



Public Health Association  
AUSTRALIA



# ABSTRACT BOOK

## FOOD FUTURES CONFERENCE 2022

**Food Futures: Transforming food systems  
for the planetary and public good**

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Virtual Conference

**#FoodFutures2022**

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## 1A - Benchmarking healthy sustainable food supply in food service and retail

Long Oral and Rapid-Fire Presentations

### Structures to support optimal implementation of health-enabling food retail: Healthy Stores 2020

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#### Abstract

**Background:** Food retailers play a critical role in health-enabling food retail. We applied an implementation framework to a novel food retail intervention, the Healthy Stores 2020 strategy (HS2020), to understand intervention feasibility and effectiveness.

**Methods:** A convergent mixed method design was used to assess feasibility from the perspective of the food retailer and interpreted through the Consolidated Framework for Implementation Research (CFIR). We partnered with the Arnhem Land Progress Aboriginal Corporation (ALPA) and interviewed the primary Store Manager for each of the ALPA ten strategy stores at baseline, mid- and end-strategy. Deductive thematic analysis of interview data was conducted.

**Results:** 30 interviews were collected. The implementation climate of ALPA, its readiness for implementation, and the networks and communication between the Store Managers and ALPA, were CFIR constructs most frequently referred to by Store Managers as positive to feasibility. Store Managers were a 'make-or-break' touchstone of implementation success. The co-designed intervention characteristics and the strategy's perceived cost-benefit balance galvanised the individual characteristics (e.g., optimism and retail competency) of Store Managers who championed implementation. Store Managers were less enthusiastic for the strategy where there was less perceived cost-benefit balance.

**Conclusions:** HS 2020 strategy was feasible. Feasibility was demonstrated to be complex and required structures that aligned intervention and Store Manager characteristics, outer community need, and organisation implementation climate, readiness, and communication. Insight into this complexity can advance food retail interventions and optimise implementation for improved population health.

**Learning Objectives:** Describe organisation structures that support optimal implementation of health-enabling food retail initiatives

### An analysis of price promotion purchases by food category and socioeconomic position.

**Authors:** Ms Lily Grigsby-duffy<sup>1</sup>, Dr Satheesh Seenivasan<sup>2</sup>, Associate Professor Adrian J Cameron<sup>1</sup>, Associate Professor Kathryn Backholer<sup>1</sup>, Associate Professor Gary Sacks<sup>1</sup>

**Affiliations:** <sup>1</sup>Deakin University, Australia Global Obesity Centre (GLOBE), Institute for Health Transformation, <sup>2</sup>Department of Marketing, Monash Business School, Monash University

**Abstract**

**Background:** Price promotions are a common marketing tactic used in supermarkets. However, there is little research, and none using Australian data, on the impact of price promotions on the healthiness of product purchases. This study aimed to understand the relationship between price promotions and the healthiness of product purchases (category- and basket-level) immediately and over time, overall and by household socioeconomic position.

**Methods:** We analysed supermarket purchase data from the Australian Nielsen Homescan Panel, a representative panel of 10,000 Australian households. Products purchased at a discount (price-promoted products) were noted in the dataset. Products were categorised into healthy or unhealthy (based on the Australian Dietary Guidelines and Australian Bureau of Statistics Discretionary Food List), and by Health Star Rating (HSR). 'Basket healthiness' was based on the average HSR for each household shopping basket. Regression analyses was conducted in SAS.

**Results:** Preliminary basket-level analysis revealed that a greater proportion of purchases consisted of unhealthy (compared with healthy) price-promoted products. There was no difference by income group in the proportion of basket-level purchases that were unhealthy price-promoted products, but, as income decreased, the proportion of healthy price-promoted products in the basket decreased. There was a significant relationship between promotional purchasing and 'basket healthiness': as the proportion of price-promoted products increased, the average HSR of the basket decreased.

**Conclusions:** These results indicate that current price promotions in Australian supermarkets may encourage unhealthy diets, supporting the need for policy action to ensure that supermarkets apply price promotions to healthy (rather than unhealthy) products.

## **Development of the Uni-Food tool to benchmark university food environments**

**Authors:** Dr Davina Mann<sup>1</sup>, Dr Shaan Naughton, Ms Jasmine Chan, Ass/Prof Gary Sacks

**Affiliation:** <sup>1</sup>*Deakin University*

**Abstract**

**Background:** Globally, there is increasing interest in monitoring actions to create healthy, equitable and environmentally sustainable food environments. University campuses are complex food environments catering to diverse communities, and represent promising settings for developing strategies to transform food environments. This paper describes the development of the University Food Environment Assessment (Uni-Food) tool and process to benchmark the healthiness, equity, and environmental sustainability of food environments in tertiary education settings, and its pilot implementation in three Australian universities in 2021.

**Methods:** The Uni-Food tool and process was developed based on an extensive review of the literature and input from an expert advisory panel. Pilot testing assessed the feasibility of implementation, face-validity and inter-rater reliability of the tool.

**Results:** The Uni-Food tool comprises three components: 1) university systems and governance, 2) campus facilities and environments, and 3) food retail outlets, including 68 indicators, across 16 domains, weighted based on their relative importance. Pilot implementation identified moderate diversity in food environments across universities, and highlighted several opportunities for improvements at each institution. The assessment process was found to be reliable, with assessors rating the tool as easy to use, requiring minimal resources.

**Discussion and conclusion:** The Uni-Food tool and process provides a comprehensive mechanism to benchmark university food environments. Broad application of the tool has the potential to increase

accountability and provide a framework to guide best practice for creating healthy, equitable and environmentally sustainable food environments in tertiary education and other complex settings.

## **Prevalence of ultra-processed packaged foods in an Australian metropolitan hospital**

**Authors:** Dr Claire Pulker<sup>1</sup>, Ms Toni Lander<sup>2</sup>, Ms Kristy Law<sup>1</sup>, Dr Christina Pollard<sup>2</sup>

**Affiliations:** <sup>1</sup>East Metropolitan Health Service (Perth, WA), <sup>2</sup>Curtin University

### **Abstract**

**Background:** Ultra-processed foods (UPF) are highly processed and their consumption is associated with reduced diet quality and increased risk of chronic diseases. UPF threaten all dimensions of food system sustainability. Australian governments have implemented policies for healthy food procurement, including for hospitals in Western Australia (WA). The Healthy Options WA: Food and Nutrition Policy (Policy) applies nutrient criteria to classify food as red, amber or green, but does not address food processing. This research aimed to examine the presence of UPF in a WA hospital.

**Methods:** Product information for packaged foods sold in a large hospital in Perth WA was collected in September 2019. A database of classified products was constructed. Ingredients lists were sourced from supermarket or manufacturer websites, and the NOVA classification applied to identify UPF.

**Results:** 297 products were classified and most (79%) were UPF. Policy nutrient criteria identified 26% of products as red (unhealthy), 43% as amber (choose carefully), and 26% as green (healthy). Almost all (99%) red products were also UPF; 75% of amber products were UPF, and 75% of green products were UPF.

**Conclusion:** Public food procurement policies are an important lever for creating food environments that support healthy and sustainable diets. The WA Policy applies nutrient criteria to classify foods. Of concern, many green (healthy) products were also UPF. The Policy would be strengthened to achieve its aim of maintaining and improving health by incorporating the impact of UPF.

**Learning Objectives:** The need for public food procurement policies to consider sustainability is discussed.

## **Evaluation of a healthy food and drink policy in 13 recreation centres**

**Authors:** Dr Shaan Naughton<sup>1</sup>, Dr Helena Romaniuk<sup>1</sup>, Dr Alexandra Chung<sup>2</sup>, Ms Alethea Jerebine<sup>3</sup>, Professor Liliana Orellana<sup>1</sup>, Professor Anna Peeters<sup>1</sup>, Dr Tara Boelsen-Robinson<sup>1</sup>

**Affiliations:** <sup>1</sup>Institute for Health Transformation, Faculty of Health, Deakin University, <sup>2</sup>School of Public Health and Preventive Medicine, Monash University, <sup>3</sup>School of Health and Social Development, Faculty of Health, Deakin University

### **Abstract**

In 2014, a community organisation introduced the Victorian Government's 'Healthy Choices guidelines' in its recreation centre food outlets, to provide healthier food environments for customers and staff. This study reports the impact on the healthiness of customer purchases and business outcomes.

Six years of monthly sales data (number of items and sales value) was available from 13 eligible centres. The nutritional content of food and drinks sold was obtained and items were categorised as 'red' 'amber' or 'green' using the Healthy Choices guidelines. The sales value and volume (as a % total) of 'red', 'amber' or 'green' items; sugar, fat, saturated fat, and sodium sold as a proportion of

total monthly volume; and energy density (kj/g or ml), were determined separately for food and drinks. Ordinary least-squares regression models with Newey-West standard errors were fitted for each centre, and random effects meta-analysis was used to estimate the overall initiative effect.

Comparing prior- and post-implementation (the relative difference in total sales (\$)), food sales didn't change, while drink sales declined 27.3%, possibly influenced by customers switching to free drinking water. Absolute percentage difference of 'green' foods sold didn't change, 'amber' foods increased 14.3% and 'red' food sales decreased 16.4%. Both 'green' and 'amber' drink sales increased (29.6%, and 11.2%, respectively), and 'red' drink sales decreased 41.4%. Favourable changes to the nutritional content of food and drinks were observed, including a energy density decrease for both food and drinks, indicating the intervention had a positive impact on the health of customer purchases.

## Healthy vending machines: mythical unicorn or easy win?

**Authors:** Ms Anne Finch<sup>1</sup>, Ms Melissa Ledger<sup>1</sup>, Mr Ron Ten Hoor<sup>1</sup>

**Affiliation:** <sup>1</sup>Cancer Council WA

### Abstract

**Background:** Cancer Council WA (CCWA) recognises the need for healthy food options in all settings, particularly health care settings and government facilities. To this end, we set out to analyse the foods provided in our residential lodges to people receiving cancer treatment. The on-site vending machines present a significant barrier to meeting health policies. CCWA chooses not to use vending machines owned by a global junk food company, and is seeking local, healthy solutions.

**Process:** We audited the food options at the CCWA lodges and assessed compliance with the WA Department of Health's healthy food policy (HFP).

**Analysis:** All food offerings except the vending machines were compliant with the HFP. The vending machine operator is a small, independent business based in Perth and open to trying out some healthier options.

**Outcomes:** Even working with an independent business owner who is supportive of our goals, the project has been challenging. Many barriers have prevented CCWA from creating compliant vending machines including the price, availability, pack size, and shelf life of healthier options.

Switching to an alternative vending machine operator is problematic as CCWA does not want to do business with junk food and drink manufacturers. Their products contradict our vision for a cancer-free future.

Stakeholders are currently working together to find an innovative way to provide healthier out-of-hours snacks to lodge guests.

## Menu Assessment Scoring Tool (MAST): Measuring dietary impact of food service menus

**Authors:** Miss Leisha Aberle<sup>1</sup>, Miss Kristy Law<sup>1</sup>, Dr Claire Pulker<sup>1,2</sup>

**Affiliations:** <sup>1</sup>Community and Population Health, East Metropolitan Health Service, <sup>2</sup>School of Population Health, Curtin University

### Abstract

**Background:** Reducing discretionary food consumption is a crucial component of promoting healthy and sustainable diets supportive of human and planetary health. Food environments influence people's food selection. However, contemporary food environments assessments which associate

presence of food service outlets (e.g. fast food, cafes, restaurants) with increased access to discretionary foods may be too simplistic. An objective tool to assess the dietary risk of food service menus within Australian contexts is needed.

Methods: Development of the Menu Assessment Scoring Tool (MAST) was underpinned by risk assessment principles including using the best available evidence, acknowledging the inherent uncertainty in risk assessment, and using an iterative process. MAST was designed to: align with the Australian Guide to Healthy Eating; classify food items commonly found on menus; and translate a complex idea into a simple user-friendly tool. The MAST allocates penalty points for presence of six categories of discretionary foods and absence of nutritious five food group foods on menus. The MAST total menu score is used to categorise dietary risk.

Results: MAST pilot testing identified 22 Western Australian food service menus were dominated by discretionary foods with few nutritious five food group options available.

