



The Australian Prevention
Partnership Centre
Systems and solutions for better health

A rapid review of evidence

International food service initiatives

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Evidence Check rapid review

International food service initiatives

An Evidence Check rapid review commissioned by the Australian Government Department of Health and brokered by the Sax Institute for The Australian Prevention Partnership Centre.

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Executive summary

Purpose of the review

In Australia, obesity and diet-related health problems are significant and complex issues requiring interventions at many societal levels. Individual food choices are shaped by the wider context,¹ and change is needed at both the food environment and at the individual behavioural level.² The food service sector can play an integral role in changing aspects of the food environment to contribute to improved consumer health.

This review sought to analyse current national and international food health initiatives in the food service sector; to consider the impact of those initiatives on consumer and public health; and describe the components needed for an effective scheme to improve the supply and purchasing of healthier food and drinks in Australian food services. Drawing on the evidence base, this review aims to aid identification of effective evidence-based strategies that can be implemented within the food service sector with the broad goal of improving the foods offered, promoted, purchased and consumed out of the home; in order to reduce the public health burden of obesity and diet-related health problems in Australia over the longer term.

Review questions

This review aimed to address the following questions:

Question 1: Describe the schemes that have been implemented in Australia and internationally to focus efforts of the food services sector to improve the healthiness of the menu choices or nutrition information for customers?

Question 2: What evidence is there of the effectiveness of any of the schemes identified in Question 1?

Summary of methods

The peer-reviewed literature was systematically searched for relevant literature published between 2006 and 2017. This search was supplemented with a desktop search for relevant grey literature. Thirty-eight articles and reports describing 16 studies met the criteria for inclusion in the review.

Of these, one study was rated level II in the NHMRC quality levels; nine were rated level III-2; six were rated level III-3; and seven were rated level IV. Thirteen studies could not be assigned an NHMRC quality rating.

Key findings - Question 1

The schemes identified in this review involved food service outlets that serviced the general population, and most were not targeted towards any specific groups (for example, children or disadvantaged groups). Only four schemes targeted children. The most common focus of the schemes, whether as the sole focus, or as one of multiple foci, was healthy options – through creation of additional healthy options or identification of existing healthy options via labelling or signposting. Other strategies employed in schemes included altering portion size, modifying cooking practices, reformulation (undergoing a product change) and reshaping advertising to children.

The schemes could be grouped into three categories based on their approach. The first group was classified as awareness raising, the second group combined awareness-raising approaches with structural changes (changes within the food service) and the third group used only structural changes, i.e., making changes to products (through reformulation) or to the sales mix, to ensure the consumers accessing those outlets are, by default, consuming healthier foods.

Not all schemes involved pledges and the number of pledge options varied. Four categories of approaches were observed. The first involved a high-level pledge to the objectives of the scheme (with flexibility of actions within the guidance); the second required a business to opt-in to the scheme (with choice of actions required, which were assessed and certified against pre-set criteria). The third was tailored to the business through a consultative and collaborative approach, and the fourth featured mandatory elements. Few details of the implementation frameworks and funding models were able to be sourced.

Key findings - Question 2

Of the 38 studies included in this review, only seven evaluated food choice outcomes (i.e., foods chosen) and 10 evaluated food health outcomes (i.e., dietary intake), providing a very limited evidence base to assess effectiveness of the schemes to improve consumers' choices or dietary intake. There was mixed evidence on the role of awareness-raising schemes in altering food choice or dietary intake.

There was some evidence demonstrating that food services can be engaged in activities that aim to improve consumer health, with some studies showing that businesses adopted changes readily, particularly when they do not affect profitability.

Studies of the few pledge-based schemes included in the review showed that, to date, those schemes have produced mixed effects. Findings indicate businesses chose strategies that had the least potential to improve consumer health, and indicated businesses implemented strategies that they have already instigated or targets they were able to meet without additional effort. The targets reflected current business operation rather than new efforts, thereby limiting the potential of the scheme to effect change.

Gaps in the evidence

A limited range of schemes aimed to focus efforts of the food services sector to improve consumer health. Furthermore, few comprehensive evaluations of these schemes have been conducted. Robust study designs measuring all outcomes of interest are needed to provide strong evidence of efficacy.

Discussion of key findings

Obesity and diet-related health problems are prevalent in Australia, but there are opportunities to improve consumer health by harnessing and channelling the actions of the food service sector. This review identified schemes operating in the food service sector that aimed to improve consumer health, however, the evidence base is small and inconclusive. The findings indicate that awareness-raising schemes when used in isolation are ineffective, and actions beyond increasing awareness are needed to effect change. Although some schemes did employ strategies that were structural in nature, thereby modifying the food environment to improve consumer health, the effect of these schemes on consumer health was not measured. The evidence included in this review suggests that some businesses will engage in schemes to improve consumer health, particularly if the changes are imperceptible to consumers and have little impact on revenue. Few schemes were pledges, and the evidence of efficacy of pledges was limited and mixed. The evidence indicates that organisations have engaged in pledge-based schemes, but chose strategies that were ineffective or targets that required little change.

Conclusion

Schemes employed within the food service sector to improve consumer dietary health offer considerable potential to improve the nutritional quality of foods offered, promoted, purchased and consumed out of the home; and are offered to reduce the public health burden of obesity and diet-related health problems in Australia over the longer term. Some schemes have been implemented, but many have been awareness raising and generally ineffective. There are schemes that are more extensive, but the effect of these schemes on consumer choice and health has not been measured. Although findings indicate businesses will engage with schemes to improve consumer health, this must be interpreted cautiously as the evidence also indicates that businesses will choose actions that can be implemented without effort. Finally, more effort needs to be directed towards evaluating the effect of food service schemes on consumer health using robust research designs to build the evidence base.

The Healthy Food Partnership Food Service Working Group's response to this review

A healthier food supply: Can we work together to drive change in the food service sector?

It is widely acknowledged that chronic disease is the major health challenge facing our nation, and that poor nutrition is among the leading modifiable risk factors that contribute to the Australian disease burden.

It is therefore critical that governments, industry and health groups work to improve the health of the food supply and, in doing so, help more Australians achieve diets that align with the Australian Dietary Guidelines.

With 2–3 meals a week now eaten out of the home¹ and 51.5 million visits to fast food outlets each month,² it is also fundamentally important that the \$45 billion Australian food service sector³ is engaged in a meaningful way to improve the nutritional profile of the products they offer and market to consumers.

While some food service companies are taking action – for example, reducing the salt, saturated fat, added sugar or energy content of their products and adding more fruit and vegetables to their offerings – these are largely ad hoc measures that aren't applied across the sector.

The Healthy Food Partnership, through its Food Service Working Group, wants to establish a working relationship between the Healthy Food Partnership and the food service sector with the aim of improving the nutritional profile of the food offered to the public.

To help develop a way forward, the Food Service Working Group has, through the Federal Health Department, commissioned this important review to guide our work in what is, surprisingly, an area where comparatively little has been tried across the globe.

One country that has done interesting, pioneering work with the food service sector is the UK, where a system of pledges has been used to engage some players in the food service sector, albeit with mixed results. The Food Service Working Group believes a system of pledges could help create the 'enabling environment' needed to drive change, particularly if those pledges build on the lessons from the UK and elsewhere, as documented in this review.

Significantly, the review finds that:

Schemes employed within the food service sector to improve consumer dietary health offer considerable potential to improve the foods offered, promoted, purchased and consumed out of the home; in order to reduce the public health burden of obesity and diet-related health problems in Australia over the longer term. [Our emphasis]

While opportunities exist to improve consumer health "by harnessing and channelling the actions of the food services sector", we note the evidence of efficacy of pledges is currently "limited and mixed".

We believe a voluntary pledge-based system can be developed that builds on the approaches attempted to date and addresses their short-comings. A pledged-based system – in the absence of legislated initiatives – may well offer the best prospect of achieving change over time.

This report is a helpful springboard that will guide our recommendations to government. While engaging the food services sector in reform is a critical move, it is one that – in isolation – will not achieve significant change. Rather, it should form one of a range of measures that collectively can drive change.

In our view, failure to properly engage the food services sector in a health-focused program is simply not an option.

We thank the authors for their diligence in producing this important review that we hope will be an important milestone in our collective quest for a healthier food supply and a healthier Australia.

