

# How Practitioners Can Influence Planetary Health

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## Introduction & Background

Each time we sit down to a meal, there's an opportunity to support our wellbeing with food that nourishes our bodies, connects us to culture and community, and supports planetary health. Unfortunately, our current industrial food and agricultural systems not only produce a myriad of ultra-processed food like products that contribute to ill health and inequities, but are one of the leading causes of deforestation, climate change and biodiversity loss, all of which can also result in compromised human health.<sup>1,2</sup> Many food-like products produced within this industrial model are highly processed, low in nutritional value, in excess of low-quality nutrients and often characterized by synthetic chemicals from production or processing methods.<sup>3</sup> Current data shows that numerous chronic diseases that plague our global community are driven by poor nutrition.

1 in 2 Americans has prediabetes or diabetes, 1 in 2 has a lifetime risk of cancer, and only 1 in 15 is considered metabolically healthy.<sup>4,5</sup> These statistics are significant as we look ahead at a healthcare system that is already beyond capacity for adequate care. In addition to pollution, environmental deterioration, ocean acidification and extreme weather patterns directly affecting human health, these developments are also changing the quality of the food we eat which may impact nutritional status.<sup>6</sup> In fact, nutrient levels of common crops as well as a number of fruits and vegetables are lower in nutritional value than they were 50 years ago.<sup>7</sup>

Furthermore, conventional growing practices, in addition to being resource intensive, have lead to depleted soil and biodiversity loss, both of which compromise food system resilience and food security.<sup>8</sup> The loss of biodiversity (the variety of life on earth) means both reduced access to an abundance of nutrients in our food supply, and fewer of the essential microorganisms that enable soil to continue to produce healthful crops and ensure sustained access to nourishment.<sup>9</sup> The repercussions of unsustainable food supply chains extend even further, threatening livelihoods, and contributing to malnutrition with the greatest impact disproportionately affecting historically marginalized communities.<sup>10,10a</sup>



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This may appear to be a dark cloud of unwelcome news. However, while the food system is a significant part of the problem, it also holds exciting potential to be part of the solution, producing more nutritious food, supporting social equity, securing local economies, and safeguarding the planet. And the healthcare sector has an integral role to play.

We are currently not on track to meet either the **United Nations Sustainable Development Goals** or the target laid out in the Paris Agreement, the legally binding treaty aimed at limiting the temperature increase to well below 2 degrees above pre-industrial levels<sup>11,12,13,14</sup> Healthcare practitioners stand at a pivotal entry point that opens the door to a new food system paradigm. As some of the most trusted voices within their communities and society in general, health professionals hold enormous potential to influence the social and policy landscape around how we might grow and produce food more sustainably and regeneratively.<sup>15</sup> In fact, according to the Global Alliance for the Future of Food:

“

“Those working in the health sector are better situated than most to articulate the many connections between food and health. Clinicians and public health professionals are at the frontline of care, guiding people to choices that will improve their quality of life, today and in the future.”<sup>16</sup>

Clinicians also have an opportunity to specifically advocate for sustainable diets that align with healthy eating guidelines. Fortunately, what serves planetary health also serves human health,<sup>17</sup> giving healthcare professionals an opportunity to function as champions for the climate while also providing meaningful nutrition guidance for their patients.

Additionally, many healthcare practitioners may have a wider and far-reaching audience beyond the clinical setting; they may also be working in schools, correctional facilities, corporate wellness, policy, academia, research or with food brands and businesses. As potential speakers, writers or podcasters, they can help influence conversations being had around what is consumed/served/grown, and connect the necessary dots between human and planetary health.

Achieving success in this realm of education and advocacy necessitates training and a proficiency in the concepts related to sustainable food systems.<sup>5</sup> This document aims to kickstart efforts in building the foundation for such proficiency, starting with the acknowledgement that human health is deeply interconnected with ecological well-being.