Conclusions: Using an objective tool to assess the dietary impact of food service menus can assist public health researchers, practitioners and policy-makers to identify and prioritise interventions to encourage food environments supportive of human and planetary health.

Learning Objectives: Development of an objective tool to assess the risk of food service menus to dietary and planetary health.

## 1B – Roles of actors and instruments for food system governance Long Oral and Rapid-Fire Presentations

### **Defining global food governance, diagnosing key challenges and identifying opportunities for reform**

**Authors:** Mr Scott Slater<sup>1</sup>, Professor Mark Lawrence<sup>1,2</sup>, Dr Phillip Baker<sup>1,2</sup>

**Affiliations:** <sup>1</sup>*School of Exercise and Nutrition Sciences, Deakin University*, <sup>2</sup>*Institute for Physical Activity and Nutrition (IPAN), Deakin University*

#### **Abstract**

**Background:** Today's food systems are unhealthy and unsustainable, contributing as they are to multiple unfolding and intersecting global health and environmental crises. In response, food systems experts and authoritative public health nutrition organisations are calling for food systems transformation and the addressing of structural global food governance (GFG) issues. GFG is currently focused on the outcomes from United Nations Food Systems Summit, which provided a rare opportunity to remedy those issues through GFG reform actions. The key objectives of this review are to identify and describe the GFG systems' key challenges and the constraining factors of previous GFG reform attempts.

**Methods:** To achieve the studies aim a framework-guided narrative review and synthesis method was used to conduct an analysis of the GFG literature.

**Results:** GFG is a 'regime complex' which is largely expanding through the creation of new 'spaces of governance'. Key multilateral democratic GFG organizations are being constrained 'ideologically' and 'economically' by powerful GFG actors. Through multi-stakeholder and public-private partnerships, the private sector and philanthropic foundations have shifted power relations and are now controlling global policy agendas.

**Conclusion:** The characteristics of the current GFG situation point to many deep 'structural' and 'power asymmetry' issues which favour certain GFG actors. Political economy and power factors significantly influence the ability to drive change in GFG and further research is required on current power relations and the root causes of the structural GFG issues.

**Learning objectives:** Understand the political and economic complexity of GFG reform processes and identify opportunities for GFG reform.

### **Policy tools promoting healthy and sustainable food systems in the Pacific Islands**

**Author:** Dr Erica Reeve<sup>1</sup>

**Affiliation:** <sup>1</sup>*University Of Sydney*

#### **Abstract**

**Background:** The promotion of healthy and sustainable diets is a global priority. Food systems involve a number of government actors operating across food production, distribution, transport, trade, processing, marketing and retail. In contrast, nutrition and environment policy are usually led by the health and environment sectors. In this study we examine the policy instruments being applied by food systems sectors in the Pacific Islands to identify opportunities for them to better promote healthy and sustainable food systems.

**Methods:** We undertook a documentary analysis of key policies governing food systems sectors in the Solomon Islands and Vanuatu. We extracted data on policy priorities, tools and approaches, against a predetermined coding framework based on our study objectives. We applied a policy instrumentation approach to describe the inclusion of nutrition and environmental sustainability considerations in food system policy.

**Findings:** The food system was a cause of economic concerns for both countries, particularly in view of declining performance of agricultural production for export. This was being addressed using a range of authoritative tools and incentives to promote industry and trade opportunities. Climate change and resource protection were key concerns for the productive sectors, challenges that were being addressed largely with incentives and knowledge resources. While nutrition and food security provided a sense of purpose to food systems sectors, these were being minimally operationalized by food systems sectors.

**Conclusions:** Countries might need to consider how food systems sectors could apply a more coercive set of policy tools to address environmental and nutrition challenges.

## **Food policy in Australia: The role of Federal Government departments and agencies**

**Authors:** Pratibha Naudiyal<sup>1</sup>, Alexandra Jones<sup>1,2</sup>, Sally McDonald<sup>1,2,3</sup>, Belinda Reeve<sup>1</sup>

**Affiliations:** <sup>1</sup>Charles Perkins Centre, The University of Sydney, <sup>2</sup>UNSW, <sup>3</sup>Charles Perkins Centre & School of Pharmacy

### **Abstract**

Currently, no document exists that summarises the role of various Federal Government departments and agencies in food policy development in Australia. Our report aimed to map the departments and agencies involved, how they work together to create and implement food policy, and how they divide and respond to food policy challenges.

Our methodology drew on one developed by the Centre for Food Policy in City University London for their Food Research Collaboration report. First, we identified Australian Federal Government departments using the government directory website. Then we analysed each department's website, Annual Report, and Corporate Plan to identify the department's food-related policies and initiatives. Finally, we determined which agencies within each department's portfolio conducted food related policy activity, and mapped the objectives and functions of those agencies.

Our research found that despite the importance of food policy to sustainability, health, and economic and social life, there is no single department or national framework that underpins or coordinates food-related activity in Australia. A unified federal policy framework, developed and implemented by one federal department or agency, would allow food-related activities and initiatives to be underpinned by the same set of goals and promote policy coherence and coordination.

Our report can help various stakeholders understand how food policy is shaped and conducted by the Australian Government, and can be used to identify possible areas where it can become better connected. Furthermore, it can inform recommendations for how a holistic, food systems approach to food policy can be developed in Australia.

## **Do Australian policy-makers support small-scale farmers?**

**Author:** Ms Kerri-Anne Gill<sup>1</sup>

**Affiliation:** <sup>1</sup>University Of Queensland

**Abstract**

**Background:** Despite being a net food exporter, Australia's food system faces many challenges. Increased yields from farm expansion and modernisation are being eroded by climate change. Meanwhile, global experts argue for smaller farms to be supported within diverse food systems due to demonstrated environmental and nutritional benefits.

To date no Australian studies have examined policies at all three levels of government to identify support for small farms.

**Methods:** A policy review framework was created using smallholder policy recommendations from the UN Committee for World Food Security, of which Australia is a signatory. Thirteen themes were distilled from 47 recommendations using thematic analysis. Policies identified through a systematic grey literature search of federal, two state and two local governments were reviewed and scored against each of the themes.

**Results:** No smallholder-specific policies and very few smallholder-targeted initiatives were identified among 81 reviewed policy documents. Nevertheless, initiatives capable of assisting smallholders were included in various general public, or agriculture sector, policies. Federal and state policies largely supported specialised, industrialised agriculture while initiatives benefiting small and family farmers were more often found at local government level.

**Conclusions:** Australia is yet to develop a comprehensive strategy for smallholder agriculture at federal level or among four sampled state and local jurisdictions. The emphasis on large-scale, industrial, export-oriented agriculture needs to be balanced for a more diverse and resilient food system.

**Learning Objectives:**

- Small farms are important for sustainability and nutritional diversity
- There is significant scope to improve policy support for small Australian farms

**Local government policy action for healthy and sustainable diets: Ingredients for success**

**Authors:** Mrs Liza Barbour<sup>1</sup>, Dr Julie Woods<sup>2</sup>, Associate Professor Julie Brimblecombe<sup>1</sup>

**Affiliation:** <sup>1</sup>Monash University, <sup>2</sup>Deakin University

**Abstract**

**Background:** Local governments are well-placed to alter food system structures and effectively contribute to the population-wide shift towards healthy and sustainable diets. However, certain conditions must exist for effective food policy development and implementation. This case study research analysed the contextual factors and elements of power which enabled the development of Victoria's most progressive local food system strategy.

**Methods:** A regional local government area (LGA) in Victoria was selected as its food policy was recently ranked as the most progressive response to facilitate healthy, sustainable and equitable food systems. Semi-structured interviews (n=13) with key stakeholders involved in the development, implementation or evaluation of their food system strategy were conducted and relevant documents retrieved (n=17). Data were analysed through two lenses, the Shiffman and Smith's Framework on the determinants of political priority and the Consolidated Framework for Implementation Research.

**Results:** We describe; (i) how elements of power amongst actors, ideas, the political context and the issue of planetary health influenced the policy-making process, and (ii) the existing contextual factors both within and external to this LGA which facilitated or impeded effective policy action.

**Conclusions:** The way policy is prioritised and actioned by local governments depends on a range of internal and external contextual factors, as well as a complex interplay of various elements of power. This case study provides valuable lessons for aspiring LGAs as they develop feasible and evidence-based food policy to facilitate healthy and sustainable diets.

## **Survey of Australian civil society organisations engaged in food system governance**

**Authors:** Dr Amy Carrad<sup>1</sup>, Rebecca Smits<sup>1</sup>, Professor Karen Charlton<sup>1</sup>, Dr Nick Rose<sup>2</sup>, Dr Belinda Reeve<sup>3</sup>

**Affiliations:** <sup>1</sup>University Of Wollongong, <sup>2</sup>William Angliss Institute of TAFE, <sup>3</sup>University of Sydney

### **Abstract**

**Background:** There is increasing interest in the role of civil society organisations in forms of governance that aim to address the health, environmental sustainability, and equity issues created by contemporary food systems. However, this is an under-researched topic in Australia.

**Methods:** As part of a broader project, this study explored the role of Australian civil society organisations in food system governance. Through email invitation and social media recruitment, Australian organisations were invited to complete an online survey that explored their food system focus, primary activities, level of operation, partnerships, policy priorities, perceived benefits, and enablers of/barriers to participation in food system governance.

**Results:** Thirty-six organisations responded, including non-government organisations/charities, social enterprises, and coalitions. The sectors in which organisations were commonly involved were education, food security, sustainability/environment, policy advocacy, and food waste/circular economies. Most organisations' activities spanned multiple levels of governance. The availability of funding, and support from other stakeholders were important enablers for organisations engaged in food system governance.

**Conclusions:** Increased recognition, resources and support from government, funding bodies and community members is essential for strengthening the role of civil society organisations in creating a healthier, more sustainable, and fairer food system.

**Learning objectives:** Civil society organisations play an important role in addressing contemporary food system challenges. This study represents a first step in understanding the range of activities and functions performed by civil society organisations in food system governance in Australia, and how their role in this area might be strengthened.

## 1C – Research Priorities

### Long Oral and Rapid-Fire Presentations

#### **Ultra-Processed Euphemisms: How Dietary Guidelines Refer to Levels of Food Processing**

**Authors:** Dr Jennifer Lacy-Nichols<sup>1</sup> Ms Daniela Kois<sup>1</sup>, Dr Priscila Machado<sup>2</sup>

**Affiliations:** <sup>1</sup>University Of Melbourne, <sup>2</sup>Deakin University

##### **Abstract**

**Background:** Mounting evidence about the health harms associated with ultra-processed foods highlights the urgency for policies to reduce the production and consumption of these products. One such policy is dietary guidelines. This paper offers the first systematic analysis of whether and how ultra-processed foods are represented in dietary guidelines internationally.

**Methods:** Consumer-targeted messages of 106 dietary guidelines were identified and classified 1) as 'eat more' or 'eat less' according to the language used, e.g. 'choose' vs 'avoid'; and 2) as nutrient or processing focussed. Additionally, the NOVA framework was used to classify all specific foods mentioned in 'eat less' guidelines according to their level of processing.

**Results:** 99% of guidelines utilised nutrient-based messages, either promoting 'positive' nutrients (e.g. vitamins) or discouraging 'negative' nutrients (mainly salt, sugar and fat). Explicit references to food processing were present in 45% of 'eat less' and 5% of 'eat more' guidelines. Euphemistic terms (e.g. discouraging 'packaged' or promoting 'raw' foods) were found in 43% of 'eat less' and 75% of 'eat more' guidelines. 53% of foods referred to in 'eat less' advice were ultra-processed.

**Conclusions:** Dietary guidelines incorporate advice about ultra-processed foods in three ways: specifically referring to 'ultra-processing'; naming specific ultra-processed foods; or using euphemisms for processing. Most discouraged foods were ultra-processed, however some minimally processed foods were discouraged, which points to tensions and contradictions between nutrient- and processing-based dietary advice.

**Learning Objectives:** Dietary guidelines could be strengthened by explaining the different levels of processing to ensure that euphemisms don't encourage ultra-processed food consumption.

