



## Editorial

### One World One Health: Widening horizons

Mid-20<sup>th</sup> century (1940s-1950s) marks the era of celebration of antimicrobials. This was the time when we started thinking that we had overcome the microbes. We also believed whatever microbes we perceived as pathogens, were the only ones we needed to consider - the idea of microbial fixity<sup>1</sup>. During this period, International Health Regulations (IHR, 1969)<sup>2</sup> considered three diseases as notifiable - yellow fever, plague and cholera. However, HIV/AIDS was the first rude shock to wake us up from this reverie. Antimicrobial resistance, growing all over the globe as a silent storm, began to make its presence felt as well. Then we had 'Bird flu' and the 'Ebola' and 'Severe Acute Respiratory Syndrome' (SARS), while the old foes continued to demonstrate their might. Consequently, the World Health Organization (WHO) had to modify the IHR 1969 in 2005 to include any public health emergency of international concern (PHEIC) as notifiable<sup>2</sup>. One hundred and ninety three Member States of WHO committed themselves to set up surveillance mechanisms to speedily recognize the early signals of possible emergence of new and resurging infections.

Alongside these developments, the concept of One Health took shape during a global symposium held in 2004 in New York<sup>3</sup>. The international group of experts, attending this symposium, considered the threats to 'lives on earth' in the context of menacing warnings of avian influenza and Ebola. An international and interdisciplinary approach was advocated to meet this challenge through the slogan of 'One World One Health'. The resulting Manhattan Principles for preventing epidemic and epizootic diseases and sustaining ecosystems were disseminated to different nations and subsequently accepted globally<sup>4</sup>.

Bird flu (avian influenza) was one of the prime forces behind the movement of One Health. The devastating economic impact<sup>5</sup> of outbreaks caused

by highly pathogenic avian influenza across the globe (H5N1, H7N3 or H7N9 strains of influenza viruses causing human infections following animal exposure) and other zoonotic disease causing agents further underlined the importance of One Health approach.

Historically the responses of human civilization to outbreaks have, however, been highly reactive. Once the threat disappears, the responses also vanish. This epidemic amnesia is a global phenomenon and can be traced over centuries. The committed investments almost evaporate during the peace time. The surveillance for zoonotic diseases and risk factors for early warnings, although obvious, neither occurs with desired frequencies, nor in a manner appropriate. As 'normalcy' starts re-appearing in social, economic and political fronts, the necessity for 'new normal' public health practices, including composite surveillance and real-time data driven policy making and programmatic course correction are shelved for future discussion. What takes place in the interim period, are events, which catch us by surprise and not restricted only to humans<sup>6</sup>; diseases get transmitted from humans to animals (reverse zoonosis)<sup>7,8</sup> and organisms are doctored to be used as biological weapons<sup>9</sup>.

Against this backdrop, the broadening of policy, programme and practice focus from zoonosis to One Health is a welcome change. This underlines a shift in paradigm as it covers various spheres of humankind, animal life and ecosystems and opens up opportunities for inter-ministerial collaboration. It is important to admit at the beginning of such collaboration that institutions have their own structures and boundaries with a level of rigidity. What One Health demands is functionality with bridges and fluidity. Noticeably, steps in such directions were initiated in India a few years ago. The Indian Council of Medical Research (ICMR) and the Indian Council of Agricultural Research (ICAR), came together to develop a platform

for zoonotic disease research and containment in January 2011<sup>10</sup>. In order to address and overcome administrative hurdles, it was agreed upon that while ICMR would take the lead in setting up a National Institute, ICAR would support its development.

