

March 26, 2019

Dr. Doreen Chen-Moulec  
U.S. Department of Agriculture  
U.S. Codex Office  
1400 Independence Avenue SW  
South Agriculture Building, Room 4865  
Washington, D.C. 20250

Dear Dr. Chen-Moulec:

We are members of Project TENDR (Targeting Environmental Neuro-Development Risks), a group of scientists, health professionals, and children's and environmental advocates who focus on the potential contributions of environmental chemicals to neurodevelopmental disorders such as autism spectrum disorder, attention deficit hyperactivity disorder, and intellectual and learning disabilities. We write to express our strong support for the U.S. Food and Drug Administration's request that Codex Alimentarius prioritize an evaluation of the non-cancer effects of inorganic arsenic by the FAO/WHO Joint Expert Committee on Food Additives (JECFA).

Arsenic is a chemical of concern to Project TENDR because an increasing number of studies conducted in many different regions of the world indicate that low-level chronic exposure impairs children's neurodevelopment. The major pathway of exposure is ingestion, primarily via the consumption of arsenic-contaminated water and of foods that take up arsenic from the soil and water in which they are grown. Our concern about the effects on children's health is heightened by the fact that the arsenic concentrations in rice and rice products, which in many regions are important components of children's diets, have been found to be especially high.

JECFA's most recent evaluation of arsenic (2011), focused almost exclusively on cancer as the critical health endpoint. Because the Committee found that the PTWI of 15  $\mu\text{g}/\text{kg-bw}$  per day is not sufficiently protective with regard to cancer risk, it was withdrawn. Neurodevelopmental toxicity was discussed only briefly in this evaluation, although the Committee did identify this as a potential concern, noting that, "Taken together, these studies provide some evidence for neurobehavioural effects of inorganic arsenic exposure during childhood, at exposure levels occurring in areas with elevated concentrations in drinking-water. More longitudinal studies are warranted to evaluate the most critical windows of exposure, the type of effects and dose-response relationships." (WHO Food Additives Series No. 63, p. 200).

Numerous additional studies of children's arsenic exposures and the implications for their neurodevelopment have been published since JECFA's 2011 evaluation and provide new information that addresses the lacunae the Committee identified. For many chemicals, including lead and methyl mercury, we know that the developing brain is an especially sensitive target organ and that neurodevelopmental effects occur at lower levels of exposure than do effects such as adult cancers. It is likely that this is also true for arsenic, increasing the

importance of having an authoritative body such as JECFA examine the evidence on human neurodevelopmental toxicity and provide critical guidance with regard to levels of arsenic in food and food products that will adequately protect children's brains.

Thank you for the opportunity to express our support for the FDA's request that JECFA conduct an evaluation of inorganic arsenic that focuses on non-cancer effects.

Sincerely yours,

Dr. Laura Anderko PhD RN  
Robert and Kathleen Scanlon Endowed Chair in Values Based Health Care & Professor  
School of Nursing & Health Studies  
Georgetown University

John R. Balmes, MD  
Prof. of Medicine, UCSF; Prof. Environmental Health Sciences, UC Berkeley; Director, Northern Calif  
Center for Occupational & Environmental Health, UC Berkeley-UC Davis-UCSF; Director, UC Berkeley-  
UCSF Joint Medical Program

David C. Bellinger, PhD, MSc  
Boston Children's Hospital; Harvard Medical School  
Harvard T.H. Chan School of Public Health

Asa Bradman, PhD, MS  
Associate Director, Center for Environmental Research and Children's Health  
Associate Adjunct Professor, Environmental Health Sciences, UC Berkeley

Charlotte Brody, RN  
National Director, Healthy Babies Bright Futures

Carla Campbell, MD, MS, FAAP  
Associate Professor of Public Health; MPH Program Director  
Dept. of Public Health Sciences, University of Texas at El Paso

Aimin Chen, MD, PhD  
Associate Professor, Division of Epidemiology Department of Environmental Health University of  
Cincinnati College of Medicine

Jeanne A. Conry, MD, PhD  
President, The Environmental Health Leadership Foundation  
Past President, The American College of Obstetricians and Gynecologists  
President-elect, The International Federation of Gynecology and Obstetrics

