR System (refer Appendix C for examples)
- provides a reasonable period within which to educate consumers about the changes
- acknowledges that some of the areas of greatest change are in product categories where uptake has been high.

Industry stakeholders have requested this period be extended to at least three years. It is acknowledged that for some manufacturers, labelling changes are likely to be extensive, particularly within the non-dairy beverages and confectionery categories (due to the recommendation to remove HSR graphic Option 5 from the System) or where the HSR is displayed on all of a manufacturer's products.

[100] Pepino, Y 2015 'Metabolic effects of non-nutritive sweeteners' *Physiol Behav.* vol. 152, pp. 450-455.

However, an extended transition period would result in a prolonged period of uncertainty where two quite different HSRs may be displayed on two similar products. This risks confusing consumers and reducing confidence in the HSR System. Examples such as Country of Origin Labelling show that broad labelling change is feasible within a two-year period.

Effective change management will be crucial throughout the transition period. Updated guidance materials must be clear, easy to apply and available prior to the commencement of the transition period. The HSR Secretariat and the HSRAC must provide effective support to industry to clarify queries and assist in applying the new HSR Calculator and communicate with consumers to explain the changes (refer Chapters 4, 6 and 7).

Chapter 6 – Management of the Health Star Rating System

Summary

Effective public health interventions rely on strong foundations, including:

- clear leadership, accountability, strategy and management structures
- effective engagement of stakeholders both within and outside governments
- ongoing collection of data and effective monitoring and evaluation to assess the impact of the intervention over time.[101]

These foundations have largely existed for the HSR System. For example:

- the System has been stewarded by the HSRAC, a committee accountable to the FRSC and the Forum
  - Key strengths of the arrangements have included: cooperative working relationships between industry, public health, consumer groups and government; clear accountabilities between the HSRAC and the FRSC (with the FRSC/the Forum maintaining ultimate responsibility for policy decisions relating to the HSR System); and a high degree of transparency.
- System implementation and any changes to the System have been supported by a high degree of stakeholder interest, engagement and extensive consultation
- the performance of the System has been monitored and evaluated, with findings informing this Review and influencing adjustments to communications with stakeholders (refer Chapters 3 and 4).

Importantly, the System has also been supported by Australian, State and Territory and New Zealand governments – both financially and through the participation of government officers in HSR System governance committees. This has provided confidence in the System, enabled national campaigns to be run and facilitated monitoring of the System across Australia and New Zealand.

The next few years will be critical to the HSR System. Over this time, changes will be implemented to better align the System with Dietary Guidelines and address consumer concerns, with uptake by industry expected to increase considerably.

This change process will need to be managed carefully in order to ensure that:

- the reasons for changes to the HSR System are understood by consumers
- there is appropriate support for industry in adopting the changes (including guidance materials and the opportunity for anomalies and complaints to be considered)
- industry appropriately applies the System and makes steady progress towards the uptake target described in Chapter 7
- related government initiatives (such as reformulation activities and healthy food and drink policies that reference the HSR System) can be adjusted as needed.

As the HSR System moves into the next stage of implementation, the Review recommends:

- government funding is continued for a further four years
- minor changes are made to the governance arrangements
- critical infrastructure necessary to support implementation and evaluation of food and nutrition-related public health initiatives is enhanced.

[101] Butland, B, Jebb, S, Kopelman, P, McPherson, K, Mardell, J & Parry, V, *Foresight: Tackling Obesities: Future Choices – Project Report,* Government Office for Science

Recommendation 6:	**HSR System implementation continue to be jointly funded by Australian, State and Territory and New Zealand governments for a further four years.**

Recommendation 7: **Minor changes be made to the governance of the HSR System to:**

- **support greater consumer confidence in the System by transferring the management of the HSR Calculator and TAG database to FSANZ**
- **clarify the role of governance committees**
- **increase the transparency of the System**
- **improve monitoring, enabling the System to be more responsive.**

Recommendation 8:	**Enhance the critical infrastructure to support implementation and evaluation of food and nutrition-related public health initiatives, including the HSR System, through: regular updates to Dietary Guidelines; regular national health and nutrition surveys; establishment of a comprehensive, dataset of branded food products; and improved monitoring of the System.**

The recommended changes minimise cost and duplication, dovetail with existing policy processes and support other public health initiatives.

HSR System Funding

A key strength of the HSR System is the joint funding arrangement between Australian, State and Territory and New Zealand governments. Government funding has enabled:

- promotion of the HSR System in both Australia and New Zealand
- independent monitoring and evaluation of the impact of the HSR System and the campaigns
- provision of secretariat support for the HSRAC, the TAG and SMAG. In addition, the HSR Secretariat:
  - provides a consumer and industry information/enquiry service
  - deals with applications for consideration of anomalies
  - manages intellectual property and licensing issues associated with the HSR System
  - develops resources for inclusion on the website and updates the HSR System website
  - co-ordinates public consultation on HSR System issues.

Table 5 describes the areas of expenditure (actual or projected) from implementation of the System to end June 2019. Contributions to this expenditure were made by the Australian, State and Territory and New Zealand governments.

Table 5: Expenditure (actual and projected) on HSR System implementation from 2013-14 to 2018-19

Budget component	2013-14 Actual	2014-15 Actual	2015-16 Actual	2016-17 Actual	2017-18 Actual	2018-19 Projected
Governance committees, Secretariat, workshops, legal and IP, technical advice and contribution to Chair's host jurisdiction (including on costs, travel and salary for support staff) – Australia and New Zealand	$911,315	$902,797	$705,604	$634,442	$845,066	$940,000

In Australia, an additional $1,560,474 has been expended to 30 June 2018 on monitoring and evaluation and $7,603,631[102] on social marketing and education.

The New Zealand Government also separately funded approximately NZD$2,315,000 for monitoring, evaluation, social marketing and education in New Zealand.

The most significant component of the expenditure in both countries has been social marketing campaigns.

It is important to acknowledge that considerable additional in-kind support and human resources have been contributed by a wide range of stakeholders. For example:

- as noted in Chapter 4, some jurisdictions have funded their own HSR System promotions
- the Australian Government draws on other resources in the Commonwealth Department of Health to support the HSR Secretariat (including web support, public health expertise and social marketing expertise)
- members of the HSRAC and the TAG bring a wide range of professional and technical expertise and are not remunerated for their time or travel expenses.
  - Advisory group members and others have dedicated significant time (and deployed the resources of their organisations) to help implement the HSR System and contribute to the Review.

This investment has been critical, not just to enable implementation of the HSR System but also to demonstrate government commitment to the initiative and influence consumer acceptance of the System and uptake by industry.

Recognising government budgetary constraints, the Review considered whether government funding for the HSR System could cease at this point and whether management of the HSR System could be funded by industry.

Neither of these options are considered viable at this time:

- While significant progress has been made in relation to the HSR System implementation, the System is not yet fully embedded. The changes proposed by this Review will cause some disruption to the System in the short term, which will require careful management, stakeholder communication and monitoring. A critical issue for all stakeholders is whether the System should be mandated or not. If the System is not mandated (as recommended in Chapter 7) there must be capacity to monitor uptake, which is most appropriately funded and managed by governments.
- Industry funding of the HSR System would likely undermine credibility of the System. While confidence in the System is growing (discussed in Chapter 3), a key reason for consumer mistrust in the System is an incorrect belief that it is industry funded or that manufacturers 'pay for the rating'. Recent research noted FoPL policy development should be led by government rather than commercially based, as consumers perceive the latter as less credible.[103] Industry funding of the System may also undermine industry's willingness to use the System and to invest in promotion of the System through their own avenues (as has occurred to date).

[102] Note that a significant amount of funding was rolled over to the 2018-19 financial year such that total funding for social marketing and education in Australia to June 2019 is likely to be approximately $12 million.

[103] Kelly, B, Jewell, Jo 2018 *What is the evidence on policy specifications, development processes and effectiveness of existing front-of-pack labelling policies in the WHO European Region?* Copenhagen: WHO Regional Office for Europe, Health Evidence Network (HEN) synthesis report 61

The Review recommends that governments continue to invest in HSR System implementation for a further four years from the date the recommendations in this Report are accepted. Funding should focus on:

- continuing to support the HSRAC, secretariat functions and management of the HSR Calculator and TAG database (by FSANZ)
- revisions to guidance materials
- monitoring (including to inform future decisions about whether uptake targets have been met and whether the System should remain voluntary)
- consumer education including why changes are being made, addressing misunderstandings and emphasising government endorsement.

After this time, the HSR System should be sufficiently embedded such that discrete government funding for its promotion (as distinct from promotion of broader health eating messages) is not required.

Governance arrangements

Strengths of the existing governance arrangements

To evaluate the governance arrangements, mpconsulting:

- observed meetings of the HSRAC and the TAG
- spoke with FRSC, HSRAC and TAG members about their experience and expectations of the governance arrangements
- reviewed materials available on the HSR System website, including committee terms of reference, profiles of members and meeting communiques
- considered input provided by stakeholders through forums and submissions.

Overall the Review considers that the existing governance arrangements have worked well. Some of the key strengths have included:

- **cross-sectoral representation from industry, public health, consumer groups and governments on key committees**
  - The HSRAC is comprised of 10 members, including four members from government and three members each from industry and community.
  - HSRAC members act as a conduit for information to their stakeholders (subject to any confidentiality requirements) and provide input and feedback that reflects the interests of their stakeholders.
  - The collaborative working relationships have facilitated strong buy-in during the early stages of HSR System implementation.

- **stable HSRAC membership**
  - HSRAC members are appointed for five years. Most members have been on the HSRAC since appointment or have remained closely involved with the HSR System. This continuity has been important, particularly as the System is complex and technical. This has ensured a consistent approach to issues, including the treatment of complaints and anomalies.

- **a strong, effective Secretariat**
  - The HSR Secretariat provides substantial support to the HSRAC, the TAG and the SMAG, and also manages much of the day-to-day administration of the HSR System including an information/enquiry service, development of resources, maintenance of the HSR website and coordination of consultation on HSR System issues.

  - Despite the expansive role, the costs of the HSR Secretariat have been below budget and the savings have been reapplied to supplement other HSR System program activities.
  - The linkages between the HSR Secretariat and the FRSC Secretariat (with both located in the Commonwealth Department of Health) is also a strength of the existing arrangements.

- **a highly consultative approach**
  - The development of the HSR System was subject to extensive consultation over many years. When significant issues have arisen, these have also been subject to extensive consultation (such as the 'as prepared' issue). The high degree of consultation has generally been acknowledged by stakeholders.

- **a high degree of transparency**
  - The availability of information on the HSR System website and the highly consultative approach to resolving issues with the HSR System demonstrates a high degree of transparency. Further detail regarding the transparency of the HSR System is provided later in this Chapter.

Future governance arrangements

Role of the Forum and the FRSC

The Review considered whether the Forum and the FRSC should continue to have oversight of the HSR System or whether the HSR System could be overseen by AHMAC, given that AHMAC has oversight of many other health protection matters and national priorities.

The Review considers that the Forum and the FRSC continue to be the appropriate decision makers in relation to major HSR System related policy issues. While the HSR System is voluntary and aimed at supporting consumers to make healthier choices rather than a food safety initiative, it directly impacts food labelling and drives food composition (through reformulation). As a dedicated food policy and regulation body, the FRSC is best placed to ensure that policy decisions relating to the HSR System take into account the wider food regulatory context including other labelling regulation and food standards.

Role of the HSRAC

The HSRAC Terms of Reference focus on the HSRAC as a conduit of advice to the FRSC and as a conduit of information from its members to the relevant stakeholder groups. While the HSRAC performs these functions, it also plays an active role in:

- determining anomalies
- identifying potential issues with the HSR System
- dealing with non-compliance
- consulting stakeholders on options for resolution of issues and recommending preferred options.
  - For example, in relation to the 'as prepared' issue the HSRAC considered the issue, identified options for addressing the issue, led consultation with stakeholders, outlined the ramifications of various options and recommended a preferred approach to the FRSC for decision.

The HSRAC Terms of Reference also note that the HSRAC oversees the social marketing campaign and the monitoring and evaluation of the HSR System. While the HSRAC considers social marketing and monitoring reports, it does not play a strong role in driving the content of the social marketing campaigns nor the strategic response to issues identified through monitoring data and evaluations.

The Review recommends the role of the HSRAC is clarified such that its primary role is to promote stakeholder collaboration and champion the HSR System within each member's broader stakeholder group. The HSRAC will also be responsible for:

- overseeing the implementation of any changes to the HSR Calculator and guidance materials (including those resulting from Review recommendations)
- addressing queries or complaints unable to be resolved by the HSR Secretariat
- making decisions on anomalies (informed by technical advice from FSANZ)
- managing non-compliance with the HSR System
- directing the monitoring of the HSR System
- driving the content and scope of marketing campaigns and other communications, informed by monitoring information
- communicating with stakeholders and providing updates to the FRSC as necessary.

It is critical for the HSRAC to strategically identify actions needed in response to consumer concerns and changes in confidence and to work with partners in the System (industry, public health groups, health educators and others) to swiftly develop the appropriate response and communicate key messages through a range of avenues.

To deliver these outcomes, it is proposed that the HSRAC membership:

- continue to be based on both expertise and representation (with a reasonable balance of members across government, industry and public health and from both Australia and New Zealand)
- be reduced in size from 10 members to eight (reducing cost and streamlining decision making)
- include one FSANZ representative (as discussed below).

After the two-year transition period, it may no longer be necessary to maintain an HSR specific committee. HSR related matters could then be rolled into the FRSC agenda.

Role of FSANZ

To date FSANZ has played an indirect role in the HSR System through their membership on the TAG. Other than the HSR Secretariat, only the FSANZ representative and one industry member have had access to the TAG database, which is used to model possible changes to the HSR Calculator.

FSANZ is a respected, trusted organisation and experts within FSANZ have the technical expertise and knowledge of the Australian and New Zealand food system, food science and nutrition (including Dietary Guidelines, the NPSC, NIP requirements, labelling and related standards), which underpin the functioning of the HSR System.

The Review considers that the governance arrangements would benefit from:

- representation of FSANZ on the HSRAC
- FSANZ managing the HSR Calculator and the TAG database
- FSANZ providing advice to the HSR Secretariat and the HSRAC (on request) to assist them to resolve anomalies, and model the impact of potential changes to the HSR Calculator. This would be a similar role to that played by the TAG in the lead up to the Review.

Clear government leadership and expert involvement into the HSR System aligns with other food labelling arrangements within Australia and New Zealand and with international FoPL best practice.[104]

[104] Kelly, B, Jewell, Jo 2018 *What is the evidence on policy specifications, development processes and effectiveness of existing front-of-pack labelling policies in the WHO European Region?* Copenhagen: WHO Regional Office for Europe, Health Evidence Network (HEN) synthesis report 61

Any stakeholder complaints or queries about the HSR System (including the HSR Calculator) would continue to be directed through the HSR Secretariat.

Role of the SMAG

As discussed in Chapter 4, it is recommended that the HSRAC and the SMAG in Australia and the MPI and HPA in New Zealand continue to work together to ensure government communications regarding the HSR System meet stakeholder needs. The SMAG should continue for the duration of social marketing campaigns, as this provides a mechanism for consulting Australian jurisdictions on the content and form of government communications on the HSR System and possible interactions with state-based initiatives.

Role of the HSR Secretariat

It is proposed that for the period of the transition, the HSR Secretariat continue to support the HSRAC, as well as:

- develop revised guidance materials (refer Chapter 7) for consideration by the HSRAC
- provide a consumer and industry information/enquiry service
- manage applications for consideration of anomalies
- manage intellectual property and licensing issues associated with the HSR System
- manage the HSR System website and develop resources for publication through the website
- co-ordinate any public consultation on HSR System issues.

After the two-year transition period, it may no longer be necessary to maintain a separate HSR Secretariat. This role could be combined with that of the existing Food Regulation Secretariat.

A proposed governance structure, including roles and responsibilities is at Figure 12.

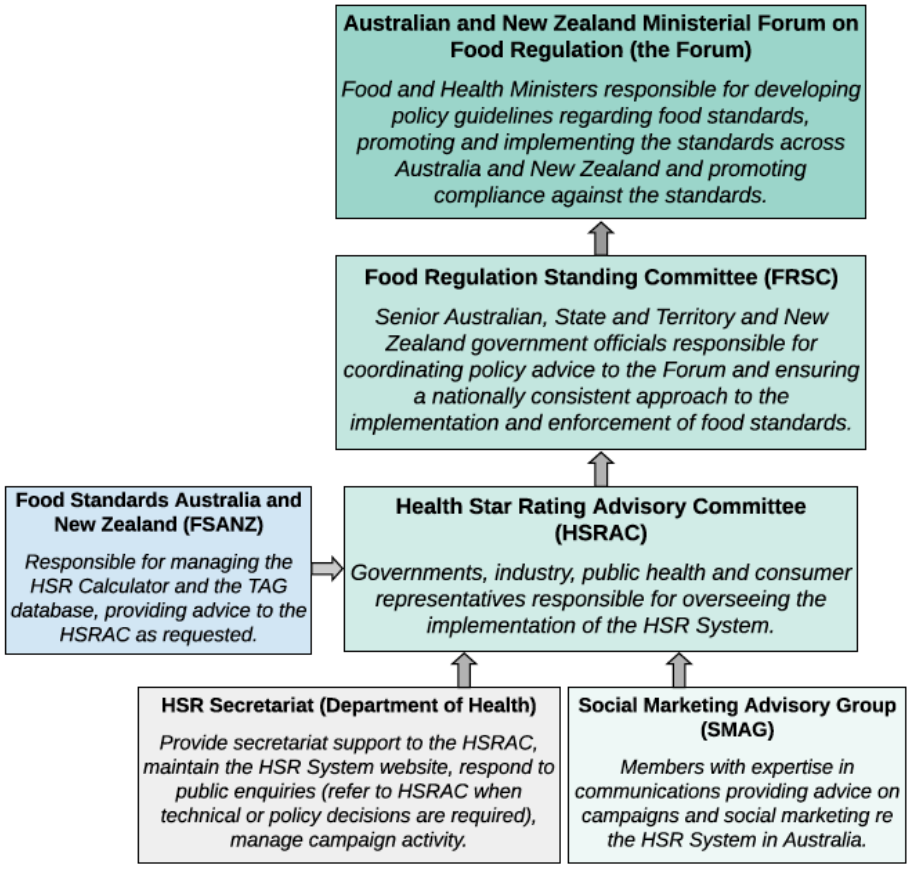


Figure 12: Proposed governance structure for the management of the HSR System moving forward.

