



One Health approach: a relevant concept for environmental science

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Introduction. The "One Health" approach is a concept that recognizes the interdependence of human, animal, and environmental health (Dandachi et al 2019; Mackenzie & Jeggo 2019). It emphasizes the interconnectedness of these three domains and the importance of considering them together when addressing complex global health challenges (Mackenzie & Jeggo 2019; Hong et al 2020; Innes et al 2020). This approach is increasingly recognized as a critical framework for understanding and managing emerging infectious diseases, zoonoses (diseases that can be transmitted from animals to humans), and other health-related issues (Hong et al 2020; Innes et al 2020).

Key aspects of the One Health Approach. The concept of One Health approach is not new and it can be traced back for more than two hundred years (Atlas 2013), firstly as One Medicine, but then as One World, One Health and eventually One Health (Mackenzie & Jeggo 2019). There is no single, internationally agreed upon definition of One Health, although more definitions have been suggested (Mackenzie & Jeggo 2019). The most commonly used definition shared by the US Centers for Disease Control and Prevention and the One Health Commission (and cited by Mackenzie & Jeggo 2019) is: "One Health is defined as a collaborative, multisectoral, and transdisciplinary approach - working at the local, regional, national, and global levels - with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment". We will list here the key aspects of the concept.

Interdisciplinary collaboration. One Health encourages collaboration among professionals from various disciplines, including medicine, veterinary science, ecology, public health, environmental science, and social sciences. This interdisciplinary approach is essential for understanding and addressing health issues that involve complex interactions between humans, animals, and the environment (Petrescu-Mag et al 2008; Petrescu-Mag & Petrescu-Mag 2011).

Prevention and early detection. The One Health approach places a strong emphasis on prevention and early detection of health threats. By monitoring and understanding disease dynamics in both human and animal populations, it is possible to identify potential risks before they escalate into major public health crises.

Zoonotic diseases. Zoonoses are diseases that can be transmitted from animals to humans. Examples include diseases like Ebola, Zika, and COVID-19. The One Health approach recognizes the need to monitor and control these diseases at the human-animal-environment interface to prevent outbreaks.

Ecosystem health. The health of ecosystems and the environment plays a crucial role in determining human and animal health. Degradation of natural habitats, deforestation, climate change, and pollution can lead to the emergence and spread of diseases. By preserving ecosystem integrity, we can reduce the likelihood of disease transmission. One Health approach emphasizes the need for interdisciplinary collaboration to address complex global health challenges (Petrescu-Mag 2023).

Food safety and security. The safety of our food supply is a critical aspect of One Health. This involves ensuring that the production and handling of food products are done in a way that minimizes the risk of foodborne illnesses and contamination.

Antimicrobial resistance. The overuse and misuse of antibiotics in both human and veterinary medicine contribute to the emergence of antimicrobial-resistant pathogens. The One Health approach emphasizes responsible antimicrobial use to combat this growing global health threat.

Global health security. One Health is closely linked to global health security, which involves the capacity of nations to prepare for and respond to public health emergencies. By understanding the complex interactions between humans, animals, and the environment, we can enhance our ability to prevent and respond to outbreaks.

Policy and advocacy. The adoption of the One Health approach requires policy changes, advocacy efforts, and collaboration at local, national, and international levels. Governments, non-governmental organizations, and the private sector play crucial roles in implementing One Health strategies.

Conclusions. The One Health approach is a holistic and inclusive framework that recognizes the intricate connections between human health, animal health, and the environment. By working together across disciplines, we can better understand and address the complex health challenges facing our planet.

Conflict of interest. The author declares that there is no conflict of interest.

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