Seven Strategies for Advancing Sustainable Dietary Patterns:

Leverage Points for Nutrition and Dietetics Professionals

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Background

This report is part of a larger project that aims to explore the potential social impact of nutrition and dietetics professionals in the transitions towards sustainable eating patterns in the population and learn how sustainable food systems (SFS) are implemented in nutrition and dietetics practice settings.

SSHRC CRSH

The project is funded by the Social Sciences and Humanities Research Council of Canada Insight Development Grant.

In this project, we ask:

1. What do we know about how dietary transitions happen?
2. What are Registered Dietitians (RDs) and nutritionists currently doing to influence a shift to more sustainable dietary patterns in the population?
3. What practices are most likely to drive systemic change in dietary patterns?

The objectives are to:

A. Critically appraise the state of the science on the uptake of/transition to sustainable diets,

B. Describe the state of the art: how sustainable food systems (SFS) are implemented in nutrition and dietetics practice settings, and

C. Identify archetypes in different areas of practice.

This report answers the first question, what do we know about how dietary transitions happen?, by critically appraising the literature on transitions to sustainable diets that is most relevant to nutrition and dietetics professionals.

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Summary

Building on our findings published for an academic audience (Srinivasan et al., 2024), this report summarizes the state of the literature in a way that is practical for nutrition and dietetics professionals by answering the question: ***What are the leverage points for facilitating transitions to sustainable dietary patterns that are relevant to nutrition and dietetics professionals?*** Leverage points can be thought of as strategies where small actions can produce changes in a system that are bigger than the action.

Sustainable diets (SD) "*are dietary patterns that promote all dimensions of individuals' health and wellbeing; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable…*" (FAO & WHO, 2019, p. 11). Sustainable dietary patterns are those that support this definition, which is just one of many definitions for sustainable diets.

Nutrition and dietetics professionals (NDPs) are professionally obligated to rely on evidence in decision making (Baladia, 2023). Based on the results of two literature reviews, this report provides seven well-evidenced ways to contribute to sustainable dietary patterns that are relevant to a variety of practitioners based on scope of practice, setting, and role. Two frameworks highlight diverse opportunities: the Socioecological Framework offers a theoretical perspective for understanding the various factors that shape individuals' dietary choices. The Food Systems perspective helps NDPs to see how they work throughout food systems, beyond traditional areas of practice, and facilitate systems thinking.

The seven strategies do not represent an exhaustive list of all leverage points, but rather actions this audience is likely to do. They disrupt systemic challenges in some highly entrenched systems (Loring et al., 2023) that systematically lead to increasing levels of ill health and unsustainable conditions (Broman & Robèrt, 2017). **For each, we summarize the strategy, some important considerations, and tips on how to get started.**

In addition, there are areas for further research that show significant promise: educating tomorrow's professionals as well as assessment and counselling activities in nutrition care settings. We present these and will add them to our pile of things to keep investigating.

In conclusion, we highlight that food systems are interconnected systems and so are our actions. While it may seem inadequate to be working on one small portion of a very large socioecological challenge, **leverage points encourage just that: actions that have effects in the system that are larger than the action itself, in part because they are interconnected**.

SEVEN STRATEGIES

1. Fiscal Drivers
2. Front-of-Pack Food Labelling
3. Institutional Food Policies
4. Catering at Institutions
5. Retail-Level Marketing
6. Communication and Social Marketing
7. Food Literacy

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Context

Purpose of this Report

This report is one output of research investigating the social impact potential of nutrition and dietetics professionals on transitions to sustainable dietary patterns. This report summarizes the available evidence to answer the question: *What are the leverage points for facilitating transitions to sustainable dietary patterns that are relevant to nutrition and dietetics professionals?*

Shifting toward sustainable dietary patterns is critical to sustainable development (Springmann et al., 2018) and is identified as one critical impact area, alongside reducing food waste (Garnett, 2011, 2016) to safeguard life as we know it on this planet (Willet et al., 2019). Leverage points can be thought of as places where small actions can produce changes in a system that are bigger than the action. This report is intended for nutrition and dietetics professionals working in diverse areas of practice who want guidance on well-evidenced action areas to contribute to broader sustainable healthcare and sustainable development through their work on diets and dietary patterns.

We strive to provide a variety of examples that are relevant and actionable. Most of the research comes from highly industrialized nations with a "Western" culture, as the research project focused on the contexts in Canada, the United States, the United Kingdom, and Australia. As such, some parts of it may be less relevant to practitioners in very different economic and cultural contexts.

Relevance for Nutrition and Dietetics Professionals

Nutritionists and dietitians are health professionals who promote health through food and nutrition (ICDA, n.d.). The terms Nutritionist and Dietitian (and variations) are used to define accredited health professionals' scope of practice in varying ways across jurisdictions. Globally, nutrition and dietetics professionals consider sustainable dietary patterns important (Carlsson & Callaghan, 2022; Finlay & Carlsson, 2021; Muoz-Martnez et al., 2023). Dietary patterns that promote health are dependent upon the integrity of our sociological systems – for basic things like soil, sunlight and water, but also people who make food value chains function, bringing food from the field and stream, to your door. They also impact these systems.

Nutrition and dietetics professionals are professionally obligated to apply an evidence-based practice model to decision making (Baladia, 2023). Currently, practitioners are working toward action as evidence becomes available, which increasingly, it is (Willett et al., 2019). Part of our research is to understand which actions are being implemented in practice. In this report, we hope to link those actions with evidence, even if theoretical, as these professionals have a significant opportunity to drive social change in dietary behaviours.

To our knowledge, this is the first report to capture the theoretical potential of this professional group: what nutrition and dietetics practices are most likely to drive change that supports a future where healthy populations live within the limits of our socioecological systems. This is not the work of NDPs alone. We will not, and can not, do this alone. Some of the leverage points described in Part 3 are most likely to be effective if approached collaboratively, with others from relevant disciplines and sectors, or with community partners. As others have already suggested, it may be useful, when doing sustainability-informed work, to re-envision our roles as professionals who translate, facilitate, advocate, agitate, and innovate (Boak et al., 2022).

Sustainable Dietary Patterns

Day-to-day diets vary widely at the individual-level, but what is most important for their health outcomes is the overall dietary pattern. Individual dietary patterns, cumulatively, make up population-level dietary patterns, which have the most impact on sustainability outcomes. Our focus on diets, rather than food systems as a whole, is intentional; the majority of NDPs are working on food, nutrition and human health through dietary intake.

Sustainable diets (SD) "*are dietary patterns that promote all dimensions of individuals' health and wellbeing; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable. The aims of Sustainable Healthy Diets are to achieve optimal growth and development of all individuals and support functioning and physical, mental, and social wellbeing at all life stages for present and future generations; contribute to preventing all forms of malnutrition (i.e., undernutrition, micronutrient deficiency, overweight and obesity); reduce the risk of diet-related non-communicable diseases; and support the preservation of biodiversity and planetary health. Sustainable healthy diets must combine all the dimensions of sustainability to avoid unintended consequences.*" (FAO & WHO, 2019, p. 11). Sustainable dietary patterns are those that support this definition. We know that this is just one of many definitions for sustainable diets, it is well recognized in the cultural context in which this literature and research is centred.

Translating the definition of sustainable diets into dietary patterns (relevant to industrialized, Western nations) has been well described (Bastian et al., 2021; Dietitians of Canada, 2020; FAO & WHO, 2019; Lawrence et al., 2019; Seed & Rocha, 2018; Willett et al., 2019). With this in mind the following principles describe population trends, not rigid rules for each individual. There is increasing agreement that sustainable dietary patterns include, but are not limited to:

- Breastfeeding (FAO & WHO, 2019; Seed & Rocha, 2018)
- Shifting toward less animal-sourced foods, in particular red meats, and more plant-sourced foods, in particular legumes, fruits and vegetables (Bastian et al., 2021; FAO & WHO, 2019; Lawrence et al., 2019; Seed & Rocha, 2018; Willett et al., 2019)
- Engaging in local food and territorial food systems (Bastian et al., 2021; Dietitians of Canada, 2020; IPES-Food, n.d.; Lawrence et al., 2019)
- Consuming seasonal, field-grown fruit and vegetables (Seed & Rocha, 2018)
- Choosing certified foods (e.g., sustainably certified fish) (Bastian et al., 2021; Seed & Rocha, 2018)
- Limiting/avoiding consumption of processed foods (Bastian et al., 2021; FAO & WHO, 2019; Lawrence et al., 2019; Seed & Rocha, 2018; Willett et al., 2019)
- Reducing waste (Bastian et al., 2021; FAO & WHO, 2019; Lawrence et al., 2019; Seed & Rocha, 2018)
- Moderating consumption (Health Canada, 2019; Lawrence et al., 2019)

Barbour et al, (2021) emphasize that many of these behaviours also trigger changes in food environments and policy due to changes in consumer demand. In the remainder of this report, well-evidenced leverage points are described that facilitate behaviour change toward one or more of these dietary patterns.

Framing this Work

In this report we share recommendations based on evidence and likelihood that NDPs would be able to work on one or more of these within the scope of their practice, setting, and role. We used two frameworks that, when used together, highlight the diverse opportunities, help identify who else may need to be involved, signpost areas where more action may be needed, and most importantly, see an important contribution in context without having to take on the whole.