Improving transparency

Some public submissions to the Review in October 2017 highlighted concerns about the transparency of the HSR System. For example, some stakeholders suggested there was inadequate information about committee members, the anomaly and dispute resolution processes, the outcomes of HSRAC meetings, the campaigns and the monitoring of the HSR System.

While some of this information was not available when the HSR System was first implemented in 2013, all of this information is now available on the HSR System website. For example, the HSR System website includes:

- information about the governance committees including: Terms of Reference for the HSRAC and the TAG; profiles of HSRAC and TAG members (providing transparency regarding membership and each member's credentials); outcomes of HSRAC meetings since 2014; a Declaration of Interest Register recording, since 2014, the relevant HSRAC member, their declaration and the outcome
- campaign materials and public relations resources including campaign objectives
- print advertisements, out of home advertisements, online advertisements and video transcripts and links to videos, fact sheets, posters, infographics, photo albums, articles about the HSR and links to social media accounts
- research and evaluations including: qualitative and quantitative research that informed the HSR System and the campaigns; evaluation of 2015, 2016 and 2017 campaign activity; details of the outcomes of the two-year review; progress reports on monitoring the implementation of the HSR System
- the process for assessing anomalies and a register of potential anomalies including: the date the potential anomaly was submitted (dating back to 3 April 2014); a brief description of the application (as

submitted by the applicant); the date the potential anomaly was considered by the HSRAC; the HSRAC's determination of the issue, the rationale and the next steps
- companies implementing the HSR.

The availability of this information demonstrates the high degree of transparency regarding the governance and operation of the HSR System. The HSR Secretariat has advised that the HSR System website is currently under review to make information more readily accessible. This will continue to improve transparency.

The remaining area of concern for stakeholders was the management of the TAG database and the level of industry involvement in the management of the HSR Calculator. It is proposed that this be addressed through:

- the changes to the governance arrangements previously described (with FSANZ managing the TAG database and HSR Calculator)
- publication of information regarding the development of the HSR Calculator and details regarding its operation. This information was published as part of the Review and is now available on the HSR System website.

Where stakeholders have concerns about the HSR Calculator, or any other aspect of the HSR System, they have an opportunity to raise these issues through the HSR Secretariat. As discussed above, the HSRAC should review comments and concerns and be actively involved in addressing these. A register of queries/clarifications sent to the HSR Secretariat and the government's response (including a rationale) should be made available on the HSR website to further improve transparency and support consistent interpretation of the guidelines.

Improved monitoring of the HSR System

As noted in Chapter 2, monitoring of the HSR System is undertaken by both the NHF and the MPI against three AoEs. While this monitoring provides valuable information about the System, it has the following limitations:

- the monitoring results between Australia and New Zealand and across years are not always comparable
- there is limited capacity to measure changes in the nutritional profile of foods (reformulation)
- the monitoring questions focus on consumer understanding and awareness rather than on how they are using the HSR and how it is or is not changing their purchasing behaviours (noting there has been some consideration of this in the most recent monitoring report)
- there is no structured approach for reviewing the monitoring data and identifying what it means for the HSR System, including necessary changes to communications and campaigns and changes to evaluation questions as the System evolves.

Rather than increasing the investment in monitoring, the Review recommends better coordination of monitoring across Australia and New Zealand and more responsive governance to ensure monitoring results can be used strategically and in real time.

Critical public health infrastructure to support the HSR System

Review of the HSR System has been challenging, in part because there is: contention over the Dietary Guidelines; dated health and nutrition survey information in Australia and New Zealand; no central, trusted and comprehensive database of food products and their HSR status; and challenges in monitoring the HSR System.

If industry and governments are to invest in a public health and nutrition intervention as significant as the HSR System and consumers are to have confidence in the System:

- the guidelines and scientific evidence on which the intervention is based must be up to date
- implementation of the intervention must be effectively monitored, including to track dietary trends. This is important so that:
  - public health professionals can examine national dietary trends
  - researchers can better link dietary intakes to disease measures
  - policy makers can develop interventions to support public health[105]
- there should be a way to measure (on a regular and ongoing basis) the prevalence of health conditions and health risk factors (including overweight and obesity) such that the impact of interventions can be assessed.

Currency of Dietary Guidelines

The ADG were last updated in 2013 and evolved from a 2003 edition that integrated updates of the Dietary Guidelines for Older Australians (1999), the Dietary Guidelines for Adults (2003) and the Dietary Guidelines for Children and Adolescents in Australia (2003). The ADG also include an update of the Australian Guide to Healthy Eating (1998).

Nutrition science and the food supply change quickly, with implications for dietary guidelines and policy. For example, the ADG note that whole fruit is preferable to fruit juice, but also state that the occasional 125mL serve of fruit juice may assist with nutrient intake. This is not consistent with the more recent NZEAG that recommend eating fresh fruit and drinking plain water, rather than drinking fruit juice.

The Review recommends regular updates to Dietary Guidelines to ensure that public health interventions such as the HSR System continue to be based on the best available science and data regarding the diets of Australians and New Zealanders. This is also consistent with the recommendations of others, including the Senate Select Committee into the Obesity Epidemic in Australia that recommended updating the ADG every five years[106].

Health and nutrition survey information

The AHS collects important information about the foods and nutrients people consume and enables conclusions to be drawn about whether populations are meeting their daily recommended nutrient intakes and the contribution of different types of foods and beverages to their overall diet. The AHS provides baseline information to enable governments, industry and others to target health messages and interventions. The results of the 2011-12 survey have informed this Review.

While New Zealand conducts a continuous New Zealand Health Survey (NZHS) (enabling publication of annual updates on general health), a national nutrition survey has not been completed since the NZANS in 2008-09. While the results of the 2008-09 survey have informed this Review, this has posed challenges in comparing Australian and New Zealander dietary patterns.

The Review recommends that health and nutrition surveys be conducted regularly. The data from these surveys plays an essential role in informing the Dietary Guidelines, industry reformulation targets and government decisions regarding the focus and impact of public health interventions.

[105] USDA Branded Food Products Database, accessed 10 January 2019.
[106] Senate 2018 Select Committee into the Obesity Epidemic in Australia, Final Report.

Central, trusted, comprehensive database of food products and HSR status

There are a number of databases holding food composition data including:

- **the TAG database** – This database contains 5,885 foods and beverages, with confidential data provided directly by industry. The TAG database holds the most reliable data for modelling HSR System changes as it includes accurate values for FVNL content (and for a limited number of products, the wholegrain, calcium and added sugars content). However, the database is only available to the Commonwealth Department of Health and two members of the TAG. Further, there is no process for regularly updating the data and the database does not note whether the HSR is actually displayed on the product.
- **FoodSwitch (George Institute), FoodTrack (NHF) and Nutritrack (University of Auckland)** – These databases are much larger than the TAG database and note where products are actually displaying the HSR and what the HSR is. Data is collected using smartphone applications and in-store sampling (rather than being provided by industry). As such, the key limitation is that FVNL, added sugars and wholegrain contents are estimated (based on ingredients). All of these databases are also proprietary.
- **AUSNUT and the Australian Food Composition Database (FSANZ)** – These are food nutrient databases that include the average nutrient content of foods. AUSNUT is a survey-specific database that includes data for foods as consumed and is only updated when a new national health survey is undertaken. The Australian Food Composition Database (formerly NUTTAB) is a reference database containing mainly analytical data for commonly consumed foods. Neither database includes individual branded products or, for example, the FVNL content of foods.
- **New Zealand Food Composition Database** – This database contains key nutrients for foods commonly prepared and eaten in New Zealand (rather than branded products). It is jointly managed by Plant & Food Research and the New Zealand Ministry of Health. Data is collated through analysis conducted by laboratories in New Zealand and Australia and includes carbohydrate, protein, fat, cholesterol, caffeine, vitamins, minerals, fatty acids, fibre, moisture and ash.

While all of these databases serve valuable purposes, there is no single bi-national dataset that can be used to validate the accuracy of the HSR shown on products or track reformulation. This limits the capacity of FSANZ, the NHMRC, government health agencies and others to analyse changes to food composition and the food supply or to model the impact of changes including potential changes to the HSR System.

The Review recommends that FSANZ expands its existing data management system (Silo[107]) to enable the automated upload, validation, storage and reporting of branded food data including the HSR. This would complement existing datasets and include a public facing component that includes the following attributes of products for retail sale in Australia and New Zealand:

- the product name
- the information in the NIP on a serving size and 100 g/100 mL basis
- the form of the food
- the ingredient list (as it appears on the product)
- the fibre, calcium and FVNL values (while this is not generally included in the NIP, the inclusion of this information in the dataset enables validation of the HSR displayed by the manufacturer without revealing confidential recipe information)
- the HSR Category
- the HSR status of a product (whether the product displays the HSR and if so, the HSR and the HSR graphic option).

[107] Silo is the FSANZ data management system that also supports both AUSNUT and the Australian Food Composition Database.

Regular standardised, automated uploads of information by industry (and built in automated validation steps) would obviate the need for resource intensive in-store data collections or annual data submissions and ensure the quality of the data.

The dataset could:

- be modelled on the USDA Branded Food Products Database that resulted from a Public-Private Partnership with the goal of enhancing public health and the sharing of open data. The Database includes the nutrient composition of branded foods and private label data provided by the food industry[108]
- utilise existing databases which collect high quality label data to optimise data coverage and quality assurance. For example, the USDA database partners with GS1, Label Insight, 1 worldsync and Maryland University to improve data quality. Aligning with existing databases provides greater incentive to industry to participate
- support public and industry confidence in the HSR System and enable validation of the HSR displayed on a product
  - An automated IT solution would provide peace of mind for manufacturers that they have displayed the correct HSR, assure manufacturers that their competitors have also used the correct HSR and alleviate consumer concerns about manufacturers incorrectly displaying HSRs, as they can be assessed against a validated database.
- track longitudinal reformulation of products
- enable anomalies or areas of confusion in the HSR calculation to be identified and assessed, allowing the System to be more responsive
- support the work of FSANZ and government health agencies, including in relation to reformulation projects, generating nutrient profiles for surveys and informing the development of food regulation
- inform the regular review of Dietary Guidelines by describing the current food supply.

Should this recommendation be accepted, it is suggested:

- FSANZ be funded to steward the development of the database, including the staging of its roll-out
  - In consultation with government agencies and stakeholders, further consideration would need to be given to the viability of the dataset being bi-national, how the database could be managed administratively by FSANZ (avoiding the need for legislative amendments), data protection and uses.
- a review of international approaches and further discussions with the USDA informs the development of the dataset (including to harmonise data dictionaries wherever possible)
  - For example, there is already an international food categorisation system (FoodEx2) that has been applied to many datasets internationally.
- industry consultation informs the design specifications and user guidance required to minimise the reporting burden and maximise manufacturer participation.
  - The Review recognises that industry support is critical for achieving the outcomes sought through this recommendation. Co-design of the database specifications will ensure ease of use and encourage industry submission of data.
  - The Review notes that the AFGC has been developing an online Product Information Form which provides a standard which industry will be able to use to exchange product information along the supply chain and upload data. This experience could be leveraged to improve the ease with which industry can upload data and minimise additional impost on industry.

[108] USDA Branded Food Products Database, accessed 10 January 2019.

Chapter 7 – Optimising uptake of the Health Star Rating System

Summary

No uptake targets were set when the HSR System was implemented. Stakeholders therefore have different expectations as to what constitutes the System's success.

While uptake of the HSR System has been greater than the uptake of other FoPL initiatives (including the DIG[109]), the Review considers that uptake is still not adequate to enable consumers to effectively compare similar products.

Consistent and widespread adoption of the HSR System, including the full range of HSRs (0.5 to 5 stars) across food categories and the products intended to display the HSR, is an outcome sought by the vast majority of stakeholders. If the HSR System is to be retained, improved uptake across the range of eligible products is necessary to achieve the public health impact sought.

Key questions for the Review are: how can uptake of the HSR System be optimised; and should this be done by mandating the System or maintaining the voluntary approach?

The Review closely examined the barriers to uptake, incentives for uptake and the evidence regarding the use and distribution of the HSR across products. The Review found that:

- there is enthusiasm for the HSR System within industry, with over 200 manufacturers and retailers having displayed the HSR on their products across Australia and New Zealand[110] and many of these undertaking their own promotion of the System (refer Appendix C)
- many major retailers are displaying the HSR on all private label products (with Coles, Woolworths and ALDI accounting for over half of all products participating in the System in Australia)
- compliance by those who use the HSR System is high (refer Chapter 3)
- the HSR System is influencing healthy reformulation (refer Chapter 3).

Despite this, there is a significant number of manufacturers choosing not to implement the HSR System. Some of the reasons for not adopting the System include:

- concern about consumer response to the HSR System and public criticism of the System
- concerns about the current treatment of certain products, particularly FFG foods (including dairy products) and non-dairy beverages
- a lack of certainty regarding the 'as prepared' rules
- a lack of clarity regarding the products on which the HSR should appear
- a reluctance to invest prior to knowing the outcomes of this Review.

The Review recommends that rather than mandating the System at this time, the recommended changes should be made to improve confidence in the System and clear uptake targets should be set. This builds on the significant investment and goodwill of industry and others to-date and is consistent with:

[109] National Heart Foundation 2019 Report on the monitoring of the implementation of the HSR System in the first four years of implementation: June 2014 to June 2018, prepared for the Department of Health, p. 26.
[110] As reported on the HSR System and MPI websites.

- the principles of best practice regulation, which state that: regulation should not be adopted as a default option; the policy option with the greatest net benefit should be adopted; and decisions to regulate should be proportionate, taking into account the need for flexibility and the extent of market failure
  - Applying these principles, the Review considers that the benefits of mandating the System (at this time) do not outweigh the significant disadvantages and costs of doing so.
- international experience where the majority of interpretive FoPL schemes have been implemented on a voluntary basis
- research (including a recent UK study) that highlights the importance of setting targets and monitoring against these to assess the impact of long-term, sustained interventions tackling complex issues such as obesity.[111.]

Recommendation 9:	**The HSR System remain voluntary but with clear uptake targets set and all stakeholders working together to drive uptake. If the HSR System continues to perform well but the HSR is not displayed on 70% of target products within five years of a government decision on these recommendations, the HSR System should be mandated.**

Recommendation 10:	**The existing *Guide for Industry to the HSR Calculator* and the *HSR System Style Guide* be combined, revised and strengthened, providing greater certainty for stakeholders.**

Best practice regulation

In determining whether to recommend mandating the HSR System, the Review applied the principles of best practice regulation.

The Organisation for Economic Co-operation and Development (OECD), the Australian Government, the New Zealand Government and a number of State and Territory governments have published guides to best practice regulation, detailing matters to be taken into account when determining how to implement public policy measures (via regulation or otherwise). For example:

- The Australian Government Guide to Regulation[112] describes 10 principles for Australian Government policy makers, including the requirement that regulation is not the default option for policy makers. Rather, the policy intervention offering the greatest net benefit should always be the recommended option. The Guide also urges policy makers to consider the problem to be solved, why government action is needed and the likely net benefit of various options.

- The NSW Government's Guide to Better Regulation[113] articulates the characteristics of good regulation and the desirability of minimising red-tape through seven better regulation principles (broadly consistent with those of the Australian Government). The principles focus on encouraging non-regulatory approaches and ensuring that the need for government action is clearly established, effective and proportional.

- The New Zealand Government has published Government Expectations for Good Regulatory Practice[114], which details the Government's expectations for the design of regulatory systems. It includes the

[111] Butland, B, Jebb, S, Kopelman, P, McPherson, K, Mardell, J & Parry, V, *Foresight: Tackling Obesities: Future Choices – Project Report,* Government Office for Science
[112] Prime Minister and Cabinet, 2014, The Australian Government Guide to Regulation
[113] NSW Government Finance, Services and Innovation, October 2016, NSW Government's Guide to Better Regulation
[114] New Zealand Government Department of Treasury, April 2017, Government Expectations for Good Regulatory Practice

expectation that clear policy objectives should be achieved in the least costly way and with the least adverse impact on market competition, property rights and individual autonomy and responsibility. It also encourages predictability, flexibility and capacity to evolve in response to changing circumstances.

- The OECD has adopted the Recommendation of the Council on Regulatory Policy and Governance[115], which sets out the measures that governments should take to support the implementation and advancement of systemic regulatory reform. This guide assists governments to deliver regulation that will meet public policy objectives and have a positive economic and societal impact.

