

## **Kristie L. Ebi**

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### **Education**

- Ph.D. in Epidemiologic Science, The University of Michigan
- M.P.H. in Epidemiology, The University of Michigan, School of Public Health
- M.S. in Toxicology, Massachusetts Institute of Technology
- B.S. in Biochemistry, Michigan State University

### **Employment**

- 2006 - present:** Independent consultant, Alexandria, VA
- 2003 - 2006:** Senior Managing Scientist, Exponent, Alexandria, VA
- 1997 - 2003:** Technical Manager, Global Climate Change, Electric Power Research Institute (EPRI), Palo Alto, CA
- 1993 - 2003:** Technical Manager, EMF (Electric and Magnetic Fields), EPRI
- 2001 - 2002:** Scientist, WHO European Centre for Environment and Health, Rome
- 1990 - 1993:** Senior Scientist, Biostatistics and Epidemiology, Failure Analysis Associates, Inc., Menlo Park, CA
- 1988 - 1990:** Epidemiologic Research Assistant to Professor Nicholas Wald, Department of Environmental and Preventive Medicine, Medical College of St. Bartholomew's Hospital, London, U.K.
- 1985 - 1988:** Post-Doctoral Research Fellow (NHLBI) with Dr. Victor M. Hawthorne, Department of Epidemiology, The University of Michigan, School of Public Health, Ann Arbor, MI and with Professor Geoffrey Rose, Department of Epidemiology and Community Health, London School of Hygiene and Tropical Medicine, London, U.K.
- 1983 - 1984:** Epidemiologic Research Assistant to Dr. Ian T.T. Higgins, Department of Epidemiology, The University of Michigan, School of Public Health, Ann Arbor, MI
- 1978 - 1981:** Industrial Toxicologist, Health Services Section, General Motors, Detroit, MI

### **Assessment Activities**

- U.S. Climate Change Science Program Synthesis and Assessment Product 4.6 (Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems):** Lead author for Human Health
- International Assessment of Agriculture Science and Technology for Development:** Lead author
- Intergovernmental Panel on Climate Change, Fourth Assessment Report:** Lead author, Human Health
- Millennium Ecosystem Assessment:** Lead author, Working Group II (Response Options), Chapters on Human Health and on Uncertainties in Assessing the Effectiveness of Response Options Regarding Ecosystem Services; and the Business and Industry Synthesis Report

**Adaptation Policy Framework:** Lead author

**U.S. National Assessment: The Potential Consequences of Climate Variability and Change:**  
Lead author, Health Sector Analysis Team

### **Selected Experience**

**WHO/UNDP-GEF:** Piloting Climate Change Adaptation to Protect Human Health (Barbados, Bhutan, China, Fiji, Jordan, Kenya, and Uzbekistan). International consultant to facilitate preparation of full size proposal.

**UNDP-GEF:** Ghana Country Programme on Climate Change and Human Health. International consultant to facilitate preparation of full project proposals.

**USAID:** Pilot Project for Assessing Climate Change-Related Vulnerability in Agriculture in Mali. Project manager.

**UNFCCC Secretariat/UNDP National Communications Support Programme:** Workshops in Support of the Preparation of Second National Communications from Non-Annex I Parties - Mozambique, Georgia, Indonesia. Resource person/trainer.

**WHO:** Workshops on Assessing Human Health Vulnerability and Public Health Adaptation to Climate Change - Maldives, and the Hindu Kush-Himalaya and Eastern Mediterranean Regions. Organizer/facilitator.

### **Adjunct Professor**

London School of Hygiene and Tropical Medicine

### **Professional Affiliations**

American College of Epidemiology

American Public Health Association

American Society of Meteorology

American Society of Tropical Medicine and Hygiene

International Epidemiologic Association

International Society for Environmental Epidemiology

International Society of Biometeorology

Society for Epidemiologic Research

### **Editorships**

Mitigation and Adaptation Strategies for Global Change

### **Edited Volumes**

Ebi KL, Smith J, Burton I (eds.). Integration of Public Health with Adaptation to Climate Change: Lessons Learned and New Directions. Taylor & Francis, London, 2005.

Menne B, Ebi KL (eds.). Climate Change Adaptation Strategies and Human Health. Springer-Verlag, Germany, 2005.

