CHAPTER 16
Healthy People, Healthy Planet: Holistic Thinking

Jamie Harvie and Erminia Guarneri

Summary In the context of our broad ecological calamity, we highlight the linkages between climate change and human health. Holism is offered as a unifying model and process to align and foster individual, community, and planetary health and thereby address our existential crisis. We explain healthcare's significant climate footprint and the obligation and opportunity for the healthcare sector to think and act holistically. Our linear economy is used as another example to explain how mechanistic thinking fuels ecological degradation, inequality, and adverse health outcomes. Action steps that support a healthy planet for all now and for all future generations are offered along with guidance for healthcare systems and health professionals.

Introduction

In the context of our planetary ecological calamity—climate change, stratospheric ozone depletion and ultraviolet (UV) radiation, biodiversity loss, land degradation and desertification, water pollution and water scarcity, and persistent toxic contamination—(World Health Organization, 2014; EPA, 2017b) the global human community is facing an existential crisis. Indigenous communities have long understood the indivisible relationship between individual, community, and ecological health. In the Anthropocene, we are relearning this ancient wisdom by necessity as we confront the stark reality that the health and survival of human populations is inti-

J. Harvie (✉)
Institute for a Sustainable Future, Duluth, MN, USA
e-mail: harvie@isfusa.org

E. Guarneri
Pres. Academy Integrative Health and Medicine, Medical Director Guarneri
Integrative Health, La Jolla, CA, USA

mately connected to the health and resilience of global ecosystems, both of which are in crisis together. We cannot be healthy on an unhealthy planet.

Medical wisdom helps explain these crises as symptoms of an underlying problem, a root cause. What we discover is that we must think differently. With urgency, we are called to relearn and adopt a new worldview. This call to action is central to the emerging Great Transition, a global paradigm shift from a mechanistic anthropocentric model to an ecological living systems model. Rather than focusing on discreet parts, we must look at the world for what it is, a complex interrelated holistic system of relationships. If we are successful, we will discover a host of strategies that can release the emergence of powerful, compassionate, equitable approaches to the multitude of problems confronting our common home, fostering health and creating livable communities for all and future generations.

Climate and Health

Climate change alone has been called the largest human health threat by public health, medical, and healthcare organization across the globe (Watts, 2018; World Health Organization, 2016). Direct and indirect health effects of climate change include temperature-related death and illness, air quality impacts, mental health effects, extreme weather events, water-related illness, and conflict. Food safety, malnutrition, undernutrition, and food security are additional concerns, particularly in relation to floods and drought. Rising temperatures increase ground-level ozone, which in turn creates difficulty breathing, the aggravation of asthma and the development of new cases of asthma, emphysema, chronic bronchitis, and pneumonia. Ozone can also affect the heart, leading to cardiac arrhythmia and heart attacks as well as increasing the number of low-birthweight babies (EPA, 2017a). Aeroallergens such as pollen are higher in extreme heat. Higher levels of aeroallergens trigger asthma, affecting close to 300 million people (Baxi & Phipatanakul, 2010). Heat stress can make working conditions unbearable and increase the risk of cardiovascular, respiratory, and renal diseases (U.S. Global Change Research Program, 2016). Vulnerable populations include children, pregnant women, the elderly, and socially marginalized groups, all of whom experience greater susceptibility to climate-sensitive health impacts. Even animals are at risk; pollinators such as bees can develop heat exhaustion and decreased immune response (McKinstry et al., 2017).

Climate change lengthens the transmission season and expands the geographical range of many diseases like yellow fever, malaria, chikungunya, Lyme, West Nile, and dengue.

Emotional, spiritual and mental health impacts are also recognized effects associated with climate change and can include trauma, fear, fatalism and loss of loved ones, livelihoods, social support, identity, and a sense of control (Clayton, Manning, Krygsman, & Speiser, 2017).

It is estimated that up to 90% of health is accounted for by social and environmental factors outside of healthcare (Minnesota Department of Health, 2014). In the context of the global burden of chronic disease, the health sector is awakening to the

limitations of the biomedical approach, which focuses on disease treatment (Abelson, Rupel, & Pincus, 2008; Bendelow, 2013; Huber et al., 2011). Industrial agriculture, a sector which contributes approximately 30% of global climate emissions (Food and Agriculture Organization, 2011)—far greater than transportation—employs a similar mechanistic model with an overwhelming array of unintended impacts to individual, community, and planetary health. Our industrial economy is another linear model that inaccurately assumes finite resources and unlimited growth, ultimately contributing to resource depletion, ecological degradation, and concentrated wealth (Ellen McArthur Foundation, 2013; Piketty & Goldhammer, 2017; World Economic Forum, 2014). If we can find solace in our climate emergency, it is that the situation is forcing us to rapidly reevaluate the design of human society and the necessity for the application of a holistic, or living systems, model.