## The Case For More Sustainable Diets & Eating Patterns

So how does one define a “sustainable diet”? While an abundance of definitions exists, the one most often cited is from the Food and Agriculture Organization which states that “sustainable diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. [They] are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources.”<sup>18</sup>

Although interpretation of the different components contained in that definition may vary, a large body of evidence points to the human and planetary health benefits of a minimally processed biodiverse mostly plant-based diet that sources from locally and agroecologically grown farms and sustainable seafood sources when and if possible.<sup>1,2,3,6,19,20</sup>

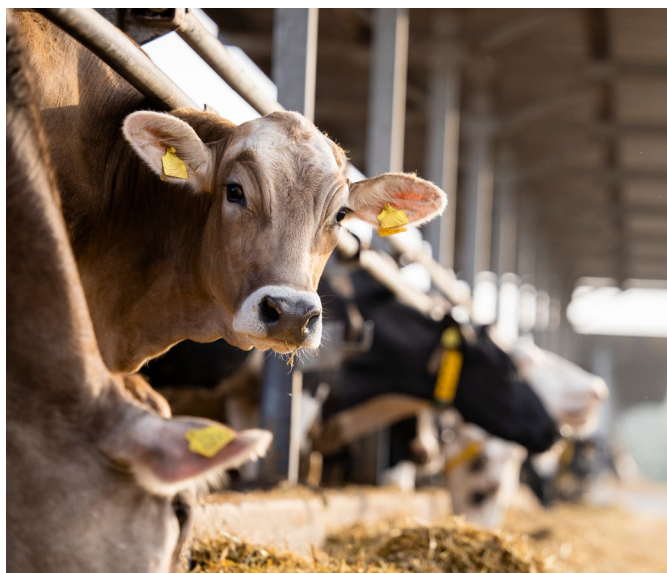
It's an accurate assessment that animal proteins hold a necessary and often culturally relevant place in numerous dietary patterns.<sup>21</sup> They also produce a much higher environmental footprint than plant-based foods, and when eaten in excess (particularly red & processed meat) are associated with numerous negative health issues from cardiovascular issues and diabetes to colon cancer.<sup>22</sup>

Production of animal products like beef and dairy not only uses a vast amount of land and water but contributes to around 15-16.5% of global greenhouse gases, more than the entire transportation sector.<sup>23,24</sup> This is attributed to:

- 1 Massive deforestation to raise cattle and grow the crops that feed them, which releases carbon dioxide into the atmosphere.
- 2 The chemical inputs used in intensive farming operations, like fertilizer which produces another greenhouse gas, nitrous oxide.
- 3 The burped-up byproducts of cattle digestion that emit massive amounts of methane, a greenhouse gas that is far stronger and traps heat much more so than CO<sub>2</sub>.<sup>25</sup>

It's important to note that industrial animal agriculture is also a large contributor to air pollution and water contamination, disproportionately affecting low income and historically marginalized communities. The deforestation process in places like the Amazon Rainforest both significantly reduces carbon sequestration potential, and also frequently results in the displacement of crucial habitats for both Indigenous communities and wildlife.<sup>26</sup>

The top authorities on climate science including The Intergovernmental Panel on Climate Change have emphasized the necessity of reducing meat consumption in high income countries as a vital climate mitigation strategy.<sup>27</sup> Research indicates that both decreasing U.S. beef consumption by 90% and replacing 50% of other meats with plant-based options could prevent over 2 billion tons of greenhouse gas emissions from being emitted by 2030.<sup>28</sup>



All this being said, the conversation around animal versus plant protein is a multifaceted and complex issue. There is evidence to show that “nature-positive” or “regenerative animal agriculture” (rotational grazing, diverse pasture management) can have co-benefits to both ecosystems and human health, not to mention the wellbeing of the animals.<sup>29,30,31</sup> Studies and surveys indicate that meat and dairy production and consumption is greater than what is recommended which may be attributed to a variety of factors such as accessibility, affordability, familiarity or connection to social norms and cultural identity as well as corporate interests in maintaining business and financial viability. Any of these elements may play a role in barriers to a more plant-centric eating pattern and are key pieces to consider in conversations about both sustainable livestock farming and meat reduction.<sup>29</sup>



As it pertains to production practices, numerous studies have demonstrated that foods grown with minimal chemicals (like pesticides and synthetic fertilizer) and more “agroecological” or “regenerative” practices that build soil health (like cover cropping, composting, crop diversity and crop rotation) including USDA Certified Organic, often produce more nutrient rich food and offer numerous co-benefits to the environment.<sup>32,33,34</sup> **The USDA Certified Organic** is a certification program administered by the United States Department of Agriculture (USDA) that verifies that agricultural products, including crops and livestock, meet specific organic standards, such as prohibiting the use of genetically modified organisms, synthetic pesticides, and antibiotics (for livestock). These practices must be adhered to but may or may not necessarily always improve ecosystem/soil/human health (re: Monocultures of organic corn that go to produce “organic” corn chips.) On the other hand, the more recently coined “Regenerative agriculture” which has a variety of interpretations and can include a spectrum of farming techniques has been touted as a way forward in farming that shows promise in climate change mitigation and healthy and resilient food production.<sup>35</sup>

