What if a dog owner could test their pet’s risk for cruciate ligament rupture and, if the pet is deemed vulnerable, work with their veterinarian to mitigate injury? Thanks to researchers at the University of Wisconsin-Madison School of Veterinary Medicine (UW SVM), such intervention is no longer hypothetical—it’s possible.

This May, UW SVM scientists announced the development of a genetic screening test to determine the risk of cruciate ligament rupture in Labrador Retrievers. Next, they will extend testing to other high-risk breeds.

This is just one of myriad research initiatives underway at the school to improve the health and well-being of animals (and, often, people), fueled by more than $32 million in grant funding and extramural support.

A $150 million UW SVM building expansion and renovation, scheduled for completion in 2024, will further bolster research endeavors. This new state-of-the-art facility will expand and modernize labs to develop diagnostics and treatments and prevent naturally occurring infectious and noninfectious diseases of animals and humans.

UW SVM scientists hold international leadership positions across multiple areas of study. The school is a leader, for instance, in comparative oncology research, investigating clinical cancer treatments with better effectiveness and less toxicity in companion animals with naturally occurring cancer. For example, to combat typically incurable metastatic cancers, researchers are investigating immunotherapies designed to train a patient’s immune system to recognize cancer cells as foreign and remove them. The goal is to accelerate therapy development and help all species (humans too).

The school coleads the Midwest Center of Excellence for Vector-Borne Disease to study and prevent transmission of West Nile, Lyme, and other illnesses spread by mosquitoes, ticks, and fleas. Faculty are also discovering drug targets for new broad-spectrum anti-parasitics to counter emerging drug resistance.

SVM epidemiologists study emerging infectious diseases and how to prevent them. The systems are varied, including solving “mystery diseases” such as fish kills in the Great Lakes, lethal outbreaks of respiratory disease in African apes, bald eagle die-offs in Wisconsin, and diseases affecting invertebrates. These studies reveal how pathogens move between species—not only from animals to people (zoonoses) but in all directions. The goal is to disrupt disease transmission, safeguard health, and conserve ecosystems. In addition, in May, an SVM professor was appointed director of UW’s Global Health Institute, overseeing local and global efforts to investigate and find solutions to current health challenges.

Transformative UW SVM research has also yielded technological innovations. These include an ultrathin, next-generation skin covering to heal chronic wounds and defeat the “biofilms” that shield pathogenic bacteria from antibiotics. In addition, a standing CT developed and tested at UW fills a long-standing need in diagnosing and treating lameness, orthopedic injury, and other conditions facing horses and large animals. It’s now in use globally and being applied to human medicine.

Wisconsin boasts a $43 billion dairy industry, and the SVM is at the forefront of developing care to keep cows healthy. Researchers pioneered the use of ultrasound to diagnose bovine respiratory disease in calves and are training veterinarians to use this technique. Dairy cows and their caretakers can contract tuberculosis from one another, endangering both, so the SVM helps local public health officials test and identify latent positive farmworkers to provide treatment and assists in tracking outbreaks. Researchers are developing and testing new tuberculosis vaccine candidates. Scientists are also tackling Johne’s disease, a chronic intestinal infection, and creating a more effective vaccine to reduce its spread.

Research into digital dermatitis—a hoof disease affecting 90% of US dairy herds—has yielded sustainable prevention measures and an automated computer vision model, now being implemented on farms, to identify cows needing early topical treatment and continuous prevention. In addition, the SVM’s Dairyland Initiative provides producers with the latest findings to build well-designed cattle housing that optimizes cows’ well-being.

The research performed at the UW SVM embodies the concept of one health, carrying broad and significant benefits for animals, people, and the environments we share.