



One Health: Priority for Next Era in Veterinary Medicine

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What is One Health?

According to Centres for Disease Control and Prevention (CDC). 'One Health' is 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.

According to World Health Organization (WHO), 'One Health' is an integrated, unifying approach to balance and optimize the health of people, animals and the environment.

Common One Health concern?

One Health theme include emerging, re-emerging, and endemic zoonotic diseases, neglected tropical diseases, vector-borne diseases, antimicrobial resistance, food safety and food security, environmental contamination, climate change and other health threats shared by people, animals, and the environment. For example:

- **Antibimicrobial-resistant germs** can quickly spread through communities, the food supply, healthcare facilities, and the environment (soil, water), making it harder to treat certain infections in animals and people.
- **Vector-borne diseases** are on the rise with warmer temperatures and expanded mosquito and tick habitats.

Zoonotic diseases are those diseases and infections, which are naturally transmitted between animals and man. The zoonotic diseases include viral (rabies, yellow fever, influenza, Kyasanur forest disease, etc.), bacterial (anthrax, brucellosis, plague, leptospirosis, salmonellosis, etc.), rickettsial (tick typhus, scrub typhus, murine typhus, etc.), protozoal (toxoplasmosis, leishmaniasis, trypanosomiasis,



etc.), helminths (hydatid disease, taeniasis, schistosomiasis, leishmaniasis, etc.), fungal (histoplasmosis, cryptococcus, etc.), and ectoparasites (scabies, myiasis, etc.).

In 2008, the importance of One Health concept is further strengthened by the FAO, OIE, WHO, United Nations Children's Fund), the World Bank and United Nations System of Influenza Coordinator and produced a document entitled 'contributing to One World, One Health', a strategic framework for reducing risks of infectious diseases at the animal-human-ecosystems interface.

One Health Status in India

In India, the major public health zoonotic diseases are rabies, brucellosis, toxoplasmosis, cysticercosis, echinococcosis, Japanese Encephalitis (JE), plague, leptospirosis, Scrub typhus, nipah, trypanosomiasis, Kyasanur forest disease (KFD), and Crimean-Congo hemorrhagic fever. (**Kumar et al., 2020**). In India, according to an International Livestock Research Institute study, 13 zoonoses are cause of 2.4 billion cases of human disease and 2.2 million deaths per year. The highest zoonotic diseases burden with wide spread diseases burden are in Ethiopia, Nigeria, Tanzania, and India. (**Varma, 2014**). **Asaaga et al. (2021)** findings suggested that for zoonoses prevention and control there is limited policy visibility of zoonotic diseases, although global zoonoses, especially those identified to be of pandemic potential by international organisations (e.g. CDC, WHO and OIE).

International health organization in One Health

A number of organizations throughout the world support the objectives of "One Health" including the One Health Commission (OHC), One Health Initiative, One Health Platform, The FAO-OIE-WHO collaboration, CDC One Health Office and others. The One Health Commission (OHC) mission is to connect individuals and create relationships across human, animal, and environmental health sectors, as well as to educate the public about these issues with the intent to improve global health.

The Food and Agriculture Organization of the United Nations (FAO) works closely with the OIE and WHO, referred to all together as the Tripartite organizations. The FAO-OIE-WHO Collaboration Sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interfaces a tripartite concept note has been published with vision of a world capable of preventing, detecting, containing, eliminating, and responding to animal and public health risks attributable to zoonoses and animal diseases with an impact on food security through multi-sectoral cooperation and strong partnerships.

The FAO-OIE-WHO Global Early Warning and Response System for Major Animal Diseases, including zoonoses, (GLEWS), combine the alert and response mechanisms of the three organizations in order to avoid duplication and coordinate verification processes. To support the notification of cases of



the main animal diseases, including zoonoses, and the subsequent analyses of these data, the OIE has developed the World Animal Health Information System and Database (WAHIS and WAHID). Similarly, WHO and FAO produce INFOSAN, which alerts national focal points on the occurrence of regional or global concerns for a food safety event.

FAO and OIE have developed a joint Network of Expertise on Animal Influenza (OFFLU) to support international efforts to monitor and control infections of avian influenza. Links between OFFLU and WHO's Global Influenza Programme are now strong, facilitating a free exchange of information and the establishment of joint technical projects between the two networks.

Furthermore, On May, 2018 WHO started free online course on Global Health at the Human-Animal-Ecosystem Interface on the course platform Coursera for more awareness and knowledge. The course introduces some of the major and current global health challenges at the Human-Animal-Ecosystem Interface, such as: zoonotic emerging infections (e.g. Ebola, Nipah, MERS, Avian Influenza); antimicrobial resistance; neglected tropical diseases (e.g. rabies, leishmaniasis, zoonotic tuberculosis); snakebites and other human-animal conflicts etc.