The Socioecological Framework

The Socioecological Framework offers a theoretical perspective for understanding the various factors within human socioecological systems that shape individuals' dietary choices. This framework has been used to understand factors impacting healthy eating (Story et al., 2008); we use it to organize leverage points in a way familiar to NDPs and recognizable to their diverse practice roles.

Political and cultural environments include culture, policy, social and physical infrastructure. Many NDPs work on population health or food policy, poverty reduction strategies, social marketing, etc.

Physical environments include the settings where people eat, prepare and access food, such as schools, restaurants, and supermarkets. Many NDPs are designing healthy, sustainable menus and policies for, and addressing food waste in, these settings.

Social environments include family and friends. NDPs work with communities to promote community, food security, cultural food, and knowledge exchange.

Individual factors such as knowledge, skills, motivations, and self-efficacy, shape individual food choices. NDPs work with individuals to navigate healthy, sustainable dietary patterns through activities such as budget friendly strategies, food skilling, and specific food choices.

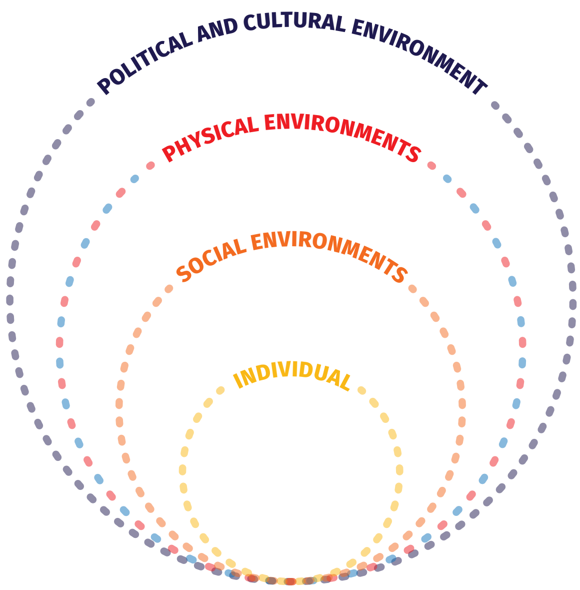

Figure 1: Socioecological Systems Impacting Dietary Patterns

Important to this theoretical framework is the interactions of these system levels. The socioecological framework promotes considering how any one action is supported or undermined by how it is integrated into other contexts and systems. Integrated approaches are important for shifting toward sustainable dietary patterns (Black et al., 2015).

A Food Systems Perspective

Food systems can be conceptualized as complex and dynamic systems encompassing interrelated subsystems. Figure 2, adapted from Nourish (Nourish, 2013), highlights how NDPs work in settings throughout food systems as levers of systemic change (Goodridge et al., 2022).

Using a food systems framework helps NDPs to see how they work throughout food systems, and that their potential work is not limited to traditional areas of practice (often considered clinical, community and public health). It also helps facilitate thinking about the inter-related systems within food systems that influence population level dietary patterns.

Systems thinking is described as a way of seeing wholes rather than parts, and relationships and dynamic patterns rather than static snapshots (Senge, 1990). The ability to communicate about the complexity of food systems and to see linkages between nutrition and other sectors is valuable in all dietetic practice settings (Hege et al., 2021), as is the ability to identify intervention points in complex problems, causes and unintended consequences (Bergquist, 2023). Sometimes these intervention points have a high level of leverage, because they will have impacts across many subsystems and therefore create changes larger than the immediate action. Using both a socioecological systems and food systems framework to analyze our action areas helps to identify actions that can be tackled collaboratively in a strategic, coordinated way.

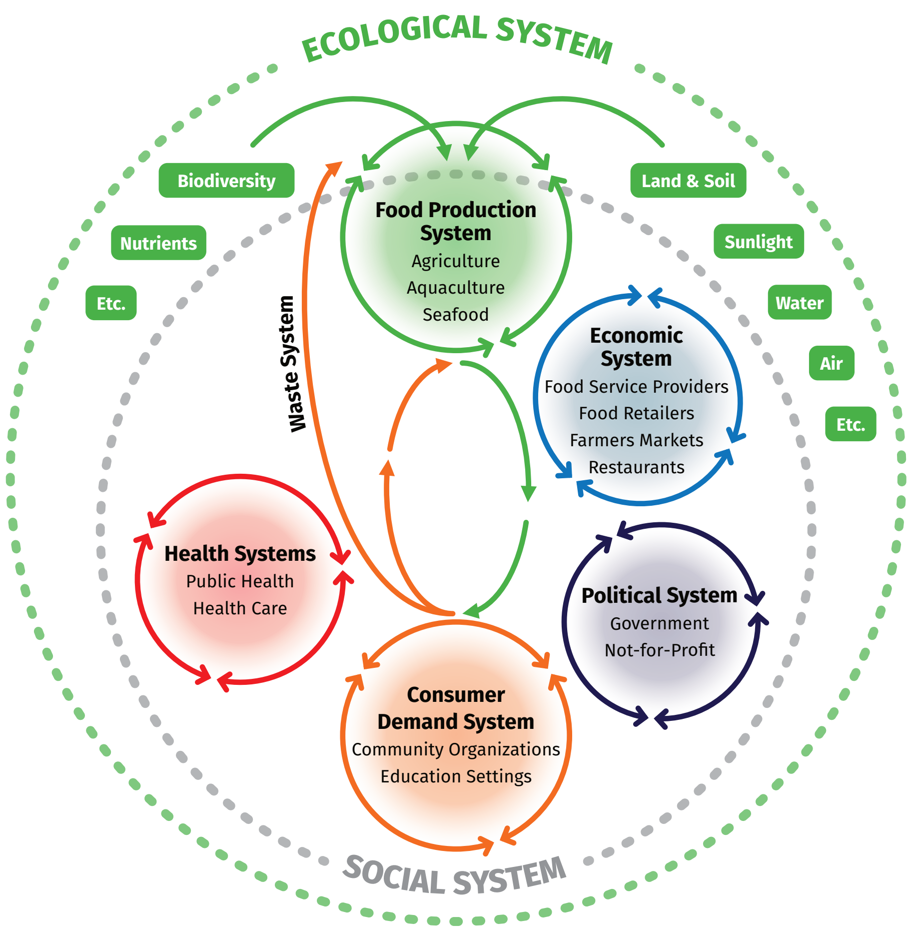

Figure 2: Food Systems, Sub-Systems, and NDP-Relevant Settings.

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Methods

This report is based on the results of two literature reviews that investigated the best available evidence to answer the question: What are the leverage points for facilitating transitions to sustainable dietary patterns that are relevant to NDPs? One used systematic scoping review methods to understand consumer choices (Srinivasan et al., 2024) and the other used narrative literature review methods to understand factors in the social, physical and sociopolitical environment. The combined results of these reviews have been analyzed using the two frameworks previously described to understand where evidence for actions relevant to NDPs converge to inform the identification of useful, evidence-informed leverage points.

Evidence-Based Leverage Points

The following section describes what NDPs can do to help contribute to SFS. This is not an exhaustive list of all evidenced actions. The list of leverage points has been developed based on actions NDPs are likely to do, attention to generating a diversity of leverage points across socioecological systems and food systems levels, and the strength of the evidence behind the leverage point. They are intended to focus on what the literature tells us is a “root cause” for challenges, and likely to help disrupt some highly entrenched systems (Loring et al., 2023) that lead to increasing levels of ill health and unsustainable conditions (Broman & Robèrt, 2017). Table 1 summarizes the leverage points in the context of the location of the leverage point across socioecological and food systems (Figures 1 and 2). Some may impact slower, more systemic change (e.g., food labelling), while others may have more rapid yet less systemic change (e.g., food literacy).

Table 1: Summary of High-Leverage Actions

High-Leverage Actions	Location in Socioecological and Food Systems
1. Fiscal Drivers	POLITICAL & CULTURAL ENVIRONMENTS POLICY SYSTEM; ECONOMIC ENVIRONMENTS
2. Food Labelling	SOCIO-POLITICAL ENVIRONMENTS POLICY SYSTEM; ECONOMIC SYSTEM
3. Institutional Food Policies	PHYSICAL ENVIRONMENT HEALTH SYSTEM; CONSUMER DEMAND SYSTEM
4. Catering at Institutions	PHYSICAL ENVIRONMENT HEALTH SYSTEM; CONSUMER DEMAND SYSTEM
5. Retail-level Marketing	PHYSICAL ENVIRONMENT ECONOMIC SYSTEM
6. Communication and Social Marketing	SOCIAL SYSTEM CONSUMER DEMAND SYSTEM
7. Food Literacy	INDIVIDUAL LEVEL CONSUMER DEMAND SYSTEM

Footnote to table 1: *Colours match level of the socioecological system depicted in Figure 1, for visual emphasis.*

1. Fiscal Drivers

"Don't leave it to industry goodwill or enlightened self-interest." (TABLE Debates, 2015)

Fiscal drivers in the food system are financial policy tools that influence food systems, including consumer behaviour. Examples of fiscal incentives relevant to nutrition and dietetics professionals include rebates, tax breaks and subsidies. Examples of fiscal disincentives include taxes. Both can occur at any step in food supply chains, and most commonly target the consumer, processor or producer.

