Centre for Veterinary Epidemiologic Research (CVER) overview

The Centre for Veterinary Epidemiologic Research (CVER) is among the most successful centres for veterinary epidemiology in the world. It has top scientists holding expertise in epidemiology and population-based research. CVER includes two of the first 12 Calvin W. Schwabe Award recipients for lifetime achievement (Ian Dohoo and Ian Gardner) from the Association for Veterinary Epidemiology and Preventive Medicine. It also has had two initial recipients of the lifetime achievement (Ian Dohoo) and emerging scientist (Charles Caraguel) awards for the International Society for Veterinary Epidemiology and Economics (ISVEE). Two of the three authors of Veterinary Epidemiologic Research (the leading textbook in this field), Ian Dohoo and Henrik Stryhn, are located within CVER.

CVER is a dynamic and productive research centre, bringing together clinicians, epidemiologists and biostatisticians to conduct of top-notch animal and human health research. A number of research groups are part of CVER including: the Canada Excellence Research Chair in Aquatic Veterinary Epidemiology, Maritime Quality Milk Centre, Centre for Aquatic Health Sciences, Sir James Dunn Animal Welfare Centre, Antimicrobial Resistance and Risk Analysis Research Group, Shellfish Research Group, and International Smallholder Dairy Research Group. These groups are described in more detail below.

Within the Centre, there are approximately 15-20 faculty and research associates. Areas of expertise include: epidemiology, biostatistics, dairy health management, fish health management, swine health management and internal medicine. A particular strength of CVER is the strong connections its members have to various food animal industries (particularly the dairy, swine and aquaculture industries). This has led these industries to actively support our research endeavours as well as provide ample opportunities for field-based research. CVER currently holds multiple millions of dollars in research funding with a number of major research initiatives under way.

Nearly all research activities within CVER bring together multiple disciplines both within the Centre and involving external collaborators. The “Team Approach” is firmly established and contributes to the cohesion and camaraderie with the Centre. Members of CVER work collaboratively with other researchers at the Atlantic Veterinary College at UPEI, along with many other groups on the UPEI campus, including population-oriented researchers in the Faculties of Sustainable Design Engineering, Business, Nursing and Science. In addition, CVER researchers have collaborative research efforts with researchers across Canada and around the world.

CVER is actively involved in the training of MSc and PhD students at UPEI, with strong graduate programs in epidemiology and health management. Members of CVER, particularly Drs. Henrik Stryhn, Ian Dohoo and Javier Sanchez, are actively involved in the provision of high-level international courses in epidemiological methods. These courses take place both in PEI (Epi-on-the-Island) and at a variety of international locations, including the triennial meeting of the International Society of Veterinary Epidemiology and Economics (ISVEE). CVER will host the 2021 ISVEE.

Canadian Excellence Research Chair (CERC) in Aquatic Epidemiology

Dr. Ian Gardner has been the leader and face of the CERC aquatic epidemiology program since 2012. The $10 million program has reinforced AVC's reputation as an international leader in aquatic epidemiology. Research activities involved projects across Canada and around the world, including Scotland, Norway, Chile and Vietnam. Strong collaborations have also been built with the Ocean Frontier Institute at Dalhousie University.

Maritime Quality Milk Centre

UPEI is the site of Maritime Quality Milk Centre. Under the direction of Dr. Greg Keefe, this Centre provides laboratory services for the dairy industry in the four Atlantic provinces and serves as a major information and support centre for that industry. At the same time, the Centre supports research in infectious and non-infectious disease, including antimicrobial resistance, and graduate training programs linked to that research. There is a strong linkage between this endeavour and the Canadian Bovine Mastitis Research Network.

Centre for Aquatic Health Sciences

Dr. Larry Hammell is the primary investigator and Director of the Centre for Aquatic Health Sciences at AVC. The CAHS has (and has had) many research scientists, full-time technicians, and administrative staff, along with many part-time technicians, summer students, and graduate students associated with its ambitious research program. Millions of dollars has been generated to pursue field research projects in New Brunswick and Newfoundland as well as tank-based research in PEI. In addition, Dr. Hammell has been instrumental in the establishment of a similar institution, the BC Centre for Aquatic Health Sciences, in Campbell River, BC. The AVC CAHS responds to calls for applied research from fish farmers and aquaculture health service providers, and develops research programs in innovative new health management methods.

International Smallholder Dairy Research Group

Dr. John VanLeeuwen leads the International Smallholder Dairy Research Group, which has dairy research, teaching and service projects involving graduate students in epidemiology, veterinarians, veterinary students and other animal health professionals, and smallholder dairy farmers. The Group collaborates with researchers in family science and human nutrition in Canada and Kenya due to the spin-off benefits of more milk production. The program has been a result of partnerships among the CVER faculty members and students, multiple universities, two Canadian non-governmental organizations (Farmers Helping Farmers - FHF, and Veterinarians without Borders Canada - VWB), and dairy farmer groups primarily in Kenya, but also in Ethiopia, Colombia and Thailand. Research topics have included investigation of methods of enhancing milk productivity (through infectious disease control and dairy health management), and how dairy farming and higher milk production have improved sustainable livelihoods, human nutrition, and quality of life. Funding sources include Queen Elizabeth II Diamond Jubilee Scholarships, Global Affairs Canada, FHF, VWB, industry, AVC and UPEI.

Shellfish Health Research Group

Dr. Jeff Davidson leads active research programs that integrate environmental health, animal health and human health. Of particular interest are factors, distributions and health impacts of microbiological and toxicological contaminants affecting shellfish, including mussels, oysters, clams, crabs and lobsters. These programs also serve as a basis for training programs in eco-system health.

Sir James Dunn Animal Welfare Centre

The Sir James Dunn Animal Welfare Centre (SJDAWC) exists to promote animal welfare by generating and disseminating impartial and scientifically based knowledge and understanding of animal welfare issues. The Centre facilitates, focuses, and coordinates academic and research resources at the Atlantic Veterinary College to carry out animal welfare research and education, and to provide information and advice to industry, government, organisations, and the public. The centre offers financial support for both student training and research in terms of scholarships and grants.

Antimicrobial Resistance (AMR) and Risk Analysis Research Groups

Dr. Javier Sanchez is leading a research program in the area of AMR and Risk Analysis. His research team includes a highly qualified multidisciplinary group from Canada and US with strong expertise in epidemiology, clinical medicine, food animal production, microbiology and molecular biology. The main projects of his program are related to surveillance and transmission of AMR, novel diagnostic tools, and identification of alternative chemicals with antimicrobial activity. The information from the surveillance program, molecular results, diagnostic tools and treatment alternatives will be used to establish models for the transmission and spread of AMR bacteria and determinants in populations. This group is also actively involved in international projects in South America and Europe related to AMR. Funding sources include federal research programs (Canadian Innovation Fund, Natural Science and Engineering Research Council, Canadian Institutes of Health Research) as well as from industry and government agencies.

Health Science Research

The CVER group has been involved in diverse research collaborations with health science researchers both within and outside UPEI. Recently, the Maritime Statistical and Health Sciences Collaborating Centre (MSHSCC) was established as a joint initiative between Acadia, Dalhousie, UNB and UPEI, supported and approved by the Canadian Statistical Sciences Institute (CANSSI). The UPEI participation is coordinated through CVER by Dr. Henrik Stryhn. The objective of the centre is to further research and training in collaboration between statistical and health science environments. Activities within UPEI and the region have focused on establishing connections between researchers in different environments, for example between CVER and the Maritime SPOR Support Unit for PEI located within the Centre for Health and Community Research at UPEI.