

Charlotte H. Edinboro, D.V.M., Ph.D.
Senior Scientist

Professional Profile

Dr. Charlene Edinboro is a Senior Scientist in Exponent's Health Sciences Center for Occupational and Environmental Health. Dr. Edinboro has a diverse background in several disciplines including epidemiology, veterinary medicine, and aerospace engineering.

Dr. Edinboro's experience in epidemiology includes cancer epidemiology, nutritional epidemiology, exposure assessment, and pharmacoepidemiology. At Exponent, Dr. Edinboro has reviewed medical, epidemiologic, and toxicologic literature on numerous subjects, and provided estimates of incidence or prevalence of specific diseases for epidemiologic evaluations of environmental and occupational exposures. Dr. Edinboro has prepared state-of-the-art reviews for reports and manuscripts on environmental perchlorate exposures and thyroid function, as well as smoking, cardiovascular disease, and magnetic field exposure. Projects have included an analysis of newborn screening data and potential perchlorate exposure in drinking water, technical support to an expert panel and a manufacturer evaluating applicability of a screening test for occupational beryllium exposure, and research support for a project evaluating dietary supplements and potential adverse health outcomes. Dr. Edinboro reviewed evidence in a case alleging PCB exposure associated with neonatal foal morbidity and mortality. She used all facets of her education and experience in a dairy inspection where use of robotic milking machines was associated with reportedly higher rates of mastitis than before their use. Dr. Edinboro has participated in a safety evaluation of dog treat ingredients, in human food-borne outbreak investigations, and in projects related to animal disease potentially due to feeds or environmental exposures. She has managed a project involving mitigation of an outbreak of Q-fever, a zoonotic disease. Dr. Edinboro has provided a review of literature for potential health effects of fiducial marker use in several new applications, and has participated in other medical device projects. Her research has included studies of dietary and environmental risk factors for feline hyperthyroidism, clinical trials of vaccines in dogs and cats at humane shelters to evaluate effectiveness, and evaluation of the impact of repeated vaccination on the immune status of Great Danes. Her research interests include potential impacts of dietary and environmental exposures on the thyroid, small animal population disease control, and companion animals as sentinels for human health. Dr. Edinboro has been a member of the American Thyroid Association's Public Health Committee (2007–2011) and of the Radioactive Iodine Best Practices Task Force.

Dr. Edinboro holds an active California veterinary license. As a small animal veterinarian, she has performed routine physical examinations and treatment, preventive care, routine surgeries, emergency medicine, and shelter animal medicine, including population disease control, forensics, zoonosis identification, and wildlife medicine. Dr. Edinboro is active with the Peninsula Veterinary Medical Association, serving twice as president, and she has been a liaison with a local animal rescue group, a large humane society, and the local county health department. She has volunteered as a feral cat spay/neuter clinic veterinarian.

Dr. Edinboro has over 20 years of experience in aerospace engineering. She worked in spacecraft control systems analysis, simulation software design and implementation, and systems engineering, including requirements analysis, implementation, integration and test, documentation development, and on-site customer support for a variety of applications. As a team member, team leader, and coordinator of teams from diverse subcontractors, Dr. Edinboro has worked on several spacecraft programs and systems.

Academic Credentials and Professional Honors

Ph.D., Comparative Epidemiology, Purdue University, 2002

D.V.M., Veterinary Medicine, University of California, Davis, 1990

M.S., Aeronautics and Astronautics, Purdue University, 1976

B.S., Aeronautical and Astronautical Engineering, Purdue University, 1975

Veterinarian, California Veterinary Medical Board

Outstanding Aerospace Engineer, Purdue University, 2009; Oxford Laboratories Award for Excellence in the Advancement of Knowledge Concerning Small Animal Endocrinology, Society for Comparative Endocrinology, 2005; Recipient of Kenneth Scott Fellowship in Epidemiology and Animal Welfare, Purdue University, 1997–2001; Phi Zeta Veterinary Medicine Honor Society; NASA Group Achievement Award for Voyager Spacecraft System Design and Development; NASA Group Achievement Award for Voyager Flight Operations; American Institute of Aeronautics and Astronautics Outstanding Student Branch Member, Purdue University, 1975–1976; Sigma Gamma Tau Aerospace Engineering Honor Society; Purdue University Special Merit and Alumni Association Scholarships

Prior Experience

Epidemiology

Post-Doctoral Research Assistant, Purdue University, School of Veterinary Medicine, Department of Veterinary Pathobiology, 2001–2002

Teaching Assistant, Purdue University, School of Veterinary Medicine, Department of Veterinary Pathobiology, 1999

