

COMMENTARY



One health ethics: “What then must we do?”*

Joann M. Lindenmayer^{1,2}, Gretchen E. Kaufman^{2,3}, Liv Baker^{2,4}, Simon Coghlan^{2,5}, Fred W. Koontz², Joachim Nieuwland^{2,6}, Kristin L. Stewart^{2,7}, and William S. Lynn^{2,8}

Abstract

One Health, as proclaimed by the United Nations Quadripartite, is “an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems.” As such, it recognizes that the health of people, other animals, and nature is closely linked and interdependent. A great deal of One Health education, research, and practice is grounded in science, while ethical considerations are addressed infrequently. Yet ethical issues are inherent to each stage of One Health. They include which aspects of interdependencies to study, how to extend health and well-being beyond humans, and what trade-offs to consider when optimizing the health of people, other animals, and nature. In this article, we call for an active debate on the ethical considerations that should underpin every stage of One Health. We propose four tenets for discussion that, if adopted, could serve as springboards from which to consider how we “ought” to teach, investigate, and practice One Health.

One Health Impact Statement

While science helps us to better understand and explain how humanity’s actions affect our planet, ethics helps us evaluate those actions—past, present, and future. Working toward engaging with questions of ethics in conferences and peer-reviewed publications will help to establish guidelines for the conceptualization, design, implementation, and evaluation of One Health teaching, research, policy, and practice. Integrating ethical considerations and debate into every aspect of One Health will support a multispecies understanding of the term “One Health” and move us forward by building a common point of departure for dialogue, deliberation, and decisions inherent in One Health.

Keywords: practical ethics, one health education, one health research, one health practice, trade-offs

Commentary

Major print and online media are packed with articles on climate change, the sixth mass extinction, the ongoing COVID-19 pandemic, hot and cold wars, and the revived threat of nuclear annihilation. These all speak of the wicked crises of our conscious making or neglect. As the noted English broadcaster and natural historian David Attenborough says, “*The fact is that no species has ever had such wholesale control over everything on earth, living or dead, as we now have. That lays upon us, whether we like it or not, an awesome responsibility. In our hands now lies not only our own future, but that of all other living creatures with whom we share the earth.*” (Attenborough, 1979) After all, humans are one creature among countless other living beings that are striving to live and flourish.

While science helps us to better understand and explain how humanity’s actions affect our planet, ethics helps us evaluate those

actions—past, present, and future. Questions of responsibility—to each other, to Earth’s creatures, to future generations of us all—are matters of ethics. Here we discuss ethics in a practical way; by ethics we mean simply, “how we ought to live.” (Plato, 2008) We recognize that ethical decision-making may be guided by diverse ethics which may conflict. Indeed, ours is an intentionally broad understanding of ethics that includes the contemporary western canon while at the same time recognizing important alternatives such as eastern and African philosophies, ecofeminism, indigenous knowledge, among others. Nevertheless, engaging explicitly with ethics moves us forward. It helps us recognize our different ideas about what is most important and why, providing shared conceptual ground on which to identify similar or different views, values, and perspectives. It also allows us to build a common point of departure for dialogue, deliberation, and decisions that work best for our individual and collective lives. As philosopher Mary Midgley said, “There is only one world and we all have to live in it.” (Midgley, 1981).

*Billy Kwan. The Year of Living Dangerously, Metro-Goldwyn-Mayer, 1983.

Correspondence: ¹Department of Public Health and Community Medicine, Tufts University School of Medicine, Boston, MA, USA; ²PAN Works, <http://www.panworks.io>; ³Department of Infectious Disease and Global Health, Cummings School of Veterinary Medicine, Tufts University, North Grafton, MA, USA; ⁴Animal Behaviour and Conservation Program, Hunter College, City University of New York (CUNY), NY, USA; ⁵Centre for Artificial Intelligence and Digital Ethics (CAIDE), School of Computing & Information Systems, The University of Melbourne, Parkville, Victoria, 3010, Australia; ⁶Faculty of Veterinary Medicine, University of Utrecht, Utrecht, The Netherlands; ⁷Anthrozoology, Canisius College, Buffalo NY, USA; ⁸Marsh Institute, Clark University, Worcester, MA, USA

Corresponding author: Joann Lindenmayer Joann.Lindenmayer@tufts.edu

Received: 22 June 2022. Accepted: 10 November 2022. Published: 19 December 2022.

