IACC INTERAGENCY AUTISM COORDINATING COMMITTEE

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IACC Releases its 2013 Summary of Advances in Autism Spectrum Disorder Research During Autism Awareness Month

The Interagency Autism Coordinating Committee (IACC) has released its top twenty picks for the most significant studies in autism research in 2013. Published in the *2013 IACC Summary of Advances*, these studies include major advances in understanding the complex causes of autism spectrum disorder (ASD), prevalence and identification of ASD in diverse communities, novel methods for early detection and intervention, and the impact of different services approaches on outcomes for individuals with autism and their families. The *Summary's* release during National Autism Awareness Month underscores the need for continued investment in high quality research to help meet the needs of the autism community.

"The IACC selected these 20 studies as the most informative and transformative advances of the last year. They offer the possibility of directly improving the lives of those with ASD, and significantly furthering our understanding of autism," said IACC Chair Dr. Thomas Insel. Given the accelerated pace of discovery in the field of autism, these 20 studies represent only a small fraction of over 2,000 published findings in 2013, which address all seven objectives of the *IACC Strategic Plan for Autism Spectrum Disorder Research*. In addition to the 20 selected studies, the *2013 Summary* includes a list of all 94 papers nominated by IACC members.

One study selected by the Committee made use of the three dimensional maps of the brain available through the new BrainSpan Atlas[1] to help pinpoint the timing, location and brain cell types in which autism-related genes are expressed during development, finding that the expression of several ASD genes appears to converge on cells located in the brain's cortex around the midpoint of fetal development. The IACC also chose papers on clusters of comorbid health conditions such that occur in some people with ASD, as well as a connection between bacteria types found in the gastrointestinal tract and behavioral symptoms in a mouse model of autism.

Additionally, the IACC selected studies that shed light on how ASD unfolds from infancy through adolescence and early adulthood. For example, in one study, babies who were later diagnosed with ASD were observed to exhibit eye gaze patterns similar to those of typically-developing children until the age of 2 months, at which time the babies who later developed ASD began showing a decline in attention to a caregiver's eyes, while those without an ASD diagnosis showed no such drop. This difference—the earliest sign of ASD ever observed in a research study—holds promise for the development of new tools for early identification.

Another study that followed children with ASD over several years, carefully documenting initial diagnoses and long term outcomes, found that while there are several different trajectories of development among children with ASD, a small number show patterns of improvement over time that lead to eventual loss of measurable ASD symptoms, or "optimal outcome," by adolescence and adulthood. This result, corroborating anecdotal reports, suggests that it may be possible to identify common factors and best practices that can help more individuals with ASD reduce or overcome disabling symptoms, and maximize skills and strengths to help them succeed in life.

The IACC also highlighted the results of a recent study of ASD prevalence in Minneapolis, Minnesota that found that approximately 1 in 32 Somali children were identified as having ASD, which was comparable to the prevalence in white children (1 in 36) in the same area, and significantly higher than the most recent U.S. prevalence estimate of 1 in 68. The researchers also found that 100% of the 20 Somali children with ASD with available IQ records had an intellectual disability, compared with approximately 20% of children with ASD in other ethnic groups, opening the door for possible future research to understand why Somali children may be at higher risk of more severe forms of ASD.

The Committee additionally included research on potential causes, confirming the role of paternal age, and for the first time suggesting that grandpaternal age may be a risk factor for ASD. Also selected was a study suggesting that certain maternal antibodies can affect brain growth and lead to autistic-like social behaviors in an animal model. An epidemiological study the Committee highlighted suggested that taking prenatal folic acid supplements around the time of conception may potentially act as a protective factor against the development of autism. Services for both children and adults also saw important progress, with studies that tested the efficacy of specific special education programs for preschool children with ASD and demonstrated the cost-effectiveness of supported employment for adults with autism.

Overall, the *2013 IACC Summary Advances in ASD Research* provides a snapshot of research progress encompassing both increasing knowledge about ASD itself and increasing understanding of approaches that can help address the challenges and needs faced by people with ASD across the lifespan. The IACC provides this document with the goal of helping the community understand key advances and opportunities for research that can improve the lives of people on the autism spectrum and their families.

The *2013 IACC Summary of Advances in Autism Spectrum Disorder Research* and other IACC publications are available at: www.iacc.hhs.gov.

References

[1] BrainSpan atlas available at: www.brainspan.org

About IACC

The IACC is a Federal advisory committee that was created by Congress in an effort to accelerate progress in ASD research and services. The IACC provides advice to the U.S. Department of Health and Human Services on activities related to ASD, and works to improve coordination and communication across the Federal government and work in partnership with the autism community. The Committee is composed of officials from many different Federal agencies involved in autism research and services, as well as people with ASD, parents, advocates, and

other members of the autism community. The documents and recommendations produced by the IACC reflect the views of the Committee as an independent advisory body and the expertise of the members of the Committee, but do not represent the views, official statements, policies or positions of the Federal government. For more information on the IACC, please visit: www.iacc.hhs.gov.