



A Monthly e Magazine
ISSN:2583-2212

August, 2023; 3(08), 1907-1910

Popular Article

Managing Zoonotic Diseases: Global Challenges

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<https://doi.org/10.5281/zenodo.8218822>

Introduction

Throughout human history, animals have played a significant role in our evolution. Early humans domesticated animals for a variety of purposes, including food, transportation, agriculture, security, and even recreation. This led to increased contact between humans and animals, which led to the transmission of diseases from animals to humans and vice versa. Infections might possibly travel quickly across the globe on humans, animals, and animal products because to technological advancements and faster communications. The prevention and management of the spread of zoonotic diseases have become more difficult because of globalization. The interdependence of human, animal, and environmental health highlights the necessity of a one-health strategy for reducing the burden of zoonoses.

The World Health Organization (WHO) defines zoonotic diseases as “diseases and infections which are naturally transmitted between vertebrate animals and humans.” People can get zoonotic diseases through encountering infected animals or their bodily fluids, drinking water or food, or being exposed to contaminated environment. By 2050, there will be about 10 billion people in the world, and 60% of human diseases emerge in animals. Due to this, there have been more newly emerging and reemerging infectious diseases, of which approximately 75% are zoonotic. There are three types of zoonotic diseases in Southeast Asia: endemic, re-emerging, and emerging.

Global Challenges of Controlling Zoonotic Diseases: One of the most important public health concerns is the prevention and control of zoonotic infections, which requires for cooperation between the veterinary and medical fields. All the issues help to regulate these diseases can indeed be tackled

by the health system alone. Collaboration, global communication, the development of surveillance systems, and the provision of uniform training for personnel in the medical and veterinary disciplines are necessary for the success of efforts to reduce the effect of zoonotic illnesses. Some of the challenges that make controlling zoonotic diseases difficult include:

- **Globalization:** Globalization makes controlling zoonotic diseases difficult. As travel, trade, and transportation interconnect, people, animals, and animal products move across borders. Globalization has increased zoonotic disease spread to previously unaffected places.
- **Lack of Awareness and Understanding:** It is extremely difficult to prevent and control zoonotic diseases when people are unaware of them and lack the necessary information. There is insufficient education since many people are not aware of the threat, the methods of transmission, or the symptoms of these diseases.
- **Limited resources and poor infrastructure:** In low- and middle-income countries, detecting, responding to, and controlling zoonotic outbreaks can be challenging. Insufficient sanitation and waste management may facilitate the spread of the disease. Each year, millions of people die from rabies, anthrax, and bovine tuberculosis.
- **Limited access to healthcare:** It is challenging to identify and cure zoonotic infections because many people in low- and middle-income nations do not have access to competent healthcare services. Without adequate healthcare, people might not be aware of zoonoses' prevention methods or seek treatment when sick, which would allow infections to spread.
- **Climate change:** By affecting the distribution of disease vectors and hosts, climate change is influencing the spread of zoonotic diseases. The number of vector-borne diseases is growing because of rising temperatures and shifting rainfall patterns. The risk of spreading disease is also rising because of altered animal migration patterns.
- **Antimicrobial resistance (AMR):** Antimicrobial resistance can make zoonotic disease treatment difficult, particularly where antimicrobial misuse and overuse is common which drives the development of drug-resistant pathogens.
- **Poor Biosecurity Measures:** Through contact with animals, food, water, surfaces, or air contaminated by pathogens, poor biosecurity is contributing to the spread of zoonotic diseases worldwide.
- **Wildlife trade:** Wildlife trade, driven by human demand, can cause species populations to decline. It can also spread zoonotic diseases like COVID-19. For example, In China, a wildlife market was thought to be the potential intermediary species that transported the SARS-CoV-2 virus, which caused COVID-19.

Importance of Controlling Zoonotic Diseases: Controlling zoonotic diseases is essential for protecting human and animal health, preventing the spread of infectious diseases, and reducing the



risk of pandemics. For example, the Ebola virus, which is transmitted to humans through contact with infected animals, has a mortality rate of up to 90%. There are several reasons why controlling zoonotic diseases is important, including:

- 1) **Protection of Human Health:** Many zoonotic diseases, such as rabies, Lyme disease, and West Nile virus, can be prevented through vaccination, proper hygiene, and effective control of animal populations.
- 2) **Prevention of Animal Diseases:** This is particularly important for animals that are raised for food production, as zoonotic diseases can have significant economic consequences for farmers and the food industry.
- 3) **Improved Surveillance and Diagnostic Capacity:** Improving surveillance systems to monitor both animal and human populations for signs of disease can help identify outbreaks before they become widespread.
- 4) **Conservation of wildlife:** Wildlife populations can be affected by a variety of zoonotic diseases, which can have ecological consequences. We can help to protect wildlife and maintain biodiversity.
- 5) **Economic Benefits:** Economic losses can result from zoonotic disease outbreaks in global trade, tourism, and agriculture. SARS outbreaks in 2002-2003 cost the global economy over \$40 billion.

Global challenges to control zoonotic diseases using the One Health approach: The One Health strategy strives to foster collaboration and coordination across sectors to prevent and control zoonotic diseases by emphasizing the connectivity of human, animal, and environmental health. The One Health concept acknowledges that zoonotic diseases are a problem for both the environment and people about being a health issue. Internationally, the Tripartite organisations, namely the Food and Agriculture Organization of the United Nations (FAO), the World Organization for Animal Health (WOAH), and the World Health Organization (WHO), have exemplified using a multisectoral, One Health approach through mandated inter-agency collaboration and endorsement of One Health to facilitate sustained collaboration for zoonotic disease control at the local, subnational, national, regional, and international levels.

Strategies for Overcoming Global Challenges: Zoonotic diseases continue to be a major problem on a global level, but solutions are available. Enhancing political commitment, determining the most effective control actions, and ensuring cooperation among all key stakeholders should be the main goals of strategies for strengthening zoonosis prevention and control. Controlling zoonoses requires cross-sector collaboration. The planning and execution of intersectoral operations entail complicated processes, nevertheless. Each nation must have its own intersectoral action plan and methods.



Conclusion

To prevent and control the spread of zoonoses, which pose a serious risk to public health worldwide, aggressive action must be taken. International agencies like the WHO, FAO, and OIE must work together in a coordinated effort across several areas, including human health, animal health, and environmental health. A new public health agenda must consider both human and animal health issues to successfully monitor and control zoonotic infections. To execute effective zoonosis control programmes, cross-sectoral cooperation is essential, and coordination structures must be set order to support these activities with technical and administrative assistance. The prevention and management of zoonoses also rely mainly on education and communication. The spread of zoonoses must also be stopped by making investments in laboratory infrastructure, educating staff on how to handle outbreaks, and enhancing surveillance systems for early outbreak detection. Finally, we can control zoonotic illnesses and lower the possibility of future pandemics by banding together and taking preventative steps, thereby preserving global public health.

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