For NDPs, fiscal drivers can be important levers that help to make healthy, sustainable food more affordable and available; the latter through product reformulation (Park, 2020; Ranganathan et al., 2016). This is an area where NDPs can engage in strong advocacy, as it influences the food environment and the commercial determinants of health: actions and conditions created by companies that impact health (World Health Organisation, 2023).

Make Healthy, Sustainable Dietary Patterns Affordable

Household income is a key determinant of food choice, and as such, regulating the cost of food can help to moderate purchasing patterns. This section describes what is known about various fiscal drivers used to modify the price of foods for which we want to decrease or increase consumption.

Decreasing subsidies to foods that need to be reduced in dietary patterns, or more strongly, taxing them, has potentially strong leverage (Park, 2020; Pineda et al., 2024). Much of the evidence is based on experiments with fiscal incentives focused on sugar-sweetened beverages, and foods high in sugar, fat and salt in highly processed foods. Some countries subsidize, at the producer level, staples like maize, and this drives the production and use of corn syrup in (mainly) highly processed food products and consequently, free sugar intake (Park, 2020) to well above the 10% recommended by the World Health Organization.

Pass through is an important consideration and refers to how much of the dis/incentive is passed on to consumers. This will influence whether and how much consumer behaviour will change. Taxes that have high pass through (e.g., 80% passed on to consumer), and therefore meaningful impact on the price of foods deemed "unhealthy," have been shown to decrease consumption of that product (Pineda et al., 2024; Ranganathan et al., 2016). This has been tried in Mexico, Denmark, Chile, France and a growing number of other countries and subnational regions (Newfoundland and Labrador). At the consumer level, higher tax rates are more effective than lower rates in reducing sales and intake (Pineda et al., 2024)); taxes affect consumption at approximately a 1:1 ratio – for every percent increase in tax, there is approximately 1% decrease in consumption (Ranganathan et al., 2016).

Theoretically, decreasing the cost of foods we want to increase consumption of is also a powerful tool. While the body of research is small for subsidizing fruit and vegetables, for example, it is likely to work. The more important question is: at what level of support will this strategy make an impact on dietary patterns?

Fiscal drivers to reduce population level meat consumption are also being explored. As country-level wealth increases, the amount of meat and dairy consumed by mainly the middle class increases (Popkin & Du, 2003). This impacts human health outcomes such as some diet-related diseases and some cancers (The Lancet, 2020). Meat production also is associated with high levels of greenhouse gas emissions and other environmental impacts; though this varies significantly by production method, the overall recommendation is to decrease from current consumption patterns in wealthy, industrialized countries.

However, many governments subsidize meat production, and this is a major barrier to decreasing consumption (Park, 2020) because it lowers the cost of production, and thereby the consumer price. Reducing or removing subsidies will likely result in consumer costs that are truer to the cost of the food, but also would have significant impacts on producer livelihoods, where producer business models have developed over time to incorporate those subsidies. This can impact the social fabric in communities and is an example of how an action in one area will have unintended negative consequences in another.

Various types of consumer-level meat taxes are also being discussed (Park, 2020) to down regulate consumption. One option being explored is carbon taxes, which has an expected high potential impact on decreasing population-level red meat consumption (Park, 2020).

Drive Reformulation

At the producer and processor level, well-designed taxes on carbon or nutrients of concern can drive product reformulation. Product reformulation can include recipe changes so that the nutrient profile avoids or meets thresholds set by the taxes (e.g., lower carbon emissions or sugar content). Such incentives are suggested by behavioural scientists to drive innovation that makes small, incremental changes to food environments, improving the health and sustainability of what is available among processed or highly processed foods. The most well known and tested example is the sugar tax. Sugar taxes at the producer and processing level in the UK have driven reductions in calorie content through industry reformulation (Park, 2020). This approach can help to mitigate inequities in consumer level penalties.

Considerations

The World Health Organization recommends careful consideration of contextual factors that will impact the effectiveness of fiscal drivers. These include: values, resource implications, equity and human rights, acceptability, and feasibility (World Health Organisation, 2021b). Some important messages that are echoed in the literature are summarized here.

Those with the lowest incomes (and therefore the least flexibility in their food budgets) are much more sensitive to price changes and therefore are most responsive to them (Pineda et al., 2024). This needs to be considered (see below) for equity reasons. Governments are, rightly, reluctant to penalize those most vulnerable (Ranganathan et al., 2016). Subsidies can be used to offset fiscal drivers that disproportionately impact low-income households (Pineda et al., 2024), such as subsidizing fruit and vegetables, and where livelihoods that are dependent on affected foods are at risk (e.g. beef farming).

Taxes placed at the production level risk simply damaging industry and shifting sourcing to another untaxed country (Ranganathan et al., 2016). Similarly, consumers who live near borders can simply cross-border shop (as happened in Denmark), and so this may limit effectiveness of consumer-level taxes. For this reason, regional tax alignment may be important for effectiveness.

Consider strongly what the consumer might “switch” to – and respond appropriately. This is referred to in the literature as the substitution effect, which encourages consideration of whether the likely alternative is more healthy and sustainable. If no, then what needs to happen to facilitate a more sustainable alternative? Significantly higher tax rates that target all the foods in that food category help to avoid simple substitutions, and are important to ensure the intended health outcomes. Also, the strongest evidence for health outcomes combine taxation of foods high in fat, salt and sugar with subsidies on healthy foods (Pineda et al., 2024). Furthermore, supporting consumers to switch to whole, unprocessed alternatives (e.g., free, clean water) is an important consideration.

It is important that fiscal incentives be data-driven. Much of the research uses changes in weight and BMI, or obesity, as a health outcome measure, which has equity and other measurement challenges (BMI is not a health outcome but can be used as a predictor of population-based risk likelihood). As a result, generalizability of health outcomes data should be considered in this context. Food costing initiatives monitor the fiscal determinants of dietary patterns and can serve as strong evidence for designing and monitoring the effectiveness of data-driven fiscal interventions. There are peer-reviewed protocols available (Lee et al., 2013).

Before advocating for any fiscal incentives or disincentives, it is important that NDPs take the time to learn about what the current tax structure is in their own jurisdiction, as this varies significantly. These are ideas to spark action based on the current policy structure.

"Nanny-state" arguments against government-imposed fiscal drivers centre on government interference and free choice. These ignore not only the social and societal cost of non-communicable diseases related to diets (Pineda et al., 2024), but they also naively ignore insidious commercial interference in food choices. Be ready to understand, defend, and publicise that such references to "free choice" are in part a fallacy, and there is a need to level the playing field for those producing and promoting nourishing food; this is also tied to agency and sovereignty over food systems.

How to Start

- Take the time to learn about what the current tax structure is in the relevant jurisdiction.
- Advocate through professional networks and associations.
- Respond to government consultations on related subject.
- Get involved in food policy councils.
- If you are involved at policy tables considering fiscal drivers, consider critical questions suggested by Thow et. al. (2018). See reference for full list.
    - What type and rate of tax is needed to influence behaviour?
    - What is the evidence of the impact of a food or nutrient on disease/health?
    - What is the evidence that price changes would encourage behaviour change?
    - How feasible is it to introduce a fiscal policy within the existing tax system?
    - What impact will the policy have on equity?
    - How will the industry respond to the policy?

Learn More

1. For a high-level look at the issues, please see: What can be done to shift eating patterns in healthier, more sustainable directions? Tara Garnett & Jessica Finch. https://tabledebates.org/chapter/what-can-be-done-shift-eating-patterns-healthier-more-sustainable-directionsRanganathan

2. For a more in-depth look at important considerations in broader global jurisdictions, please see the 2024 WHO Guidelines on Fiscal policies to promote healthy diets. https://www.who.int/publications/i/item/9789240091016 as well as its predecessor: Implementing Fiscal and Pricing Policies to Promote Healthy Diets: A Review of Contextual Factors https://hivebrite-chproduction.s3.eu-central-1.amazonaws.com/shrine_store/uploads/networks/192/communications/31780/d5a0fa94dc3fd6699d3e643240a089de.pdf.

3. For more information about the Commercial Determinants of Health, please see: World Health Organisation. The Commercial Determinants of Health: https://www.who.int/news-room/fact-sheets/detail/commercial-determinants-of-health

4. For a recent review of health taxes, please read: Pineda E, Gressier M, Li D, et al. Review: Effectiveness and policy implications of health taxes on foods high in fat, salt, and sugar. Food Policy. 2024;123:102599.

2. Front-of-Pack Food Labelling

"Still, information and education can be a valuable ingredient in a broader effort to shift consumption… In many cases, information can lead to indirect or multiplier effects, by raising the profile of an issue, prompting product reformulation (in the case of labeling), or forming the basis of food and nutrition policy and programs (e.g., national dietary guidelines)." (Ranganathan, 58)

Front-of-pack food labels are one leverage point for nutrition and dietetics professionals interested in contributing to SFS (Alberdi & Begiristain-Zubillaga, 2021; Garnett et al., 2015). Front-of-pack labels differ from nutrition labelling in general in that they are intended to be interpreted at a quick glance. Latin and South America have led the world in research and practice and have good evidence that it can make a difference to consumption patterns (Fretes et al., 2023; Gomes et al., 2024). For the purposes of this report, we are talking about nutrition labels and eco labels.

