

Hot News

“One health”: toward an integral ecology of health

More than 200 scientific journals have simultaneously published an article signed by directors of many editor groups and medical institutions around the world (Abassi et al. JAMA 2023). The letter warns of the advent of a global health crisis, as a result of climate change and biodiversity reduction. The text is a manifesto addressed to the World Health Organization (WHO) and the United Nations (UN), calling for immediate action to be taken to stop the catastrophe.

The authors stress that damages to human health is a direct consequence of climate change and destruction of ecosystems. Both are the result of the imbalance produced by irresponsible human action. In addition to being harmful to other living beings, it can be suicidal to our own species. The references provided are definitive (Editorial. Nature 2023).

Health problems will result from a lack of clean water, food, and habitat, along with extreme weather events, air pollution, accumulation of garbage/waste, and an increase in infectious diseases, including pandemics. Thousands of species and millions of living beings are disappearing at an accelerated rate in recent decades. Biodiversity has never fallen so much. If we do not intervene, it will be the sixth wave of mass extinction of life on earth, although unlike the previous ones, the responsibility for this one lies with human action.

The sharing of the planet by humans and other living beings has led over 4,500 million years to an imposition by humans, with an increasingly accelerated displacement and extinction of many of the remaining species. For humans, the cost of occupying habitats and ecosystems has been zoonoses and pandemics that have occasionally decimated the population of regions or even entire continents. This is the case of the Black Death in Western Europe in the 14th century or AIDS in sub-Saharan Africa at the end of the 20th century. For the authors of the manifesto, the experience of COVID-19 strongly suggests that we have reached a moment of real risk of mass extinction of life on earth, including human life.

The experts' brief ends with a series of recommendations to reverse the problem. It stresses that it is necessary to explore alternative visions of what a good quality of life means (that is, one that is not dependent on consumerism), to rethink the consumption of natural goods (discarded and recycled), to value inter-human relations (confronting individualism), to reduce social inequalities, and to promote education in values. They conclude that all this will result in better physical and mental health for human beings in the 21st century (Otto-Portner et al. Zenodo 2021).

Calls to care for the world: ecological conversion

In the history of the last century, we can identify three major texts that have been a catalyst for raising awareness about caring for the planet. First, shortly after the end of World War II, Arthur Leopold published his book on the ethics of the land (1949). It awakened in an unprecedented way the sensitivity for the care of creation. Nature should not be understood only as a means for human beings to obtain resources. It cannot be instrumentalized. The environmental crisis has its roots in economic reductionism. Leopold stressed that humans are part of creation and must respect it. Using is opposed to exploiting. In the face of anthropocentrism, biocentrism was awakened.

In 1967, Lynn White published an article in *Science*, where he examined the possible determinants of the abuse that human beings were making of the rest of creation and living beings on the planet. White painted a scenario where the Judeo-Christian roots led to extreme anthropocentrism, with a misinterpretation of the biblical command of genesis to “increase and multiply; and rule the world”.

In the face of these positions, in recent years, the Catholic Church has spoken out on environmentalism and the care of our common home. Pope St. John Paul II referred to the need for an ecological conversion, where man recognizes himself as a minister of the creator. Ecology is of interest as it refers to the way in which man relates to the natural and social environment in which he lives and for which he is responsible. There can be no abuse of nature and its exploitation without taking

