



One Health Approach: The key to addressing pandemics and other complex challenges of the 21st Century

The corona virus infectious disease or Covid 19 pandemic has been causing unprecedented loss of lives and livelihoods across the globe. This is the third time a Beta coronavirus has crossed the animal-human species barrier in the last 20 years resulting in a major zoonotic outbreak [1]. The first was in 2002, when the SARS CoV-1 virus caused an outbreak in China and second was in 2012 with the MERS CoV causing an outbreak in the Middle East. The SARS CoV-1 originated from bats and the MERS CoV originated from camels. Covid 19 disease is a zoonotic infection caused by SARS CoV-2 virus, which originated in Wuhan city in China in December 2019, which quickly spread across the world. The zoonotic source of SARS CoV-2 is not known but is closely related to a group of SARS CoV viruses found in bats, humans and civets [2].

The complex challenges of the 21st century like climate change and the recent disease outbreaks are evidence of increased human – animal interactions and human influence which will continue to increase, given the increasing human demand for space, food and unbridled consumerism. They also are an indicator of the interconnectedness of human and animal and environmental health. Hippocrates, the great Greek physician in his book ‘On air, waters and places’ had dwelled on the importance of relationship between human health and the environment [3]. The ‘One Health’ approach recognizes this important relationship between human, animal and environmental health. In 2004, the wildlife conservative society with a group of partner organizations launched the ‘the one world, one health’ initiative which was the primary step in the evolution of the modern concept of One Health [3]. One health is defined by the One Health High Level Expert Panel (OHLLEP) as “an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems” [4].

The one health approach calls upon human medicine, veterinary

medicine, public health, environmental sciences, and a host of other disciplines to work together to improve the health of humans, animals and the environment. The scope of one health includes areas such as climate change, biodiversity loss, food, and water security, emerging and reemerging diseases, antimicrobial resistance etc....

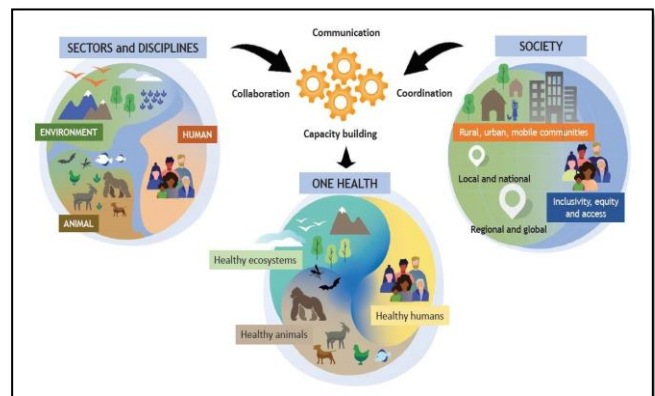


Image source: <https://www.who.int> [4]

The key strategies of One health for the prevention and control of zoonotic diseases are as follows [3, 5].

1. Surveillance of disease or infections in wildlife, livestock and human populations including environmental surveillance.
2. Minimizing human -animal interactions and spread of infections from animals to humans – for example safe handling of livestock, pets and wildlife, livestock vaccinations etc...
3. Reducing antimicrobial resistance through rational antibiotic use in animals and livestock.

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4. Integrating and coordinating disease prevention, surveillance and response across all sectors (animal husbandry, education, health, communications, agriculture etc....)
5. Addressing climate change at local, national, and international levels.
6. Promoting collaborative research

These strategies have been effective in controlling SARS CoV outbreak in 2002 by banning of trade of civet cats [6]. One health strategies also helped in reducing the MERS CoV case fatalities [7]. In Chad, simultaneous human and animal vaccinations have proven effective against brucellosis [8].

We are facing complex challenges with regard to climate change, emerging and reemerging diseases, food and water security and individual responses are incapable of addressing these issues and the only way to deal with these complex issues is to collaborate and coordinate our efforts across disciplines, sectors and nations. Barriers to implementing One health do exist, but One Health approach is the key to ensure sustainability and survivability of all life on planet earth.

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