Holistic Thinking

It is not surprising that we are experiencing profound challenges. Many of our institutions and approaches were built on a mechanistic, cause-and-effect scientific model that does not fully explain the complexity of humans, our relationships and the interconnectedness of all life (Rosas, 2015). Acknowledging this truth helps us understand why, as Pope Francis states, "*It cannot be maintained that empirical science provides a complete explanation of life, the interplay of all creatures and the whole of reality*" (Francis, 2015). Moreover, a linear model precludes full systemic awareness.

A systems worldview shifts our perception of critical matters in new and profound ways. As this model requires us to change our focus from parts to the whole, it is often described as a holistic approach. Some of its novel attributes include the following shifts (Capra, 2012):

- From parts to the whole
- From objects to relationships
- From isolated knowledge to contextual knowledge
- From quantity to quality
- From structure to process
- From contents to patterns

Systems models support approaches and organizational paradigms that are characterized by collaboration and connection, rather than hierarchy and control. Systems thinking helps rebalance empirical scientific knowledge by re-prioritizing cultural wisdom and knowledge and by embracing diverse expertise and experiential contexts. Through a shift in value from quantity to quality, an entirely new holistic set of qualitative metrics can be developed. If we are going to succeed in addressing the human-made challenges of our common home, it seems obvious that this living systems model enables us to align our ways of operating in accordance with life on a complex planet, reflective of our true nature and thereby fostering health.

Holism: A Systems Model of Health

Efforts to better incorporate this holistic understanding into institutionalized definitions of health are ongoing. International experts now recognize that the once-heralded World Health Organization definition of health, formulated in 1948, as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" is insufficient, as the term "complete" suggests an unachievable end state, unintentionally perpetuating the medicalization of society (Huber et al., 2011). "Positive health" is one of the most recent definitions offered by international experts to reflect the dynamic nature of health, or "health as the ability to adapt and to self-manage in the face of social, physical and emotional challenges" (Huber et al., 2011). What we are uncovering is ancient learning from indigenous cultures, from which we all are rooted. The health and well-being of individuals is inseparable from nature and inseparable from the health of community (Fig. 16.1) (Harvie, 2016).

The well-known US poet and farmer Wendell Berry made this thoughtful statement about health:

> "Health is not just the sense of completeness in ourselves but also is the sense of belonging to others and to our place; it is an unconscious awareness of community, of having in common. It may be that this double sense of singular integrity and of communal belonging is our personal standard of health for as long as we live."
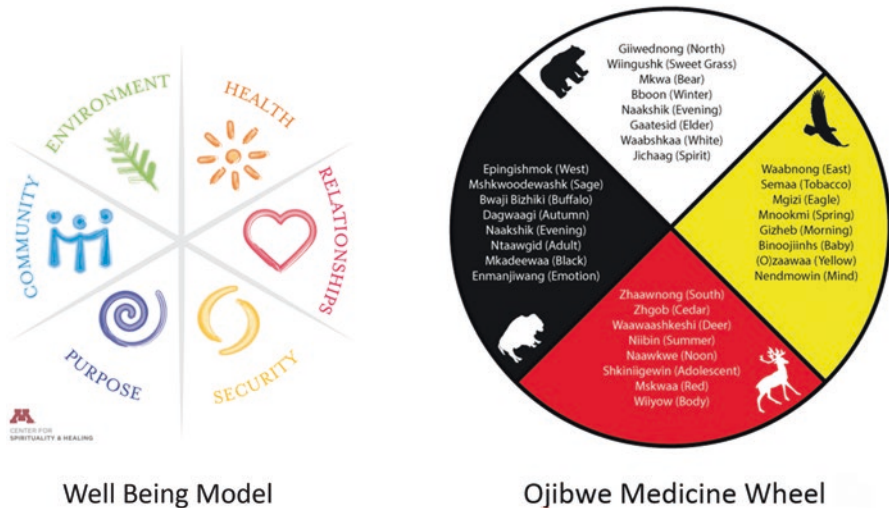

