

# KRISTEN M. FEDAK, M.E.M.

Kristen.Fedak@colostate.edu

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## EDUCATION & PROFESSIONAL MEMBERSHIPS

### **Ph.D., Epidemiology, Colorado State University** **2015 – current**

- *Focal Area:* Cardiovascular Effects of Air Pollution; Clean Cookstoves; Environmental Exposures; Global Health; Clinical Trials
- *Coursework Topics:* Disease Investigation Field Methods, Infectious Disease Epidemiology, Epidemiologic Theory, Statistics
- *Project-Based Research Experience:* (1) Designed and executed laboratory-based stoves monitoring campaign to evaluate health-relevant pollutant emissions across stove and fuel technologies, including VOCs, PAHs, black carbon, carbonyls, PM, CO, CO<sub>2</sub>, NO<sub>x</sub>. (2) Project coordinator on human controlled exposure chamber study investigating cookstove-generated air pollution and subclinical cardiovascular and respiratory health outcomes.

### **Master of Environmental Management, Duke University** **2009 – 2011**

- *Focal Track:* Ecotoxicology and Global Environmental Health
- *Thesis:* A Comparative Human Health Risk Assessment of Insecticides Used for Malaria Control
- *Teaching Assistant:* Ecological and Human Health Risk Assessment (graduate level course)

### **Bachelor of Science, Biology/Environmental Studies, Boston College** **2005 – 2009**

- *Undergraduate Research Fellowship:* 2-year Drosophila study in a molecular genetics laboratory
- *Selected Coursework:* Molecular Biology; Comparative Vertebrate Biology; Animal Behavior; Plant Biology; Physics; Organic Chemistry; Environmental Law: Land Use, and Planning (3L level at BC Law School)

## PROFESSIONAL EXPERIENCE

### **Field Research Assistant, Uganda Cookstove Emissions Monitoring Campaign** **July 2015** **Colorado State University, Fort Collins, CO**

- Participated in 3-week field campaign measuring stove usage patterns and resulting emissions in Kampala, Uganda, using SUMs and a custom-made portable emissions monitoring kit that measured particulate matter mass, size distribution, and composition, and gasses.

### **Senior Associate Health Scientist** **Sept. 2013 – Jan. 2015** **Cardno ChemRisk, Boulder, CO**

- Provided scientific support for litigation-related efforts related to environmental health issues of oil and gas production, occupational exposures to asbestos and benzene, and food contamination.
- Apply skills in epidemiology, toxicology, risk assessment, chemistry, molecular biology, health regulations and standards, and technical writing to issues of occupational chemical exposures and subsequent disease outcomes.
- Actively engaged in company recruiting efforts, journal clubs, internal continued education series, and intern mentoring programs.

### **Research Coordinator, Traffic-Related Air Pollution Study** **Feb. 2013 – Sept. 2013** **Colorado State University, Fort Collins, CO**

- Ran participant recruitment and logistics for a large person epidemiological study on traffic-related exposure to air pollution while commuting to work along various high- and low-traffic routes.
- Worked with participants to ensure understanding of their voluntary involvement in the study according to IRB regulations, the purpose of the study, and their responsibilities. Coordinated schedules and commuting routes to meet study parameters.

### **Associate Consultant, Environmental Risk & Toxicology Division** **June 2011 – Aug. 2013** **ICF International, Durham, NC**

- Scientifically supported risk assessment, exposure assessment, and environmental health initiatives for federal government clients. Played major role in supporting government initiatives towards transparency, documentation, and reproducibility across departments.
- Focal areas: nanotechnology; food safety/regulation; science communication/outreach; risk assessment of environmental contaminants.
- Daily tasks: scientific literature search, review, and analysis; technical and creative writing; document production; team collaboration and organization; project planning, organization, and management; team supervision.
- Planned and organized scientific workshops/ meetings; designed and developed public health risk assessment training courses and public science education website resources.
- Led development of multiple extensive chemical-specific risk assessment documents, including chromium, arsenic, cobalt, carbon nanotubes, DDT, mirex, perfluorinated compounds, and phthalates, for various EPA programs including IRIS assessments, PPRTVs, and pathway-specific hazard assessments (e.g., lactational exposures to PBTs).
- Developed technical reports to support decision making regarding substances allowed in organic crop production and food handling for USDA National Organic Program; including compounds like gibberellic acid, carrageenan, ascorbyl palmitate, agarose, and DHA.

