

UC Davis' One Health approach addresses global disease threats

Mark Stetter, DVM, DACZM*

School of Veterinary Medicine, University of California-Davis, Davis, CA

*Corresponding author: Dr. Stetter (mdstetter@ucdavis.edu)

doi.org/10.2460/ajvr.24.03.0069

The COVID-19 pandemic illuminated the critical role veterinarians play in preventing and managing zoonotic global health crises. University of California (UC)-Davis provided foundational leadership for this work with the integration of herd health into its early curriculum, the establishment of its Master in Preventative Veterinary Medicine degree in 1967, and the creation of the One Health Institute in 2009. It continues to provide leadership as the world faces ever more complex health dangers.

One Health recognizes the interconnectedness of animal, human, and environmental health. This approach has guided the school for years, from scientists studying pathogens at the fundamental level to the current One Health Workforce – Next Generation program. This program works globally to develop a future generation of professionals equipped to tackle complex health challenges. One Health Workforce builds upon the pioneering PREDICT program, which identified viruses with the potential to jump species to humans while also creating global disease prevention, monitoring, and management systems.

Zoonotic disease threats are ever present. A recent study by UC Davis researchers revealed the presence of bat-borne sarbecovirus antibodies in blood samples collected from individuals in rural Myanmar between 2017 and 2020. Fortunately, the viruses do not appear to have been transmitted among humans, but this finding underscores the urgent need for continued surveillance and proactive strategies to prevent future pandemics.

One Health expertise is advantageous for addressing diseases impacting both humans and animals. A prime example is Rift Valley fever, a mosquito-borne viral disease that affects livestock, wildlife, and humans. The school recently secured a \$28 million grant to conduct the first human clinical trials for a novel Rift Valley fever vaccine. This achievement builds on the school's success in developing a safe and effective vaccine for animals, demonstrating a truly comprehensive One Health approach.

The UC Davis Wildlife Health Center in the One Health Institute continues to develop One Health models. With its human-environment-animal holistic approach, the Gorilla Doctors program has been instrumental in the recovery of mountain gorillas, whose population doubled from around 500 to more than 1,000 today.

Similarly, the center's Sea Doc Society studies highlight the impact of human activity on marine mammals. Their recent



UC Davis has helped mountain gorillas bounce back—and created new One Health models in the process. Photo Credit: © Skyler Bishop for Gorilla Doctors.

analysis of pathology reports from stranded orcas revealed a range of threats, many linked to human interactions.

Environmental toxins weaken animals and humans and can cause disease. Researchers at the school are studying toxins present in water, sea, and land.

The increasing frequency of avian influenza jumping species, identified in South America recently through the center's Latin America program and its partners, serves as a stark reminder of the constant vigilance required. By studying these catastrophic events, UC Davis strives to protect both wild and domestic animal populations and helps to understand a volatile global disease.

Veterinary medicine is fundamental to combatting global diseases, through its understanding not just of zoonotic diseases but also of the importance of a One Health approach. As the world faces increasing health threats, UC Davis is there to help lead and ensure the well-being of animals, humans, and the planet we share.