

Meeting of the IACC

Science Update

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Director, National Institute of Mental Health and Chair, IACC
IACC Full Committee Meeting – April 8, 2014

Q1. When should I be concerned?

THE JOURNAL OF CHILD
PSYCHOLOGY AND PSYCHIATRY

February 19, 2014

Longitudinal patterns of repetitive behavior in toddlers with autism

Wolff JJ, Botteron KN, Dager SR, Elison JT, Estes AM, Gu H, Hazlett HC, Pandey J, Paterson SJ, Schultz RT, Zwaigenbaum L, Piven J.

Genes, Brain
and Behavior

March 13, 2014

Genetically meaningful phenotypic subgroups in autism spectrum disorders

Veatch OJ, Veenstra-Vanderweele J, Potter M, Pericak-Vance MA, Haines JL.

The broader autism phenotype in infancy: when does it emerge?

Ozonoff S, Young GS, Belding A, Hill M, Hill A, Hutman T, Johnson S, Miller M, Rogers SJ, Schwichtenberg AJ, Steinfeld M, Iosif AM.

Longitudinal study - 294 high risk and 116 low risk: 6, 12, 18, 24, 36 mos.

- Close to 50% of younger siblings of children with ASD develop in an atypical fashion. In the current study, 17% developed ASD, and another 28% showed delays or deficits in other areas of development or behavior.
- Differences in development are detectable using standardized assessment instruments by **12 months of age** in many children.
- The most common development differences seen in younger siblings of children with ASD are delays in social-communication development (including reduced eye contact, extreme shyness with unfamiliar persons, and delayed onset of gestures and speech). Some younger siblings also show delays in cognitive and motor abilities, as well as attentional and behavioral problems.

Q2. How can I understand what is happening?



January 16, 2014

CNVs conferring risk of autism or schizophrenia affect cognition in controls

Stefansson H, Meyer-Lindenberg A, Steinberg S, Magnusdottir B, Morgen K, Arnarsdottir S, Bjornsdottir G, Walters GB, Jonsdottir GA, Doyle OM, Tost H, Grimm O, et. al.