Drawing on the above principles, the Review considers that:

- there has been a lack of certainty about whether the HSR System will continue and a number of manufacturers have delayed implementing the System in anticipation of the outcomes of the Review. By clarifying that the HSR System is to be retained, uncertainty is removed, such that industry can invest in its implementation

- mandating the HSR System via the Code would not provide the greatest net benefit if a similar outcome can otherwise be achieved, as significant costs would be associated with:
  - making changes to the Code to mandate the HSR System. Changes to the Code would likely take a minimum of two to three years and involve an eight-step process, including: raising a proposal; public notification of the proposal; initial assessment and one round of consultation; assessment and drafting of the new standards; further consultation; approval by the FSANZ Board; referral to, and consideration by, the Forum and possible further review before finalisation of the standard in law
  - requiring industry to implement the HSR on all products within a defined period
  - each jurisdiction monitoring and enforcing compliance with the law
  - ongoing administrative costs to industry associated with demonstrating compliance

- flexibility and responsiveness are strengths of the current voluntary approach that would be lost if the HSR System were mandated under the Code
  - The food supply is constantly changing, as are consumer expectations, dietary recommendations and the nutritional profile of foods. Within this context, it is critical that there is a timely mechanism for considering anomalies, providing technical advice and adjusting guidance materials.
  - Anomalies are considered by a bi-national, cross-sectoral committee, with outcomes communicated directly to manufacturers and associated adjustments made to guidance material available online. While the Review has made suggestions for improving this approach, it is a broadly effective mechanism for achieving transparent and consistent outcomes, while retaining flexibility and minimising bureaucratic process.
  - If the HSR System were to be mandated under the Code, responsibility for provision of advice, monitoring and enforcement would rest with 10 jurisdictions. While bi-national bodies exist to resolve national issues and encourage consistency (including ISFR, FRSC and the Forum), these bodies also deal with pressing food safety issues and are unlikely to prioritise the resolution of FoPL anomalies.

- there is little evidence that mandating the System is necessary to sanction widespread poor performance or address persistent non-compliance.
  - As detailed in Chapter 3, monitoring in Australia indicates that compliance with the Style Guide was at 96% in 2018. Across the four years since implementation, compliance with the HSR Calculator has

[115] OECD 2012, *Recommendation of the Council on Regulatory Policy and Governance*, prepared by the Regulatory Policy Committee following the conference *Regulatory Policy: Towards a New Policy Agenda, October 2010.*

averaged more than 94% and where there were inconsistencies, the manufacturer has generally understated rather than overstated the product's HSR.[116]

The changes to governance arrangements described in Chapter 6 provide mechanisms for greater transparency, for anomalies to be resolved and actions to be taken in the event of non-compliance, without needing to mandate the HSR System.

International experience and trade implications

Interpretive FoPL schemes are continuing to be implemented internationally. The majority of these have been implemented on a voluntary basis.

In 2016-17, the Codex Committee on Food Labelling undertook a stocktake of FoPL schemes and developed two detailed discussion papers on key issues relevant to the implementation of FoPL schemes:

- 37 member countries responded to the first discussion paper in 2016, identifying 16 different FoPL schemes that had been implemented across 23 countries. Of these, 10 were interpretative schemes (such as the HSR System) that include symbols, colour codes and/or graphic representations that facilitate interpretation by the consumer and six were informative schemes.
- 17 of the member countries reported having implemented FoPL schemes on a voluntary basis, four on a mandatory basis, with another two countries having implemented voluntary and mandatory FoPL schemes.[117]
  - For example, the UK has developed a voluntary traffic light labelling scheme and the French Government has implemented the voluntary colour-coded scheme, Nutri-Score.

As few FoPL schemes are currently mandatory, evidence of the real-life impact of mandatory schemes on consumer behaviour and industry reformulation is limited.[118]

FoPL and trade policy

As member states of the World Trade Organization (WTO), Australia and New Zealand are party to a range of trade agreements, including the Agreement on Technical Barriers to Trade (TBT Agreement) and the Agreement on the Application of Sanitary and Phytosanity Measures (SPS Agreement). The TBT Agreement applies to compulsory labelling requirements (technical regulations) and compulsory labelling indications (standards).

Relevant, and in some cases common, principles under the Agreements include that labelling measures must:

- not discriminate between domestic and imported products
- be monitored and reviewed to address changes in circumstances and objectives
- when available and where appropriate, adopt international standards as a basis (to encourage the international harmonisation of food standards). The SPS Agreement explicitly recognises the Codex as a relevant international standard setting body.

[116] National Heart Foundation 2019, Report on the monitoring of the implementation of the HSR System in the first four years of implementation: June 2014 to June 2018, prepared for the Department of Health, p.33.
[117] Codex Committee on Food Labelling 2017, Discussion paper on consideration of issues regarding front-of-pack nutrition labelling.
[118] Kanter, R, Vanderlee, L & Vandevijvere, S 2018, 'Editorial: Front-of-package nutrition labelling policy: global progress and future directions', *Public Health Nutrition*, vol. 21, no. 8, pp. 1399-1408.

Under international trade law, voluntary labelling schemes are more likely than mandatory labelling requirements to be considered consistent with WTO rules.[119] For both mandatory and voluntary claims, governments have the duty to monitor the claims and protect consumers' right to receive accurate and true information.[120]

While international trade agreements are not a barrier to mandating the HSR System per se, the Review considers that if Australia and New Zealand were to continue the voluntary approach while monitoring its impact, this would further support the international trade principles (of proportionality, evidence of effectiveness, non-discrimination and multisectoral collaboration) should Australia and/or New Zealand wish to mandate the System in the future.

Barriers to uptake of the HSR System

Over the course of the Review manufacturers gave a range of reasons for not adopting the HSR System on some or all of their products, including:

- **there are some products for which the HSR System does not give the expected result,** which has undermined confidence in the System. Such criticisms of the System have made some manufacturers reluctant to display the HSR on some or all of their products. For example:
  - the 'as prepared' issue and resulting HSRs caused negative media, with some manufacturers publicly criticised despite their product displaying an accurate HSR at the time[121]
  - there are a number of product outliers where the HSR does not align with consumer expectations (refer Chapter 5).

- **lack of commercial incentives and consumer demand for the HSR System**
  - Research undertaken by Colmar Brunton for the MPI[122] in 2016 highlighted a number of barriers to uptake identified by industry, which generally centred around a perceived lack of commercial incentive and consumer demand for HSR System uptake, with manufacturers citing barriers such as:
    - packaging logistics
    - the absence of a solid business case/value to the business
    - no tangible benefit to their business
    - poor alignment of the HSR with organisational values or the brand
    - lack of momentum and visibility of HSR labelled products in stores
    - potential for negative impact on product sales due to a perception of inherent flaws in the System
    - concerns that the HSR System is adding to consumer confusion
    - low levels of knowledge/understanding of the System or where to find information.

- **uncertainty about the likelihood of the HSR System continuing**
  - Some manufacturers made the decision to await the outcome of the Review before implementing the HSR on their products, particularly given the packaging logistics to be resolved, including the cost in updating artwork which may subsequently require changes.

[119] Vidar, M *International legal frameworks for food labelling and consumer rights*, Food and Agriculture Organization of the United Nations (FAO), Italy, p. 33
[120] Vidar, M *International legal frameworks for food labelling and consumer rights*, Food and Agriculture Organization of the United Nations (FAO), Italy, p. 33
[121] Media article, accessed on 25 January 2019
[122] Colmar Brunton, 2017, Industry uptake of the Health Star Rating System – A qualitative exploration, prepared for the Ministry for Primary Industries.

Incentivising uptake of the HSR System

In order to achieve consistent and widespread uptake of the HSR System, the barriers to uptake need to be removed and incentives for uptake increased.

The Review considers that:

- **by implementing the changes proposed in Chapter 5, alignment with Dietary Guidelines will be improved** which will result in HSRs that are more in line with consumer and industry expectations. Addressing the relatively small (but often highly visible) number of 'problems' with the System removes a barrier to uptake

- **the most significant incentive for uptake is consumer demand.** If consumers demand the HSR on products, manufacturers will use it. As the System is improved and consumers become more aware of it, this will drive uptake.
  - Research exploring the impact of FoPL on consumers' willingness to pay highlighted that the HSR System was the only FoPL that resulted in greater willingness to pay for healthier versus less healthy products.[123] This demonstrates that, contrary to industry concerns, there may be a commercial advantage for manufacturers displaying the HSR on their products.
  - Attitudes within industry will continue to change as use of the HSR System becomes more widespread and more integrated with industry and government driven initiatives.

- **increasingly manufacturers are promoting the HSR and using the HSR System to guide product range development and reformulation** (some examples of this are outlined in Chapter 3). As more manufacturers come on board this will motivate others to do so. For example:
  - Lion committed to display the HSR on 100% of their retail portfolio by 2018.[124]
  - Simplot has a company policy to display the HSR on food products in Australian and New Zealand supermarkets. Simplot also declares the dietary fibre and FVNL content where these contribute to the product's HSR.
  - Sanitarium has committed to feature the HSR on packaging across its product ranges and has already applied the HSR to over 90% of its products.[125]
  - Nestlé committed to use the HSR, displaying it on more than 300 products in Australia and 180 in New Zealand in early 2018.[126]
  - Coca-Cola NZ and Frucor in New Zealand apply the HSR across the majority of their beverage products.[127]

- **the behaviour of retailers will continue to drive uptake.** Major retailers have committed to display the HSR on 100% of their private label products and are encouraging their suppliers to display the HSR on their products. For example:
  - At October 2018, Woolworths displayed the HSR on 100% (2,345) of eligible products in Australia. At December 2018, Countdown displayed the HSR on 91% of their eligible products in New Zealand and are on track to reach 100% by 2020. This represents all private label brands including Macro, Woolworths, Countdown, Select, Essentials, Homebrand, Free From and Gold product lines.
  - Coles has displayed the HSR on over 1,550 products.[128]

[123] Talati, Z, Norman, R, Pettigrew, S, Neal, B, Kelly, B, Dixon, H, Ball, K, Miller, C & Shilton, T 2017 'The impact of interpretive and reductive front-of-pack labels on food choice and willingness to pay, *International Journal of Behavioural Nutrition and Physical Activity*, vol. 14, pp. 2-10.
[124] LionCo website, accessed 25 January 2019.
[125] Sanitarium website, accessed on 25 January 2019.
[126] Nestle website, accessed on 25 January 2019.
[127] Food Industry Taskforce on Addressing Factors Contributing to Obesity, 2018, *Final Report to Ministers of Health and Food Safety.*
[128] Coles website, accessed on 25 January 2019.

  - Foodstuffs has displayed the HSR on more than 1,067 foods and committed to reach 100% by mid-2019. Foodstuffs has committed to 'champion the wide adoption of the HSR', specifically committing to display the HSR on all private label foods and 'promote wider adopting of HSR among our supplier community by championing this cause whenever we formally engage with suppliers'.[129]
  - IGA has implemented an EatWell campaign, including using the HSR to highlight healthier packaged products.[130]

- **complementary government initiatives will continue to drive uptake.** For example:
  - The Australian Healthy Food Partnership Reformulation Working Group has used the HSR nutrient thresholds to inform the draft reformulation targets for sodium, sugars and saturated fat, such that products reformulated to meet the targets may also increase their HSR.
  - Government led initiatives such as the NSW Healthy School Canteen Strategy include a requirement for all 'Occasional' (i.e. discretionary) foods and drinks (with the exception of diet drinks) sold in NSW Government school canteens to have an HSR of 3.5 or above.

- **a number of peak industry bodies have publicly stated their support for the HSR System** and have committed to actively work with their member organisations to address HSR System queries and drive uptake. This includes the Australian Food and Grocery Council (AFGC), the New Zealand Food and Grocery Council, the Australian Beverages Council, the New Zealand Beverage Council, the Grains and Legumes Nutrition Council, the Australian Breakfast Cereals Manufacturers Forum, Dairy Australia and the Australian Industry Group.

- **the HSR offers a range of benefits to manufacturers** because it illustrates to consumers that the manufacturer is committed to nutrition and is reflective of a socially responsible organisation.[131]

'This is a major preventative health initiative which offers an opportunity for the food and beverage industry to significantly contribute to improving the health of our nation. We know Australians trust our products and by providing transparent and easy to understand information through the Health Star Rating System, we are continuing to deliver on the trust consumers place in us and our brands.'
– Australian food manufacturer, submission to the Five Year Review of the HSR System

'At a product level it helps consumers make choices, which is why it's there. At a brand level it reflects to a certain extent the company's commitment to nutrition and their consumers. At an organisational level it creates a platform for us to have discussions with other business and have visibility with government'.[132]

Continuing to drive uptake is the responsibility of all stakeholders, with each contributing in different ways.

- **Governments** should:
  - set a clear uptake target and monitor against the target
  - continue to provide effective governance arrangements that support the HSR System and provide confidence in its administration
  - promote the HSR System, including as part of broader healthy eating messages
  - incorporate the HSR System into broader healthy eating initiatives and policies
    - State and Territory governments can incentivise uptake by integrating the HSR System as a tool to guide healthy food procurement in public settings, as has been implemented in NSW.
  - recognise manufacturers that adopt the HSR System (particularly those that display the HSR on 100% of their eligible products).

[129] Foodstuffs website, accessed on 25 January 2019.
[130] EatWell @ IGA website, accessed on 25 January 2019.
[131] Colmar Brunton, 2017 Industry uptake of the Health Star Rating System – A qualitative exploration, prepared for the MPI.
[132] Colmar Brunton, 2017 Industry uptake of the Health Star Rating System – A qualitative exploration, prepared for the MPI.

  - The HSR System website and social media should continue to identify companies that adopt the HSR System, recognising that they are supporting consumers to make healthier choices. Promotion should highlight those companies that use the HSR across their entire range of products (i.e. those that are not preferentially displaying the HSR on high rating products).

- **Consumers** can contribute by using the HSR and demanding that manufacturers display the HSR across their entire product range.
  - Consumers hold a powerful influence over retailers and manufacturers. If consumers are suspicious of products that do not display the HSR (and question this) or request that companies use the HSR to support consumer decision-making, this will be the strongest factor in driving uptake of the HSR.

- **Public health bodies and nutritionists** can educate consumers about the HSR System, how it can help them to make healthier choices when purchasing packaged foods and provide support to consumers to use the HSR System in the correct way.

- **Manufacturers** can be leaders in promoting public health and supporting their consumers by displaying the HSR across all products, not only those with higher HSRs.

- **Retailers** can contribute by promoting the HSR System and HSR labelled foods in store.

- **Industry peak bodies** can encourage and support manufacturers to use the HSR System.
  - This may include organised campaigns to get manufacturers on board, providing support and guidance to help companies to use the System correctly and recognising companies that use the HSR across their entire product range.

All of these factors will support continued uptake of the HSR System over the coming years.

Rationale for uptake targets

The absence of an uptake target when the HSR System was first implemented has made it difficult to determine whether there has been 'adequate' uptake.

Identifying an appropriate uptake target and timeframe within which to achieve it is challenging. In considering targets, the Review has been guided by stakeholder feedback, what can be achieved through target setting and international experience.

The Review recommends an uptake target of 70% of target products (based on SKUs) displaying the HSR within five years of a government decision on these recommendations. If the target is not reached within this timeframe (and the HSR is still performing well in guiding consumers to healthier choices), the HSR System should be mandated.

In this context, target products refer to the products for which the HSR System is intended, i.e. excluding products for which the HSR System is not intended to apply but that may display the HSR.

Broadly speaking, target products are all products carrying a NIP[133] other than:

- products included under the Code Standard *Part 2.9 Special Purpose Foods*
- products ineligible to display nutrition content claims and health claims as outlined under 1.2.7-5 of the Code *Standard 1.2.7 – Nutrition, Health and Related Claims*, including products intended for further

[133] Products exempt from NIP labelling requirements are outlined under 1.2.8-5(2) of the Code *Standard 1.2.8 – Nutrition Information Requirements.*

processing or labelled prior to retail sale, delivered to a vulnerable person by a delivered meal organisation, or provided as an institutional meal.

In submissions to the Review, some stakeholders suggested this target was too low, while others believed that achieving this target was not feasible. This target has been selected because, on balance:

- it is a specific and measurable target that supports the objectives of the HSR System and against which performance can be meaningfully assessed
- data regarding participation in the HSR suggests that the uptake trajectory makes this an attainable target
  - From 2016-17 to 2018-19, uptake of the HSR System increased by 8%. Assuming this trend continues over the next five years, a 40% increase to achieve 70% uptake is reasonable.
- it is expected that recommendations to improve the HSR System will result in further increased uptake
- it is appropriately aspirational, reflecting industry's investment in the HSR System to date and continued stakeholder motivation to promote and support the System as a public health intervention
- looking to the UK experience, there is evidence that 70% uptake is a realistic target across all eligible products, with a particular focus on products of most interest to consumers
  - In the UK, voluntary traffic light labelling was introduced in 2013, combining colour coding and percentage reference intakes. After five years, the scheme had been adopted by two-thirds of the packaged food and drink market in the UK.[134]
- the UK's salt reduction program demonstrates that government and food manufacturers can work collaboratively to achieve a significant public health outcome. Between 2003 and 2011, sodium intake in the UK fell significantly as the result of a voluntary commitment to reduce the average adult salt intake to 6g per day.[135]

While the Review is not recommending different uptake targets for different product categories, monitoring will enable tracking of whether the HSR is being applied on all foods consistently and on foods on which consumers have indicated that they are most likely to use the HSR. For example:

- Australian consumers have indicated they are most likely to use the HSR on processed foods: breakfast cereals, muesli bars, pre-prepared meals, ready to eat foods, breads, snacks and yoghurts.[136]
- MPI monitoring of the System asked shoppers to consider what types of products they use the HSR for. The HSR was most commonly reported to be used to choose breakfast cereals (22%), muesli bars (13%), snack foods (8%) and yoghurts (6%).[137]
- This is supported by a study that found UK shoppers looked for nutrition information predominantly for yoghurts (38%), breakfast cereals (34%), ready meals (28%), carbonated soft drinks (23%), salty snacks (22%) and confectionery (16%).[138]

Regular monitoring against this target should occur, particularly in the categories of highest interest to consumers, with results publicly reported to inform progress against the target.