Graduate Research Assistant, Purdue University, School of Veterinary Medicine, Department of Veterinary Pathobiology, 1997–2001

Veterinary Medicine

Small animal part-time and relief veterinarian at private practices and one large humane shelter in the San Francisco Bay Area, 1990–1997

Aerospace Engineering

Systems Engineer, Scitor Corporation, 1984–1986, summers 1987, 1988, 1989, 1990–1997

Staff Engineer, Ultrasystems Defense and Space Systems, Inc., 1982–1984

Member of the Technical Staff, TRW Defense Systems Group, 1979–1982

Engineer R&D, Ford Aerospace and Communications Corporation, 1979

Engineer II, III, Computing Analyst III, Jet Propulsion Laboratory, California Institute of Technology, 1976–1979

Publications

Baxter KJ, Levy JK, Edinboro CH, Vaden SL, Tompkins MB. Renal disease in cats infected with feline immunodeficiency virus. *J Vet Intern Med* 2012, in press. Epub ahead of print: doi: 10.1111/j.1939-1676.2011.00871.x.

Edinboro CH. A “one medicine” example: humans as the model for a feline disease. (Abstract) *Thyroid* 2011; 21(s1):A-37.

Sisson JC, Freitas J, McDougall IR, Dauer LT, Hurley JR, Brierley JD, Edinboro CH, Rosenthal D, Thomas MJ, Wexler JA, Asamoah E, Avram AM, Milas M, Greenlee C. Radiation safety in the treatment of patients with thyroid diseases by radioiodine ¹³¹I: Practice recommendations of the American Thyroid Association. *Thyroid* 2011; 21:335-346.

Levy JK, Lappin MR, Glaser AL, Birkenheuer AJ, Anderson TC, Edinboro CH. Prevalence of infectious diseases in cats and dogs rescued following Hurricane Katrina. *Journal of the American Veterinary Medical Association* 2011; 238(3):311-317.

Greenlee MC, Burmeister LA, Butler RS, Edinboro CH, Morrison SM, Milas M. Current safety practices relating to I-131 administration for diseases of the thyroid: A survey of physicians and allied practitioners. *Thyroid* 2011; 21:151-160.

Edinboro CH, Scott-Moncrieff JC, Glickman LT. Feline hyperthyroidism: Potential relationship with iodine supplement requirements of commercial cat foods. *Journal of Feline Medicine and Surgery* 2010; 12(9):672-679.

Lechner ES, Crawford PC, Levy JK, Edinboro CH, Dubovi EJ, Caligiuri R. Prevalence of protective antibody titers for canine distemper virus and canine parvovirus in dogs entering a Florida animal shelter. *Journal of the American Veterinary Medical Association* 2010; 236(12):1317-1321.

Edinboro CH, Pearce EN, Pino S, Braverman LE. Is the iodine content of cat food responsible for “toxic nodular goiter” in older cats? (Abstract) *Thyroid* 2009; 19(s1):S-27.

Edinboro CH, Kelsh MA, Lau EC. Demographic comparisons of two- versus one-stage testing results for primary congenital hypothyroidism screening in California, 1997-1998. (Abstract) *Thyroid* 2008; 18(s1):S-53-S-54.

Goldkamp CE, Levy JK, Edinboro CH, Lachtara JL. Seroprevalences of feline leukemia virus and feline immunodeficiency virus in cats with abscesses or bite wounds and rate of veterinarian compliance with current guidelines for retrovirus testing. *Journal of the American Veterinary Medical Association* 2008; 232(8): 1152-1158.

Levy JK, Edinboro CH, Glotfelty CS, Dingman, PA, West AL, Kirkland-Cady KD. Seroprevalence of *Dirofilaria immitis*, feline leukemia virus, and feline immunodeficiency virus in dogs and cats rescued from the 2005 Gulf Coast hurricane disaster. *Journal of the American Veterinary Medical Association* 2007; 231(2):218-225.

Edinboro CH. Companion animals may serve as sentinels of health risk—A review of thyroid diseases in three non-human species. (Abstract) *Thyroid* 2006; 16(9):908–909.

Buffler PA, Kelsh MA, Lau EC, Edinboro CH, Barnard JC, Rutherford GW, Daaboul JJ, Palmer L, Lorey FW. Thyroid function and perchlorate in drinking water: An evaluation among California newborns, 1998. *Environmental Health Perspectives* 2006; 114(5):798–804.