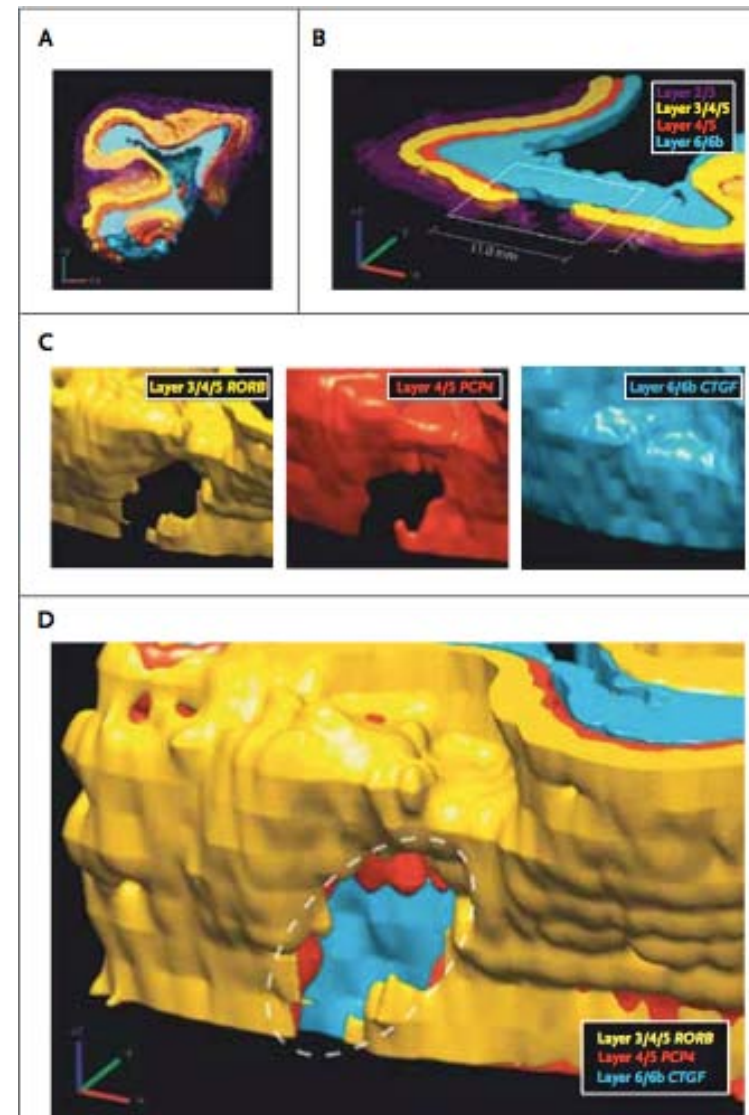
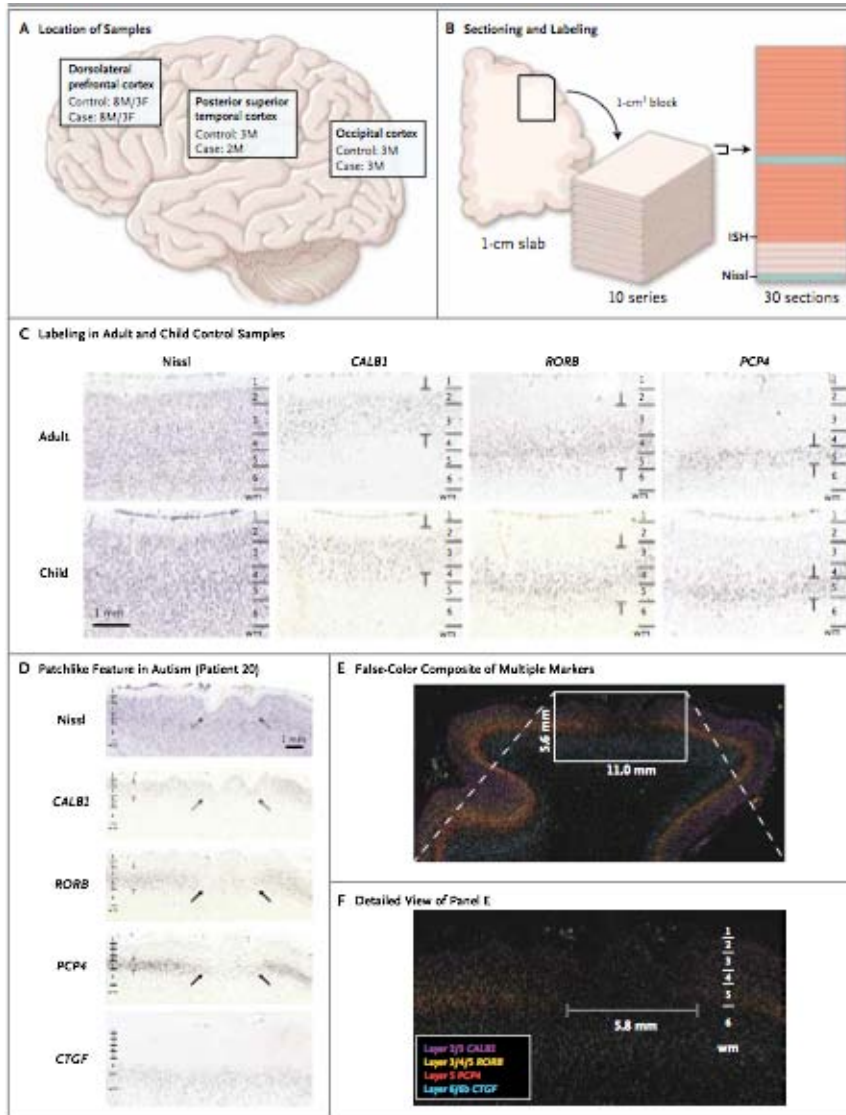
February 4, 2014

Differences in the right inferior longitudinal fasciculus but no general disruption of white matter tracts in children with autism spectrum disorder

Koldewyn K, Yendiki A, Weigelt S, Gweon H, Julian J, Richardson H, Malloy C, Saxe R, Fischl B, Kanwisher N.