Front-of-pack labels are generally regulated by governments (though not always), and can be voluntary or mandatory. The World Health Organization recommends that they be interpretive, helping consumers not just see nutrient information, but also help inform consumers about foods and nutrients that experts recommend we eat more or less of in our dietary patterns. Examples include "traffic light" ranking systems used in the United Kingdom and "stop sign" nutrient warnings used in many South American countries.

Eco labels are generally not regulated by governments, though third-party certified, and are useful to inform consumers about food product choices that adhere to specific environmental, social and ethical standards. They tend to provide sets of standards for sustainability-related issues such as ethical trade standards, sustainably caught seafood, and organic production standards. Examples of eco-labels include third-party certification schemes such as the Eco Impact score being championed by Foundation Earth (Foundation Earth, n.d.), which uses a data-driven approach to environmental scoring food products, or the V-Label (V-Label International, n.d.) for vegan and vegetarian products and services.

Food Labels and Individual Choice

Front-of-pack labelling provides less nuanced information than nutrition labels, but they are easy for consumers to quickly make informed decisions. Though the evidence is mixed (An et al., 2021), it is clear they do have a modest impact on population-level dietary patterns through their influence on individual/consumer behaviour emotions, perceptions and intentions (Beattie & McGuire, 2020; Grummon & Hall, 2020; Ranganathan et al., 2016). There is sufficient evidence to recommend governments implement mandatory schemes, and experts advise that warning labels are most likely to have the strongest influence on population dietary patterns (Roberto et al., 2021). Third-party eco-certification labels have a modest but worthwhile potential to drive consumer purchasing (Garnett et al., 2015; Guyader et al., 2017; Park, 2020; Pelsser et al., 2022). French consumers who are considered "values-seeking" consumers are prioritizing aspects of sustainability and prefer products with eco-friendly certifications (Camanzi et al., 2024).

The influence of nutrition labels has been critiqued in that they are unlikely to change behaviour on foods we don't eat for health reasons (Ranganathan et al., 2016), and therefore likely also for sustainability reasons. However, with the focus of this report on dietary patterns, "treats" are not the point. Food labeling on packaged, staple foods that are part of our dietary patterns have the most powerful leverage: e.g., processed grain products, dairy and non-dairy alternatives, ready-made meals, etc., because it can drive more powerful impacts at various other systems levels (institutions, food industry, policies, etc.). There is strong evidence that warning labels (most commonly octagonal "stop signs") are effective at dissuading consumer purchasing on food products that, when part of a dietary pattern, cause harm (Song et al., 2021). This is true even when the consumer is not looking for nutrition information (Ares et al., 2023). Furthermore, adult consumers with low education levels in come countries preferred warning labels (Nieto et al., 2019),indicating that it may be a more equity-informed approach.

The Bigger the Better

Lessons from such warning labels on tobacco products taught us that there is a dose-response effect between the size of the warning label and consumer response. For example, the small magnifying glass used in Canada and Brazil to prompt consumers to examine certain nutrients more closely, is not recognized by the Pan American Health Organization as a warning label as it is too small. Ensuring that the label is of meaningful size is an important consideration.

Drive Healthy Food Environments

Front-of-package nutrient warning labels, in combination with other mechanisms like advertising bans, have been shown to effectively decrease the intake of sugar, saturated fats and sodium in children in school settings (Fretes et al., 2023). Some experts feel that labels that warn consumers about high levels of nutrients of concern (sodium, sugar, saturated fats, etc.) should be mandatory (Pelsser et al., 2022).

Eco-labels at the supermarket level (Park, 2020) are likely to increase the sustainability of retail food environments though clearer consumer-facing information and incentivizing product reformulation to meet the eco-label thresholds. At the supermarket level, there is autonomy to amplify the messaging through multiple branding and product placement opportunities.

Labels, like fiscal drivers, can also drive reformulation at the processor end (Pelsser et al., 2022; Ranganathan et al., 2016) as food industry players may seek to avoid poor packaging optics. This is especially true of warning labels. Driving product reformulation has broader reaching implications on population-level patterns as discussed above under fiscal drivers.

Improve Food Literacy and Attitudes

Attitudes have a strong but nuanced effect on purchasing food choices (Camanzi et al., 2024), and the reverse is also true. Individual actions can contribute to population-level increases in public food literacy and attitudes that are supportive of broader policy interventions; this helps drive systemic change (Park, 2020; Ranganathan et al., 2016). So, using front-of-pack labels can influence awareness, literacy, attitudes, and public demand for healthier, more sustainable food systems. This may be especially helpful when there are perceived trade-offs, such as changes to cost influenced by fiscal drivers.

Considerations

As professionals in this field, it goes without saying that any front-of-pack labels need to be easy to understand for the audience – for the consumers – not professionals (Roberto et al., 2021). This is important to account for varying literacy and food literacy levels. However, their influence over positive dietary choices is likely to be limited to those with the financial agency to attend to them (and therefore an equity issue) because many, especially eco-labels, drive the price up (Guyader et al., 2017).

There are many options for front-of-pack labels, but some argue that for equity reasons, and to avoid industry selective processes, they need to be mandatory, federally regulated and transparent (for example, how they are calculated) (Alberdi & Begiristain-Zubillaga, 2021; Garnett et al., 2015; Guyader et al., 2017; Pelsser et al., 2022). However, federal food regulations can be very slow processes, and nutrition and dietetics professionals, especially those working in industry or retail settings, may find the evidence for leverage at the retail level a more accessible intermediate action to support healthy and more sustainable food environments.

The magnitude of the health impacts such labels can influence is linked to the stringency of the rules (measurement criteria, integration with other policies, etc.) (Fretes et al., 2023). In developing and influencing labelling rules, consider strongly integrated approaches that target both individual behaviours and industry standards.

This is a space that is highly contested in some countries; however, it has worked very well in Latin America, where the rights to health and protecting children seem to have superseded commercial rights. Considering the cultural and legal landscape is important for designing labels that will work, or whether this strategy is the most effective in your context.

How to Start

- Advocate through professional networks and associations for stronger nutrition labelling environments where you work.

- Respond to industry, government and international consultations on related subjects, such as the current (2024) World Health Organization consultation on nutrition labelling policies. Consider healthy and sustainable dietary patterns in your responses.

- If you are working directly on Front-of-Pack Labelling, take the time to understand the context of labelling in your own nation/jurisdiction (e.g., legal context) and how that can impact advocacy strategies.

- Read the World Health Organization's *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets* for more information on stakeholders, government engagement and different formats used: https://www.who.int/publications/m/item/guidingprinciples-labelling-promoting-healthydiet

Learn More

1. Our colleagues at the UNC Chapel Hill have prepared a comprehensive, well referenced fact sheet on front-of-package labeling to empower consumers and promote healthy diets (Global Food Research Program, UNC-Chapel Hill): https://www.globalfoodresearchprogram.org/resource/fopl-fact-sheet/

2. Join the World Health Organizations Food Systems Community of Practice on this topic: https://www.who.int/teams/nutrition-and-food-safety/multisectoral-actions-in-food-systems/community-of-practice

3. The World Health Organization is in the process of developing guidelines on nutrition labelling policies. At the time of writing this report, they are not complete. We recommend that you search the WHO site for updates in evidence.

4. For more information on the effectiveness of eco-labels, please read:

    - Grunert, K. G., Hieke, S., and Wills, J. (2014). Sustainability labels on food products: consumer motivation, understanding and use. Food Policy 44, 177–189. doi: 10.1016/j.foodpol.2013.12.001

    - Repository of Eco-Labels: https://www.ecolabelindex.com/ecolabels/

    - EIT, funded by the European Union, is an excellent repository of information on innovative food-systems levers. They have done excellent work on food labelling: https://www.eitfood.eu/blog/do-food-labels-promote-healthy-eating-in-europe

3. Institutional Food Policies

"Policies can facilitate effective integration of climate planning into food production, environment and human health policy... For example the Farm to Institution New York State policy aims for government-run institutions to spend at least 25% of their food dollars on food grown in New York." (Carino et al., 2023)

Institutional policies are those that govern the strategies, funding and processes carried out within institutional settings, including publicly funded schools, hospitals, universities, long term care facilities and prisons. Policies that impact food in institutions can exist at the government or ministerial level, or can be developed and implemented internally (e.g., university policy). Food procurement policies at public schools are one of the more common institutional policies (Barbour et al., 2022), but there are also growing numbers of examples in hospital or health settings as well (Kennedy et al., 2020). Institutional policies have been identified as a key area for growth based on their effectiveness at shifting behaviours amongst large groups of people who interact with the setting on a regular basis (Alberdi & Begiristain-Zubillaga, 2021; Barbour et al., 2022).

