

SPOTLIGHT ON Massey University Veterinary Medicine

Advancing animal health and welfare through research

The EpiCentre: redefining the future of animal health

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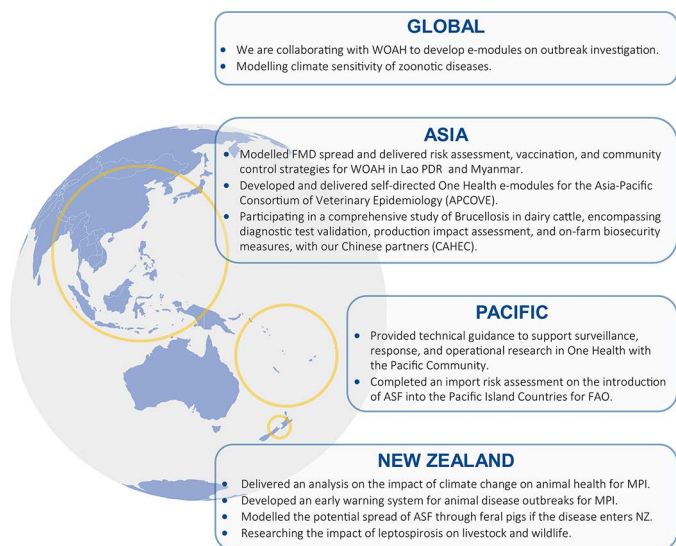
The EpiCentre, within Massey University, has been conducting veterinary epidemiology research and teaching for over 2 decades. As part of Tāwharau Ora, the Veterinary School of New Zealand, the group supports the health and resilience of people, animals, and ecosystems through research, capacity building, and science communication. The Centre's holistic approach recognizes the interconnectedness of animal, human, and environmental health, embodying the One Health concept.

Despite its remote location, the EpiCentre has a global focus. It leads the World Organisation for Animal Health (WOAH) Collaborating Centre for Veterinary Public Health and Epidemiology and contributes to a second Collaborating Centre for Diagnostic Test Validation Science in the Asia-Pacific region, demonstrating its global recognition. These roles highlight the Centre's expertise and commitment to advancing animal health.

Strategic partnerships amplify the EpiCentre's influence. Collaborations with New Zealand's Ministry for Primary Industries, local industry partners, overseas universities, and international organizations such as WOAH, the Food and Agriculture Organization of the United Nations, and the Pacific Community extend the reach of their work. The figure provides an overview of recent research, consultancy, and capacity-building activities. These partnerships enable the Centre to tackle complex global health challenges more effectively, leveraging diverse expertise and resources.

The EpiCentre has undertaken work to address the challenge of foot-and-mouth disease (FMD) control by improving surveillance, vaccination, and movement-restriction strategies. A key achievement includes equipping the Laos team with skills to investigate disease emergence, respond to other diseases, and use geographical information systems. Survey expertise and laboratory testing capabilities have expanded, and risk-based vaccination strategies have been developed and tested. Additionally, the project has supported both countries in progressing from Level 1 to Level 2 of the WOAH's FMD Progressive Control Pathway. This progress demonstrates the Centre's ability to translate research into practical, real-world impact, improving animal health management in developing countries.

Current research at the EpiCentre focuses on innovative approaches to understanding and modeling disease spread. A Wellcome Trust-supported project is exploring the automation of systematic literature reviews and knowledge syntheses using generative AI to accelerate and improve the



An overview of some of the EpiCentre's key activities in the past 5 years. ASF = African Swine Fever. Lao PDR = Lao People's Democratic Republic. MPI = Ministry for Primary Industries. NZ = New Zealand.

accuracy of data collation, modeling, and comprehension of disease spread in the context of climate change. Preliminary results indicate that generative AI can accelerate the screening stage considerably without a major loss of accuracy compared to manual screening. The next phase, currently underway, will contribute to streamlining modeling workflows, from parametrization to scenarios. The project aims to expedite the development of critical climate-sensitive disease management plans by providing tools for modelers, researchers, and policymakers to accelerate modeling to support decision-making.

The EpiCentre remains committed to improving animal health and welfare, enhancing biosecurity, and contributing to global health resilience. The role of the EpiCentre is vital in advancing veterinary epidemiology and public health globally. The EpiCentre's work addresses current challenges and anticipates future threats, positioning it at the forefront of veterinary epidemiology research and practice. The EpiCentre is impacting global animal and public health by fostering the next generation of veterinary epidemiologists and health professionals.