Received: 4 January 2019 | Revised: 15 April 2019 | Accepted: 16 April 2019

DOI: 10.1111/obr.12878

SUPPLEMENT ARTICLE

WILEY obesityreviews

BIA-Obesity (Business Impact Assessment—Obesity and population-level nutrition): A tool and process to assess food company policies and commitments related to obesity prevention and population nutrition at the national level

Gary Sacks[1] | Lana Vanderlee[2] | Ella Robinson[1] | Stefanie Vandevijvere[3] | Adrian J. Cameron[1] | Cliona Ni Mhurchu[4] | Amanda Lee[5] | See Hoe Ng[6] | Tilakavati Karupaiah[7,8] | Laura Vergeer[2] | Mary L'Abbé[2] | Boyd Swinburn[3]

[1] Global Obesity Centre (GLOBE), Deakin University, Geelong, Australia

[2] Department of Nutritional Sciences, University of Toronto, Toronto, Canada

[3] School of Population Health, The University of Auckland, Auckland, New Zealand

[4] National Institute for Health Innovation (NIHI), The University of Auckland, Auckland, New Zealand

[5] School of Public Health, The University of Queensland, Brisbane, Australia

[6] Early Start, School of Health and Society, University of Wollongong, Wollongong, Australia

[7] Faculty of Health and Medical Sciences, Taylor's University, School of Biosciences, Selangor, Malaysia

[8] Dietetics Program, School of Healthcare Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Correspondence
Gary Sacks, Deakin University, Global Obesity Centre (GLOBE), 221 Burwood Highway, Burwood, VIC 3125, Australia.
Email: gary.sacks@deakin.edu.au

Funding information
National Heart Foundation of Australia; Centre of Research Excellence in Food Retail Environments for Health, Grant/Award Number: APP1152968; NHMRC Centre for Research Excellence in Obesity Policy and Food Systems, Grant/Award Number: APP1041020; Ontario Graduate Scholarship; Australian Government Research Training Program Scholarship; International Development Research Centre (IDRC), Canada, Grant/Award

Summary

Addressing obesity and improving the diets of populations requires a comprehensive societal response. The need for broad-based action has led to a focus on accountability of the key factors that influence food environments, including the food and beverage industry. This paper describes the Business Impact Assessment—Obesity and population-level nutrition (BIA-Obesity) tool and process for benchmarking food and beverage company policies and practices related to obesity and population-level nutrition at the national level. The methods for BIA-Obesity draw largely from relevant components of the Access to Nutrition Index (ATNI), with specific assessment criteria developed for food and nonalcoholic beverage manufacturers, supermarkets, and chain restaurants, based on international recommendations and evidence of best practices related to each sector. The process for implementing the BIA-Obesity tool involves independent civil society organisations selecting the most prominent food and beverage companies in each country, engaging with the companies to understand their policies and practices, and assessing each company's policies and practices across six domains. The domains include: "corporate strategy," "product formulation," "nutrition labelling," "product and brand promotion," "product accessibility," and "relationships with other organisations." Assessment of company policies is based on their level of transparency, comprehensiveness, and specificity, with reference to best practice.

KEYWORDS

accountability, benchmarking, food companies, food environments

This article is part of the upcoming supplement 'Future Directions in Obesity Prevention' by the Lancet Commission on Obesity.

Number: 108176-001; Australian Medical Research Future Fund (MRFF); Heart Foundation of New Zealand; Australian Research Council Discovery Early Career Researcher Awards, Grant/Award Numbers: DE160100141 and DE160100307

1 | INTRODUCTION

Unhealthy food environments are major drivers of obesity and related noncommunicable diseases (NCDs) globally, putting immense strain on health systems, the economy, and levels of productivity.[1] In most high-income and middle-income countries, food environments are dominated by highly accessible, relatively cheap, and heavily promoted ultraprocessed foods that contain high levels of sodium, saturated fat, and/or free sugars.[2] It is clear that improving the healthiness of food environments requires a comprehensive societal response, including government policies and wide-scale action from the food and beverage industry.[3]

At the international level, United Nations bodies, including the World Health Organization (WHO), have identified a range of actions that the private sector can take to help improve diets at the population level. The United Nations Sustainable Development Goals (SDGs) and associated targets provide a framework for all sectors of the community, including the private sector, to work towards improved economic, social, and environmental outcomes.[4] Nutrition has been considered as a component of all 17 SDGs[5] and is part of, or linked to, performance targets of several SDGs including SDG 2 (zero hunger), SDG 3 (good health and wellbeing), and SDG 12 (responsible consumption and production). More specifically, the WHO has identified a number of actions that the food and beverage industry can take to improve population nutrition, including limiting the levels of saturated fats, trans-fatty acids, free sugars, and salt in new and existing products; practicing responsible marketing, especially to children; labelling food products with easily understood and evidence-based nutrition information; and providing affordable and healthy choices to all consumers.[3,6]

Whilst some prominent food and beverage companies globally have made voluntary commitments to improve aspects of food environments related to obesity (such as product reformulation, reducing promotion of unhealthy foods and drinks to children, and improving food labelling), those efforts have generally been weak.[7-10] Voluntary company policies and commitments are often not fully transparent, nonspecific, and limited in both scope and application in different geographic locations.[8,11] Existing monitoring and compliance mechanisms have also been identified as insufficient in demonstrating the strengths and weaknesses of existing company commitments.[12]

The need for stronger and more comprehensive action to improve the diets of populations has led to a focus on increasing the accountability of different stakeholder groups, including through rigorous monitoring and benchmarking of performance against targets.[13] With respect to the food and beverage industry, several benchmarking initiatives have been developed in the last decade. These include the Access to Nutrition Index (ATNI), which focuses on the nutrition-related policies of the largest global food and beverage manufacturers,[14] Oxfam "Behind the Brands" which focuses on the agricultural sourcing policies of the largest global food and beverage manufacturers,[15] and the World Benchmarking Alliance, which aims to measure company action in relation to the SDGs.[16] Benchmarking has also been applied to monitor government performance with regards to obesity prevention,[17] breastfeeding,[18] alcohol,[19] and tobacco.[20]

The International Network for Food and Obesity/NCDs Research, Monitoring and Action Support (INFORMAS) is a global network of public-interest organisations and researchers that aims to monitor, benchmark, and support public and private sector actions to create healthier food environments and reduce obesity and related NCDs.[21] INFORMAS was established in 2012 in recognition of the need to increase the accountability of governments and the private sector for their roles in creating healthier food environments and preventing diet-related NCDs. As of 2018, INFORMAS methods have been employed in more than 30 countries globally.[22] The Business Impact Assessment—Obesity and population-level nutrition (BIA-Obesity) was developed as part of INFORMAS as a tool and process for benchmarking the nutrition-related policies, commitments, and practices of food and beverage companies. This paper describes the development of BIA-Obesity, the tool's components, and the process for independent civil society organisations to implement the tool at the national level.