Leverage the Container Principle

Institutions are containers for human experience; they are defined places with defined activities where people spend time (often a lot of time) in specific roles. They can be set up to shape learning and behaviour that is responsive to the design of the container. For example, children will respond differently to classrooms (the container) if they are set up with groups of communal tables and comfortable chairs than they would in rows of forward-facing desks with hard chairs. Similarly, busy nurses in a hospital will adopt different food behaviours if the quickest, most accessible options are from vending machines than if they had access to free bowls of self-serve, seasonal fruit in the lunchroom. We can shape the container to challenge, support, teach, adapt and promote desirable behaviours.

Research examining food environments(such as those within the institutional settings listed previously) has clearly demonstrated that increasing access to healthy, affordable food options, such as more fruits and vegetables, will increase intake of such food and lead to better health outcomes (Bivoltsis et al., 2020). However, it is unlikely that this will be driven by demand alone. Publicly funded institutions are promising settings to leverage change in our food environments (Alberdi & Begiristain-Zubillaga, 2021; Barbour et al., 2022; Black et al., 2015; Eustachio Colombo et al., 2021; Fretes et al., 2023; Garnett et al., 2015); in this setting, policies are one powerful mechanism. Sustainability and food-related policies at this level can influence day-to-day activities within the institutional setting, such as resource allocation to invest in certain infrastructure (e.g. food service models) and systemic changes (e.g., menu development). An example from the school setting involves regulatory policy regarding the nutrient quality of foods served. This was one of a package of health policy measures implemented in Chile from 2016 to 2019, and epidemiological research demonstrated positive effects on consumption of foods (measured through nutrients of concern) amongst children who interacted with these school settings. Fretes et al., (2023). argue that strong, sustainability-informed national food based dietary guidelines can support a healthy, equitable school food environment that supports SFS.

Considerations

The process of developing, implementing and evaluating institutional policy is best achieved through a collaborative, co-design approach drawing upon the perspectives of topic experts as well as the end-users of the policy. As a result, this process often brings together people from different disciplinary, technical and lived-experience perspectives which means that unanimously understood definitions of key terms within the policy are critically important (Alberdi & Begiristain-Zubillaga, 2021). For example, the term sustainability is often interpreted with various meanings, and if not defined clearly within the context of the food policy, could lead to diffused or contradicting outcomes (Black et al., 2015).

Institutional food policies are most effective if they employ a systems perspective, considering and affecting the many interrelated actors and processes that are part of the setting. Effective policies are coherent or aligned with existing policies both horizontally (across same-level departments or services) and vertically (with policies implemented at levels higher up within the institution) (Barbour et al., 2022; Barbour et al., 2023; Parsons & Hawkes, 2019). For example, a food policy will be most effective if it reinforces the intentions of other institutional policies, for example those that aim to influence organizational process, such as staff recruitment and training, procurement and food waste management (Alberdi & Begiristain-Zubillaga, 2021; Cutbill et al., 2024; Eustachio Colombo et al., 2021).

The policy-making process requires support from leadership and adequate funding to be effective; for example, having access to equipment required to implement new or updated activities defined within the policy (Eustachio Colombo et al., 2021). Food policies with horizontal and vertical coherence are most likely to be adequately funded as they will align with other activities within the institution. This is likely to lead to improved resourcing, training, support, and advocacy that will allow for better integration of policy activities that support healthy and environmentally SFS (Black et al., 2015).

For example, NDPs working in a clinical setting will have greater success adhering to an institutional policy if the activities align with professional standards of practice and protocols (Alberdi & Begiristain-Zubillaga, 2021). This is an important consideration for NDPs involved in training future health professionals as they must prepare students to consider and be aware of the policy landscape within the setting that they're practicing. Integrating SFS education and planetary health education in NDP training has been suggested as critical to supporting this work (Alberdi & Begiristain-Zubillaga, 2021; Finnegan et al., 2024; Towards 2030, n.d.; Wegener et al., 2018, 2024).

How to Start

- Assess the container: What is the current culture or appetite for policy change? What historical and current food policy activities have been invested in? What opportunities exist to take a food systems approach to food policy-making (see below)?

- Build a team: identify key allies and strategic partners in your organization, and beyond, and start talking to them. Ensure you involve end-users (those who will be leading or working to implement the policy) from the get-go. Seethe Food Infrastructure for Planetary Health (Cutbill et al., 2024) for advice on building effective partnerships if needed.

- Co-create a vision with your team, being sure to think about how this work will impact systems that all stakeholders are part of and any unintended actions.

- Explore food policy examples from other institutions and learn about what has been effective in similar settings.

Learn More

1. The World Health Organization has guidance on how to develop or strengthen healthy public food procurement and service policies. While intended for government-level work, the framework is helpful for institutional work: Action framework for developing and implementing public food procurement and service policies for a healthy diet (World Health Organisation, 2021a)

2. Barbour and colleagues provide a good review of the literature of local government food policies (which include examples of institutional policies) and their context: Barbour, L., Lindberg, R., Woods, J., Charlton, K., & Brimblecombe, J. (2022). Local urban government policies to facilitate healthy and environmentally sustainable diet-related practices: Ascoping review. Public Health Nutrition, 25(2), 471–487. https://doi.org/10.1017/S1368980021004432

3. Taking a Food Systems Approach to Policymaking: A Resource for Policymakers https://icdasustainability.org/report/taking-a-food-systems-approach-to-policymaking-a-resource-for-policymakers/

4. Carino S, Collins J, Malekpour S, Porter J. The role of policy in supporting environmentally sustainable foodservice in healthcare: lessons from exemplar hospitals. Front Nutr. 2023 Jul 3;10:1122911. doi: 10.3389/fnut.2023.1122911. PMID: 37465142; PMCID: PMC10350494.

5. Faulkner K, Collins J, Gilbertson HR, Porter J. Local food procurement by hospitals: a scoping review. J Hum Nutr Diet. 2023; 36: 2219–2233. https://doi.org/10.1111/jhn.13178

6. For university-specific guidance, see: Grech, A., Howse, E., & Boylan, S. (2020). A scoping review of policies promoting and supporting sustainable food systems in the university setting. Nutrition Journal, 19(1), 97. https://doi.org/10.1186/s12937-020-00617-w

7. Examples of institutional policies:
   - University Food Policy https://sustainability.acadiau.ca/files/sites/aiae/Food/Acadia%20Food%20Plan%20December%202018_Final.pdf
   - Green Hospitals (https://greenhospitals.org/) Procurement Policy (Draft): https://greenhealthcare.ca/wp-content/uploads/2016/02/GreenProcurement-PolicyandProcedureManual-DRAFT.pdf

4. Catering at Institutions (schools, hospitals, universities)

Catering at institutions is one way that NDPs working in historically traditional roles, such as in hospital, school, university, long-term care or penitentiary food service operations, can get involved in shaping healthier and more sustainable food environments. Generally, these are publicly funded facilities; however, nutrition and dietetics roles are dynamic, and this can be adapted and tested in any environment where people spend their days and also their mealtimes.

Publicly funded institutions are an excellent setting for influencing sustainable dietary patterns through menu change (Alberdi & Begiristain-Zubillaga, 2021; Barbour et al., 2022; Garnett et al., 2015; Park, 2020). School food programs can help to address issues of equity in access to sustainable diets and encourage sustainable consumption patterns through role modeling food choices (Food Secure Canada, 2021). How the menu changes are rolled out will affect their effectiveness.

Design a Menu that Reflects Policy

Catering standards and regulations to influence planning and public procurement policies are needed (Garnett et al., 2015) and can support effective implementation of sustainable catering.

In public schools, research supports starting in early childhood to normalize sustainable dietary patterns socially and sensorily, and gradual menu shifts are encouraged (Eustachio Colombo et al., 2021; Sparkman & Walton, 2017). Research also supports initiating the program with small incentives to reduce food waste and encourage uptake (Volpp & Loewenstein, 2020).

Consider choice architecture, or “nudging” techniques (Park, 2020; Schulte et al., 2023) to structure the eating environment so that the healthy, sustainable choice is appealing and easy. While nudging alone will not achieve sustainable dietary patterns, there is evidence it can help. Nudge uptake by making vegetarian dishes more frequent and visible (Kurz, 2017); but research supports neutral labelling (Eustachio Colombo et al., 2021; Hielkema & Lund, 2022) for adults and children. Avoiding labels that are attached to identity or political agendas (e.g., vegetarian, cruelty-free) is recommended, as these can dissuade some eaters who don’t identify with those choices and resistance due to moral licensing. Just call it chili. However, choice architecture includes choice, and research supports that providing choice is important as it attends to the importance of agency in eating (Eustachio Colombo et al., 2021).

Ensure Menu Changes are Reflected in Institutional Culture

Across all institutional settings, research clearly shows that efforts must be well integrated (Black et al., 2015; Fretes et al., 2023; Garnett et al., 2015). This includes training for all involved in implementing menu changes (Barbour et al., 2022; Garnett et al., 2015). For food service employees, this means training to understand the changes and intentions, and the food skills to carry them out (e.g., procurement, cooking, etc.) (Alberdi & Begiristain-Zubillaga, 2021; Eustachio Colombo et al., 2021). It also includes ensuring that the required physical infrastructure in the kitchen and cafeteria is available or is funded (Cutbill et al., 2024; Eustachio Colombo et al., 2021).

