Health & Environment Co-benefits: concepts and recommendations for clinical practice

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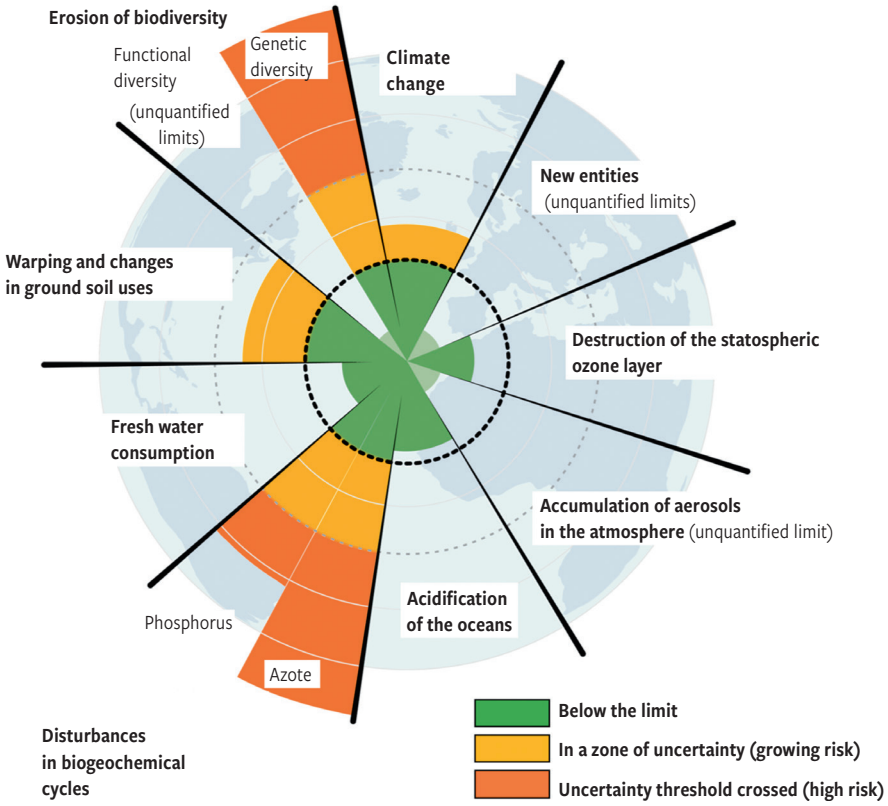
Introduction

PLANETARY BOUNDERIES AND HEALTH

The health of ecosystems and human health are closely linked. Interdisciplinary approaches and initiatives such as "One-Health," "EcoHealth," and, more recently, "Planetary Health" articulate this link.[2-4] The three concepts are based on recognizing the interdependence between living organisms, both human and non-human, and their ecosystems. And yet, we are living in a time when human activity is leading to a profound degradation of the environment all over the world. Nine planetary boundaries for earth system processes have been proposed who's critical thresholds should not be crossed if we want to maintain our ecosystems and avoid risk of unwelcome outcomes[5,6]: 1) climate change, 2) loss of biodiversity, 3) disturbances in biogeochemical cycles of nitrogen and phosphorus, 4) deforestation and changes in land use, 5) chemical pollution, 6) ocean acidification, 7) depletion of the ozone layer, 8) the degradation of drinking water, and 9) aerosol pollution. These "planetary bounderies" (**figure 1**) are suggested to represent a framework within which human activity can develop safely while still allowing the Earth systems to function sustainably. Yet several of these thresholds have already been crossed or are in a risky zone of uncertainty. This is all the more worrying because the connect ions between these various forms of environmental degradation and to human health are non-linear and complex.

While significant improvements in terms of life expectancy and overall health have been made in the past few decades, this progress risks being compromised by anthropogenic climate change and degradation of the planet's natural ecosystems.[2,7] For instance, the loss of biodiversity, global warming, and soil depletion all risk compromising sustainable food production. Similarly, climate change and air pollution are responsible for respiratory illnesses and a growing number of deaths around the world. The acute prevalence of heatwaves is already linked to a steep rise in mortality amongst elderly people in our part of the world and risks compromising the habitability of some regions of the planet. With this in mind, the Lancet Countdown's annual reports are sounding

FIG 1 **Representation of planetary bounderies**



(*Credit: J. Lokrantz/Azonte, based on Steffen at al., 2015.*)

the alarm of the major threats to the health of global population and of future generations coming from the current global warming and, more generally, environmental degradation trends.[8,9]

Healthcare workers are key witnesses of the harmful impact that environmental degradation can have on the health of individuals and populations. Underlining the link between crossing planetary thresholds and health issues could contribute to putting environmental stakes into a more tangible context and thus encourage changes in individual behavior and policy changes at the level of community governance. On the other hand, the 2019 Lancet Countdown report reveals that there are hardy any searches linking "global warming" and "health" on Wikipedia.[9] A growing number of editorialists and medical organizations have spoken out about the role that they think healthcare professionals should play in encouraging people to transition towards lifestyles that are more compatible with keeping within planetary bounderies,[9,10–18] but few studies are available

on how to put such ambitions into practice, or about how effective such transitioning would be.