2 | DEVELOPMENT OF BIA-OBESITY

In 2013, an approach for monitoring private sector policies and commitments was set out as part of the private sector module of INFORMAS.[12] The approach is step-wise, with the first step involving an assessment of the policies and commitments of selected private-sector organisations with respect to a range of domains related to nutrition (eg, product composition, marketing and nutrition labelling); the second step involving an assessment of the nutritional composition of each company's products and their practices across the policy domains assessed in the first step; and the final step involving analysis of each company's corporate political activities, such as political lobbying and corporate philanthropy, that may influence food environments. The BIA-Obesity tool and process was designed to operationalise the INFORMAS private sector module approach. Phase 1 of BIA-Obesity includes assessment of company policies and commitments, and corresponds to the first step of the INFORMAS private sector module approach. Phase 2 of BIA-Obesity includes assessment of company practices and performance, and corresponds to the second step of the approach. Methods for addressing the third step of the INFORMAS private sector module approach have been previously described,[23] although limited aspects of corporate political activity, such as corporate philanthropy, are also incorporated within BIA-Obesity.

The process for developing the methods for BIA-Obesity was iterative, involving extensive discussion between the authors of this paper, and broader consultation with members of INFORMAS from more than 10 countries, over a period of 2 years (2016-2018). Decisions involved deliberative judgement, based on the experiences and public health expertise of the members of INFORMAS, with reference to the principles of INFORMAS[21] and relevant literature (outlined in more detail below). A list of people associated with INFORMAS with whom the authors consulted as part of the process of developing the tool is provided in the Supporting Information, Table S1.

The core methods for BIA-Obesity were drawn from the ATNI.[14] The ATNI is a benchmarking tool that measures the policies and commitments of food and nonalcoholic beverage manufacturers against international norms and standards. The methodology for the ATNI was developed through an extensive consultation process, including input from governments, nongovernment organisations, academia, investors, and companies in the food and beverage industry. For BIA-Obesity, the scope of the ATNI approach was broadened beyond food and nonalcoholic beverage manufacturers to also include food retailers (including supermarkets) and chain restaurants (often referred to as fast food outlets or quick service restaurants, but potentially also including chain restaurants that offer sit-down casual dining). The inclusion of these additional sectors was in recognition of the important role they play in influencing the diets of populations[24] and the rapid growth of these sectors globally.[25] In line with the principles of INFORMAS,[21] BIA-Obesity is focused only on obesity-related nutrition issues and excludes components of the ATNI addressing undernutrition and breast-milk substitutes. BIA-Obesity was developed for application at the national level, rather than the global level, as with the ATNI's flagship Global Index. BIA-Obesity was also designed to be far less resource intensive to implement than ATNI.[26] A comparison between the focus areas of the ATNI and BIA-Obesity is found in Table 1.

TABLE 1 Comparison of focus areas of the Access to Nutrition Index (ATNI) and BIA-Obesity (Business Impact Assessment—Obesity and population-level nutrition)

	Access to Nutrition Index (ATNI)	BIA-Obesity (Business Impact Assessment—Obesity and Population-Level Nutrition)
Food and beverage industry sectors assessed	• Food and nonalcoholic beverage manufacturers	• Food and nonalcoholic beverage manufacturers • Food retailers (supermarkets) • Chain restaurants
Level of application	• Global level and national level	• National level
Nutrition focus	• Obesity and undernutrition	• Obesity and related nutrition issues
Areas investigated	• Corporate profile: (a) Corporate strategy, governance and management; (b) formulation of appropriate products; (c) informative labelling and appropriate use of health and nutrition claims; (d) responsible marketing policies, compliance, and spending; (e) delivery of affordable, available products; (f) support for healthy diets and active lifestyles; (g) engagement with policymakers and other stakeholders • Product profile • Breast-milk substitutes marketing practices	• Phase 1 (assessment of policies and commitments): (a) Corporate strategy; (b) product formulation; (c) nutrition labelling; (d) product and brand promotion; (e) product accessibility; (f) relationships with other organisations • Phase 2 (assessment of practices and performance): analysis of product portfolio and assessment of reformulation, nutrition labelling, promotion, and accessibility practices
Primary audience	• Investors, food and beverage industry, civil society organisations	• Food and beverage industry, governments, and public health community
Process of development	• Extensive, multistakeholder consultative process, including input from the food and beverage industry	• Based on the ATNI and public health-related academic and grey literature, supplemented by public health expertise of the members of INFORMAS. No involvement of industry, or other potentially conflicted stakeholders, in the development of the tool

3 | ASSESSMENT OF COMPANY POLICIES AND COMMITMENTS

The policy areas, referred to as "domains," included in BIA-Obesity were selected based on the INFORMAS monitoring framework[12,21] and WHO recommendations for the private sector.[3,6] The assessment of company policies and commitments in all three industry sectors (a, food and nonalcoholic beverage manufacturers; b, supermarkets; and c, chain restaurants) includes six domains. These are: "corporate strategy" (overall commitment to addressing obesity and nutrition as part of corporate strategy), "product formulation" (including development of new products, reformulation of existing products, and package sizes), "nutrition labelling" (including the disclosure and presentation of nutrition information on product packaging, online and on menus, where relevant), "product and brand promotion" (including efforts to reduce the exposure of children and adults to promotion of "less healthy" foods and brands), "product accessibility" (including availability and affordability of healthy compared with "less healthy" foods), and "relationships with other organisations" (focused on corporate

relationships with, and support provided to, organisations external to the supply chain, such as professional associations, research organisations, community, and industry groups).