Patches of disorganization in the neocortex of children with autism

Stoner R, Chow ML, Boyle MP, Sunkin SM, Mouton PR, Roy S, Wynshaw-Boris A, Colamarino SA, Lein ES, Courchesne E.



Q3. What caused this to happen and can it be prevented?

The JOURNAL
of PEDIATRICS

January 2014

Prevalence and neonatal factors associated with autism spectrum disorders in preterm infants

Kuzniewicz MW, Wi S, Qian Y, Walsh EM, Armstrong MA, Croen LA.

nature
genetics

April 2014

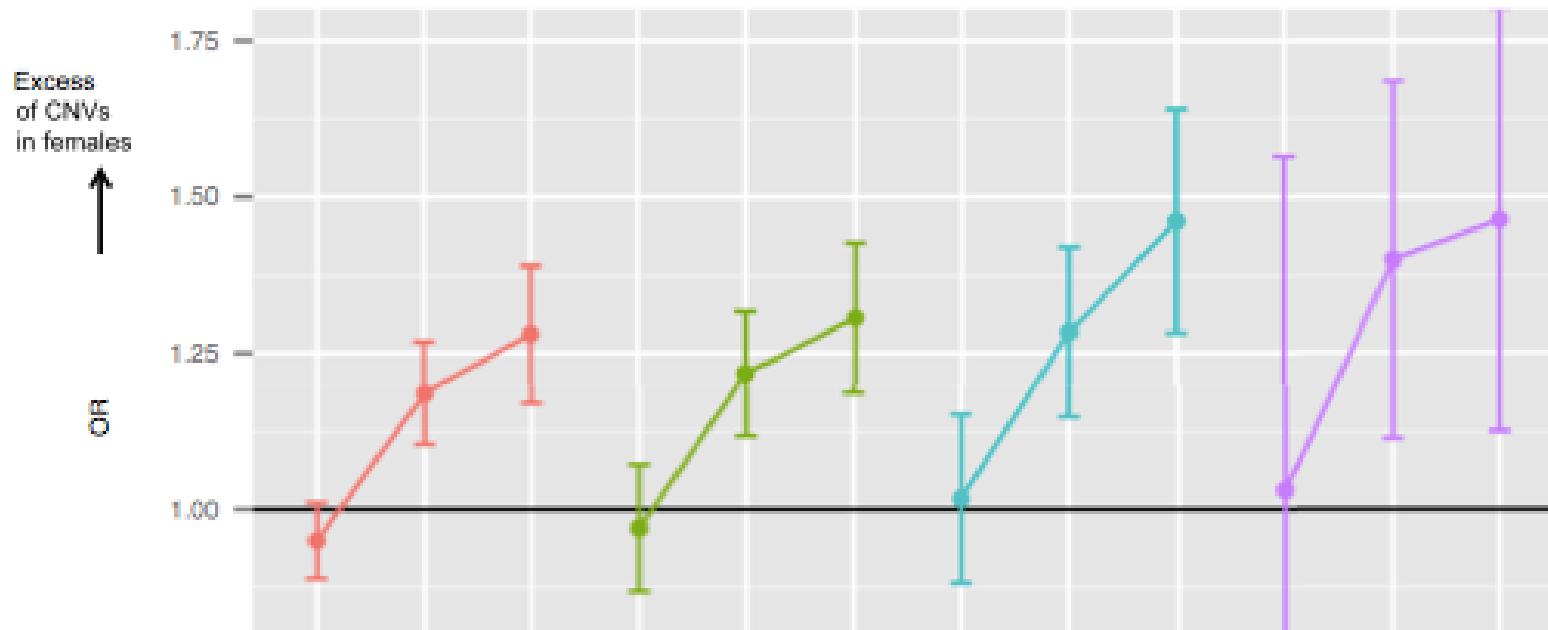
A SWI/SNF- related autism syndrome caused by de novo mutations in ADNP