[134] Jones, A, Shahid, M & Neal, B 2018 'Uptake of Australia's Health Star Rating System', *Nutrients*, vol. 10, no. 8, 997, pp. 1-13.
[135] He, F J, Brinsden, H C, MacGregor, G A 2013 'UK population salt reduction: an experiment in public health', *The Lancet*, vol 382.
[136] Parker, G, Souvlis, P, Parry-Husbands, H 2015 *Health Star Rating System: Consumer use and understanding*, prepared by Pollinate Research for the Department of Health, Sydney.
[137] New Zealand Food Safety 2018, *Health Star Rating – Monitoring implementation for the Five Year Review,* New Zealand Ministry for Primary Industries, p. 60.
[138] Grunert, K, Wills, J, Fernandez-Celemin, L 2010 'Nutrition knowledge, and use and understanding of nutrition information on food labels among consumers in the UK', *Appetite*, vol. 55, no. 2, pp. 177-189.

HSR System Industry guidance

As a result of the Review, changes will be needed to the Guide for Industry and the Style Guide. It is recommended that the opportunity be taken to combine, improve and strengthen these documents such that there is a single resource (similar to a Code of Practice) that describes the HSR System, its objectives and industry obligations.

The document should include:

- a clear statement of the objectives of the HSR System
- uptake targets and how these will be measured
- descriptions and examples of the products:
  - to which the HSR is intended to apply (target products)
  - to which the HSR is not intended to apply but which may display the HSR (eligible products)
  - that must not display the HSR.
- information about how to determine the HSR of a product
  - As suggested by stakeholders, it is proposed that the document would include:
    - further examples demonstrating how to calculate the HSR
    - further detail about what is eligible to be considered FVNL and concentrated FVNL, including worked examples of how to calculate %FVNL
    - which HSR category certain products should sit in, including by listing a range of examples under each category.
- information about how to present the HSR graphic
  - The document would reflect the expectation that Options 1-4 be used, and that only products displaying one of these options will be counted towards the uptake target.
  - Artwork files (with HSR graphics) should continue to be available to industry.
- complaints handling mechanisms
- how compliance with the HSR System will be monitored and reported
- actions that may be taken in the event of non-compliance (including referral to the Australian Competition and Consumer Commission and the New Zealand Commerce Commission where an inaccurate HSR is displayed such that it is misleading for consumers)
- the process for amending guidance materials.

As suggested by stakeholders, it is also recommended that the Online Calculator and Excel spreadsheet continue to be updated to improve their usability, stability and operational effectiveness for industry.

The review of guidance materials should be led by the government and undertaken by the HSR Secretariat, in consultation with the HSRAC as necessary.

Appendix A: About the Health Star Rating Calculator

Overview

The Code requires most packaged foods to display a Nutrition Information Panel (NIP) providing mandatory information on the average quantity per 100g or 100mL of energy, protein, total fat, saturated fat, carbohydrate, sugars and sodium.

The HSR System complements the NIP by providing interpretive information on the front of packaged food products. The HSR Calculator awards a star rating based on the quantity of specific components within the product. These components are:

- **risk components:** energy, saturated fat, total sugars and sodium
- **positive components:** protein, dietary fibre, and fruit, vegetable, nut and legume (FVNL) content.

The HSR System has been optimised for application to packaged food and beverage products presented for retail sale through supermarkets and similar retail outlets.

How the HSR Calculator works

The HSR Calculator is used by industry to determine the HSR for products. The following is a simplified outline of how the HSR Calculator works. For a comprehensive description of the HSR Calculator, please refer to the Guide for Industry on the HSR website.

Step 1. Determine the category of food

The six categories of foods in the HSR Calculator are:

- **Category 1** – Non-dairy beverages
  - E.g. fruit and vegetables juices, cordials, flavoured waters, soft drinks
- **Category 1D** – Dairy beverages and alternatives with calcium content ≥ 80mg per 100g
  - E.g. milk, flavoured milk, fortified soy milk, fortified nut milk
- **Category 2** – All foods not included in Category 1, 1D, 2D, 3 or 3D
  - E.g. packaged fruits and vegetables, rice, quinoa, breakfast cereals, muesli bars, ready to eat meals, biscuits, chips, confectionery, salty snacks, dairy desserts, ice confections and jellies
- **Category 2D** – All dairy foods and alternatives not included in Category 1D or 3D
  - E.g. yoghurts, cheese with calcium content ≤ 320mg per 100g
- **Category 3** – Oils and spreads
  - E.g. olive oil, coconut oil, butter, margarine
- **Category 3D** – Cheeses and alternatives
  - E.g. cheese with calcium content more than 320mg per 100g

Step 2. Determine the form of the food for the HSR[139]

The HSR (and hence nutrient content values used to determine it) should apply to the form of the food as determined in accordance with the following:

[139] The Forum agreed in June 2018 to limit the application of the HSR System to the product 'as sold.' This decision will be implemented alongside and in the context of the Review.

- the food as sold if the food can be either prepared with other foods or consumed as sold
- the food as prepared if the food is required to be prepared and consumed according to directions on the label
- the food after it is reconstituted with water and ready for consumption if the food requires reconstituting with water, or
- the food after it is drained and ready for consumption if the food requires draining before consuming.

The HSR should be based on the form of food for which the NIP information has been displayed.

Step 3. Calculate HSR baseline points

HSR baseline points are calculated for the average quantity of risk-associated components per 100 g or 100 mL of the product (based on the units used in the NIP):

- **energy** up to a maximum of 11 points for more than 3685 kJ per 100 g/mL of a product for all categories
- **saturated fat** up to a maximum of 30 points for more than 90% saturated fat in a product for all categories
- **total sugars** up to a maximum of 22 points for more than 99% total sugars in a product for Category 1, 1D, 2 and 2D, and up to a maximum of 10 points for more than 45% total sugars in a product for Category 3 and 3D
- **sodium** up to a maximum of 30 points for more than 8.10% sodium in a product for Category 1, 1D, 2 and 2D, and up to a maximum of 30 points for more than 2.7% sodium in a product for Category 3 and 3D.

Baseline points are calculated based on the points tables which can be found in the Guide for Industry.

Step 4. Calculate HSR modifying points

HSR modifying points may be scored for the positive components in a product:

- **V points** can be scored for the amount of fruits, nuts, vegetables and legumes (FVNL) or concentrated fruit and vegetable content in a food – from 1 point (for > 40% FVNL or ≥ 25% concentrated fruit and vegetable content) to a maximum of 8 points (for 100% FVNL/concentrated fruit and vegetable content)
- **P points** can be scored for the amount of protein in a product, only if the product scores 13 or less baseline points, or scores more than 13 baseline points but also scores 5 or more V points – from 1 up to a maximum of 15 points for more than 50% protein
- **F points** can be scored for the amount of dietary fibre in a product for Category 2, 2D, 3 and 3D foods only (i.e. beverages cannot score F points) – from 1 up to a maximum of 15 points for more than 20% fibre.

Step 5. Calculate the final HSR score

The final HSR Score is calculated by subtracting the modifying points (V, P and/or F points) from the HSR baseline points, using the below formula:

- Final HSR Score = baseline points – (V points) – (P points) – (F points)

Step 6. Assign a rating to the food based on the final HSR score

The HSR score is determined based on the final HSR Score and the HSR category the product is in based on the below table (found on page 14 of the Guide for Industry). Products can score from half a star (least healthy) to five stars (most healthy) in half-star increments (i.e. on a 10-point scale).

Table A.1: final scores used to assign HSRs (page 14 of the Guide for Industry)

Health Star Rating	Food Category 1 Non-dairy beverage	Food Category 1D Dairy beverage	Food Category 2 Non-dairy foods	Food Category 2D Dairy foods	Food Category 3 Oils and spreads	Food Category 3D Cheese >320 mg Ca/100g
5	≤ -6	≤ -2	≤ -11	≤ -2	≤ 13	≤ 22
4.5	-5	-1	-10 to -7	-1	14 to 16	23 to 24
4	-4	0	-6 to -2	0	17 to 20	25 to 26
3.5	-3	1	-1 to 2	1	21 to 23	27 to 28
3	-2	2	3 to 6	2	24 to 27	29 to 30
2.5	-1	3	7 to 11	3	28 to 30	31 to 32
2	0	4	12 to 15	4	31 to 34	33 to 34
1.5	1	5	16 to 20	5	35 to 37	35 to 36
1	2	6	21 to 24	6	38 to 41	37 to 38
0.5	≥3	≥7	≥25	≥7	≥42	≥39

Appendix B: Impact of the Health Star Rating System

Key statistics

	Australia	New Zealand
Uptake	As at June 2018, 5,448 products display the HSR, representing 31% of all eligible products.	As at June 2018, 2,997 products display the HSR, representing 21% of all eligible products.
Product categories with highest uptake of HSR	Of the foods displaying the HSR in Australia, the following categories contributed most significantly to the uptake: • **non-dairy beverages:** 11% of total products displaying the HSR, 45% of eligible products in this category, 608 total products • **processed meat and seafood:** 8% of total products displaying the HSR, 34% of eligible products in this category, 459 total products • **processed fruit and vegetables**: 7% of total products displaying the HSR, 45% of eligible products in this category, 386 total products • **savoury snacks:** 7% of total products displaying the HSR, 28% of eligible products in this category, 381 total products • **dairy and alternatives:** 7% of total products displaying the HSR, 24% of eligible products in this category, 367 total products.	Of the foods displaying the HSR in New Zealand, the following categories contributed most significantly to the uptake: • **fruit and vegetables:** 15.0% of total products displaying the HSR, 25% of eligible products in this category, 450 total products • **cereals and cereal products:** 13% of total products displaying the HSR, 26% of eligible products in this category, 400 total products • **non-alcoholic beverages:** 13% of total products displaying the HSR, 30% of eligible products in this category, 384 total products • **sauces and spreads:** 11% of total products displaying the HSR, 19% of eligible products in this category, 330 total products • **dairy and alternatives:** 9% of total products displaying the HSR, 13% of eligible products in this category, 256 total products.
HSR graphics	Of those products displaying the HSR: • 5% display Option 1 • 23% display Option 2 • 17% display Option 3 • 39% display Option 4 • 15% display Option 5, the energy icon, predominantly: – confectionery (263 products) with 32% of these products displaying the HSR showing the energy icon only – sugar-sweetened beverages (252 products) with 31% of these products displaying the HSR showing the energy icon only.	Of those products displaying the HSR (based on a sample of 512 products): • 8% display Option 1 • 17% display Option 2 • 17% display Option 3 • 42% display Option 4 • 16% (452) display Option 5, the energy icon. Products that commonly used Option 5 included confectionery, non-alcoholic beverages and edible oils.
Compliance against the Style Guide	• Of the products displaying the HSR in 2018, 8% have a design variation and 4% have a technical variation.	• Approximately 5% of products displaying the HSR were on foods for which the HSR System was not intended. • Very few inconsistencies were identified between the HSR displayed and the HSR System Style Guide. • Of the products displaying the HSR in 2018, 4% have a design variation and 16% have a technical variation.
Compliance against the HSR Calculator	• Of the products displaying HSR in 2018, 90% display the correct HSR (based on sampling) with approximately 5% of manufacturers overstating it and 5% understating it, generally only by 0.5 stars.	Not assessed in New Zealand.

	Australia	New Zealand
Consumer awareness and understanding	• 83% of consumers are aware of the HSR System when prompted • 20% of consumers are aware of the HSR System unprompted • 56% of consumers understand that the HSR System provides a rating of the product's healthiness	• 76% of consumers are aware of the HSR System when prompted • 16% of consumers are aware of the HSR System unprompted • 68% of consumers correctly identified that within a food category, the product with more stars is healthier
Trust, credibility and confidence	• 58% of consumers report they trust the HSR System • 62% of consumers believe the HSR System is credible • 67% of consumers report they have confidence in the HSR System	• 47% of consumers report they feel confidence using the HSR System • 40% of consumers report that they trust the HSR System
Influence on behaviour	• 77% of consumers agree the HSR System makes identifying healthier options within a category easier • 65% of consumers report that the HSR System helps them to make decisions about which foods to buy • 64% of consumers report being influenced by the HSR • 34% of consumers purchasing products that display the HSR used it to select a healthier product	• 61% of consumers agree the HSR System makes it easier to decide which packaged foods are healthier • 28% of consumers report using the HSR System to help choose packaged food (up from 10% in 2015) – 88% of these consumers reported choosing the product with more stars.
Nutrient status of products displaying the HSR	Of products displaying the HSR: • 63% have ratings of 3.0 to 5.0 stars • the most common HSR displayed is 4	• Products displaying HSR labels have significantly lower average energy density and saturated fat, sodium, total sugar and protein contents than non-HSR products. • Of products displaying the HSR: – 77% have ratings of 3.0 to 5.0 stars – the median HSR is 3.5 – the most common HSR displayed is 4 stars – compared to 2015, there have been small increases in proportions of products with 0.5 to 3.0 stars and a relative reduction in proportions with 4.0 to 5.0 stars.
Reformulation	Products displaying the HSR had statistically significant reductions in energy and saturated fat content over the four years since the System was introduced compared to those not displaying the HSR (which had no significant reduction in these components).	Of those products displaying the HSR in 2018 that were available prior to implementation of the HSR in New Zealand, 79% have been reformulated to some extent (i.e. have undergone a minimum of 5% change in the content of a key component).

Appendix C: Health Star Rating System use, promotion and complementary healthy eating initiatives

The following tables provide information about some of the ways retailers, food manufacturers, government and public health agencies in Australia and New Zealand have engaged with promotion of the HSR System. Information about complementary healthy eating initiatives is also included.

The information in these tables is indicative only, rather than exhaustive. Tables have been compiled based on information provided in submissions and during stakeholder consultation, and from online research.

HSR System use in other government initiatives

Type of Policy/Program	Jurisdiction	Description summary	Target audience
NSW Ministry of Health	New South Wales	The HSR System has been incorporated into the NSW Healthy School Canteen Strategy and the NSW Healthy Food and Drink in Health facilities for Staff and Visitors Framework. The HSR System is used, along with portion size limits to identify healthier food and drink options.	Consumers and retailers
SA Health	South Australia	SA Health has produced a series of fact sheets (including four related to the HSR) that can be ordered through the Health Promotion Community Education Resource Order Form for Consumers (Dec 2018).	Consumers

Industry promotion of the HSR System

Company	Jurisdiction	Description summary	Target audience
Anchor Dairy	New Zealand	Inclusion of information about the HSR System on Anchor Dairy website.	Consumers
Arnott's	Australia	Online promotion of a Guide to HSR on the Arnott's website.	Consumers
Coles	Australia	Inclusion of statement on the HSR on Coles website, including reference to the number of Coles Brand products displaying HSR.	Consumers
Countdown	New Zealand	Online promotion including information about the HSR on Countdown website. Publication of Retail Industry Pledge to use the HSR on private label products and encourage suppliers to use HSR, includes measurable targets and documentation of progress.	Consumers
Daily Juice	Australia	Online promotion of the HSR and how Daily Juice product labels are making it easier for customers to make healthier choices on the Daily Juice website.	Consumers
Foodstuffs	New Zealand	Inclusion of statement on the HSR on the Foodstuffs website and featuring HSR branded products in promotions.	Consumers
Frucor	New Zealand	Inclusion of information on the HSR System on the Frucor website.	Consumers
Go Natural	Australia	Online promotion of HSR (on images of nut bars) and information on HSR and how it is calculated on Go Natural website.	Consumers

Company	Jurisdiction	Description summary	Target audience
GR8START	Australia	Online promotion of GR8START breakfast mix displaying health star rating on GR8START website.	Consumers
IGA	Australia	Eat Well at IGA campaign, including advice to help customers make healthier choices by using the HSR.	Consumers
Kellogg's	Australia, New Zealand	Inclusion of information on the HSR System and how it should be used, only accessible to health professionals through the Kellogg's Australia New Zealand Health Professional Hub on the Kellogg's website.	Health professionals
Lion	Australia, New Zealand	Online promotion of the company's commitment to front-of-pack labelling including a section on Lion website titled *Reading Food Labels*, with information about the HSR System.	Consumers
Monster Health Food	Australia	Online promotion of the HSR for muesli products on home page of Monster Health Foods website and promotion of the value of the HSR System in media coverage.	Consumers
Nestle	Australia, New Zealand	Online promotion of ways to understand and use the HSR when shopping on the Nestle website. Provision of consumer support materials for dietitians, including HSR pocket cards, postures and brochures.	Consumers and health professionals
New Zealand Food and Grocery Council	New Zealand	Provision of information about the HSR System on the New Zealand Food and Grocery Council website.	Consumers and industry
New Zealand Beverage Council	New Zealand	Provision of information on the New Zealand Beverage Council website.	Consumers
NZ Sugar	New Zealand	Provision of news and articles relating to the HSR System through the Sugar Research Advisory Service.	Consumers and health professionals
Pepsico	Australia, New Zealand	Inclusion of a statement supporting the HSR System on Pepsico website including links to downloadable lists of the HSRs for Australian and New Zealand snacks.	Consumers
Pic's Peanut butter	Australia, New Zealand	Online promotion of visual images of HSR on products on Pic's Peanut butter website.	Consumers
Sanitarium	Australia, New Zealand	Online promotion including information about the HSR, articles and a video explaining how the HSR relates to the company's products on Sanitarium website.	Consumers
Simplot	Australia	Inclusion of information about the HSR, including statement that HSR icon to appear on all products available in retail outlets on Simplot website.	Consumers
Tegel	New Zealand	Online promotion of inclusion of HSR on all packaged chicken and turkey products on Tegel website.	Consumers
The Happy Snack Company	Australia	Inclusion of information about what the HSR is and why their products receive 5 stars on The Happy Snack Company website.	Consumers
Uncle Tobys	Australia	Inclusion of information and a video about how to read and apply the HSR on Uncle Tobys website.	Consumers
Unilever	Australia, New Zealand	Information on the Unilever website about the HSR System, images of products and confirmation that they will be introducing the HSR across their food and beverage portfolio.	Consumers
Woolworths	Australia	An affordable health campaign, including a series of print catalogues titled 'Making healthier choices more affordable',	Consumers

Company	Jurisdiction	Description summary	Target audience
		promoting price drops on products including packaged foods displaying HSRs of 4 and 5. In-store announcements, meal solution cards, shopping baskets, aerials, EAS Gates and bus stops promoting HSR, with focus on products with HSRs of 4 and 5. A 'Making healthier easier' campaign, including in store, radio and tv advertisements promoting 'Woolworths is making healthier easier with more Health Star Ratings across our Woolworths food range'. Online promotion including information about the HSR on the Woolworths website.	