In schools, such integration is best if all school actors are prepared to engage and inspire (Eustachio Colombo et al., 2021). For teachers and students, it means curricular integration and staff training so that classroom messages align with cafeteria changes. Comparably, in universities, increasing food literacy through programming can have potentially high leverage as this is already a transition phase in life where individuals start to make choices and changes (Park, 2020).

Considerations

Catering is just one step in the institutional food lifecycle. There is a lot of evidence for catering and menu change, and it is therefore listed in this document. But catering may need to be part of a broader suite of actions that are integrated across the health system, such as onsite gardens, kitchen infrastructure, and waste (Cutbill et al, 2024).

How to Start

- Assess existing catering practices, including menus.
- Examine existing policies in the organization that are relevant.
- Build a team:identify key allies and strategic partners in your organization, and beyond, and start talking to them. Cutbill et al. (see below) have great supports for how-to for building partnerships if needed.
- Start small. The World Resources Institute (Pollicino et al., 2024) has some great ideas for inspiration of what works, and what is doable.
- Think through how this will impact systems across all stakeholders.

Learn More

1. Marquez, A., Gacad, A. A Guide to Sustainable Menus: A Step-by-Step Approach to Sustainability. Nourish. The future of Food in health care. November 2019. https://static1.squarespace.com/static/58829365c534a576e10e3a5c/t/5fcfad387c36362741ba5769/1607445818187/guide_en-1.pdf
2. Nudging how-to? World Resources Institute: The Food Service Playbook for Promoting Sustainable Food Choices https://www.wri.org/research/food-service-playbook-promoting-sustainable-food-choices
3. Sustainable menus are part of broader institutional infrastructures. Food Infrastructures for Planetary Health is a playbook that aims to support informed decision-making related to food infrastructures for planetary health throughout the planning, design, construction and ongoing operation of Canadian healthcare facilities. Cutbill J, Lalande A, Paczka Giorgi L, Devitt K, Janousek S. Food Infrastructure for Planetary Health. (2024) CASCADES(Creating a Sustainable Canadian Health System in a Climate Crisis). Available from: https://cascadescanada.ca/resources/food-infrastructures.

5. Retail-Level Marketing

"Can we eat our way to a healthy and ecologically sustainable food system?" (Seed & Rocha, 2018)

The retail space offers a very good opportunity for NDPs to work with industry, who are economic actors in food systems, to drive change through marketing techniques. This environment includes grocery stores, restaurants, markets, and even some institutional food settings – anywhere that we purchase food to eat. Marketing specialists have long worked in this space to influence food choices, highly effectively. NDPs working in industry, or at the retail level, are well positioned to leverage some of those same techniques to help support shifts toward more healthy and sustainable dietary patterns.

Similar to front-of-package labelling arguments, but unlike federally regulated food product labelling, in-house labelling schemes take less time to develop, test and implement. These point-of-purchase (or choice) influencers include ideas such as coloured price tags and grocer-level labels on more sustainable products, or signage in institutional settings that help simplify healthy, sustainable options. In-house labels have been linked to increased willingness to purchase more sustainable products (Guyader et al., 2017) and are likely to have a modest level of impact on shifting dietary patterns (Park, 2020). In-house labels can also include broader schemes that are used across many stores in a franchise, such as the President's Choice Blue Menu products available through Loblaws, which has clear nutrient-related standards signalling to consumers that these are good nutrition choices, or the Sourced for Good label at Whole Foods Market, which has a focus on the environment, workers and communities.

Develop Clear Labelling

Supporting shifts in dietary patterns is more likely to be successful if it is appealing, normal and easy. Clear labels save consumers time and effort, making it easier to identify more sustainable foods. They are also important to transparency in our food systems and can support sustainable dietary choices. In-house labelling is linked to what is described as "maximizing awareness" by the World Resources Institute: enhancing the display, and creating an easy, memorable way to identify products for which you want to encourage consumption (Ranganathan, 2011). Consumers prefer a quick, visual search for information that will help them prioritize certain products over others, according to their values and priorities (Guyader et al., 2017; Srinivasan et al., 2024), and remove the burden of assessing product sustainability in situ, thereby increasing the likelihood of translating intentions to action.

Edit the Defaults

Much research supports the idea that putting products that you want to sell more of in easily seen and accessed places. This "choice architecture" to make sustainable options more prevalent, prominent and default (Park, 2020) is likely to have a strong impact on dietary patterns, especially if combined. This can include increasing the availability and prominence (eye level, top-of-menu, etc.) of more sustainable options, and reducing the portion sizes of less sustainable options (Park, 2020).

Undermine Greenwashing

Greenwashing is a technique to market products as sustainable when that is not necessarily so. While marketers may use these techniques seeking ways to justify a "green premium",it is well established now that many of these products are also highly processed products with questionable health and sustainability credentials. For example, many plant-based meat alternatives, such as vegetarian burgers, have higher levels of calories, fat, salt and sugar. Consumers are leery of greenwashing, and creating transparent ways to explain and promote in-house program criteria is critical.

The purpose is not to buy, or consume, our way to sustainability through new, processed products. Marketing the purchase of the best choices that lie primarily around the "outside" of the store – the whole foods – can undermine greenwashing and help shift dietary patterns toward more healthy, sustainable foods. NDPs working in a variety of environments (retail settings, public health, etc.) can work with retailers to develop such labelling schemes and test their effectiveness.

Considerations

In-house labelling can be problematic beyond greenwashing. High prices create equity issues in perceptions of, and access to, more sustainable products. Nutrition and dietetics professionals can be active in ensuring that an equity lens is applied to the development and testing of retail-level marketing of more sustainable food choices. To address equity issues, in-house schemes can be combined with sales schemes, or specifically to creates sales for this purpose. For example, whole foods with shorter shelf life can be included in in-house sustainability marketing as it approaches the best-before date under criteria for reducing food waste. At present, retailers will often add a 50% off sticker, but this can also include awareness-raising sustainability marketing.

Supply chains are complex, and often not transparent or traceable, so setting criteria for in-house labelling may require more resources than a single retailer can support. Broader schemes such as Blue Menu and Sourced for Good, as well as inclusion criteria that outsource supply chain audits to third-party certified ecological and health labels (i.e., Including foods with those labels) may help circumvent the need for such resources. This is less effective for the whole foods in the retail environment, but those are also easier to develop as they tend to be single-ingredient supply chains.

How to Start

- Assess the existing in-house retailing landscape: what organizational strategies, policies, promotions, and examples already exist? What external examples could be adapted?

- Talk to your leadership, and identify key stakeholders who could inform a successful in-house approach.

- Consider more ways to market and promote the purchase of the best choices that lie primarily around the "outside" of the store.

Learn More

1. To learn more about individual food-choice related behaviours, and how to influence them, see: Park, T. (N/D). Menu for a Change: Using behavioural science to promote sustainable diets around the world (p. 77). TheBehavioural Insights Team. https://www.bi.team/wp-content/uploads/2020/03/BIT_Report_A-Menu-for-Change_Webversion_2020.pdf

2. EIT, funded by the European Union, is an excellent repository of information on innovative food-systems levers. They have done excellent work on food labeling and marketing: https://www.eitfood.eu/projects/success-for-making-sustainable-consumption-mainstream

6. Communication and Social Marketing

"...the behavioural science clearly demonstrates that pervasive norms go un-questioned but have enormous influence over our perceptions and our actions. This includes norms of food labelling systems, supermarket layouts, cultural and identity labels, and the relative prevalence and availability of different options. In all cases, we often elevate plant-based food as 'special' against a backdrop of 'normal' meat consumption, and this in turn reinforces our preferences, tastes and choices. We would therefore be mistaken in believing our tastes are 'our own', unfettered by outside influence. Shifting the perceptions of what's normal is an important strategy." (Park, 2020, p. 36)

Social norms and networks play an important role in our food choices, including decisions related to more sustainable dietary patterns (e.g., plant-based diets (Rickerby & Green, 2024)) and have been identified in modelling studies as a central driver of global dietary change (Eker et al., 2019). People like to be included in the social norms of society, don't want to miss out or be rude, don't want to be excluded from traditions important to them and their social circles, and don't know how to "justify" new dietary patterns (Rickerby & Green, 2024).

But we also know that food related norms, including cultural ones, do change over time, and sometimes rapidly (e.g., wildly swinging trends based on "influencers" on social media). While social norms can be a barrier, they can also be leveraged for positive change.

Leverage Social Norms and Networks

If pervasive norms go unquestioned (Park, 2020), then shifting the norm is an excellent opportunity. In retail or catering settings, if more sustainable options, such as vegetarian options, seafood alternatives, etc., are positioned against a backdrop (the norm) of meaty and red-listed baselines, then choosing them becomes an identity choice. Integrating more sustainable choices into the norms, and positioning them as the norm (e.g., an option to add meat at the end of the lunch line) shifts the norm.