Fig 16.1 a Well-being model. **b** Ojibwe medicine wheel. http://www.curvelakeculturalcentre.ca/culture/medicine-wheel/

Though not a clinician or healthcare expert, Berry's observation is consistent with ancient wisdom, modern science and most recent health concepts which understand the indivisibility of individual, community, and planetary health (NACCHO, 2019; Adelson, 2007; Hermida, 2011). Solastalgia, or distress caused by environmental change, negatively affects health, while views of nature improve health (Albrecht et al., 2007; Ulrich, 1984). Similarly, a sense of connection, empathy, spirituality and love confer intrinsic health properties (Egolf et al., 1992; Puchalski, 2001; Rakel et al., 2011). Studies show that when we experience a sense of awe from viewing nature, we reduce stress, become more generous, and feel a sense of plentitude (Bai et al., 2017; Joye & Bolderdijk, 2015; Rudd et al., 2012; Stellar et al., 2015). We can infer from these studies that nature and relationship have helped us co-evolve as a communal species.

Individuals and communities measure health qualitatively, which is different (though equally valid) from those of public health and healthcare experts (Huber et al., 2016), The respect for inherent individual knowledge and self-efficacy and connection is a fundamental point, increasingly understood as a foundational principle, an essential ingredient required to foster agency and thereby improve health.

Within North America, Europe and elsewhere, holistic medicine and nursing approaches are being increasingly embraced. Functional medicine is a systems biology based approach that focuses on identifying and addressing the root cause of disease and sees health as homeodynamic, a function of dynamic balance between internal and external factors. Integrative medicine (IM) is healing-oriented medicine that takes into account the whole person—mind, body, emotion, and spirit—including all aspects of lifestyle. It emphasizes the therapeutic relationship between practitioner and patient.

Regardless of any specific health definition or clinical approach, these efforts to elevate our resilience and our relationship to planetary health demonstrate the emergence of collective wisdom. A holistic model of health better explains that we are ever changing, social, sentient beings in intimate relationship with all living beings on a dynamic planet. Individual, community, and planetary health are inseparable. The holistic model of health care is fundamental to helping us unlock and galvanize our efforts to support and protect planetary health and ecological integrity. What we do to the planet, we do to ourselves.

Our challenge will be how to amplify our voices into collective action and resist the allure of deeply entrenched mechanistic thinking across society. Across the globe, we are witnessing the emergence of new paradigm models across society. Our opportunity is to deepen our commitment to these systems models, strategies and approaches and bring them to light. By so doing, we will foster healthy communities and better align with the many values that ultimately make us resilient, healthy and whole and allow us to thrive.

Towards a Health Commons

One manifestation of the industrial food system model is the obesity crisis and the global burden of chronic disease, which have aggravated a financial crisis in the healthcare sector. Climate change is anticipated to further exacerbate this financial stress. These stressors are also leading to our increasing awareness of a broader fragility of the healthcare sector itself. Much like the industrial food model, its design and operations have largely been built on a mechanistic model, putting its long-term health and that of the planet in peril.

For example, the way that health care is organized, financed and delivered may contribute to health disparities by limiting access to certain populations, inadvertently incentivizing utilization. In addition, the health care sector has a sizable ecological footprint including discharge of toxic chemicals, pharmaceuticals, air and water pollution, and solid waste—all associated with negative health outcomes. Healthcare is also a substantial contributor of greenhouse gas (GHG) emissions. The U.K. National Health Service generates an estimated 39% of all public sector emissions (Health and Care System (HCS) Carbon Footprint, n.d.). The US healthcare sector represents an estimated 10% of total US GHG emissions. If the US healthcare sector were itself a country, it would rank 13th in the world for GHG emissions, ahead of the entire UK (Eckelman & Sherman, 2016).

