One Planet, One Health, & Many Worlds

By Annette Regan

“We live in an era of pandemics.”¹ Just twenty years into the 21st century, humans have already lived through two pandemics (COVID-19 and H1N1) and four epidemics of global concern (including SARS, MERS, Ebola virus, and zika virus).² All of these public health threats are believed to have originated in the intersection between environment and human behavior. The SARS epidemic in 2002 and the MERS epidemic in 2015 are believed to have originated from human contact with bats.³ Although first detected in the 1940s, zika virus had not been implicated in an epidemic until 2007, after which the world saw swift geographic spread of the virus – assisted by explosive human movement through modern transportation, urbanization, and poor vector control.⁴ The global spread of the mosquito vector, *Aedes aegypti*, has since led to more than 100,000 cases of zika virus infection and permanent disablement of more than 1,000 infants through congenital zika syndrome.⁵ Even the decades-long HIV and AIDS pandemic of the previous century can be traced to animal and environmental origins, resulting from multiple cross-species transmission of simian viruses naturally infecting primates.⁶ Our interactions with and influences on the planet have contributed to the explosion of emerging infectious diseases over the past two centuries, and the environmental origins of human disease can no longer be ignored in the new geological era called the Anthropocene.

As Chakrabarty points out in One Planet, Many Worlds, human health and the climate are intimately connected (19). Population growth and expansion, increased consumption, capitalism, modern agriculture, and politics have all created imbalances in the microbiological ecosystems of bacteria, viruses, and parasites. The relational and reciprocal influence of human health and nature has long been acknowledged by the “One Health” initiative. Chakrabarty similarly notes the “various entanglements” and multiplicities of the planet that interact in a “oneness” to influence the state of the world (7).¹ First proposed in 2004 in a Wildlife Conservation Society symposium to
“Build Interdisciplinary Bridges to Health in a ‘Globalized World,’” the concept of “One Health, One World” recognized the connection between human and animal health. By 2007, the American Medical Association passed the “One Health” resolution which promoted a partnership between human and veterinary medicine. In 2010, on the heels of the H1N1 influenza pandemic, 71 countries and regional bodies agreed to adopt the Hanoi Declaration, which called for focused action at the animal-human-ecosystem interface. Today, the One Health Joint Plan of Action provides guidance for countries to strengthen their national support for “One Health” using frameworks for governance, policy legislation, organization and institutional development, and data and evidence exchange.

Despite the growing interest in the “One Health” framework, focus over the past two decades has been on the risks of zoonoses and the human-animal interface. The direct and indirect health effects of the broader environment on human health have been chronically understudied. It is only more recently that the scope of the “One Health” initiative has expanded to include a more comprehensive understanding the environmental and planetary influences on life, which reflects a broadening in the understanding of the interconnectedness of the planet. In support of this, emerging evidence documents a staggering contribution of damaging environmental factors impacting human health. For example, pollution alone, just one anthropogenic environmental exposure, is thought to contribute to 8-9% of the global burden of disease. Prüss-Ustün and colleagues at the World Health Organization have estimated that nearly one-quarter of the global disease burden could be prevented by reducing environmental risks, including exposure to pollution, chemicals, the built environment, and climate change. They estimate that 23% of global deaths and 22% of global disability can be attributed to these anthropogenic environmental risks. Concerningly, this burden does not affect the planet equitably, with low and middle-income countries and young children and older adults disproportionately affected.

Just as the “One Health” initiative spawned from the 2009 H1N1 pandemic, and as we continue to emerge from the COVID-19 pandemic, we must revisit the “One
Health” initiative with a wider lens. “One Health” offers a transdisciplinary approach to address emerging health threats in the era of pandemics. However, to be effective, it must comprehensively consider the interconnection of these human, animal, and environmental influences. In a recent article by Mumford and colleagues (2022), they call for the wider consideration of system complexity, evolving contexts, and worldview inclusivity – the inclusion of a “pluriverse” of responses in tandem with the mainstream scientific worldview.\textsuperscript{12} “The "one-ness’ of the Earth system hides the fact of differentiation of humans that is the condition of its own possibility” (10).\textsuperscript{1} Without the inclusion of diverse partnerships and community voices, we are destined to repeat these historical examples of human disease and more.

References