Why is the Human-Animal-Ecosystem Interface important to public health and WHO?

Zoonoses (diseases moving between animals and people) and other health threats at the human-animal-ecosystem interface pose ongoing and increasing risks to public health and global health security.

The human-animal-ecosystem interface (HAEI) encompasses all direct and indirect human exposure to animals and animal products and to the various environments and ecosystems we all share. Health threats at this interface include those existing and emerging pathogens transmitted through contact with animals, food, water, and contaminated environments. Examples include:

- Antimicrobial resistance in pathogens
- Avian influenza H5N1 and H7N9, and pandemic A(H1N1) 2009 influenza
- Bovine spongiform encephalopathy and Variant Creutzfeldt-Jacob disease
- Food-borne E. coli and salmonella infections
- Middle East respiratory syndrome coronavirus (MERS-CoV)
- Rabies
- Rift Valley fever

WHO member states must meet WHO International Health Regulations (IHR, 2005) obligations for identifying and assessing potential public health threats, including zoonoses.

However, these threats cannot be addressed by one sector alone. The complexity of interactions along the interface requires strong and consistent collaboration among the sectors responsible for human health, animal health, and the environment.

How does WHO contribute?

WHO engages in cross-sectoral and multi-disciplinary activities within two inter-related contexts:

- Cross-sectoral technical projects
- Collaborations on strategy and policy

Staff involved in HAEI issues from throughout the WHO structure align activities, strategy and policy internally to achieve impact at the country level, and collaborate closely with a variety of external partners, including national ministries of health, the World Organisation for Animal Health (OIE), and the Food and Agriculture Organization (FAO).

What is the impact of this work?

Strengthening collaboration and coordination between the public health and animal health sectors directly benefits countries by improving their prevention and control of zoonotic diseases, as well as allowing them to meet their IHR obligations. Building sustainable national mechanisms for more effective cross-sectoral collaboration has greatly facilitated risk assessment and management of specific diseases such as H5N1 influenza and Rift Valley fever in at-risk countries. At the international level, strong collaboration among WHO, OIE, and FAO is improving the efficiency of data collection, risk assessment and management options, allowing for consistent, science-based, communications on global health threats at the HAEI.
What are the envisioned next steps?

- Establish a standard system for joint risk assessment at the international level
- Assist additional countries in building sustainable national mechanisms for collaboration and communication among the ministries responsible for human health and animal health
- Align national, regional, and international strategies for zoonotic diseases and cross-sectoral collaboration, and develop strategies where none exist

What are the objectives of the current activities?

- Strengthen national public health systems for existing and emerging threats at the HAEI
- Assist in assessing and managing health threats at the HAEI
- Provide frameworks, tools and international political support for cross-sectoral approaches
- Build national mechanisms for information sharing and joint risk assessment for zoonotic influenza and other threats at the HAEI, including sustainable inter-ministerial communication and collaboration
- Assess global public health risks posed by endemic, epidemic, and potential pandemic events
- Ensure coordination between WHO and international animal health organizations

What have been some of the key achievements?

- Mechanisms for national cross-sectoral communication and collaboration in place in several countries
- Strong collaboration with animal health partners to manage urgent events, such as the A(H1N1) 2009 influenza pandemic, avian influenza H7N9 epidemic, and MERS-CoV epidemic
- Standard mechanisms for aligning technical activities, policies, and communication among FAO, OIE, and WHO established

WHO contacts

Dr Kazuaki Miyagishima
Director
Department of Food Safety and Zoonoses
World Health Organization
20, avenue Appia
CH-1211 Geneva 27
Tel. +41 22 791 27 73
Fax: +41 22 791 68 07
E-mail: miyagishima@who.int

Dr Elizabeth Mumford
Scientist
Department of Food Safety and Zoonoses
World Health Organization
20, avenue Appia
CH-1211 Geneva 27
Tel. +41 22 791 21 74
Fax: +41 22 791 68 07
E-mail: mumforde@who.int