While our lifestyle may well be part of the over consumption of resources and the degradation of natural ecosystems, it is clear that a certain number of health problems facing society today also result from this same lifestyle. For instance, the acute prevalence of type 2 diabetes, cardiovascular disease, and obesity is related to consuming ultra-processed foods, full of saturated fats and sugar and to the increasingly sedentary lifestyle of the population, which gets around mostly using motorized vehicles, or struggles to commit to outdoor physical activity.

CONCEPT OF CO-BENEFITS

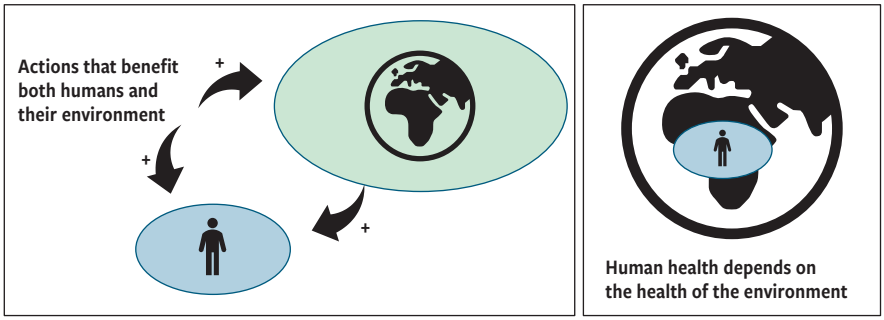
Recognizing that certain aspects of our modern lives, on the one hand, contribute to global climate change and degradation of ecosystems and, on the other, lead to increasing so-called "lifestyle diseases," some changes in individual and societal behavior could directly benefit both human health and environmental preservation. The literature refers to this concept as "co-benefits," a term describing the direct additional benefit to human health of measures aimed at mitigating environmental degradation,[8,10,11,16–22] or conversely the added environmental preservation benefits of measures geared at promoting health.[13] From a clinical point of view, the WONCA (World Organization of General Practitioners/Family Physicians) suggests the following definition: "Everyday choices and key changes that people/patients can make in their own lives to simultaneously benefit their own health and that of the environment."[23] From a structural point of view, it is a matter of local government choices and initiatives that favor both health and the environment. To be effective, the two perspectives should complement one another to ensure that promoting certain individual behaviors happens within a structural environment that encourages and bolsters them.

A sustainable society requires communities, to live in relationship with the natural environment to ensure their long-term stability and enable flourishing over generations. This implies keeping the impact of human activities within the ecological limits of the biosphere. Indeed, the planetary bounderies discussed above set a strict framework for defining a safe space for human activity and could be extended to guide the formulation of co-benefits for health. For example, nutritional recommendations could consider both optimal intake of macro- and micronutrients for human health and the environmental impact of the foodstuffs (greenhouse gas emissions, land area required, freshwater or synthetic input use, etc.).

The aim of introducing co-benefits is not to introduce a dualism between humans and the natural environment - humans depend on ecosystems to feed themselves, or to regulate the climate and the benefit to the environment of an action carried out to improve human health therefore comes back as a double benefit in terms of health rather than a co-benefit solely affecting the environment (**figure 2**). Nevertheless, the presence of health & environment "co-benefits" allows us to link the long-term future benefits of initiatives to reduce our impact on the environment and ecosystems to tangible, more immediate effects on public health.[24] Co-benefits can thus contribute to encouraging change (both individual and structural), by offsetting the costs of climate change reduction actions while bringing short-term benefits to the individuals directly affected, their communities and

FIG 2 **An action has a dual benefit**

It benefits both human health and the environment. Humans benefit indirectly from the action through the preservation of the environment.



ecosystems, and answers to the longer term threats, here and on the other side of the planet. In clinical practice, this notion offers a novel and positive perspective to broach inclusion of health in sustainable development planning in an interdisciplinary fashion. It brings opportunity to accelerate the societal changes necessary for the already highly compromised planet and should allow healthcare to play a key role in these changes.[11,16,19,20,25] **Figure 2** schematically displays the cross-talk of co-benefits.

GOAL OF THE REVIEW

We explored the concept of co-benefits in three of the several areas recommended by WONCA:[13] nutrition, active mobility, and ties to nature. Studies have show that in these areas, certain structural changes, and individual behavioral changes that reduce our environmental footprint, also provide direct co-benefits for health, which could justify such matters being examined in the clinical context.

The goal of this article is therefore to explore certain system relations linking population health, individual health, and ecosystem health. It presents several concrete tools for approaching environmental questions in the clinical context. Despite the many questions that remain in this area, we outline tracks that could make it possible to begin planning how to move our societies in the direction of greater sustainability through a new vision of health & environmental co-benefits. We will discuss the lever that health services can use when it comes to changing individual behaviors, while recognizing the limits to individual behavioral adaptation in front of the challenges of sustainability. Finally, we investigate the structural measures that could accompany clinical-type interventions.

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