GLOBAL IMPACT OF POLLUTION ON MATERNAL AND CHILD HEALTH ACROSS THE LIFE SPAN

Feb. 9, 2017
At Children’s Hospital Los Angeles, we have the great privilege and responsibility of serving children and their families, many facing some of the most complicated health disorders of childhood. These disorders – emerging from a constellation of genetics, nutrition, physiology, socioeconomics and environmental factors – can have implications that manifest across a lifetime. In our efforts to discover more effective ways of changing the outcomes of these disorders, our research community has dedicated itself to investigating the developmental origins of health and disease.

With this objective, each year The Saban Research Annual Symposium focuses on a theme important to our mission of creating hope and building healthier futures. Today we come together to learn about, discuss and debate the “Global Impact of Pollution and Maternal and Child Health Across the Life Span.”

As residents of Los Angeles, we live in the second-most populated city in the United States and one of the top 20 most populated cities in the world. Along with the many great benefits that come with living in a sprawling, diverse city, we must also contend with the associated high levels of pollution and their impact on health. Air pollution alone has been associated with respiratory disease, cardiovascular disease, neurodevelopmental disorders and preterm birth. It is with these far-reaching and potentially devastating effects in mind, we gather today to consider the global impacts of pollution.

Together with our academic partner, the University of Southern California, we are honored to host an impressive group of thought leaders from around the globe who will present cutting-edge findings from the diverse areas of study relevant to pollution and health. We have the opportunity to gain new insights, forge new collaborations and ultimately create new solutions that will lead to improved health across the life span.

I want to thank Bradley Peterson, MD, for his leadership as interim director of The Saban Research Institute, and his fellow faculty organizers, David Warburton, OBE, DSc, MD, and Jonathan Samet, MD, for their guidance in planning today’s important symposium. I also want to acknowledge The Saban Research Institute staff members who organized this special event.

I extend my warmest gratitude to the many philanthropists with us today as well as those who could not attend, all of whom are key partners in our efforts to improve the lives and health of children. Finally, I would like to acknowledge Cheryl and Haim Saban and the Saban Family Foundation for their vision and ongoing support.

Paul S. Viviano
President and Chief Executive Officer

Environmental pollution creates an increasingly urgent challenge to global health and well-being. The impact of air, water and soil pollution arguably has its greatest impact across the life span on children, women of childbearing age, and pregnant women and their unborn children, not only because of their vulnerability during development but also because of their subsequent longevity. Researchers at The Saban Research Institute of Children’s Hospital Los Angeles, in collaboration with the Department of Preventive Medicine at the University of Southern California, are working to improve population health locally and globally through research and education.

Since the industrial revolution, increased amounts of carbon and sulfur dioxide to the atmosphere have contributed to the emergence of severe threats to the air we breathe, and emissions from rapidly developing cities throughout the world continue to exacerbate the problem. Air pollution from the exhaust fumes of vehicles and burning of fossil fuels has been linked to asthma, allergies and other respiratory illnesses as well as birth defects, infertility, and lung and heart disease.

Adverse health impacts from air, water and soil pollution are now widely considered responsible for an increasingly significant proportion of the global burden of disease, including well-documented damage to major organs as well as the incidence of cancer and occupational diseases in adults.

In the field of global health, policy is likely to be the best prescription to ameliorate or eliminate the adverse impacts of pollution across the life span. To this end, organizations including the United Nations Environmental Program, the World Health Organization and the World Bank are working to establish viable local, national and international policies for environmental controls and the reduction of pollution.

Presentations throughout the 2017 symposium will highlight the impact of pollution on the global burden of disease, as well as its effects on the development and functioning of the human body, with a focus on maternal and child health and well-being. The symposium will also explore the initiatives being implemented on a global level to help create healthier futures.
Jonathan Samet, MD, MS, a pulmonary physician and epidemiologist, is Distinguished Professor and Flora L. Thornton Chair, Department of Preventive Medicine at the Keck School of Medicine of USC and director of the USC Institute for Global Health. Previously, he was chair of the Department of Epidemiology of the Johns Hopkins Bloomberg School of Public Health. His career has centered on epidemiologic research on threats to public health and using research findings to support policies that protect population health. His research has addressed indoor and outdoor air pollution, smoking, radiation risks, cancer etiology and outcomes, and sleep. He has been involved with numerous committees related to the use of scientific evidence in characterizing risks and making decisions, including chairing the Clean Air Scientific Advisory Committee of the U.S. Environmental Protection Agency (EPA) and the U.S. Food and Drug Administration’s Tobacco Products Scientific Advisory Committee (TPSAC). For three decades, he has authored and edited the surgeon general’s reports on smoking and health, serving as senior scientific editor of the 50th anniversary 2014 report. Samet received the 2004 Prince Mahidol Award for Global Health, awarded by the king of Thailand, the Surgeon General’s Medallion in 1990 and 2006, the Edward Livingston Trudeau Medal from the American Thoracic Society/American Lung Association and the Luther L. Terry Award for Distinguished Career from the American Cancer Society. He is a member of the National Academy of Medicine.

