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American Academy of Pediatrics

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Focus On Subspecialties

AAP translating research on toxic stress into improved care of children

by **Robert W. Block, M.D., FAAP**

The Academy has always been at the forefront of identifying and responding to the critical health needs of children and adolescents. We are at a unique juncture, however, when systems that address physical health, behavioral health, early education and child welfare all are converging to address a key issue that impacts outcomes for children throughout their lives — namely, toxic stress.

The Section on Child Abuse and Neglect, along with other Academy groups, is focusing on translating neuroscience research into meaningful advances in pediatric practice so children and families affected by adversity can receive optimal care. For example, many symptoms of attention-deficit/hyperactivity disorder (inattention, impulsivity and hyperactivity) might be a result of toxic stress during childhood.

Increasing concordant data are rapidly bridging the divide between research and pediatric practice. Largely ignored in the late 1990s, the Adverse Childhood Experiences (ACE) studies by V.J. Felitti and colleagues created an awareness of the association between adverse childhood experiences and diseases and conditions affecting adult health. Evolving neuroscience is providing a better understanding of human biology to move the ACE study findings beyond association with disease to causation of disease.

A recent article points out that addressing toxic stress in a pediatric practice might affect myriad health outcomes later in life (Johnson SB, et al. *Pediatrics*. 2014;131:319-327). The article also emphasizes the need for research scientists to “be mindful that the science of toxic stress must also be accessible” to pediatricians.

Information for pediatricians interested in incorporating new directions in their practices can be found in the 2012 AAP policy statement, *Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science into Lifelong Health*, and technical report, *The Lifelong Effects of Early Childhood Adversity* (*Pediatrics*. 2012;129:e224-e231, e232-e246).

Obvious, but often overlooked, is the simple fact that all adults once were children. Pediatricians have always been experts in conditions and diseases acquired during childhood that continue into adult life. Now, however, pediatricians are challenged to recognize the adverse ecology

of individual children and their families as causes of many future conditions such as heart and lung diseases, cancer, brain health issues and other serious problems.

Along with the effects of toxic stress, mediated through stress hormones, observable changes in brain structure and function also are associated with epigenetic changes in a child’s DNA. For this reason, epigenetics was added to the AAP Agenda for Children as a new plank, and a working group is addressing how best to provide information to AAP members.

The Section on Child Abuse and Neglect hopes to create educational opportunities for practicing pediatricians to increase their familiarity with identification of childhood adversities, along with an increased understanding of neuroscience.

Plans also are under way for a new institute or center at the Academy that will promote the connection between evolving science and pediatric practice, support research, and develop advocacy agendas. The center will collect and report evidence to address state and federal government policies and insurance payments commensurate with the importance of the new pediatric practice opportunities.

As evidence mounts to support childhood as the launching pad for lifespan health, pediatricians will be in a unique position to change many features of health policy in the United States and beyond. Rather than waiting for diseases to present symptoms during adulthood, health care professionals will be able to identify and modify risk factors through screening and by expanding their medical and ecological history-taking. Not only will many diseases be prevented, but other conditions like child maltreatment will be identified and treated earlier and more appropriately.

For this transition to be successful, education at all levels will be critical, beginning in medical school and continuing through residency, fellowships and continuing medical education. As the Academy develops resources and presents new educational opportunities, it will play an important role in the evolution of health care science and practice.



Dr. Block is a member of the AAP Section on Child Abuse and Neglect and AAP past president (2011-'12).

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