Promoting trends (social norms) in sustainable eating has been identified as an effective tool to normalize more sustainable dietary patterns (Eker et al., 2019; S. S. Myers, 2017; Ranganathan et al., 2016; Sparkman & Walton, 2017). In community settings, we can use communication and marketing techniques to evolve norms (Ranganathan, 2011) by making certain dietary patters more socially desirable and share credible information about the issues (Ranganathan, 2011). Communication techniques such as social marketing can be leveraged to do so. Social marketing uses approaches that influence behaviour in ways that are positive for individuals and communities for the greater social good. It is used globally to promote the adoption of health promoting behaviours.

Design with Social Identity and Culture in Mind

Eating a more sustainable dietary pattern is inextricable from social identity. In some parts of the world (in particular North America and Europe), eating more plants has stereotypes associated with it, including: higher class, prestige, left-leaning politics, values of altruism, and in some cases religion and virtue (Park, 2020). In other parts of the world, eating meat might be associated with higher class. If food choices are a way of creating and reinforcing identity and inclusion in a social network, then this too can be leveraged as an opportunity.

We know that gender identity influences uptake of sustainable dietary patterns (Park, 2020; Srinivasan et al., 2024, 2024). While this is not a full analysis of gender identity, the small body of literature emphasizes that those who identify as female are generally more responsive to environmental, social and animal welfare concerns, as well as health-related links (Culliford & Bradbury, 2020; Park, 2020), and less likely to accept technological solutions such as in-vitro meats (Grasso et al., 2019). Those who identify as male are more likely to adopt more sustainable behaviour when they have been exposed to messages that affirm their masculinity in connection to that product – this has been well established in food advertising, which has effectively connected meat and manliness (Park, 2020). Identity-diet linkages are strong and can present both strong barriers and opportunities.

Harness Influential People

One example of how social norms have been shifted through identity-related opportunities is the use of influential people. Celebrity chefs, athletes and cultural influencers have significant sway over what are considered cultural norms and are responsible for some very quick pivots in cultural ways of eating. This is, in part, because they represent cultural identities that groups of people share with them. Harnessing influential people to normalize sustainable dietary patterns has strong potential (Ranganathan et al., 2016; Schneider et al., 2017).

Considerations

Carefully consider identity in efforts to shift social norms. Breaking identity-related stereotypes is difficult and delicate work, as identity is at the core of who we are, and destabilizing that is uncomfortable. Be prepared for unintended consequences of initiatives that shift cultural norms.

Ensuring a clear and focussed message is important for marketing and communications but can compromise integrity in complex systems. When solutions are too narrow, they risk simply "shifting the problem" to somewhere else in a complex system.

How to Start

- Assess, through discussion with clients (individuals, communities, institutions) and groups, the dominant attitudes towards sustainable dietary patterns.
- Work with communications and marketing experts to design and implement targeted campaigns.
- Find celebrities who have clear and accurate messages. Find the ones who are promoting well-evidenced dietary patterns and find ways to amplify their voice. Use social media to do this at an individual level. If working on a population level, hire them to participate in localized marketing campaigns.

Learn More

1. To learn more about individual food-choice related behaviours, and how to influence them, see: Park, T. (N/D). Menu for a Change: Using behavioural science to promote sustainable diets around the world (p. 77). The Behavioural Insights Team. https://www.bi.team/wp-content/uploads/2020/03/BIT_Report_A-Menu-for-Change_Webversion_2020.pdf
2. Rangathanan shares an excellent example (p.59) of the use of public broadcasting and influential people to raise awareness of the consumption of shark fin soup, a culinary tradition ill-adapted to today's reality and that has led to the endangerment of several shark species. The campaign helped to evolve social norms and identity-related ideals (e.g., health, affluence) attached to this tradition. Ranganathan, J., Vennard, D., Waite, R., Dumas, P., Lipinski, B., & Searchinger, T. (2011). Shifting Diets for a Sustainable Food Future (p. 90). World Resources Institute. https://files.wri.org/d8/s3fs-public/Shifting_Diets_for_a_Sustainable_Food_Future_1.pdf

7. Food Literacy

"Food literacy is the ability of an individual to understand food in a way that they develop a positive relationship with it, including food skills and practices across the lifespan, in order to navigate, engage, and participate within a complex food system. It's the ability to make decisions to support the achievement of personal health and a sustainable food system considering environmental, social, economic, cultural, and political components." (Cullen et al., 2015)

Increasing individual and public awareness is one important step in shifting dietary patterns for sustainable diets (Ranganathan et al., 2016). We know that, internationally, consumer awareness of the links between food and environment is low, and often linked to old data (e.g., assuming food miles is of primary importance) (Park, 2020) and that many consumers lack appropriate knowledge to identify more sustainable food choices (Jodice & Norman, 2020). This is a barrier to motivating dietary shifts at the population level. Awareness raising strategies that have been effective include harnessing influential people in society, such as TV chefs, athletes, and cultural influencers to raise awareness and knowledge on sustainable diets (Schneider et al., 2017). It can also be achieved through nutrition education at the individual level through nutrition counselling.

As all NDPs know, knowledge does not equal behaviour. While knowledge can contribute to increased motivation to act, even where behavioural intentions are at their best there are many social and commercial barriers that get in the way. Inadequate food skills to incorporate more environmentally friendly alternatives (e.g.,vegetarian) is one example (Park, 2020) that illustrates the importance of the need for food literacy work that considers the many aspects of this construct.

Create Clarity about Sustainable Dietary Patterns

Although knowledge might be low, there is a steady increase in interest in sustainable diets. Increased knowledge of well-evidenced sustainable food choices is needed (Black et al., 2015; Jodice & Norman, 2020) to create effective initiatives that can create widespread change (Black et al., 2015). Clarity is likely to increase consumer acceptance of dietary change (Myers & Pettigrew, 2018) and avoid diffusing the effects of collective work (Black et al., 2015).

Sustainable and healthy dietary patterns include:

- Breastfeeding
- Shifting toward less animal-sourced foods, in particular red meats, and more plant-sourced foods, in particular legumes, fruits and vegetables
- Engaging in local food and territorial food systems
- Consuming seasonal, field-grown fruit and vegetables
- Choosing certified foods (e.g., sustainably certified fish)
- Limiting/avoiding consumption of processed foods
- Reducing waste
- Moderating consumption

However, a rapid increase in sustainable diets information on social media that is not well evidenced, or skewed by commercial conflicts of interest, has created significant consumer confusion (Eckert et al., 2024). One of the myths that surfaces as a barrier is that sustainable diets are nutritionally inadequate (Park, 2020; Perez-Cueto et al., 2022). Sustainable dietary patterns are healthy dietary patterns by definition because dietary patterns that systematically undermine human health are not sustainable (Broman & Robrt, 2017). This misconception, therefore, may indicate the need to use the term “healthy, sustainable dietary patterns” to emphasize this relationship (Van Loo et al., 2017).

Client-Centredness includes Planet-Centredness

Dietitians are trained in and understand the concepts and principles of food literacy to support individual clients, and over the last decade more dietitians across diverse practice areas have gained a fuller understanding of the food system attributes of food literacy. The Eat-Lancet Commission calls on healthcare professionals to promote the planetary health diet by assessing individual diets, providing dietary guidance, educating and training others, changing food procurement practices, and engaging in advocacy efforts within and around health professions (EAT-Lancet Commission, 2019). Clinical practice, however, has consistently seen the most challenges with this (Saucis et al., 2025). Many clinicians are indicating that sustainability topics are out of scope, not relevant, or contradict their understanding of client-centred practice models.

There maybe a need to expand to a client-planet-practitioner relationship in clinical practice. At the individual level, dietitians can make an informed, evidence-based decision to recognize the inseparable relationship between human health and the social and ecological systems upon which it depends. This requires clinical dietitians to expand their view of the client-practitioner relationship to include what is best for the health of the planet (Myers, 2017). Recognizing that sustainable diets have significant overlap with healthy eating recommendations, dietitians can use the language of healthy eating without explicitly talking about sustainable diets, to the same end. These considerations are already standard practice for many clinical dietitians. However, the concept of incorporating SFS into the nutrition care planning process through gradual exposure(Landry & Ward, 2024) may be an important reminder to dietitians that, when expanding the client-practitioner relationship to include planetary health, they can choose whether and to what degree it is appropriate to provide education on the SFS co-benefits when recommending healthy dietary choices to clients.

We are Human: Work with Values and Emotions

Consumers are more likely to purchase and consume products which are familiar, appealing and aligned with their values. To support sustained dietary changes, research suggests encouraging reflection, including on concepts such as responsibility and interconnectedness (Werner & Risius, 2021). Time spent reflecting on personal values has been associated with the ability to understand how to make sustained changes in behaviours; a sense of responsibility beyond the self and a sense of connectedness with all living things were also supportive of sustained changes. Mindfulness training can be helpful to cultivate reflective skills for sustainable consumption (Frank et al., 2019)

Related values tend to be clustered similarly among related social identities. Given the power of social norms to drive dietary shifts, encouraging dietary patterns that align with individual or social identity is recommended (Eker et al., 2019), and is likely more important than health or climate risk-related information. Increased food literacy can help consumers to understand which dietary patterns do align with their values.

