



Review Article

Indian J Med Res 153, March 2021, pp 281-286
DOI: 10.4103/ijmr.IJMR_537_21

Adopting an intersectoral One Health approach in India: Time for One Health Committees

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Received February 22, 2021

Following the several episodes of zoonotic disease outbreaks and the more recent COVID-19 pandemic, the Indian policy initiatives are committed to institutionalize One Health (OH) approaches and promote intersectoral, transdisciplinary collaboration and cooperation. The OH principle needs to be visualized beyond the scope of zoonoses. While conservation, ecological and veterinary professions are getting increasingly engaged with OH, most of the medical/clinical and social sciences professions are only peripherally aware of its nuances. The OH initiatives, by their essentially multidisciplinary nature, entail working across ministries and navigating tacit institutional hierarchies and allocating leadership roles. The logical operational step will be the constitution of One Health Committees (OHC) at the State and district levels. Here, we outline the key foundational principles of OHC and hope that the framework for implementation shall be deliberated through wider consultations and piloted and adopted in a phased manner.

Key words Intersectoral approach - leadership - One Health Committee - strategic goals - zoonoses

The recent pandemics among humans (COVID-19 caused by SARS-CoV-2) and animals (African Swine Fever) have demanded extraordinary outbreak responses and driven calls for a One Health (OH) approach. The One Health Commission emphasizes a collaborative, multisectoral, and transdisciplinary approach and encourages a multi-institutional network of actors¹. The Sustainable Development Goals (SDGs) encompassing social development (SDG1, No Poverty), economic progress

(SDG9, Industry, Innovation & Infrastructure) and environment (SDG13, Climate Action)² embody an OH strategy. Given this complexity, employing an OH lens is seen as increasingly important to achieve SDG2, Zero Hunger³. Implementing an OH approach entails engaging with intersections of humans, domestic and wild animal populations as well as plants and ecosystems^{4,5}. A recent study pointed to the possibility of new habitats and interactions between animal populations and viruses on account of climate change,

culminating in the emergence of SARS-CoV-2⁶. Three recent policy initiatives have marked the mainstreaming of One Health in India: a National Expert Group on OH as a multi-sectoral transdisciplinary collaborative group⁷, a National Institute of One Health at Nagpur, Maharashtra⁸ and Integrated Public Health Laboratories⁹. In 2017, India prepared its National Action Plan on antimicrobial resistance taking a OH approach involving human, animal and environmental sectors¹⁰. Public health challenges are not linear, but require multi-disciplinary approaches as well as coordination and mutual understanding between the stakeholders. The OH issues are also driven by human behaviors including the challenge of effective engagement between medical and laboratory scientists and social scientists.

The mandate

Successful OH collaborations benefit from the synergistic impact of combining logistically challenging field-based disciplines including social sciences with analytical approaches and laboratory sciences. While conservation, ecological and veterinary professions are getting increasingly engaged with OH, much of the medical/clinical and social sciences professions are only peripherally aware of its nuances. For the potential of the OH paradigm to be realized, it needs to be visualized beyond the scope of zoonoses.

The critical barriers to multisectoral, transdisciplinary collaboration are institutional (political structures/interests and corporates and other influential organizations) and behavioral rather than technical or disciplinary. The articulation or framing of the problem must seek a synergistic high-level political agenda in terms of development, equity, economic and health gains. The ongoing pandemic enables the possible framing of OH as a human health imperative. The OH initiatives, by their essentially multidisciplinary nature, entail working across ministries and navigating tacit institutional hierarchies and allocating leadership roles. These may not succeed fully, purely as a governmental endeavour, the cooperation and active engagement of individuals, communities, the private sector and society as a whole are paramount.

The logical operational step forward for India to make the OH policy initiatives functional will be the constitution of One Health Committees (OHCs) at State and district levels with representation from

district administration, public health including clinical medicine, veterinary and wildlife institutions as well as environmental health and private (including corporate) stakeholders. The implementation and governance of OHCs in India requires strategies based on stakeholder communication, willingness to cooperate for a collective action, collaboration and co-ordination between various stakeholders (human, animal, environment and allied sectors), continual reporting and surveillance of public health exigencies, critical reviewing and crisis management. However, the prime challenge in the implementation of various OH activities is the availability of funds. Yet another problem in this regard is the difficulty in inter-ministerial collaboration towards a common funding strategy for OH implementation. A landscape analysis of OH research, training, and government support in South Asia revealed a small number of truly OH research and capacity building programmes¹⁰. Though OH has been institutionalized in some of the South Asian countries, further behavioural, attitudinal, and institutional changes are required to strengthen OH research and training¹⁰. The need for intersectoral coordination in India for effective disease prevention and control was felt after the emergence of diseases such as avian influenza and Ebola virus disease which threatened social disruption¹¹. India being home to a large portion of the world's livestock farmers, the absence of a policy framework that ratifies the One Health approach in development and health policies is a major hurdle in eliminating poverty and poverty-related diseases¹¹.