1. The Intermedia Group Pty (2017) Eating out in Australia 2017. Available from: www.the-drop.com.au/wp-content/uploads/2016/11/EatingOutinAustralia_2017_Respondent-Summary.compressed.pdf
2. Ipsos Australia (2014) EMMA Industry report: Out of home dining. Available from: https://emma.com.au/wp-content/uploads/2014/03/emma-Industry-Report_Out-of-Home-Dining_website-version.pdf
3. The Intermedia Group Pty (2017) Eating out in Australia 2017. Available from: www.the-drop.com.au/wp-content/uploads/2016/11/EatingOutinAustralia_2017_Respondent-Summary.compressed.pdf

Background

The Department of Health's Preventive Programs Section, on behalf of the Healthy Food Partnership (HFP), commissioned this review from The Australian Prevention Partnership Centre to better understand the evidence surrounding food health initiatives in the food service sector. The review was completed by the Social Marketing @ Griffith Centre within Griffith University.

The overarching aims of the review are to: analyse current local and international food health initiatives in the food service sector; consider the impact of initiatives on consumer and public health (with particular reference to children and adolescents); and describe the components needed for an effective scheme to improve the supply and purchasing of healthier food and drinks in Australian food services. Drawing on the evidence base, this review aims to aid identification of effective evidence-based strategies within the food service sector that can be implemented and evaluated with the broad goal of improving the foods offered, promoted, purchased and consumed out of the home; in order to reduce the public health burden of obesity and diet-related health problems in Australia over the longer term.

The role of food service initiatives in public health

Diet is arguably one of the most important behavioural risk factors for chronic disease. Dietary behaviours can be modified to have a significant positive impact on health and wellbeing.^{3,4} In Australia, diet-related chronic diseases such as cardiovascular disease, type 2 diabetes and some forms of cancer are major causes of death and disability,⁵ and the diseases are often mediated by overweight and obesity. The prevalence of overweight and obesity has increased dramatically over the past three decades, with almost two in three Australians now classified as either overweight or obese.⁶ The cost of overweight and obesity has been estimated to be in excess of \$56.6 billion each year.⁷

The majority of strategies for overweight and obesity prevention or treatment focus primarily on encouraging individuals to change dietary and physical activity patterns,⁸ but questions have been raised as to whether these approaches can achieve clinically relevant and sustained weight loss.⁹⁻¹¹ While individuals have some personal responsibility for their health, it is increasingly understood that the individual and the food environment interact in reciprocal ways² and as such, strategies are required at both the individual and food environment levels. Reducing obesity prevalence (through both obesity treatment and halting of the progression of overweight and obesity) therefore requires a multifactorial response acknowledging the inherent complexity of the environment influencing individuals.

In developed nations such as Australia, the processed food supply system provides energy-dense, nutrient-poor foods (that are highly processed; rich in fat, sugar and salt; and low in essential nutrients) in large portion sizes. This food supply has been recognised as a major cause of obesity and diet-related health problems.¹² Worldwide, food consumption and expenditure patterns show an increasing reliance on eating outside the home, particularly at restaurants and fast-food outlets.¹³⁻¹⁵ Researchers have expressed concerns with regard to larger portion sizes,¹⁶ higher energy densities,¹⁷ lack of consumer information¹⁸ and lack of healthy choices¹⁹ when eating outside the home. Evidence suggests that eating outside the home could be associated with higher energy intake, poor dietary quality, and an increased risk of weight gain and obesity.^{13, 20, 21} In addition, previous research has shown obese adults consider eating outside the home to be a key barrier to adherence to specific dietary regimes.²²

In Australia, the food and beverage service industry generates revenue of \$80 billion annually and has demonstrated, on average, 5% growth annually for the past 10 years.²³ Most Australians have access to food outlets within their home neighbourhood. On average, five outlets were found within 800m of homes in suburban Melbourne²⁴ and up to 20 outlets were found within 2.5km of households in suburban Brisbane.²⁵ In outer urban Melbourne, more than 80% of the population can reach a major fast-food outlet by car in less than eight minutes;²⁶ and in rural towns the restaurants, cafes or takeaway outlets are often found nearby. For example, in rural NSW within a 4km reach of the town boundary.²⁷

Australians visit these outlets regularly: adults aged between 25 and 64 years report consuming takeaway, on average, once a fortnight.²⁸ Younger people tend to consume takeaway foods more often: 27% of younger adults (26–36 years) report consuming takeaway twice a week or more,²⁹ and 44% of adolescents (17 years) report consuming takeaway once or more per week.³⁰

In the past 10 years, the share of total food budget spent on food away from home has risen (from 23% in 1989 to 27% in 2010).³¹ Given the increasing consumption of food outside of the home, and the reciprocal interaction between individual food choices and the food environment, public health initiatives in the food service sector

that enable and promote healthy eating may offer considerable potential to improve public health and decrease healthcare costs.³² Such initiatives play a role in the prevention of overweight and obesity by ensuring healthier food choices are available and accessible to consumers, and that consumers are able to make informed choices about food types and portion sizes when buying foods to eat outside the home.

Food service strategies to improve consumer health

Combating obesity and diet-related health problems requires interventions at many levels in society: individual, family, local, national and international. This multi-level approach recognises that individual choices are shaped by the wider context.¹ Through both research and practice, consensus has emerged that change is needed to both the food environment and at an individual behavioural level.² The food service sector plays an integral role in changing aspects of the food environment to contribute to improved consumer health.

A number of strategies can be deployed within food services to positively influence food choices. These range from those that do not rely on any consumer engagement (for example, reformulation to reduce the salt content of foods) through to those that rely on consumer engagement and action (for example, provision of energy information that requires consumers to read and act on the information provided). Commonly considered strategies are: nutrition labelling and nutritional information to assist consumers in making healthier food choices;¹⁵ introducing new options or rebalancing current offerings to increase the availability of healthier options; restricting advertising and commercial promotion (or requiring advertising and promotion efforts be focused on healthier options); reformulation (including sodium reduction, the removal of trans fats, saturated fats and energy content reductions); the use of pricing and promotions to incentivise or disincentivise purchases of particular products; providing or promoting smaller portion sizes; removing high-energy or high-sodium condiments from serveries or tables in sit-in eateries;³³ and ensuring consistency of health-promotion actions across sectors of the food system.³⁴

Governments, non-government organisations (NGOs) and industry bodies can harness and coordinate action within the food service system through the development of policy. Policy can be mandatory or voluntary, with self-regulation, co-regulation and codes of practice schemes examples of the latter. Voluntary schemes provide guidance and motivation to food service providers to act, and results in systemic action across a broad sector of the community. Many countries have implemented policies to reduce obesity,² however previous reviews of such actions have noted that evaluation of these actions is lacking or of insufficient quality.^{14, 35} Examination of existing schemes and literature is needed to inform the development of policy or schemes to shape the actions of the food service sector to positively influence dietary consumption.

Defining and scoping the Evidence Check

The term 'food services' is used throughout this document as an umbrella term encompassing quick service restaurants and fast casual dining, ready-to-eat convenience foods, independent fast-food outlets/takeaway stores and sandwich bars, distributors and corporate caterers, and dining out establishments (including restaurants, cafes, pubs, clubs and function centres). Hospitals, aged care facilities, schools and educational catering facilities were beyond the scope of this review.

Similarly, the term 'schemes' is used throughout this document as a broad term to refer to the range of food service initiatives that encourage provision of appropriate portion sizes; promote whole food consumption; increase the visibility, availability and promotion of healthier food choices; improve the nutritional value of food offerings (e.g. reduced added sugar, sodium, saturated- and trans-fat content); and provide meaningful menu labelling.

This Evidence Check sought to identify and analyse food service schemes led by government, industry bodies or non-government organisations (NGOs), implemented in either Australia or internationally in the past 10 years. Schemes of interest were those that involved voluntary pledges, opt-in or targets, rather than mandatory schemes or individual business-led activities.

Methods

Peer-reviewed literature

A systematic literature search protocol was developed to identify, describe and evaluate the existing evidence base for current international food health initiatives in the food service sector. Several combinations of search terms were trialled during search optimisation using a select set of large databases (EBSCO, Emerald, ProQuest, Ovid, and Web of Science). Sixteen sets of search terms were trialled, with random screening of records conducted to determine whether records were near to the intended scope of the search. The search terms were arranged into three groups – the first representing the setting, the second the desired outcome from intervention, and the third the means of intervention.