Helsmoortel C, Vulto-van Silfhout AT, Coe BP, Vandeweyer G, Rooms L, van den Ende J, Schuurs-Hoeijmakers JH, Marcelis CL, Willemsen MH, Vissers LE, Yntema HG, Bakshi M, Wilson M, et. al.

A higher mutational burden in females supports a "female protective model" in neurodevelopmental disorders

Jacquemont S, Coe BP, Hersch M, Duyzend MH, Krumm N, Bergmann S, Beckmann JS, Rosenfeld

Size	<1%			<1% and "ND list"			<0.1% and "ND list"			de novo CNVs		
	400 kb	1 Mb	>	400 kb	1 Mb	>	400 kb	1 Mb	>	400 kb	1 Mb	>
CNVs in 9,206 Males	5,023	2,764	1,425	995	1,610	1,183	581	857	576	42	206	159
CNVs in 6,379 Females	3,399	2,152	1,212	671	1,309	1,031	409	743	567	30	198	158
OR	-	1.18	1.28	-	1.21	1.30	-	1.28	1.46	-	1.39	1.46
p value	ns	1×10^{-6}	9×10^{-9}	ns	2×10^{-6}	7×10^{-9}	ns	3×10^{-6}	8×10^{-10}	ns	1×10^{-3}	8×10^{-4}



Q4. Which treatments and interventions will help?

Journal of the American Academy of
**CHILD & ADOLESCENT
PSYCHIATRY**

February 2014

Preschool-based social communication treatment for children with autism: 12-month follow-up of a randomized trial