The pharmaceutical footprint is an estimated 21% of the UK healthcare footprint, greater than building energy (Fig. 16.2). Reducing the pharmaceutical impact
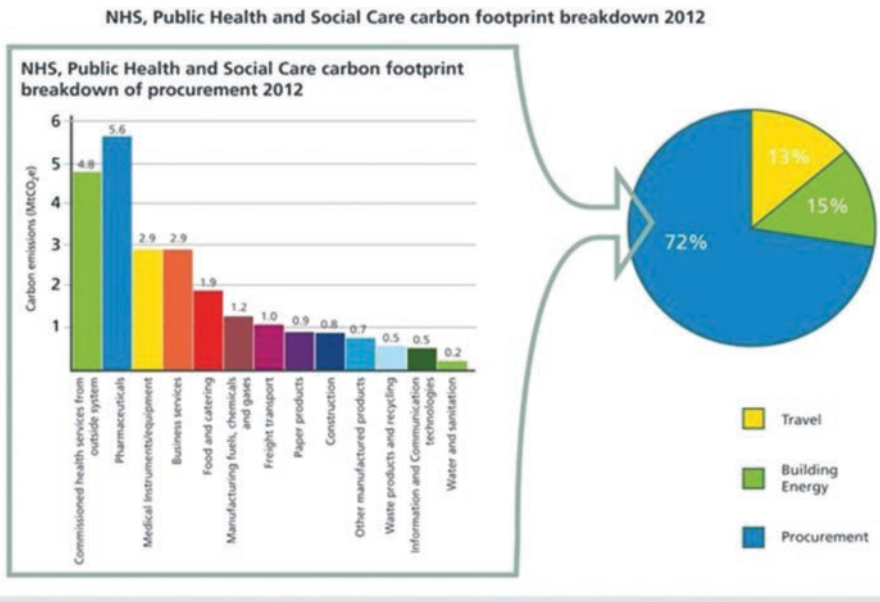

Fig. 16.2 National Health System Carbon Footprint Breakdown 2012 (NHS Sustainable Development Unit, 2013)

by 2.5% is estimated to offer the highest carbon reduction impact (Bouley et al., 2017), which offers strong insights regarding the potential of wellness or resiliency as a powerful climate mitigation strategy.

Viewed systemically, it becomes clear that our focus on disease treatment has caused us to lose sight of a more comprehensive whole, and has inadvertently created a self-magnifying disease treatment sector with deleterious climate and ecological health impacts that imperil its own sustainability.

Studies show that progress toward reducing health disparities and improving well-being will involve support for community-based strategies, enhanced understanding of the social determinants of health and an increased diversity of the healthcare workforce (Jackson & Nadine, 2014), Symposia convening healthcare and community highlight the imperative to adopt a systemic approach to health, emphasizing themes that include the concept that health is place-based, holistic thinking and the need to include a diversity of community expertise. In parallel to the failures of the industrial food model, the healthcare sector itself is called to think holistically. Healthcare itself is but one part of a health commons—the collective resources and relationships within a defined geographic boundary that foster health (Fig. 16.3).

Across the world, medical professionals are among the most trusted occupations. Yet we must remember that health as a biophysical process remains deeply embedded in our collective psyche, including healthcare. This transition will challenge a powerful medical industry with economic interests vested in supporting and maintaining our attention on individualized treatment. Similarly, the idea that health is transactional, something given, or received—rather than dynamic and relational—is a powerful, alluring concept that is deeply entrenched and will remain difficult to resist.
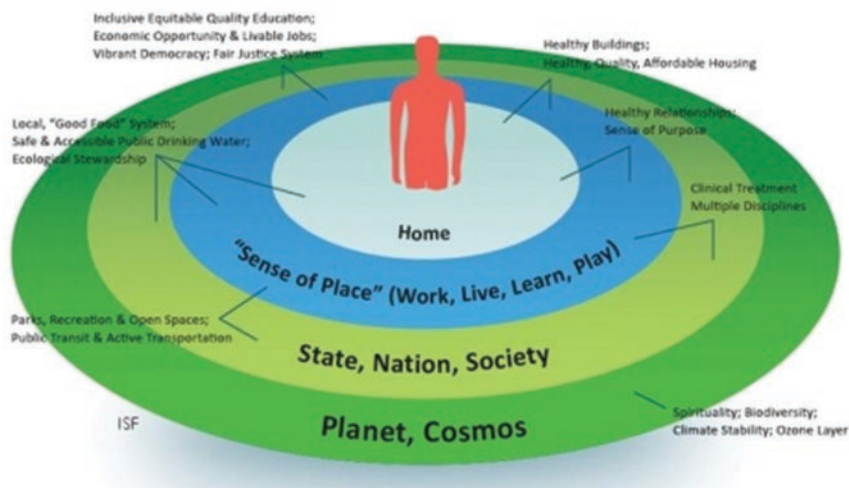

Fig. 16.3 Commons Health Model. http://www.isfusa.org

Nevertheless, in the context of climate change, we can no longer wait. There is an urgency to radically redesign our communities to equitably foster health. To do so, we must shift the locus of health to whole persons and the system of relationships in which they exist.