Two sets of keywords emerged as the most promising. These sets only differed by two terms (nutri* OR diet* - included in the second set of terms). The larger set of keywords returned a total of 7908 records from the five databases used for search optimisation. Initial screening of randomly chosen records from this pool revealed many were bio-medically focused and/or did not relate to food services. For this reason, nutri* OR diet* keywords were considered to be too broad, and not suited for use in a rapid review.

The results of the search optimisation process were discussed with the commissioning agency, and the final search strategy agreed upon by the review team and the commissioning agency. The final strategy included the following exact keyword search terms:

"food service" OR "food producer" OR "food consumption" OR "food advertis*" OR "food compan*" OR caterer OR restaurant* OR supermarket* OR "fast food" OR cafe*

AND

"health* choice" OR "health* eat*" OR "health* food*" OR "health* beverage*" OR "unhealth* choice" OR "unhealth* eat*" OR "unhealth* food*" OR "unhealth* beverage*"

AND

government* OR industr* OR NGO OR CSR OR "corporate social responsibility" OR policy OR regulat*

The search strategy was executed using 10 electronic databases (Cochrane, EBSCO, Emerald, MEDLINE, Ovid, ProQuest, PsycINFO via Ovid, Science Direct, Scopus and Web of Science) in early June 2017. Searches were limited to 'English Language' and articles relating to 'Humans' published between 2006 and 2017. Initial search results retrieved from this keyword search are reported in Table 1.

Table 1: Databases and articles retrieved in initial search

Database	Number of records retrieved
EBSCO All Databases	355
Emerald	1
ProQuest All Databases	311
Ovid All Databases	561
ScienceDirect	164
Web of Science	612
MEDLINE	484
PsychINFO	167
Cochrane	60
Scopus	1087
Total	3802

Exclusion criteria

After duplicates were removed, 1262 unique records remained and were screened by three of the review team in light of the following exclusion criteria: not in English; published prior to 2006; not a peer-reviewed journal publication (for example, a conference paper or unpublished thesis); not related to a food service; related solely to food security, affordability or accessibility rather than health; or a conceptual or discussion article (Refer to Appendix 1).

Additional relevant papers were identified through backward and forward searching and examination of previous reviews. Forward searching refers to the identification of articles that cite a particular article or work after it has been published. This type of search focuses on obtaining additional publications that have been created after an original included article has been published. For the present review, forward searches were conducted in Google Scholar using the 'cited by' function. In contrast, backward searching refers to identifying additional records by examining the reference lists of originally included articles.

Grey literature

Grey literature records (non-peer reviewed documents such as government reports, case studies and other publicly available records) were sourced by the commissioning agency. In addition, the systematic literature search process was supplemented with desktop searching and examination of informative reference sources such as the NOURISHING policy database (www.wcrf.org/int/policy/nourishing-framework) to source further grey or academic literature records. These were then evaluated against the inclusion criteria to examine their suitability for inclusion in the review.

Inclusion criteria

Following the initial exclusion process, the following inclusion criteria were applied to focus the review on qualified records that reported voluntary schemes implemented within the food service sector.

1. The setting:

- a) Must be a food service (restaurant, cafe, takeaway, fast food, catering, club, pub)
- b) Can be institutional (government-run facility, prison, defence)
- c) Not schools, not hospitals, not aged care.

2. The initiative:

- a) Must have deployed a strategy to improve healthy eating (e.g. provide appropriate portion sizes; encourage whole food consumption; increase availability/visibility/promotion of healthy food choices; reduce added sugar, salt, saturated fatty acid and trans fatty acid content across food and beverages; reduce energy content/density of food offerings; meaningful menu labelling)
- b) Not focused on availability/accessibility in low SES/food deserts; not environmentally conscious/organic/sustainability (unless health is an objective too).

3. The initiative:

- a) Was a voluntary initiative led by national/state/local government or NGO or industry body (Priority 1)
- b) Was a mandatory initiative (led by national/state/local government or NGO or industry body) that was also deployed as voluntary initiatives in other regions (Priority 2).

A flowchart of the literature selection process is available in Appendix 1.

The review team retrieved the full-text articles for records that met the inclusion criteria and extracted data to enable assessment of the included studies. Data extracted from the studies included: title, author, year of publication, study type, level of evidence as well as key descriptive information about the scheme and evaluative outcomes (where available).

Assessment of included studies

Additional exclusion decisions

There were schemes or publications identified that met key criteria but on closer examination, and in light of the scope and timing restrictions surrounding the current evidence check, were deemed unsuitable to include. For example, the HECTOR program (European Commission) developed tools for caterers and consumers, but the evaluations were no longer available to the review team as the program's website had been closed.

Included studies

Twenty-seven academic papers met the criteria for inclusion in the review. An additional 10 grey literature records qualified and were included in the evidence base. A summary table of the included studies is in Appendix 2.

Evidence grading

An assessment of levels of evidence based on the National Health and Medical Research Council (NHMRC) guidelines was applied. The NHMRC hierarchy assigns levels of evidence according to the type of research question and appropriateness of research design to that question. Levels of evidence range from I (highest) to IV (lowest) based on study design. One randomised controlled trial study was rated level II, nine studies were rated as level III-2, six studies were rated level III-3, and seven studies were rated as level IV. Thirteen qualitative studies could not be assessed according to the NHMRC hierarchy of levels.

Findings - Question 1

Question 1: Describe the schemes that have been implemented in Australia and internationally to focus efforts of the food services sector to improve the healthiness of the menu choices or nutrition information for customers

The search performed for this Evidence Check identified 16 schemes that aimed to improve the healthfulness of consumer choices in a food service setting. These schemes are summarised in Table 1.

Scheme category

The schemes could be grouped into three categories based on their approach. The first group was classified as awareness raising because they focused on informing consumers about better food choices and/or portion sizes. Schemes in this category required consumers to read, interpret and understand the information and then use that information to make a healthy choice. Although not a neat fit in this category, some schemes in this group focused on shaping advertising to children to reduce potentially harmful information or persuasive content, and to substitute it with advertising for healthful products in order to influence consumer choice. Therefore, all of these schemes were completely reliant on informed consumer choice via awareness-raising activities (or as a result of exposure to reshaped persuasive information) to achieve a health outcome.

The second group combined awareness-raising approaches with structural changes (changes within the food service) to make healthier choices easier or healthier foods more accessible. Therefore, these schemes are only partially reliant on informed consumer choice and are also reliant on the food service to implement structural change(s) to achieve a health outcome.

The third group used only structural changes, making changes to products (through reformulation) or to the sales mix to ensure the consumer groups accessing those outlets are, by default, consuming healthier foods. As structural changes alter the foods provided, they create a situation where the customer can consume a healthier choice without needing to identify and select it as healthy. Therefore, these schemes are not reliant on consumer awareness of better food choices and portion sizes, but completely reliant on the food services to implement the structural change to achieve a health outcome.

Leading organisation, nature of pledges and number of options

Seven of the schemes included in the review were led by government, at either a federal, state or local level. Five were led by NGOs and three by industry bodies, and one was a public-private partnership. Across the schemes, there was variation in the level of collaboration and partnership between the leading organisation and the food service outlets.

Not all schemes involved pledges. Food service scheme involvement and the number of options varied greatly across the schemes captured in this review. The approaches taken could be roughly grouped into four categories. The first group involved a high-level pledge to the objectives of the scheme (National Salt Reduction Initiative – US; Public Health Responsibility Deal – UK; Healthy Catering Commitment – UK; AFGC Quick Service Restaurant Initiative – AUS; Children’s Food and Beverage Advertising Initiative – US), with flexibility to determine what actions were taken by the food service within the guidance provided by the organising body.

The second group required businesses to opt in through a certification process (Health Check – Canada; Choose Health LA – US; Kids Live Well – US; KeyHole – Sweden/Denmark; Informed Dining – Canada; Icon-Based Menu Labelling – West Ireland) where businesses could choose to submit actions (menu items) for assessment against criteria set for the scheme. The number and type of menu items submitted was determined by the business.

The third type was tailored to the business (Healthier Oils and Choose Healthier – both AUS) and adopted a consultative and collaborative approach drawing on the expertise of the leading organisation to develop solutions for the business. Schemes of this type were small scale, localised and specific to the target business or outlet.