Indicators for assessment within each domain were developed for each of the three sectors. The selection of indicators was largely derived from those used by the ATNI, as well as a review of relevant academic papers,[9,12,27-30] WHO documents,[3,6,31] and other grey literature reports.[32-34] The focus of the selection process was on identifying recommendations and evidence of best practice related to each sector with respect to obesity prevention and population nutrition. The indicators for the "corporate strategy" and "relationships with other organisations" domain were the same across the three sectors, but many indicators in other domains varied by sector. Indicators specific to the supermarket sector were based on papers by Charlton et al,[29] Cameron et al,[30] and the Australian National Heart Foundation.[33] These indicators relate to policy areas specific to supermarkets, such as commitments related to confectionery-free check-outs, in-store promotions, and use of rewards programs. The indicators in the "product formulation" domain were largely the same for supermarkets and food manufacturers, in recognition that supermarkets typically both produce and sell a range of "own-brand" products. Indicators specific to chain restaurants were based on work by Kraak et al.[27,28] These included indicators in policy areas specific to chain restaurants, such as menu labelling and product bundling (eg, products included as part of "meal deals").

The key indicators for food and nonalcoholic beverage manufacturers, supermarkets, and chain restaurants are summarised in Table 2. Examples of best available company policies and commitments, based on the results of the literature search, are provided in the Supporting Information, Table S2.

Within each domain, the indicators for assessment relate to voluntary company policies and commitments that go beyond legislative requirements of companies operating in each country. For example, in the area of food labelling, assessment focuses on aspects of labelling that are not mandated by country-specific or region-specific food standards. For this reason, when BIA-Obesity is applied in a particular country, it is necessary to modify the indicators and related scoring criteria to suit the particular legislative context. Indicators for each country also need to be tailored to reflect broader aspects of the policy context in that country. For example, if the government in a particular country has endorsed a particular front-of-pack labelling format for voluntary adoption by industry, assessment of companies' labelling activities in that country needs to consider the extent to which companies have adopted the government-endorsed scheme. However, in cases where such a front-of-pack labelling scheme is mandatory, then this indicator is not applicable.

For each indicator selected for inclusion in the BIA-Obesity tool, graded assessment criteria were developed that take into account the comprehensiveness, transparency, and specificity of company policies and commitments, with reference to best practice recommendations. For transnational companies, scoring also takes into account the extent to which company policies and commitments are relevant to the country context, meaning higher scores are allocated when it is clear how global commitments apply at the country level. In general, 10 points are awarded for a comprehensive policy or commitment that is highly specific in nature, meets best practice recommendations, clearly applies to the country context, and is disclosed publicly. Five points are awarded for a policy or commitment that is less comprehensive or specific, and/or is not disclosed publicly. Zero points are awarded if there is no evidence that applicable policies or commitments are in place. For some indicators, scores of 7.5 points and 2.5 points are available for particular combinations of the assessment criteria. In some instances, indicators are divided into subquestions to assist in scoring precision. The universal set of indicators and scoring criteria (to be tailored to each country) for each sector are provided in the Supporting Information, Tables S3 to 5.

Domains for each industry sector were assigned a weighting based on the relative importance of company policies in each domain with respect to their potential impact on obesity and population nutrition, as derived from multiple rounds of consultation with international food policy experts within the INFORMAS network. The scoring system enables each company assessed using the BIA-Obesity tool to be allocated an overall score out of 100, as outlined in Table 2.

4 | PROCESS FOR IMPLEMENTING BIA-OBESITY

The program logic model, including the required inputs to the process, expected outputs (including activities and participation), and desired outcomes (including short-term, medium-term, and long-term outcomes), for BIA-Obesity are outlined in Table 3. The process for implementing Phase 1 of BIA-Obesity (assessment of company policies and commitments at the national level) consists of seven steps (Figure 1). Implementation of Phase 2 of BIA-Obesity (assessment of company practices and performance) can occur in conjunction with Phase 1, as resources and available data permit. Examples of selected indicators related to Phase 2 are provided in the Supporting Information, Tables S6 to 8, but are not further detailed here.

4.1 | Select companies for inclusion in the assessment

In line with the approach recommended by INFORMAS,[12] the selection of companies for inclusion in the BIA-Obesity assessment in a particular country is, in the first instance, based on the sectors within the food and beverage industry that have the greatest influence on food environments and the most opportunity to improve population diets in the country. This could be determined by a variety of factors, including the contribution of different food sectors to overall diet or the relative market size of each sector within a country.

Within each identified sector, the most prominent companies are selected. Market share was identified as the most appropriate measurement criterion for company selection. However, other factors

TABLE 2 Domains, weightings, and indicators of Phase 1 (assessment of company policies and commitments) of the BIA-obesity (Business Impact Assessment—Obesity and population-level nutrition) tool across sectors

		Food and Nonalcoholic Beverage Manufacturers		Supermarkets		Chain Restaurants	
Domain	Description	Weighting (out of 100)	Key indicators	Weighting (out of 100)	Key indicators	Weighting (out of 100)	Key indicators
Corporate strategy	Overarching policies and commitments to addressing obesity and improving population-level nutrition	10	- Commitment to nutrition and health in corporate strategy - Reporting against nutrition and health objectives and targets - Alignment with key international health priorities	10	- Commitment to nutrition and health in corporate strategy - Reporting against nutrition and health objectives and targets - Alignment with key international health priorities	10	- Commitment to nutrition and health in corporate strategy - Reporting against nutrition and health objectives and targets - Alignment with key international health priorities
Product formulation	Policies and commitments regarding product development and reformulation to reduce nutrients of concern (ie, sodium, free sugars, saturated fat, trans fat) and energy content	30	- Targets and actions related to reduction of sodium, free sugars, saturated fat, trans fat, and portion size/energy content where relevant across the portfolio - Position in relation to government policy/ initiatives on product reformulation	25	- Targets and actions related to reduction of sodium, free sugars, saturated fat, trans fat, and portion size/energy content where relevant across own-brand portfolio - Position in relation to government policy/ initiatives on product reformulation	25	- Targets and actions related to reduction of sodium, free sugars, saturated fat, trans fat - Targets to reduce the portion size/energy content of adult and children's meals or meal side/drink items - Frying practices - Position in relation to government policy/ initiatives on product reformulation
Nutrition labelling	Policies and commitments regarding the disclosure and presentation of nutrition information on product packaging, online and on menus (where relevant to sector)	20	- Commitment to implement front-of-pack and back-of-pack nutrition labelling - Provision of online nutrition information - Use of nutrition and health claims	15	- Commitment to implement front-of-pack and back-of-pack nutrition labelling on own-brand products - Provision of online nutrition information - Use of nutrition and health claims on own-brand products - Commitment to implement nutrition labelling on in-store menu boards	15	- Commitment to implement menu board labelling - Provision of online and in-store nutrition information - Position on preferred government policy with regard to menu board labelling
Product and brand promotion	Policies and commitments for reducing the exposure of children	30	- Broadcast and nonbroadcast media policy	25	- Broadcast and nonbroadcast media policy	25	- Broadcast and nonbroadcast media policy