McMichael AJ, Campbell-Lendrum D, Corvalan CF, Ebi KL, Githeko A, Scheraga JD, Woodward A (eds.). Climate change and human health: risks and responses. WHO/WMO/UNEP, 2003.

## Publications

### *Global Environmental Change: Referred Journal Publications*

- Ebi KL. Healthy people 2100: modeling population health impacts of climate change. In press, Climatic Change.
- Pitcher H, Ebi KL, Brenkert A. Population health model for integrated assessment models. In press, Climatic Change.
- Tol RSJ, Ebi KL, Yohe GW. Infectious disease, development, and climate change: a scenario analysis. In press, Environment and Development Economics.
- Kovats RS, Ebi KL. Heatwaves and public health in Europe. *European J Public Health* 2006; doi:10.1093/eurpub/ck1049.
- Ebi KL, Mills DM, Grambsch A. Climate change and health impacts in the United States: an update on the results of the US National Assessment. *Environmental Health Perspectives* 2006;114:1318-1324. doi:10.1289/ehp.8880.
- Ebi KL, Kovats RS, Menne B. An approach for assessing human health vulnerability and public health interventions to adapt to climate change. *Environmental Health Perspectives* 2006;114:1930-1934. doi:10.1289/ehp.8430.
- Ebi KL, Lewis ND, Corvalan C. Climate variability and change and their potential health effects in small island states: information for adaptation planning in the health sector. *Environmental Health Perspectives* 2006;114:1957-1963. doi:10.1289/ehp.8429
- Ebi KL, Smith J, Burton I, Scheraga J. Some lessons learned from public health on the process of adaptation. *Mitigation and Adaptation Strategies for Global Change* 2006;11:607-620. doi:10/1007/s11027-006-3257-7.
- Ebi KL, Hartman J, McConnell JK, Chan N, Weyant J. Climate suitability for stable malaria transmission in Zimbabwe under different climate change scenarios. *Climatic Change* 2005;73(3).
- Ebi KL, Schmier JK. A stitch in time: improving public health early warning systems for extreme weather events. *Epidemiologic Reviews* 2005;27:115-121.
- Kovats RS, Edwards SJ, Charron D, Cowden J, D'Souza RM, Ebi KL, Gauci C, Gerner-Smidt P, Hajat S, Hales S, Hernandez Pezzi G, Kriz B, Kutsar K, McKeown P, Mellou K, Menne B, O'Brien S, Van Pelt W, Schmid H. Climate variability and campylobacter infection: an international study. *International J Biometeorology* 2005;49:207-214.
- Ebi KL, Gamble JL. Summary of a workshop on health scenarios development: strategies for the future. *Environmental Health Perspectives* 2005;113:335-38.
- Kovats RS, S Hajat, S Edwards, KL Ebi, B Menne, Collaborating Group. The effect of temperature on food poisoning: a time series analysis of salmonellosis in 10 European populations. *Epidemiology and Infection* 2004;132:443-453.
- Ebi KL, Teisberg TJ, Kalkstein LS, Robinson L, Weiher RF. Heat watch/warning systems save lives: estimated costs and benefits for Philadelphia 1995-1998. *Bulletin of the American Meteorological Society (BAMS)* 2004; 85(8):1067-1073.
- Ebi KL, Exuzides KA, Lau E, Kelsh M, Barnston A. Weather changes associated with hospitalizations for cardiovascular diseases and stroke in California, 1983-1998. *Int J Biometeorol* 2004; 49:48-58.
- Hajat S, Ebi K, Kovats S, Menne B, Edwards S, Haines A. The human health consequences of flooding in Europe and the implications for public health: A review of the evidence. *Applied Environmental Science and Public Health* 2003; 1(1):13-21.