The fourth featured mandatory elements (Fast Choices – AUS; Calorie labelling – US; Healthy Beverage Executive Order – US) were either mandatory, mandatory for some outlets in a jurisdiction, or were transitioning to mandatory status at the time of this review. This final group of schemes was prescriptive in nature, with the expectation that businesses would comply with the conditions of the scheme. According to the defined scope of this review, these schemes can be considered marginal. Healthy Beverage Executive Order – US was an

opt-in scheme for some outlets and was thus retained in the review. Energy content labelling schemes had been mandated in some areas, for some business types, but had been adopted voluntarily by others outside the scope of the legislation. Energy content labelling had also been incorporated as a strategy in other broader schemes, so these mandated schemes were also retained in the review (Fast Choices – AUS; US Calorie labelling).

Population groups

The schemes identified predominantly focused on the general population. Most schemes engaged with food service outlets that catered to the broader population and therefore the strategies employed were expected to affect all who dined in those outlets.

Some schemes contained an element directed towards children, either as the sole focus of the program or as part of the scheme. For example, the Kids Live Well Program (US) focused solely on providing healthy options for children specifically through the addition of new menu items, or assuring that existing or new items met nutrition standards. The Australian Food and Grocery Council (AFGC) Quick Service Restaurant Initiative (AUS) focuses on restricting the children's exposure to advertising of non-healthy foods. The Choose Healthier (AUS) and Choose Health, LA (US) schemes both included a focus on children as part of the scheme through the provision of healthier options for children.

Beyond those targeted towards children, the search did not uncover any schemes targeted to specific groups, for example specific to rural or regional areas, or for Aboriginal and Torres Strait Islanders. It must be noted that although some schemes had a focus on children, papers that reported on initiatives conducted in a school setting were excluded as per the Evidence Check specifications. There is a large body of literature focused on the promotion of healthy eating through schools, and reviews of this evidence are available, see for example: ^{36, 37, 38}

Focus of the schemes

Although the objectives of the schemes varied, most had a single aim, and only three had multiple aims. The most common focus was the creation of healthy options (seven) and/or identify or highlight existing healthy options through nutrition provision or labelling (four). In each of these cases, the creation of new healthy options or the classification of existing items as 'healthy' was either guided by pre-set nutrition criteria or undertaken in consultation with nutrition professionals. This process means that the healthy items were intended to further the goals of increasing fruit, vegetable or wholegrain consumption and/or reducing salt, fat and/or sugar content in the target group.

While a subset of schemes aimed to increase healthy options and promote healthy options (to enable and guide healthy choices), other schemes simply provided nutrition information, or energy content in order to inform choice. This was the sole focus of the Australian Fast Choices, the US Calorie Labelling and the Informed Dining Program (Canada), and one of the options in the Public Health Responsibility Deal (PHRD, UK).

Three schemes considered portion size. The Healthy Catering Commitment (UK), which includes an option for businesses to choose to offer smaller options in addition to regular-sized options, while Choose Health LA (US) requires businesses to offer smaller options in addition to regular-sized options. The PHRD (UK) includes a pledge to offer responsible portion sizes, but in line with the overall design of that scheme, allows businesses to decide which action to pledge against.

Cooking practices were a focus of two schemes (Healthy Catering Commitment; PHRD – both UK) both focused on modifying high fat and high salt cooking practices. Three schemes focused on reformulation either as the sole focus of the scheme (Healthy Oils Initiative – AUS) or as one of the optional actions under the scheme (National Salt Reduction Initiative – US and PHRD – UK). Reformulation activities in these schemes were designed to eliminate unhealthy fats and/or to reduce fat and/or salt content of foods.

The AFGC Quick Service Restaurant Initiative (AUS) and the Children's Food and Beverage Advertising Initiative (US) focused on shaping the content of food advertising to children. The initiative requires food service companies to pledge to reduce advertising to children for unhealthy foods, and instead use advertising to children to promote healthy choices.

Food services involved

Most schemes were targeted towards restaurants or fast food outlets, or both. The Healthy Oils Initiative (AUS) restricted their focus to small- and medium-sized businesses, and Fast Choices (AUS) and the US Calorie Labelling schemes targeted chain or franchise restaurants with multiple outlets.

Implementation frameworks and sustainability

Very little information could be gleaned from the available articles regarding implementation frameworks for the nominated schemes. Some sources gave indications of the governance structures of the scheme. As shown in Table 2, five schemes had leading organisations that were NGOs and three schemes were governed by the federal government. Three schemes were led by industry or public-private partnerships, two schemes were managed by state government and two by a local government area.

The available information on implementation timeframes indicated that most programs/schemes (n=13) were ongoing. One scheme had been implemented then subsequently suspended. The Calorie Labelling scheme in the US is imminent. There was very little explicit information provided regarding the source of funding for the schemes or any risk identification and mitigation strategies (related to consumers, organisations, businesses).

Findings - Question 2

Question 2 - What evidence is there of the effectiveness of any of the schemes identified in Question 1?

Of the 38 studies included in this review, only seven evaluated food choice outcomes (i.e., foods chosen), while 10 evaluated food health outcomes (i.e., dietary intake), providing a very limited evidence base to assess effectiveness of the schemes to improve consumers' choices or dietary intake.

There is, however, contextual evidence to demonstrate that food services can be engaged in activities that aim to improve consumer health. Further evaluations with rigorous study designs are needed to determine the effect of the schemes such as those described in this review.

Consumer food choice outcomes

Seven studies, assessing four different schemes, measured consumer food choice outcomes. These four schemes were all awareness raising, providing either calorie labelling or signposting of healthy options to inform consumers of better food choices. Two studies used self-report measures to assess the effect of the scheme, with both finding that consumers felt that signposting helped them to choose a healthier item.^{39, 40} However, only one of these studies measured food choice (i.e., foods chosen); finding 7.5% of patrons reported ordering at least one item containing the healthy symbol – but only 2% of consumers reported ordering items with the healthy symbol as well as stating they noticed the symbol and that it influenced their meal choice.³⁹ The other five studies used sales records, all finding no increase in sales of the healthier options offered or changes to the sales of any less healthy products after implementation of the scheme.⁴¹⁻⁴⁵ Taken together, the findings from these studies indicate awareness-raising schemes had little effect on consumer food choice, with no change observed in sales (an objective measure of foods chosen), and healthier choices were self-reported by only a small number of consumers in one study. Consumer food choices were not measured in any of the enabling or structural schemes.

Consumer dietary intake outcomes

Ten studies, assessing four different schemes, measured consumer dietary intake. These four schemes were all awareness raising. The results were mixed within and across studies. For example, one study found meals consumed in Health Check (Canada) restaurants were lower in saturated fat than in comparison restaurants.³⁹ However, there was no difference in total fat, sodium and total calories consumed.³⁹ A Danish study of the KeyHole signposting scheme found reductions in energy density, fat and sugar intake as well as increases in fruits, vegetable and wholegrains.⁴⁶ These changes were not seen in control sites. However, Swedish studies of the KeyHole scheme found no change in the nutritional content of meals consumed.⁴¹⁻⁴³ Mixed results were also observed across calorie-labelling schemes. Five studies of US calorie-labelling schemes found no decrease in calories consumed,^{44, 47-50} whereas one scheme found a modest decrease 18 months after implementation.⁵¹ An assessment of the Australian kilojoule-labelling scheme (Fast Choices) found significant decreases in self-reported kilojoule intake.^{52, 53} In summary, assessments of the effect of awareness-raising schemes on dietary intake are inconclusive. Consumer dietary intake outcomes were not measured in any of the enabling or structural schemes.

* The Fast Choices Australian kilojoule labelling scheme is operating in certain jurisdictions; and has only been evaluated in NSW. Evaluation from other states is underway.

Measures of business engagement

Business engagement was an important aspect of many studies, and was the primary focus of some studies. In schemes that contained a structural element – a change to the food service can benefit consumer health, and it was these changes that were measured.

Although evaluations of awareness-raising schemes generally did not measure business engagement, a study of the Fast Choices scheme found that businesses had a high level of understanding and compliance with the scheme.^{52, 53} Two studies of calorie labelling in the US found decreases in the energy, saturated fat and sodium content of foods (due to reformulation) and/or increases in the number of healthy options being provided.^{54, 55} A further two studies found no change in the nutritional content of offered foods.^{56, 57}

In summary, when business engagement outcomes were evaluated, no change or a positive change that would facilitate increases in healthy choices were reported.