#### **Nutrition classification schemes for policy actions: Nutrients, foods or diets?**

**Authors:** Sarah Dickie<sup>1</sup>, Prof Mark Lawrence<sup>1</sup>, Dr Julie Woods<sup>1</sup>, Dr Priscila Machado<sup>1</sup>

**Affiliation:** <sup>1</sup>Deakin University

##### **Abstract**

**Background:** There is currently no 'gold standard' nutrition classification scheme (NCS) for use in policy actions. This study aimed to compare the agreement of nutrient-, food-, and dietary pattern-based NCSs in their assessment of a food's health potential within the Australian food supply and examine the conceptual underpinnings and technical characteristics that explain differences.

**Methods:** Food and beverage products in a diverse database of the Australian food supply (n=7,322) were classified by the Chile nutrient profiling model (NPM), the Health Star Rating (HSR), Nutri-score, the World Health Organization European Region's (WHO-Euro) NPM, the Pan American Health Organization's (PAHO) NPM, NOVA, and the Australian Dietary Guidelines (ADGs). The proportion of products classified as 'healthy' and 'unhealthy' and pairwise agreement was calculated. Key characteristics that accounted for differences were identified.

**Results:** The PAHO NPM classified the lowest proportion (22%) of products as 'healthy', and the HSR the highest (63%). The HSR and Nutri-score had the highest pairwise agreement and PAHO NPM and HSR the lowest. Characteristics that accounted for differences included: category-specific assessment versus across-the-board assessment, the classification of categories as always 'healthy' or 'unhealthy', consideration of level of food processing, thresholds for 'risk' nutrients that do/do not penalise whole foods; and allowance/no allowance for the substitution of ingredients.

**Conclusions:** Wide variation was observed in agreement among the NCSs analysed due to differing conceptual underpinnings and technical characteristics.

**Learning Objectives:** The key characteristics identified in this study could be considered in the design of an effective NCS for nutrition policy actions.

## **Methods used to develop dairy recommendations in food-based dietary guidelines**

**Authors:** Dr Zhaoli Dai-Keller<sup>1,2</sup>, Dr Cynthia Kroeger<sup>1</sup>, Ms Sally McDonald<sup>1</sup>, Professor Lisa Bero<sup>1,3</sup>

**Affiliations:** <sup>1</sup>The University of Sydney, <sup>2</sup>Macquarie University, <sup>3</sup>University of Colorado

### **Abstract**

**Objective:** This study aimed to understand the methods used to develop dairy recommendations in food-based dietary guidelines (FBDGs).

**Methods:** We searched the FBDG database at the Food and Agricultural Organization website to identify eligible dietary guidelines published since 2009, which must specify dietary recommendations and describe guideline development processes. Two reviewers independently reviewed the guidelines and extracted relevant data. We focused on evidence retrieval and assessment, health equity, conflicts of interest (COI), and stakeholder input to evaluate guideline development processes.

**Results:** Among the 26 eligible guidelines, including those published in 2020, the serving sizes for dairy recommendations ranged from none (5/26, 19.2%) to 3-5 serv/d (1/26, 3.9%), with 38.5% (10/26) having  $\geq 2$  serv/d being the most common recommendations. Most guidelines endorsed low or skimmed-fat dairy consumption (19/26, 73%). In addition, dairy was recommended as a source of calcium (16/26, 61.5%) or vitamin D (10/26, 38.5%). However, only eight guidelines (31%) recommended plant-based dairy alternatives (soy or almond). Systematic review methods and evidence quality assessment were implemented in five guidelines (19%); half of the guidelines considered health equity, and 42% included stakeholder input during the guideline development. However, only three guidelines (11.5%) declared COI.

**Conclusion:** Most dietary guidelines recommend reduced-fat dairy consumption, and 31% recommend plant-based dairy alternatives, although lactose intolerance is common and food sustainability is a global concern. Methodological rigour in the evidence base, health equity and disclosure of COI suggests low. Further analysis will disentangle how the discrepancies in guideline development processes contribute to the dairy recommendations formulated.

## **A new approach to classifying the healthiness of foods for policy actions**

**Authors:** Sarah Dickie<sup>1</sup>, Prof Mark Lawrence<sup>1</sup>, Dr Julie Woods<sup>1</sup>, Dr Priscila Machado<sup>1</sup>

**Affiliation:** <sup>1</sup>Deakin University

### **Abstract**

**Background:** Evidence on the associations between ultra-processed foods (UPFs) and adverse health outcomes is accumulating, yet many policy actions are currently informed by nutrient-based nutrition classification schemes (NCSs) which are unable to identify UPFs. This study aimed to examine the classifications of a prototype NCS combining level of processing and nutrient criteria and compare results to existing NCSs within the Australian food supply.

**Methods:** A binary-style prototype NCS was developed combining NOVA and nutrient thresholds for critical nutrients. Australian food products (n=7,322) were classified as either 'healthy' or 'unhealthy' according to the prototype. Proportion of products and nutrient content in each category of the prototype were calculated and compared to the World Health Organization European Region's Nutrient Profiling Model (WHO-Euro NPM), the Pan American Health Organization's Nutrient Profiling Model (PAHO NPM), and the Australasian Health Star Rating (HSR) system.

**Results:** The prototype classified 26% as 'healthy' and 74% as unhealthy. Critical nutrients content per 100g/ml were significantly higher for products classified as unhealthy. The prototype classified a lower proportion of foods as unhealthy compared to the PAHO NPM (78%) and a higher proportion compared to the WHO-Euro NPM (70%) and the HSR (37%).

**Conclusion:** A NCS combining level of processing and minimal nutrient thresholds represents a viable evidence-based approach for assessing the health potential of foods for policy purposes.

**Learning objectives:** A NCS combining level of processing and nutrient criteria effectively identifies food and beverage products of concern in the Australian marketplace, with advantages over currently used nutrient-based approaches.

## 2A – Power, investment and regulation in food systems transformation

Long Oral and Rapid-Fire Presentations

### **The potential role of investment in driving food industry accountability for nutrition**

**Authors:** Ella Robinson<sup>1</sup>, Gary Sacks<sup>1</sup>, Rachel Carey<sup>2</sup>, Christine Parker<sup>2</sup>, Anita Foerster<sup>3</sup>, Miranda Blake<sup>1</sup>

**Affiliations:** <sup>1</sup>Deakin University, <sup>2</sup>The University of Melbourne, <sup>3</sup>Monash University

#### **Abstract**

**Background:** Superannuation funds and other institutional investors play a key role in influencing corporate governance, and are increasingly incorporating environmental, social and governance considerations as part of their investment decisions. By taking into account nutrition issues, these investors represent a potential avenue for increasing food industry accountability for their impact on population diets. This study aimed to (1) investigate the extent to which nutrition-related issues are incorporated within institutional investment decision-making in Australia, and (2) explore stakeholder perspectives on barriers and facilitators to change.

**Methods:** We conducted a desk-based review of a ‘best practice’ sample of Australian institutional investors. We searched policy documents, reports and websites to identify how nutrition was incorporated within investment decision-making. 15 in-depth interviews were then conducted with various investment sector stakeholders.

**Results:** 18 out of 35 investors reported incorporating nutrition-related considerations within their decision-making, albeit in limited ways. Examples included investors actively engaging with food companies to encourage improved nutrition-related policies and practices, and screening food companies based on the healthiness of their product portfolios. Barriers and facilitators to change identified by stakeholders included: investor beliefs and experience; quality and availability of nutrition-related data and good practice benchmarks; client and member demand; and government policy action.

**Conclusions and learning objectives:** The public health community needs to collaborate with institutional investors to understand mechanisms that could support better incorporation of nutrition issues as part of investment decisions. Better articulation of the financial risks that unhealthy diets pose to investors is likely to be important.

### **Regulation and food systems transformation: The case of ultra-processed foods**

**Authors:** Ms Tanita Northcott<sup>1</sup>, Dr Phillip Baker<sup>1</sup>, Prof Mark Lawrence<sup>1</sup>, Prof Christine Parker<sup>2</sup>

**Affiliations:** <sup>1</sup>Deakin University, <sup>2</sup>Melbourne Law School, The University of Melbourne

#### **Abstract**

**Introduction:** Ultra-processed foods (UPFs) harm human and planetary health. Despite the harms, UPF consumption and sales continue to rise. The rise of UPFs is a property of modern food systems, tied to characteristics such as globalised food supply chains, urbanisation and commercialised food environments. To respond to this problem, a ‘whole of food systems’ approach to regulation is required. Global public health nutrition bodies have called for urgent action to transform unhealthy

and unsustainable food systems. A key objective of this literature review is to examine the potential of systems science approaches to inform a fit-for-purpose regulatory response to food systems transformation and the emergent harms of UPFs.

Methods: A narrative review and synthesis method was used to conduct an analysis of a broad range of literature from the fields of public health, food policy, systems science and regulatory studies.

Results: Current dominant policy intervention frameworks inadequately address the deeper levels and key attributes of complex food systems. Systems science concepts, in particular a leverage points framework, can be applied to identify and inform the places to intervene in industrial food systems to respond to UPF consumption.

Conclusion: The characteristics of modern industrial food systems precipitate and sustain the rise in UPF consumption. Systems science analytical tools can assist to reframe and respond to the harms of UPFs as a property of complex food systems.

Learning objectives: To critically assess the problem of UPF consumption and relevant regulatory approaches from a systems perspective.

## **Analysing and addressing market power in the ultra-processed food sector**

Author: Mr Benjamin Wood<sup>1</sup>

Affiliation: <sup>1</sup>Global Obesity Centre

### **Abstract**

Background: The considerable market power of global ultra-processed food (UPF) manufacturers poses a barrier to efforts to protect and promote health equity. Such power allows UPF corporations to influence market conditions, such as product availability, affordability, and consumer behaviour. Especially for disadvantaged groups, choice related to food consumption is therefore often constrained to suit the interests of UPF corporations. This paper aimed to analyse the extent and impacts of market power in the UPF sector, and to identify potential levers to challenge this market power.

Methods: We used the Structure-Conduct-Performance model as an organising framework. Market concentration of several UPF markets were analysed worldwide. A review of market strategies used by UPF corporations to consolidate power was undertaken. The influence of market power on the distribution of harms and wealth via UPF markets was explored.

Results: Global UPF manufacturers sit upon a patchwork of highly concentrated markets. They deploy a range of strategies, such as exploiting information asymmetries vis-à-vis consumers, to consolidate their power. Global UPF manufacturers extract and accumulate substantial wealth, much of which is either diverted to practices intended to expand their markets, protect their activities, or transfer wealth to shareholders.

Policy implications: Given the increasing social and political momentum behind anti-monopoly movements, including in the US, the public health community could aim to better engage with discussions on reforming government regulation of market power. Specifically, reforming competition regulation to systematically integrate public health values could have considerable potential to protect and promote health equity.

## **We can't keep meeting like this: externalised costs in corporatized meat supply**

Authors: Ms. Katherine Sievert<sup>1</sup>, Professor Mark Lawrence<sup>1</sup>, Professor Christine Parker<sup>2</sup>, Dr Phillip Baker<sup>1</sup>

**Affiliations:** <sup>1</sup>*School of Exercise and Nutrition Sciences, Deakin University,* <sup>2</sup>*Melbourne Law School, University of Melbourne*

**Abstract**

**Background:** Healthy and sustainable food systems will require a global reduction in red and processed meat (RPM) production and consumption, especially in high-income populations. Excessive RPM production contributes substantially to environmental degradation, greenhouse gas emissions, and social and animal welfare exploitation. Despite this, high levels of RPM consumption are promoted through continued low pricing. We aimed to explore how the meat industry externalises and enables cheap RPM production and high levels of consumption.

**Methods:** Case study and document analysis to investigate three dimensions of the RPM supply chain generating social and environmental externalities, enabling cheap supply:

- 1) The connection between soybean production in Brazil increasing pork consumption in China;
- 2) Covid-19 and labour violations in US meat-processing facilities;
- 3) Trade and live export of livestock from Australia.

**Results:** Large multinational corporations persistently do not absorb the sizeable environmental and social costs of their RPM production. Cheap RPM is supported through a series of power asymmetries across the supply chain, enabled by minimal domestic regulation. Their entrenched relationships with governments propagate favourable policy environments, allowing for continued practice.