Public health and others' promotion of the HSR System

Company	Jurisdiction	Description summary	Target audience
Cancer Council NSW	NSW	Blog articles relating to the HSR System and how it can be used and a section on the Cancer Council website on Reading food labels, with detailed information about the HSR System.	Consumers
Choice	Australia	Online promotion of Choice's 5 Asks to make the health stars work for you, not food companies. FAQ page with detailed information relating to the HSR System, how it is calculated, and how it should be used.	Consumers
Diabetes NSW & ACT	NSW and ACT	Publication of detailed articles explaining the basis upon which HSR is calculated on the Diabetes NSW & ACT website	Consumers, health professionals
Foodwatch	Australia	Nutritionist Catherine Saxelby's Foodwatch website contains detailed information about how HSR is calculated, how it can most effectively be used and star ratings for a range of sample products.	Consumers
Healthy Kids Association	Australia	Inclusion of detailed information about the HSR and how parents can use it to make healthier choices for children on the Healthy Kids Association website.	Parents
Obesity Policy Coalition	Australia	Regular media commentary on HSR. Information on HSR on Obesity Policy Coalition website, including policy briefs on improving the effectiveness of the HSR.	Consumers, industry, government
The George Institute for Global Health	Australia	Publication of articles, academic reports and commentary relating to the HSR on The George Institute website. Development and implementation of FoodSwitch, a smartphone app that allows barcodes of packaged foods to be scanned using the camera on the phone and provides the consumer with information about the product's HSR.	Consumers, academics, health professionals, food industry
Grains & Legumes Nutrition Council	Australia	Inclusion of information about the HSR in fact sheets describing how to choose breakfast cereals and snack bars on the GLNC website.	Consumers
Nuts for Life	Australia	Inclusion of information about the HSR in a range of articles, including a list of the star ratings for different types of nuts on the Nuts for Life website.	Consumers

Company	Jurisdiction	Description summary	Target audience
Sarah Moore Wellness	Australia	Inclusion of detailed information about development of HSR and how to use the HSR effectively to make healthier choices for the family (from perspective of nutritionist) on Sarah Moore Wellness website.	Consumers

Complementary healthy eating initiatives

Industry, public health and joint initiatives

Type of Policy/Program	Jurisdiction	Description summary	Target audience
Family Food Patch – You Tube clips sugar in drinks	Tasmania	State-wide promotion through the family Food Patch peer education program. Includes you-tube educational videos designed for peer food educators and communities.	Consumers
Food for Thought	New Zealand	A healthy choices nutrition program for year 5 and 6 primary school students incorporating a framework of activities, nutritionist support and sponsored lunch and a supermarket visit to Pak'n'Save, New World or Four Square supermarkets.	Primary school students
Free fruit for kids	Australia, New Zealand	Free fresh fruit available for children while parents are shopping at Harris Farm Markets, Woolworths, Coles, Countdown, Fresh Choice.	Parents and children
Milk for Schools	New Zealand	Fonterra is currently providing free milk in 70% of New Zealand primary schools.	Primary school students
HeartSAFE reformulation programme	New Zealand	Funded by the Ministry of Health and led by New Zealand Heart Foundation, it sets targets for sodium reductions in processed foods.	Food manufacturers and producers
Live Lighter campaign	WA, ACT, NT and Victoria	A campaign (developed in WA) that aims to promote healthy eating, physical activity and healthy weight through mass media, advertising, social media, online and printed resources, advocacy and retailers. Online resources include sugar related education material on avoiding sugary drinks and tips to cut back on added sugar in the diet.	Adults and parents of children 0 - 12 years
Responsible Children's Marketing Initiative	Australia	An initiative developed by the Australian food and beverage manufacturing industry in 2008 in response to concerns about the level of advertising of foods high in energy, fat, sugar and salt to children. Signatories report against company action plans which highlight specific steps towards meeting commitment to responsible marketing of food and beverages to children.	Industry
Victorian Salt Reduction Partnership	Victoria, Australia	A joint action plan of the VicHealth, National Heart Foundation, The George Institute, Deakin University, IPAN, Stroke Foundation, Kidney Health Australia, Baker Heart and Diabetes Institute, AHPS and HBPRCA to reduce salt intake in Victoria and Australia.	Consumers

Government led initiatives

Type of Policy/Program	Jurisdiction	Description summary	Target audience
Healthy Food Partnership	Australia	A joint initiative between government, the food industry and public health groups focusing on increased health knowledge, healthier choices and better health outcomes for Australians. The focus of the Partnership includes: • portion control • communication, education and meal planning on whole foods and total diet • reformulation activities.	Consumers
Eatforhealth.gov.au	Australia	Australian Government website promoting the Australian Dietary Guidelines and providing supporting resources for health professionals and consumers, including brochures and posters for use in different settings. The website includes advice for consumers on how to translate ADG recommendations into everyday life.	Consumers
Healthy kids industry pledge	New Zealand	As part of the New Zealand Government's Childhood Obesity Plan, the Healthy kids industry pledge involves partnerships with the food and beverage industry to make commitments (relating to reformulation, labelling, education, marketing, addressing health inequalities and communication and public reporting) that will make a contribution to reducing the incidence of childhood obesity. Companies and industry groups already committed include the New Zealand Food and Grocery Council, Coca-Cola, McDonalds New Zealand, Nestle, Fonterra, Retail New Zealand and the Association of New Zealand Advertisers.	New Zealand Children
Make Healthy Normal campaign	NSW	A campaign that aims to support healthy eating and active living in NSW and includes targeted consumer messaging to replace sugar-sweetened beverages with water.	Consumers
Big Changes Starts Small	New Zealand	A national social marketing campaign that was one of the 22 initiatives in the Government obesity plan to raise awareness of childhood obesity in New Zealand, run by the Health Promotion Agency.	Consumers
Healthier Happier Campaign	Queensland	Social marketing campaign including a website, TVC, social media encouraging Queenslanders to add more fruit and vegetables to their meals, have smaller portion sizes, cut back on sugary drinks and increase levels of physical activity.	Consumers

Settings based food and drink policies

Type of Policy/Program	Jurisdiction	Description summary	Target audience
kJ information (menu labelling)	NSW, Victoria, Queensland, SA, ACT	In 2010, NSW was the first state to legislate mandatory kilojoule (kJ) menu labelling to support consumers to identify healthier food and drink choices at major fast food outlets. Since then, Victoria, Queensland, South Australia and the Australian Capital Territory have also implemented a kJ Menu Labelling Scheme. Whilst the kJ Menu labelling scheme is not mandatory in Tasmania, the Northern Territory and Western Australia, some	Consumers

Type of Policy/Program	Jurisdiction	Description summary	Target audience
		fast food companies have introduced a kJ menu board in restaurants.	
Healthy food and drink policies in Government work places and public facilities	Various Australian States and Territories, and New Zealand	Mandatory and voluntary policies for food service facilities, including cafeterias, kiosks, and vending machines in government run facilities including public schools, public health sites such as hospitals, health centres, recreation centres, public events and sports facilities. Policies include limiting/restricting the availability of unhealthy foods and drinks (including those high in added/total sugar) and increasing the availability of healthy food. Implementation is varied according to local health districts and jurisdictions. Some jurisdictions include additional guidelines for: • fundraising, advertising and sponsorship • workplace health education programs • retail food outlets (e.g. cafeterias, cafes, coffee shops - implemented by WA, Victoria and SA).	Staff working at these facilities and visitors
Healthy eating guidelines for government schools	Australian Government, various States and Territories	The National Healthy School Canteen guidelines and resources provide national guidance and training to help canteen managers to make healthier food and drink choices for school canteens. Implementation of the NHSC guidelines is at the discretion of each state or territory government. Some states and territories have implemented the NHSC guidelines in full, others incorporated components of the guidelines within their own system. Under the Guidelines, foods and drinks high in sugar are banned from sale in school canteens, vending machines and preschools. NSW has recently relaunched the NSW Healthy School Canteen Strategy, which classifies foods according to the Australian Dietary Guidelines concepts of FFG (Everyday) and discretionary (Occasional), supported by the use of portion size and the HSR to select healthier versions of some foods and drinks.	School children
Healthy Food Provision in early childhood settings	Australian Government, States and Territories	A National Quality Standard requires all services to actively promote healthy eating and provide adequate, nutritious food specific for early childhood (0-5 years), based on recommendations in the Australian Dietary Guidelines. Get up and Grow: Healthy Eating and Physical Activity for Early Childhood resources are also available from the Commonwealth Department of Health website.	All children in organised care aged 0-5 years
Fuelled4 Life	New Zealand	Managed by the Heart Foundation, Fuelled4 Life is a Food and Beverage Classification System (using 'everyday' or 'sometimes' categorisation) designed specifically for foods and beverages children commonly consume in an education setting.	School and preschool aged children
Healthy Lifestyles – Drink Water promotion	New Zealand	Encouraging all schools in New Zealand to provide water and plain milk only. Includes infographic posters and guidance on how to implement plain water drink policy in schools.	School children
The Victorian Healthy Eating Enterprise (VHEE)	Victoria	A coordinated platform to support healthy eating targeting state-wide and local organisations and workforce (beyond the health sector) promoting access to nutritious food in Victoria. Priority areas:	NGOs, local government, community and health services,

Type of Policy/Program	Jurisdiction	Description summary	Target audience
		• increasing fruit and vegetables • reducing sugar-sweetened beverages • increase access to nutritious food.	health professionals and food relief organisations
Healthy Eating Advisory Service	Victoria	A state service providing practical support to key settings and organisations to meet Government nutrition policies and guidelines.	Schools, workplaces, recreation centres and health services
Premier's Healthy Kids Menus Initiative	SA	Aims to increase the provision of, and access to, healthy menu options for children in SA restaurants, cafes, hotels and clubs. Criteria specific to sugar reduction include: • free tap water is easily accessible • meal deals do not include soft drinks containing sugar or artificial sweeteners • guidance on desserts on the menu.	Children
Healthy Children Initiative	NSW	The NSW Healthy Children Initiative (HCI) was established in 2011 to provide a coordinated approach to childhood obesity prevention across NSW. Key program messages encourage the consumption of water over sugar-sweetened drinks.	Children aged 0-16 years

Resources focusing on beverages

Type of Policy/Program	Jurisdiction	Description summary	Target audience
Sugary Drinks - Healthy Bodies Need Healthy Drinks	Commonwealth	Online resource package that promotes healthy drink choices and discourages excessive consumption of sugar-sweetened drinks among Aboriginal and Torres Strait Islander school aged children, their families and communities. Includes brochures, activities, music videos, posters and song lyrics.	Aboriginal and Torres Strait Islander peoples
Swap Soft Drinks for Water initiative	NT	Online information sheets and promotional resources on replacing soft drinks with water, for use by different health promotion sectors including schools, child care, community groups, stores, council (through Sport and Recreation Officers) and health centres.	Consumers
H30 Challenge	Victoria	VicHealth campaign encouraging Victorians to make a 30-day pledge to replace every sugary drink they would normally drink with water.	VIC population
Good Habits for Life – Sugar Swap Challenge	ACT	Online resources and advice for families to recognise added sugar in their food and drinks, and to 'swap them out' for healthier alternatives for one month. Includes an online sugar swap game for children.	Parents and carers with children 0 - 8 years
100% water resources Health Promotion	New Zealand	Online resources including sugary drink infographics and suite of '100% Water' posters encouraging consumers to choose water instead of sugary drinks.	Consumers
Move Well Eat Well program	Tasmania	Resource promoting healthy eating and physical activity which also includes a 'Think before you drink' poster promoted through early childhood and primary school programs.	Children aged 0 – 12 years

Appendix D: Issues and options raised throughout the Review

Over the course of the Review, stakeholders made a range of suggestions for improvements to the HSR System. Not all of these suggestions have been addressed in the body of the Review Report. This Appendix summarises the Review response to key issues raised.

HSR System

Adopting a traffic light system as per the UK

Prior to the introduction of the HSR, a range of FoPL systems were examined. After significant consultation (and review of the evidence), governments agreed the introduction of the HSR rather than a traffic light labelling system.

The Review does not propose re-visiting this decision. The HSR System is generally performing well such that large-scale changes that would fundamentally disrupt or replace the existing System are not recommended.

Research also continues to be published indicating that:

- consumers find the HSR System easier to understand than traffic light labelling[140]
- the HSR System is preferred to traffic light labelling, better enabling consumers to determine healthier product options and resulting in healthier choices[141,142,143].

Differentiating between foods based on their level of processing

The Review acknowledges that increasing attention is being paid to the role of food processing in global food supplies and dietary patterns. Some stakeholders have referenced the NOVA food classification system (that categorises foods according to the extent and purpose of food processing, rather than in terms of nutrients) as a preferred basis for the HSR.

While NOVA has been used to assess the nutrient profile of diets and assist in the development of dietary guidelines in some countries, it has not been used as the basis for a FoPL system and would not readily enable consumers to choose between processed packaged foods (given that its focus is on limiting the consumption of processed foods and avoiding ultra-processed products).

Consistent with some of the underpinning tenets of NOVA, the Review recommends that Government communications about the HSR continue to be positioned in the context of broader healthy eating messages encouraging people to select FFG foods and to use the HSR when comparing like packaged foods.

[140] Neal, B, Crino, M, Dunford, E, Gao, A, Greenland, R, Li, N, Ngai, J, Ni Mhurchu, C, Pettigrew, S, Sacks, G, Webster, J & Wu JHY 2017, 'Effects of different types of Front-of-Pack Labelling information on the healthiness of food purchases – a Randomised Controlled Trial', *Nutrients*, vol. 9, no. 12, p. 1284.

[141] Pettigrew, S, Talati, Z, Miller, C, Dixon, H, Kelly, B, & Ball, K 2017 'The types and aspects of front-of-pack food labelling schemes preferred by adults and children', *Appetite*, vol. 109, pp. 115-123.

[142] Talati, Z, Pettigrew, S, Kelly, B, Ball, K, Hughes, C, Kelly, B, Neal, B, & Dixon, H, 2017 'The relative ability of different front-of-pack labels to assist consumers discriminate between healthy, moderately healthy, and unhealthy foods', *Food quality and preference*, vol. 59, pp. 109-113.

[143] Talati, Z, Norman, R, Pettigrew, S, Neal, B, Kelly, B, Dixon, H, Ball, K, Miller, C, & Shilton, T 2017 'The impact of interpretive and reductive front-of-pack labels on food choice and willingness to pay' *International Journal of Behavioural Nutrition and Physical Activity*, vol. 14, no. 1, p. 171.

Creating additional HSR Categories

Issue

The HSR Calculator is adjusted for six different HSR categories to account for the differing nutrient compositions of different types of foods.

Options explored

Some stakeholders have suggested that Category 2 is too large and covers a diverse range of foods, which makes it difficult for the Calculator to accurately score all foods in this category.

To address this, the Review explored the creation of additional categories or sub-categories, such that eligible fruits and vegetables would score an HSR of 5. However, this had the unintended consequence of driving up the HSRs of some ineligible foods (such as dried fruits and beer battered wedges). While the creation of additional sub-categories would not necessarily impact a large number of products, it creates complexity for stakeholders (particularly for manufacturers seeking to determine the category of a product). By contrast, using policy to address a discrete issue (to increase the HSRs of some fruits and vegetables) is a more targeted approach and impacts on a narrow range of manufacturers and products.

In addition, the Review found:

- The creation of additional categories would require further definition of what is included/excluded in each category. Food categories are very difficult to define accurately, and the creation of additional categories is likely to exacerbate existing challenges experienced in determining which category certain foods belong to and the intersection between categories.
- Regulatory bodies designing nutrient profile models for use in food legislation generally favour models with as few categories as possible to simplify enforcement.
- Similar nutrient profiling models such as the NPSC, the UK NPM and the French Nutri-Score system have fewer categories than the HSR System – each comprising only three categories.
- A UK study published in 2010[144] found that nutrient profile models should be category specific but with a limited number of categories; models using a large number of categories are unhelpful for promoting a healthy diet.