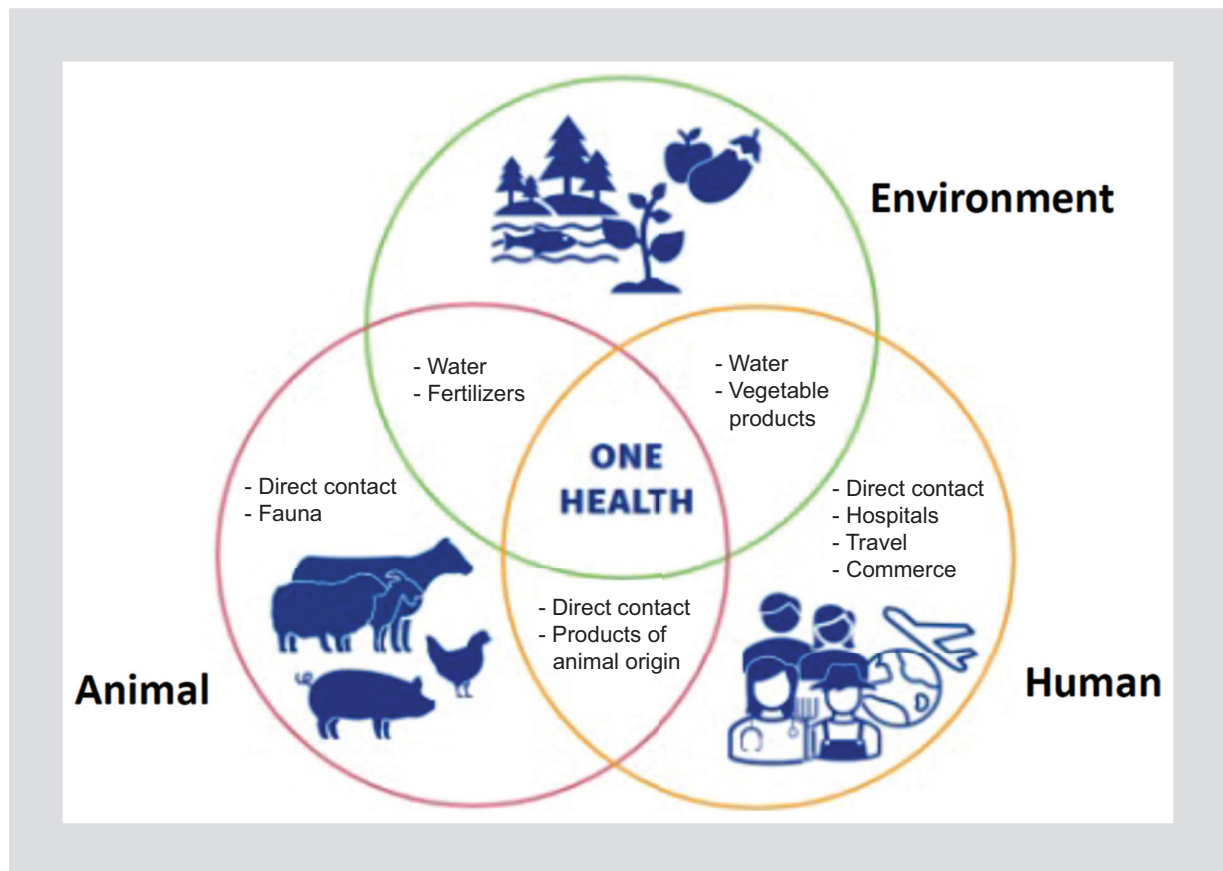


Figure 1. The three elements of “One health.”

into account the rest of the human community and nature. In 2011, Pope Benedict XVI referred to human ecology in a memorable address to the German parliament, where he underlined the respect due to God’s creation, including man, the creature made in his image.

However, it was in 2015 that Pope Francis published the encyclical “*Laudato si*”. This reference text underscores the duty to protect God’s work as an essential part of a virtuous existence. Creation, the work of God, has an intrinsic (objective) value, which goes beyond its instrumental character for human beings. Francis will say that everything is connected so that the care of nature reflects the moral conduct of the person. In this way, ecology and care for other human beings, the most vulnerable, and the fight against poverty are one and the same human being.

Ecology and medicine

Given the gap between technological development and ethical regulation, it is necessary to reflect on scientific advances and the purpose behind them. Not

everything that can be done should be done. The precautionary principle should guide science. A clear example of this tension between technology and humanism occurred in the 1970s, when a group of international researchers, led by several Nobel laureates, proclaimed the “cry of Asilomar” (Berg et al. Science 1974), where they established a moratorium on the applications of recombinant DNA technology, due to the fear of abuses and serious consequences that could follow from the lack of control of these experiments in agriculture, veterinary, and medicine.