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## Research Assistant, Malaria Decision Analysis Support Tool (MDAST) Team Duke University, Durham, NC

Sept. 2009 – Dec. 2012

- Team member on UNEP- and WHO-funded project that aimed to promote evidence-based, multi-sectoral malaria control policy-making in Kenya, Tanzania, and Uganda through development and implementation of a community-based disease management tool that incorporated health, social, and environmental research-based data.
- Led effort to identify and analyze data on effectiveness of insecticide-based vector control methods at reducing malaria prevalence. Collaborative role on team advanced knowledge on decision analysis modeling, public health research techniques, survey methods, and program management.
- Procured \$6,400 in grants for interview-based project on benefits and risks associated with vector control insecticides; collected data over 7 weeks in Dar es Salaam, Tanzania. Analyzed results using Nvivo and a mental models approach.

## Student Technical Advisor, National Geographic Big Cats Initiative Duke University, Durham, NC

Jan. 2010 – May 2011

- Provided scientific support to Board to influence grant funding decisions and drive conservation efforts.
- Analyzed implications of pesticide accessibility on wildlife conservation and agriculture, and advised NGO partner on using scientific data to push policy aimed at reducing wildlife poisoning in Kenya.

## Graduate Resident Director, Residential Life & Housing Services Duke University, Durham, NC

Sept. 2009 – May 2011

- Live-in manager of residential building housing 190 first-year students. Managed staff of 8 student residential advisors and 10-person student leadership board; oversaw combined budget of \$10,000/year.

## PUBLICATIONS

Good, Molter, Ackerson, Bachand, Carpenter, Clark, **Fedak**, Kayne, Koehler, Moore, L'Orange, Quinn, Ugave, Stuart, Peel, Volckens. 2016. The Fort Collins Commuter Study: Impact of route type and transport mode on personal exposure to multiple air pollutants. *J Expos Sci Environ Epidemiol*, 26(4): 397-404. doi:10.1038/jes.2015.68. (advanced online October 28, 2015).

**Fedak**, Bernal, Capshaw, Gross. 2015. Applying the Bradford Hill criteria in the 21<sup>st</sup> century: How data integration has changed causal inference in molecular epidemiology. *Emerging Themes in Epidemiology*, 30: 12-14.

Gross and **Fedak**. 2015. Applying a Weight of Evidence Approach to Evaluate Relevance of Molecular Landscapes in the Exposure-Disease Paradigm. *BioMed Research International*. doi: 10.1155/2015/515798 (ePub only).

Segal, Makris, Kraft, Bale, Gilbert, Bergfelt, Raffaele, Blain, **Fedak**, Selgrade, Crofton. 2015. Evaluation of the ToxRTool's Ability to Rate the Reliability of Toxicological Data for Human Health Hazard Assessments. *Regulatory Toxicology and Pharmacology*, 72: 94-101.

**Fedak**, Gross, Jacobsen, Tvermoes. 2014. Letter to the Editor: Birth outcomes and natural gas development: Methodological limitations. *Environmental Health Perspectives*, 122(9):A232.

Selgrade, Blain, **Fedak**, Cawley. 2013. "Potential Risk of Asthma Associated with *in utero* Exposure to Xenobiotics." *Birth Defects Research Part C: Embryo Today*, 99: 1-13.

U.S. EPA (Authors: Powers, **Fedak**, Harris, et al. 2013). Comprehensive Environmental Assessment Applied to Multiwalled Carbon Nanotube Flame-Retardant Coatings in Upholstery Textiles: A Case Study Presenting Priority Research Gaps for Future Risk Assessments. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-12/043F.