Being Well Together: Towards a Livable Economy

The last 150 years of industrial evolution have been dominated by a one-way or linear model of production and consumption in which goods are manufactured from raw materials, sold, used, and then discarded or incinerated as waste (World Economic Forum, 2014). This linear model has been supported by an economic system requiring an endless growth of production, which itself is contingent on consumption or consumerism (Movahed, 2016).

The nature of the economic system reinforces the primacy of economic growth, which promotes the externalization of social and environmental costs. At the current rate of consumption, only 58 years of minerals and metals remain available. Additionally, our oceans and marine life are filled with plastics, and the web of life is contaminated with persistent toxic chemicals. Ironically, CO_2, the waste product from the same fossil fuels that feed the global economy, is now predicted to destroy it.

Growth has been uneven, with extremes in inequality across the globe. Income disparities have become so pronounced that America's top 10% now average more than 9 times as much income as the bottom 90%, while the top 1% average over 40 times more income than the bottom 90%. The world's wealthiest individuals, those owning over $100,000 in assets, total only 8.1% of the global population but own 84.6% of global wealth, while the world's ten richest billionaires own $505 billion in combined wealth, a sum greater than the total goods and services most nations produce on an annual basis. The concentration of economic power and influence is highly concentrated with 147 companies, the majority financial institutions, controlling 40% of the global economy (Vitali et al., 2011). In such a dominant system, it is difficult to imagine how anyone might discover any hope in their ability to affect change. It should come as no surprise that inequality negatively affects our health.

At the local level, high inequality can create a sense of personal and public insecurity (Phillips, 2016). Rich countries with higher inequality consume more resources and generate more waste per person, influencing health through multiple pathways (Dorling, 2011). In a vicious cycle, reducing the formation of human capital, unequal access to education, poor health, and inadequate nutrition are both causes and consequences of inequality. Those on the lower end of economic disparity experience higher infant mortality and decreased mental health, life expectancy, levels of trust, altruism, social cooperation, reciprocity, and trust in political institutions (Attanasio, Fitzsimons, Grantham-McGregor, Meghir, & Rubio-Codina, 2012; Bowles & Gintis, 2013; Burns et al., 2014; Elgar & Aitken, 2010).

Viewed holistically, inequality may in fact represent one of the largest influences on the health of individuals, communities, and the planet. Citizens across the planet are experiencing a deepening spiritual emptiness as the economic model pulls us

away from a vital sense of connection and relationship with one another and the planet; this connection helps make us resilient and well. The extremes in inequality are rapidly eroding the sense of trust and cooperation necessary for the functioning of civil societies and the global economy itself. In addition, in our singular quest for economic growth, we have lost sight of what makes us healthy and whole. Our hearts and minds tell us we need a new regenerative economic paradigm, designed first and foremost to support the health and resilience of all living beings together on our common home. This model is taking form.

Participatory budgeting is a democratic process in which community members directly decide how to spend part of a public budget. Designed to include those often left out of the democratic process such as low-income individuals and youth, participatory budgeting has now spread to thousands of cities across the world and been promoted as a best practice for democratic governance by the United Nations.

British Columbia, Canada, has adopted a tax (or fee) and dividend to regulate carbon emissions. Tax and dividend improves health by equitably distributing financial benefits to all citizens, allowing for the just transition to a carbon-free economy (Citizens' Climate Lobby Canada, 2019).

Inequity is driving a renewed focus on cooperative and worker ownership models, especially as research demonstrates how employee-ownership offers significant benefits including higher median wage income, job stability and household wealth, and benefits such as flexible work schedules, retirement plans, parental leave, and tuition reimbursement.

By including impacted communities and workers in their strategy, the Global Alliance for Incinerator Alternatives (GAIA) and others have been instrumental in helping shift policies towards zero waste and away from a "design for the dump" or "built to be burned" approach. Across the globe, we have witnessed a necessary shift away from plastic bags, Styrofoam, and other single-use polluting products. The concept of a circular economy, an industrial system that is restorative or regenerative by intention and design, is now rapidly advancing. Studies show that a shift to a circular economy, in which waste is designed out, can reduce climate emissions by up to 70%.