These types of cultivation methods tend to be rooted in agroecology which has been practiced for millennia by many indigenous cultures throughout the world and emphasizes the design and management of agricultural systems that enhance biodiversity, promote ecological balance, and prioritize the well-being of both ecosystems and communities.<sup>36</sup> The lack of a clear definition or set of guidelines has meant that a number of food businesses can claim to practice regenerative agriculture when, in truth, only one “climate-smart” technique is employed amidst other less sustainable ones. The somewhat recently created certification ROC (Regenerative Organic Certified) aims to be an option here, but the process and price may be prohibitive for many small farming operations. A growing body of evidence is demonstrating that these growing practices help to prevent soil erosion and ultimately produce crops with higher levels of nutrients, in particular, polyphenols, the plant compounds that are protective to human health.<sup>37, 38, 39</sup> Research has also indicated that exposure to pesticide residues may have negative implications for overall health and gut microbiome function.<sup>34</sup>

A crucial aspect to highlight in the context of positive health outcomes related to more “climate friendly” agriculture also involves taking into account the well-being of farmers and farmworkers, who may face direct exposure to potentially harmful chemicals.<sup>34,39</sup> These agrichemicals have also been shown to negatively affect wildlife and beneficial insects, including pollinators who are responsible for approximately 1/3 of the food on our plates.<sup>40</sup>

Aquatic foods are another place where conversations around sustainability need to be had. Sustainable seafood refers to seafood products that are sourced and harvested in a manner that supports the long-term health and biodiversity of marine ecosystems.<sup>41</sup> Current fishing practices are not only exhausting fish supplies but harming ocean habitats, reducing biodiversity and threatening livelihoods.<sup>42</sup> Additionally, many intensive fish farming operations have a high environmental impact due to feeding needs, chemicals used and the potential harm to native fish species.<sup>43</sup> But a strong new focus on these “blue foods” (especially when replacing terrestrial animal sourced foods) holds great promise for providing excellent nutrition, environmental protection and climate change mitigation.<sup>44</sup> A recent study identified that some of the aquatic foods that tend to have lower greenhouse gas emissions and are most nutrient dense include “bivalves” (mussels, clams, oysters), small pelagic fish (anchovies, sardines) and sea vegetables.<sup>41</sup>

## Putting This into Practice

The below practical recommendations can be implemented on an individual basis to patients or communities or can be applied to more institutional settings via shifting menus, “food choice architecture” (where and how food options are arranged) or through the power of procurement. They can also be integrated into teaching materials and educational settings or included in internal and external communications. Lastly, any of these can be incorporated into individual advocacy and/or institutional policy changes.

**1. Encourage more minimally processed plant-based and plant-centric eating patterns.** Many individuals are simply not aware of the numerous health and environmental benefits of foods like beans and lentils which have often been seen as inferior or less tasty protein options. In many cases, people are simply unfamiliar with cooking or preparation strategies, or have concerns about flavor. Receiving an endorsement from a trusted source, or seeing these meal items on menus more regularly, especially when they sound and look highly appetizing, can help with consumer acceptance. So can connecting someone with a plant-based dish that has cultural or familial significance.

**2. Encourage greater diet diversity** which ultimately helps to maintain biodiversity in our food system. This will likely look different depending on the individual or community with which practitioners are working. It can be helpful to guide patients on the many vegetables, fruits, nuts, seeds, whole grains, legumes and herbs/spices with which they are not familiar (and to have delicious and delectable recipes available!) Going about this in a way that feels like a bit of a food “exploration” of “adventure” can increase consumer “buy in” and reduce the sense of obligation that people feel when given nutritional advice around what they “should” eat. It may be that some are just stuck in a rut or are less familiar with certain foods and just need education or a reminder of the vast variety available. Additionally, it’s quite possible that the person or demographic with whom you are working has cultural or family connections to certain foods that may be all the easier and more realistic for them to include.

**3. Encourage food procurement (both animal and plant-based) from farms using agroecological and climate-smart methods.** As health and nutrition experts, healthcare professionals can hold great sway when it comes to influencing what is being purchased and served. Making the case for how these farming methods serve *and protect* human health in addition to planetary health (which ultimately serves human health) can help further solidify behavior, institutional and policy shifts.