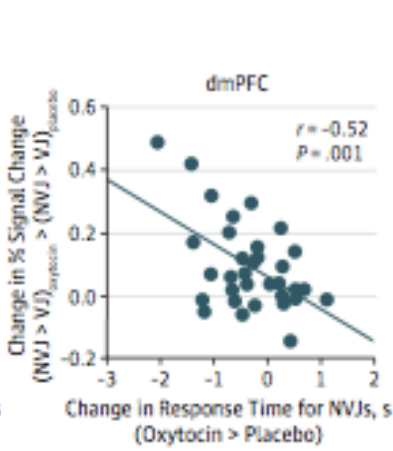
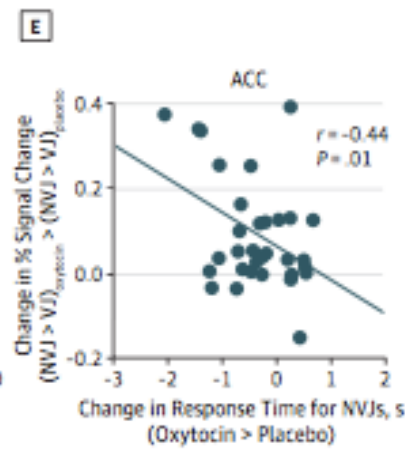
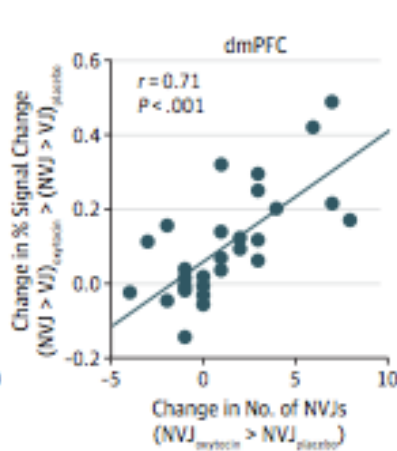
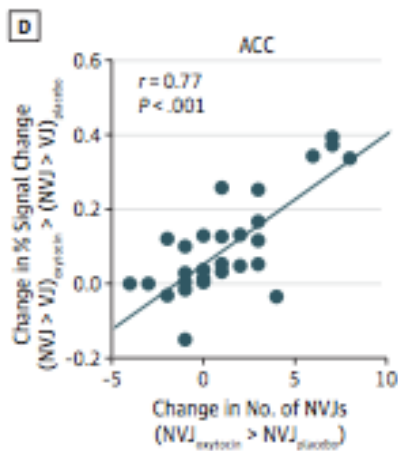
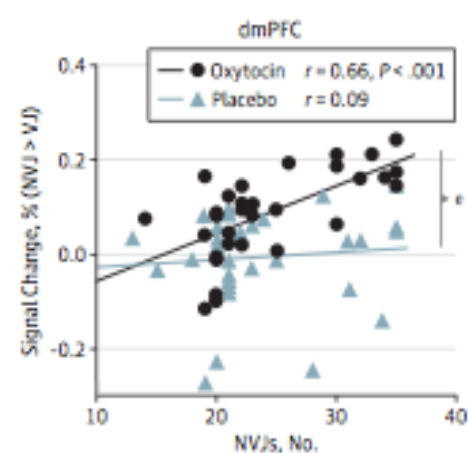
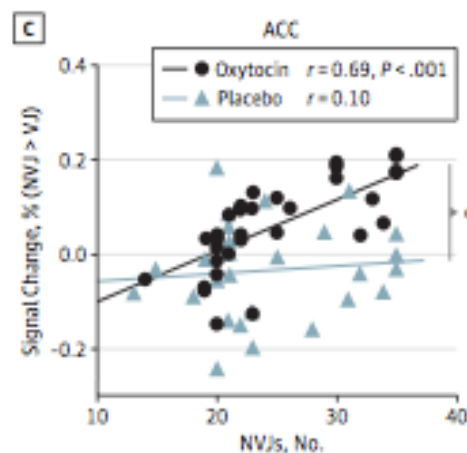
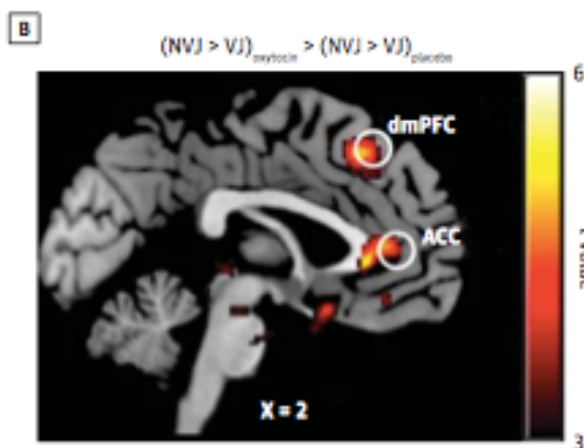
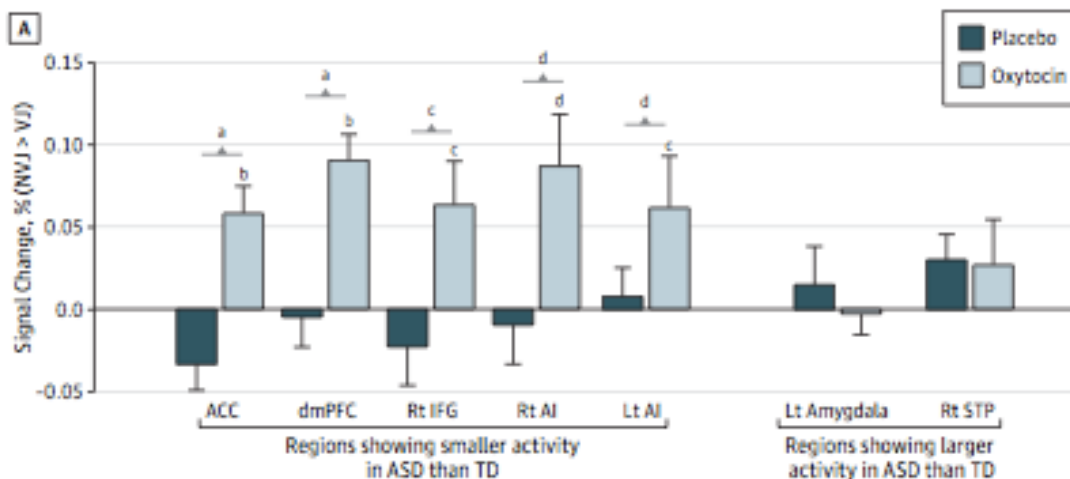
Kaale A, Fagerland MW, Martinsen EW, Smith L.