- Woodruff RE, Guest CS, Garner MG, Becker N, Lindesay J, Carvan T, Ebi KL. Predicting Ross River virus epidemics from regional weather data. *Epidemiology* 2002; 13:384-93.
- Bernard SM and Ebi KL. Comments on the process and product of the Health Impacts Assessment component of the United States National Assessment of the potential consequences of climate variability and change. *Environ Health Perspect* 2001; 109(Suppl 2):177-184.
- Bernard SM, Samet JM, Grambsch A, Ebi KL, Romieu I. The potential impacts of climate variability and change on air pollution-related health effects in the United States. *Environ Health Perspect* 2001; 109(Suppl 2):199-210.
- Gubler DJ, Reiter PR, Patz JA, Ebi KL, Yap W, Nasci R. Climate variability and change in the United States: Potential impacts on vector- and rodent-borne diseases. *Environ Health Perspect* 2001; 109(Suppl 2):223-233.
- Chan NY, Stacey MT, Smith AE, Ebi KL, Wilson TF. An empirical mechanistic framework for heat related illness. *Climate Research* 2001; 16:133-143.
- Ebi KL, Exuzides KA, Lau E, Kelsh M, Barnston A. Association of normal weather periods and El Nino events with viral pneumonia hospitalizations in females, California 1983-1998. *Am J Public Health* 2001; 91:1200-1208.
- Patz JA, McGeehin MA, Bernard SM, Ebi KL, et al. The potential health impacts of climate variability and change for the United States: executive summary of the report of the health sector of the U.S. National Assessment. *Environ Health Perspect* 2000; 108:367-376.
- Chan NY, Smith F, Wilson TF, Ebi KL, Smith AE. An integrated assessment framework for climate change and infectious diseases. *Environ Health Perspect* 1999; 107:329-337.

***Global Environmental Change: Submitted Manuscripts***

- Ebi KL, Burton I. Identifying practical adaptation options: an approach to address climate change-related health risks.

***Global Environmental Change: Book Chapters and Major Reports***

(\* = referred chapters, reports)

- Ebi KL. Human health impacts of climate change. In: *Climate Change Science and Policy*. Schneider S, Rosencranz A, Mastrandrea M, eds. Island Press.
- Ebi KL, Kovats RS. Health in integrated assessment models. In:
- O'Neill MS, Ebi KL. Climate Change. In: *Macrosocial Determinants of Population Health*. Galea S, ed.
- Fuessel HM, Ebi KL. Recent vulnerability assessments of human health: questions, approaches, results, and lessons learnt.
- Ebi KL, Woodruff R, von Hildebrand A, Corvalan C. Human health impacts from climate variability and change in the Hindu Kush-Himalaya region. WHO Regional Office for South-East Asia, Delhi, 2006.
- Ebi KL Lewis ND, Corvalan CF. Climate variability and change and their health effects in small island states: information for adaptation planning in the health sector. WHO/UNEP/WMO. WHO, Geneva. 2005
- Ebi KL. Improving public health responses to extreme events. In: *Extreme Weather Events and Public Health Responses*. Kirch W, Menne B, Bertollini R (eds.). Springer-Verlag, Germany, 2005. pp47-56.

- Ebi KL, Hajat S, Penning-Rowsell E, Kovats RS. Floods. In: *Climate Change Adaptation Strategies and Human Health*. Menne B, Ebi KL (eds.). Springer-Verlag, Germany, 2005. pp 99-128.
- Fussler HM, Klein R, Ebi KL. Adaptation Assessment for Public Health. In: *Climate Change Adaptation Strategies and Human Health*. Menne B, Ebi KL (eds.). Springer-Verlag, Germany, 2005. pp 41-62.
- Ebi KL, Burton I, Menne B. Policy Analysis for climate change-related health risks. In: *Climate Change Adaptation Strategies and Human Health*. Menne B, Ebi KL (eds.). Springer-Verlag, Germany, 2005. pp 297-344.
- \* Ebi KL, Smith J, Burton I, Hitz S. Adaptation to climate variability and change from a public health perspective. In: *Integration of Public Health with Adaptation to Climate Change: Lessons Learned and New Directions*. Ebi KL, Smith J, Burton I (eds.). Taylor & Francis, London, 2005. Pp 1-17.
- \* Ebi KL, Mills D, Smith J. A case study of unintended consequences: arsenic in drinking water in Bangladesh. In: *Integration of Public Health with Adaptation to Climate Change: Lessons Learned and New Directions*. Ebi KL, Smith J, Burton I (eds.). Taylor & Francis, London, 2005. Pp 72-90.
- \* Yohe G and Ebi KL. Approaching adaptation: parallels and contrasts between the climate and health communities. In: *Integration of Public Health with Adaptation to Climate Change: Lessons Learned and New Directions*. Ebi KL, Smith J, Burton I (eds.). Taylor & Francis, London, 2005. Pp 18-43.
- \* Burton I, Smith J, Ebi KL, Scheraga J. Lessons learned and insights for adaptation policy. In: *Integration of Public Health with Adaptation to Climate Change: Lessons Learned and New Directions*. Ebi KL, Smith J, Burton I (eds.). Taylor & Francis, London, 2005. Pp 282--295.
- \* Ebi KL, Lim B, Aguilar Y. Adaptation Policy Frameworks: Project Scope and Design. In: *Adaptation Policy Frameworks for Climate Change*. Lim B, Spanger-Siegrfried E, Burton I, Malone E, Huq S. Cambridge University Press 2005, pp 33-46.
- \* Kovats RS, Ebi KL, Menne B. Methods for Assessing Human Health Vulnerability and Public Health Adaptation to Climate Change. WHO/Health Canada/UNEP, 2003.
- \* Ebi KL, Mearns LO, Nyenzi. Weather and climate: changing human exposures. In: *Climate change and human health: risks and responses*. McMichael AJ, Campbell-Lendrum D, Corvalan CF, Ebi KL, Githeko A, Scheraga JD, Woodward A (eds.). WHO/WMO/UNEP, 2003.
- \* Scheraga J, Ebi K, Moreno AR, Furlow J. From science to policy: developing responses to climate change. In: *Climate change and human health: risks and responses*. McMichael AJ, Campbell-Lendrum D, Corvalan CF, Ebi KL, Githeko A, Scheraga JD, Woodward A (eds.). WHO/WMO/UNEP, 2003.
- Ebi KL and Patz JA. Chapter 5: Epidemiologic and impacts assessment methods. In: *Environmental change, climate and health: issues and research methods*. Martens P and McMichael AJ (eds.). Cambridge University Press, 2002.

