

The AFPI-CAR policy paper on identifying basic framework of possible roadmap for one health

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ABSTRACT

Zoonotic diseases are an important public health problem. Keeping this in way, a panel reviewed the discussion around “one health” strategy of the WHO in combating zoonotic diseases during Seventh annual conference of Consortium Against Rabies (CAR) with the theme of “Zoonoses: Thinking beyond Rabies” held on 14th and 15th June 2019. The panel came out a manuscript discussing the need, background, and rationale for basic framework of possible roadmap for one health. **About CAR:** CAR has been established with the aim to serve as a platform for the control of the rabies menace in India. It will evolve into a full fledged struggle against rabies in the country. The association comprises of medical professionals, veterinary doctors, and public health persons. The idea behind CAR is to bring the best minds in the country for research and information dissemination in the field of rabies. **About Academy of Family Physicians of India (AFPI):** AFPI is the official association of family physicians in India. Dedicated to provide professional leadership, conduct healthcare advocacy, policy development and a change in health system within the domain of family medicine, and larger public health system in the country, the academy is the recipient of the Healthcare Leadership Award 2012 in the category of Healthcare Governance and Public Administration. **The white paper development Process:** More than 100 medical experts, veterinary doctors, and public health persons from across the country and belonging to the fields of internal medicine, family medicine, public health, veterinary sciences, nursing science and environmental science and representing reputed medical institutions, government funded research institutions, and policy making bodies participated in discussions on topic of “one health” made during 7th Annual national conference of CAR with the theme of “Zoonoses: Thinking beyond Rabies” held on 14th and 15th June 2019. The panel steering the discussion included leading expert from ICMR, medical colleges, veterinary college, family medicine, private practitioners, and health program managers. The panel committee had prepared a draft document well in advance of the conference, which was communicated to all participants for feedback and comments. The panel was steered by ICMR expert. The discussion of the panellist was presented to the consensus group and unanimously adopted. A writing group worked on the manuscript, which was again circulated by email to all for any comments and suggestions before final publication.

Keywords: AFPI-CAR, framework, one health, policy paper, roadmap

Introduction

Zoonotic diseases are an important health problem worldwide including the developing countries. In this paper, we discuss the need, background, and rationale for basic framework of possible

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roadmap for one health. It must be mentioned here that more research is needed regarding this and, in particular, cross-cutting multistakeholder for implementation of the framework. Paucity of such research data regarding precluded us from making any consensus statement.

In early 1980, concept of “one medicine” advocated a combination of human and animal medicine in response to zoonotic diseases. Thereafter, in early 2000, “one health” concept was promoted with inclusion of ecosystem health in addition to animal and human health.^[1] Zoonoses have been affecting and will continue to affect mankind because of reasons largely linked to a disruption of ecosystem. Human and wildlife interface is shifting farther due to frequent contacts driven by necessity of livelihood. Progression of land use practices promotes physical development in countries as a demonstrating sign for developed countries. But this progression has largely resulted in industrialization and changes in population parameters.

Further, persistent geopolitical problems coupled with promotion of global trade and migration has contributed to erosion of biodiversity and degradation of ecosystem. Human beings and animals share relatively discrete environment but an increasing change in interface influences the commonality in environment, affecting occurrence of infectious and noninfectious diseases. Dependence of humans and animals on this shared commonality affects human health, demonstrated recently by epidemics due to bird flu, Zika virus, and Ebola virus.^[2] Inextricable intertwining of humans, animals, and wild fauna influenced the need for integrated approach to improve human, animal, and ecosystem health—One Health.

World Health Organization (WHO), European region declared that “public authority shares the common responsibility for safeguarding the global environment and promoting and protecting human health for all environmental hazards across generation and in all policies.”^[3] It requires a coordinated, structured, interdependable, and sustainable approach to simplify the complex systems.

