Animal Health Research

TODAY’S INTIMATE AND RAPID GLOBAL INTERCONNECTIONS MEAN THAT UNCONTROLLED infectious diseases in one part of the world threaten animal and public health everywhere. The good news is that animal health sciences are technologically better equipped than ever before for detecting new disease outbreaks almost in real time. The bad news is that despite this, there is a daunting gap in converting these advances into effective actions and policies, particularly in developing countries. What can be done to remedy this lack of cohesion?

Some problems and possible solutions were recently discussed at a conference held in Hinxton, United Kingdom.* Experts in animal health research and policy-makers from high- and low-income countries reviewed developments and challenges in the field, including vaccine design, the analysis of host responses to infection, and disease transmission from wild and domestic animals to humans. There is much to laud. New approaches underlie recent progress, including genome-based vaccine discovery for treating *Anaplasma* and post-genomic selection for vaccine response in chickens. We can also predict the size of outbreaks of emerging pathogens on the basis of their reproductive ratio. Even economic losses from livestock deaths may be prevented by a detailed understanding of the cyclical transmission of pathogens (such as African *Trypanosoma*) at the livestock/wildlife interface.

Nevertheless, the conference revealed a growing divide between knowledge and application. Many strategies to detect and control disease are adequate in industrialized countries but not transferable to developing countries, namely sub-Saharan Africa. These countries often lack trained personnel and infrastructure (such as labs with water and electricity) and thus have no basic diagnostic and surveillance capacity. This includes genome-based surveillance for avian influenza, which is encroaching on the industrialized and developing world. Control strategies cannot be transferred because of insufficient funds to compensate farmers for culled stock. These deficiencies have resulted in the emergence and reemergence of infectious diseases in the developing world.

Could this frustrating gap be bridged through improved public engagement? As discussed at Hinxton, programs such as the National Centre of Competence in Research North-South, which brings together research institutions in Europe, Africa, Asia, and America, indicate that public participation is key for effective interplay among international scientists, local and national authorities, and populations confronted with animal diseases. This program, among others, has shown that by connecting these entities, long-term North-South and South-South partnerships can surpass results achieved by any institution alone. Scientists can also be effective advocates for private and public investment in the control of disease transmission [take the scientists who motivated a private donor to invest in the control of sleeping sickness (trypanosomiasis) in Uganda]. But animal health researchers should also consider new ways of knowledge-brokering to promote evidence-based policy-making. The Regional East African Community Health Policy Initiative of Kenya, Uganda, and Tanzania is one example of how scientists and policy-makers can establish priorities for research and interventions through a cyclical process of negotiation. Moreover, periodic communication of research findings by scientists to local communities leads to a more integrated research process, assuring its validity and social relevance in a given context. Just such a public engagement approach led the Chad government to propose a new policy for providing social services to nomadic pastoralist populations, including education, health, animal health, food security, and water.

Although there is no doubt that progress in animal health research must continue, it must also respond to societal needs and lead to solutions that can be delivered quickly. When science engages more with society, neither time nor resources are sacrificed. We can’t afford to lose either.

— Jakob Zinsstag

*The Wellcome Trust and Science hosted the conference “Animal Health Research: Recent Developments and Future Directions” in Hinxton, UK, from 24 to 26 January 2007.*

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