Mezei G, Cher D, Kelsh M, Edinboro C, Chapman P, Kavet R. Occupational magnetic field exposure, cardiovascular disease: mortality, and potential confounding by smoking. *Annals of Epidemiology* 2005; 15(8):622–629.

Edinboro CH, Scott-Moncrieff JC, Glickman LT. Review of iodine recommendations for commercial cat foods and potential impacts of proposed changes. (Abstract) *Thyroid* 2004; 14(9):722.

Edinboro CH, Scott-Moncrieff JC, Glickman LT. Environmental risk factors for feline hyperthyroidism: Pet cats as potential sentinels for public health. (Abstract) *Thyroid* 2004; 14(9):759.

Edinboro CH, Scott-Moncrieff JC, Janovitz EB, Thacker HL, Glickman LT. Epidemiologic study of the relationships between commercial canned food consumption and the risk of hyperthyroidism in cats. *Journal of the American Veterinary Medical Association* 2004; 224(6):879–886.

Edinboro CH, Ward MP, Glickman LT. A placebo-controlled trial of two intranasal vaccines to prevent tracheobronchitis (kennel cough) in dogs entering a humane shelter. *Preventive Veterinary Medicine* 2004; 62(2):89–99.

Edinboro CH, Scott-Moncrieff JC, Tetrick M, Glickman LT. Dietary and environmental risk factors for clinical hyperthyroidism in pet cats. (Abstract) *Annals of Epidemiology* 2002; 12(7):509.

Edinboro CH. Dietary and environmental risk factors for feline hyperthyroidism. Dissertation. Department of Veterinary Pathobiology, Purdue University, 2002.

Edinboro CH, Janowitz LK, Guptill-Yoran L, Glickman LT. A clinical trial of intranasal and subcutaneous vaccines to prevent upper respiratory infection in cats at an animal shelter. *Feline Practice* 1999; 27(6):7–11, 13.

Book Chapter

Edinboro CH. Veterinary epidemiology. In: *Encyclopedia of Epidemiology*. Boslaugh S (ed), Thousand Oaks, CA: Sage Publications, pp. 1079–1083, 2007.

Presentations

Edinboro CH. Infectious diseases in animal shelters: continuing need for vaccination and vigilance. Poster, 3rd International Conference on Infectious Disease Dynamics, Boston, MA, November-December 2011.

Edinboro CH. Meet the Professor: ¹³¹I Radiation safety for patients: Current practices survey (invited). American Thyroid Association 81st Annual Meeting, Indian Wells, CA, October 2011.

Edinboro CH. A “one medicine” example: humans as the model for a feline disease. Poster, American Thyroid Association 81st Annual Meeting, Indian Wells, CA, October 2011.

Edinboro CH. Updates on risk factors for feline hyperthyroidism, or “not all those who wander are lost.” Peninsula Veterinary Medical Association (invited), Belmont, CA, May 2011.

Edinboro CH. Endocrine disruption: How much is too much for the public’s health? Topics in Public Health Seminar (invited), University of California, Davis, CA, May 2011.

Edinboro CH. Companion animals and humans as sentinels of health risk. Alltech 26th International Animal Health and Nutrition Symposium (invited), Lexington, KY, May 2010.

Edinboro CH. Perspectives of an aerospace systems engineering veterinary epidemiologist, or, a little bit of this and that. Seminar in Epidemiology (invited), Purdue University, West Lafayette, IN, September 2009.

Edinboro CH, Pearce EN, Pino S, Braverman LE. Is the iodine content of cat food responsible for “toxic nodular goiter” in older cats? Poster, American Thyroid Association 80th Annual Meeting, West Palm Beach, FL, September 2009.

Edinboro CH. Animals as sentinels of human disease, and other musings on “One Medicine.” Topics in Public Health Seminar (invited), University of California, Davis, CA, April 2009.

Edinboro CH, Kelsh MA, Lau EC. Demographic comparisons of two- versus one-stage testing results for primary congenital hypothyroidism screening in California, 1997-1998. Poster, American Thyroid Association 79th Annual Meeting, Chicago, IL, October 2008.

Edinboro CH. Prevalence of feline leukemia and immunodeficiency viruses in feral cats on the San Francisco peninsula. Epidemiology Graduate Seminar (invited), University of California, Davis, CA, November 2006.

Edinboro CH. Companion animals may serve as sentinels of health risk—A review of thyroid diseases in three non-human species. Poster, American Thyroid Association 77th Annual Meeting, Phoenix, AZ, October 2006.

Edinboro CH. Prevalence of feline leukemia and immunodeficiency viruses in feral cats on the San Francisco peninsula. Poster, 8th International Feline Retrovirus Research Symposium, Washington, DC, October 2006.