One criterion for living an ethical life may be found in whether and to what extent we extend individual and collective health beyond humanity. Ethically and scientifically, this is not simply a question of the causal agents and conditions affecting human health. Rather, it is a manifest concern for the health and well-being of our entire planet, our growing understanding of the entanglement of living beings, and our appreciation for the intrinsic value of both humanity and the rest of nature. Given the inextricable interdependence of all life on Earth, a reverence for life ought to embrace all life and living systems and reject the human supremacy that instrumentalizes other animals and nature as means to human ends (Midgley, 1984, 2001).

Enter One Health, the theme of this journal. The definition of One Health has many variations but is perhaps best captured by the United Nations Quadripartite: One Health is “an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems. It recognizes the health of humans, domestic and wild animals, and plants, and the wider environment (including ecosystems) is closely linked and interdependent. The approach mobilizes multiple sectors, disciplines, and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for clean water, energy and air, safe and nutritious food, acting on climate change and contributing to sustainable development.” (One Health High Level Expert Panel (OHHLEP) 2021).

One Health implies that there is a common understanding of “health.” Although the term “health” has been defined in different contexts (Haverkamp et al., 2018), the most widely accepted definition is that “Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity,” (World Health Organization, 1946) and is aspirational even as applied to human health. In One Health, we tend to apply this broad definition only to people, ignoring the fact that mental and social well-being are features of the health of other animals and may find applications in nature as well. The debate on this issue is just beginning to emerge (Lerner and Berg, 2015).

Perhaps the most challenging word in the UN’s definition of One Health is “optimize,” which requires that when deciding what to study, or when developing programs and policies, we need to consider how to optimize the health of people, animals, and nature simultaneously. However, doing this successfully will often require difficult trade-offs. This dilemma may be best addressed by carefully considering and adopting a strong ethical foundation to guide decision-making. Yet One Health has so far proceeded without explicit ethical guidelines. As a relatively new paradigm, this is understandable. However, without ethical principles to guide and challenge us, One Health research, education, and practice will largely continue to benefit humans to the exclusion of other animals and nature. In this respect, we have shown little humility, in that we fail to acknowledge that we cannot know what we do not know. Consequently, we have few measures of physical, mental, or social health to apply to the broader community of life when deciding on trade-offs.

Achieving One Health’s goal of optimal health for all might be thought of as progressing through several stages: scientific research that illuminates interdependent relationships among people, other animals, and nature; development of policy and practice based on promising research findings with the advice and consent of community voices; and evaluation of the impact of One Health initiatives and their continuance, adaptation, or cessation. Ethics are an integral element of each step.

Ethics underlies and supports the rigor of scientific research and may be thought of as having both internal and external dimensions (Lynn, 2006). The internal dimension applies to the practice of scientific research itself. This includes concerns about data falsification, intentionally skewed analyses, financial conflicts of interest, partisan affiliations, and the treatment of humans and other animals in experiments and studies. The external dimension

relates to the application and consequences of scientific knowledge. This involves which subjects scientists (and their funders) choose to study (or neglect), how research findings are applied to help or harm individuals and communities, and what criteria are used for assessing states of health and well-being. The same internal and external concerns about science pertain to One Health. As demonstrated in other arenas such as bioethics (Jonsen, 1998), it is necessary to establish principles, policies, and practices that institutionalize the use of ethics in One Health. Yet, One Health faces the additional challenge of requiring its science and ethics to adequately address the health and well-being of people, other animals, and nature simultaneously.

One Health has often focused on proximal, short-term threats to human health and failed to address the more distal, systemic risk factors that, if considered, could lead to more profound and lasting benefits for all, human and nonhuman (Ravetz and Funtowicz, 2015; Waltner-Toews, 2017; Zinsstag et al., 2021). In the case of infectious disease threats to people, we may understand the proximal source of new human pathogens originating in nature, and we have the capacity to develop vaccines and treatments to prevent and control such diseases in humans, but our efforts often end there. Despite recent efforts in conservation medicine, ecology and ecohealth, we understand relatively little about the lives of animals in terms of the natural conditions that lead to pathogen emergence, amplification, and transmission because we fail to adequately study, understand, and appreciate the more distal factors that contribute to those processes.

