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FOOD SECURITY, CLIMATE CHANGE, AND HEALTH

Health sector solutions for promoting sustainable and nutritious diets

Renzo R Guinto and colleagues discuss why the health sector must embrace the planetary health approach and advocate concrete solutions for fixing the food system

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Food is a critical foundation of human survival and a product of the Earth's natural ecosystems and the human designed economic system. It is also a vital resource that is susceptible to social and environmental change, as shown by supply chain disruptions and price increases driven not only by the covid-19 pandemic and the war in Ukraine but by protracted crises in regions such as Africa, where massive food insecurities have been largely ignored for decades.¹ These crises have shown that today's global food system is far from resistant to shocks and stresses; its disturbance exacerbates already limited access, widens existing inequalities, and ultimately worsens nutritional status worldwide.² In the backdrop is an evolving climate emergency that is already beginning to negatively affect food production, availability, affordability, and diversity across the globe. However, the damaging effects of climate change on nutrition and the food system are distributed unevenly, influenced by differentiated geographic and social vulnerabilities.³

At the same time as food is shaped by large scale social and environmental change, the way it is produced also contributes to the interlocking crises that affect it. Today's food system is generating many products that improve health and nutrition worldwide, but it is also a source of unhealthy products such as ultra-processed foods that exacerbate the global burden of obesity, diabetes, and other non-communicable diseases.⁴ Food's limited accessibility and affordability for large groups of people in certain regions and population segments around the world also leads to hunger and undernutrition.⁵ And while the food system is vulnerable to climate change, it is also contributing to the destruction of the planet through carbon emissions, biodiversity loss, and pollution to air, land, and water.

Planetary health approach to fixing the food system

To avert the converging human health and ecologic crises, the vicious cycle that afflicts the global food system must be urgently broken. Fixing the food system is also central to meeting the sustainable development goals, achieving the Paris agreement and Glasgow pact, and preserving the planetary boundaries—such as those for biodiversity and changing land use—that will ensure life on Earth remains possible.⁶ However, the health sector can no longer rely on the traditional clinical approach to food and nutrition if the world is to meet the nutritional needs of a continuously growing global

population faced with constant crises and change while safeguarding the health of the planet for current and future generations.

What is needed is a planetary health approach that integrates the health of human civilization with that of the natural ecosystems on which it depends.⁷ Individual health professionals already have to deal with many problems and fulfill different obligations within the healthcare system, especially as the covid-19 pandemic continues. Hence, planetary health oriented solutions to the food-climate-health nexus will be best advocated by health sector organizations, including medical societies, public health advocacy groups, academic institutions, and healthcare systems.

Several solutions are emerging in both the scientific literature and policy discourse that the health sector should consider promoting to patients, nutrition practitioners, and healthcare organizations. These include adopting the planetary health diet⁸ and reducing meat consumption; incorporation of sustainability in food based dietary guidelines; promoting food sustainability in healthcare and public health; and revisiting indigenous diets. These are actions that the health sector can implement on its own. However, since the global food system is complex and multifaceted, health sector advocacy in other sectors (agriculture, energy, industry, etc) is also important.

Adopting a planetary health diet

One solution that has arisen in recent years is the planetary health diet, which was introduced in 2019 by the EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems.⁸ Combining best available evidence from medical and environmental sciences, the commission developed global scientific targets for healthy diets and sustainable food production.

To improve the health of 10 billion people by 2050, we need to double consumption of healthy foods such as fruits, vegetables, legumes, and nuts and at least halve global consumption of less healthy foods such as added sugars and red meat. Meanwhile, to ensure that the food system does not breach the planetary boundaries while feeding the global population, major shifts toward plant based diets, big reductions in food losses and waste, and substantial improvements in food production practices will be required.

An important component of the planetary health diet is reducing meat consumption, particularly red and processed meat. Livestock production is estimated

to be responsible for 14.5% of the world's total greenhouse gas emissions.⁹ Moreover, the entire meat chain also significantly contributes to the breaching of several planetary boundaries.¹⁰ Vast swathes of land are being used for grazing farm animals, impinging on natural ecosystems and contributing to biodiversity loss.¹¹ Meat production also consumes massive volumes of water and energy, thereby accelerating depletion of natural resources.¹²

Promoting the planetary health diet will also benefit human health. Red and processed meat have been shown to increase the burden of various non-communicable diseases, including coronary heart disease, diabetes, and colorectal cancer.¹³ Reducing meat consumption will not only protect people from these diseases but may also help prevent complications—for instance, cataracts among people with obesity.¹⁴

Moreover, reducing meat production will help prevent future pandemics caused by emerging viral pathogens or microbes resistant to antibiotics. Substantial human-animal interaction takes place in animal food production, which increases the likelihood of zoonotic spillovers by pathogens coming either from domesticated animals or from wildlife in encroached natural ecosystems.¹⁵ Additionally, almost 75% of antimicrobials are being used in animals raised for food, which is exacerbating the other looming slow burn pandemic of antimicrobial resistance.¹⁶

Incorporating sustainability into dietary guidelines

One area where the planetary health diet can be encouraged is through national dietary guidelines, which are the basis for national food and nutrition policies and school feeding programs. Unfortunately, environmental sustainability still does not prominently feature in these guidelines. For instance, a 2019 international guideline recommended not reducing consumption of red and processed meat while also admitting that environmental effects were not considered.¹⁷ An analysis of dietary guidelines in 85 countries found that most are not compatible with global environmental targets such as the Paris agreement and will not help prevent the violation of several planetary boundaries.¹⁸

Dietary guidelines in the era of climate change must be revised to integrate sustainability—for instance, by incorporating the requirements of the planetary health diet. However, the challenge is to ensure that such revisions consider diverse contexts, as different countries have varying geography, climate vulnerability, cultural preferences, and nutritional needs. For instance, any changes to the animal-protein based diets of small coastal communities, cattle herders, or small indigenous communities in developing countries must be considered carefully to ensure that their nutrition and food security are not compromised. Moreover, some developing countries may need to slightly increase their meat consumption because of their high prevalence of protein energy malnutrition. Meanwhile, rich countries with a high meat consumption must do their fair share in reducing consumption to cut emissions while keeping their population's high nutritional status. Revising dietary guidelines to align with planetary health principles requires balancing international evidence and global targets with local context and equity considerations.