(Continues)

TABLE 2 (Continued)

Domain	Description	Food and Nonalcoholic Beverage Manufacturers		Supermarkets		Chain Restaurants	
		Weighting (out of 100)	Key indicators	Weighting (out of 100)	Key indicators	Weighting (out of 100)	Key indicators
	(aged <18) and adults to promotion of "less healthy" foods/brands		- Use of marketing techniques that appeal to children (eg, cartoon characters)		- Use of marketing techniques that appeal to children - In-store promotion practices - Promotion of products featured in catalogues		- Use of marketing techniques that appeal to children (including toys, interactive games, product giveaways) - Advertising of children's meals
Product accessibility	Policies and commitments related to the availability and affordability of healthy compared with "less healthy" foods	5	- Increasing proportion of healthy products across the portfolio (eg, % change in volume of healthy compared with "less healthy" products) - Increasing availability of healthy products, across the portfolio or in certain settings (eg, schools) - Position in relation to a tax on sugar sweetened beverages	20	- Increasing availability of healthy products in-store, including expanding floor/shelf space for healthier items - Restricting availability of "less healthy" products in-store (including through in-store product placement and "junk food free" checkouts) - Pricing and discounting strategies	20	- Availability of healthier items in meal deals and children's meals (eg, salad, water) - Pricing strategies to reduce cost of healthy compared with "less healthy" menu items - Restricting price promotions on "less healthy" items
Relationships with other organisations	Policies and commitments related to support provided to external groups (eg, professional associations, research organisations, community, and industry groups) related to health and nutrition	5	- Disclosure and transparency of relevant relationships - Accessibility of relevant information	5	- Disclosure and transparency of relevant relationships - Accessibility of relevant information	5	- Disclosure and transparency of relevant relationships - Accessibility of relevant information

TABLE 3 Program logic model for BIA-Obesity (Business Impact Assessment—Obesity and population-level nutrition)

Problem	Inputs	Outputs (Activities)	Outputs (Participation)	Outcomes (Short Term: 1 to 3 Months)	Outcomes (Medium Term: 6 to 12 Months)	Outcomes (Long Term: 3 to 5 Years)
Obesity and unhealthy diets are a leading cause of global mortality and morbidity, driven by increasingly unhealthy food environments. The United Nations and the World Health Organization identify the food and beverage industry as playing a key role in contributing to the creation of healthier food environments. Monitoring frameworks are needed to increase transparency and accountability from the food and beverage industry in addressing obesity and related nutrition issues	• Timeframe for completion: 12 to 18 months • Project team resources: One junior researcher (full-time), one senior researcher (one day per week) • Company representative resources (staff time to complete survey and liaise with project team) • INFORMAS international members: Adhoc support for country-level project team, and dual assessment tasks • Steering committee: Occasional input and oversight • Graphic designer to design final reports and printing (optional)	• Select companies for inclusion • Tailor tool to country context • Collect relevant publicly available company information • Liaise with companies to explain process and obtain additional information • Assess companies using the BIA-Obesity tool • Prepare scorecards for each company, including recommendations • Share results with companies privately • Publicly release results, including associated media and resources • Evaluate impact—survey evaluation, active monitoring of company websites, and media evaluation • Conference presentations and academic publications	• Target companies: Food and beverage companies with leading shares in each of the food and nonalcoholic beverage manufacturing, food retail, and restaurant sectors, as well as relevant industry associations • Contacts within companies: Leads of nutrition, corporate responsibility, and/or external affairs • Public health-related organisations and professional associations can support the project to align messaging and increase impact • Government representatives can support the project to align/support existing government policies (where relevant)	• Engage food and beverage companies in issues related to nutrition and health • Identify best practice examples, both at the country level and internationally • Identify areas for improvement across each sector of the food and beverage industry, as well as at the company level • Increase media and public attention on the role of the food and beverage industry in contributing to the creation of healthier food environments	• Drive increased accountability from food and beverage companies • Increase company transparency related to nutrition and health activities • Leverage more resources for nutrition and health teams within companies, to address areas for improvement identified by the project • Use the project outcomes to secure resources for follow-up assessment • Increase engagement from food and beverage companies in the research process for future iterations	• Food and beverage companies meet best practice standards across key policy domains related to obesity prevention and population nutrition • Establish sustained monitoring of the food and beverage industry in countries, comparing changes across time • Improve the healthiness of the food environment and reduce the burden of overweight and obesity • Embed nutrition-related metrics as part of corporate sustainability frameworks and investment decisions