**Conclusions:** Lack of transparency allows externalities to go unaddressed. Future policy efforts should focus on addressing the power of the meat industry to transform the supply chain to be more equitable and food system-conscious, considering population and planetary health outcomes.

**Learning Objectives:**

- 1) Explores the nature of corporate concentration in the meat supply chain and their power to externalise environmental and social costs of production;
- 2) Suggests policy mechanisms to combat power asymmetry

## 2B – Ecological nutrition informing policy actions for healthy sustainable diets

### Long Oral and Rapid-Fire Presentations

#### Developing dietary guidelines to promote healthy and sustainable diets

**Authors:** Ms Kate Wingrove<sup>1</sup>, Professor Mark Lawrence<sup>1</sup>, Mrs Cherie Russell<sup>1</sup>, Professor Sarah McNaughton<sup>1</sup>

**Affiliations:** <sup>1</sup>*Institute for Physical Activity and Nutrition (IPAN), Deakin University*

##### **Abstract**

**Background:** Dietary guidelines are important nutrition policy reference standards that should be informed by the best available evidence. The aim of this study was to explore perceived advantages, disadvantages, and practicalities associated with the synthesis and translation of evidence from nutrient-based, food-based and dietary patterns research in dietary guideline development.

**Methods:** A qualitative descriptive study was conducted. Twenty-two semi-structured interviews were conducted with people involved in the development of the 2013 Australian Dietary Guidelines (ADGs).

**Results:** To inform future ADGs, participants suggested that evidence on a range of dietary exposures and health outcomes should be reviewed. In the context of increasing environmental and economic threats to food security in Australia, the importance of reviewing the latest evidence on environmental sustainability and equity was described. Selecting the most appropriate methods for reviewing particular types of evidence was identified as a priority. Balancing potential health, social, economic, and environmental consequences associated with particular recommendations was described as an important part of the evidence translation process.

**Conclusions:** To ensure the best available evidence is synthesised and translated into future ADGs, evidence review methods should be selected based on the research questions that are asked. To guide evidence translation, use of a framework that considers the quality of the evidence and incorporates health, social, economic and environmental dimensions should be considered.

##### **Learning objectives:**

1. Provide an overview of the dietary guideline development process.
2. Discuss practicalities associated with using evidence on associations between diet, health, and environmental sustainability in dietary guideline development.

#### Inclusion of environmental sustainability in food-based dietary guidelines around the world

**Authors:** Genevieve James-Martin<sup>1</sup>, Danielle Baird<sup>1</sup>, Dr Gilly Hendrie<sup>1</sup>, Dr Jessica Bogard<sup>1</sup>, Kim Anastasiou<sup>1</sup>, Paige Brooker<sup>1</sup>, Bonnie Wiggins<sup>1</sup>, Gemma Williams<sup>1</sup>, Professor Mario Herrero<sup>3</sup>, Professor Mark Lawrence<sup>4</sup>, Professor Amanda Lee<sup>2</sup>, Dr Malcolm Riley<sup>1</sup>

**Affiliations:** <sup>1</sup>*CSIRO*, <sup>2</sup>*University of Queensland*, <sup>3</sup>*Cornell University*, <sup>4</sup>*Deakin University*

##### **Abstract**

**Background:** Food-based dietary guidelines (FBDGs) provide population-level guidance on healthy eating. There has been increasing recognition of the synergies between diets for health and for environmental sustainability (ES). However, the degree to which ES is addressed in FBDGs remains unknown.

This study describes depth and breadth of inclusion of ES messaging within FBDGs globally and compares this to relevant international recommendations.

**Methods:** The FAO website was used to identify countries with FBDGs and locate relevant documents. Included documents were searched for mention of ES using keywords. Relevant content about ES was extracted, in duplicate, and assessed against grading criteria based on the FAO Guiding Principles for Sustainable Healthy Diets.

**Results:** FBDGs from 83 countries were reviewed; 37 countries mentioned ES. Background FBDG documents addressed ES in greater depth than consumer documents. ES content was often limited to explanations of 'what', with few FBDGs addressing why ES is important, how dietary changes can be made or providing quantified advice for implementing a healthy and sustainable diet.

**Conclusions:** Despite being a critical global issue, less than half of the FBDGs reviewed raised ES, and the depth of discussion varied. There is a need to develop FBDGs that emphasise the link between human and planetary health and provide practical advice to support populations to implement healthy, equitable and sustainable diets.

**Learning objectives:** Establish a method for assessing inclusion of ES against global recommendations and benchmarking, monitoring and surveying depth and breadth of ES considerations in FBDGs globally.

## **A document analysis of evidence use in Australian food and nutrition policymaking**

**Authors:** Ms. Patricia Ribeiro de Melo<sup>1</sup>, Dr Phillip Baker<sup>1</sup>, Dr Priscila Pereira Machado<sup>1</sup>, Dr Elly Howse<sup>2</sup>, Professor Mark Lawrence<sup>1</sup>

**Affiliations:** <sup>1</sup>Deakin University, <sup>2</sup>The Australian Prevention Partnership Centre

### **Abstract**

**Background:** The body of evidence that informs food and nutrition policymaking has been derived mostly from three types of nutrition exposures: nutrients, foods, and dietary patterns. The present study aims to identify which types of evidence informed food and nutrition policymaking in Australia and to determine the representation of the three nutrition exposures in policies.

**Methods:** A policy mapping search will be conducted to identify all food and nutrition policy actions that have been implemented in Australia. Policy actions will be categorised against a Nutrition Exposures framework and the Orders of Change schema. Three case studies derived from distinct policy processes will be selected through purposive sampling. Data will be analysed through comparative thematic analysis.

**Results:** Preliminary findings from the policy mapping identified thirty food and nutrition policy documents in Australia. Initial analysis has shown that nutrients were the most common exposure, followed by foods and dietary patterns. These results highlight a potential dominance of evidence derived from nutrient exposures for informing food and nutrition policy actions in Australia.

**Conclusion:** Despite providing high-quality evidence, this nutrient-orientation skews the body of evidence towards supporting nutrient-oriented policies, while neglecting interventions that could more efficiently tackle policy concerns related to foods and dietary patterns. The main learning objective of this study is to understand the food and nutrition policy decision-making scenario in Australia by identifying the representation of nutrition exposures in policies. These results will inform future research which, through a sociological and political prism, will investigate how and why this scenario occurs.

## Unintended consequences of added sugar policy actions: The rise of non-nutritive sweeteners

**Authors:** Mrs Cherie Russell<sup>1</sup>, Dr Phillip Baker<sup>1,2</sup>, Dr Carley Grimes<sup>1,2</sup>, Professor Mark Lawrence<sup>1,2</sup>

**Affiliations:** <sup>1</sup>*School of Exercise and Nutrition Science, Deakin University*, <sup>2</sup>*Institute for Physical Activity and Nutrition, Deakin University*

### Abstract

**Background:** Current added sugar intakes exceed recommendations, constituting a dietary risk factor for poor health. Policy actions to reduce consumption often promote the reformulation of packaged foods, involving sugar reduction potentially offset with non-nutritive sweeteners (NNS): non-caloric substances which impart sweetness. NNS health impacts and their effect on dietary patterns is contested. We aimed to assess longitudinal trends in worldwide sales of added sugars and NNS, in comparison to policy actions to reduce added sugar consumption.

**Methods:** Per capita market sales data sourced from the Euromonitor Passport Database were used as a proxy for consumption of added sugars and NNS. The NOURISHING Database informed our policy mapping.

**Results:** SSB taxes were the most prolific policy actions implemented globally. Correspondingly, sales volume of NNS increased globally for beverages, yet were stable for food. The sales volume of added sugars for beverages decreased in high-income countries but increased in middle-income countries, though increased globally for food.

**Conclusions:** We suggest that increased NNS use is driven by industry responses to proposed/implemented policy; consumer demand for low energy/sugar products; favourable regulatory environments; and technological advances. Sweetener growth in middle-income countries could reflect an increased supply of ultra-processed foods associated with the 'nutrition transition'. The health and dietary impacts of our increasingly sweet food supply, and increased NNS intakes, will require ongoing monitoring to determine public health outcomes.

### Learning Objectives:

1. Demonstrate trends in global sweetener use over time
2. Correlate trends in sweetener use globally with implemented policy actions to reduce added sugar consumption

## Developing a framework for understanding the environmental impacts of ultra-processed foods

**Authors:** Ms Kim Anastasiou<sup>1,2</sup>, Dr Gilly Hendrie<sup>2</sup>, Dr Michalis Hadjikakou<sup>1</sup>, Dr Phillip Baker<sup>1</sup>, Professor Mark Lawrence<sup>1</sup>

**Affiliations:** <sup>1</sup>*Deakin University*, <sup>2</sup>*CSIRO*

### Abstract

**Background:** Ultra-processed foods (UPFs) have rapidly overtaken traditional foods in diets across the world. UPF production utilises scarce environmental resources and their consumption contributes to diseases such as diabetes, cardiovascular disease and cancer. While food and nutrition policies and guidelines consider the health implications of UPF consumption, they rarely consider the environmental impacts. This presentation will describe the development of a food system framework which aims to display the environmental impacts of UPFs and will outline key findings.

**Methods:** The development of a food system framework was informed by a review of the literature investigating the environmental impacts of UPFs was conducted. Key stages of UPF production were identified, and the known environmental impacts of UPFs were mapped.

**Results and conclusions:** The food system framework displays the environmental impacts of UPFs, including greenhouse gas emissions, water-use, land degradation, biodiversity loss, use of fertilisers, herbicides, eutrophication, food loss and waste, and packaging waste. Environmental degradation from UPFs is not only driven by the quantity of impacts (such as volume of CO<sub>2</sub>-eq), but also the significance of impacts (such as the ecological significance of areas impacted by biodiversity loss) and the avoidable nature of such impacts (UPF are not a necessary component of a healthy diet).

**Learning objectives:** This presentation aims to provide researchers and policy makers with key evidence about the environmental impact of UPFs. Learnings are applicable to future research, food policies and dietary guidelines.

## Calling out junk food sponsorship during the 2020 Tokyo Olympics

**Authors:** Mr James Stevens-Cutler<sup>1</sup>, Ms Ainslie Sartori<sup>1</sup>, Ms Jasmine Teo<sup>1</sup>, Ms Melissa Ledger<sup>1</sup>

**Affiliation:** <sup>1</sup>Cancer Council WA

### Abstract

**Context:** Junk food sponsorship of sport continues to be a major impediment to creating healthy environments free from the influence of unhealthy marketing. Coca-Cola was an official 'Worldwide Olympic Partner' at the 2020 Tokyo Olympics. Coke was also an official partner of the Australian Olympic Team (as was Cadbury), while McDonald's was an official broadcast partner of the Olympics coverage in Australia. In August 2021 Cancer Council WA leveraged the Olympic period to run a policy campaign which urged people to challenge the relationship between unhealthy industries and sport.

**Process:** Cancer Council WA worked with local advertising and media agencies to develop creative executions and a media schedule to highlight the key message that 'Junk food and sport don't belong together'. Ten partner organisations from state and federal public health agencies were enlisted to form a united front calling on governments to end junk food sponsorship of sport.

**Analysis:** Paid advertisements were placed at seven digital out-of-home sites around the Perth metropolitan area over a ten-day period. This was complemented by a non-paid public relations campaign which was activated on day one of the campaign period.

**Outcomes:** Campaign advertising reached 492,000 people (54.1% of people aged 25-54) with an average frequency of 7. The campaign also generated two media stories which featured on metro and regional TV networks.

**Learning Objectives:** Unhealthy sponsors are prolific in professional sports environments. Ongoing advocacy activities are required to build support for policy change that restricts these types of sponsorships.

## 2C – Prioritising food sovereignty to create healthy and sustainable food systems

Long Oral and Rapid-Fire Presentations

### Healthy food futures for Victorian Aboriginal communities: a systems thinking approach

**Authors:** Dr Jennifer Browne<sup>1</sup>, Dr Troy Walker<sup>1</sup>

**Affiliation:** <sup>1</sup>Deakin University

#### Abstract

**Background:** Systems thinking is increasingly applied to understand and address systemic drivers of complex health problems including obesity and food insecurity. In Victoria, group model building (GMB), a participatory method from systems science, has been applied in various locations to engage communities in systems-based health promotion. To date there has been limited evidence regarding GMB use in Aboriginal nutrition projects. We aimed to determine the value and acceptability of GMB as a methodological approach in food system research with Aboriginal communities and culturally adapt the method to optimise its utility.