One recent example is the reactive killing of 17 million minks destined to be made into fur coats because the COVID-19 virus adapted to and mutated within them, posing a potential risk to human health (Lesté-Lasserre, 2020). More thoughtful but distal approaches, which could mitigate threats to health in the longer term, would target the fur industry and eliminate the abhorrent inhumane farming of these animals, creating ideal conditions for disease threats to emerge. Other examples, such as pollution or the use of pesticides, are poorly addressed because of overwhelming economic incentives to sweep them under the rug or “flush” them away to capture short-term financial gains. Voiceless and powerless victims of this strategy, including marginalized people and animals living near highways and factories, amphibians, fish, and other aquatic life living in waterways and oceans downstream, struggle to survive. A more democratic ethics should consider and include all those affected by policies and practices that cause harm.

One Health emerged with values shared by veterinary and human medicine, ecological health, and conservation medicine. Yet as practiced today, One Health primarily investigates the interdependence of human and other animal health, with only weak involvement of ecosystem health. To date, and prior to the launch of CABI’s One Health Resources, few journals have promoted transdisciplinary health research, monodisciplinary research journals have failed to address One Health, and One Health research has largely been published in journals that are almost singularly dedicated to human medicine and public health (Humboldt-Dachroeden et al., 2020). Numerous other publications underscore the anthropocentric nature of One Health, tailored as it is to dominant species (ours), cultures, societies, and geopolitical entities. As One Health is currently practiced, it pays limited attention to the health and well-being of other animals and nature. So too, if we are to engage a global audience in efforts to preserve and protect life on Earth, we must seek and embrace input from community voices and social scientists. Our lack of engagement and transdisciplinarity risks producing One Health solutions that fail to adequately address the challenges One Health is meant to address.

Even when our interests in health and well-being converge in the short term with those of other animals and nature, we still fall short. We may pass measures to protect animals from the wildlife trade, for instance, but when this protection also requires us to preserve

space for wildlife habitats, we often fail to act. Our inaction in response to anthropogenic climate change and the sixth mass extinction is a case in point. One Health has also failed in this regard and, in doing so, has demonstrated a lack of ethical sensitivity and humility rather than a commitment to “attain optimal health for people, animals, and nature” toward the nonhuman world that it purports to guarantee. The arrogance of anthropocentrism and the associated forms and practices of human supremacy appear to be well on the way to destroying humanity and taking a large slice of other living beings and landscapes with it. UN Secretary-General António Guterres captured this well when he said, “Humanity is waging war on nature. This is senseless and suicidal.” (United Nations Environment Programme, 2021).

The stakes are high. With climate change, biodiversity loss, pandemics, and the pollution and destruction of nature, humans have brought about an existential crisis. Our response must include a hard look at the views, values, and perspectives that got us here. Let us think again and yet again about how we ought to proceed, building on a strong and growing body of scholarship on One Health ethics (Capps, 2022; Verweij and Bovenkerk, 2016), much of which has addressed One Health ethics in the context of zoonotic diseases (Degeling et al., 2015; Degeling et al., 2016; Lederman, 2016; Johnson and Degeling, 2019; van Herten et al., 2019; Degeling et al., 2020; van Herten et al., 2020; Lederman et al., 2021). A One Health ethics that calls for the identification and inclusion of all human and nonhuman stakeholders is a starting point. All too often, short-sighted human-centric policies and practices that have harmed nonhuman animals and the natural world are handed down by those in positions of power and privilege who demonstrate anthropocentric value paradigms. It is human (often economic) interests that they value above all others, and without dissent, such priorities take root and are made manifest in final decisions. Nonhuman animals, the natural world, and others who have been marginalized—those who ought to be included in our circle of moral concern—deserve a seat at the table. Their priorities ought to be heard and genuinely considered before enacting any policy or practice that affects them. There is growing literature on nonhuman representation in public policy deliberation and practice. This includes animal-oriented political parties, proxy representation, legal trustees, precautionary analysis, and ethics briefs (Kopnina et al., 2021; Lynn, 2018; Treves et al., 2019). While we cannot examine these ideas in detail as part of this commentary, they provide starting points for dialogue in one health ethics.