Conclusion

The Review found that the creation of additional categories creates further complexity within the System and does not achieve the policy outcomes sought. The Review concluded that the HSR categories should remain as they are, with adjustments made to address specific issues in Categories 2D and 3D.

[144] Scarborough, P, Arambepola, C, Kaur, A, Bhatnagar, P & Rayner, M 2010, 'Should nutrient profile models be 'category specific' or 'across-the-board'? A comparison of the two systems using diets of British adults', *European Journal of Clinical Nutrition*, vol. 64, pp. 553-560.

Positive components

Assigning all FFG foods an automatic HSR of 5

Issue

Some stakeholders have proposed that if an HSR of 5 is automatically applied to eligible fruits and vegetables, all FFG foods should similarly receive an automatic HSR of 5.

Conclusion

The key reasons the Review has not recommended this include:

- Dietary Guidelines do not distinguish between different fruits and vegetables and instead encourage consumption of a variety of fruits and vegetables. This is in contrast to most other FFG foods, where Dietary Guidelines recommend consumption of *lean* meats, *mostly reduced fat* dairy and *mostly wholegrain or high fibre* cereals.
- for some other FFG foods, the range of HSRs is wider than the range of HSRs for fruits and vegetables. For example, the range of HSRs for fruits and vegetables is 4 – 5 (with most scoring 4.5 or 5) whereas cheeses score a wide range of HSRs (with higher HSRs generally associated with lower sodium and saturated fat cheeses).

Including wholegrain in the HSR Calculator

Issue

Dietary Guidelines promote the consumption of grain foods, mostly wholegrain and/or high cereal fibre varieties. While the HSR Calculator does account for fibre content, it does not directly consider wholegrain. This means that the HSR System does not always support consumers to choose wholegrain varieties over similar products containing more refined fibre (for example, to choose between white and wholegrain bread, or white and brown rice).

Some stakeholders proposed that wholegrain should be included in the HSR Calculator to enable improved differentiation between such products. This was explored by the TAG and further investigated through the Review.

Options explored

The following options for including wholegrain in the HSR Calculator were explored:

- adding wholegrain content as a component of FVNL to enable wholegrain foods to score modifying points and achieve a higher HSR
  - This option had only a minor impact on the HSRs of wholegrain foods but added substantial complexity to the HSR Calculator, requiring the creation of a new subcategory in Category 2 and rescaling to ensure it targeted FFG foods.
  - The addition of new positive components to the HSR Calculator also had the potential to offset the presence of risk-associated components.
- adding wholegrain as an FVNL component but disallowing products that score wholegrain points to score fibre points
  - This option had a negative impact on the HSRs of many FFG foods, disproportionate to the positive impact of including wholegrain in the Calculator.

  - It also added significant technical complexity to the HSR Calculator.
- enabling foods to receive more modifying F points where more wholegrains are present in the food
  - This option involved adding a proportional loading to the F points for foods containing wholegrain, enabling wholegrain foods to score modifying points and achieve a higher HSR.
  - However, stakeholders noted that this did not result in increases to the HSRs for those foods of concern (e.g. wholegrain breads and rices) but enabled some discretionary foods to score higher HSRs.
  - A range of variations on this option were explored, including placing parameters around the foods eligible to score points for their wholegrain content. However, all variations on this option added significant complexity and had only a minor impact on the HSRs of wholegrain foods.

Conclusion

While the benefits of wholegrain are recognised by the Review, the potential benefits of including wholegrain in the HSR Calculator were exceeded by the technical complexities and unintended consequences of the various options explored in that:

- declaration of wholegrain content is not required on food packaging, except where wholegrain is a characterising ingredient
- it is not possible to analytically determine the content of wholegrain in food
- while the Code and the Grains & Legumes Nutrition Council's Code of Practice for Whole Grain Ingredient Content Claims (Industry Code of Practice)[145] provide a consistent definition of wholegrain, different stakeholders expressed different views about the appropriateness of this definition for the purposes of defining a food component impacting the HSR
  - While the Australian definition includes hulled, ground, milled, cracked or flaked grains, international definitions vary regarding what foods can be considered wholegrain, and the type and level of processing the foods may undergo while still being considered wholegrain.
  - Some studies suggest that the intact structure of grain influences the health benefits of wholegrain cereal products and that processing can lead to losses of bioactive compounds (e.g. carotenoids, polyphenols, phytosterols, fatty acids, and peptides).[146,147,148,149,150,151]
- rewarding wholegrain content resulted in limited increases to FFG foods such as brown rices, but resulted in more significant increases to the HSRs of many discretionary products such as muesli bars, salty snacks and crackers
- it would reduce alignment with the NPSC (on which the HSR Calculator is based), which does not consider wholegrain.

The Codex Alimentarius Commission undertook a survey of member countries with FoPL schemes in 2017.[152] It found that fibre, protein and (to a lesser degree) FVNL are considered a priority in a FoPL scheme, however wholegrain is not currently included in any of the schemes surveyed.

[145] Grains & Legumes Nutrition Council, June 2017, Code of Practice for Whole Grain Ingredient Content Claims
[146] Fardet A, Leenhardt F, Lioger D, et al. 2006 'Parameters controlling the glycaemic response to breads' *Nutr Res Rev*, vol. 19, pp. 18-25.
[147] Fardet, A 2010 'New hypotheses for the health-protective mechanisms of whole-grain cereals: What is beyond fibre?' *Nutrition Research Reviews*, vol. 23, no. 1, pp. 65-134.
[148] Granfeldt Y, Hagander B & Bjorck I 1995 'Metabolic responses to starch in oat and wheat products. On the importance of food structure, incomplete gelatinization or presence of viscous dietary fibre' *Eur J Clin Nutr*., vol. 49, pp. 189-199.
[149] Jenkins DJ, Wesson V, Wolever TM, et al. 1988 'Wholemeal versus wholegrain breads: proportion of whole or cracked grain and the glycaemic response' BMJ vol. 297, pp. 958–960
[150] Liljeberg H, Granfeldt Y & Bjorck I 1992 'Metabolic responses to starch in bread containing intact kernels versus milled flour' *Eur J Clin Nutr*., vol. 46, pp. 561–575.
[151] Nilsson AC, Ostman EM, Granfeldt Y, et al. 2008 'Effect of cereal test breakfasts differing in glycemic index and content of indigestible carbohydrates on daylong glucose tolerance in healthy subjects' *Am J Clin Nutr*., vol. 87, pp. 645-654.
[152] Codex Alimentarius Commission – Codex Committee on food labelling 2017 Discussion Paper on Consideration of issues regarding front-of-pack-nutrition labelling.

As noted by some stakeholders, the Danish Key Hole, the Singapore Healthier Choice and the Canadian Guiding Stars FoPL schemes currently consider wholegrain. However, these schemes generally entail significant guidance around what foods might be considered wholegrain and the proportion of wholegrain that different foods must contain in order to receive a benefit. This level of detail around one food component is not practical in the HSR System.

The Review notes that other labelling tools are available to industry to promote wholegrain (for example, wholegrain claims can be made in line with the Industry Code of Practice).

Removing protein from the HSR Calculator

Issue

Some stakeholders have questioned whether protein should be included as a positive nutrient in the HSR Calculator, as the majority of Australians and New Zealanders meet or exceed recommended intakes for protein. Others raised concerns that protein may displace other negative nutrients in food such as sugars and saturated fats or that manufacturers may add protein (such as whey or casein) to products to offset risk nutrients to gain a higher HSR, without delivering health benefits.

Conclusion

Protein is included in the HSR Calculator as it is part of the NPSC and the UK NPM 2004/5 on which the NPSC is based. Evidence underpinning the UK NPM demonstrates that protein is a reasonable surrogate for iron and calcium content[153], which are both lacking in the Australian and New Zealander populations. As neither iron nor calcium content is mandated in the NIP, it is also more practical to use protein as a surrogate in the HSR Calculator. Many FFG products (nuts, legumes, breakfast cereals, lean meats) are being appropriately promoted through the consideration of protein content.

A study published in August 2017[154] analysing the nutritional composition of foods from 2015 to 2016 found that the average protein content of products displaying the HSR was unchanged. Further, industry has advised that given the expense of protein as an ingredient, this would likely limit its use in large quantities to increase a product's HSR.

Reducing the protein 'tipping point'

Issue

Products scoring more than 13 baseline points (i.e. points for energy, sodium, saturated fat and/or sugars) and less than 5 FVNL points are ineligible to score protein points.

This represents a change from the UK Nutrient Profiling Model. When the NPSC was developed, eligibility for protein points was changed from 11 or fewer baseline points to 13 or fewer baseline points; meaning that a product can receive more baseline points before becoming ineligible to score protein points.[155]

[153] Rayner, M, Scarborough, P & Lobstein, T 2009, *The UK Ofcom Nutrient Profiling Model: Defining 'healthy' and 'unhealthy' foods and drinks for TV advertising for children*, October, accessed 17 January 2019.
[154] Ni Mhurchu, C, Eyles, H & Choi, Y, 2017 'Effects of a Voluntary Front-of-Pack Nutrition Labelling System on packaged food reformulation: the Health Star Rating system in New Zealand', *Nutrients*, vol. 9, no. 918.
[155] FSANZ, *Final Assessment Report for Proposal P293 – Nutrition, Health & Related Claims, Attachment 6: General Level Health Claims*

Some stakeholders expressed concerns regarding the potential for this to allow less healthy products to offset negative points using protein and, consequently, improve the product's HSR.

Options explored

The Review explored the impact of decreasing the protein threshold to 11 points. It was found that this would affect relatively few products (4% of the products in the TAG database). However, 56% of these were FFG products, including breakfast cereals, flours, custards and yoghurts, savoury biscuits, plant-based proteins, meats and processed vegetables. These products were disproportionately impacted by this change, with three products losing 1.5 stars and 70 products losing one star.

Decreasing the protein threshold also reduces differentiation between products with significantly different nutrient profiles by reducing the consideration of one positive component and increasing the emphasis on negative components.

For example, a ready to eat wholegrain breakfast cereal that contains 8.7% protein from wholegrain and nuts and 18.2% sugars would see a reduction to its HSR from 4 to 3. However, a ready to eat wholegrain chocolate flavoured breakfast cereal that contains less protein (7.8%) and significantly higher sugars (29.9%) would also achieve an HSR of 3, implying to consumers that these products are of equivalent nutritional value.

Conclusion

Rather than make changes to protein, the Review has proposed changes to the treatment of sugars and sodium. This better targets the products of concern, without disproportionately impacting FFG products.

Negative components

Including added sugars in the HSR Calculator

Issue

Many stakeholders advocated for the inclusion of added or free sugars in the HSR System to better align with Dietary Guideline recommendations to reduce intake of added sugars.

Options explored

The Review considered various ways to include added sugars in the HSR Calculator including:

- substituting total sugars for added sugars (without changing the points table)
  - The main disadvantage being a mean increase in HSRs across most product categories and increases to the HSRs for a number of products of concern to consumers.
- using a combination of total sugars and added sugars such that if a product had any added sugars, the total sugars would be penalised more harshly.
  - For example, a product with no added sugars would use the 22 point sugars table, yet a product with any added sugars (i.e. 2% added sugars) would use the 25 point sugars table.
  - The main disadvantages of this option are the increased complexity (with little difference in impact compared to the recommended approach of strengthening the penalisation of total sugars) and disproportionate impact on products with very small amounts of added sugars.
  - Options that use a sliding scale of total sugars and added sugars create further complexity and provide little flexibility where the amount of added sugars may vary.

Conclusion

While the potential benefits of including added sugars in the HSR System are appreciated, at this point in time it is proposed that strengthening the penalisation of total sugars can achieve the desired impact with reduced technical complexity, as:

- added sugars are already indirectly targeted in the HSR System by the inclusion of FVNL and protein in the Calculator, which offset the intrinsic sugars present in fruits and dairy products
  - This is supported by modelling, which shows that changes to the strength of the total sugars table impact on discretionary foods and foods containing added sugars, including: breakfast cereals; muesli and cereal bars; sweetened flavoured milks and yoghurts; dairy-based desserts, cream cheeses, custards, ice creams; sugar-based desserts, sweet biscuits and cakes; ice creams; sugar-based confectionery; mayonnaise and savoury sauces.
- the NIP is legally required to display the amount of total sugars in a product rather than added sugars
  - In Australia and New Zealand there is currently no agreed definition of added sugars.
  - Moving to added sugars in the HSR System would be a significant change and a potential barrier to uptake for industry (in terms of quantifying added sugars rather than total sugars).
  - There is currently no analytical method for measuring only the added sugars of a product, as this is indistinguishable when conducting a nutrient analysis.
  - Methods would be needed to quantify added sugars. Some stakeholders have noted that added sugars content may be estimated from ingredients lists and that both the United States and the UK are exploring methods to quantify added sugars.
- claims regarding added sugars cannot be verified, either by industry or jurisdictions. While this is also a risk for positive nutrients such as FVNL and fibre, the risk is less significant as the influence of positive components on the calculation of the HSR is less than the influence of risk components such as sugars (all other risk nutrients in the HSR Calculator are quantifiable and displayed in the NIP).
- the natural sugars content of some ingredients can vary depending on the season. Based on this variation, manufacturers may be required to vary the amount of added sugars in some foods, such that the added quantity cannot be consistently stated
- added sugars are chemically identical to intrinsic sugars and are processed by the body in the same way[156], such that some argue they should not be treated differently.

The Review notes that the FRSC is currently investigating labelling approaches for providing information on added sugars in packaged foods and drinks for sale in Australia and New Zealand[157]. If the Forum determines that added sugars are required to be quantified in the NIP, a future review of the HSR System should consider incorporating added sugars into the HSR Calculator (using the definition of added sugars as agreed by the Forum and reflected in the Code).

Further penalisation of sodium

Issue

While the recommendation to decrease the maximum sodium levels used to determine baseline points for sodium addresses the issue in products high in sodium, it does not impact on products with less than 900mg of sodium (which represents approximately 93% of the food supply). In order to address outliers such as salty snacks and processed meats, changes would need to be made to the sodium table below the 900mg level.

[156] Hess, J, Latulippe, M, Ayoob, K, Slavin, J, 2012 'The confusing world of dietary sugars: Definitions, intakes, food sources and international dietary recommendations' *Food Funct*., vol 3, pp. 477–486.
[157] Food Regulation Secretariat, Joint Food Regulation System, 2018, *Consultation Regulation Impact Statement: Labelling of sugars on packaged foods and drinks*, Department of Health.

A number of stakeholders supported the exploration of further adjustments to the sodium table below the 900mg/100g level.

Option explored

The Review explored adjusting the sodium points tables across all HSR categories based on the recently updated sodium Nutrient Reference Values (NRVs).

The NRVs are a set of recommendations for nutritional intake based on currently available scientific evidence. In July 2017, some of the NRVs for sodium were revised by the NHMRC. The previous recommendation to limit sodium intake to less than 2,300mg per day was removed and replaced by a revised Suggested Dietary Target (SDT) of 2,000mg of sodium per day.[158]

The UK NPM, on which the NPSC and the HSR System are based, derives its distribution of points from an equivalent UK NRV (called Daily Reference Value, or DRV). An option was explored to adjust the sodium points tables based on the revised sodium NRV (for detail refer to the Draft Review Report).

Based on TAG modelling, this change would have decreased the HSRs for a large number of products (20% of the foods in the TAG database), with decreases of up to 1.5 stars across a range of product categories. Most (90%) of the products would only decrease by 0.5 and seven products would see the maximum decrease of 1.5 (including two breakfast cereals, an extruded snack, a yeast spread, two processed meats and a meat substitute).

Sixty percent of the products impacted were FFG foods such as: breads, breakfast cereals, pastas and grains, cheeses, meats and fish, nuts and processed vegetables. It would also impact a number of other products including bakery/cake products, biscuits, snacks (such as muesli bars and salty snacks), dips, desserts, sauces and condiments, soups and stocks and fats, oils and spreads.

Conclusion

While a revised sodium points table has the potential to improve consumers' ability to differentiate between foods based on sodium, it negatively impacts a large number of FFG products.

Other disadvantages of this option include that:

- the strength of this points table risks overemphasising sodium such that other nutrients have a reduced impact on a product's HSR
- it would impact on 76% (23/30) of the sodium reformulation targets under the Australian Healthy Food Partnership. This may, in effect, reduce the incentives for manufacturers to reformulate to reduce sodium unless further changes were made to the reformulation targets
- similarly, it would undermine the significant efforts of New Zealand manufacturers to meet heartSAFE targets for sodium reformulation.

FSANZ is currently preparing a proposal to review and update the regulatory NRVs used in the Code.[159] While this will not impact on the NPSC, it may impact on product labelling. Under the Code *Standard 1.2.8 Nutrition information requirements*, food labels may include information relating to the percentage daily intake of nutrients set out in the NIP. If this information is included, the label must include the percentage daily intake per serving, calculated using the associated reference value. As such, if the sodium regulatory

[158] National Health and Medical Research Council, 2017, Nutrient Reference Values for Australia and New Zealand Including Recommended Dietary Intakes version 1.2
[159] FSANZ, 2018, *P1047 – Review of regulatory nutrient reference values*, accessed 29 January 2019.

NRVs are adjusted, labels displaying this information would need to be changed. This may present a future opportunity for further review of the treatment of sodium in the HSR Calculator.

Addressing salty snacks

Issue

Concern has been raised that the HSR awards relatively high HSRs to some salty snacks despite their poor nutritional profile and status (in Australia) as a discretionary food.