CDC uses a One Health approach by involving experts in human, animal, environmental health, and other relevant disciplines and sectors in monitoring and controlling public health threats and to learn about how diseases spread among people, animals, plants, and the environment. The World Medical Association (WMA) in its resolution on the collaboration between Human and Veterinary Medicine, adopted in October 2008, recommends the collaboration between human and veterinary medicine and supports the concept of joint educational efforts between human and veterinary medical schools.

The One Health High-Level Expert Panel (OHHLEP) was formed in May 2021 to advise FAO, UNEP, WHO and WOAHA on One Health issues. This includes recommendations for research on emerging disease threats, and the development of a long-term global plan of action to avert outbreaks of diseases like H5N1 avian influenza, MERS, Ebola, Zika, and, possibly, COVID-19.

Conclusion

Application of the One Health approach is a responsive come close to infectious disease outbreaks control. More deliberate efforts should encourage understanding of disease determinants to analyze infectious/zoonotic disease issues through a One-Health. Only through the extensive participation of all related field stakeholders can One-Health truly reach its potential to mitigate infectious disease outbreaks.



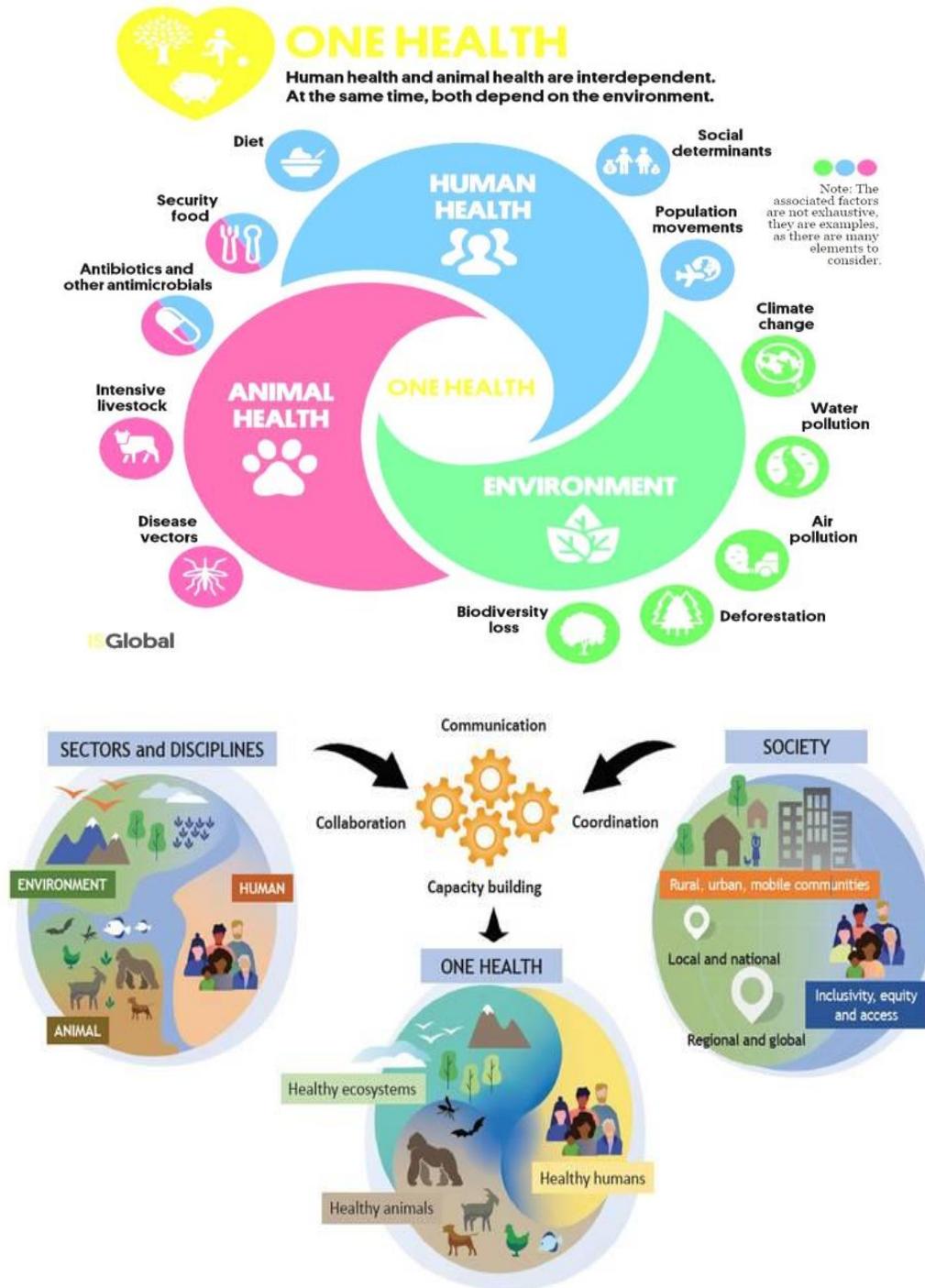


Fig. 1&2 Illustration represents factors and concept of One Health

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