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***Irva Hertz-Picciotto, Ph.D., M.P.H.***

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***Hertz-Picciotto, Irva, Ph.D., M.P.H.,*** *Professor and Chief*, Division of Environmental and Occupational Health, Department of Public Health Sciences, School of Medicine; *Director*, Northern California Collaborative Center for the National Children's Study, *Deputy Director*, UC Davis Children's Center for Environmental Health

***Education***

B.A., Mathematics, University of California, Berkeley, 1970  
M.P.H., Epidemiology, University of California, Berkeley, 1984  
M.A., Biostatistics, University of California, Berkeley, 1985  
Ph.D., Epidemiology, University of California, Berkeley, 1989

***Biography***

Dr. Hertz-Picciotto has published extensively on environmental exposures in relation to perinatal and neurodevelopmental outcomes and on methodologic issues in epidemiology. Her studies have addressed effects of lead, arsenic, mercury, pesticides, PCBs, and air pollution on pregnancy outcomes and on early child development. Currently, her research program focuses largely on autism and cognitive impairment, and she is the PI of numerous NIH-funded studies, including two major investigations of autism: The CHARGE (Childhood Autism Risk from Genetics and the Environment) Study and the MARBLES (Markers of Autism Risk in Babies – Learning Early Signs) Study. She chaired the NIEHS Expert Panel Workshop on the CDC's Vaccine Safety Database for Studies of Autism and Thimerosal and the Institute of Medicine/National Academy of Sciences Committee on Agent Orange and Vietnam Veterans. She additionally has served on the Scientific Advisory Panel for the U.S. Environmental Protection Agency, the Board of Scientific Counselors for the National Toxicology Program, and the California Governor's Proposition 65 Science Advisory Committee. She sits on editorial boards for the major epidemiology journals, and was President of both the Society for Epidemiologic Research and the International Society for Environmental Epidemiology. Dr. Hertz-Picciotto formerly directed the program in Reproductive Epidemiology at the University of North Carolina, Chapel Hill, and now directs the Northern California Collaborative Center for the National Children's Study, funded by NICHD. She has mentored over 50 students and taught courses on four continents.

***Publications***

Sonneborn D, Park H-Y, Babinska K, Palkovičova L, Trnovec T, Kočan A, Nguyen DV, **Hertz-Picciotto I**. Serum PCB concentrations in relation to locally produced food items in eastern Slovakia. *J Expo Sci Environ Epidemiol* 18(6):581-7, 2008. PMID: 18285840

**Hertz-Picciotto I**, Jusko TA, Charles MJ, Baker RJ, Keller JA, Greenfield TA, Willman E, Teplin S. A cohort study of *in utero* polychlorinated biphenyl (PCB) exposures in relation to secondary sex ratio. *Environ Health* 7:37, 2008. <http://www.ehjournal.net/content/pdf/1476-069X-7-37.pdf>

Ashwood P, Endstrom A, Krakowiak P, **Hertz-Picciotto I**, Hansen R, Croen LA, Ozonoff S, Pessah I, Van de Water J. Decreased transforming growth factor beta1 in autism: A potential link between immune dysregulation and impairment in clinical behavioral outcomes. *J Neuroimmunol* 204(1-2):149-53, 2008 (epub Aug 2008); PMID: 18762342

Nagarajan RP, Patzel KA, Martin M, Yasui DH, Swanberg SE, **Hertz-Picciotto I**, Hansen RL, Van de Water J, Pessah IN, Jiang R, Robinson WP, Lasalle JM. MECP2 promoter methylation and X-chromosome inactivation in autism. *Autism Res* 1(3):169-178, 2008. PMID 19132145

Heuer L, Ashwood P, Schauer J, Goines P, Krakowiak P, **Hertz-Picciotto I**, Hansen R, Croen LA, Pessah IN, Van de Water J. Reduced levels of immunoglobulin in children with autism correlates with behavioral symptoms. *Autism Res* 1(5):275-83, 2008. PMID 19343198

Ozonoff S, Heung K, Byrd R, Hansen R, **Hertz-Picciotto I**. The onset of autism: Patterns of symptom emergence in the first years of life. *Autism Res* 1:320-328, 2008. PMID 19360687

Enstrom AM, Lit L, Onore CE, Gregg J, Hansen R, Pessah IN, **Hertz-Picciotto I**, Van de Water JA, Sharp FR, Ashwood P. Altered gene expression and function of peripheral blood natural killer cells in children with autism. *Brain, Behav Immun* 23(1):124-33, 2009. PMID 18762240

**Hertz-Picciotto I**, Delwiche L. The Continuing Rise in Autism and the Role of Age at Diagnosis. *Epidemiology* 20(1):84-90, 2009. PMID 19234401

Enstrom A, Krakowiak P, Onore C, Pessah IN, **Hertz-Picciotto I**, Hansen RL, Van de Water JA, Ashwood P. Increased IgG4 levels in children with autism disorder. *Brain Behav Immun* 23(3):389-95, 2009. (epub 2008 Dec 25) PMID: 19136055.