Lastly, One Health education has been heavily focused on scientific curricula, while lacking in connectivity to other ways of knowing such as ethics. Obstacles inherent in our classical siloed educational institutions inhibit thinking and working “outside the box”. However, the educational setting can be an invaluable laboratory for creative and rich opportunities to model true transdisciplinary processes that produce leaders and doers better able to confront these challenges with a solid grounding in ethics. It will take all of us to push back and make this possible, taking care not just to slap on the One Health label and carry on, but to embrace the tough questions and build our ethical capacity in both thought and action.

To this end, we propose four tenets that could serve as a springboard for further exploring the ethics of One Health. These tenets were developed as part of a year-long interdisciplinary dialogue with members of the PAN Works ethics think tank and the Yale Interdisciplinary Center on Bioethics.

1. One Health recognizes the interdependence of health and well-being among people, other animals, and nature.
2. One Health incorporates physiological, mental, emotional, and social well-being regardless of species, as well as the physical systems and ecological integrity of nature.
3. One Health strives to achieve optimal health simultaneously for humans, other animals, and nature, and accommodates tradeoffs that may not privilege only humans.

4. One Health acknowledges scientific uncertainty and our limited understanding of a complex and constantly changing world.

One Health is no different from other arenas of scholarship undertaken for the good of individuals and a broader community of life. It should extend our care and compassion to all humans, other animals, and nature. For no other reason, One Health cries out for an explicit dialogue about ethics (Coghlan and Coghlan, 2018; Lindenmayer and Kaufman, 2021; Nieuwland and Meijboom, 2019; Coghlan et al., 2021). We must begin to develop ethical guidelines for these activities if we and all other living beings on the planet are to survive and flourish and if we are to protect and preserve the natural world that sustains us all. We ask, then, how ought we to proceed with One Health research, education, and practice? It is our hope and expectation that in the future issues of this journal, these ideas will be scrutinized, debated, advanced, and ultimately applied to real-life cases. With these hopes and expectations, we anticipate a discourse on this topic with an open mind.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

ETHICS STATEMENT

The authors confirm that the research meets any required ethical guidelines, including adherence to the legal requirements of the study country.

AUTHOR CONTRIBUTIONS

All authors contributed equally to the development of this article.

FUNDING STATEMENT

The authors have no funders to declare.

References

- Attenborough, D. (1979) *Life on Earth: A Natural History* (No. QH 366.2. A87).
- Capps, B. (2022) One health ethics. *Bioethics*, 36(4), 348–355.
- Coghlan, S., and Coghlan, B. (2018) One Health, bioethics, and nonhuman ethics. *American Journal of Bioethics*, 18(11), 3–5. DOI: 10.1080/15265161.2018.1524224.
- Coghlan, S., Coghlan, B. J., Capon, A., and Singer, P. (2021) A bolder One Health: Expanding the moral circle to optimize health for all. *One Health Outlook*, 3(1), 1–4.
- Degeling, C., Johnson, J., Kerridge, I., Wilson, A., Ward, M., et al. (2015) Implementing a One Health approach to emerging infectious disease: Reflections on the socio-political, ethical and legal dimensions. *BMC Public Health*, 15(1), 1–11.
- Degeling, C., Lederman, Z., and Rock, M. (2016) Culling and the common good: Re-evaluating harms and benefits under the one health paradigm. *Public Health Ethics*, 9(3), 244–254.
- Degeling, C., Gilbert, G. L., Tambyah, P., Johnson, J., and Lysaght, T. (2020) One health and zoonotic uncertainty in Singapore and Australia: Examining different regimes of precaution in outbreak decision-making. *Public Health Ethics*, 13(1), 69–81.
- Haverkamp, B., Bovenkerk, B., and Verweij, M.F. (2018) A practice-oriented review of health concepts. *The Journal of Medicine and Philosophy: A Forum for Bioethics and Philosophy of Medicine*, 43(4), 381–401.
- Humboldt-Dachroeden, S., Rubin, O., and Frid-Nielsen, S.S. (2020) The state of One Health research across disciplines and sectors—A bibliometric analysis. *One Health*, 10, 100146.
- Johnson, J., and Degeling, C. (2019) Does One Health require a novel ethical framework? *Journal of Medical Ethics*, 45(4), 239–243.
- Jonsen, A.R. (1998) *The Birth of Bioethics*. Oxford, UK: Oxford University Press.