Promoting sustainable diets in healthcare and public health

In addition to guidelines, sustainability can be embedded in food systems within healthcare systems that serve food to patients and staff. Patients are starting to demand more local produced and less processed food be served in hospitals.¹⁹ From the perspective of healthcare workers, some evidence of direct benefits of sustainable

and nutritious diets to their health is also emerging. A study of healthcare professionals in six nations found that those who ate mostly plant based diets had a 73% lower risk of moderate to severe covid-19 than those who ate other diets.²⁰ In addition, a vegan diet enhanced cardiometabolic results and quality of life among these healthcare workers.

Healthcare systems and hospitals around the world are beginning to alter their menus to provide more plant derived foods to meet diverse dietary requirements and mitigate emerging environmental threats. For example, several states in the United States, including California and New York, passed legislation mandating plant based options for patients in hospitals,^{21 22} while the hospitals of the Buddhist Tzu Chi Foundation in Taiwan are already providing plant based meals that are locally produced.²³ Other notable practices that are being piloted in several healthcare systems worldwide include encouraging hospital patients to opt for plant based meals on Mondays and prescribing mindful eating to patients and staff.

Outside hospitals and healthcare systems, public health nutrition programs must also begin to consider integrating sustainability into their design and operations. In recent years, especially in the light of shocks such as climate driven disasters and armed conflict, calls have grown to increase the resilience of emergency nutrition programs.²⁴ Environmental sustainability, which is vital for lowering the humanitarian sector's ecologic footprint, is highly compatible with resilient nutrition. In humanitarian settings, emergency nutrition programs should begin to consider not only the adequacy and nutritional value of food products being distributed but also the environmental footprint of their production and transport.²⁵

Similarly, outside humanitarian emergencies, nutrition programs that aim to combat hunger and malnutrition among low income communities in rich and poor countries must also begin incorporating sustainability considerations. Several of the proposed solutions include supporting local production and organic farming, although more research is needed to establish their combined environmental and health effects. Furthermore, incorporating sustainability and resilience into public health nutrition programs presents financial and operational challenges as well as difficult trade-offs (for instance, the need to respond quickly during disasters versus the limited affordability of "greener" food options) that need to be further investigated by the health sector.

Revisiting indigenous diets

The effect of ecosystem degradation on indigenous communities and growing calls for "decolonization" and racial justice, are spurring discourse around the revival of indigenous or traditional foods, which have been marginalized for centuries by our industrial model of agriculture. Indigenous food systems are considered more environmentally sustainable than current methods of large scale food production because their minimal food processing maximizes the nutrients gained and they avoid disruption of nature.²⁶ However, their potential scalability is largely unknown, and evidence on the health benefits of indigenous diets remains scant. As these diets are nutrient diverse and dominated by plant based products, they may confer the same health benefits expected from adopting the planetary health diet, such as combatting undernutrition and non-communicable diseases.²⁷

The health sector should consider investigating the hugely understudied health and ecologic effects of the world's diverse indigenous food systems. Such effort will also help preserve disappearing cultural heritage and knowledge systems and give increased attention to indigenous communities that are some of the world's most climate vulnerable populations. For example, the

Indian state of Jharkhand has a sizable number of smallholding farmers belonging to the marginalized indigenous group Sauria Paharia.²⁸ Climatic changes have resulted in long dry spells in the region, affecting their traditional food production practices and making them more vulnerable to starvation and hunger.

Advocacy role of health sector

Changing our food systems will require proactive and sustained advocacy and awareness raising efforts from the health sector. Food systems at local, national, and global levels are currently shaped and even controlled by the powerful food industry, including transnational food companies. The health sector must therefore build its capacity to tackle the commercial and corporate determinants of disease and its risk factors, such as unhealthy and unsustainable diets,²⁹ and push for policies and regulations that promote health, nutrition, and environmental protection, including fiscal policies such as food, health, and carbon taxes.³⁰ There is so much potential for convergence and joint learning and advocacy between the health and nutrition community and the climate and environment sector.

The work towards food system transformation is far from easy. Health and nutrition equity must be promoted alongside environmental sustainability and climate protection to ensure that existing gaps are not widened and that no one is left behind. The measures described here are just some of the emerging solutions that the health sector should consider in adopting a planetary health approach, minimizing harm to the health of both people and planet and maximizing health and equity for all.

Key messages

- Today's food system is both a cause and a consequence of large scale social and environmental change, including the evolving climate emergency
- The health sector must go beyond the traditional clinical approach and embrace planetary health to improve the health of both people and the planet
- Actions include adopting the planetary health diet, incorporating sustainability in dietary guidelines, healthcare, and nutrition programs; and revisiting indigenous diets
- The principle of equity must be at the centre of advocacy for food system transformation

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