Brenda Eskenazi PhD  
Jennifer and Brian Maxwell Professor of Maternal and Child Health and Epidemiology  
School of Public Health, U. of California Berkeley

Robert M. Gould, MD

Associate Adjunct Prof, Program on Reproductive Health and Environment, UCSF School of Medicine;  
Immediate Past President, Physicians for Social Responsibility

Russ Hauser, MD, ScD, MPH

Frederick Lee Hisaw Professor of Reproductive Physiology; Prof., Environmental and Occupational  
Epidemiology, Harvard University; Professor of Obstetrics, Gynecology and Reproductive Biology,  
Harvard Medical School

Irva Hertz-Picciotto, PhD

Director, UC Davis Environmental Health Sciences Center;  
Professor, Dept. of Public Health Sciences & Medical Investigations of Neurodevelopmental Disorders  
(MIND) Institute, University of California, Davis

Katie Huffling, RN, MS, CNM

Executive Director, Alliance of Nurses for Healthy Environments

Carol Kwiatkowski, PhD

Executive Director, The Endocrine Disruption Exchange (TEDX)  
Assistant Professor Adjunct, North Carolina State University and University of Colorado, Boulder

Juleen Lam, PHD

Assistant Professor, Department of Health Sciences, California State University East Bay

Bruce P. Lanphear, MD, MPH

Clinician Scientist, Child & Family Research Institute, BC Children's Hospital  
Professor Health Sciences, Simon Fraser University, Vancouver, BC

Arthur Lavin, MD, FAAP

Advanced Pediatrics  
Assoc. Clinical Professor of Pediatrics, Case Western Reserve U. School of Medicine

Jennifer Lowry, MD, FAAP

Pediatrician and Toxicologist Kansas City, MO

Emily Marquez, PhD

Staff Scientist, Pesticide Action Network North America

Pamela Miller, MS

Executive Director, Alaska Community Action on Toxics

Keeve E. Nachman, PhD, MHS

Assistant Professor, Dept. of Environmental Health and Engineering, Johns Hopkins Bloomberg School of  
Public Health; Director, Food Production and Public Health Program, Johns Hopkins Center for a Livable  
Future; Co-Director, Johns Hopkins Risk Sciences and Public Policy Institute

Heather B. Patisaul, PhD  
Professor, Biological Sciences, Center for Human Health and the Environment,  
WM Keck Center for Behavioral Biology, NC State University

Frederica P. Perera, DrPH, PhD  
Director, Columbia Center for Children's Environmental Health; Professor, Dept. of Environmental  
Health Sciences, Columbia University

Beate Ritz MD, PhD  
Professor of Epidemiology, Center for Occupational and Environmental Health,  
Fielding School of Public Health, U. of California Los Angeles

Leslie Rubin, MD  
Assoc. Prof., Dept. Pediatrics, Morehouse School of Medicine; Co-director, Southeast Pediatric  
Environmental Health Specialty Unit, Emory University;  
Medical Director, Developmental Pediatric Specialists

Jennifer Sass, PhD  
Senior Scientist, Natural Resources Defense Council;  
Professorial Lecturer, George Washington University

Susan L. Schantz, PhD  
Professor of Toxicology and Neuroscience, Illinois Children's Environmental Health Research Center;  
Director, Beckman Institute for Advanced Science and Technology, U. of Illinois, Urbana-Champaign

Ted Schettler, MD, MPH  
Science Director, Science and Environmental Health Network

Maureen Swanson, MPA  
Co-Director, Project TENDR  
Healthy Children Project Director, Learning Disabilities Association of America

Evelyn O. Talbott, DrPH, MPH  
Professor, Department of Epidemiology  
University of Pittsburgh

Nsedu Obot Witherspoon, MPH  
Executive Director, Children's Environmental Health Network

Robin M. Whyatt, DrPH  
Professor Emeritus, Dept. of Environmental Health Sciences  
Mailman School of Public Health, Columbia University

R. Thomas Zoeller, PhD  
Professor of Biology; Director, Laboratory of Molecular & Cellular Biology  
University of Massachusetts Amherst