Conclusion

The Review does not recommend making adjustments to the HSR Calculator to specifically target salty snacks because:

- TAG modelling shows that the HSR System currently discriminates well between more-healthy and less-healthy salty snacks, awarding higher HSRs to products with lower fat and/or salt, and higher protein, fibre and/or FVNL content. The salty snacks receiving a higher HSR (such as corn chips, wasabi peas, popcorn and some vegetable crisps) represent healthier versions within this category
- changes specifically tailored to reducing the HSR of salty snacks would:
  - disadvantage products that may have nutritional value from protein, fibre and/or FVNL, providing limited differentiation between like products
  - require a definition of 'salty snacks' within Category 2 which would be challenging
  - impact on the logic of the HSR System, which aims to provide an overall view of a product based on a combination of components, rather than on one nutrient (salt).

Rather than propose changes specifically to address salty snacks, a change has been proposed to the upper sodium limit for all foods (which will impact some but not all salty snacks). It is acknowledged that a small proportion of salty snacks will continue to score HSRs of ≥ 3.5, however these represent healthier options within the category. TAG modelling[160] shows that the average HSR of salty snacks is 2 and 20% of salty snacks have an HSR ≥ 3. The average energy, saturated fat and sodium content is significantly lower (and the fibre and FVNL content significantly higher) in the salty snacks with HSRs ≥ 3 than those with HSRs < 3.

Changes to the treatment of saturated fat

The TAG tested if there were any issues with respect to the treatment of saturated fat in the HSR Calculator. Analysis of the data in the TAG database shows that the vast majority of foods have a saturated fat content of 10% or less. If the HSR Calculator was adjusted to more strongly penalise foods with a saturated fat content greater than this, it would have minimal impact because the foods that have such saturated fat levels (creams, ice creams and high fat cheeses) already obtain low HSRs. If the HSR Calculator was adjusted to increase sensitivity to the saturated fat content of foods containing 10% saturated fat or less, this would remove alignment with the NPSC that underpins the HSR Calculator. Noting the desirability of maintaining alignment with the NPSC, and the absence of identified problems with respect to the treatment of saturated fat, the Review has not recommended changes to the treatment of saturated fat in the HSR Calculator.

[160] TAG technical paper, October 2018, *Salty snacks and hot potato products*, p. 6-11.

Oils and spreads

Issue

Dietary Guidelines recommend replacing high fat foods that contain predominantly saturated fats (such as butter, cream, cooking margarine, coconut and palm oil) with foods that contain predominantly polyunsaturated and monounsaturated fats (such as vegetable/plant/seed oils, spreads, nut butters/pastes and avocado).

Fats, oils and oil-based spreads are in their own category in the HSR System – Category 3. Modelling shows that the HSR Calculator currently differentiates well between fats, oils and oil-based spreads high or low in saturated fat, with products high in saturated fat consistently receiving low HSRs (≤ 2). Although some oils and spreads have only small differences in saturated fat content, there is a wide spread of HSRs between different oils. The HSRs for some healthy oils and spreads are also lower than expected, given that these products are recommended by the Dietary Guidelines.

Options explored

A range of options were proposed by stakeholders and explored through the Review:

- The Review explored changes to the HSR Calculator to rescale Category 3 upwards. This was intended to increase the HSRs of healthy oils to improve consistency with Dietary Guideline recommendations to replace foods high in saturated fat with foods that contain predominantly polyunsaturated and monounsaturated fats.
  - However, stakeholder feedback highlighted that, while this change would increase the HSRs of healthy oils, it also increased the HSRs of canola oils to 5, while only increasing the HSRs of olive oils to a maximum of 4. The proposed solution did not have the intended impact, instead increasing discrimination between some healthy oils.
- Many stakeholders suggested that olive oil is healthier than other oils (such as canola oil) and as such, should receive a higher HSR.
  - The Review acknowledges the evidence submitted by stakeholders regarding the health benefits of olive oil. However, the Review is mindful that the HSR Calculator can only draw on a finite set of factors to determine a product's HSR. The HSR System cannot and does not take into account all of the different reasons a food may have health benefits. For example, the Calculator does not consider polyphenol or omega-3 content, vitamin content, the way the food is produced or the way that it is used in an individual's diet.
  - The Review does not consider it appropriate to increase the HSR of one type of oil over another on the basis of factors not considered for any other product.
  - While olive oil has certain health benefits, it is also higher in saturated fats than some other oils.
- Some stakeholders suggested that all edible oils with ≤ 15% saturated fat should automatically score an HSR of 5.
  - However, this result cannot be achieved through the HSR Calculator without equally increasing the HSRs of margarines and non-dairy blends with saturated fat ≤ 15%, significantly reducing discrimination between products in this Category.
  - While the Dietary Guidelines recommend using oils high in unsaturated fats rather than products high in saturated fats, oils are not an FFG food and Dietary Guidelines note they should be used only in small amounts. As such, a policy override such that all 'healthy' oils score an HSR of 5 is not warranted.
  - The HSR currently provides effective support to consumers in distinguishing between oils and spreads based on their saturated fat content (along with their sodium and total energy). For example, oils high in unsaturated fats generally score HSRs of ≥ 3, while products high in saturated fats (butters, coconut oils, lards) consistently receive HSRs ≤ 2.

- Some stakeholders proposed that edible oils should be exempt from the HSR System, similar to other single ingredient foods (such as salt and sugar).
  - The Review notes that many single ingredient foods are part of the HSR System (such as packaged fruits and vegetables, meats, rice and other grains).
  - Unlike salt and sugar, where the HSR System provides no differentiation between products, the System currently provides discrimination between various edible oils and alternative options. As such, the HSR System supports consumers to select edible oils (lower in saturated fats) over products such as butter.
  - Removing edible oils from the System would limit the information available to consumers to make healthier choices in this category.

Conclusion

While some stakeholders have proposed that 'healthy' oils should score higher HSRs, the HSR Calculator currently differentiates well between fats, oils and oil-based spreads high or low in saturated fat. Although some oils and spreads are differentiated based on small differences in saturated fat content, the spread of HSRs in this Category currently supports consumers to select those products lower in saturated fats. After taking into account feedback on the draft Review Report and further modelling, the Review proposes retaining the status quo for Category 3 oils and spreads.

Non-dairy beverages

A wide range of options were tested throughout the Review to improve the relative HSRs of non-dairy beverages when compared across the category, including:

- assigning HSRs based on energy content only
  - This option would enable waters and flavoured waters to score higher HSRs and enable diluted fruit juices/fruit drinks with no added sugars to score higher HSRs than undiluted fruit juices which have a higher sugars content.
  - However, under this option, many diet soft drinks would also score HSRs > 4. This does not align with consumer or public health expectations, nor with how industry promotes diet soft drinks compared to flavoured waters.
- excluding fruit juices from scoring modifying FVNL points
  - Some stakeholders suggested that fruit juices should not receive modifying points for their FVNL content, citing studies that have found consumption of fruit juices to be associated with increased risk of dental erosion and type 2 diabetes.[161,162]
  - The current FVNL definition includes fruit juice and aligns with the definition used for the purposes of the NPSC. The Review considers it undesirable to alter definitions from those in the Code.
  - Although the differing views of stakeholders regarding fruit juices are acknowledged, the ADGs also note that fruit juices are 'a good source of vitamins such as vitamin C and folate and also provides fibre and carbohydrates, particularly natural sugars'[163].
  - Under this option, fruit juices generally score HSRs equivalent to soft drinks and lower than diet soft drinks. This does not align with consumer understanding or evidence regarding the nutritional qualities of fruit juices.

[161] Salas MMS, Nascimento GG, Vargas-Ferreira F, Tarquinio SBC, Huysmans MCDNJM, Demarco FF. 2015 'Diet influenced tooth erosion prevalence in children and adolescents: Results of a meta-analysis and meta-regression' *J Dent*., vol. 43, no. 8, pp. 865-75.
[162] Imamura F, O'Connor L, Ye Z, Mursu J, Hayashino Y, Bhupathiraju SN, et al. 2016 'Consumption of sugar sweetened beverages, artificially sweetened beverages, and fruit juice and incidence of type 2 diabetes: systematic review, meta-analysis, and estimation of population attributable fraction' *Br J Sports Med*., vol. 50, no. 8, pp. 496-504.
[163] NHMRC 2013 *Australian Dietary Guidelines (2013)*, p. 145, accessed 10 January 2018.

- using the French Nutri-Score System
  - Under this option, flavoured waters and diet soft drinks would score equivalent HSRs of 3 to 3.5. While this reflects the similar energy and sugars content of these beverages, it is not consistent with the way consumers perceive flavoured waters compared to diet soft drinks, nor how public health and other bodies promote flavoured waters compared to diet soft drinks.
- using an adjusted French Nutri-Score System with a policy overlay for flavoured waters
  - This option was tested in the Draft Review Report and was received well by stakeholders, with some specific concerns regarding:
    - using another policy overlay to discriminate between flavoured waters and other low kilojoule, sugar free drinks (such as diet soft drinks). Some stakeholders believed this added complexity to the System and that it is difficult to define flavoured waters as this product type is expanding rapidly
    - the definition of flavoured waters eligible to receive an HSR of 4.5. Some stakeholders were concerned that the definition included some intense sweeteners. Others were concerned that it did not allow for additions of a small amount of fruit juice or certain sweeteners such as stevia glycosides.
    - the rationale behind the modifying points for FVNL. Some stakeholders were concerned that these values were entrenched in the French food regulation system rather than the Australian. Others were concerned that they too strongly rewarded FVNL, such that some fruit juices with high sugars (up to 8g/100mL) scored HSRs of up to 4.

Recommendation 5 was refined based on modelling and in response to stakeholder feedback to address the above concerns.

Appendix E: Revised points tables for System enhancements

Table E.1: HSR Baseline Points for Category 1D, 2 or 2D foods

Baseline points	Average energy content (kJ) per 100 g or 100 mL	Average saturated fatty acids (g) per 100 g or 100 mL	Average total sugars (g) per 100 g or 100 mL	Average sodium (mg) per 100 g or 100 mL
0	≤335	≤1.0	≤5.00	≤ 90
1	>335	>1.0	>5.00	>90
2	>670	>2.0	>8.92	>180
3	>1005	>3.0	>12.83	>270
4	>1340	>4.0	>16.75	>360
5	>1675	>5.0	>20.67	>450
6	>2010	>6.0	>24.58	>540
7	>2345	>7.0	>28.50	>630
8	>2680	>8.0	>32.42	>720
9	>3015	>9.0	>36.33	>810
10	>3350	>10.0	>40.25	>900
11	>3685	>11.2	>44.17	>990
12		>12.5	>48.08	>1080
13		>13.9	>52.00	>1170
14		>15.5	>55.92	>1260
15		>17.3	>59.83	>1350
16		>19.3	>63.75	>1440
17		>21.6	>67.67	>1530
18		>24.1	>71.58	>1620
19		>26.9	>75.50	>1710
20		>30.0	>79.42	>1800
21		>33.5	>83.33	>1890
22		>37.4	>87.25	>1980
23		>41.7	>91.17	>2070
24		>46.6	>95.08	>2160
25		>52.0	>99.00	>2250
26		>58.0		>2340
27		>64.7		>2430
28		>72.3		>2520
29		>80.6		>2610
30		>90		>2700

Table E.2: HSR Baseline and Modifying Points for Category 1, non-dairy beverages

Baseline points	Proposed energy (kJ/100g)	Proposed total sugars (g/100g)	Modifying points	Proposed fruit and vegetable content (%)
0	≥ 0.1	≤ 0.1	0	< 25
1	> 1.1	> 0.1	1	≥ 25
2	> 31	> 1.6	2	≥ 33
3	> 61	> 3.1	3	≥ 41
4	> 91	> 4.6	4	≥ 49
5	> 121	> 6.1	5	≥ 57
6	> 151	> 7.6	6	≥ 65
7	> 181	> 9.1	7	≥ 73
8	> 211	> 10.6	8	≥ 81
9	> 241	> 12.1	9	≥ 89
10	> 271	> 13.6	10	≥ 96

Table E.3: Final scores used to assign Heath Star Ratings

HSR	Cat. 1	Cat. 1D	Cat. 2	Cat. 2D	Cat. 3	Cat. 3D
5	Water	≤-2	≤-11 Eligible fruits and vegetables	≤-2	≤13	≤24
4.5	Flavoured water	-1	-10 – -7	-1 – 0	14 – 16	25 – 26
4	≤0	0	-6 – -2	1 – 2	17 – 20	27 – 28
3.5	1	1	-1 – 2	3	21 – 23	29 – 30
3	2 – 3	2	3 – 6	4 – 5	24 – 27	31
2.5	4 – 5	3	7 – 11	6 – 7	28 – 30	32 – 33
2	6 – 7	4	12 – 15	8	31 – 34	34 – 35
1.5	8 – 9	5	16 – 20	9 – 10	35 – 37	36 – 37
1	10 – 11	6	21 – 24	11 – 12	38 – 41	38 – 39
0.5	≥12	≥7	≥25	≥13	≥42	≥40

Appendix F: Modelling of System enhancement impacts

Context

The following three tables demonstrate the results of modelling using the TAG database, Nutritrack database and FoodSwitch database.

As the results demonstrate, the changes increase the HSRs of certain FFG foods such as dairy foods, fruits and vegetables and reduce the HSRs of some discretionary and FFG foods (predominantly due to the proposed changes to the treatment of total sugars and sodium).

To note:

- Modelling results relate to changes to food products only (i.e. exclude non-dairy beverages).
- Foods are categorised differently in each database and each database contains different products and sample sizes, so results will necessarily differ to some degree across databases.
- Modelling indicates that the TAG database overestimates the proportion of products impacted. This is likely due to the high proportion of dairy products (yoghurts and cheeses) present in the TAG database.
- Given the significantly different sizes of the databases, for the purposes of estimating overall impact, the Review considers the Nutritrack and FoodSwitch databases provide a more meaningful estimate of the total proportion of products likely to be impacted.
- Modelling shows a substantial proportion of products categorised as ‘desserts’ with HSRs increasing. This is because the changes to dairy categories better discriminate between healthier desserts such as some custards and dairy desserts with lower sugars or saturated fat content (with HSRs increasing by between 0.5 and 1) compared to other dairy desserts (with HSRs decreasing by between 0.5 and 2).

Modelling undertaken using the TAG database

Australia Guide to Healthy Eating category	Total no. food products in TAG database	Total no. products impacted	Total % products impacted	No. products in category with HSR increasing	% products in category with HSR increasing	No. products in category with HSR decreasing	% products in category with HSR decreasing
Bread	226	0	0%	0	0%	0	0%
Breakfast cereals	300	44	15%	0	0%	44	15%
Pasta/flour/grains	185	0	0%	0	0%	0	0%
Dairy alternative beverages	64	0	0%	0	0%	0	0%
Dairy beverages	485	16	3%	3	1%	13	3%
Dairy beverages dry mix	2	0	0%	0	0%	0	0%
Cheese	443	304	69%	304	69%	0	0%
Yoghurt, soft cheese	415	336	81%	336	81%	0	0%
Cream	68	61	90%	1	1%	60	88%
Cream cheese	67	50	75%	3	4%	47	70%
Fats, oils, oil-based spreads	94	0	0%	0	0%	0	0%
Fruit - processed	124	23	19%	1	1%	22	18%
Fruit - unprocessed	33	32	97%	32	97%	0	0%
Bakery items/cake mixes	122	14	11%	0	0%	14	11%
Biscuits	258	17	7%	0	0%	17	7%
Confectionery	94	27	29%	0	0%	27	29%
Custard/desserts	82	55	67%	36	44%	19	23%
Dips	28	0	0%	0	0%	0	0%
Dressings	95	5	5%	0	0%	5	5%
Ice confection	46	46	100%	0	0%	46	100%
Ice cream	179	19	11%	0	0%	19	11%
Jelly	20	20	100%	0	0%	20	100%
Meals/meal bases	292	7	2%	0	0%	7	2%
Miscellaneous	25	2	8%	0	0%	2	8%
Pizza	3	0	0%	0	0%	0	0%
Sauces/condiments	344	25	7%	0	0%	25	7%
Snacks	310	28	9%	0	0%	28	9%
Soups/stocks	245	0	0%	0	0%	0	0%
Yeast spread	4	4	100%	0	0%	4	100%
Meats/fish	328	17	5%	0	0%	17	5%
Nuts	76	1	1%	0	0%	1	1%
Plant proteins	104	0	0%	0	0%	0	0%
Vegetables - processed	299	52	17%	42	14%	10	3%
Vegetables - unprocessed	62	30	48%	30	48%	0	0%
Total	**5,522**	**1235**	**22%**	**788**	**14%**	**447**	**8%**