**Methods:** Semi-structured interviews were undertaken with 18 Aboriginal health staff who had prior experience with a GMB project. Interview transcripts were inductively analysed using thematic analysis and key themes were organised using an Indigenous research framework. We used the findings to adapt the GMB methods, which we then piloted and evaluated with a group of Aboriginal health practitioners as part of a nutrition promotion project.

**Results:** Participants reported that GMB methods were generally well aligned with Aboriginal ways of knowing, being, and doing. Participants valued the holistic, visual and collaborative nature of the method and its emphasis on sharing stories and collective decision-making. GMB was considered a useful tool for identifying Aboriginal-led actions to address food and nutrition, issues.

**Conclusions:** GMB is a promising tool that Aboriginal communities can utilise to address priority issues in a manner that may be consistent with their worldviews. We are implementing this approach in Victoria to enable Aboriginal communities to identify food policy priorities.

### Aboriginal-owned stores creating a pathway for healthy food retail policy

**Authors:** Khia De Silva<sup>1</sup>, Emma McMahon<sup>2</sup>, Julie Brimblecombe<sup>2,3</sup>

**Affiliations:** <sup>1</sup>The Arnhem Land Progress Aboriginal Corporation, <sup>2</sup>Menzies School of Health Research, <sup>3</sup>Monash University

#### Abstract

**Background:** Health values and community relations are strong motivators for healthy food interventions by retailers. The Arnhem Land Progress Aboriginal Corporation (ALPA) is a multi-store organisation with commitment to advance the community health goals. This paper outlines how ALPA embedded research evidence in their policy following the success of the Healthy Stores 2020 trial (HS2020).

**Methods:** On approval from the ALPA all Indigenous Board and ALPA-managed store boards, 20 of 25 remote stores in the ALPA group participated in the 12-week trial. Ten stores were randomised to receive a strategy aimed to restrict promotion of unhealthy products to reduce sugar sales. Free sugars to energy reduced by 2.8% with no adverse impact on business outcomes. ALPA employed

strategies to integrate the research evidence in to policy: i) consultation; ii) policy co-design; iii) store conversion; and, iv) institutionalising the policy.

**Results:** All store boards agreed to incorporate HS2020 strategies, and an additional 17 co-designed sugar reduction strategies into the existing store nutrition policy. Structures were successfully established within ALPA to support policy institutionalisation: store manager inductions; policy audits; in-store visits and performance review using sales data and stock controls; and reporting of nutrition KPIs to the ALPA board.

**Conclusion:** ALPA with experience in health-enabling food retail and commitment to community health established the structuration needed to institutionalise the HS2020 strategy, thus providing evidence on how transformation of healthy food retail environments can be achieved.

Learning objective: Understand the structures required for instituting research evidence in to policy for health-enabling retail.

## **Co-designing healthy remote store food environments: Using an innovative online approach to improve the capacity of the nutrition workforce in remote communities across Australia**

**Authors:** Dr Meaghan Christian<sup>1</sup>, Dr Megan Ferguson<sup>2</sup>, Khia De Silva<sup>3</sup>, Clare Brown<sup>4</sup>, Emma Chappell<sup>2,7</sup>, Dr Simone Nalatu<sup>2,5</sup>, Niamh Scully<sup>5</sup>, Lorissa Raethke<sup>5</sup>, Li Kheng Chai, Bethany Miles<sup>1</sup>, Brianna Sanderson<sup>6</sup>, Dr Emma McMahon<sup>7</sup>, A/Prof Julie Brimblecombe<sup>1</sup>

**Affiliations:** <sup>1</sup>Monash University, <sup>2</sup>The University of Queensland, <sup>3</sup>The Arnhem Land Progress Aboriginal Corporation, <sup>4</sup>Apunipima Cape York Health Council, <sup>5</sup>Health and Wellbeing Queensland, <sup>6</sup>Outback Stores, <sup>7</sup>Menzies School of Health Research

### **Abstract**

**Background:** Food retail environments influence food options. In remote Australia, where stores are owned by the community, Aboriginal and Torres Strait Islander Peoples have the power to initiate change within their own food environment. This research designed an online training to enhance the capacity of the Public Health Nutritionist (PHNs) to co-design best-practice to reduce the sales of discretionary food options with Indigenous store-owners.

**Methods:** Thirty-two health professionals currently engaged or intending to engage with a remote store from across Australia enrolled in the on-line training, April-June 2021. The Project Echo<sup>®</sup> interactive model of expert presentations, collaborative problem solving and peer-to-peer learning was used and content developed consisting of eight weekly sessions (60-90 minutes each), delivered via an online videoconferencing platform with the aim of upskilling PHNs to support stores in implementation of best practice. Participants completed a pre- and post-questionnaire to assess participant demographics, satisfaction.

**Results:** 31 females and 1 male aged between 18-59 years completed the pre-questionnaire; 18 (56%) completed the post. The median number of sessions attended was 6 (IQR 4). 94% of participants responded strongly agreed or agreed the peer learning experience improved their understanding of the remote food environment, they plan to integrate the series content into their practice, and it improved their capacity for problem solving, one participant remained neutral.

**Conclusion:** Providing insightful expert presentations combined with peer-to-peer learning can strengthen practitioner problem solving skills and knowledge for work with remote stores

**Learning Objectives:** Describe key components of the Project Echo<sup>®</sup> learning structure.

## **Beyond retail: food environments in the Pacific and relationship with diet quality**

**Authors:** Dr Jessica Bogard<sup>1</sup>, Professor Neil Andrew<sup>2</sup>, Dr Penny Farrell<sup>3</sup>, Professor Mario Herrero<sup>4</sup>, Mr Michael Sharp<sup>2,5</sup>, Dr Jillian Tutuo<sup>6</sup>

**Affiliations:** <sup>1</sup>CSIRO, <sup>2</sup>University of Wollongong, <sup>3</sup>University of Sydney, <sup>4</sup>Cornell University, <sup>5</sup>Pacific Community, <sup>6</sup>WorldFish

### **Abstract**

**Background:** The food environment (FE) is well recognised as a key driver of food choices and nutrition outcomes. Current literature typically focuses on retail FEs (including supermarkets, fast-food and convenience stores) and does not capture the diversity of FEs relevant in the Pacific Region. In particular, the role of community and kinship networks as a source of food, which has a strong socio-cultural and historical basis in local food systems, is overlooked.

**Methods:** A conceptual typology of FEs is presented, including six primary FEs relevant in the Pacific; wild, cultivated, kin and community, informal retail, formal retail and food aid and services. We then apply this typology to food acquisition data from the Solomon Islands 2012/13 Household Income and Expenditure Survey and analyse the relationship between FEs and diet quality.

**Results:** The cultivated FE accounts for 60% of the quantity of food acquired nationally, followed by wild (15%), kin and community (9%), and formal and informal retail FEs (8% each), with wide variation between urban and rural households, provinces and wealth groups. Reliance on different FEs is a significant predictor of diet quality and affirms the importance of subsistence fisheries and agriculture, and community and kinship networks as a food source.

**Conclusion:** Integration of this FE typology in commonly conducted household surveys offers significant opportunity to advance our understanding of food system leverage points to improve nutrition and health.

**Learning objective:** To expand understanding of FEs beyond typical retail FEs and identify opportunities to reduce the triple burden of malnutrition

## **Evaluating critical nutrient intakes in Australia using the PAHO Nutrient Profile Model**

**Authors:** Dr Priscila Machado<sup>1</sup>, Dr Gustavo Cediel<sup>2</sup>, Dr Julie Woods<sup>1</sup>, Dr Phillip Baker<sup>1</sup>, Ms Sarah Dickie<sup>1</sup>, Dr Fabio Gomes<sup>3</sup>, A/Prof Gyorgy Scrinis<sup>4</sup>, Prof Mark Lawrence<sup>1</sup>

**Affiliations:** <sup>1</sup>Institute For Physical Activity and Nutrition, Deakin University, <sup>2</sup>University of Antioquia, <sup>3</sup>Pan American Health Organization, <sup>4</sup>School of Agriculture and Food, The University of Melbourne

### **Abstract**

**Background:** There is limited evidence on the use of nutrition classification schemes (NCS) to predict diet quality. The Pan American Health Organization Nutrient Profile Model (PAHO NPM) is the only scheme to explicitly account for food processing. This study aimed to investigate intake levels of non-communicable disease (NCDs)-related critical nutrients in Australia using the PAHO NPM.

**Methods:** Dietary intakes of 12,153 participants from the Australian Health Survey (2011–12) aged 2+ years were evaluated. The PAHO NPM is applied to processed and ultra-processed products and identifies those that are excessive in free sugars, saturated fats, trans fats, total fats, and sodium (critical nutrients). Differences in mean intakes and prevalence of excessive intakes of critical nutrients for groups of the population whose diets were made up of products with and without excessive content in critical nutrients were examined.

Results: Australians consumed daily at least three processed and ultra-processed products identified as excessive in critical nutrients using the PAHO NPM. Nearly 95% of ultra-processed products consumed in Australia are excessive in at least one critical nutrient. Individuals consuming these products had significantly higher intakes and higher prevalence of excessive intake of all critical nutrients than individuals not consuming these foods.

Conclusions: The PAHO NPM has shown to be a relevant tool to predict intake levels of NCD-related critical nutrients in Australia.

Learning objectives: The PAHO NPM could be used as basis for a NCS that identifies all ultra-processed and those processed products excessive in critical nutrients to inform policy actions in Australia.

## 3A – Opportunities and challenges in social mobilisation for planetary and public good

### Long Oral and Rapid-Fire Presentations

#### Evaluating health-related information on social media

**Authors:** Ms Emily Denniss<sup>1</sup>, Dr Rebecca Lindberg<sup>1</sup>, Professor Sarah McNaughton<sup>1</sup>

**Affiliations:** <sup>1</sup>*Institute for Physical Activity and Nutrition, Deakin University*

**Background:** Health misinformation propagated via social media threatens public health and has also been identified as a barrier for successful nutrition promotion. While tools exist for the evaluation of health information in some contexts, none have been developed for social media. The aim of this study was to develop PRinciples for Health Information on Social Media (PRHISM) that can be used to evaluate the quality of health-related social media content, that would also be suitable for use in nutrition.

#### **Abstract**

**Methods:** Health and social media experts were recruited via Twitter, email and snowballing (n=18). A modified Delphi technique was used to gain consensus (defined as ≥80% agreement) on principles to include in PRHISM using three iterative surveys. Survey One included open-ended questions and items from existing quality assessment tools. Subsequent surveys were informed by the results and group feedback from the proceeding survey. After Survey Three, principles were finalised and a tool scoring system was developed for final feedback.

**Results:** Consensus was reached on 13 principles, which were included in PRHISM. No objections to the final wording of principles were received when PRHISM was circulated to participants after Survey Three. Principles included in PRHISM emphasised provision of accessible, transparent, authoritative and evidence-based information, and support for patient-healthcare provider relationships.

**Conclusions:** PRHISM can be used to evaluate the quality of health-related social media content, including nutrition. Its application may involve use by content creators to develop high-quality information and by consumers in discerning high- from low-quality health-related social media content.

#### Using data science techniques to explore food waste conversations on Twitter

**Authors:** Eva L Jenkins<sup>1</sup>, Dickson Lukose<sup>2</sup>, Linda Brennan<sup>3</sup>, Annika Molenaar<sup>1</sup>, Tracy A McCaffrey<sup>1</sup>

**Affiliations:** <sup>1</sup>*Department of Nutrition, Dietetics and Food, Monash University*, <sup>2</sup>*Monash Data Futures Institute, Monash University*, <sup>3</sup>*School of Media and Communication, RMIT University*

#### **Abstract**

**Background:** Each year one-third of food produced is lost or wasted, greatly impacting the environment. Sustainable Development Goal-12 Sustainable Production and Consumption has a target to halve global food loss and waste by 2030, requiring novel approaches to waste reduction. Social media data can be used to explore big-picture themes and discussions about food waste through the use of data science techniques, which are largely unexplored in the context of consumer food waste. We aimed to explore the sentiment and topics of conversation surrounding food waste on Twitter.