What is “One health”

It was the American epidemiologist James Schwabe who coined the term “*One health*” in 1964, referring to the close interrelationship between human and animal health. In 2004, Rockefeller University organized a conference under the title “*One World – One Health*,” which concluded with the “Twelve Manhattan Principles,” which is the use of a new terminology to implement global health. However, it has been the unprecedented succession of

pandemics of the 21st century, including severe acute respiratory syndrome, ebola, avian and swine flu, dengue, chikungunya, zika, monkeypox, and above all, COVID-19, that have raised unprecedented awareness on global health. They are all zoonoses or use an animal vector.

In 2018, four international organizations (WHO, Food and Agriculture Organization, UN, and World Organization for Animal Health [WOAH]) signed an agreement for collaboration and joint promotion of “*One health*”, highlighting the close relationship and interdependence between human, animal, and environmental health (Fig. 1). It is a comprehensive and unifying approach to balancing and optimizing the health of people, animals, and ecosystems. It addresses the full spectrum of disease control, from prevention to diagnosis, management, and treatment, contributing to global health security.

According to the WHO, the “*One health*” concept refers to the global goal of increasing interdisciplinary collaboration (public health, medicine, sanitary, veterinary, research, environmental sciences, etc.) in the care of health of people, animals, and the environment, to develop and implement programs, policies, and laws in favor of improving global health.

The relationship between humans, other living beings, and ecosystems is dynamic. With a holistic vision, “*One health*” seeks to adapt to changing relationships that, in recent decades, are especially significant due to phenomena such as globalization, human travel and migration, changes in the geographical distribution of different animal species, climate change, deforestation, intensive livestock farming, new animal migratory routes, environmental pollution, etc. All this has favored the transmission of diseases, with jumps of microbes from animals to people (zoonoses), as new opportunities for contact between humans and animals have arisen, in altered ecosystems.

According to the WOAHA, 60% of known human infectious diseases and more than 75% of emerging infectious diseases are of animal origin, either domestic or wild animals. Therefore, animal health is essential for the maintenance of public health. This integration of the health of humans, animals, and ecosystems must be reflected in the new policies of all countries. Areas where “*One health's*” focus is particularly needed are food safety, zoonosis control, and the fight against antimicrobial resistance.

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Received in original form: 04-11-2023

Accepted in final form: 06-11-2023

DOI: 10.24875/AIDSRev.M23000065

HTLV-1 in Brazil: epidemiological scenario in the highest endemic country in the world

HTLV-1 infection is widely disseminated, mainly in developing countries, such as South America, and the Caribbean basin. Japan is also considered an important place for endemicity¹. Since HTLV-1 is responsible for developing inflammatory diseases in almost 30% of infected people² and adult T-cell leukemia/lymphoma in 5-10% of carriers³, it is important to implement measures to block virus transmission in a long fashion.

Brazil implemented a national HTLV screening in blood banks in 1993⁴. In 2023, discussions on universal maternal screening nationwide are taking place, after the publication of a cost-effectiveness study to implement this procedure in the Brazilian population⁵. Japan implemented national screening for HTLV-1 to prevent mother-to-child transmission (MTCT) in 2011, due to similar high prevalence of infection and vertical transmission⁶.

A recent Japanese study evaluated a prefecture-wide antenatal adult T-cell leukemia prevention program in Nagasaki, where 57,323 pregnant women were screened for anti-HTLV-1 antibodies during 2011-2018. The results showed that 133 (0.79%) pregnant women were HTLV-1-positive during their first pregnancy and 9 (0.05%) seroconverted before or during subsequent pregnancies⁷. These data reinforce the importance of the implementation of programs to prevent MTCT of HTLV-1 in endemic countries, such as Brazil.

Since both strategies, inhibition of breast-feeding from HTLV-infected women and blood bank screening for HTLV antibodies showed important benefits for controlling and reduce new HTLV-1 infections, in Japan⁸, similar initiatives in other endemic countries would perform equally well. These strategies should also be considered by health authorities in countries that receive migrants from areas known to have high HTLV-1 endemicity.

In Brazil, as the country with the largest number of HTLV-1 carriers in Latin America, the estimated number of infected persons approaches one million⁹. Paradoxically, HTLV screening is only recommended in blood banks since 1993⁴, and public health policies miss other key populations, such as pregnant women, organ transplant donors, and clinics for sexually transmitted infections. Furthermore, there is a lack of infrastructure for caring with good clinical support to people already diagnosed with HTLV-1 infection.