

**Global “One Health” Leadership:
Embracing the Interdependence of Animals, Humans and the Environment
May 14, 2008 – The University of Minnesota**

Summarization

Human actions on local levels are creating environmental and societal changes across the globe, endangering human health. Warmer conditions, unhealthy water supplies, urban growth and booming transportation networks are factors that are rapidly connecting human, animal, environmental and disease ecosystems as never before.



This interdependence was the subject of the workshop, “Global “One Health” Leadership: Embracing the Interdependence of Animals, Humans and the Environment,” May 14, 2008, at the University of Minnesota. Nearly 50 attendees from academia, private industry, commodity groups, government and non-profit associations participated in the session.

Presenters revealed that 13 of the last 14 human health epidemics came from animal species. An example of this is Lyme disease. With the potential to be a major health challenge in coming years, 20,000 human cases of Lyme disease are detected in the United States every year. These are attributable to humans’ interaction with environmental conditions. While the prediction of environmental cycles is difficult and complex, we know that just a 10 percent increase in temperature can double insects’ metabolic rate and speed the population growth of biting insects.

Our human population is also struggling to sustain its own growth and manage the impacts of consumer behavior and demand. The condition of current food production systems can add to the complex risks facing both animal and human health and continue to sustain situations that bear risk. The explosive growth of livestock production in developing countries is one example. At risk are diminishing infrastructures that threaten the sustainability and safety of food sources.



Proper management rests within establishing systems that provide for response, control and eradication by looking at risk assessment and communication strategies and improved surveillance without overreacting to the inevitable outbreaks and risks that may continue.



Local and global health epidemics attest to humankind's connectivity with animals, microbes and the environment. Such events show evidence of a need to think of one health as a collaborative effort between multiple disciplines and teams to manage these dilemmas.

An example where multi-disciplinary management needs to be applied is upon the broadening influence of chemical contaminants in our environment and the impact upon human and animal health. There is evidence of the influx of antibiotics, pesticides and toxicants that can reduce and block hormone response and create trans-generational and chronic health impacts upon humans and wildlife.

Programmatic, institutional and historic obstacles can stand in the way of the collaboration between sectors that is needed to manage health dilemmas. The mismatch between threats and investments globally also demands a community-wide examination. New strategies and incentives must be realized to forge public and private partnerships at the heart of one health.



Supporters of the one health initiative urge greater understanding of where risk exists globally and recognition of the next threat. While some emerging and reemerging infectious disease threats are population based, concentration must also be given to ecotones – the convergence of distinct ecological zones that can foster factors that lead to disease spread. Both of these areas are constantly changing and threats will always present a challenge.



One example where threat detection and response was advanced due to collaboration involved the SARS outbreak in 2002. Within months, the outbreak moved to laboratory confirmation, aiding quarantine and mitigation efforts. The speed with which the whole community moved to come up with answers was the most striking thing about this event.

Opportunities to manage the next local to global health dilemma include utilizing risk-based approaches to disease detection and surveillance; enabling risk assessment and predictive modeling; getting politicians on board with a one health mission; and, making an efficient argument for one health across domains and disciplines.

An example where these approaches are being successfully utilized is the Whole Village Project in Tanzania. This cross-sector project examines the link between poverty and improvements to human health. By working with local government and citizens, the project is identifying tactics to reduce disease risk and improve vaccination programs and childhood nutrition.

The expertise that can be brought to manage dilemmas in the convergence of humans, animals and the environment will never be in one area or possessed by one organization. Self-forming teams and a triumvirate of academic, government and industry partnerships must find ways to sustain economic models that feed a growing world, while finding ways to share power, intellect, tools and capabilities to manage multiple domains. These collaborations should be expected and encouraged.

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