Studies of enabling schemes that incorporated awareness-raising strategies and structural changes measured business engagement in a variety of ways. For example, a study of the Healthier Catering Commitment (UK) found that it was not difficult for some businesses to engage in the award scheme because they either qualified without needing to make any changes or they were already meeting some criteria and only a few changes were required to qualify. Importantly, they found businesses were comfortable making structural changes where they considered them to be imperceptible to consumers, such as reformulations or substitutions that did not interfere with the taste of menu items.⁵⁸ The Choose Health LA (US) studies found businesses perceived a number of barriers to involvement, including the need to respond to customer demand and fear of potential revenue losses. However, some were motivated by a desire to be socially responsible industry leaders.⁵⁹ Those businesses that became involved with the scheme readily adopted elements of the scheme.⁶⁰ The Choose Healthier pilot scheme in the ACT (AUS) worked closely with businesses to introduce healthier products suited to those businesses. In each case, the healthy options were well received and had high sales numbers.⁶¹⁻⁶³ In addition, one business benefited from increased general sales across their range during the pilot scheme,⁶³ indicating the partnership met both commercial and health objectives.

The Public Health Responsibility Deal (PHRD) in the UK is a public-private partnership established in 2012 that aims to improve public health across key areas – alcohol, food, health at work and physical activity.³³ Close to 800 organisations have signed up to the PHRD, across all health areas and in both the food manufacturing (packaged food) and food service sectors.⁶⁴ Closer examination of the PHRD food pledges shows 7–90 signatories of each food pledge (organisations can sign more than one pledge) from a pool of 7000 manufacturing; 213,000 wholesale and 52,000 retail food enterprises in the UK.⁶⁵ While the PHRD aims to tackle health on a broad scale, concerns have been expressed that the inherent complexity makes it difficult to evaluate,⁶⁶ and that many pledges do not seek enough change from industry – simply requiring information provision,⁶⁵ rather than requiring changes to products, pricing or marketing.⁶⁷ Indeed, early evaluations of the PHRD show not all organisations pledged to a range of actions. Most chose to pledge to information provision, awareness raising and communication rather than structural initiatives.⁶⁷ Also, most pledges reported by organisations were already underway, regardless of the PHRD.⁶⁷ Evaluation of implementation of pledges made under the PHRD was difficult due to the missing information and the differing reporting styles of organisations.⁶⁷ Concerns were also expressed that evidence-based strategies to improve diet, such as food pricing strategies, restrictions on marketing, and reducing sugar intake are not included as PHRD food pledges,⁶⁷ and some pledges (e.g. trans fats) have failed to attract the participation of those producing fast foods and takeaways, where most remaining use of artificial trans fats is located.⁶⁸

Evaluation of the structural scheme Healthier Oils indicated interest from business in making changes, and noted that habit and routine stood in the way of making structural changes.⁶⁹ The National Salt Reduction Initiative (NSRI, US)** aims to reduce sodium content of both packaged foods and those prepared and sold by the food service sector.⁷⁰ Although some progress has been observed with packaged foods, packaged food companies were substantially more engaged in the NSRI than were restaurant companies.⁷⁰ Direct evaluations of the NSRI were difficult to source. One study evaluating two food services participating in NSRI indicated mixed results, with one food service not meeting the goal of 20% reduction in salt content over two years – managing only a 6% reduction in the two years; whereas another service exceeded the same target by 16%.⁷¹ The NSRI has published results comparing the sodium content of foods from 35 chain restaurants over a five-year period demonstrating a small reduction in sodium content (1.5%) across 800 food categories. These results also show that in 2014, four of the 25 categories met NSRI 2012 targets and no categories met NSRI 2014 targets.⁷²

** It is important to note the results from 35 chain restaurants reported by the National Salt Reduction Initiative captures a wider pool than the five chain restaurants that have signed up for the NSRI; making it difficult to determine how much of the mean decrease in sodium content has occurred within chain restaurants participating in the scheme.

The only scheme found to be no longer operating was the Canadian Health Check scheme that covered both packaged foods and items in food service establishments. This scheme suffered heavy criticism as products with significant amounts of fat, sugar and sodium could still qualify for the Health Check seal.

The program also involved significant fees for food businesses seeking to have products recognised with the Health Check symbol.

Pledge-based schemes

Very few schemes in this Evidence Check were labelled as 'pledges' in their descriptive documentation. Pledges to reduce the advertising of unhealthy foods appear to have done little to reduce children's exposure to advertising for unhealthy foods.⁷³⁻⁷⁵ Pledges to reduce sodium content of foods appear to be having some effect,⁷¹ but are not meeting the targets set by the initiative. Evidence of the effect of the Public Health Responsibility Deal (UK) suggests that when signing the PHRD, organisations chose a strategy they had already implemented or a target they were able to meet without effort.⁶⁷

Other findings

The search identified two recent reviews of direct relevance to this Evidence Check.^{14, 76} The findings from these two reviews are summarised below.

Hillier-Brown et al⁷⁶ reviewed English schemes that aimed to improve ready-to-eat meals (to eat in, to take away or to be delivered) sold by food outlets. Hillier-Brown and colleagues used a two-step process: step one focused on identifying schemes (no date limits were set during their search) and describing the type, content and delivery of schemes, regardless of whether evaluations had been conducted; and step two synthesised findings from any evaluations of the schemes. Through academic and grey literature searching and contact with local authorities, topic experts and health professionals, 75 initiatives were identified. The majority of these were award schemes administered by local government authorities (LGAs). The typical approach involved assessment against predetermined criteria, resulting in an award if the criteria were met. The award status was then able to be promoted by the outlet, and at times registers of awarded outlets were kept by the administrators of the scheme, allowing consumers to search for an awarded outlet located nearby. The focus of the schemes (both award schemes and non-award schemes) varied, but most targeted cooking practices, ingredient substitution or recipe reformulation. The addition of 'healthier options' was also a frequent focus across schemes. Few schemes targeted suitable options for children, menu labelling or portion size reduction. Evaluations were found for less than half of the schemes (30 out of 75) and Hillier-Brown described the evaluations as limited in scope and of low methodological quality (as assessed by the authors). Only one evaluation had been reported in the peer-reviewed literature.⁵⁸ However, the assessments that had been conducted revealed that many businesses held positive attitudes towards involvement in these schemes, particularly when they were cost-neutral and adopted a "small changes" or a "health by stealth" approach. Only four peer-reviewed studies were included in their review, one of which was also identified in this Evidence Check,⁵⁸ two of which were prior to the time limit set for this review,^{77, 78} and one which was considered out of scope.⁷⁹

The second review by Hillier-Brown¹⁴ adopted an international focus, reviewing "any type of intervention that aimed to change the practices of food outlets in order to promote healthier menu offerings" (pg. 227). Unlike the previous review, which focused on schemes that had been implemented in the food service sector by either government, NGOs or industry bodies, they included experimental studies conducted in a single outlet or a group of outlets to test a concept or strategy. Thirty-four interventions were identified, deploying strategies such as bans (e.g. trans fat), changing children's menus, food outlet award schemes, pricing modifications, telemarketing of healthy options, signposting and calorie labelling, and provision of personalised information (e.g. on receipts). The quality of the studies included was rated as low to moderate (assessed using the Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies).⁸⁰ The majority of studies examined interventions that enabled choice (e.g. increasing menu options, signposting) or provided information (calorie labelling). The review found that these types of interventions had negligible impact. Although the evidence base was small, the authors concluded that interventions that guided and restricted choice (through incentives/disincentives or legislation) were more likely to have positive effects on catering practices and consumer behaviour.

It is worthwhile noting the NOURISHING framework developed by the World Cancer Research Fund to categorise areas in which governments can take action to reduce overweight and obesity. The NOURISHING acronym refers to:

N = Nutrition label standards and regulations on the use of claims and implied claims on food

O = Offer healthy food and set standards in public institutions and other specific settings

U = Use economic tools to address food affordability and purchase incentives

R = Restrict food advertising and other forms of commercial promotion

I = Improve nutritional quality of the whole food supply

S = Set incentives and rules to create a healthy retail and food service environment

H = Harness food supply chain and actions across sectors to ensure coherence with health

I = Inform people about food and nutrition through public awareness

N = Nutrition advice and counselling in health care settings

G = Give nutrition education and skills.

