Issues in the Development of a Research and Education Framework for One Health

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Emerging vectorborne and zoonotic diseases and public health consequences of environmental degradation have led to calls for One Health approaches that integrate perspectives from human, veterinary, and environmental health. Recognizing the need to focus on One Health issues and priorities, the Southeastern Regional Center of Excellence for Emerging Infections and Biodiversity convened a conference January 30–31, 2012, to discuss development of a research and education framework for One Health.

For this conference, organizers defined One Health as the collaborative efforts of multiple disciplines working locally, nationally, and globally to attain optimal health for humans, domestic animals, wildlife, plants, and the environment. Objectives were to identify issues relevant to developing a framework for a comprehensive research and education agenda for One Health and strengthen relationships among participants from organizations in the southeastern United States. A planning committee developed the agenda and identified a diverse group of participants from academic, federal, state, and nongovernment organizations involved in One Health.

The group identified 2 broad One Health research issues: 1) the need to develop and evaluate interventions with the potential to provide economic benefits to human or animal health to demonstrate a return on investment and 2) the need to engage behavioral science researchers and social marketers in conducting research to better understand consumer perspectives on One Health issues. The need to develop rapid diagnostics for zoonotic pathogens for use in the field and at the point of care was emphasized. Longitudinal environmental data acquisition is needed to support predictive modeling focused on the implications of changes at the human–animal–environment interfaces. Examples of identified research gaps in predictive modeling of diseases at these interfaces included data availability (cases, reservoirs, wildlife ranges), data granularity (land cover), real-time data to incorporate into models to support public health decision making, and lack of repositories for animal and human diagnostic specimens and pathogens. The need for interdisciplinary research teams to address these priorities was emphasized. The need to involve representatives of the food industry in identifying specific research priorities and the design of protocols was highlighted as a way to improve collaboration and communication and build trust.

Research issues identified as part of particular relevance in the southeastern United States included antimicrobial drug use and resistance in poultry and livestock and occupational hazards in the agricultural and food animal sectors and among migrant workers. Additional examples of regional issues included the possible health effects of rising sea levels caused by climate change; food safety; raccoon rabies; vector-borne diseases (e.g., dengue, West Nile encephalitis, and eastern equine encephalitis); and the implications of the release of exotic pets on disease risk.

The One Health education agenda discussed by the group focused on implementing early exposure to One Health concepts in secondary education; focus on the changing human–animal–environment interface; and develop, assemble, and share data on human, animal, and environmental health issues. The One Health approach is by definition transdisciplinary; thus, many professionals would benefit from One Health curricula. One Health research could be furthered by funding support for transdisciplinary research projects and education. Documentation of the economic benefits of successful One Health collaborations is critical. Finally, the need to link One Health approaches with added value to national strategies, such as the National Prevention Strategy, Healthy People 2020, the National Security Strategy, and the National Strategy for Biosurveillance, was emphasized.
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