# INTRODUCTION

- Zoonotic diseases are infectious diseases that spread from animals to humans and vice versa (Zinsstag et al., 2020).
- Low-and-middle income countries (LMICs) depend on animals for food and income, have a high populations, low skilled labor, and weak immune systems which facilitate the increase of zoonotic diseases (Gebreyes et al, 2014).
- According to CDC, the One Health approach is an holistic functioning for global healthcare systems that recognizes the interconnectedness of human, animal, and environmental health (CDC, 2024).
- One Health essential infrastructure for emergency management, quarantine protocol, zoonotic diseases, antimicrobial resistance, climate change, and food safety (Erkyihun et al., 2022).
- LMICs fail to recognize the One Health approach due to financial limits, weak governance, and limited healthcare infrastructure (Yopa et al., 2023).
- This study analyzes the implications of the lack of One Health approach on the disproportionate prevalence of zoonotic diseases in LMICs.

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disease, Plague, West Nile Virus, and Salmonella (WHO, 2021) • 70% of all the diseases that humans transmit are zoonotic diseases (Zinsstag et al., 2020). • Research carried out across the USA and Europe on pandemic preparedness simulations using the One Health approach has indicated cost reduction; however, there is a lack of studies on this issue in low-and-middle-income countries (Clarke, 2022).

# **RESEARCH METHODOLOGIES**

- Evaluation research was used to evaluate the effectiveness or impact of the One Health approach implementation to public health systems.
- A total of 17 sources from credible databases such as *National* Institute of Health, PubMed, ProQuest, and JSTOR were utilized to find scientific graphics, datasets, experiments, and charts.
- Key words used to find datasets are: One Health, zoonotic diseases, low-and-middle income countries, salmonella.
- Coding was utilized to condense data about the enablers of One Health implementation into themes such as global partnerships, local governance, community building. Through coding, the impacts of surveillance systems, global partnerships, and government interventions are thoroughly evaluated for low-and-middle-income countries.
- Both quantitative and qualitative data were used to present implications, limitations, and plausibility.

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# **DATA AND FINDINGS**

Figure 1

## Prevalence of Zoonotic Diseases Among Human Diseases

evalence (% of human diseases)



Figure 1: Global prevalence of types of zoonotic disease according to World Health Organization (14). Copyright: Market.us media, World Health Organization (WHO)

• Some zoonotic diseases include: Anthrax, Brucellosis, Lyme



# **CONCLUSIONS AND ANALYSIS**

- engineers, physicians, ecologists, researchers, etc. (Zinsstag, 2018).
- (WHO, 2021).
- pandemic preparedness, and food safety (FAO, OIE and WHO, 2017).
- network mapping (FAO, OIE and WHO, 2017).
- monitoring (Preston, 2019).
- countries.

# One Health Approach For Low and Middle Income Countries (LMICs): The Effects on Zoonotic Diseases

Source: Adapted from Thacker and Stroup 1998a, 119. Figure 2: Steps to establish and maintain public health surveillance systems (13).

Copyright: Nsubuga et al., 2006

• The One Health approach requires collaboration among veterinarians, agricultural

International efforts and global partnerships can create awareness among LMICs to recognize the One Health approach and improve zoonotic disease prevalence

• The WHO-FAO-OIE tripartite analyzes human, animal, and environmental health using a One Health approach to support multisectoral collaboration, AMR,

• The *IHR-PVS National Bridging Workshops* (NBWs) offered by the Tripartite can Surveillance Evaluation Tool (SET) and Laboratory Mapping Tool (LMT).

• The Surveillance Evaluation Tool (SET) helps countries to identify areas of gaps in surveillance. The Laboratory Mapping Tool (LMT) assists in laboratory

• Similarly, the USAID-funded PREDICT Project across more than 30 countries offered 6,800 people training towards the One Health Workforce (Preston, 2019). • The PREDICT Project aims to identify future zoonotic dangers through global

• The recognition of One Health approach could facilitate the improvement of the prevalence of zoonotic diseases, particularly for low-and-middle-income

- In 2010, Sub-Saharan Africa reported 3.4 million cases of Salmonella (iNTS), a region comprising many LMICs (Ao et al., 2015).
- On the other hand, with the recognition of One Health, Salmonellosis cases decreased from 88,000 to 52,700 in Europe (European Food Safety Authority, 2021).

# **ACKNOWLEDGEMENTS / REFERENCES**

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## **IMPLICATIONS AND NEXT** STEPS

- The One Health approaches in low and middle-income countries (LMICs) have challenges that confine their impact, particularly in governance, funding, and resources.
- FAO-WHO-OIE Tripartite could help implement surveillance systems by donating healthcare materials (Whittaker, 2021).
- Surveillance in LMICs could prevent up to 30% of deaths from zoonotic diseases through early interventions (WHO, 2021).
- Forming international teams can help LMICs offer equal access to vaccines, medicines, and diagnostic equipment.

Figure 3

Figure 3: Figure that describes the One Health, approach which combines human health, environmental health and animal health for public health systems.(2) Copyright: One Health Trust, Asaaga et al., 2021

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