**4. Advocate for more sustainable seafood sources.** Many people may be open to replacing animal protein with fish and marine foods but may need advice on options and preparation methods. It's quite possible that the target audience may have strong cultural connections to certain seafood that they have forgotten while others may take a bit of convincing to incorporate blue foods, which is why presentation and recipe ideas are so crucial. Additionally, bivalves like oysters can be price prohibitive. Canned options are often more accessible and shelf stable.

**5. Encourage purchasing products with 3rd party sustainability certifications** like USDA Organic, Non-GMO Project, Marine Stewardship Council, Fair Trade, Certified Humane, and Rainforest Alliance, which increase the likelihood that brands and businesses have grown, produced, or fished food in a way that supports the health of ecosystems and/or oceans as well as upholding animal welfare and the wellbeing of farmers, farmworkers, and surrounding communities. While these badges can't guarantee 100% sustainability, they indicate a commitment by the food brand to support the health of consumers, the environment and those who participated in harvesting it.

**6. Write a "Nature Prescription"** for patients to spend time in nature for 2 hours/week which evidence has shown to be correlated with improved self-reported overall wellness.<sup>15</sup> When individuals have a greater connection with the natural world, they tend to be more likely to refrain from engaging in behaviors that are detrimental to its well-being which may have positive implications for planetary health.

**7. Start a teaching kitchen in your practice, hospital or community.** Establishing educational kitchens in partnership with local agriculture, (farms, community gardens, and urban agriculture), holds the promise of sparking a movement in the healthcare system that connects how the system can foster human and environmental well-being. These kitchens can also function as research settings to advance health, equity and sustainability.<sup>45</sup>

**8. Get your patients into their own kitchens!** Historically, methods of food production have often disrupted the ties individuals have with the origins of their food. Healthcare and nutrition professionals can help provide the tools and inspiration for patients to reconnect with the process and care that it takes to cook a meal. Additionally, having them buy more bulk and whole food ingredients helps to reduce the footprint that often accompanies the packaging, processing and producing of ready-made food. Delicious and easy recipes as well as helpful cooking techniques are a vital part of the guidance offered.



**9. Facilitate community engagement with farmers markets, local gardens or urban farms,** and assist individuals in discovering avenues for growing their own food, if and when accessible. A sizable percentage of the US population is disconnected from their food source. Enabling them to meet the people who grow their food, or providing a better understanding of what all goes into harvesting a carrot, can make a big difference in their relationship to land and empower them to literally take health into their own hands. This can also mean encouraging facilities where you work to source from local farms, reducing the food miles travelled and supporting the region's economy.



## The Bigger Picture

While encouraging patient populations to eat more beans and grow parsley on their windowsill is not to be minimized, these are unlikely to shift systemic issues and inequities that are in place. Advocacy and policy changes are absolutely critical. Healthcare professionals can surface these issues and voice concerns to medical associations, retailers, umbrella organizations and universities. There can also be power and strength in cross collaboration between the various sectors of the medical community. Additionally, necessary systemic shifts include the US Dietary Guidelines which dictate nutrition education and numerous recommendations about what constitutes a healthy diet. As frontline witnesses to the current health crisis, healthcare professionals can speak up for climate friendly policies that are known to also benefit public health and reduce healthcare costs.

## Summary

Nutrient-rich food is foundational for the health and wellbeing of humans. Sustainable food production is also an integral piece of supporting the key operating systems that maintain life on our planet. As is, current agricultural practices are not only harming the environment and contributing to climate change but are negatively impacting human health. Healthcare providers have a significant role to play in both linking human and planetary health and in promoting and implementing sustainable diets via recommendations, procurement, communications, or advocacy. Food systems transformation is also complex and multifaceted. Recognizing individuality, context, culture and access will be essential to the successful execution not only of dietary patterns but of procurement practices and advocacy around sustainable food systems. Together we can harness the collective power of the health community to create a more sustainable, equitable and resilient food future.

## Resources For Further Education

The supply of education, evidence and inspiration around the reasoning and implementation for sustainable diets and foods systems is abundant. Below is simply a taster plate of the myriad of resources available. Whether you are seeking to become proficient in sustainable food systems advocate or merely wish to participate in the conversation from time to time, there are many opportunities and educational materials available for all types of learners' experience and interest level. You can also see the references of this document as additional resources for learning.