Kim, **Fedak**, Kramer. 2012. "Reduction of Malaria Prevalence by Indoor Residual Spraying: A Meta-Regression Analysis." *American Journal of Tropical Medicine and Hygiene*, 87(1): 117-124.

Shalaby, Parks, Morreale, Osswald, **Pfau**, Pierce, Muskavitch. 2009. "A Screen for Modifiers of Notch Signaling Uncovers Amun, a Protein With a Critical Role in Sensory Development." *Genetics*, 182: 1061-1076.

## PRESENTATIONS AND POSTERS

**Fedak**, Walker, Bilsback, Clark, L'Orange, Naumoff-Shields, Volckens, Peel. "Fueling the Fire: An Expert Survey to Explore Materials Used for Cookstove Startup." Poster at International Society for Environmental Epidemiology Annual Meeting, September, 2016 and Colorado State University Graduate Student Showcase, November, 2016.

"Toxicology and Risk Assessment in Public Health." Guest Lecturer in PBHL530, Environmental Public Health Policy, Colorado School of Public Health. February 3, 2016.

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"How Clean is Clean Enough? A Controlled Cookstove Exposure Study." Presentation at ETHOS (Engineers in Technical and Humanitarian Opportunities of Service) Annual Cookstoves Conference. January 29-31, 2016. Kirkland, Washington.

**Fedak**, Bernal, Capshaw, Gross. "Applying the Bradford Hill Criteria in the 21st Century: How Advances in Molecular Epidemiology Have Changed Causal Inference." Poster at Society of Toxicology 53rd Annual Meeting, March, 2014.

**Fedak**, Turner, Harris, Burch, Powers, Lassiter. "Identifying Data Gaps and Prioritizing Research Areas to Inform Future Risk Assessment of Multiwalled Carbon Nanotubes." Poster at Society of Toxicology 52nd Annual Meeting, 2013.

Segal, Makris, Bale, Croften, Gilbert, Berfeldt, Raffaele, Blain, **Fedak**, Selgrade. "Evaluation of the ToxRTool for Assessing Quality of Toxicological Data for Risk Assessments. Poster at Society of Toxicology 52nd Annual Meeting, 2013.

Holder, Carr, Varghese, Rosenbaum, **Fedak**. "Using AERMOD and Odor Detection Thresholds to Evaluate Nuisance Odors in Communities Near Waste Landfills." Poster at Annual International Society for Exposure Science Meeting, 2012.

**Fedak**. "A Risk-Risk Tradeoff: Human Health Risks from Insecticides Used for Malaria Control." Master's Thesis Symposium Presentation. Durham, NC. 2011.

## SCHOLARSHIPS, FELLOWSHIPS, and AWARDS

Graduate Student Travel Grant Awardee, Colorado State University Environmental and Radiological Health Sciences Dept.: 2015, 2016

Duke Global Health Initiative Summer Project Funds Awardee: 2010

Nicholas School Environmental Internship Fund Awardee: 2010

Lazar Foundation International Research Travel Fund Awardee: 2010

Undergraduate Research Fellowship, Boston College Biology Department: 2007-2009: Training/research fellowship in molecular genetics.

Research Assistantship: Duke University Nicholas School for the Environment, 2009-2011: Awarded Scholarship to work with the Malaria Decision Analysis Support Tool (MDAST) Team.

## OTHER

**Professional Memberships/Trainings:** Society of Toxicology (since 2011), Society of Risk Analysis (since 2013), Society of Epidemiology Research (since 2015), International Society of Environmental Epidemiology (since 2016). CPR and First Aid certified.

**Technical Software/Data Skills:** Proficient in R, experience with SAS. Advanced with EndNote as library organization tool and citation management. Vast experience designing, administering, and analyzing data from surveys/questionnaires.

**Community Volunteering:** Putnam Elementary After School Science Program Mentor (2016), Animal House Dog Shelter foster caregiver (2013-current), Duke Reader Project Mentor (2011-2014).