David Warburton, OBE, DSc, MD, MMM, FRCP, FRCS, FRCPath, is a thought leader in global child health, regenerative medicine and cellular therapeutics. He currently leads the National Institutes of Health Fogarty International Center and National Institute of Environmental Health Sciences-funded Center on the Impact of Pollution Across the Life Span, based in Ulaanbaatar, Mongolia. Ulaanbaatar is the coldest capital city on earth, with half its residents living in wooden houses or felt tents called gers. During the winter heating season, 250,000 ger district dwellings burn three tons of raw coal each for domestic heat. The resulting smog has markedly adverse effects on fertility, pregnancy, birth weight and length, as well as cardiopulmonary health. Building the capacity among Mongolians to tackle these pressing public health issues is a key aim. Warburton also directs the Developmental Biology and Regenerative Medicine Program at The Saban Research Institute. He holds both a medical degree as well as a higher doctorate of science from the University of London, is an elected member of Academies and Royal Colleges and has been created an Officer of the Order of the British Empire. Warburton has served on the medical staff of Children’s Hospital Los Angeles and the faculty of the University of Southern California for over 35 years.

Bradley S. Peterson, MD, is the inaugural director of the Institute for the Developing Mind and the interim director of The Saban Research Institute, both at Children’s Hospital Los Angeles. He is also director of Child & Adolescent Psychiatry and a professor at the Keck School of Medicine of the University of Southern California (USC). He received his bachelor’s degree and graduated summa cum laude from Tulane University and received his doctorate of medicine from the University of Wisconsin-Madison. He trained in general psychiatry at Massachusetts General Hospital and Harvard University, in child psychiatry at the Child Study Center of Yale University, and in psychoanalysis at the Western New England Institute of Psychosanalysis. He was previously a faculty member at the Yale Child Study Center and Pei at Columbia University, where he was the founding director of NIH Research and the director of Child & Adolescent Psychiatry. His research uses brain-imaging technologies to understand the origins of exaptive psychiatric disorders by mapping the constitutional and environmental influences that confer risk for illness or protect against it, trigger its onset or progression, compensate for its presence, or mediate effective treatments. He has published more than 290 peer-reviewed papers and 30 book chapters, and has mentored a dozen graduate and medical students and 50 postdoctoral fellows and junior research faculty members.
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<td>9 a.m. – 10 a.m.</td>
<td>Continental Breakfast and Check-in</td>
<td>The Saban Research Building lobby</td>
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<td>10 a.m. – 10:05 a.m.</td>
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<td>Health Environment for Healthy People</td>
<td>Southern California (USC)</td>
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<td>10:55 a.m. – 11:25 a.m.</td>
<td>Effect of Pollution Across the Lifespan in Mongolia</td>
<td>Baylor College of Medicine</td>
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<td>11:40 a.m. – 12:30 p.m.</td>
<td>Solving the Puzzle of Health Disparities in Asthma</td>
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<td>1:45 p.m. – 2:15 p.m.</td>
<td>The Risks of Breathing for Children: Treading Up or Down?</td>
<td>Los Angeles; Keck School of Medicine of USC</td>
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<td>2:15 p.m. – 3:05 p.m.</td>
<td>Developmental Reprogramming of the Epigenome by Early Life Environments</td>
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<td>Human Brain Effects of Environmental Toxins</td>
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<td>3:50 p.m. – 4:40 p.m.</td>
<td>The Global Impact of Pollution on Maternal and Child Health Across the Life Span</td>
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**Oyun Sanjaasuren, PhD**

Oyun Sanjaasuren, PhD, is chair of Global Water Partnership, an intergovernmental organization created in 1994 to foster an integrated approach to water resources management with a network of more than 3,000 partner organizations in 187 countries. In 2014, she was elected the first president of the United Nations Environment Assembly for a two-year term beginning in 2014.

Dr. Oyun Sanjaasuren served as a member of the Parliament of Mongolia from 1998 to 2016, representing Mongolia as minister of foreign affairs and minister of environment and green development. Under her leadership, Mongolia’s Parliament approved the country’s National Green Development Policy in 2014. She also led good governance initiatives in Parliament, including anticorruption and conflict of interest legislation as well as advanced issues for children with disabilities.

Her international positions include young global leader alumni of the World Economic Forum (since 2003) and member of the Global Agenda Council on Water Security (2013–16). In addition, Dr. Oyun Sanjaasuren is the founder and head of the Zorig Foundation, a prominent Mongolian non-governmental organization (NGO) dedicated to the advancement of democracy and good governance in Mongolia and one of the largest organizations in the country supporting youth and education. She is also chair at both the Special Olympics Committee and the Down Syndrome Association of Mongolia.

**Juan C. Celedón, MD, DrPH**

Juan C. Celedón, MD, is the Niels K. Jerne Professor of Pediatrics and division chief of Pediatric Pulmonary Medicine, Allergy and Immunology at the University of Pittsburgh.