### *Electromagnetic Fields*

- Foliart DE, Pollock BH, Mezei G, Iriye RI, Silva JM, Ebi, KL, Kheifets L, Link MP, Kavet R. Magnetic field exposure and long-term survival among children with leukemia. *British Journal Cancer* (In press)
- Kelsh MA, Bracken TD, Sahl J, Shum M, Ebi KL. Occupational magnetic field exposures of garment workers: results of personal and survey measurements. *Bioelectromagnetics* 2003; 24:316-26.

- Ebi KL, von Ehrenstein O, Radon K. Electromagnetic fields. In: Children's health and environment: A review of evidence. Tamburlini G, von Ehrenstein OS, Bertollini (eds.). European Environmental Agency, 2002.
- Foliart DE, Iriye RI, Silva MJ, Mezei G, Ebi, KL. Correlation of year-to-year magnetic field exposure metrics among children in a leukemia survival study. *J Expo Anal Environ Epidemiol* 2002; 12:441-7.
- Goodman M, Kelsh M, Ebi K, Iannuzzi J, Langholz B. Evaluation of potential confounders in a planned study of occupation magnetic field exposure and female breast cancer. *Epidemiology* 2002; 13:50-8. (Author reply 13:610).
- Langholz B, Ebi KL, Thomas DC, Peters JM, London SJ. Traffic density and the risk of childhood leukemia in a Los Angeles case-control study. *Ann Epidemiol* 2002; 12:482-7.
- Foliart DE, Iriye RI, Tarr KJ, Silva JM, Kavet R, Ebi KL. Alternative magnetic field exposure metrics: relationship to TWA, appliance use, and demographic characteristics of children in a leukemia survival study. *Bioelectromagnetics* 2001; 22:574-580.
- Anderson LE, Morris JE, Miller DL, Rafferty CN, Ebi KL, Sasser LB. Large granular lymphocytic (LGL) leukemia in rats exposed to intermittent 60 Hz magnetic fields. *Bioelectromagnetics* 2001; 22:185-193.
- Kavet R, Zaffanella LE, Daigle JP, Ebi KL. The possible role of contact current in cancer risk associated with residential magnetic fields. *Bioelectromagnetics* 2000; 21:538-553.
- Ebi KL, Kheifets LI, Pearson RL, Wachtel H. Description of a new computer wire coding method and its application to evaluate potential control selection bias in the Savitz et al. childhood cancer study. *Bioelectromagnetics* 2000; 21:346-353.
- Pearson RL, Wachtel H, Ebi KL. Distance weighted traffic density in proximity to a home is a risk factor for childhood cancer, particularly childhood leukemia. *J Air Waste Management Assoc* 2000; 50:175-180.
- Ebi KL, Zaffanella LE, Greenland S. Application of the case-specular method to two studies of wire codes and childhood cancers. *Epidemiology* 1999; 10:398-404.
- Ebi KL. Developments in the generation and interpretation of wire codes. *Radiation Protection Dosimetry* 1999; 83:71-78.
- Morris JE, Sasser LB, Miller DL, Dagle GE, Rafferty CN, Ebi KL, Anderson LE. Clinical progression of transplanted large granular lymphocytic leukemia in Fischer 344 rats exposed to 60 Hz magnetic fields. *Bioelectromagnetics* 1998; 20:48-56.
- Zaffanella LE, Savitz DA, Greenland S, Ebi KL. The residential case-specular method to study wire codes, magnetic fields, and disease. *Epidemiology* 1998; 9:16-20.
- Pearson RL, Wachtel H, Ebi KL. Childhood cancer risk, wire codes, and residential environment and lifestyle factors. EPRI Report TR-106376, Electric Power Research Institute, Palo Alto, CA. November 1996.
- Sasser LB, Morris JE, Miller DL, Rafferty CN, Ebi KL, Anderson LE. Exposure to 60 Hz magnetic fields does not alter clinical progression of LGL leukemia in Fischer rats. *Carcinogenesis* 1996; 17:2681-2687.