### Master's Programs in Sustainable Food Systems

- Arizona State University - [\*\*Master of Sustainable Solutions with a focus on Food Systems Sustainability\*\*](#)
- Culinary Institute of America - [\*\*Online Master of Science in Sustainable Food Systems\*\*](#)
- Prescott College - [\*\*Master of Science in Sustainable Food Systems\*\*](#)
- Tufts University - [\*\*Master of Science in Food and Nutrition Policy and Programs\*\*](#)
- University of Vermont - [\*\*Master of Science in Food Systems\*\*](#)

### Certificate Courses

- Johns Hopkins School of Public Health [\*\*Food Systems, the Environment and Public Health Certificate Program\*\*](#)
- Johns Hopkins University [\*\*Courses on Coursera\*\*](#)
- Public Health Perspectives on [\*\*Sustainable Diets\*\*](#)
- [\*\*An Introduction to the U.S. Food System: Perspectives from Public Health\*\*](#)
- [\*\*Johns Hopkins Food Systems Primer\*\*](#): (On their site)
- [\*\*Harvard Extension Sustainable Food Systems Certificate\*\*](#)
- [\*\*Sustainable Food Systems Primer for RDNs and NDTRs\*\*](#) from The Academy of Nutrition and Dietetics

### Peer Reviewed Papers & Scientific Reports

- Alberdi G, Begiristain-Zubillaga M. [\*\*The Promotion of Sustainable Diets in the Healthcare System and Implications for Health Professionals: A Scoping Review\*\*](#). *Nutrients*. 2021 Feb 26;13(3):747.  
*This review has identified a framework with key areas where processes need to be developed to guarantee sustainable diet promotion in healthcare services.*
- Bastian GE, Buro D, Palmer-Keenan DM. [\*\*Recommendations for Integrating Evidence-Based, Sustainable Diet Information into Nutrition Education\*\*](#). *Nutrients*. 2021; 13(11):4170  
*The results of a thorough, narrative review of the literature performed in 2021 suggest there are five well-supported recommendations nutrition educators should consider incorporating in their work.*
- Clark MA, Springmann M, Hill J, Tilman D. [\*\*Multiple health and environmental impacts of foods. Proceedings of the National Academy of Sciences\*\*](#). 2019;116(46):23357-233  
*Nuts, minimally processed grains, legumes, fruits and vegetables are all associated with significant reduced mortality rates*
- Kowalsky TO, Morilla Romero de la Osa R, Cerrillo I. [\*\*Sustainable Diets as Tools to Harmonize the Health of Individuals, Communities and the Planet: A Systematic Review\*\*](#). *Nutrients*. 2022; 14(5):928  
*Healthcare workers, as nutrition counselors, have an essential role in the nutritional education of patients (therapeutic objectives) and communities (preventive objectives), which positions them as a social speaker for the promotion of a healthy and sustainable diet.*

- Banerjee, S., van der Heijden, M.G.A. **Soil microbiomes and one health**. *Nat Rev Microbiol* (2022).  
*In this Review, we demonstrate that soils are a cornerstone of one health and serve as a source and reservoir of pathogens, beneficial microorganisms and the overall microbial diversity in a wide range of organisms and ecosystems.*
- **Creating Better Health for People, Animals, and the Planet: Food Systems Insights for Health Professionals Global Alliance for the Future of Food**. Website. <https://futureoffood.org/insights/creating-better-health/> Published 2022. Accessed January 2024.

### Textbooks & Essential Reading

- Burlingame B, Dernini S. Sustainable Diets: Linking Nutrition and Food Systems. 1st ed. Rome: FAO; 2012.
- Montgomery, D; Bikle, A. What Your Food Ate: How to Heal Our Land and Reclaim Our Health. **WW Norton & Co** 2022

### Toolkits

- **Eat Aquatic Foods**
- **Plant Forward Future**
- **ICDA Sustainable Food Systems**
- **Practice Greenhealth: Our Healthy Food in Health Care Standard**

### Documentaries

- **The Biggest Little Farm**
- **The Need to Grow**
- **Gather**
- **Kiss the Ground / Common Ground**
- **Food and Country**
- **Feeding Tomorrow**

### Podcasts

- **Food Talk**
- **Feed: A food system podcast**
- **Food Lab Talk**
- **Eating Matters**
- **16 Podcasts and Films Celebrating Indigenous Foodways**
- **The Good Clean Nutrition Podcast** sponsored by Orgain (various episodes)

### Webinars

- **Foodomics: Mapping the Biomolecular Diversity of our Food**
- **Connecting Food Quality to Human and Planetary Health**
- **Orgain Professional Education Series** (various webinars)

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