Global movements such as Transition Towns and Sharing Cities and nationwide networks such as Businesses Alliance for Local Living Economies (BALLE) within the USA are cultivating community-rooted enterprises, reclaiming the commons, democratizing and reorienting finance and building an economy that works for all. For this work to grow, it will require us to move beyond the singular economic measure of progress and the gross domestic product, and adopt holistic metrics such as the Genuine Progress Indicator, Gross National Happiness Index, Inclusive Wealth Index or co-create a new one that truly reflects the needs and aspirations of humans for a healthy meaningful life.

Despite the debilitating climate change predictions, punishing inequality and all the other crises affecting our planet, we are witnessing creativity, self-organization and the worldwide emergence of a new economy that can work for all (Fig. 16.4). Collectively, these are helping to demonstrate that we can change our current trajectory and there are viable economic alternatives that put the health and resilience of people and the planet at the center.
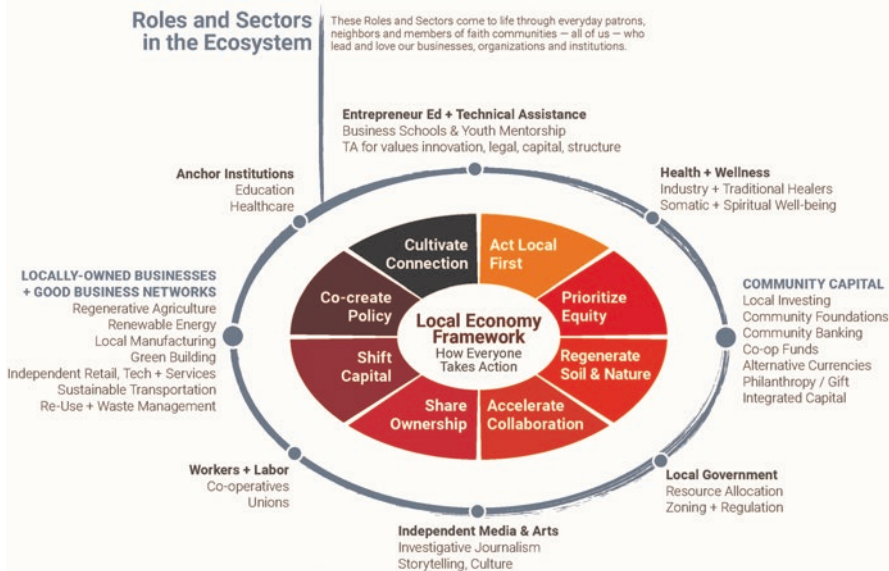
Fig. 16.4 Local economy ecosystem to build a healthy, equitable local economy (From BALLE, https://bealocalist.org/local-economy-framework/)

Action Steps

Climate Justice

A holistic worldview informs us that climate change is not strictly an environmental issue but one that also connects and links all of humanity. Strategies and approaches must be grounded in a human rights framework that guards the rights of the most vulnerable people and shares burdens and benefits of climate change equitably. Organizations and approaches must be grounded in climate justice principles, such as the Mary Robinson Foundation Climate Justice Principles.

Wealth Creation

We all do better when we all do better. Citizens, institutions and other purchasing entities can use their purchasing power and investments to align their values by preferentially supporting businesses with employee stock ownership programs (ESOPs) or worker, consumer and other cooperative models that are designed to feature principles of human well-being such as justice, equity, ecological steward-ship, and community. Prioritize equity in hiring and job creation.

Dietary Wellness

Industrial meat production has an outsized global carbon footprint. Cities, hospitals, churches, schools, and universities can initiate support for policies, practices, and programs such as the global Meatless Monday's Initiative and catalyze a global shift towards plant-based diets. High-caloric beverages are significant contributors to obesity with a direct and indirect climate footprint. Institutions can adopt policies to phase-out sales. Examples from Mexico and the USA and other countries demonstrate how sugary beverage taxes can increase consumption of healthy beverages and indirectly mitigate climate change, while revenue can be directed to support publicly owned water systems or be allocated through participatory budgeting.

Good Food Purchasing and Food System Models

Cities can encourage anchor institutions such as hospitals, schools, and universities to adopt purchasing policies similar to the US-based Center for Good Food Purchasing, which provides steps and metrics that catalyze good food production and demand. Cities and economic development agencies can invest and support community-owned holistic food systems models, such as The Food Commons.