- Kopnina, H., Spanning, R., Mackenzie Hawke, S., Robertson, C. D., Thomasberger, A., et al. (2021) Ecodemocracy in practice: Exploration of debates on limits and possibilities of addressing environmental challenges within democratic systems. *Visions for sustainability*, 15, 9–23.
- Lederman, Z. (2016) One health and culling as a public health measure. *Public Health Ethics*, 9(1), 5–23.
- Lederman, Z., Magalhães-Sant'Ana, M., and Voo, T.C. (2021) Stamping out animal culling: From anthropocentrism to One Health ethics. *Journal of Agricultural and Environmental Ethics*, 34(5), 1–14.
- Lerner, H., and Berg, C. (2015) The concept of health in One Health and some practical implications for research and education: What is One Health?. *Infection Ecology & Epidemiology*, 5(1), 25300.
- Lesté-Lasserre, C. (2020) Pandemic Dooms Danish Mink—And Mink Research.
- Lindenmayer, J.M., and Kaufman, G.E. (2021) One health and one welfare. In A. Oven (Ed.) *One Welfare in Practice*. Boca Raton, FL, USA: CRC Press.
- Lynn, W.S. (2006) Between science and ethics: What science and the scientific method can and cannot contribute to conservation and sustainability. In D. Lavigne (Ed.) *Gaining Ground: In Pursuit of Ecological Sustainability*. University of Limerick, pp. 191–205.
- Lynn, W.S. (2018) Bringing ethics to wild lives: Shaping public policy for barred and northern spotted owl. *Society & Animals: Special Issue on Wildlife*, 26(2), 217–238.
- Midgley, M. (1981) Trying out one's new sword. In *Heart and Mind*. New York, USA: St. Martin's Press.
- Midgley, M. (1984) *Animals and Why They Matter*. Athens, GA, USA: University of Georgia Press.
- Midgley, M. (2001) *Gaia: The Next Big Idea*. New York, USA: Demos.
- Nieuwland, J., and Meijboom, F.L.B. (2019) One health: How interdependence enriches veterinary ethics education. *Animals*, 10(1), 1–11. <https://www.mdpi.com/2076-2615/10/1/13/pdf>.
- One Health High Level Expert Panel (OHHLEP) Annual Report (2021). Available at: https://cdn.who.int/media/docs/default-source/food-safety/onehealth/ohhlelep-annual-report-2021.pdf?sfvrsn=f2d61e40_6&download=true (Accessed May 9, 2022).
- Plato. (2008). *Republic*. Translated by Robin Waterfield. Oxford, UK: Oxford University Press.
- Ravetz, J., and Funtowicz, S. (2015) Post-normal science. In *Ethics of Science in the Research for Sustainable Development*. Baden Baden, Germany: Nomos Verlagsgesellschaft mbH & Co. KG, pp. 99–112.
- Treves, A., Santiago-Ávila, F.J., and Lynn, W.S. (2019) Just preservation. *Biological Conservation*, 229(January), 134–141. DOI: 10.1016/j.biocon.2018.11.018.
- United Nations Environment Programme. (2021) Making Peace with Nature: A scientific blueprint to tackle the climate, biodiversity and pollution emergencies. UNEP, Nairobi. Available at: <https://www.unep.org/resources/global-assessments-synthesis-report-path-to-sustainable-future>
- van Herten, J., Bovenkerk, B., and Verweij, M. (2019) One Health as a moral dilemma: Towards a socially responsible zoonotic disease control. *Zoonoses and Public Health*, 66(1), 26–34.
- van Herten, J., Buikstra, S., Bovenkerk, B., and Stassen, E. (2020) Ethical decision-making in zoonotic disease control. *Journal of Agricultural and Environmental Ethics*, 33(2), 239–259.
- Verweij, M., and Bovenkerk, B. (2016) Ethical promises and pitfalls of One Health. *Public Health Ethics*, 9(1), 1–4.
- Waltner-Toews, D. (2017) Zoonoses, One Health and complexity: Wicked problems and constructive conflict. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 372(1725), 20160171.
- World Health Organization. (1946) Constitution of the World Health Organization. International Health Conference.
- Zinsstag, J., Waltner-Toews, D., and Tanner, M. (2021) Why one health? In *One Health: The Theory and Practice of Integrated Health Approaches*. Wallingford UK: CABI, pp. 15–24.