The fund has created a policy database to capture details on implemented policies under each of these 10 areas (www.wcrf.org/int/policy/nourishing-framework). Areas of particular interest to this review were (N) nutrition label standards; (R) restrict food advertising; and (I) improving nutritional quality of the whole food supply (when each of these three were implemented in food services, and not on packaged food). The review team scanned the list of policies contained in this database finding many policies were beyond the scope of this review (for example, they were school based; community based and/or not involving a food service; individually focused; or focused on packaged foods). Studies related to any schemes not already identified in the search for this Evidence Check were assessed against our inclusion criteria, and included when they met those criteria. Despite containing many schemes beyond the scope of this review, this database remains a valuable resource for policy makers.

Gaps in the evidence

This Evidence Check identifies a limited range of schemes, either nationally or internationally, that have aimed to focus efforts of the food services sector on improving the healthiness of the menu choices or the provision of nutrition information to customers. Moreover, few comprehensive evaluations of these schemes have been conducted, and study designs employed have not always measured all outcomes of interest or used designs that would provide strong evidence of efficacy.

Discussion/synthesis of findings

Obesity and diet-related health problems are complex issues requiring action on a broad scale involving many actors. The food environment has emerged as central to halting or reversing this situation due to its role as a mediator between learned food preferences and eating behaviours.³⁴ Therefore, opportunities exist to improve consumer health by harnessing and channelling the actions of the food service sector to improve the healthfulness of foods offered and guide consumer choices in a healthful direction through informed choice and/or choice architecture.

Governments around the world are taking action to address obesity and overweight through the introduction of initiatives and policies (whether mandatory, voluntary, co-regulatory or self-regulatory in nature).² A common dilemma facing food policy makers is the notion of consumers' right to free choice. This refers to the extent to which initiatives should be designed to inform and encourage healthier consumer choices or whether choices should be restricted in the interests of public health. There have been calls for more coherent food policy for public health, noting that the dominant approach in health promotion has been to focus on health education (awareness raising) to encourage healthy eating habits, rather than on more 'upstream' or structural initiatives (reformulation and/or making healthy choices easier or accessible).^{81, 82} Structural initiatives include altering accessibility, affordability and/or availability of healthy food.

This Evidence Check sought to: identify and analyse current international health initiatives in the food service sector; consider the impact of initiatives on consumer and public health; and to describe the components needed for an effective scheme to improve the supply and purchasing of healthier food and drinks in Australian food services.

The review identified schemes operating in the food service sector that aimed to improve consumer health. Evidence for the effectiveness of the schemes was limited in quantity, mixed in outcomes and assessed as low quality. Additional evaluations of food service sector schemes are needed to guide future efforts in this area. Consider, for example, the NOURISHING database established by the World Cancer Research fund, which aims to monitor worldwide policy action to improve consumer dietary health. This database contains details of 390 implemented government policy actions across 125 countries covering a broad range of mechanisms and settings (including schools, packaged foods and the food supply – many of which were beyond the scope of this review). Yet, only 40 of these policies have evaluation studies available on the database (more may follow in time).

The evidence base is small and inconclusive. Many schemes have not been evaluated comprehensively to determine whether the schemes have been implemented as intended and that the desired outcomes have resulted. Interventions designed to address complex problems on a broad scale often have many interrelated elements, involving many players, and therefore are difficult to evaluate.⁶⁶ However, there is a need to develop suitable assessment techniques to track progress; to ensure that strategies are implemented as planned, and that intended outcomes ultimately result.⁶⁶

One group of schemes identified in this Evidence Check can be described as awareness raising. These schemes aim to equip people to make the best possible choices for themselves, rather than removing choice or compelling change.⁸³ This evidence found for this review indicates that awareness-raising schemes when used in isolation are ineffective. Raising awareness and providing information assumes that, when informed, people will act in accordance with newly gained information. However, meta-analyses have demonstrated that information campaigns only affect a small proportion of the population (5% for nutrition behaviours).^{84, 85} Such campaigns also assume that individuals have the ability to interpret and understand the information, often under time pressure, and to show restraint in food environments where many other signals encourage the opposite behaviour.⁸²

Two other groups of schemes employed structural elements, either in isolation or in combination with awareness-raising elements. The effect of these schemes on consumer choice or consumer health does not appear to have been measured. Successful implementation of these structural changes by food service businesses is a measure of success as these changes negate or reduce the need for consumers to make a healthy choice. Measures of implementation are a good interim assessment tool, but evaluations are needed to ensure structural changes are having the expected effect on consumer behaviour. The evidence included in this review suggests that some businesses will engage in schemes to improve consumer health, particularly if the changes are imperceptible to consumers and have little impact on revenue.

Schemes examined in this Evidence Check adopted four differing stances: prescription by the administering body; opt-in certification requiring the food service to undertake actions (variable in number) to meet pre-established

criteria; pledging to high-level objectives that give the food service flexibility to develop actions within guidance; and completely tailored to the food service. Very few schemes were pledges in the strictest sense of the term, and the evidence of efficacy of pledges was limited and mixed. Reports indicate that pledge-based schemes such as the National Salt Reduction Initiative and the Public Health Responsibility Deal are able to sign on many organisations. However, the potential for these schemes to improve consumer health (in current form) appears negligible. Organisations often pledge to a very low number of actions, and choose those they can reach easily. Most commonly, those actions are awareness raising, rather than structural strategies that research evidence indicates may be more effective.⁶⁷

Conclusion

Strategies can be employed within the food service sector to enable and promote healthy eating and offer considerable potential to improve health and reduce the burden of obesity and diet-related health problems in Australia. At this time, some schemes have been implemented in the food service sector, but the majority have been awareness raising in nature, and rely on an informed consumer to make a healthy choice. The evidence shows that these schemes are generally ineffective, indicating that more comprehensive actions are needed. While some schemes have been developed that are more extensive, the effect of these schemes in consumer choice and health has not been measured. Encouragingly, this review indicates that businesses will engage with schemes to improve health and that profit gains can be made, although this must be interpreted cautiously as the evidence also indicates they will choose actions they can implement without effort. Finally, more effort needs to be directed towards evaluating the effect of food service sector schemes on consumer health using robust research designs to build the evidence base for the efficacy of such schemes.

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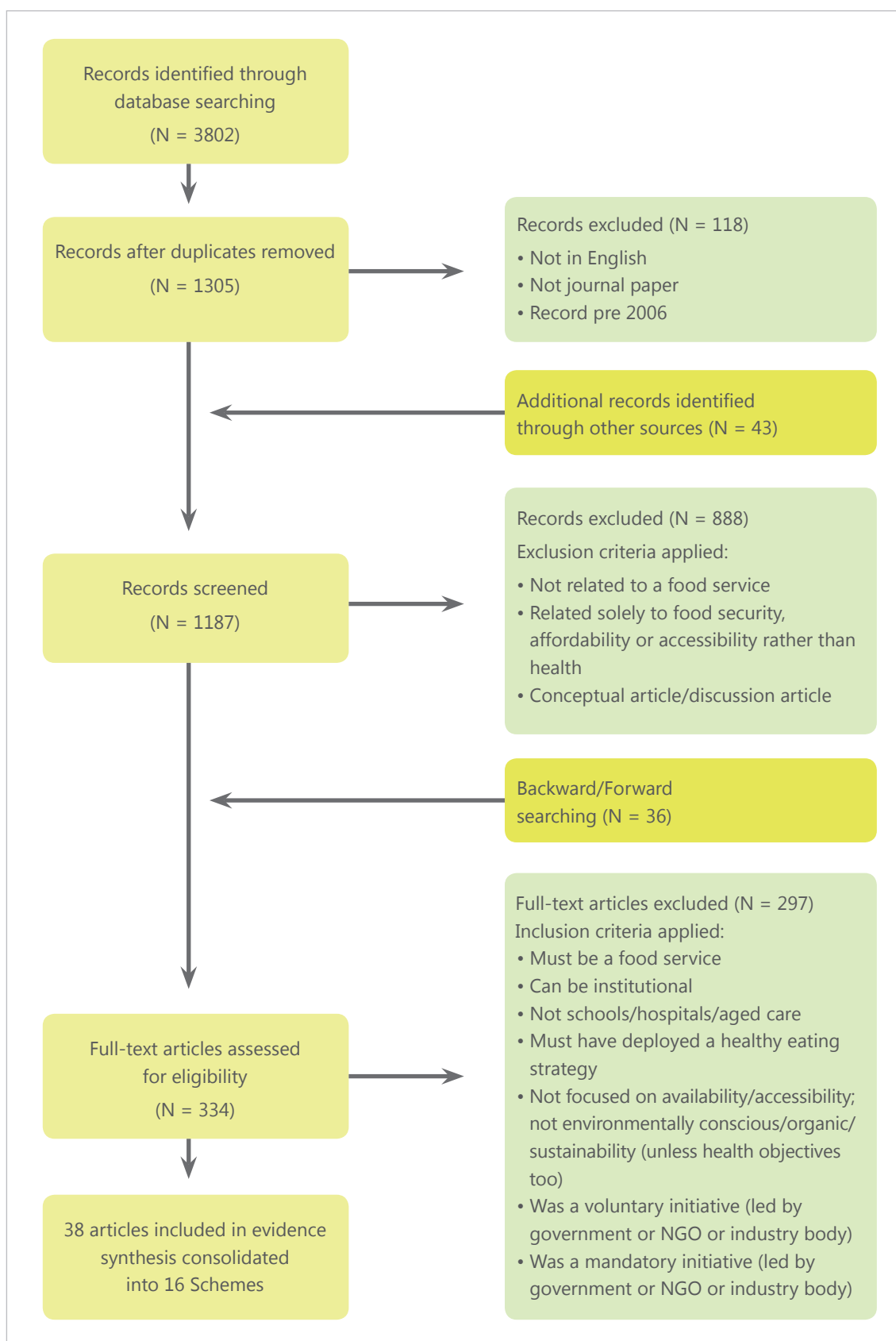
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Appendices