**Methods:** Australian tweets containing keywords related to food waste were collected from the Twitter API from 2019-2020. Sentiment was analysed using the Valence Aware Dictionary and Sentiment Reasoner (VADER) sentiment engine. Topic modelling, which analyses keywords that co-occur to provide a predominant topic of conversation, was done using the BigML online platform.

**Results:** There were 37,390 tweets collected. Sentiment analysis indicated the highest number of tweets were negative (41.7%). Neutral (28.9%) and positive (27.2%) had similar occurrences as did very negative (1.1%) and very positive (1.0%). The main topic of discussion was 'reduce food waste', followed by 'people fighting food waste', and 'cooking and using leftovers'.

**Conclusion:** Overall, the discussion of food waste was predominantly negative in 2019-2020, and focused on reducing food waste as well as the community working together to fight food waste. Future analysis should focus on translating these findings into actionable recommendations for public health communication on social media platforms.

## Exploring the conversation and sentiment around food security on social media

**Authors:** Ms Annika Molenaar<sup>1</sup>, Professor Dickson Lukose<sup>2</sup>, Professor Linda Brennan<sup>3</sup>, Ms Eva L Jenkins<sup>1</sup>, Dr Tracy A McCaffrey<sup>1</sup>

**Affiliations:** <sup>1</sup>Department of Nutrition, Dietetics & Food, Monash University, <sup>2</sup>Monash Data Futures Institute, Monash University, <sup>3</sup>School of Media & Communication, RMIT University

### Abstract

**Background:** Food insecurity is a significant public health issue with increasing prevalence during the COVID-19 pandemic. Information about food security on social media may assist in understanding the evolving issue of food security and track public sentiment, however is currently largely unexplored. This study aimed to explore the conversation around food security on social media using computer science techniques.

**Methods:** Search terms around food security were iteratively refined to collect Tweets relevant to food security. Data from 2019-2020 was collected through the Twitter API. Valence Aware Dictionary and Sentiment Reasoner (VADER) sentiment analysis was used to analyse the sentiment and BigML, Inc. was used for topic modelling.

**Results:** A total of 13,215,401 Tweets were collected globally and 124,544 Tweets from Australia. Of the Australian Tweets, 39% were from the year 2019 while 61% were from 2020. From Australia 44.3% of Tweets were classified as positive, 29.7% as neutral, 22.9% as negative, 2.0% as very positive and 1.1% as very negative. Some frequently discussed topics included Australian national food security, climate change and global food security, farming and food supply, access to food and shelter and people accessing food banks.

**Conclusion:** Overall, the majority of Australian food security related tweets had a positive or neutral sentiment and were less commonly negative. There were a range of topics discussed, spanning from household level and accessing food relief to global food security. A combination of computer science techniques is needed to gather a more nuanced understanding of food security social media data.

## Corporate co-option of regenerative agriculture: Implications for sustainable food systems

**Author:** Ms Anja Bless<sup>1,2</sup>

**Affiliations:** <sup>1</sup>Institute for Sustainable Futures, University of Technology Sydney, <sup>2</sup>Sydney Environment Institute, University of Sydney

**Abstract**

**Background:** Regenerative agriculture (RA) is increasingly advocated for as a solution to the environmental crises of the food system. Among some of the loudest proponents are global agri-food corporations. RA has diverse grassroots origins and agreed definitions of its principles and practices are still lacking. Increasing corporate involvement in RA risks amplifying unequal food system power dynamics and perpetuating the status quo of corporate domination. Global agri-food businesses are establishing RA programs, policies and targets in a manner that could potentially co-opt the still emerging RA movement, and impact broader food system sustainability activities and related health outcomes.

**Body:** This paper utilises a three faces of power framework to critically analyse the involvement of agri-food corporations in the RA movement and elicit potential implications for achieving sustainability outcomes. We discuss the extent to which agri-food corporations are enacting their instrumental power to leverage the regenerative agriculture movement's growing popularity, their structural power to dominate the movement, and how they are using the discursive power of RA to further legitimise and entrench corporate domination in the global food system. These power relations have implications for the social, health, economic, and environmental outcomes of the regenerative agriculture movement, and sustainable food systems more broadly.

**Summary:** A three faces of power analysis of the increasing corporate involvement in the regenerative agriculture movement.

**Learning objectives:** Participants will learn how the application of power relations analysis can be used to critically evaluate food systems sustainability, particularly in the case of corporate capture.

## **Reimagining a Food-Secure Future: Harnessing Community Expertise in Cardinia Shire**

**Authors:** [Dr Sue Kleve](#)<sup>1</sup>, Ms Pieta Bucello<sup>2</sup>, Dr Martine Barons<sup>3</sup>

**Affiliations:** <sup>1</sup>Monash University, <sup>2</sup>Cardinia Shire Council, <sup>3</sup>University of Warwick

**Abstract**

**Context:** Food-insecurity - a complex, persistent, multidimensional public health issue. Cardinia Shire Council located in the South-East peri-urban growth corridor of Melbourne records higher rates of food-insecurity(4.4%) than the Victorian average(3.0%). The 2014 Victorian Population Health Survey identified people in Cardinia worried about running out of money for food(18%) and didn't always have healthy food due to cost(30%). In 2018 local data(n=342) identified 12% experienced running out of food and were unable to purchase more. Fast forward to 2021 this story has not changed.

**Process/Analysis:** Together, Monash University and Cardinia Shire Council have undertaken localised evidence gathering activities: measurement of food-insecurity, availability of food, physical and economic access to food, identifying inequities in access. To better understand food-security determinants to support the vision of a food-secure future re-evaluation of expertise and co-creation of the understanding of the issue and solutions was required.

This qualitative study involved two-stakeholder groups exploring food-security determinants, experiences, vision and action to support food security.

- 1) Community Service-provision organisations(n=12) in-depth interviews
- 2) Community members(n=17) experiencing/at risk of food-insecurity; survey and Photovoice methodology

Data was thematically analysed using inductive coding, inter-coder agreement, generation of themes/subthemes. Preliminary findings were shared with stakeholders. Review of findings across stakeholder groups.

Outcomes: Digital/visual communication material will be developed and shared across community to shape the creation of the vision of food secure future.

LO1: Importance of and need for co-creation with those with lived experience in understanding of food-security that can support solution generation

LO2 Highlight the benefit of using participatory methods such as photo-voice.

## **Advancing equity and community voices in food policymaking**

Authors: [Dr Christina Zorbas](#)<sup>1</sup>, Ms Rebecca Christidis<sup>1</sup>, A/Prof Kathryn Backholer<sup>1</sup>

Affiliation: <sup>1</sup>*Deakin University*

### **Abstract**

Background: No literature synthesis has been conducted to understand how lived experiences of social and/or economic exclusion can inform equity-oriented policymaking in public health. Drawing upon the broader public health literature, we aimed to explore how lived experiences of social and/or economic exclusion can inform equitable food policymaking processes in Australia.

Methods: A scoping review was conducted to identify relevant academic and grey literature sources. Three key search terms and synonyms ('inequity' AND 'lived experience' AND 'policy') were applied across databases. Only literature focused on informing government-led, population policies pertaining to public health in Australia was included. Data were extracted into a standardised template and key findings were thematically synthesised.

Results: Fourteen academic and five government reports were included in our study. Six reports focused on food policies, with the remaining primarily focused on mental health and social services. Few theories and frameworks beyond co-design were employed. If incorporated effectively, lived experiences can strengthen food policymaking by raising awareness of the impacts of social and/or economic exclusion through ongoing advocacy, storytelling, and partnerships; challenging power imbalances and refocusing systems; creating non-stigmatising and inclusive cultures and language; promoting community empowerment and self-determination; and building political capacity to better address diet-related health inequities.

Conclusions: Additional efforts are needed by all stakeholders to ethically, sustainably and impactfully include the voices and values of people with lived experiences of social and/or economic exclusion in food policymaking.

Learning objective: To understand how food policymaking can better include lived experiences with social and/or economic exclusion.

## **PHN workforce mobilising food systems change: Abstract analysis 2020 World PHN Congress**

Authors: [Ms Ella Parnell Harrison](#)<sup>1,2</sup>, Ms Ros Sambell<sup>1,2</sup>, Ms Margaret Miller<sup>1,2</sup>

Affiliations: <sup>1</sup>*Edith Cowan University*, <sup>2</sup>*World Public Health Nutrition Association*

### **Abstract**

Background: All forms of malnutrition are endemic globally and impacted by food systems. Eradication efforts are often siloed at workforce level. Broadening perspectives/

training/competencies of the public health nutrition (PHN) workforce has been suggested to effect change in food systems, but first needs understanding of current roles and activities.

Methods: In 2020, the World Public Health Nutrition Association convened a global conference utilising the UN Decade of Action on Nutrition 2016-2025 six Action Areas, based on ICN2 targets. Sixty-two abstracts from 27 countries, submitted for 'Sustainable resilient food systems for healthy diets' were thematically analysed to determine presenter activity related to theme areas, food system levels and ICN2 recommendations (R).

Results: 10% of abstracts addressed planetary/one health and 23% the whole food system. The most active theme areas were Food environments, especially high ultra-processed foods (31%); Food sovereignty/agroecology/biodiversity (23%) and food security (23%); these mostly at the food system levels of food consumption and health (33%) or distribution/marketing and retail (31%). Most addressed these in relation to Non-communicable Disease prevention (26%) and life-course nutrition (17%). Corresponding ICN2 recommendations were addressed but gaps were obvious for recommendations related to creating enabling policy, partnerships, trade and investments (R1-6, 17,18).

Conclusion: To act on ICN2 recommendations to overcome the diversity of food system challenges requires an agile workforce. Broadening of training and professional development within PHN globally would be pertinent for addressing multifaceted issues within the food system.

Learning objectives: What role is/can the PHN workforce play to effect change in food systems?

## 3B – Nutritional ecology informing lifecourse food systems policy and actions

Long Oral and Rapid-Fire Presentations

### **Food insecurity and hunger during pregnancy: exploring the factors and determinants**

**Authors:** Dr Fiona McKay<sup>1</sup>, Julia Zinga<sup>1,2</sup>, Dr Paige van der Pligt<sup>1</sup>

**Affiliations:** <sup>1</sup>Deakin University, <sup>2</sup>Royal Women's Hospital

#### **Abstract**

**Background:** Food insecurity can negatively affect health at all life stages; however, pregnant women have disproportionately worse health outcomes. Food insecurity during pregnancy can have negative long-term impacts for both mum and baby. This project is the first to provide Australian data on the prevalence and risk factors associated with food insecurity and hunger among pregnant women attending a maternity hospital.

**Method:** This research employed a cross-sectional study design to determine 1) the prevalence of food insecurity and 2) the factors associated with food insecurity among pregnant women attending antenatal services at the RWH. Participants were recruited via social media posts, direct messaging, and flyers with a QR code displayed at a large maternity hospital. The survey consisted of approximately 50 questions over 7 domains, including health seeking behaviours, food choices, self-described health, and food insecurity. Basic descriptive statistics were used to describe the sample.

**Results:** Pregnant women experience hunger and food insecurity for a variety of reasons. This includes financial challenges and poverty, challenges in acquiring culturally appropriate foods, concerns surrounding the appropriate foods they can consume during their pregnancy, and diet and eating behaviours related to health conditions.

**Conclusions:** Pregnant women are an especially vulnerable group and can experience long term health implications related to food insecurity and hunger. Ensuring that we have accurate data will allow for the creation and adoption of interventions to address food insecurity and hunger.