Health Commons and Fostering Health

Governments, communities, healthcare, nursing, and medical schools can locally adopt recommendations similar to the NHS Manifesto for Health Creation (NHS Alliance, 2017), Manifesto for Sustainable Global Health (Manifesto for Sustainable Global Health, 2017), Creating Health Collaborative or the Commons Health. These suggestions encourage place-based community decision making, agency and shift away from a disease model.

Integrative Health and Medicine

Governments should support and adopt the Stuttgart Declaration, which calls on governments to recognize integrative health and medicine as a whole society approach that will help to reach the Sustainable Development Goals. They should encourage more holistic training in medical and nursing schools, including multidisciplinary fellowships such as the Academy of Integrative Health and Medicine Fellowship.

Climate Neutrality and Climate Smart Healthcare

Citizens and governments can encourage hospitals across the globe to adopt climate neutrality goals and climate-smart healthcare strategies such as those outlined in the World Bank Group document, Climate Smart Healthcare (Bouley et al., 2017), or adopt the 2020 Health Care Climate Challenge designed to mobilize health care institutions around the globe to protect public health from climate change. Clinicians can participate in the Medical Society Consortium on Climate and Health.

The Commons and the Healing Power of Nature

In the context of scarcity, it will be vital to develop strategies to embrace, preserve and equitably share our commons. The commons include but are not limited to forests, fisheries, parks, public-owned water treatment, renewable energy, libraries, medicinal plants, and so on. It is vital that governments and citizens develop legislation, legal structures and self-governance strategies that maintain these assets for our commonwealth and future generations. Clinicians can prescribe the healing power of nature and advocate for equitable access to green space.

Active Living and Public Transportation

Communities and clinicians can advocate for accessible and affordable public transportation and prioritize pedestrian and bicycle policies and practices, such as bicycle lockers, showers and connectivity to public transportation.

Zero Waste

Together, citizens can adopt and mobilize their homes, communities, schools, universities, hospitals, and businesses to adopt zero waste policies and eliminate the landfilling and incineration of waste. Food waste reduction strategies are a high priority. Prioritizing reduction and reuse other strategies, such as those proposed by GAIA, include municipal composting, phase-outs on Styrofoam, plastic straws, and other single-use items such as carryout bags.

Being Well Together

On a planet in crisis, we will need to improve and hone lost skills for working in community and in collaboration. This transition will require practices to open hearts and open minds such as mindfulness, meditation and deep immersion in skills and

methods to harness the collective wisdom and self-organizing capacity of groups. Take action on something together. Our health is a function of our relationships.

Skills for Health Professionals

Healthcare professionals should build belief in their own resilience and cultivate active coping and self-regulation skills for themselves and their patients. They should adopt and guide patients to maintain practices that help to provide a sense of meaning and that foster optimism, as well as highlight and promote connectedness to family, place, culture, and community. Clinicians should become climate-literate professionals and engage with fellow health professionals. They should be vocal, model leaders within their communities, and support national and international climate solutions (Clayton et al., 2017).

Conclusion

For the last half century or more, we have ignored the growing signs that our planetary life support system is in peril. Through floods, drought, and storms, climate change has cracked a dam of hubris and denial and is stirring an awareness about the inter-relationship of all life. Now, we are awakening to the realization that humanity's challenges are our own doing, a function of linear models and associated hierarchical structures and operating systems incongruous with the complexity of life.

One challenge that health professionals understand is that, in times of crisis, the human body and mind may "freeze." Immobilization is a natural defense mechanism, yet it results in an incapacity to act. So while one inclination is to create a heightened sense of fear and urgency about the climate emergency, it may, in fact, create inaction.

Perhaps one of our biggest challenges is to understand the pervasive power and influence of our dominant narrative. We are challenged by patterns of thought that have been reinforced daily through our culture since birth. It makes us want to focus on climate change or carbon as a singular issue, when climate change is a complex product of multiple factors. Many of us have lost the skills to work in groups; without these necessary skills, the notion of collaborating with individuals having diverse perspectives can be paralyzing. We can be intimidated by a cultural belief in the primacy of science and question our internal wisdom when something does not feel right, even though deep-rooted human values will almost always offer the best path forward hand-in-hand with scientific knowledge.

In fact, leading with one's heart and an awareness of the connection to all life is the essence of planetary health and resilience. Though we are challenged with little time to spare, it is this awareness that offers us necessary direction. By adopting a

new regenerative operating system with health and well-being at the core, we have the opportunity to elevate a new narrative together, and we can co-create a healthy and resilient world for all.

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