Appendix 1: PRISMA flow diagram



Appendix 2: List of studies

Intervention	References
Health Check (Canada)	White, C. M., Lillico, H. G., Vanderlee, L., & Hammond, D. (2016). A voluntary nutrition labeling program in restaurants: Consumer awareness, use of nutrition information, and food selection. <i>Preventive Medicine Reports</i> , 4, 474-480.
Informed Dining Program (Canada)	Heart and Stroke Foundation. (2016). <i>Informed Dining Program Evaluation Executive Summary</i> . British Columbia: Heart and Stroke Foundation.
Keyhole certification (Sweden/ Denmark)	Lassen, A. D., Beck, A., Leedo, E., Andersen, E. W., Christensen, T., Mejborn, H., Thorsen, A. and Tetens, I. (2014). Effectiveness of offering healthy labelled meals in improving the nutritional quality of lunch meals eaten in a worksite canteen. <i>Appetite</i> , 75, 128-134.
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Fast Choices (Australia)	Douglas, L., & Eichhorn, S. (2013). FAST CHOICES: An evaluation of energy purchased and consumer information. Findings from Waves 1, 2 & 3. TNS Consulting. NSW Food Authority. (undated). Evaluation of kilojoule menu labelling. Stillwater, NSW: NSW Food Authority.
Calorie Labelling Patient Protection and Affordable Care Act (PPACA) (USA)	Finkelstein, E. A., Strombotne, K. L., Chan, N. L., & Krieger, J. (2011). Mandatory menu labeling in one fast-food chain in king county, Washington. <i>American Journal of Preventive Medicine</i> , 40(2), 122-127.
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Icon-based Menu Labelling (Ireland)	Kerins, C., Cunningham, K., Finucane, F. M., Gibson, I., Jones, J., & Kelly, C. (2016). Effects of an icon-based menu labelling initiative on consumer food choice. <i>Perspectives in Public Health</i> , 137(1), 45-52.

Intervention	References
Quick Service Restaurant Initiative (AFGC QSRI) (Australia)	Hebden, L., King, L., Kelly, B., Chapman, K., & Innes-Hughes, C. (2010). Industry self-regulation of food marketing to children: reading the fine print. <i>Health Promotion Journal of Australia</i> , 21(3), 229-235.
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Children's Food and Beverage Advertising Initiative (CFBAI) (USA)	Kunkel, D., Castonguay, J., Wright, P. J., & McKinley, C. J. (2014). Solution or smokescreen? Evaluating industry self-regulation of televised food marketing to children. <i>Communication Law and Policy</i> , 19(3), 263-292.
Healthier Catering Commitment (UK)	Bagwell, S. (2014). Healthier catering initiatives in London, UK: an effective tool for encouraging healthier consumption behaviour? <i>Critical Public Health</i> , 24(1), 35-46.
Choose Health LA (USA)	Gase, L., Dunning, L., Kuo, T., Simon, P., & Fielding, J. E. (2014). Restaurant owners' perspectives on a voluntary program to recognize restaurants for offering reduced-size portions, Los Angeles County, 2012. <i>Preventing Chronic Disease</i> , 11, E44.
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Choose Healthier (Australia)	ACT Government. (undated). Choose Healthier Limelight Cinema Case Study. Retrieved from http://www.act.gov.au/healthyliving/food-environment/choose-healthier-pilot-project
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Kids Live Well Program (USA)	National Restaurant Association. (2013). <i>On the Menu: Restaurant Nutrition Initiatives</i> . 2013 Report. Washington, DC.
Healthy Beverage Executive Order (HBEO) (USA)	Cradock, A. L., Kenney, E. L., McHugh, A., Conley, L., Mozaffarian, R. S., Reiner, J. F., & Gortmaker, S. L. (2015). Evaluating the Impact of the Healthy Beverage Executive Order for City Agencies in Boston, Massachusetts, 2011-2013. <i>Prev Chronic Dis</i> , 12, E147.
Public Health Responsibility Deal (PHRD) (UK)	Durand, M. A., Petticrew, M., Goulding, L., Eastmure, E., Knai, C., & Mays, N. (2015). An evaluation of the Public Health Responsibility Deal: Informants' experiences and views of the development, implementation and achievements of a pledge-based, public-private partnership to improve population health in England. <i>Health Policy</i> , 119(11), 1506-1514.
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Healthier Oils Initiative (Australia)	Milson P, E. B., Mitchell JA, Landon S. (2015). Is it time for an oil change? Cessnock LGA Healthier Oils Initiative Case Study. Sydney: National Heart Foundation of Australia.
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National Salt Reduction Initiative (NSRI) (USA)	Losby, J. L., Patel, M. D., Schuldt, M. J., Hunt, M. G. S., Stracuzzi, M. J. C., & Johnston, M. Y. (2014). Sodium-reduction strategies for meals prepared for older adults. <i>Journal of Public Health Management and Practice</i> , 20(1), S23-30.
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Appendix 3: Table 1 – responses to Question 1

Scheme name	Country	Lead organisation	Governance	Scheme focus	Scheme approach	Food service targeted	Mandatory/voluntary	Target population	Starting year	Current status	Eval
Awareness-raising schemes – Reliant on consumer choice to achieve health outcomes											
Health Check	Canada	Heart & Stroke Foundation	NGO	Healthy options	Opt-in Certification Recognition (logo) at food item level	Restaurants (Fast food)	Voluntary	General public	1999	Suspended 2014	Yes
Informed Dining Program	Canada	Province of British Columbia	Government	Nutrition information	Opt-in participation Recognition (logo) at outlet level	Food services (any)	Voluntary	General public	2012	Ongoing	Yes
Keyhole certification	Sweden/Denmark	KeyHole Restaurant Association	NGO	Healthy options	Opt-in Certification Recognition (logo) at food item and outlet level	Restaurants (Fast food)	Voluntary	General public	2009 (S) 2012 (D)	Ongoing	No
Fast Choices	Australia	Food Authority	State Government	Calorie/KJ labelling	Compliance	Restaurants (Fast food and fast casual)	Mandatory	General public	2012	Ongoing	Yes
Calorie Labelling Patient Protection and Affordable Care Act (PPACA)	USA	US Government	Federal Government	Calorie/KJ labelling	Compliance	Food services (chain restaurants)	Mandatory	General public	2018	Imminent	No
Icon-based Menu Labelling	Ireland	W. Ireland Cardiac Foundation	NGO	Healthy options	Opt-in Certification Recognition (logo) at food item level	Food services (any)	Voluntary	General public	Pilot	-	Yes
Quick Service Restaurant Initiative (AFGC QSRI)	Australia	AFGC	Industry body	Advertising	Pledge Certification Compliance	Food services (any)	Voluntary	Children	2009	Ongoing	Yes
Children's Food and Beverage Advertising Initiative (CFBAI)	USA	Council of Better Business Bureaus (BBB)	Industry body	Advertising	Pledge Certification Compliance	Food services (any)	Voluntary	Children	2010	Ongoing	Yes

