Current Topics

Summit Seeks To Boost “One Health” Concept

When it comes to infectious diseases, we live in a “triple-threat” world, says Lonnie King, Dean of the College of Veterinary Medicine at Ohio State University in Columbus. That tripartite threat comes at the confluence of human, animal, and environmental forces—leading him, other veterinarians, microbiologists, public health specialists, and a broad range of experts from other specialties to embrace the “one health strategy” for combating infectious diseases. He and others spoke last November during the summit conference “One Health: Improving Health in an Interconnected World, People-Animals-Environment,” convened at the National Academy of Sciences in Washington, D.C.

“We have a new appreciation today of the diseases passing from animals to humans,” King says. The expanding human population, an expanding population of animals grown on farms to feed those people, migrations of people and animals, and a steadily growing international food trade provide a kind of “Club Med” for microorganisms, he says. That club operates a metaphorical playland for pathogens, some of which make new “friends” in terms of host species, leading inevitably to a continuing onslaught of emerging infectious diseases.

King calls *Escherichia coli* O157:H7 the “poster child” for the one health concept, citing instances in 2006 of foodborne illnesses that were traced to spinach contaminated with this pathogen. That outbreak and others like it exemplify how human, animal, and environmental factors collide in ways that require teams with disparate expertise to unravel what has happened in each instance. In that case involving illnesses from consuming contaminated spinach, one set of experts implicated feral pigs and cattle as carrying the bacterial pathogens to the fields where the spinach grew, he says. Yet another set of experts drilled down further to assign some of the problem to the irrigation system used to water those fields, noting that the irrigation water became cross-contaminated with groundwater.

Of course, diseases go in both directions, sometimes moving from humans to animals, says conference participant Ali Khan, who is from the Centers for Disease Control and Prevention (CDC) in Atlanta, Ga. “Part of the power of the one health concept is that it [leads us] to think about this from the perspective of what diseases in humans affect animals,” he says. In practical terms, this approach calls for emphasizing “early detection” and focusing on “upstream protection” because it has “the greatest impact.”

Some efforts to keep track of diseases in animal species such as fish and wildlife go on mainly at the state level, according to David Schad, who works in the Division of Fish and Wildlife, Minnesota Department of Natural Resources. Yet, some of those outbreaks may have important consequences for human health, even if indirectly. Consider, for example some of the broader potential consequences of white nose syndrome, a fungal disease that is killing bats throughout at least an eight-state region. Thus far, its impact appears limited to bat populations. However, they play an important role by hunting and thus curbing flying insects, some of which serve as vectors for other animal and human diseases, Schad points out. “We are poorly prepared to deal with those consequences.”

In terms of the one health movement, zoonoses take the “central focus of protecting humans on a global scale,” says microbiologist Ron Atlas of the University of Louisville in Kentucky, who represented ASM on the One Health Commission board of directors. This approach to public health entails a “shift to preventing diseases in animals first as a way of protecting humans,” he continues. “And ‘vaccinate cattle against *E. coli* O157:H7 to prevent this infection in humans’ is what I was hearing at the summit.” To some extent, this emphasis reflects the fact that veterinarians are now a predominant force within the one health movement.

Jeffrey L. Fox
Jeffrey L. Fox is the Microbe Current Topics and Features Editor.

Some Alcohol Sanitizers No Better than Soap and Water against Norovirus

Rinsing contaminated fingers with water alone, or with triclosan-containing soap and water, was considerably more effective for removing Norwalk virus than was using an alcohol-based hand sanitizer, but the antibacterial soap showed no advantage over water alone, according to a report in the January *Applied and Environmental Microbiology* (76:394–399). These findings are from the first known direct test of an alcohol-based hand sanitizer against a human norovirus strain, according to Christine Moe and Pengbo Liu of the Rollins School of Public Health at Emory University in Atlanta, Georgia, and their collaborators there and at