Wiest MM, German JB, Harvey DJ, Watkins SM, **Hertz-Picciotto I**. Plasma fatty acid profiles in autism: A case-control study. *Prostaglandins, Leukot, Essent Fatty Acids* 80(4):221-7, 2009. PMID 19307110. doi:10.1016/j.plefa.2009.01.007

Weng H-Y, Messam L, **Hertz-Picciotto I**. Methods of covariate selection: Directed acyclic graphs and the change-in-estimate procedure. *Amer J Epidemiol* 169(10):1182-90, 2009. doi:10.1093/aje/kwp035

Park H-Y, Park J-S, Sovčikova E, Kočan A, Linderholm L, Bergman Å, Trnovec T, **Hertz-Picciotto I**. Exposure to hydroxylated polychlorinated biphenyls (OH-PCBs) in the prenatal period and subsequent neurodevelopment in eastern Slovakia. *Environ Health Persp* (in press) Online20May2009doi:10.1289/ehp.0900611,http://www.ehponline.org/members/2009/0900611/0900611.pdf

### **Presentations**

*Introduction to Environmental influence on Psychiatric Disorders in Children and Adolescents*, Invited Speaker, ISEE 20<sup>th</sup> Annual Conference, Pasadena, CA, October 2008.

*A Case Control Investigation of PBDEs and Autism in Children*, Invited Speaker, ISEE 20<sup>th</sup> Annual Conference, Pasadena, CA, October 2008.

*Maternal periconceptional intake of prenatal vitamins and risk of autism spectrum disorders*; Schmidt RJ, Hertz-Picciotto I, Hansen R; Society for Neuroscience, Washington, DC, Nov 18, 2008.

*Perinatal Exposures from Oral Treatments for Caries-Potential Health Effects of Amalgams and Composite Resins*, Invited Speaker, Perinatal Oral Health Conference, California Dental Association and the American College of Obstetricians and Gynecologists, Sacramento, CA, February 2009.

*The Rise in Autism in California: Real or Artifactual?*, Invited Speaker, The Heinz Endowments, Pittsburgh, PA, April 2009.

*Autism-Current Understanding of Trends and Causes*, Invited Speaker, Café Scientifique, Menlo Park, CA, April 2009.

*Autism in California*, Invited Speaker, Monterey County Health Education Consortium, Monterey, CA, April 2009.

*Environmental Factors in Autism Spectrum Disorders-Findings from the CHARGE Study*, Invited Speaker, Annual Meeting of the Pediatric Academic Societies, Baltimore, MD, May 4, 2009.

*Maternal Periconceptional Folic Acid Intake and Risk of Autism Spectrum Disorders in the CHARGE Study*; Schmidt RJ, Hansen RL, Hertz-Picciotto I; International Meeting for Autism Research, Chicago, IL, May 7-9, 2009.

*A Clarification of the Association Between Parental Age and the Risk of Autism*; Shelton JF, Tancredi DJ, Hertz-Picciotto I; International Meeting for Autism Research, Chicago, IL, May 7-9, 2009.

*MAOA, D H and 5-HTT Variants and Autism Spectrum Disorders in the CHARGE Samples*; Tassone F, Qi L, Zhang W, Hansen RL, Hertz-Picciotto I, Pessah IN; International Meeting for Autism Research, Chicago, IL, May 7-9, 2009.

*Mercury and Autism: What Do We Know? What Don't We Know?*; Hertz-Picciotto I, Pessah IN; International Meeting for Autism Research, Chicago, IL, May 7-9, 2009.

### **Research Funding**

*Principal Investigator*: Methods Development for Longitudinal Surveys of Exposure-Related Behaviors, EPA STAR, 08/01/04 - 07/31/10, \$5,000,000 annual direct. *This project will develop and validate various strategies for collecting and analyzing longitudinal behavioral data related to environmental exposures.*

*Principal Investigator*: PCBs and Otodevelopment in Eastern Slovakia, NIH Fogarty International Center, 6/01/04 - 5-31-09, \$111,980 total costs. *This project will extend the study of PCBs in Eastern Slovakia with a 36-month examination focusing on hearing function using oto-acoustic emissions and tympanometry. The goals are to address ototoxicity from PCBs and strengthen the research capacity in Slovakia.*

*Deputy Director & Co-Principal Investigator*: The UC Davis Center on Environmental Factors & Autism, NIEHS & US EPA STAR Program, 9/01/06 – 8/31/11, \$1,000,000 annual direct. *This Center is examining the environmental and genetic causes of autism, and involves three research projects and three laboratory cores, as well as a community-based participatory research component.*