The emergence of avian influenza H5N1 helped to conceptualize the multisectoral linkages in India across human health, animal health, and wildlife sectors to combat the problem. These linkages were institutionalized in the form of an Inter-Ministerial Task Force and Joint Monitoring Group at the national level, with coordination mechanisms established all the way down till the district level¹². Avian influenza preparedness and response have been a success story for India¹². However, the opportunity created was not fully utilized and the scope of these coordination mechanisms has not yet been extended to cover zoonoses and wider sets of issues emerging at the human-animal-wildlife interface. Subsequent outbreaks of diseases such as Crimean-Congo haemorrhagic fever (CCHF) and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) rejuvenated the concept culminating into a national programme for intersectoral coordination¹³. A National Standing Committee on Zoonoses (NSCZ) coordinated

by the Ministry of Health and Family Welfare also exists to facilitate intersectoral collaboration¹⁴.

Models and domains

Some successful models of OH collaborations include the OH Strategic Plan in Rwanda¹⁵, the Zoonotic Disease Unit (ZDU) in Kenya¹⁶, Rabies Control in Indonesia¹⁷ and the Mekong Basin Disease Surveillance (involving six Mekong Basin countries in East/South-East Asia)¹⁸. These are success stories with significant funding and technical support from multilateral agencies and academic institutions. These success stories primarily focus on prevention and control strategies for infectious diseases of a zoonotic nature. In Rwanda, the OH Strategic Plan concentrated on three focal thematic areas *viz.*, leadership (at government level) for reinforcing interdisciplinary collaboration, community responses (at community/NGO level) for strengthening infrastructure as well as surveillance mechanisms, and educational responses (at academic level) for capacity building¹⁵. In Nepal and Bangladesh, inter-governmental agencies work in partnership with the donor-funded projects for implementing OH activities to address emerging public health threats such as zoonotic diseases and antimicrobial resistance¹¹. The epidemic of Nipah in May 2018 in Kerala with high case fatality, highlighted the importance of employing a One Health approach¹⁹.

With human health the key priority in most countries, multisectoral engagements are under-explored and under-invested. OH collaboration, like all other intersectoral collaborations, shall require policy visions shared by all key stakeholders and backed by sectoral agencies. The WHO envisioned multisectoral collaboration as a complex set of mechanisms, processes, relationships and institutions and recognized the need for human medical institutions to negotiate their interests and mediate differences²⁰. Multisectoral action in health has been categorized into four broad types: (i) as a minimal actor (ensuring that children attend school); (ii) as playing a supporting role (addressing health disparities through cross-sectoral policy advocacy); (iii) as a bilateral or trilateral partner producing 'co-benefits' (food safety legislation and enforcement); and (iv) taking a lead role where collaboration is essential to deliver its core mandate (adequate water and energy supplies to health facilities)²¹.

In the technical domain, OHCs need to promote a multi-disciplinary approach and address issues of knowledge, skills and competencies plus soft skills for successful collaborations. The governance domain is best understood as a fabric where horizontal (informal trust-based relationships) and vertical (formal and official relationships) threads intersect¹⁵. One Health leadership development needs to prioritize competencies across management, communication and systems thinking as well as promoting values and ethics through in-service programmes for OH professionals and develop curricula in university settings that incorporate OH approaches²². The key to success will be in institutionalizing OH within existing structures of these different sectors. In addition to constituting OHCs, the implementation and governance of OH require various strategies such as, stakeholder communication, willingness to cooperate for a joint action, collective responsibility and action, collaboration and coordination between various stakeholders (human, animal, environment and allied sectors), continual reporting and surveillance, critical reviewing and crisis control²³.

Goals and strategies

The long term goal of OHCs shall be to adopt and follow a holistic inter-disciplinary approach to mobilize across disciplines and help evolve an OH workforce that will play a crucial role in promoting safe and healthy food systems, preventive approaches to decrease disease risks and strengthen surveillance¹⁷.

The strategic goals of OHCs should include: (i) promoting integrated disease surveillance for infectious and non-infectious conditions, prevention and response in terrestrial and aquatic animals including at intersections of domestic and wild species, humans, agriculture, animal husbandry and aquaculture; (ii) instituting a social determinants of health approach in OH; (iii) improving in-service programmes for researchers and practitioners trained in uni-disciplinary contexts and promoting inter-professional collaboration; (iv) developing policies on upstream determinants including land use, water access, pollution, urban planning, industrial and domestic waste management and deforestation; (v) reducing risky contact between humans, domestic and wildlife through protecting habitats; and (vi) developing safe agricultural practices and appropriate consumption

of animal-source food through appropriate governance of food markets.