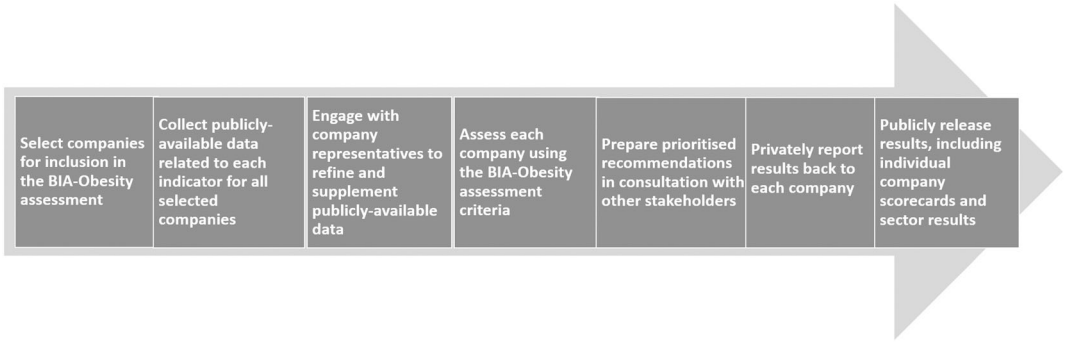

FIGURE 1 Process for implementing the BIA-Obesity (Business Impact Assessment—Obesity and population-level nutrition) tool at the national level

can also be considered, such as company value, representation of different product subsectors, geographic range of company operations in the country, cultural significance, and company growth rates. Where market share data for a particular country are not available, the identification of the most relevant companies can be made based on local experience with the food system, including the companies with the most prominently available products. While the degree of market concentration varies by country, it is important for the assessment to capture a significant proportion (eg, 50%) of market share in each sector, within available resource constraints.

For each selected company, the appropriate corporate entity to assess is determined by the entity within the selected company in which relevant policy decisions are made for the country context. For food and nonalcoholic beverage manufacturers, this is typically, but not always, the parent company at the national level. For supermarkets and chain restaurants, it may be necessary to conduct analyses at the brand or chain level, rather than the parent company level, if there is evidence that policies vary across brands or chains. For transnational companies, the corporate entity that is based within the particular country (rather than, for example, the global headquarters) is selected, where possible.

4.2 | Collect publicly available data

For each selected company, preliminary data related to their current policies and commitments are collected based on publicly available information. Sources of data may include brand, company and industry association websites, annual financial and sustainability reports, media releases, and social media accounts. For transnational companies, national, regional, and global websites are examined to identify policies that apply at the national level. In cases where companies disclose past actions taken (eg, in the area of salt reduction), but no current policies and commitments are evident, this is noted and included as part of the assessment for relevant indicators. It is recommended that data collection is carried out independently by two members of the project team and that data collectors capture time-stamped screen shots or hard copies of all data.

4.3 | Engage with company representatives

Once companies have been selected for inclusion in the BIA-Obesity assessment process, companies are contacted to inform them of the project and invite them to engage with the process. The preferred methods for engaging with companies as part of this process are determined in each country based on the context and available resources. Methods may include phone or face-to-face meetings with company representatives, workshops with groups of companies, and/or interaction through industry association forums. If companies agree to engage with the research team, preliminary information collected from publicly available data sources is sent to company contacts to verify, add to, or amend. Companies are given the option to provide information on a confidential basis, substantiated by relevant internal documents, to be used for assessment purposes only. When necessary, a nondisclosure agreement may be signed between the company and the project team.

4.4 | Assess each company

Companies are scored within each domain based on their policies and commitments related to each indicator. The domain scores, expressed as percentages, are then weighted according to the relative importance of that domain. Refer to weightings in Table 2.

For transnational companies, if there are no specific country-level policies or commitments related to a particular indicator, then any relevant regional/global policies may be included as part of the assessment, provided there is evidence that the policies apply to the particular national context. For example, a company's global policy needs to state that the particular policy applies in all countries in which the company operates in order to be included. Similarly, if a company is a member of an industry association that has relevant policies in a particular domain (eg, nutrient reformulation commitments from the International Food and Beverage Alliance), then the policies of the industry association apply in the absence of specific details at the company level. If an indicator is not relevant to a particular company (eg, for a soft drink manufacturer, salt reduction targets may not be relevant), the indicator is not assessed for that company. In

these cases, the total possible score for the company in that domain is adjusted accordingly, and the company's score for that domain is expressed as a proportion of the total possible score available.

It is recommended that assessment is conducted independently by two members of the project team. Where practical, members of INFORMAS that have carried out assessments in other countries can provide oversight and/or guidance to the assessment process.

4.5 | Develop recommendations for each company and sector

Company-specific recommendations that support comprehensive action to improve the food environment in relation to obesity prevention and population nutrition are developed based on the assessment results, within-sector comparisons, and available international examples of good practice (refer to Supporting Information, Table S2) for each domain. Company representatives are consulted to appropriately tailor and prioritise recommendations, based on the operating conditions and institutional context in which they operate. Sector-level recommendations are likely to be country specific, taking into account the political climate and existing levels of industry engagement in nutrition-related issues. Where possible, efforts are made to harmonise sector-level recommendations with existing public health recommendations or initiatives related to each sector.

4.6 | Report results

Results of the BIA-Obesity assessment are privately fed back to each company, prior to any public release. Each company receives a scorecard and summary of results that includes their performance benchmarked against other companies in the sector. Results are then released in the form of a publicly accessible report, with results grouped by sector and reported at the domain level for each company. Reporting includes international examples of good practice or industry leaders (refer to Supporting Information, Table S2), which can be used as a reference point for companies. It is recommended that the project team concurrently develops and executes a comprehensive media strategy to accompany the release of the report.

5 | IMPLEMENTATION OF THE BIA-OBESITY METHODS TO DATE

As of 2019, the first phase of BIA-Obesity had been implemented in Australia,[35-37] New Zealand,[38] and Canada,[39] and implementation was in progress in Brazil, parts of Europe, Malaysia, and Vietnam. This initial round of implementation enabled the methods to be adapted to suit a range of country contexts in different regions. Encouragingly, company engagement with the process was high, with over half of companies fully engaging with the assessment process in Australia, New Zealand, and Canada. In Australia, there was also considerable industry interest in dialogue with the project team beyond the feedback of results, with several companies requesting further input about ways to improve their performance.

While there is no accepted gold standard against which to measure the validity of the results, it was notable that there was a wide range of overall scores for companies assessed in each country. For example, with respect to the food and nonalcoholic beverage manufacturing sector, scores in Australia ranged from 3 to 71 (median: 50); in New Zealand, they ranged from 0 to 75 (median: 44); and in Canada, they ranged from 4 to 60 (median: 27). This indicates that, in these countries, the tool was specific enough to allow for discrimination between companies based on the measures assessed. This discrimination is an important element of benchmarking.