Modelling undertaken using the Nutritrack database

Food category	Total no. food products in Nutritrack database	Total no. products impacted	Total % products impacted	No. products in category with HSR increasing	% products in category with HSR increasing	No. products in category with HSR decreasing	% products in category with HSR decreasing
Biscuits	772	68	8.8%	0	0%	68	8.8%
Bread	477	12	2.5%	0	0%	12	2.5%
Cakes, muffins, pastries	435	65	14.9%	0	0%	65	14.9%
Breakfast cereals	389	47	12.1%	0	0%	47	12.1%
Cereal/nut-based bars	244	51	20.9%	0	0%	51	20.9%
Other cereal/grains	839	19	2.3%	0	0%	19	2.3%
Chocolate, sweets	160	23	14.4%	0	0%	23	14.4%
Jelly	55	45	81.8%	0	0%	45	81.8%
Pizza	11	0	0%	0	0%	0	0%
Pre-prepared salads, sandwiches	2	0	0%	0	0%	0	0%
Ready meals, meal kits	310	2	0.6%	0	0%	2	0.6%
Soup	260	14	5.4%	0	0%	14	5.4%
Other frozen foods	7	0	0%	0	0%	0	0%
Cheese	649	262	40.4%	262	40.4%	0	0%
Cream	43	0	0%	0	0%	0	0%
Desserts	132	79	59.8%	18	13.6%	61	46.2%
Edible ices	78	55	70.5%	0	0%	55	70.5%
Ice cream	344	39	11.3%	0	0%	39	11.3%
Milk	322	27	8.4%	23	7.1%	4	1.2%
Yoghurt, yoghurt drinks	336	214	63.7%	213	63.4%	1	0.3%
Edible oils, oil emulsions	319	1	0.3%	1	0.3%	0	0%
Eggs	89	1	1.1%	0	0%	1	1.1%
Processed fish	421	6	1.4%	0	0%	6	1.4%
Fruit	533	155	29.1%	51	9.6%	104	19.5%
Jams, marmalades	113	66	58.4%	0	0%	66	58.4%
Nuts and seeds	253	1	0.4%	0	0%	1	0.4%
Vegetables	778	140	18.0%	85	10.9%	55	7.1%
Meat alternatives	68	0	0%	0	0%	0	0%
Processed meat	959	74	7.7%	0	0%	74	7.7%
Mayonnaise, salad dressings	199	16	8.0%	0	0%	16	8.0%
Sauces	1,071	183	17.1%	0	0%	183	17.1%
Spreads, dips	491	47	9.6%	0	0%	47	9.6%
Crisps/snacks	511	20	3.9%	0	0%	20	3.9%
Sugars, honey, related	289	69	23.9%	0	0%	69	23.9%
Breakfast beverages	28	0	0%	0	0%	0	0%
Total	**11,987**	**1,801**	**15.0%**	**653**	**5.4%**	**1,148**	**9.6%**

Modelling undertaken using the FoodSwitch database

Food category	Total no. food products in FoodSwitch database	Total no. products impacted	Total % products impacted	No. products in category with HSR increasing	% products in category with HSR increasing	No. products in category with HSR decreasing	% products in category with HSR decreasing
Bread	474	11	2.3%	0	0%	11	2.3%
Breakfast beverages	23	0	0%	0	0%	0	0%
Breakfast cereals	434	43	9.9%	0	0%	43	9.9%
Cakes, muffins and pastries	488	67	13.7%	0	0%	67	13.7%
Cereal and grain products	956	24	2.5%	0	0%	24	2.5%
Cereal and nut-based bars	234	41	17.5%	0	0%	41	17.5%
Cheese	669	471	70.4%	404	60.4%	67	10.0%
Chocolate and sweets	870	233	26.8%	0	0%	233	26.8%
Cream	69	54	78.3%	3	4.3%	51	73.9%
Crisps and snacks	434	8	1.8%	0	0%	8	1.8%
Desserts	152	47	30.9%	20	13.2%	27	17.8%
Edible oils and oil emulsions	297	0	0%	0	0%	0	0%
Eggs	52	0	0%	0	0%	0	0%
Fitness and diet products	209	14	6.7%	0	0%	14	6.7%
Frozen foods - other	9	0	0%	0	0%	0	0%
Fruit - processed	402	66	16.4%	0	0%	66	16.4%
Fruit - unprocessed	43	38	88.4%	38	88.4%	0	0%
Ice cream, edible ices	355	81	22.8%	0	0%	80	22.5%
Jam and marmalades	130	100	76.9%	0	0%	100	76.9%
Jelly	66	52	78.8%	0	0%	52	78.8%
Mayonnaise, salad dressings	156	5	3.2%	0	0%	5	3.2%
Meat alternatives	104	0	0%	0	0%	0	0%
Milk	364	21	5.8%	4	1.1%	17	4.7%
Nuts and seeds	297	7	2.4%	0	0%	7	2.4%
Pizza	76	0	0%	0	0%	0	0%
Pre-prepared salads, sandwiches	183	2	1.1%	0	0%	2	1.1%
Processed fish	559	17	3.0%	0	0%	17	3.0%
Processed meat	857	55	6.4%	0	0%	55	6.4%
Ready meals, meal kits	595	4	0.7%	0	0%	4	0.7%
Sauces	1,046	155	14.8%	0	0%	155	14.8%
Savoury biscuits	362	7	1.9%	0	0%	7	1.9%
Soup	326	3	0.9%	0	0%	3	0.9%
Spreads and dips	453	33	7.3%	0	0%	33	7.3%
Sugars, honey, related	250	54	21.6%	0	0%	54	21.6%
Sweet biscuits	398	60	15.1%	0	0%	60	15.1%
Vegetables - processed	574	50	8.7%	0	0%	50	8.7%
Vegetables - unprocessed	167	42	25.1%	42	25.1%	0	0%
Yoghurt and yoghurt drinks	394	298	75.6%	297	75.4%	1	0.3%
Total	**13,527**	**2,163**	**16.0%**	**808**	**6.0%**	**1,354**	**10.0%**

Glossary

Term	Meaning
Australia and New Zealand Ministerial Forum on Food Regulation (The Forum)	The Forum has general oversight of the implementation of food standards, develops policy guidelines and promotes harmonised standards between Australia and New Zealand. Forum membership is made up of lead ministers (usually health ministers) from Australian state and territory governments and the Australian and New Zealand governments.
Australian Dietary Guidelines 2013 (ADG)	The ADG provide advice about the amount and types of foods that should be eaten for health and wellbeing, with recommendations based on scientific evidence.
Australian Guide to Healthy Eating (AGHE)	The AGHE is a food selection guide which visually represents the proportion of the five food groups recommended for consumption each day.
Australian Health Survey 2011-13 (AHS)	The AHS is the largest and most comprehensive health survey conducted in Australia. The AHS was undertaken by the Australian Bureau of Statistics (ABS) and collected a range of information about health-related issues.
AHS Discretionary Foods List	The AHS Discretionary Foods List was developed by the ABS in 2014 for the purpose of the 2011-12 National Nutrition and Physical Activity Survey. It classifies foods as discretionary based on the ADG.
Australian Health Ministers' Advisory Council (AHMAC)	Advisory and support body to the Council of Australian Governments (COAG) Health Council.
Australia New Zealand Foods Standards Code (the Code)	The standards in the Code are legislative instruments and include standards for food safety, food composition and labelling and foods that need pre-approval such as genetically modified foods. The Code sets out regulatory requirements for food labelling and other information requirements on foods, plus food standards for: substances that can be added to or present in food; contaminants and resides; foods requiring pre-market clearance; microbiological limits; specific standards for food categories; food safety and primary production standards (Australia only).
Baseline points	In the NPSC system, baseline points are allocated for the negative components considered in that system (energy, saturated fatty acids, total sugars and sodium). In the HSR Calculator, baseline points are allocated to these same risk-associated components (energy, saturated fatty acids, total sugars and sodium). HSR baseline points contribute inversely to the final HSR.
Category 1	HSR category that covers beverages other than dairy beverages and alcoholic beverages.
Category 1D	HSR category that covers dairy beverages that meet the calcium content requirements of the Code Schedule 4 of Standard 1.2.7. Category 1D may include milk and dairy beverage alternatives derived from legumes, cereals, nuts or seeds, providing they meet the criterion for calcium content.
Category 2	HSR category that covers all foods other than those in Categories 1 and 1D, 2D, 3 and 3D.
Category 2D	HSR category that covers dairy foods other than those included in Categories 1D or 3D. This may include all cheeses with a calcium content ≤ 320mg/100g, yoghurt and other fermented

Term	Meaning
	milk products. Category 2D may include cheese and yoghurt alternatives derived from legumes providing the cheeses meet the criterion for 2D foods for calcium content.
Category 3	HSR category that covers oils and spreads, defined as follows in the Code: • edible oil as defined in Standard 2.4.1 • edible oil spreads as defined in Standard 2.4.2 • margarine as defined in Standard 2.4.2 • butter as defined in Standard 2.5.5
Category 3D	HSR category that covers cheese and processed cheese as defined in the Code Standard 2.5.4 (with calcium content >320mg/100g). Category 3D may include cheese alternatives derived from legumes providing they meet the criterion for 3D foods for calcium content.
Codex Alimentarius Commission (Codex)	The international food standards setting body established by the United Nation's Food and Agriculture Organization and the World Health Organization. Codex develops international food standards, guidelines and codes of practice for an international food code that contributes to the safety, quality and fairness of food trade.
Component	In the context of the HSR System, components are the nutrients, ingredients and other parameters used to determine a product's HSR, including the energy, saturated fat, total sugars, sodium, protein, fibre and FVNL content.
Dietary Guidelines	Collectively refers to the ADG and the NZEAG.
Daily Intake Guide (DIG)	An industry-led FoPL system. The DIG is presented to consumers in a thumbnail format showing the amount per serve for energy and up to six core nutrients – fat, saturated fat, sugars, sodium, protein and carbohydrate respectively.
Discretionary foods	Discretionary foods and drinks are those not necessary to provide the nutrients the body needs. Many of these are high in saturated fats, sugars, salt and/or alcohol. They can be included in the diet occasionally in small amounts by those who are physically active but are not a necessary part of the diet. This includes cakes, biscuits, confectionery, jellies, ice confections, dairy desserts, salty snacks and sugar-sweetened beverages.
Energy icon	An optional graphic in the HSR System that can be used with or without the HSR stars (e.g. for small pack sizes and some confectionery and beverage products).
European Food Safety Authority (EFSA)	The agency of the European Union that provides independent scientific advice and communicates on existing and emerging risks associated with the food chain.
Fibre points (F points)	HSR Category 2 and 3 products score points for the proportion of fibre present. Category 1 products cannot score F points.
Five/Four Food Group (FFG) foods	FFG foods (also known as 'core' foods in Australia) are described by Dietary Guidelines as the basis of a healthy diet. This includes fruit and vegetables, grain foods (mostly wholegrain or high fibre varieties), dairy foods such as milk, cheese and yogurt (mostly reduced fat), legumes, nuts, seeds, lean meats, eggs, tofu, etc. There are four food groups described in the NZEAG (fruit and vegetables, grain, meats, dairy) and five in the ADG (fruit, vegetables, grain, meats, dairy) and the ADG separate fruits and vegetables into separate groups.
Food Regulation Standing Committee (FRSC)	Sub-committee of the Australia and New Zealand Ministerial Forum on Food Regulation (the Forum). The FRSC is responsible for coordinating policy advice to the Forum and ensuring a nationally consistent approach to the implementation and enforcement of food standards

Term	Meaning
	and its membership consists of senior Australian, State and Territory and New Zealand government officials.
Food Standards Australia New Zealand (FSANZ)	FSANZ is a statutory authority in the Australian Government Health portfolio which develops and administers the Code.
FoodSwitch	An initiative of the George Institute for Global Health, FoodSwitch is a smartphone application that allows barcodes of packaged foods to be scanned using the camera on the phone and provides the consumer with information about the product's nutritional make-up, and a list of alternative, healthier choices.
FoodTrack	A food and nutrient database that contains product data from fresh and packaged foods in major Australian supermarkets such as product descriptors, nutrition information panels, ingredient lists, front-of-pack labels, images of the product and other relevant information. FoodTrack was developed by the Heart Foundation in conjunction with the CSIRO.
Front-of-Pack Labelling (FoPL)	The concept of putting simplified nutritional information on the front of food or beverage product packages, either numerically or graphically.
Fruit, vegetable, nut, legume (FVNL) content	Fruit, vegetable, nut, legume content as defined in the Code Schedule 5. This term is used in both the HSR System and the NPSC.
FVNL points (V points)	In the NPSC and the HSR System, products score V points for the proportion of their ingredients comprising of FVNL (fruits, vegetables, nuts and legumes including coconut, spices, herbs, fungi, seeds and algae). Note that V points have been expanded in the HSR Calculator compared to the table in the NPSC.
Guide for Industry	The Guide for Industry to the HSR Calculator provides detailed information about how the HSR is calculated, including example calculations. This document contains important information that allows industry to calculate the HSR.
Health Promotion Agency (HPA)	The government health promotion organisation in New Zealand responsible for leading and supporting health promotion initiatives, across all sectors that contribute to health and wellbeing.
Health Star Rating Advisory Committee (HSRAC)	The trans-Tasman body responsible for overseeing the voluntary implementation of the HSR System, including in particular the monitoring and evaluation component of the System in Australia and New Zealand and the social marketing campaign in Australia. HSRAC membership consists of government, industry, public health and consumer representatives.
Health Star rating Style Guide	The HSR Style Guide provides guidance for the application of the HSR System on product packaging.
HSR Calculator	The HSR Calculator calculates the HSR for products based on input of their nutrition information. The HSR Calculator considers four components of a food associated with increasing the risk factors of chronic diseases (energy, saturated fat, sodium and total sugars content). Certain 'positive' aspects of a food such as FVNL content, and in some instances, fibre and protein content are also considered. Points are allocated based on the nutritional composition of 100g or 100mL of the product, following the units used in the NIP of a packaged product. The points are converted to a star rating (from 0.5 to 5 stars). The HSR Calculator is a modified version of the NPSC developed by FSANZ for the regulation of health claims in Australia and New Zealand and prescribed in the Code Standard 1.2.7 – Nutrition, Health and Related Claims. Refer Appendix A for a more detailed description of the HSR Calculator.

Term	Meaning
HSR category	The HSR System is based on six different product categories (1, 1D, 2, 2D, 3 and 3D).
Ministry for Primary Industries (MPI)	The Ministry for Primary Industries (MPI) (Māori: Manatū Ahu Matua) is the public service department of New Zealand charged with overseeing, managing and regulating the farming, fishing, food, animal welfare, biosecurity, and forestry sectors of New Zealand's primary industries.
Modifying points	In the NPSC, modifying points are calculated as part of the nutrient profiling score. Modifying points are allocated for the positive components (%FVNL and, in some instances, protein, fibre) present in foods and beverages, in accordance with the Code Schedule 5 of Standard 1.2.7. In the HSR Calculator, extended modifying points are allocated to the same positive components, increasing the final HSR for a product.
New Zealand HSR Advisory Group (NZHSRAG)	A Committee of government, industry, public health and consumer representatives with responsibility for considering implementation of the HSR in New Zealand.
Nutrition Information Panel (NIP)	Nutrition information requirements in the Code Standard 1.2.8 requires nutrition information on most food labels in the form of a NIP. In the NIP, information on the amount of energy, protein, total fat, saturated fat, carbohydrate, total sugars and sodium must be displayed. Manufacturers can elect to sub-label protein, carbohydrates and fats. Total sugars declarations can declare sub groups as specific sugars, such as lactose, if desired.
Nutrient Profiling Scoring Criterion (NPSC)	The NPSC is a nutrient profiling system referred to in the Code Standard 1.2.7 and detailed in Schedule 5. The NPSC is used in Australia and New Zealand to determine whether a food is suitable to make a health claim, based on its nutrient profile. Only foods that meet a certain score will be allowed to have health claims made about them. The HSR algorithm is based on the NPSC with some modifications to better meet the needs of a scale rather than binary application.
Nutri-Score	A voluntary front-of-pack labelling scheme adopted in France in 2017, based on a five-letter and five-colour visual that summarises food nutrition information. The Nutri-Score gives a rating to any food (except single-ingredient foods and water) going from a dark green A (best) to a red E (worst), by weighing the prevalence of positive and negative nutrients.
Nutritrack	Developed in 2011, Nutritrack is a database comprising information on the nutrient composition of processed foods on sale at New Zealand supermarkets and major fast food restaurants.
New Zealand Eating and Activity Guidelines 2015 (NZEAG)	The NZEAG provide evidence-based population health advice on healthy eating and being physically active. The document is written for health practitioners and others who provide advice on nutrition and physical activity for New Zealand adults.
Protein points (P points)	In the HSR System, food products score P points for the amount of protein present in the food. Protein points contribute to modifying points and can be scored if a food product scores less than 13 baseline points in the HSR Calculator. A food product that scores more than or equal to 13 baseline points can only score protein points if the food scores 5 or more V points in the HSR Calculator.
Rescaling	Current scaling of each HSR category is based on the outputs produced by the HSR Calculator using the database used to develop and test the HSR System (the TAG database). The intention of scaling is to distribute products within each category across the range of HSRs available (i.e. from 0.5-5.0), thereby providing greater differentiation between rankings. HSR categories could be rescaled to redistribute products according to their relative nutrient content if a new distribution of products displays less differentiation.

Term	Meaning
Social Marketing Advisory Group (SMAG)	An advisory group that provides advice on communications on the HSR System, including campaigns and social marketing. Consists of representatives from government, the food industry, public health and consumer representatives with expertise in social marketing.
Technical Advisory Group (TAG)	The TAG consisted of a tripartite (government, food industry, public health) group of experts with relevant technical skills. The TAG provided technical advice to the HSRAC regarding the HSR Calculator (mainly to inform the Review) and has now been disbanded.
UK Nutrient Profiling Model (NPM)	A tool developed in 2004 by the Food Standards Agency in the United Kingdom as a tool to enable the Office of Communications (Ofcom), the UK broadcast regular to identify the 'less healthy' food and drinks subject to restrictions during children's television programming.
World Health Organization (WHO)	WHO is the directing and coordinating authority on international health within the United Nations' system.

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- Fibre
- Fruit, vegetable, nut and legume content
- Glossary
- History and development of the HSR algorithm
- Ice confection, jelly and frozen milk products
- Non-dairy beverages
- Protein
- Salty snacks and hot potato products
- Saturated fat
- Snack bars
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