In addition to values, human emotions play a powerful role in sustainable dietary patterns. Embedding recommendations for healthy, sustainable dietary patterns in positive messages, delivered with pride and practical advice, elicits positive emotional responses (Schneider et al., 2017). People want to be part of positive things and therefore this approach is more likely to be effective, while avoiding blame and guilt-based messaging. Some research shows that emotionally embedded messages should be avoided in food service settings; for menu design, the recommendation is to use neutral labelling to avoid resistance to moral licensing (Hielkema & Lund, 2022) in these public spaces.

Much of the impetus behind the healthy, sustainable diets discourse is the dire state of our socioecological systems; however, hope is an important emotion that can improve peoples’ willingness to make changes to their behaviour (Pleeging et al., 2021). Nurturing realistic hopes about the positive impacts of sustained dietary patterns is important to avoid false hopes, or hopelessness.

Make it Easy

Needless to say, pro-health and sustainability values delivered with positivity will not suffice; as the gap between values and current dietary patterns widens, and as the behaviour becomes more difficult (increasing barriers), we need to ensure that food literacy work is strongly linked to actions at different levels of the system that are going to make it easy (Park, 2020). Making it easy is related strongly to self-efficacy, is an important part of lasting behaviour change and a central driver of global dietary change (Eker et al., 2019). Easy steps that consumers can take up and master help with self-efficacy (Prestwich et al., 2014). Tips on small changes, easy recipes or programs such as Meat Free Mondays can facilitate ease of consumer uptake.

Considerations

- Highly educated consumers are always going to have the advantage, and equity-based approaches to food literacy that consider commercial and social determinants of health (IPES-Food, n.d) are necessary.

How to Start

- Become clear in your own knowledge of evidence-based healthy and sustainable dietary recommendations.
- Identify and debunk half-truths, and redirect people to well-evidenced sources of information.
- Lead with positivity and pragmatism in your food literacy work.
- Explore ways to incorporate sustainability strategies with individualized client recommendations.
- Challenge your own thinking about professional ethics and what it means to be client- and planet-centred within clinical practice.

Learn More

1. For a good summary of guiding principles agreed upon as defining dietary patterns, read the World Health Organization's Sustainable Healthy Diets: Guiding Principles (2019) https://www.who.int/publications/i/item/9789241516648
2. For those doing food literacy work with school-aged children, there are great resources at Nourish Nova Scotia: https://www.nourishns.ca/food-literacy

Areas for Further Research

The leverage points above represent well-evidenced action points of a variety of scopes and scales, relevant to most NDPs, that can produce meaningful change in shifting toward healthy, sustainable dietary patterns. There are two gaps in the research that are promising potential levers for contributing to healthy, sustainable dietary patterns, and this research team is working to fill them.

Educating Tomorrow's Professionals

A growing body of literature indicates that NDPs are increasingly called upon to incorporate sustainability into their practice (Higgins et al., n.d.; Useche et al., 2023). High-level survey data shows that, in response, the content is beginning to be covered in nutrition and dietetic education programs across several high-income, industrialized countries (Wegener, et al., 2024). In Australia, there has been an enormous increase in coverage of this topic in education programs since 2015 (Carino et al., 2019; Barbour & McCartan, 2025).

It is in education and training programs that NDPs are gaining the foundational knowledge, skills and competencies for dietetic practice; therefore, theoretically, including sustainability in education and training is an important step. However, the barriers to including sustainability concepts into NDP education and training are numerous, including instructor lack of confidence and expertise, and curricular space (Wegener, et al, 2024; Carlsson & Callaghan, 2022). More in-depth research is needed to understand how to overcome such barriers and turn this promising action area into a high-leverage practice – where, what, and how NDPs learn in university influences a career's worth of work that contributes to healthy, sustainable dietary patterns.

Members of this team are working to understand, at a much greater depth, what Canadian educators include in their courses, the types of learning strategies they use, what barriers they face and what supports have been helpful. This more detailed information can be helpful in informing high-impact educational models and resources and will be made available as soon as it is published.

Assessment and Counselling in Nutrition Care

Clinical dietetic practice is focused almost exclusively on individual concerns within the nutrition care process, and there has been relatively less consideration of how to draw attention to the sustainability of healthy dietary patterns in this practice area relative to other practice areas.

Emerging examples from Canada, the United Kingdom, Australia, and the United States show that clinical dietitians are using routine clinical activities to incorporate SFS into practice, yet identified tensions around maintaining client-centredness in the context of planetary health. This is an area that requires much more research because the concerns are valid in the context of current paradigms governing models of care. Client-centred care, a central feature in the therapeutic alliance between the client and the dietitian, prioritizes the strengths and goals in the nutrition care planning process; if sustainability concepts were not included in the client's personalized nutrition goals, tension arises within practitioners who attempt to include it as part of the nutrition counselling process (Saucis et al., 2025).

To relieve some of this tension, and to expand to a client-planet-practitioner paradigm introduced under Food Literacy above, concepts from professional ethics (e.g., nonmaleficence or the principle of do-no-harm) may be helpful as human health is strongly dependent on planetary health. Meanwhile, clinicians are calling for specific practice guidelines to support working in an evidence-based manner while navigating the tension between environmental values and professional ethics.

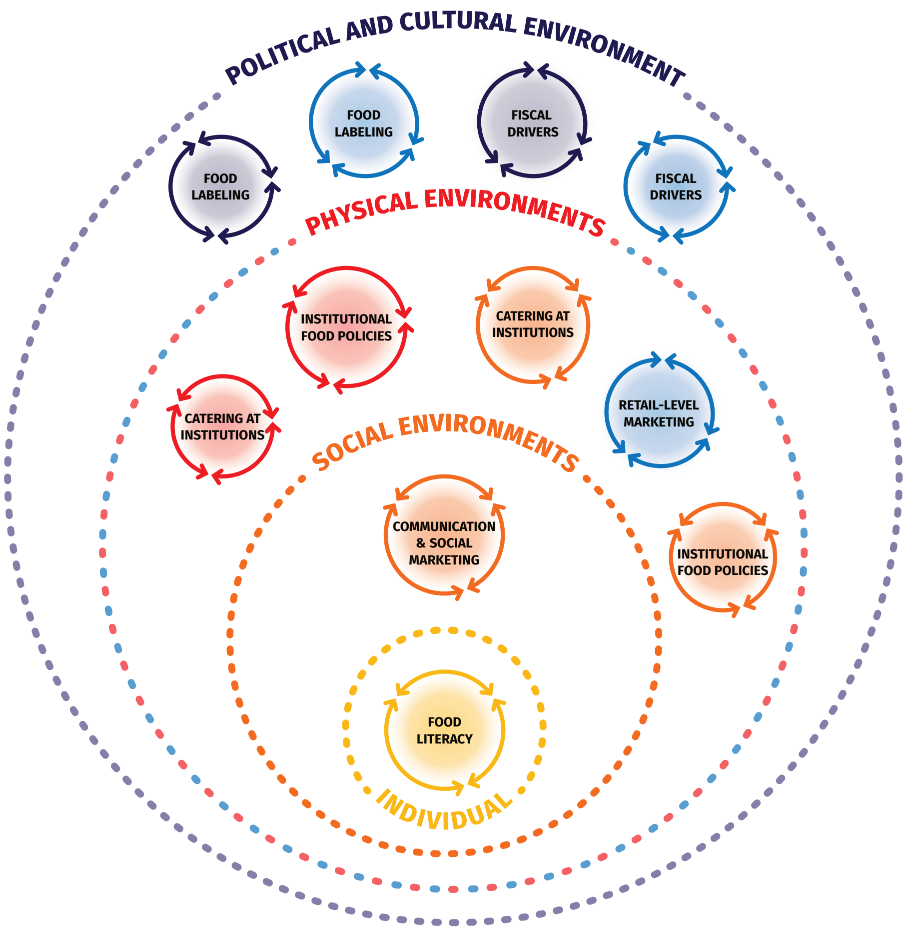
Researchers from this author team are continuing to evaluate the barriers, opportunities and needs in clinical practice and food services to help understand how to better identify and support high-leverage actions (e.g., Saucis et al., 2025).

Conclusions: Systems Thinking, Leverage and Impact

Strength in Networks

This report is framed by two frameworks that highlight interconnected systems and interconnected actions. We used two frameworks that, when used together, highlight the diverse opportunities, identify who else may need to be involved, signpost areas where more action may be needed, and most importantly, visualize contributions in context without having to take on the whole.

While it may seem inadequate to be working on one small portion of a very large socioecological challenge, leverage points are exactly that – actions that, though perhaps small, have effects in the system that are larger than the action itself. The frameworks used in this report allow us to see our actions as interconnected, remind us that they amplify other efforts, and combined have a larger effect on sustainable dietary patterns.



Mapping combined socioecological and food systems leverage points for nutrition and dietetics professionals.

The colour of the circles reflect the colours of the food system subsystems in Figure 2, page 9.
The intention is to visualize actions across food systems within socioecological systems.

Also, as part of this research, investigators have established a baseline information describing how SFS are implemented in nutrition and dietetics practice settings. Informed by the state of the science, outlined in this report, the research team will identify some of the most promising examples in practice to share. This will be summarized in a separate publication.

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