The reliability of the tool was assessed by examining interrater reliability for each country study. Two independent assessors, both of whom were familiar with the tool, assigned scores for each indicator in Australia, New Zealand, and Canada using the same scoring criteria in each country for a subsample of companies (n = 6 in Australia, n = 5 in New Zealand and Canada). The Gwet's AC1 (unweighted) interrater reliability coefficients (calculated using Agreestat 2015.6.1 software, Advanced Analytics, Gaithersburg, Maryland, United States) were 0.98 (95% confidence interval [CI]: 0.96-0.99), 0.91 (95% CI: 0.87-0.94), and 0.95 (95% CI: 0.93-0.98) respectively.

6 | DISCUSSION

BIA-Obesity was developed as part of INFORMAS as a tool and process to comprehensively assess food and beverage company policies and practices related to obesity prevention and improving population nutrition. A key part of the process is engagement with company representatives in order to understand their policies and practices, and to develop tailored recommendations for each company. Implementation of BIA-Obesity at a national-level provides a strong basis on which to hold food and beverage companies accountable for action for creating healthier food environments, with multiple assessments over time used to measure and report on progress.

Direct engagement between public health researchers and major food and beverage companies as part of the BIA-Obesity process is highly novel in the area of obesity prevention research. This engagement is designed to encourage more accurate and comprehensive data collection, greater opportunities for knowledge exchange, improved tailoring of recommendations to the company context, and increased likelihood of industry responding positively to the recommendations made. However, project teams implementing BIA-Obesity need to be cognisant of potential conflicts of interest in their engagement with industry. In particular, it is a well-documented tactic of industry to cultivate relationships with researchers and health groups as part of a broader strategy to influence policy and public opinion in their favour, often in conflict with public health goals.[23] Mechanisms to manage such risks could include the establishment of an independent steering committee to advise BIA-Obesity project teams on governance issues, and the involvement of independent consultants to carry out the direct engagement with companies on behalf of the project team.

Funding sources that are independent from the food and beverage industry are particularly important for BIA-Obesity implementation.

The overall approach taken by BIA-Obesity has many similarities to other benchmarking and business accountability initiatives related to nutrition, such as the ATNI[14] and the World Benchmarking Alliance.[16] Particular strengths of BIA-Obesity are that it is likely to require a comparatively low level of resources to implement, particularly compared with the ATNI; it includes the food retail and restaurant sectors that are not assessed as part of ATNI or other relevant global tools; and, unlike the ATNI, the process of development of the tool was independent of the private sector—thus limiting the potential for conflicts of interest to have influenced the design of the tool. Despite the proliferation of benchmarking tools across a range of areas, there is very limited available evidence on the effectiveness and cost-effectiveness of such initiatives. Accordingly, it will be important to document the resources required to implement BIA-Obesity in a range of settings, and to comprehensively evaluate the impact of BIA-Obesity in order to build the evidence base regarding effectiveness and cost-effectiveness. A further strength of BIA-Obesity is the strong reliability measures from implementation in Australia, New Zealand, and Canada. However, it is noted that the strong interrater reliability scores were among raters that were strongly familiar with the tool and its development. As BIA-Obesity is implemented in other countries, further tests of reliability will be needed.

The outputs of BIA-Obesity are likely to be relevant to a range of stakeholders. For the companies assessed, BIA-Obesity identifies gaps in commitment and disclosures practices and highlights examples of best practice. The company scorecards produced are likely to assist in elevating the issue of nutrition within the company, particularly if media coverage of the results is high, as was the case in Australia.[40] For governments, company assessments can be used to evaluate the success of existing policy approaches, particularly where governments rely on voluntary industry implementation of key policy initiatives. For example, in Australia and New Zealand, the governments' flagship nutrition intervention is the Health Star Rating front-of-pack nutrition labelling system, with voluntary implementation. The implementation of BIA-Obesity in Australia and New Zealand can help to highlight the extent to which major companies have committed to the scheme and help reinforce recommendations for increased uptake. More broadly, as part of the outcomes document of the 2014 United Nations High Level Meeting on NCDs,[41] governments around the world have committed to develop an approach that can be used to monitor contributions of the private sector to the achievement of the nine voluntary targets for NCDs. BIA-Obesity could be used to monitor food and beverage industry nutrition-related actions for these purposes.

BIA-Obesity has some limitations. Firstly, companies in the food and beverage industry vary substantially in their product portfolios, corporate structures, target markets, and a wide range of other characteristics. The tailoring of the BIA-Obesity assessment methods and reporting structures to each sector (food and nonalcoholic beverage manufacturers, supermarkets, and chain restaurants), and the company-specific nature of the recommendations made, recognise differences in company characteristics to some extent; however, the benchmarking approach cannot fully take these differences into account. As an example, companies focused on dairy products (many of which are likely to be considered "more healthy" according to national dietary guidelines) could be expected to find it more palatable to make stronger nutrition commitments in comparison to companies that predominantly sell confectionery (the majority of which are likely to be considered "less healthy" according to national dietary guidelines). This sector-level benchmarking approach is also used in other similar benchmarking initiatives, such as the ATNI, in recognition of the need for all companies to be held accountable for their role in creating healthier food environments. Nevertheless, additional analysis of the BIA-Obesity results by industry subsector may be of value in acknowledging structural differences between companies.

A second limitation of the BIA-Obesity approach is that assessment relies on company self-disclosure of their policies and commitments. While the BIA-Obesity approach includes extensive efforts to engage with company representatives as part of the process, if companies do not engage with the process, then assessment is based only on information that is publicly available. This is consistent with approaches taken in a wide range of benchmarking initiatives[14,16] and is designed to increase the degree of transparency from companies. This transparency is a critical element of accountability processes.[42] As more initiatives that are focused on corporate sustainability practices emerge, there is likely to be increasing demands on companies to publicly report on a range of social and environmental issues. Standardisation and regulation of reporting requirements regarding corporate sustainability metrics may reduce disparate demands on companies, and increase transparency and accountability.[43]

A third limitation arises if only the first phase of BIA-Obesity (assessment of company policies and commitments) is implemented in a particular country, without the second phase that assesses the way in which policies and commitments translate into practice. Nevertheless, a focus on company policies and commitments alone is still likely to be valuable in highlighting strengths and weakness in company policies and commitments, and differences in the extent to which companies commit to action. Such a focus also recognises that large companies are unlikely to take action without explicit policies first being in place.