Flavivirus caused *Kyasnaur* forest disease occurred in India in 1957 as a novel virus. Thereafter, its seasonal outbreaks and other infections like influenza, Japanese encephalitis, Nipah virus, leptospirosis, rabies, leishmaniasis, anthrax, and plague frequently affected various part of country.^[4] Influenza led lower respiratory tract infection has been found to be responsible for 145,000 deaths in India.^[5] Major outbreak of Japanese Encephalitis (JE) was reported from Uttar Pradesh, India, where 1500 person died. With occurrence of 6000 cases JE established transmission cycle accounting for about 10 to 30% of acute encephalitis syndrome from 2011-13.^[6] In Bihar, data from 2009-14 revealed occurrence of 733 cases/year with average case fatality rate of 30.0% for the study period.^[7]

India accounts for one-third rabies-related deaths (20,000) of world. These are largely a result from direct human-animal contact.^[8]

Zoonotic diseases tend to change features with a change in the ecosystem and consequent human–animal interface. For example, human Brucellosis has changed its epidemiology in China. The change in epidemiology has been reported in an analysis of 513,034 cases of Brucellosis notified during the period extending from 1955 to 2015.^[9]

Brucellosis continues to be of concern in India as well. Human Brucellosis is estimated to cause a loss of 177,601 DALYs at the rate of 0.15/1000 person/year in nonoccupational adult population in India.^[10] It has been observed that zoonotic diseases (mainly viral zoonotic diseases) transmitted by wild animals play a vital role in establishing rural and urban form of disease transmission from initial largely sylvatic disease transmission cycle. Therefore, establishing a counter to this unavoidable interface of wildlife, human, and animal life justifies the need of one medicine or one health approach. In this context, the discussion concluded that it will require a systems approach to integrate veterinary, human, and environmental medicine (VHEM). The panelists proposed VHEM collaboration at three fundamental levels:

1. **Academic:** The academic collaboration requires ensuring collaboration at the level of institutions/department teaching VHEM both at state and national levels. The basic premise of this collaboration will be an integration of experts from department of microbiology/virology, public health, livestock, and management, and environmental health of VHEM teaching departments/colleges to develop cross cutting integrated curriculum within which the concept of guest faculty can be ingrained. This guest faculty can be resourced from colleges in close vicinity.

As per the current statistics, India has 11 veterinary universities and 53 established veterinary colleges. These veterinary colleges have fully developed departments of Veterinary Public Health and Epidemiology as per the data obtained from Veterinary Council of India.^[11] Similarly, as of 2018-19, 530 medical colleges have been listed on Medical Council of India (MCI) with 71,070 seats for graduate medical education. All medical colleges run a department of Community Medicine to teach epidemiology, health management, social sciences, and family medicine as an essential requirement. Further, for the year 2019, MCI has recognized 13 colleges with 146 seats for diploma in Public health and 259 colleges with 1012 seats for master degree in Community Medicine. However, the inequitable distribution of these academic institutions limits the extent of collaboration. It is being observed that these institutions are skewed toward areas with relatively better health, education, and living standards.^[12]

At present, the environmental education in India is limited to three aspects: environmental studies dealing with environmental disturbances and its minimization; environmental science dealing with different processes in water, air, soil, and organisms; and environmental engineering dealing with technical process to minimize risk.

The teaching in environmental education exists in school curriculum up to eight standards. Further, the University Grants Commission (UGC), based on directions of Supreme Court of India, has made environmental studies mandatory for undergraduates.^[13] However, as already pointed out, the lack of integration and skewed distribution compounded with differential curriculum in academic institutions have not helped develop environmental medicine in India, which seems to be a logical answer to Zoonotic health problems. The panel was of the opinion that creation of a Department of Tropical Medicine with faculties from VHEM can be established strategically in selected medical colleges. The selection of such medical colleges can be geographically localized keeping in view incidence and prevalence of zoonotic diseases. Till such departments are opened, an integrated unit of Tropical Medicine can be started in the departments of Community Medicine/Public health/family medicine of selected institutions.

