



## Promotion of one health approach in Pakistan: Immediate need for the curtailment of emerging infectious diseases and future pandemics

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The global struggle against the enduring COVID-19 pandemic, with its far-reaching health, societal, and economic consequences spanning over three years, is compounded by the emergence of new diseases driven by novel pathogens or the resurgence of infectious illnesses. This situation underscores the urgency of reshaping healthcare with an enhanced focus on pandemic prevention. Research reveals a significant disparity in the costs of preventing infectious diseases compared to managing them, emphasizing the need for immediate global action.<sup>1</sup>

Various factors, such as rapid urbanization, high population growth, increased mobility, evolving dietary habits, and insufficient health infrastructure, highlight the imperative for improved multidisciplinary coordination in disease control. Recent health crises, including COVID-19, monkey pox, ebola, and ongoing threats like zoonotic diseases, food safety concerns, antimicrobial resistance, and environmental challenges, underscore the crucial need for robust health systems. In response, the heads of quadripartite organizations have issued an unprecedented call for global efforts to implement the "One Health" approach.<sup>2,3</sup>

One Health, has been defined as "an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems. It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent".<sup>4</sup> The One

Health concept mandates collaborative efforts across all sectors and stakeholders to address shared goals in overcoming complex challenges. Contrary to misconceptions, One Health is not a standalone or new program; instead, it provides a structured platform for people to plan and work together to achieve common objectives. Yet, creating a robust global coordination platform among stakeholders in human, animal, and environmental health faces numerous formidable challenges. Despite the theoretical emphasis on promoting One Health, practical work to break down sectoral, professional, and institutional silos within the One Health arena has been largely absent at both national and global levels.<sup>5</sup> It is crucial to understand that One Health does not necessitate the merger of various sectors. Instead, its essence lies in strengthening core capacities in each sector related to the prevention, detection, response, and recovery from zoonotic infections and antimicrobial resistance. The goal is to ensure a sustainable, strong, beneficial, and collaborative mechanism that results in synergistic action.

Despite widespread international understanding, barriers persist in promoting One Health programs. These hurdles include the under-recognition of its economic and health benefits, fragmented governance across One Health sectors (i.e. health, livestock, plant, environment, marine etc.), lack of coordination, limited opportunities for joint training and investigation, and a shortage of data on human, plant, and animal interactions and their implications.<sup>6,7</sup>

A well-functioning 'One Health

Program' require an urgent development of robust sustainable One Health Strategic Action Plan. This entails focused work to curtail emerging infectious diseases and any future pandemic resurgence. Some prerequisites to reach that stage is the availability of explicit operating procedures for multidisciplinary coordination and allocation of sustainable financing. Other supporting factors for boosting 'One Health Promotion' are launch of aggressive public awareness campaigns and knowledge sharing program. Furthermore, capacity building in one health disciplines and continuous involvement of major stakeholders and community leaders is required.<sup>8,9</sup>

Essential to the program is developing the One Health workforce through comprehensive education and training.<sup>7,10</sup> Initiatives are vital to overcome sectoral barriers, with the joint concept integrated into initial training for veterinarians, clinicians, pharmacists, biologists, and ecologists. Consistent education enhances collaboration. Conducting One Health awareness campaigns and continuous training for decision-makers and educators fosters a shared cultural understanding. Early school integration supports behavioral changes, akin to global warming initiatives. Specific training develops cross-curricular skills, including complex thinking and multidisciplinary decision-making. This ensures a well-equipped and collaborative One Health workforce for effective program implementation.<sup>7,10-12</sup>

Comprehensive communication and collaboration across sectors and with the public are vital to understand the complex factors behind the emergence of zoonoses, including biological, environmental, and social determinants. Crucial for identifying and prioritizing populations at risk of zoonotic diseases, the One Health approach involves considering all sectors, with active engagement focused on human, other animal, food, and environmental health. Traditionally, the One Health platform has not included life under or over water, yet as humans, we recognize that a significant portion of our planet is composed of water. Therefore, Marine health should be an integral part of this crucial concept of One Health.

In South Asia, Bangladesh has dedicated substantial efforts to formulate a Strategic Framework and action plan for implementing the One Health approach.<sup>13</sup> In Pakistan, there is a critical gap with no dedicated government entity at the national or provincial levels promoting coordinated support for One Health. At both national and global levels, we grapple with ongoing challenges in controlling zoonotic infections. In Pakistan, the frequent emergence of such outbreaks is commonplace, involving species transitioning to humans. Simultaneously, our country confronts persistent struggles against viral infections like pink eye, along with diseases such as dengue and naegleria. It is imperative to swiftly establish a well-resourced 'One Health Focal/Coordinating Unit' with professional and financial commitments. Oversight should be under an inter-sectoral One Health Steering Committee, including representatives from key sectors—health, livestock, food, and Marine health—along with essential non-governmental partners.

Regrettably, awareness of the One Health concept remains a challenge as we strive to boost essential transdisciplinary collaboration. Initiating academic programs at both undergraduate and postgraduate levels is imperative for this purpose.

By implementing these measures, Pakistan can enhance its capacity to

address health-related challenges at the intersection of humans, animals, and the environment. Notable international partners like the World Health Organization, Food and Agriculture Organization, United Nations Emergency Force, World Organization for Animal Health (Office International des Epizooties), United States Agency for International Development, and academic institutions can contribute by providing technical assistance, sharing knowledge, and supporting capacity-building initiatives. This will promote the effective implementation of the One Health approach in Pakistan. Ultimately, it is imperative in today's world for all stakeholders to realize that, owing to climate change and environmental degradation, the potential threat of casualties exceeding ten million in the near future is more likely to be posed by a microbe rather than a nuclear arsenal. Therefore, it is crucial to redirect investments towards reinforcing health systems, embracing the 'One Health' concept.

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