### *Other*

- Tamburlini G and Ebi K. Searching for evidence, dealing with uncertainties and promoting participatory risk management. In: Children's health and environment: A review of evidence. Tamburlini G, von Ehrenstein OS, Bertollini (eds.). European Environmental Agency, 2002.

- McCool FD, Wang J, Ebi KL. Tidal volume and respiratory time derived from a portable ventilation monitor. *Chest* 2002; 122:684-91.
- Ebi KL, Piziali RL, Rosenberg M, Wachob HF. Evidence against tailstrings increasing the rate of pelvic inflammatory disease among IUD users. *Contraception* 1996; 53:25-32.
- Ebi KL. Principles of epidemiology for evaluation of anesthetic toxicity. In: *Anesthetic Toxicity*. Rice SA & Fish KJ (eds.). Raven Press, NY, 1994, pp 35-47.
- Ebi KL, Rice SA. Reproductive and developmental toxicity of anesthetics in humans. In: *Anesthetic Toxicity*. Rice SA & Fish KJ (eds.). Raven Press, NY, 1994, pp 175-198.
- Bulpitt CJ, Shipley MJ, Demirovic J, Ebi-Kryston KL, Markowe HLJ, Rose G. Predicting death from coronary heart disease using a questionnaire. *Int J Epidemiol* 1990; 19(4):899-904.
- Ebi-Kryston KL, Higgins MW, Keller JB. Health and other characteristics of employed women and homemakers in Tecumseh, 1958-1978. I. Demographic characteristics, smoking habits, alcohol consumption, and pregnancy outcomes and conditions. *Women & Health* 1990; 16(2):5-21.
- Ebi-Kryston KL, Higgins MW, Keller JB. Health and other characteristics of employed women and homemakers in Tecumseh, 1958-1978. II. Prevalence of respiratory and cardiovascular symptoms and illnesses and physiological measurements. *Women & Health* 1990; 16(2):23-39.
- Carpenter L, Beral V, Strachan D, Ebi-Kryston KL, Inskip H. Respiratory symptoms as predictors of 27 year mortality in a representative sample of British adults. *Br Med J* 1989; 99:357-361.
- Ebi-Kryston KL. Predicting 15-year chronic bronchitis mortality in the Whitehall study. *J Epidemiol Commun Health* 1989; 43:168-172.
- Ebi-Kryston KL, Hawthorne VM, Rose G, Shipley MJ, Gillis CR, Hole DJ, Carmen W, Eshleman S, Higgins MW. Breathlessness, chronic bronchitis and reduced pulmonary function as predictors of cardiovascular disease mortality among men in England, Scotland and the United States. *Int J Epidemiol* 1989;18:84-88.
- Ebi-Kryston KL. Respiratory symptoms and pulmonary function as predictors of 10-year mortality from respiratory disease, cardiovascular disease, and all causes in the Whitehall study. *J Clin Epidemiol* 1988; 41:251-260.
- Arsenic and respiratory cancer among a cohort of 8,044 Anaconda Smelter workers. A follow-up study. Report to the Chemical Manufacturers Association, November 14, 1984.