2. **Research:** Indian Council of Medical Research (ICMR), medical colleges/institutions carry out research activities as a mandate and specific interest. However, the extent of engagement to resolve health problems through research seems precariously low. Another institution of national importance, the National Centre for Disease Control (NCDC), New Delhi, has been making large-scale efforts to provide a platform for interaction among veterinary-medical scientists/researchers through its division of zoonoses, which was established in NCDC in 1964. In addition, Indian Veterinary Research Institute, Izzatnagar; Haffkine Institute for Training, Research, and Testing, Mumbai; National Institute of Virology, Pune; All-India Institute of Hygiene and Public Health, Kolkata; and School of Public Health and Zoonoses, Ludhiana serve as a research platforms for medical and veterinary sciences.^[11] In comparison, limited institutes of excellence for research in environmental health exist. We have the National Institute for Environmental Health of the ICMR at Bhopal and Indian Institute of Environment Health, a private establishment at New Delhi.

The research priorities in Zoonotic diseases also seem to suffer from the fact that research priorities keep varying and are largely based on the current contextual situations. The panel suggested that

- a. Division of tropical medicine: Although NCDC has a division of Zoonoses, capacitating and scaling of research focus on Tropical Medicine can be done by establishing the division of tropical medicine strategically across ICMR institutes with common research agenda. Divisions need to be inclusive of experts from VHEM to frame a common research agenda and to delineate mechanisms to regulate and maintain a healthy man–animal–environment interface.
- b. Setting up of Consortiums: Regional and national level consortiums on lines similar to consortium against rabies

with members from research and academic institutions from VHEM need to be formed. This will help plan, execute, and generate evidence for Zoonotic Diseases. The focus could be on addressing issues like governance and operational mechanism, independent funding mechanism, five-year plan, etc.

3. **Service:** Government of India and the state Governments govern academic and research institutions for VHEM by respective ministries mainly Ministry of Health and Family Welfare, Ministry of Fisheries, Animal Husbandry, and Dairying, and Ministry of Environment, Forest, and Climate Change.

Most of these ministry function through two major arms: the education arm and the service arm. While the education arm makes policy initiatives on education and research, the service arm is focused on delivering services to people, animals, and environment. Across medical and veterinary science, the primary and secondary level hospitals ensure delivery of health services to animals and humans, while the services for environment are ensured by boards, authorities/tribunals, etc., by ensuring adherence to laid standards for urbanization and deforestation.

India, because of following largely federal structures, assigns a large degree of freedom to its states and union territories. These states and union territories are further divided into administrative units, the districts. The districts act as a functional unit of administration. The general administrative system in a district of India comprises of a district magistrate/collector at district level and sub-divisional magistrate/collector at sub-district level. Service providers of all departments falling under different state/central ministries are largely governed by district magistrate/collector in a district effectively making it the most important and distinct functional unit administratively.

The panel recommended:

- a. Intersectoral board in district: A board comprising of district-level service providers/administrators related to VHEM can be formed with laid down standard operating procedures and protocols. The board will be empowered to make decisions related to various sectors like health, veterinary, environment, schools, water, and sanitation and impacting Zoonotic diseases. District magistrate/collector will be authorized to implement the decisions based on recommendations by the board.
- b. Health and Wellness Center (HWCs): Under the *Ayushman Bharat* scheme as announced by government of India, HWCs are proposed to be setup within the current health care delivery system to promote health and prevent diseases (infectious and noninfectious) under one roof using standardized management guidelines.^[13] HWCs promise to ensure universal health coverage which will include coverage through preventive strategies to prevent morbidity due to zoonotic diseases. Service providers from VHEM can be linked with HWCs to ensure early detection and management

of diseases among animals and humans. Furthermore, key environmental concerns can be addressed by effective community engagement at the level of HWC.^[14]

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Conflicts of interest

There are no conflicts of interest.

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