Recently, the COVID-19 pandemic has rekindled the interest of multiple nations on One Health. It is apt to recall at this point that China informed WHO about an outbreak of ‘pneumonia of unknown cause’ on December 31, 2019 when the health officials from Wuhan city of Hubei Province confirmed 27 such cases linked to a seafood market. The origin of the causative coronavirus from bats was indicated and pangolin was suggested to be acting as the intermediate host before human beings contracted the infection<sup>11</sup>. The genesis of COVID-19, as yet, is shrouded in mystery. On January 30, 2020, following recommendations of the Emergency Committee, the Director General of WHO declared the outbreak reported from Wuhan as a Public Health Emergency of International Concern (PHEIC)<sup>12</sup>. This prompted activities of different nations towards One Health.

Importantly, a road map jointly developed by the Food and Agriculture Organization - United Nations (FAO), World Organization for Animal Health (that kept the historical acronym OIE standing for *Office International des Epizooties* in French) and WHO in 2015, is able to nurture the renewed interest of various nations on One Health. Clearly FAO, OIE and WHO recognized that they had common stakes and responsibilities in the area of One Health and identified the following areas for consideration; (i) modelling and forecasting, (ii) intervention development, (iii) emerging and re-emerging animal diseases and zoonoses, (iv) trans-boundary animal diseases, (v) environmental changes, (vi) globalisation (covering the 5 Ts Trade-Travel-Transport-Tourism-Terrorism), and (vii) food security and safety<sup>12</sup>. The tripartite agreement between FAO, OIE and WHO was a landmark development leading to drafting of clear roles and responsibilities of the partner organisations. Their commitment to effective surveillance was further reflected in the Global Early Warning Response System (GLEWS) for major animal diseases including zoonoses<sup>13</sup>.

In the light of the above, we maintain that India is well poised to strengthen the activities around One Health in the region and join the thought leaders globally. Our assertion is rooted in the exemplary

public health responses the country mounted during COVID-19 pandemic<sup>14-16</sup> as well as its demonstrated ability in vaccine manufacturing and supply. Also worth noting in this regard is India’s vaccine-friendship approach that crossed the country boundary and reached out to various nations with the belief that the entire world is one family.

Reflections of the concept of ‘One World One Health’ can be identified in the ancient socio-cultural fabric of India flowing through ages. Much before the agrarian developments, humankind used to live in harmony as one of the living beings in the ecosystem and in India, even today, one can get glimpses of the same in our tribal populations. In this regard, it is appropriate to take a note of one of the principles enunciated by *Charaka Samhita* (comprehensive text on Indian ancient medicine) namely “*Loka Purusha Sama Siddhanta*”, which translates as - all that exists in the universe also exists in an individual. *Purusha* is an epitome of the *loka*; *purusha* includes all living beings and *loka* stands for the universe<sup>17</sup>. Understanding of this oneness connecting all living beings and their environment and their dependence on each other can help avoid harmful actions of humankind to the environment in the present era of anthropocene.

This issue of the IJMR attempts to cover some of the topics highlighted in this editorial, in greater details. Environment biologists, academicians, clinicians, epidemiologists, microbiologists and practitioners of veterinary and public health from within India and abroad conceded to our request. Several experts have presented articles covering different areas and uncharted paths and having received them within a tight timeline, we feel extremely privileged. Hope, the readers will find them within the covers of this issue as a feast for thoughts influencing action. Finally, it would be amiss on our part if we do not acknowledge the nurturing and guidance this special issue of IJMR on One Health received from Dr Anju Sharma, Editor-In-Chief and Dr Albina Arjuman Nair, Assistant Editor of the Indian Journal of Medical Research; without them it would not have been possible.

**Samiran Panda<sup>1,\*</sup>, Balram Bhargava<sup>#</sup>  
& Mohan D. Gupte<sup>2</sup>**

<sup>1</sup>Division of Epidemiology and Communicable Diseases, <sup>#</sup>Indian Council of Medical Research (ICMR), New Delhi 110 029, <sup>2</sup>Former Director, ICMR-National Institute of Epidemiology, Chennai 600 077, Tamil Nadu, India

\*For correspondence:  
pandasamiran@gmail.com

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