A further limitation is that, due to the need to modify the indicators within BIA-Obesity to suit the particular regulatory context of a country, the ability to perform direct comparisons between country-level results may be limited to some extent. Accordingly, the primary focus of the tool should be comparison of companies within a particular country, with reference to international best practice where applicable. Nevertheless, implementation of BIA-Obesity across multiple countries will assist in identifying best practice examples and will allow some level of cross-country comparison, provided that differences in country contexts are taken into account in interpreting results. This approach has been used in making cross-country comparisons in relation to other components of food environments, such as government policy, assessed as part of INFORMAS.[44] Furthermore, in relation to transnational companies, the BIA-Obesity methods provide a basis

on which to evaluate the extent and consistency with which company policies are applied in the countries in which they operate. For countries in which the informal food sector makes up a relatively large proportion of the food supply, additional methods for monitoring relevant business practices are likely to be needed.

Despite these limitations, BIA-Obesity provides a potentially powerful mechanism to increase industry accountability for taking action to address obesity and improve the diets of populations. Repeated implementation of BIA-Obesity will enable assessment of how company policies change over time and how this impacts on the healthiness of food environments.

ACKNOWLEDGEMENTS

G.S. and A.J.C. were recipients of Australian Research Council Discovery Early Career Researcher Awards (DE160100307 and DE160100141) at the time of this study. L.V. was a Canadian Institutes of Health Research Banting Postdoctoral Fellow at the time of this study. S.V. was supported by a Heart Foundation of New Zealand research fellowship at the time of this study. A.L. was supported by an Australian Medical Research Future Fund (MRFF) grant at the time of this study. The Malaysian component of this research was supported by the International Development Research Centre (IDRC), Canada (Grant No. 108176-001). S.H.N. was supported under the Australian Government Research Training Program Scholarship at the time of this study. L.V. was supported by an Ontario Graduate Scholarship. G.S., A.J.C., and B.S. were researchers within a NHMRC Centre for Research Excellence in Obesity Policy and Food Systems (APP1041020) and a Centre of Research Excellence in Food Retail Environments for Health (APP1152968) at this time of this study. G.S. is also the recipient of a Heart Foundation Future Leader Fellowship from the National Heart Foundation of Australia (102035), and he is a researcher within a NHMRC Centre for Research Excellence entitled Reducing Salt Intake Using Food Policy Interventions (APP1117300).

POTENTIAL CONFLICTS OF INTEREST

G.S. and A.J.C. are the academic partners on a healthy supermarket intervention trial that includes Australian local government and supermarket retail (IGA) collaborators. The other authors declare that they have no competing interests.

ORCID

Gary Sacks https://orcid.org/0000-0001-9736-1539
Lana Vanderlee https://orcid.org/0000-0001-5384-1821
Stefanie Vandevijvere https://orcid.org/0000-0003-3225-7524
Cliona Ni Mhurchu https://orcid.org/0000-0002-1144-9167
Amanda Lee https://orcid.org/0000-0001-6887-5426
Boyd Swinburn https://orcid.org/0000-0002-2131-045X

REFERENCES

1. World Health Organization. *Global Status Report on Noncommunicable Diseases 2010*. Geneva, Switzerland: World Health Organization; 2011.
2. Swinburn B, Sacks G, Hall K, et al. The global obesity pandemic: shaped by global drivers and local environments. *Lancet*. 2011;378(9793):804-814.
3. World Health Organization. *Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013-2020*. Geneva, Switzerland: World Health Organization; 2013.
4. United Nations. Sustainable development goals. Published 2015. http://www.un.org/sustainabledevelopment/sustainable-development-goals/. Accessed March, 2018.
5. Development Initiatives. *Global Nutrition Report 2017: Nourishing the SDG's*. Bristol, UK: Development Initiatives; 2017.
6. World Health Organization. *Global Strategy on Diet, Physical Activity and Health*. Geneva, Switzerland: World Health Organization; 2004.
7. Jones A, Magnusson R, Swinburn B, et al. Designing a healthy food partnership: lessons from the Australian food and health dialogue. *BMC Public Health*. 2016;16(1):651.
8. Knai C, Petticrew M, Durand MA, et al. Has a public–private partnership resulted in action on healthier diets in England? An analysis of the public health responsibility deal food pledges. *Food Policy*. 2015;54:1-10.
9. Sacks G, Mialon M, Vandevijvere S, et al. Comparison of food industry policies and commitments on marketing to children and product (re) formulation in Australia, New Zealand and Fiji. *Crit Public Health*. 2015;25(3):299-319.
10. Mozaffarian D. The Healthy Weight Commitment Foundation trillion calorie pledge: Lessons from a Marketing Ploy? *Am J Prev Med*. 2014;47(4):e9-e10.
11. Lumley J, Martin J, Antonopoulos N. *Exposing the Charade—The Failure to Protect Children from Unhealthy Food Advertising*. Melbourne, VIC: Obesity Policy Coalition; 2012.
12. Sacks G, Swinburn B, Kraak V, et al. A proposed approach to monitor private-sector policies and practices related to food environments, obesity and non-communicable disease prevention. *Obes Rev*. 2013;14(Suppl 1):38-48.
13. Swinburn B, Kraak V, Rutter H, et al. Strengthening of accountability systems to create healthy food environments and reduce global obesity. *Lancet*. 2015;385(9986):2534-2545.
14. Access to Nutrition Foundation. *Access to Nutrition Index: Global Index 2018*. Utrecht, The Netherlands: ATNF; 2018.
15. Oxfam. Behind the brands. Published 2013. https://www.behindthebrands.org/. Accessed March, 2019.
16. World Benchmarking Alliance. The Alliance. Published 2018. https://www.worldbenchmarkingalliance.org/the-alliance/. Accessed March, 2018.
17. Swinburn B, Vandevijvere S, Kraak V, et al. Monitoring and benchmarking government policies and actions to improve the healthiness of food environments: a proposed Government Healthy Food Environment Policy Index. *Obes Rev*. 2013;14(Suppl 1):24-37.
18. Save the Children. *Nutrition in the First 1,000 Days: State of the World's Mothers*. 2012 London, UK: Save the Children; 2012:42-43.
19. World Health Organization. *Global Status Report on Alcohol and Health*. Geneva, Switzerland: World Health Organisation; 2011.
20. Australian Council on Smoking and Health. National tobacco control scorecard. Published 2018. https://www.acosh.org/what-we-do/national-tobacco-control-scoreboard/. Accessed December, 2018.
21. Swinburn B, Sacks G, Vandevijvere S, et al. INFORMAS (International Network for Food and Obesity/Non-Communicable Diseases Research, Monitoring and Action Support): overview and key principles. *Obes Rev*. 2013;14(Suppl 1):1-14. Suppl 1:12
22. INFORMAS. INFORMAS: benchmarking food environments. Updated 2018. www.informas.org. Accessed December, 2018.
23. Mialon M, Swinburn B, Sacks G. A proposed approach to systematically identify and monitor the corporate political activity of the food