*Co-Investigator*: Epigenetic Interaction of MECP2 and Organic Pollutants in Neurodevelopment, NIEHS, 9/01/06 to 8/31/10, \$300,000 annual direct. *This project combines experimental animal, epidemiologic, and post-mortem tissue studies for the evaluation of the impact of persistent environmental pollutants on precise epigenetic changes that occur in neurodevelopmental disorders.*

*Principal Investigator:* The CHARGE Study: Childhood Autism Risks from Genetics and the Environment, NIEHS, 2/01/07 to 12/31/11, \$850,000 annual direct. *This project extends a large case-control study of three groups of children: autism, developmental delays other than autism, and general population. Goal is to investigate environmental & genetic factors contributing to autism, mechanisms involving immunologic aberrations or signature profiles of gene expression, and timing of relevant exposures.*

*Co-Investigator, PI of Subcontract:* Early Disease Biomarkers of PCB-Exposed Human Population, NIEHS, 9/01/07 - 7/31/11, \$51,700 annual direct (subcontract). *This project will extend the work from the PCB-exposed birth cohort in eastern Slovakia by examining longitudinal outcomes in relation to PCBs, and by linking genome-wide gene expression patterns to PCB exposures, to PCB-metabolites and to PCB-induced disease. The UC Davis site coordinates the integration of clinical and environmental characteristics with the PCB measurements and gene expression data and analyzes growth, immune, and neurosensory and neurobehavioral data in relation to PCBs.*

*Principal Investigator:* Northern California Collaborative Center for the National Children's Study, NICHD, 9/28/07 - 9/27/14, \$14,000,000 annual direct. *This project will establish a Northern California Center for the National Children's Study (NCS), at two sites, Sacramento County and San Mateo County. Each site will enroll 1,000 mother-child pairs before birth, as part of the NCS nationwide longitudinal study that will enroll, ultimately, 100,000 children. Children will be followed to age 21 to study early origins of various conditions such as diabetes, obesity, asthma, mental illness, autism, attention deficit and hyperactivity disorders, and injuries.*

*Co-Investigator:* Center for Genomic and Phenomic Studies in Autism, NIMH, 8/15/07 - 7/31/11. *This project will utilize a diverse group of multiplex autism pedigrees that have been collected under the Autism Genetic Resource Exchange (AGRE), and will carry out detailed phenomic and genomic characterization of the affected children and their families.*

*Principal Investigator for Northern California sub-contract:* Early Autism Risk Longitudinal Investigation, NIEHS, NICHD, NIMH, 4/01/08 - 3/31/13, \$2,461,000 total costs (subcontract). *This project will establish an Autism Center of Excellence (ACE) Network for the Early Autism Risk Longitudinal Investigation (EARLI) study at four sites; this contract is for the UC Davis-Northern California site. The goal is to enroll a total of 1,000 mothers who have a child with autism and are pregnant with another. The study aims to identify early markers of risk for autism. The UC Davis site also includes the Data Coordinating Center.*

*Principal Investigator:* Partnership in Environmental Public Health, supplement to the CHARGE Study, NIEHS, 7/01/08 - 6/31/09, \$100,000 annual direct. *This project will establish a partnership with La Clinica de la Raza to increase awareness in the Hispanic community about environmental hazards to health, build capacity for diagnosis of neurodevelopmental disorders, identify barriers to participation in biomedical studies, and enhance the quality of research through training of a diverse high-level bilingual/bicultural research team.*

*Principal Investigator:* Folate, B-Vitamins and Reduced Risk of Autism Spectrum Disorders: Prospective Examination of an Association and Mechanisms, The Allen Foundation, 5/01/09 - 4/30/11, \$77,300 annual direct. *This project will examine the potential protective effects of vitamin supplements in early pregnancy in the MARBLES (Markers of Autism Risk in Babies – Learning Early Signs) Study, a prospective cohort study of children at high risk for autism.*

### ***Community Service***

Autism Speaks: Review Panel for Basic and Clinical Research Grants (2008)  
The National Children's Study (NCS) and Autism Speaks Advisory Workgroup (2008- present)  
California Air Resources Board Research Screening Committee (2007-present)  
National Children's Study Data Access and Confidentiality Committee (2008- present)  
National Institute of Mental Health American Recovery and Reinvestment Act Review Panel (2009)  
Editorial Board Member for *American Journal of Epidemiology* (1998- present), *Environmental Health Perspectives* (2003-2008), *Autism Research* (2008- present)  
Referee for over 25 journals, including *American Journal of Epidemiology*, *Epidemiology*, *Environmental Health Perspectives*, *Journal of Autism and Developmental Disorders*, *Pediatrics*, *Paediatric and Perinatal Epidemiology*, *Autism Research*, *Environmental Research*, and *International Journal of Epidemiology*

### ***Awards and Honors***

The Epidemiology Monitor Editor's Picks, March 2009 – Best Selections [www.epimonitor.net](http://www.epimonitor.net)  
"Researchers Suggest Increase in California Autism Cases Is Real." Citation for Hertz-Picciotto & Delwiche, *Epidemiology* 2009 paper