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## NH Veterinary Diagnostic Lab Recognized for Efforts to Rapidly Identify Infections in Animals

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(HTTPS://WWW.UNH.EDU/UNHTODAY/NEWS/2019/04/08/nh-veterinary-diagnostic-lab-recognized-efforts-to-rapidly-identify-infections-in-animals)  
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VETERINARY DIAGNOSTIC LAB- LAB- LAB- RECOGNIZED FOR EFFORTS TO RAPIDLY IDENTIFY INFECTIONS IN ANIMALS

DURHAM, N.H.—The New Hampshire Veterinary Diagnostic Laboratory at the University of New Hampshire has been recognized by the state for its efforts to mitigate antimicrobial resistance by rapidly identifying infections in animals and performing other diagnostic tests in service to the state and region.

The laboratory received the New Hampshire Antimicrobial Stewardship Award from the state Division of Public Health Services. Antibiotic resistance occurs when bacteria change in some way that reduces or eliminates the effectiveness of drugs, chemicals, or other agents designed to cure or prevent infections. The bacteria survive and continue to multiply, causing more harm.



**ROBERT GIBSON (LEFT), MANAGING DIRECTOR OF THE NEW HAMPSHIRE VETERINARY DIAGNOSTIC LABORATORY, AND DAVID NEEDLE, SENIOR VETERINARY PATHOLOGIST, RECEIVE THE NEW HAMPSHIRE ANTIMICROBIAL STEWARDSHIP AWARD FROM THE NEW HAMPSHIRE DIVISION OF PUBLIC HEALTH SERVICES. THE LAB IS A LEADER IN MITIGATING ANTIBIOTIC RESISTANCE IN THE STATE AND REGION. CREDIT: NEW HAMPSHIRE DIVISION OF PUBLIC HEALTH SERVICES.**

The lab serves the state of New Hampshire as a key partner with the state commissioner of agriculture and state veterinarian in their efforts to monitor and control important animal diseases. The lab also provides diagnostic services to hundreds of veterinarians from New Hampshire and New England who use the lab’s services for the diagnosis of animal diseases in pets, farm animals, wildlife, zoo, and marine animals.

“As veterinarians, we are obligated to help protect public health,” said Stephen Crawford, state veterinarian. “We do this in the name of One Health. One of the current issues of greatest concern and interest to One Health is the mitigation of antibiotic resistance. This is a wildly complex issue, and the engagement of both animal and public health experts is critical. One of the best ways to improve antibiotic stewardship is with rapid and accurate diagnostic testing and recommendations.”

When the state experiences an outbreak of an infectious disease in animals, the time it takes to identify the disease can have a significant impact on the treatment and outbreak response. In 2017 the lab reduced what could take days down to minutes after acquiring Matrix Assisted Laser Desorption Ionization Time of Flight Mass Spectrometry (MALDI-TOF) instrumentation, a sophisticated type of mass spectrometry.

“MALDI-TOF provides rapid and accurate identification of microbial agents,” said Robert Gibson, managing director of the New Hampshire Veterinary Diagnostic Laboratory. “With thousands of organisms in the database, this is the most in-depth level of identification available other than performing DNA sequencing, which can be more costly and time consuming. After the organisms are grown, the time for a bacterial identification is minutes when compared to traditional methods, which can take days.”

“Accurately and rapidly identifying infectious agents is critical in safeguarding animal health, public health and New Hampshire agriculture. The majority of infectious diseases in people, including the top bioterrorism agents, are considered zoonotic, which means they can be transferred from animals to humans. The speed at which we will be able to help diagnose contagious and reportable diseases to our clients and regulatory officials will have a significant impact on treatments and outbreak response,” Gibson said.

Even with a quick diagnosis, it is often important to begin antibiotic treatment before a confirmed diagnosis is returned. This creates opportunity for incorrect antibiotic choices that may need to be changed, which is unhelpful for managing resistance. The lab’s work to develop a veterinary antibiogram—a tool that compares common infections in the state with the most effective medications to treat those local bacteria—from its sample library will reduce this risk by providing veterinarians with an educated start to begin antibiotic treatment while they await test results.

The lab serves the state of New Hampshire by providing accessible, timely, and accurate diagnostic services for the New Hampshire Department of Agriculture, Markets, & Food (<http://agriculture.nh.gov/>), New Hampshire Department of Health and Human Services (<http://www.dhhs.state.nh.us/>), New Hampshire Fish and Game Department (<http://www.wildlife.state.nh.us/>), state and local law enforcement agencies, veterinarians, farmers, and other relevant state, regional, and federal agencies. It is co-funded and co-managed by the New Hampshire Department of Agriculture, Markets & Food (<http://agriculture.nh.gov/>) and the UNH College of Life Sciences and Agriculture (<http://www.colsa.unh.edu/>). It has served the state and the university since 1970, working at the junction of animal health, public health, environmental health, and economic health.

The University of New Hampshire inspires innovation and transforms lives in our state, nation and world. More than 16,000 students from all 50 states and 71 countries engage with an award-winning faculty in top-ranked programs in business, engineering, law, health and human services, liberal arts and the sciences across more than 200 programs of study. As one of the nation’s highest-performing research universities, UNH partners with NASA, NOAA, NSF and NIH, and receives more than \$110 million in competitive external funding every year to further explore and define the frontiers of land, sea and space.

#### Editor's Notes:

#### PHOTOS AVAILABLE TO DOWNLOAD

<https://colsa.unh.edu/nhaes/sites/default/files/media/images/robanddavid.jpg> (<https://colsa.unh.edu/nhaes/sites/default/files/media/images/robanddavid.jpg>) Robert Gibson (left), managing director of the New Hampshire Veterinary Diagnostic Laboratory, and David Needle, senior veterinary pathologist, receive the New Hampshire Antimicrobial Stewardship Award from the New Hampshire Division of Public Health Services. The lab is a leader in mitigating antibiotic resistance in the state and region. Credit: New Hampshire Division of Public Health Services.

<https://colsa.unh.edu/nhaes/sites/default/files/media/images/maldistudent.jpg> (<https://colsa.unh.edu/nhaes/sites/default/files/media/images/maldistudent.jpg>) UNH student employee Monica McEvoy uses the MALDI-TOF instrument at the NH Veterinary Diagnostic Lab at UNH. Credit: Rob Gibson/UNH

<https://colsa.unh.edu/nhaes/sites/default/files/media/images/maldispectra.jpg> (<https://colsa.unh.edu/nhaes/sites/default/files/media/images/maldispectra.jpg>) A computer image of MALDI-TOF spectra. Credit: Rob Gibson/UNH

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