industry with respect to public health using publicly available information. *Obes Rev*. 2015;16(7):519-530.

24. World Health Organization. *Report of the Commission on Ending Childhood Obesity*. Geneva, Switzerland: World Health Organization; 2016.
25. Euromonitor International. Passport. Updated 2017. http://go.euromonitor.com/passport.html. Accessed March, 2018.
26. Sacks G, Vandevijvere S. Poor nutrition-related policies and practices of global food companies under the spotlight. *Public Health Nutr*. 2016;19(6):955-957.
27. Kraak V, Englund T, Misyak S, Serrano E. Progress evaluation for the restaurant industry assessed by a voluntary marketing-mix and choice-architecture framework that offers strategies to nudge American customers toward healthy food environments, 2006-2017. *Int J Environ Res Public Health*. 2017;14(7):760.
28. Kraak VI, Englund T, Misyak S, Serrano EL. A novel marketing mix and choice architecture framework to nudge restaurant customers toward healthy food environments to reduce obesity in the United States. *Obes Rev*. 2017;18(8):852-868.
29. Charlton EL, Kähkönen LA, Sacks G, Cameron AJ. Supermarkets and unhealthy food marketing: an international comparison of the content of supermarket catalogues/circulars. *Prev Med*. 2015;81:168-173.
30. Cameron AJ, Sayers SJ, Sacks G, Thornton LE. Do the foods advertised in Australian supermarket catalogues reflect national dietary guidelines? *Health Promot Int*. 2017;32(1):113-121.
31. World Health Organization. *Set of Recommendations on the Marketing of Foods and Non-Alcoholic Beverages to Children*. Geneva, Switzerland: World Health Organization; 2010.
32. Koplan JP, Liverman CT, Kraak VI (Eds). *Preventing Childhood Obesity: Health in the Balance*. Washington, DC: National Academies Press; 2005.
33. Heart Foundation. *The Supermarket as an Environment for Facilitating Dietary Behaviour Change: A Rapid Review of the Evidence*. Melbourne, VIC: The National Heart Foundation; 2012.
34. World Cancer Research Fund/American Institute for Cancer Research. *Policy and Action for Cancer Prevention. Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective*. Washington, DC: American Institute for Cancer Research; 2009.
35. Sacks G, Robinson E, Cameron A, for INFORMAS. *Inside our Supermarkets: Assessment of Company Policies and Commitments Related to Obesity Prevention and Nutrition Australia 2018*. Melbourne, VIC: Deakin University; 2018.
36. Sacks G, Robinson E, for INFORMAS. *Inside our Food and Beverage Manufacturers: assessment of Company Policies and Commitments Related to Obesity Prevention and Nutrition, Australia 2018*. Melbourne, VIC: Deakin University; 2018.
37. Sacks G, Robinson E, for INFORMAS. *Inside our Quick Service Restaurants: Assessment of Company Policies and Commitments Related to Obesity Prevention and Nutrition, Australia 2018*. Melbourne, VIC: Deakin University; 2018.
38. Vandevijvere S, Kasture A, Sacks G, Robinson E, Mackay S, Swinburn B. *Committing to Health: Food Company Policies for Healthier Food Environments. Company Assessments and Recommendations Using the Business Impact Assessment on Obesity and Population Nutrition (BIA-Obesity) Tool. New Zealand 2018*. Auckland, NZ: The University of Auckland; 2018.
39. Vanderlee L, Vergeer L, Sacks G, Robinson E, L'Abbé M. *Food and Beverage Manufacturers in Canada: Policies and Commitments to Improve the Food Environment—BIA-Obesity Canada 2018*. Toronto, ON: University of Toronto; 2019.
40. Deakin University. Inside our food companies: in the media. Updated 2018. https://www.insideourfoodcompanies.com.au/media. Accessed June, 2018.
41. United Nations. Outcome document of the high-level meeting of the General Assembly on the comprehensive review and assessment of the progress achieved in the prevention and control of non-communicable diseases. Published 2014. https://www.who.int/nmh/events/2014/high-level-unga/en/.AccessedJune,2018.
42. Kraak VI, Swinburn B, Lawrence M, Harrison P. An accountability framework to promote healthy food environments. *Public Health Nutr*. 2014;17(11):2467-2483.
43. Sacks G, Robinson E. Investing for health: potential mechanisms for the investment community to contribute to obesity prevention and improved nutrition. *Curr Obes Rep*. 2018;7(3):211-219.
44. Vandevijvere S, Barquera S, Caceres G, et al. An 11-country study to benchmark the implementation of recommended nutrition policies by national governments using the Healthy Food Environment Policy Index, 2015-2018. *Obes Rev*. 2019;1-10. https://doi.org/10.1111/obr.12819

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

How to cite this article: Sacks G, Vanderlee L, Robinson E, et al. BIA-Obesity (Business Impact Assessment—Obesity and population-level nutrition): A tool and process to assess food company policies and commitments related to obesity prevention and population nutrition at the national level. *Obesity Reviews*. 2019;20(S2):78–89. https://doi.org/10.1111/obr.12878