Appendix 3: Table 1 – responses to Question 1 continues

Scheme name	Country	Lead organisation	Governance	Scheme focus	Scheme approach	Food service targeted	Mandatory/voluntary	Target population	Starting year	Current status	Eval
Enabling schemes – Reliant on consumer choice and structural change to achieve health outcomes											
Healthier Catering Commitment	UK	CIEH	NGO	Multiple <ul style="list-style-type: none"> • Cooking practices • Portion size • Healthy options • Water • Promotion 	Opt-in Certification Recognition (logo) at outlet level	Food services (any)	Voluntary	General public	2012	Ongoing	Yes
Choose Health LA	USA	LA County Board of Health	Local Government	Multiple <ul style="list-style-type: none"> • Portion size • Children's options • Water 	Opt-in Certification Recognition (logo) at outlet level	Food services (any)	Voluntary	General public	2013	Ongoing	Yes
Choose Healthier	Australia	ACT Government	State Government	Healthy options <ul style="list-style-type: none"> • Children's options 	Tailored assistance to outlets	Food services (any)	Voluntary	General public & children	Pilot	-	No
Kids Live Well Program	USA	NRA	Industry body	Healthy options (Children)	Opt-in Certification Recognition (logo) at food item and outlet level	Food services (any)	Voluntary	Children	2012	Ongoing	Yes
Healthy Beverage Executive Order (HBEO)	USA	Boston Council	Local Government	SSB reduction	Compliance	Food services (any)	Voluntary	General public	2011	Ongoing	No
Public Health Responsibility Deal (PHRD)	UK	UK Dept of Health	Pub-Priv Partnership	Multiple <ul style="list-style-type: none"> • Salt reduction • Calorie/KJ labelling • Reformulation • Portion size • Cooking practices 	Pledge Setting targets Monitoring	Food services (any)	Voluntary	General public	2011	Ongoing	Yes

Structural schemes – Reliant on changes within food services to achieve health outcomes (not reliant on consumer choice)											
Healthier Oils Initiative	Australia	Heart Foundation	NGO	Reformulation (oils)	Assistance to outlets Recognition (logo) at outlet level	Food services (small-medium)	Voluntary	General public	2009	Ongoing	Yes
US National Salt Reduction Initiative (NSRI)	USA	FDA	Government	Salt reduction <ul style="list-style-type: none"> • Reformulation • Sales mix 	Pledge Setting targets Monitoring	Food services (any)	Voluntary	General public	2009	Ongoing	Yes

Appendix 4: Table 2 – responses to Question 2

Awareness-raising schemes – Reliant on consumer choice to achieve health outcomes					
Health Check Canada	Description: Health Check (HC) was a voluntary nutrition labelling program developed by the Heart and Stroke Foundation of Canada as a guide to help consumers choose healthy foods (created 1999, disbanded 2014). The scheme was applicable to both food manufacturers (packaged foods) and food service providers (menu items). Items meeting nutrient criteria were identified with a HC symbol. To qualify, the business must submit an application for a specific product or menu item with accompanying nutrient analysis for the item. Applications were assessed against nutrient criteria (no longer available for download). Applicants pay a 1-time evaluation fee per product (ranging from \$150 - \$750) and an annual licensing fee (\$1,225 - \$3,625). Discounts were available for multiple products. Companies that reach the maximum 14 products in 4 categories pay a maximum of \$66,000 - \$180,000.				
Sources	Study type, evidence level	Outcomes			
		Food choice	Dietary intake	Business engagement	Other
White, Lillico et al., (2016)	Case-control study III-2 n=1126 (n=589 intervention; n=537 comparison).	15% of HC patrons ordered at least one HC approved item. 4% ordered a HC approved item and reported seeing the HC symbol on the item (when asked directly). 2% ordered HC approved item, reported seeing the HC symbol on the item, and said the symbol influenced their choice. Measure: Survey	Meals consumed at HC restaurants were lower in saturated fat (than comparison restaurants), but higher in carbohydrate, fibre and protein content. No significant difference between amount of calories, total fat, or sodium consumed in HC restaurants and comparison restaurants. Measure: Survey item consumption + nutrient analysis of menu items	Not reported	Awareness: More HC patrons reported noticing nutrition information than at comparison restaurants (34.2% vs. 28.1%, p = 0.019). HC patrons were more likely to say their order was influenced by nutrition information than patrons at comparison restaurants (10.9% vs. 4.5%, p<0.001). Measure: Survey
Informed Dining Program Canada	Description: Participating restaurants (full-service, fast casual and fast food) promote the availability of nutrition information and provide their guests with nutrition information for all of their standard menu items. Participating restaurants display the program logo and directional statement on their menu or menu board advising guests that nutrition information is available upon request at or before the point of ordering. Restaurants sign up to the program, and can access resources to help their service staff understand the program and assist customers in accessing the nutrition information. Environmental Health Officers (EHOs) verify that program standards are being met in all participating restaurants in BC. Participating Restaurants can display the Informed Dining logo, and are listed on the website. As of June 30, 2015, over 2,000 restaurant outlets in British Columbia were participating in the program (15% of all restaurant outlets in British Columbia) https://www.healthyfamiliesbc.ca/home/informed-dining				
Sources	Study type, evidence level	Outcomes			
		Food choice	Dietary intake	Business engagement	Other
Heart & Stroke Foundation BC, (2016)	Case study Could not assign n=875 (survey) n=42 (focus groups)	Consumers who read and used the nutrition information, stated it helped them to make an informed dining choice. Measure: Survey	Not reported	Approx. 15% of all restaurant outlets in British Columbia are participating. Restaurant participants are generally satisfied with the supports they receive for program implementation. Measure: Survey	Awareness: Poor awareness, less than one-third of consumers were able to locate the information without asking. Consumer barrier: It took 6-12 minutes to find the nutrition information required to answer simple questions. The length of time required to read and understand the information could be a deterrent to using it, particularly in a quick-service environment. Measure: Focus Groups

Appendix 4: Table 2 – responses to Question 2 continues

Awareness-raising schemes – Reliant on consumer choice to achieve health outcomes					
Keyhole certification	Description: The Keyhole symbol has been used in Nordic Countries for many years on pre-packed food products and is now widely recognized by consumers as a sign of a healthy choice. The Nordic Keyhole symbol was introduced in the restaurant (fast food) and canteen sector in Sweden (2009) and Denmark (2012). Foods eligible to carry the healthy label must fulfil certain criteria for the maximum amounts of fat, salt and sugars, together with the minimum amount of dietary fibre and wholegrain in 25 different food groups. Keyhole labelling in restaurants and canteens is voluntary. Restaurants and canteens go through a certification process to use the label on freshly prepared products, and at least one labelled meal must be present at the daily menu. At least one employee at the restaurant must complete a Keyhole education course and 75% of all employees must go through a webinar (or equivalent training) to be able to communicate the healthy label to the customers. http://norden.diva-portal.org/smash/get/diva2:700822/FULLTEXT01.pdf www.nyckelhalet.se	Outcomes			
		Study type, evidence level	Sweden/Denmark	Dietary intake	Business engagement
Lassen, Beck et al., (2014)	Comparative study with concurrent controls III-2 n=135 intervention; n=135 comparison	Not reported	Significant effects (reduction in fat and sugar intake, increase in FV, increase in wholegrains) were observed at the intervention canteen including a mean decrease in energy density in the consumed meals. No change in control canteens. Measure: Plate photography + nutrient analysis of menu items	Not reported	Consumer satisfaction: No significant changes were seen with regard to consumer food satisfaction and plate waste.
Thunstrom & Nordstrom (2011, 2012) Thunstrom, Nordstrom et al., (2016)	Comparative study with concurrent controls III-2	Healthy meal consumption did not increase when labelled with a healthy symbol. Measure: Restaurant sales data + nutrient analysis of menu items	Mean nutritional content of meals consumed was unaffected by the introduction of a healthy labelled meal on the menu. Measure: Restaurant sales data + nutrient analysis of menu items	Not reported	Business outcome: No effect of the Keyhole Label observed on restaurant sales.



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