**Learning objectives:** To consider the factors that contribute to food insecurity and hunger among pregnant women.

### **Social value of maintaining Baby-Friendly Hospital Initiative accreditation in Australia: Case Study**

**Authors:** Andini Pramono<sup>1</sup>, Associate Professor Julie Smith<sup>1</sup>, Dr Jane Desborough<sup>1</sup>, Dr Siobhan Bourke<sup>1</sup>

**Affiliation:** <sup>1</sup>Australian National University

#### **Abstract**

**Background:** Breastfeeding is the first food system for humans and important for women's and children's health. Moreover it has positive impacts on environment and economic wealth of families and countries. The Baby Friendly Hospital Initiative (BFHI) in 1991 to ensure maternity services provide adequate education and support for mothers and families to initiate and continue breastfeeding beyond hospital discharge by implementing the Ten Steps to Successful Breastfeeding (Ten Steps). In 2020, only 26% of Australian hospitals were BFHI-accredited. This study aims to examine the social value of maintaining the BFHI accreditation in one maternity unit in Australia.

**Method:** The study was conducted in Calvary Public Hospital, Canberra, an Australian BFHI-accredited public hospital. Analysis was informed by Social Return On Investment, which consists of mapping the stakeholders, identifying and valuing outcomes, establishing impact, calculating the ratio and conducting sensitivity analysis. Guided by a structured questionnaire, interviews were conducted with the hospital's Director of Maternity Services and the Clinical Midwifery Educator to identify and value key inputs.

**Results:** For every AU\$1 invested in BFHI implementation by this facility generated approximately AU\$55 of benefit, demonstrating a positive net benefit of the BFHI.

**Conclusions:** In this public hospital, the BFHI produced a social value greater than the cost of investment, providing new evidence of the economic value as a public health intervention. Our findings indicate that the BFHI accreditation is an investment in the health and wellbeing of families, communities and the Australian economy, as well as in health and food equity.

## Food provision in childcare – is it environmentally sustainable?

**Authors:** Mrs Audrey Elford<sup>1</sup>, Dr Alison Spence<sup>1</sup>, Mrs Amy Wakem<sup>2</sup>, Professor Karen Campbell<sup>1</sup>, Dr Penny Love<sup>1</sup>

**Affiliations:** <sup>1</sup>*Institute of Physical Activity and Nutrition (IPAN), School of Exercise and Nutrition Sciences (SENS), Deakin University,* <sup>2</sup>*Healthy Eating Advisory Service, Nutrition Australia*

### Abstract

**Background:** Long day care centres (LDCs) typically provide half a day's meals to around 190 000 Victorian children under the age of 5. Food provision practices such as purchasing and waste management in this setting have important nutritional and environmental implications, and LDCs hold promise as sites for cultivating environmentally sustainable food practices. The aim of this study is to understand current food provision practices in LDCs in relation to food waste and environmental sustainability.

**Methods:** This study uses a mixed method sequential explanatory approach with data collection underway (September 2021). A subgroup was invited to complete a food waste audit in their centre. Quantitative findings will inform qualitative interviews to expand understanding of engagement in sustainable food practices in LDCs. Data collection will conclude in December 2021 and full results will be presented.

**Results:** Preliminary data shows 11% of centres had conducted a food waste audit in the past and 42% had a policy that sought to address environmental sustainability. Pilot waste audit results indicated that a quarter to a half of all food served was discarded (wasted). Interview data will explore centre practices that minimise or exacerbate food waste.

**Conclusions:** This is the first study to assess environmentally sustainable food practices and food waste in Australian LDCs. The findings will help identify areas for support and future research.

**Learning objectives:** This study aims to understand current food provision practices in LDCs in relation to food waste & environmental sustainability.

## A new school lunchbox audit tool to assess nutrition and waste

**Authors:** Neha Lalchandani<sup>1</sup>, Prof Caroline Miller<sup>1,2</sup>, Dr Carly Moores<sup>3</sup>, A/Prof Lynne Giles<sup>1</sup>, Dr Shona Crabb<sup>1</sup>, Dr Clare Hume<sup>1</sup>

**Affiliations:** <sup>1</sup>*School of Public Health, University Of Adelaide,* <sup>2</sup>*Health Policy Centre, South Australian Health and Medical Research Institute (SAHMRI),,* <sup>3</sup>*Adelaide Dental School, University of Adelaide*

### Abstract

**Context:** Packed school lunchboxes are an important component of children's diets and source of avoidable packaging and waste. This study aimed to examine the contents of children's school lunchboxes, from a nutritional and waste perspective. No efficient methods were available to undertake this assessment, so a new audit tool was developed.

**Process:**

The audit tool was designed to capture the range of unique food/beverage and packaging items in lunchboxes. Eight macro-level categories for foods and beverages were established which were then classified into Green/Amber/Red categories to indicate levels of 'healthiness'. These were based on: the Australian Dietary Guidelines, Victorian healthy choices classification guide, and the NOVA classification system. Similarly, packaging and waste were categorised based on the national three-bin system i.e. general waste (red), recycling (yellow), and organics (green).

**Analysis:** As a pilot, photographs were taken of 20 pre-schoolers' lunchboxes at two time points in the school day (pre- and post- snack/lunch). Photographs were coded in REDCap based on food/beverage contents, packaging and waste. Two researchers independently coded all photographs.

**Outcomes:** School-based photography of lunchboxes and REDCap-assisted data coding is a feasible methodology to capture food/beverage contents, packaging and waste outcomes. The merits of this tool include an objective data collection technique, and minimal burden on participants, with potential to be generalised to other contexts beyond the school food environment.

**Learning Objectives:** Assessing lunchbox contents using a bifocal lens of nutrition and environment will help shape the scope of new policies and programs to improve children's dietary and sustainability outcomes.

## **Analysis of companies' use food packaging to target children in Australia**

**Authors:** Dr Alexandra Jones<sup>1</sup>, Ms Maria Shahid, Mrs Devorah Riesenber, Ms Georgia Morelli, Ms Kylie Howes, Assoc/Prof Gary Sacks

**Affiliation:** <sup>1</sup>The George Institute for Global Health

### **Abstract**

**Background:** Children's exposure to food marketing influences brand awareness, food preferences, purchase requests and consumption. Food companies use a range of strategies to market their products and brands as part of integrated marketing communications. Our aim was to explore the prevalence of child-directed marketing on food packaging in Australia.

**Method:** We used packaging and nutrient content data from four Sydney supermarkets in 2019 in seven focus categories (biscuits, cakes, confectionery, breakfast cereals, non-alcoholic beverages, dairy, snackfoods and baby foods). Existing literature was used to develop a framework of child-directed marketing (CDM) techniques. Two coders recorded the prevalence of CDM on pack. We assessed the healthiness of products that were, and were not, using CDM using a variety of nutrient profiling models, and provided summary data overall, by specific marketing technique and by category.

**Results:** 909/8213 products (11%) used one or more CDM techniques on pack. Categories with most frequent use of CDM were baby foods, confectionary, snackfoods and dairy. The most frequently used techniques were personified characters, childhood life references and licensed characters. Products using CDM were more likely to be ultra-processed than foods not using CDM (94% versus 80%;  $p < 0.001$ ). Only 6% of products using CDM would be eligible to market to children under the WHO Western Pacific Nutrient Profile Model.

Conclusion: Children are commonly targeted by marketing on food packaging, particularly on unhealthy products. Monitoring of child-directed marketing on food packaging can provide important evidence to inform policymakers as part of future food labelling and marketing reform efforts.

## **Assessment of perception and practices regarding consumption of fortified foods**

Author: **Ms Bhavya Pande**<sup>1</sup>

Affiliation: <sup>1</sup>Maharana Pratap University of Agriculture and Technology

### **Abstract**

Background: Food fortification is proven to be one of the effective strategies to combat micronutrient deficiency. In 2016 government of India launched the food fortification resource center and food fortification logo (2018) with the vision to create awareness. Salt fortification with iodine (Potassium iodate; Iodine @ 15-30 ppm (retail level) is mandatory across the country since 1992. Cooking oil with vitamin A (Retinyl Acetate or Retinyl Palmitate @ 6 mcg RE-9.9 mcg RE per gm of oil) and vitamin D (cholecalciferol or Ergocalciferol @ 0.11mcg-0.16 mcg per gm of oil) has achieved 100 percent voluntary fortification in Rajasthan.

Objective: The present study was undertaken in 2019 to assess the perception and practices towards fortified foods.

Method: One hundred fifty urban women residing in Udaipur, Rajasthan, who visited the 5 superstores were selected. A pre-tested questionnaire was used to collect information on perceptions (on a five point scale), the frequency, and consumption pattern of fortified foods.

Findings: The majority of the subjects responded that fortified foods are meant to be consumed by all population groups, not a specific physiologic, socioeconomic group. Only 15.3% of the subjects were familiar with the fortified food "+F" logo of those 2.66% read it. Television (76.47%) was the major source of information. None of the fortified foods exceeded the micronutrient intake above the reference values.

Conclusion: There is a need to generate awareness regarding the attributes of fortified foods. Promoting the consumption of fortified foods can be a cost-effective way of addressing micronutrient deficiency.

## **Good for the environment and good for you: LiveLighter® Sustainability September campaign**

Authors: **Ms Jasmine Teo**<sup>1</sup>, Ms Gael Myers<sup>1</sup>

Affiliation: <sup>1</sup>Cancer Council Wa

### **Abstract**

Background: LiveLighter® is a health promotion campaign funded by the WA Department of Health and implemented by Cancer Council WA that aims to reduce the burden of disease caused by overweight and obesity, poor diet and physical inactivity. Throughout the month of September 2021, LiveLighter® ran an organic (non-paid) mini social media campaign called 'Sustainability September'. The campaign promoted ways in which people could reduce their environmental impact with a particular focus on food waste.

Methods: The Sustainability September campaign was promoted through LiveLighter® social media channels including Facebook, Instagram, Twitter and TikTok. Content was posted 3-5 times per week

and included blogs, top tips, and short how-to videos. To increase engagement with the campaign, a Facebook competition was also run that encouraged people to share 'how they reduce food waste at home'.

Analysis and results: Social media metrics for each individual campaign post were recorded to assess reach and engagement with specific messages and the overall campaign. As the campaign is still underway, results had not been finalised at the time of abstract submission. Following the completion of the campaign, results will be analysed to evaluate the overall success of the campaign, determine which information was engaging and relevant to the target audience, and extract any key learnings.

Translational outcomes: Australian consumers are becoming increasingly concerned about the environmental impact of their food choices. Results of the LiveLighter® Sustainability September campaign will provide insight into the potential of public health campaigns to harness this interest to promote healthy diets.

## 3C – Levers to challenge and change food inequity

### Long Oral and Rapid-Fire Presentations

#### The impact of COVID-19 on food and beverage prices in Australia

**Authors:** A/prof Kathryn Backholer<sup>1</sup>, Dr Satheesh Seenivasan<sup>2</sup>, Ms Josephine Marshall<sup>1</sup>, Dr Christina Zorbas<sup>1</sup>

**Affiliations:** <sup>1</sup>Institute For Health Transformation, Deakin University, <sup>2</sup>Monash University

##### Abstract

The global COVID-19 pandemic represents a major food system shock. We aimed to comprehensively analyse the impact of COVID-19 on the price of foods and beverages sold by a major grocery retailer in Australia. We analysed 106 weeks of data from the Australian PriceTracker database (which has price for 16,000+ foods and beverages, collected weekly, from online supermarkets). We developed minor and major food categories for analysis that grouped foods with similar characteristics aligned to healthiness and sensitivity to food system disruptions. Our final sample for analysis included 7051 products across 413 minor food categories. Regression models were fit at the minor food category level, with estimates combined using meta-analysis to obtain price changes for 41 major food categories. The dependent variable was category-level price and independent variables included seasonality (summer, spring, autumn or winter), bushfire season, and Consumer Price Index (CPI). Results show that prices were higher in 57% (n=236) of the minor food categories during the COVID period compared to the pre-COVID period, with most prices remaining high after the first COVID wave had passed. Prices increased most for fruit (7.1%) and processed meats (5.3%). Other major staple food categories that increased in price included (but is not limited to) long-life milk (3.28%), legumes (3.1%), fresh milk (2.44%) and oils (3.85%). When combined with the decrease in income for many Australians, these price increases are likely to have exacerbated impacts on food affordability, food stress and food insecurity.