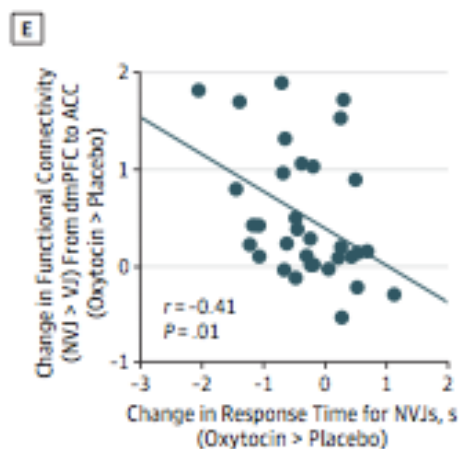
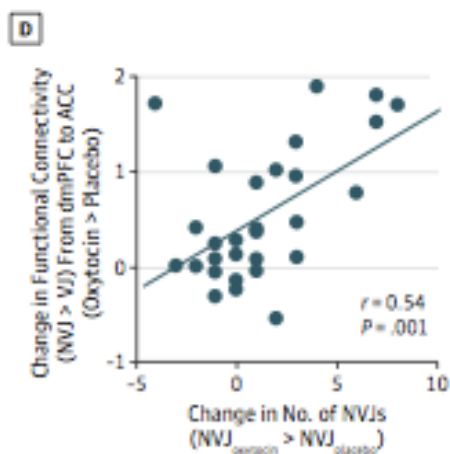
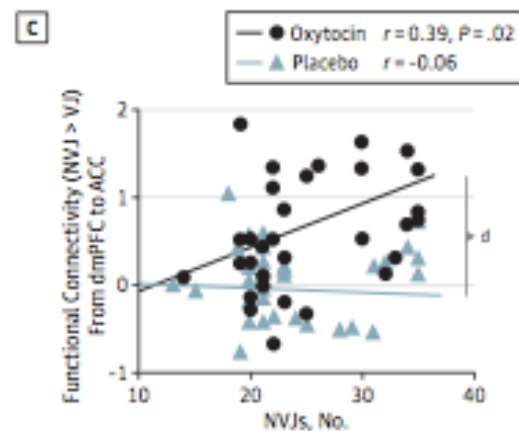
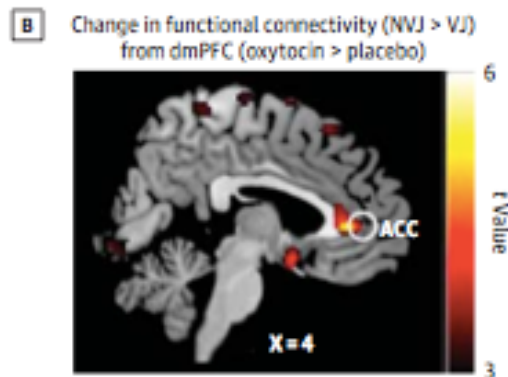
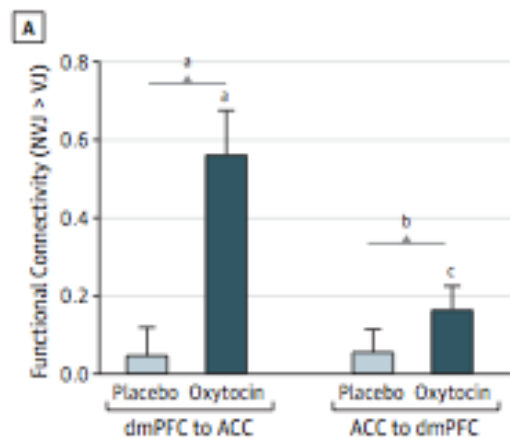


