



## Animal Health, Human Health and Development

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History is replete with examples of the intricate connection between animal and human health. Today, we celebrate success in eradicating two viral diseases: smallpox - a deadly viral human disease that devastated mankind, and rinderpest, the “cattle plague” that decimated livestock populations with severe impacts on household livelihoods. The eradication of these two diseases, and the elimination of many human and animal infectious diseases in many regions in world, can be largely attributed to vaccines.

The origin of the word vaccine (Latin for “related to cows”) arose from Edward Jenner’s experimentation with the less virulent cowpox virus to “vaccinate” and protect people from the more deadly smallpox virus (1). Although Jenner practiced medicine, the observation that dairymaids exposed to cowpox were protected from smallpox provided a testable hypothesis whose results lead to vaccination - one of the most effective medical and veterinary intervention of all time.

Veterinary science and research has a major role to play in addressing critical global challenges including threats to public health, food insecurity and undernutrition, poor

access to education and low income levels - challenges that disproportionately affect populations living in the low- and middle-income countries. The linkages between animal health and human health and opportunities for animal health to improve public health, food security, household economics, and animal and human welfare are clearer today (2–6).

To measure and monitor growth of countries, several indices of human health and development have been used including the Human Development Index (summary measure based on health, education, and income levels); the Human Sustainable Development Index (that incorporates a country’s per capita carbon emissions); and the current Sustainable Development Goals (with a set of targets to be achieved by 2030), have been proposed and adopted albeit with some criticisms (7,8).

The animal health and production industry is increasingly connecting to these universally endorsed measures of human progress, recognizing the role animals can play in meeting these goals (9). Inspired by approaches employed in human health such as the Global Burden of Diseases used to

improve health systems and eliminate health disparities (10), a Global Burden of Animal Diseases framework has been developed - with the goal of advancing our understanding of animal health, ways of reducing animal disease burden, and direct and indirect impacts on human health (11).

The contribution of veterinary research can be thought to involve one or a multiple of five main areas:

- 1) Improving animal health and production
- 2) Reducing transmission of zoonotic diseases between animals and humans
- 3) Improving human food security and nutrition
- 4) Improving animal welfare
- 5) Advancing scientific knowledge and understanding

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