#### Australian consumer perceptions of how the COVID-19 pandemic impacted Australia's food system

**Authors:** Dr Katherine Kent<sup>1,2</sup>, Dr Denis Visentin<sup>2</sup>, Mr Stuart Auckland<sup>3</sup>, Dr Beth Penrose<sup>4</sup>, Professor Fred Gale<sup>5</sup>, Professor Elizabeth Lester<sup>6</sup>, Ms Sandra Murray<sup>2</sup>

**Affiliations:** <sup>1</sup>School of Health Sciences, Western Sydney University, <sup>2</sup>School of Health Sciences, University of Tasmania, <sup>3</sup>Centre for Rural Health, University of Tasmania, <sup>4</sup>Tasmanian Institute of Agriculture, University of Tasmania, <sup>5</sup>School of Social Sciences, University of Tasmania, <sup>6</sup>Institute for Social Change, University of Tasmania

##### Abstract

**Background:** The COVID-19 pandemic revealed vulnerabilities in the Australian food system. Understanding consumer experiences as essential food system stakeholders should inform strategies to reduce the impact of future disasters.

**Methods:** A cross-sectional, online survey in a non-random sample of Australian adults was conducted in May 2020, immediately following a 4-week lockdown. Respondents indicated (yes/no/unsure) whether they perceived that the COVID-19 pandemic had impacted Australia's food supply. An open-ended response option asked respondents to elaborate on how it had changed. Binary logistic regression identified demographic groups more likely to report the food supply was impacted. Thematic analysis identified key themes in open-ended responses

**Results:** Most respondents (n=1,125; mean age=52.7±14.5y; 77% female) indicated the COVID-19 pandemic had impacted the food supply (40%), while 28% reported they were unsure. Respondents

were more likely to report that the food supply was impacted if they were younger (OR:1.027;95%CI:1.018,1.036;p<0.001) or were food insecure (OR:1.597;95%CI:1.219,2.092;p=0.001). Four key themes were identified: (1) Reduced availability, variety and quality of food resulting from panic buying and transport disruptions; (2) Reduced access to food through social distancing restrictions, closure of food outlets and higher food prices; (3) Supply chain issues resulting from increased consumer demand and import/export restrictions; and (4) Producers adapting their business model to meet changed consumer shopping behaviours.

Conclusions: Many consumers, particularly younger and food insecure groups, were affected by wide-ranging impacts of a COVID-19 pandemic lockdown on the food system.

Learning Objectives: Consumer voices are crucial for informing food systems policy directions towards a resilient, equitable food system

## **Resilient food systems and the human right to food: Lessons from Victoria**

Authors: [Dr Rachel Carey<sup>1</sup>](#), [Dr Maureen Murphy<sup>1</sup>](#), Leila Alexandra<sup>1</sup>

Affiliation: <sup>1</sup>University Of Melbourne

### **Abstract**

Background: The COVID-19 pandemic has led to rising food insecurity globally. Food relief agencies in Australia have reported a significant increase in the number of people relying on emergency food relief and in first time clients.

Methods: The Foodprint Melbourne project investigated the governance of food relief in Victoria during the COVID-19 pandemic and 2020 bushfires to identify opportunities to improve policy responses to food insecurity. We conducted 34 key stakeholder interviews and five co-design workshops from May 2020 to May 2021, with 96 participants from government, industry and civil society organisations.

Results: The COVID-19 pandemic and 2020 bushfires highlighted weaknesses in existing systems of food relief in Victoria for addressing widespread food insecurity during shocks. Food relief is mainly the domain of the charitable sector, reliant on volunteer support and on donations of surplus food to food banks. During COVID-19, systems of food relief have been challenged by social distancing restrictions which reduced volunteer availability, rising consumer demand for food which reduced donations of surplus food from retailers, and a lack of government responsibility and accountability for ensuring that all Victorians have sufficient access to healthy, sustainable and culturally appropriate food.

Conclusions: Rising food insecurity during recent pandemic and bushfire shocks highlights the need to establish clear government responsibility for addressing food insecurity in Victoria, grounded in recognition of the Human Right to Food.

Learning objectives: Highlight vulnerabilities in existing systems of food relief.

Identify policy improvements to address food insecurity for resilient and equitable food systems.

## **Identifying policy approaches to nutrition-focussed food banking: a scoping review**

Authors: [Mrs Sharonna Mossenson<sup>1</sup>](#), Dr Claire Pulker, Dr Roslyn Giglia, Associate Professor Christina Pollard

Affiliation: <sup>1</sup>Curtin University

### **Abstract**

**Background:** Food banks and pantries have become the predominant response to food insecurity in industrialised countries, including Australia. Historically, the measure of success was to maximise reach and ensure adequate calories, tracked by the weight of food distributed, irrespective of nutritional quality. But this paradigm is changing and attention to the importance of nutrition and food banking has gained momentum over the past decade, termed 'nutrition-focussed food banking' (NFFB). While there is myriad of approaches to NFFB, this review aims to identify and summarise policy approaches, given that policy interventions are considered the most effective strategies for creating population-wide improvements in dietary quality.

**Body:** Findings from a systematic search following the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews (PRISMA-ScR) Checklist will be presented. The review includes studies from industrialised countries published between 2000 to 2021, as well as grey literature including publicly available documents related to NFFB from key government and non-government organisations.

**Summary:** This scoping review will describe the policy approaches implemented in food banks and pantries in industrialised countries since 2000 and highlight opportunities relevant for the Australian food banking system.

**Learning Objectives:** To explore the concept of nutrition focussed food banking, with a specific focus on policy approaches and to identify opportunities for the Australian food banking system to improve public health

## **A scoping review of the diverse ways food justice is conceptualized**

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### **Abstract**

**Background:** Social justice concerns are increasingly penetrating the food security agenda<sup>1</sup>. There is a need to clarify what it means to create a socially just food systems, conceptually and practically. This scoping review explores the diverse conceptualization of food justice, and identifies practices for empowering local communities to achieve food security and justice. For public health to facilitate and realize food justice, more needs to be known about this discursive contribution.

**Method:** A five-step scoping review protocol was used to conceptualize the term 'food justice'. Databases included Web of Science, Scopus, and Medline (OVID) databases. Data was charted and sorted according to country of origin, year published, discipline area, type of study approach and conceptualizations.

**Results:** Of 546 abstracts, 90 peer-reviewed studies were included. Thematic analysis revealed 7 principles of food justice. The frequency of appearance of the principles across 90 conceptualizations included: i) social justice (89%), ii) food security & equity (79%), iii) food systems transformation and justice (56%), iv) community resistance (41%), v) environmental concerns (39%), vi) community participation (28%), vi) Community-led food solutions (18%).

**Conclusion:** It is time to reframe the food security agenda to incorporate principles of food justice and support a shift towards food system transformation and principles of human rights. This shift has important implication for public health and more needs to be done to empower the constrained voices of communities to develop ways to practice food justice.

**Learning Objectives:** Understanding how principles of food justice empower the voice of communities.

1. Moragues-Faus, 2017

## **Building a resilient and nutrition-focused emergency food relief response**

**Authors:** Dr Claire Pulker<sup>1</sup>, Ms Kristy Law<sup>1</sup>, Ms Janelle Healy<sup>2</sup>, Mr Timothy Landrigan<sup>2</sup>, Dr Christina Pollard<sup>2</sup>

**Affiliation:** <sup>1</sup>East Metropolitan Health Service (Perth, WA), <sup>2</sup>Curtin University

### **Abstract**

**Context:** In 2020, several natural disasters and COVID-19 pandemic lockdown measures led to major disruptions of food supply chains across Western Australia. This unique context amplified the risk of food insecurity for existing and new groups of people. An increased demand for services and limited food supply saw unprecedented pressure placed on the charitable food sector.

**Process:** Fair Food WA (FFWA) coordinated a collaborative charitable food sector-wide response during the acute emergency phase. As members of FFWA, we provided public health nutrition expertise and epidemiological advice to recommend the types and amounts of food suitable for differing food relief contexts e.g. non-perishable food hampers.

**Analysis:** The urgency of the required response highlighted a significant gap in preparedness for food assistance in emergency and disaster scenarios. Despite repeated disruptions to the food supply during the pandemic, there are still no national detailed and practical nutrition-focussed food security policies or plans in Australia to guide provision of food relief.

**Outcomes:** We developed recommendations for charitable food provision for:

- Emergency preparedness and immediate response via provision of non-perishable foods for 7 days
- Additional recovery phase provision of fresh and non-perishable foods for ongoing food relief

**Learning Objectives:** The impact of climate change means the frequency and intensity of natural disasters are predicted to increase. The COVID-19 pandemic exposed food supply chain vulnerabilities and presented new groups at risk of food insecurity. Vision, long-term planning and sustained resourcing are essential to establish nutrition-focused food relief guidelines for emergency preparedness.

## **Improving food security among CANZUS Indigenous Peoples through use of participatory processes**

**Authors:** Ms Emma Chappell<sup>1,2</sup>, Prof Yvonne Cadet-James<sup>1,3</sup>, A/Prof Julie Brimblecombe<sup>1,2,4</sup>, Dr Marita Hefler<sup>1,2</sup>, Ms Carmen Vargas<sup>5</sup>

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### **Abstract**

**Background:** Indigenous peoples' responses to food insecurity demonstrate strength and resilience despite ongoing effects of colonialism. Indigenous peoples in CANZUS (Canada, Australia, New Zealand, USA) countries experience food insecurity at greater rates than non-Indigenous counterparts. Participatory research presents an opportunity for developing solutions to this with community members as co-researchers, which aligns with best practice Indigenous research principles. The aim of this study was to explore how participatory research is translated to action to improve food security at community, organisational or societal levels.

**Methods:** Electronic databases were systematically searched for papers covering participatory research with Indigenous populations from CANZUS countries, which contain translational action to improve food security at socio-ecological levels of organisational, community or societal (economic or social policy) levels. A thematic synthesis was undertaken.

**Results:** Twenty-nine papers from 20 studies were selected for inclusion. Most translational outcomes occurred at organisational and community levels; the societal level outcomes that were identified tended towards advocacy actions.

**Conclusions:** Participatory research methods and processes are appropriate ways of working with Indigenous populations to develop evidence for translation to improve food security. The timeframes of academic publishing means societal-level change may be difficult to capture. This research provides critical insights into the translation of participatory research into community and organisational level change.

## **Cost and Affordability of Healthy Diets in Low Socioeconomic Groups in Australia**

**Authors:** Ms Meron Lewis<sup>1,3</sup>, Prof Sarah McNaughton<sup>2</sup>, Prof Lucie Rychetnik<sup>3</sup>, Prof Amanda Lee<sup>1</sup>

**Affiliation:** <sup>1</sup>The University Of Queensland, <sup>2</sup>Deakin University, Institute for Physical Activity and Nutrition, School of Exercise and Nutrition Sciences, <sup>3</sup>The Australian Prevention Partnership Centre, The Sax Institute

### **Abstract**

**Introduction:** Few Australians consume a healthy, equitable and sustainable diet consistent with Australian Dietary Guidelines. A major problem is high intakes of discretionary choices (foods and drinks not needed for health and high in saturated fat, added sugar, salt and/or alcohol). Low socioeconomic groups (SEGs) suffer particularly poor diet-related health. However, granular data on dietary intakes and recommended diet affordability was lacking for low SEGs. This study provides better evidence to support policies to help drive healthier diets in low SEGs in Australia.

**Methods:** The Healthy Diets Australian Standardised Affordability and Pricing protocol was modified for low SEGs to align with relevant reported dietary intakes (National Nutrition Survey 2011-2012), household structures, food purchasing habits, and incomes. Cost and affordability of habitual and recommended diets of low SEGs were calculated using prices of 'standard brands' and 'cheapest options'.

**Results & Discussion:** While total energy intake was similar, habitual diets of low SEGs included less healthy and more discretionary choices than the broader population. With 'standard brands', recommended diets cost less than habitual diets, but were unaffordable for low SEGs. With 'cheapest options', both diets were more affordable, but recommended diets cost more than habitual diets for some low SEGs, potentially contributing to perceptions that healthy food is unaffordable.

**Conclusion:** The study confirms the need to better target nutrition policies to support low SEGs. Action is urgently needed to help improve affordability of recommended diets by further decreasing cost of healthy, relative to unhealthy, choices and ensuring low SEGs have adequate incomes.

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