Edinboro CH. Prevalence of feline leukemia and immunodeficiency viruses in feral cats in San Francisco Bay Area. 11th International Symposium for Veterinary Epidemiology and Economics, Cairns, Queensland, Australia, August 2006.

Edinboro CH. Prevalence of obesity in dogs and obesity and asthma in cats presented to North American veterinary school hospitals. Poster, 11th International Symposium for Veterinary Epidemiology and Economics, Cairns, Queensland, Australia, August 2006.

Edinboro CH. Clinical trials of intranasal vaccines to prevent respiratory diseases in animal shelters. Epidemiology Graduate Seminar, University of California, Davis, CA, May 2005.

Edinboro CH, Scott-Moncrieff JC, Glickman LT. Review of iodine recommendations for commercial cat foods and potential impacts of proposed changes. Poster, American Thyroid Association 76th Annual Meeting, Vancouver, BC, Canada, September-October 2004.

Edinboro CH, Scott-Moncrieff JC, Glickman LT. Environmental risk factors for feline hyperthyroidism: Pet cats as potential sentinels for public health. Poster, American Thyroid Association 76th Annual Meeting, Vancouver, BC, Canada, September–October 2004.

Edinboro CH. Dietary and environmental risk factors for feline hyperthyroidism, or “there and back again.” Peninsula Veterinary Medical Association, Belmont, CA, March 2004.

Mezei G, Cher D, Kelsh M, Chapman P, Edinboro C, Kavet R. Cardiovascular deaths and occupational exposure to magnetic fields in the national mortality followback survey. Poster, Bioelectromagnetics Society Annual Meeting, Wailea, Maui, HI, June 2003.

Edinboro CH, Scott-Moncrieff JC, Tetrick M, Glickman LT: Dietary and environmental risk factors for clinical hyperthyroidism in pet cats. Poster, American College of Epidemiology Annual Meeting, Albuquerque, NM, September 2002.

Edinboro CH. Do endocrine disrupters in canned food linings cause hyperthyroidism? Epidemiologic evidence from an animal model. Interdepartmental Nutrition Program Seminar Series, Purdue University, September 2002.

Edinboro CH. Disease recognition, prevention, and shelter programming for animal health. Indiana Association of Animal Control Personnel Conference, Indianapolis, IN, October 1999.

Academic Appointments

- Affiliate, University of Florida Maddie’s[®] Shelter Medicine Program

Teaching Experience

- Teaching Assistant, Small Animal Epidemiology for third-year veterinary students, Purdue University, School of Veterinary Medicine, Department of Veterinary Pathobiology (8–10/99)

Research Experience

- Post-Doctoral Research Assistant, Great Dane Health and Vaccine Study, Purdue University, School of Veterinary Medicine, Department of Veterinary Pathobiology (11/01–10/02)
- Graduate Research Assistant, Purdue University, School of Veterinary Medicine, Department of Veterinary Pathobiology (8/97–11/01)
 - Designed and conducted a controlled clinical trial to evaluate the efficacy of two intranasal vaccines for the prevention of upper respiratory disease (Kennel Cough) in dogs at a humane shelter
 - Conducted case-control and cross-sectional studies to identify dietary and environmental risk factors for feline hyperthyroidism (PhD Research)

Peer Reviewer

- Journal of the American Animal Hospital Association – Section Editor for Study Design and Epidemiology
- American Journal of Veterinary Research
- Journal of the American Veterinary Medical Association
- Journal of Veterinary Internal Medicine
- Journal of Toxicology and Environmental Health
- Preventive Veterinary Medicine
- Toxicological Sciences
- Veterinary Medicine International – Guest Editor for Small Animal Epidemiology issue

Professional Affiliations

- American Veterinary Medical Association
- American Thyroid Association
 - Public Health Committee Member, 2007–2011
 - Radioactive Iodine Best Practices Task Force Member
- Association of Shelter Veterinarians
- American Association of Feline Practitioners
- American Association of Public Health Veterinarians
- Association for Veterinary Epidemiology and Preventive Medicine
- Society for Comparative Endocrinology
- Society for Epidemiologic Research
- Peninsula Veterinary Medical Association (member, all executive offices held)
 - President, 2008 (second occasion)
- San Mateo County Animal Population Trust Fund Committee
- Center for Animal Protection and Education, Santa Cruz, CA (Advisory Board Member, former Board Member)
- Homeless Cat Network, San Carlos, CA (Veterinary Advisory Board Member)