The core strategies to pursue this roadmap shall entail (i) enhancing cross-boundary (across States and districts) exchange of relevant data; (ii) strengthening community surveillance and food system sustainability; (iii) developing inter-sectoral epidemiological capacities; (iv) strengthening information and communications technologies; (v) rapid scaling up of Integrated Public Health Laboratories that include both human and veterinary laboratories; (vi) strengthening risk communication and community engagement processes; and (vii) conducting policy research and adopting its outputs with an emphasis on ensuring that stakeholders are engaged at all stages of the roadmap and that policy research is aligned with basic and translational technical research²⁴.

The strategic plan entails inclusion of a range of professionals *viz.*, clinical, epidemiology, nutrition, pharmacology, community health, veterinarians, wildlife, environmental, social science, geography, agricultural, planning and policy experts working synergistically in the OHCs. Multidisciplinary disease surveillance teams need to be formed to monitor zoonotic and potential zoonotic diseases. A bottom-to-top approach needs to be operationalized through frontline/community health workers (ANMs and ASHAs), community-based animal health workers (para-veterinarians), forest officers and rangers, and farmers and domestic animal owners of all genders. A good starting point may be to merge, in a planned and coordinated manner, the disease surveillance system for humans (IDSP) and animals (NADRS), to create a national disease database for zoonotic diseases and emerging infectious diseases. The OH provides a model for educating medical students and trainees in systems approaches and also extends traditional concepts of inter-professional education to incorporate social sciences, animal health and ecosystem aspects of care. Through such approaches, the students and trainees can provide improved human and animal health care and promote healthy environments benefiting all species²⁵.

The terms of reference (ToR) of OHCs will be specifically designed to facilitate various OH activities among various departments and stakeholders; continually assess and recommend the collaboration at various levels (Central/State/district); review and provide technical expertise to government agencies

on forecasting of public health hazards; co-opt expert members from allied partners and agencies related to a specific OH action; monitor and evaluate various OH programmes.

Three critical phases

The OHCs can be visualized to evolve through three critical phases. The adequacy of starting conditions shall be contingent upon: (i) prior history of OH activities in the respective States -- their strong points and limitations; (ii) environment -- resource constraints and enabling provisions for the stakeholders; and (iii) relational dynamics -- leadership of the collaboration and the actors framing the problems. The effective process of collaboration shall be a function of leadership dynamics, trust among partners, flexibility of institutions, availability of resources, and mechanisms of communication and data sharing²². The outcomes of collaboration need not be boxed into a standard framework and States can frame consensus criteria for measuring and monitoring outcomes.

Success and sustainability

In India, the Central and State governments are increasingly taking OH approaches to tackle the rapidly emerging issues of antimicrobial resistance, zoonoses and food safety²⁶. Crosscutting policies and regulatory measures exist which are conducive for further development of the OH approach. Currently, the National Standing Committee on Zoonoses collaborates with the Food Safety and Standard Authority of India and the National Centre for Disease Control works on government policies and regulatory mechanisms¹⁰. Globally, several OH initiatives are underway while the Indian approach has so far been largely solution-based specifically during emergencies and outbreaks. A deeper understanding of local priorities shall help shape the nature of OH collaborations.

The success of OHCs shall be contingent upon: (i) individual factors -- competencies and the state of current relationships; (ii) organizational factors -- organizational structures, culture, human resources and communication; and (iii) network factors -- network dynamics, relationships and political dimensions²⁵. Budgetary support and human resources are to be committed through the National Health Mission (NHM) and the Prime Minister's *Atmanirbhar Swasth Bharat Yojana* (PM-ASBY) schemes²⁷.

Strategies and activities need to be based on common and shared values and nested within existing

State/district infrastructure. Effective governance will be shaped by legal and policy frameworks that are aligned with current structures and comply with relevant national and international standards. The role of strong sectoral systems cannot be overemphasized as operational aspects shall be shaped by these in the final analysis. Academic institutions will play a crucial role in shaping and facilitating OH education²⁵. Capacity building should therefore, focus on cross-cutting issues, such as zoonotic diseases that are currently impacting communities, public health, environmental degradation/climate change, economics, risk assessment and surveillance and policy development²⁸. It is hoped that these steps shall culminate in building “OH community” networks and promote the doctrine of ‘Oneness’.

Financial support & sponsorship: Authors acknowledge the financial support received from UK Research and Innovation (UKRI) Global Challenges Research Fund (GCRF) One Health Poultry Hub (grant BB/SO11269/1).

Conflicts of Interest: None.

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