August 30, 2013

Two to Ten Years: Developmental Trajectories of Joint Attention in Children With ASD Who Received Targeted Social Communication Interventions

Gulsrud AC, Helleman GS, Freeman SF, Kasari C.





Q5. Where can I turn for services?

PSYCHIATRIC SERVICES
A Journal of the American Psychiatric Association

March 1, 2014

Health care experiences and perceived financial impact among families of children with an autism spectrum disorder

Zablotsky B, Kalb LG, Freedman B, Vasa R, Stuart EA.

PEDIATRICS[®]

March 2014

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Economic burden of childhood autism spectrum disorders

Lavelle TA, Weinstein MC, Newhouse JP, Munir K, Kuhlthau KA, Prosser LA.

TABLE 4 Summary of the Regression-Adjusted Difference in Costs for Children With ASD Compared With Children Without ASD

Category	Total costs, ^a \$	95% CI	Out of pocket costs ^a , \$	95% CI
Health care	3020	1017 to 4259	182	−6 to 299
Total aggregate non-health care	14 061	4390 to 24 302	−112	−715 to 749
School	8610	6595 to 10 421	−462	−3496 to 189
ASD-related therapy and other family-coordinated services	350	−76 to 972	81	−318 to 523
Time	5089	−1672 to 11 936	—	—

^a Adjusted for child gender, age, race/ethnicity, insurance status, household income, geographic region, urban/rural classification, and the presence of a comorbidity not related to ASD.

Q6. What does the future hold, particularly for adults?

THE JOURNAL OF CHILD
PSYCHOLOGY AND PSYCHIATRY

January 2014

Cognitive and language skills in adults with autism: a 40-year follow-up

Henderson D, Gadow K, Munn D, Tannock A, Burtner M

 **aaidd** American Association
on Intellectual and
Developmental Disabilities

January 2014

Employment outcomes of transition-aged adults with autism spectrum disorders: a state of the States report

Burgess S, Cimera RE.

The International Journal of Research and Practice • Volume 18 Number 1 January 2014

autism

January 17, 2014

Quality of life in autism across the lifespan: A meta-analysis.

van Heijst BF, Geurts HM.

Q7. What other infrastructure and surveillance needs must be met?

JAMA Psychiatry

Formerly Archives of General Psychiatry

March 1, 2014

Potential Impact of DSM-5 Criteria on Autism Spectrum Disorder Prevalence Estimates.

Maenner MJ, Rice CE, Arneson CL, Cunniff C, Schieve LA, Carpenter LA, Van Naarden Braun K, Kirby RS, Bakian AV, Durkin MS.



March 28, 2014

Prevalence of autism spectrum disorder among children aged 8 years - autism and developmental disabilities monitoring network, 11 sites, United States, 2010.

Developmental Disabilities Monitoring Network Surveillance Year 2010 Principal Investigators.

Transcriptional landscape of the prenatal human brain.

Miller JA, Ding SL, Sunkin SM, Smith KA, Ng L, Szafer A, Ebbert A, Riley ZL² Royall JJ, Aiona K, Arnold JM, Bennet C, Bertagnolli D, Brouner K, Butler S, Caldejon S, Carey A, Cuhacyan C, Dalley RA, et al.