Celedón’s research goals are to identify genetic and environmental influences on the development of obstructive airway diseases in ethnic minorities. He leads National Institutes of Health (NIH)-funded research studies of the genetics and epidemiology of asthma in Puerto Rican children and of chronic obstructive pulmonary disease (COPD) genetics in Costa Rica, and a clinical trial of vitamin D supplementation to prevent asthma attacks in children. He also serves as project director and principal investigator for an NIH T32 training grant in pediatric pulmonary medicine.

Celedón has been the author or co-author of more than 200 publications on asthma and COPD. He was the first faculty member to ever receive both the Young Mentor Award (2005) and the Clifford Barger Excellence in Mentoring Award (2010) from Harvard Medical School. The efforts of his research team have been recognized with Celedón’s election to the American Society for Clinical Investigation (2015), the American Pediatric Society (2013) and the Association of American Physicians (2015), as well as with the Recognition Award for Scientific Accomplishments from the American Thoracic Society (2014), the Claude Lenfant Award from Interasma (2014) and the Lifetime Achievement Award for Innovations in Health Equality from the American Thoracic Society.
Cheryl Lyn Walker, PhD, ATS, FAAAS, is the Ahiko Chair in Environmental Health and director of the Center for Precision Environmental Health at Baylor College of Medicine, where she is also a professor in the Departments of Molecular & Cellular Biology and Medicine. She also directs the National Institute for Environmental Health Services (NIEHS) Center for Translational Environmental Health Research, and serves on the Board of Scientific Advisors for the National Cancer Institute. Her research interest centers around understanding mechanisms responsible for the development of cancer and metabolic diseases, with a focus on gene-environmental interactions and the role of the epigenome.

Walker earned her doctorate in cell biology in 1984 from the University of Texas Southwestern Medical School, with additional postdoctoral training as a staff fellow at the NIEHS. She has been recognized with the Dallas-Fort Worth Living Legend Faculty Achievement Award in Basic Research from MD Anderson Cancer Center, the Cozarrelli Prize from the National Academy of Sciences, the 2016 Leading Edge in Basic Research Award from the Society of Toxicology, and the 2016 Outstanding Distinguished Scientist Award from Sigma Xi and the 2016 National Cancer Institute Director's Diversity and Excellence in Cancer Research Award. She has been elected a fellow of the Academy of Toxicological Sciences and a member of the American Association for Cancer Research, and has held numerous leadership and service positions on advisory boards for the Institute of Medicine, the National Academy of Sciences, the National Library of Medicine, and the American Association for the Advancement of Science. She was elected to the National Academy of Sciences, one of the highest honors awarded to U.S. scientists by their peers. In 2009, he received the Heinz Prize in Environment and in 2012 was awarded the Tyler Prize for Environmental Achievement.

Kirk R. Smith, MPH, PhD, is professor of Global Environmental Health and founder and director of the master’s program in Global Health and Environment at the School of Public Health at the University of California, Berkeley. Previously, he was founder and head of the Energy Program of the East-West Center in Honolulu. He has focused his research on the health, climate and energy implications of household fuels in developing countries, with current fieldwork in Mexico, Paraguay, Laos, Mongolia, China, India and Nepal. He conducted the first and still only published randomized controlled trial on air pollution in highland Guatemala, focusing on child pneumonia. He also has developed a set of small, smart, fast and cheap microchip-based devices for measuring exposure-related parameters in remote settings.

Smith serves on a number of national and international scientific advisory committees including the Intergovernmental Panel on Climate Change's fifth assessment. He is co-author of the books Climate Change: A Call to Arms and Climate Change: A Declaration of Independence. He has co-authored more than 300 scientific papers on climate and health and has received more than 40 research grants totaling millions of dollars.

Established in 1992, The Saban Research Institute became The Saban Research Institute in 2003 following its decision to identify as a private, non-profit research institute with new areas of focus, increases in National Institutes of Health funding and purpose-built research facilities.

The research program at Children’s Hospital Los Angeles began in 1952. At first, resources were allocated on a project-by-project basis with equipment being borrowed from clinical laboratories. In the late 1950s, a decision was made to develop a strong basic research program, and several highly capable investigators were recruited to lead work in the areas of pathology, hematology/oncology and infectious diseases. During the 1960s those initial areas of inquiry expanded to include endocrinology, virology and genetics. The research program also began getting a national reputation for success at obtaining federal funding. The first endowment was received in 1965. During the next three decades, the institute continued to expand to research enterprise with new areas of focus, increases in National Institutes of Health funding and purpose-built research facilities.
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Children’s Hospital Los Angeles has been rated the top children’s hospital in California and among the best in the nation for clinical excellence with its selection to the prestigious U.S. News & World Report Honor Roll of children’s hospitals for 2016-17. CHLA is home to The Saban Research Institute, one of the largest and most productive pediatric research facilities in the United States. The hospital is also one of America’s premier teaching hospitals through its affiliation since 1932 with the Keck School of Medicine of the University of Southern California.

For more information, visit CHLA.org. Follow us on Twitter, Facebook, YouTube and LinkedIn, or visit our hospital blog, CHLA.org/BLOG, and our research blog: ResearCHLAblog.org.