Platform Session I (Abstract Presentations 1-5)

Sunday September 29th, 2013 10:45am-12:00noon

Maryland B/C

Abstract 1

Parent Developmental Concerns, Provider Response to Concerns, and Delays in Diagnosis for Children with Autism and other Developmental Disorders

Katharine E. Zuckerman, MD, MPH, Olivia Lindly, MPH, Brianna Sinche, MPH, Christina Bethell, PhD, MBA, MPH, Pediatrics, Oregon Health & Science University, Portland, OR

Purpose: To assess whether age of initial parent developmental concern differs between children with autism spectrum disorder (ASD) vs other developmental conditions, and to assess whether provider response to initial parent concerns is associated with earlier diagnosis. **Methods:**Using data from the 2011 Survey of Pathways to Diagnosis and Services, we assessed parent concerns and diagnostic experiences in 1420 children with Autism Spectrum disorder (ASD) and 2579 children with intellectual disability or developmental delay (DD). We calculated child age at parent's first concerns, time between concerns and first conversation with a provider about concerns, and time between concerns and definitive developmental diagnosis. We used logistic regression to test the association between provider response to concerns, categorized as proactive (e.g. referred parent to a specialist) vs. reassuring/passive (e.g. said the child may "grow out of it") with experience of diagnostic delay more than 2 years. **Results:**Compared to children with DD, children with ASD had a significantly lower age of initial parent concern (2.12 vs 3.02 years;$p<0.001$) and initial discussion of concerns with a provider (2.33 vs 3.22 years; $p<0.001$). However, children with ASD were less likely than children with DD to have experienced 2 or more procative provider responses to their concerns (AOR: 0.70[0.53-0.93]) and were more likely to have experienced 1 or more reassuring/passive responses (AOR:1.48[1.13-1.95]). Among children with ASD, those with 2 or more proactive provider responses to parent developmental concerns had lower adjusted odds of a >2 year delay

between discussion of concerns and ASD diagnosis (AOR:0.45[0.30-0.68]). In contrast, CSHCN with 1 or more passive/reassuring provider responses had higher odds of this delay (AOR:2.80[1.82-4.30]). **Conclusion:** Compared to children with DD, children with ASD are more likely to have early parental concerns, but are less likely to have proactive provider response to these concerns. Passive/reassuring provider responses were associated with diagnostic delays for children with ASD, highlighting the need for targeted quality improvement in pediatric primary care settings.

Abstract 2

The Rapid Interactive Test for Autism in Toddlers (RITA-T): a New Level 2 Autism Spectrum Disorder (ASD) Screening Test in Toddlers.

Roula Choueiri, MD, Pediatrics, Floating Hospital for Children, Tufts Medical School, Boston, MA, Lauren Brodsky, BA, Pediatrics, Floating Hospital for Children, Boston, MA, Jason Nelson, MPH, Institute for Clinical Research and Health Policy, Tufts Medical Center, Boston, MA, Sheldon Wagner, PhD, Behavior Development and Educational Services (BDES), BDES, Lexington, MA

Purpose: To evaluate the RITA-T for use as a level 2 ASD screening in toddlers **Methods:**The RITA-T includes 9 items that evaluate social communication skills in toddlers, in 10 minutes. We have established its scoring algorithm, manual, and training protocol. We enrolled toddlers 12-36 months old who were (a) typically developing (TD) and (b) referred to developmental clinics for evaluation of a concern about developmental delays (DD) or ASD. The RITA-T was administered by a reliably trained research coordinator to toddlers in both subsamples. In the referred sample, clinicians administered the ADOS module 1, assessed the DSM 4 and DSM 5 criteria for ASD, and provided diagnoses (ASD or DD). All parents completed the MCHAT. We compared RITA-T scores in the TD, ASD and DD subsamples using the Kruskal-Wallis test. We investigated correlations among the total scores of the RITA-T, the ADOS, and the MCHAT. We also determined a cut off score for the RITA-T based on clinical diagnoses and ROC curves with the DSM 4 and DSM 5 results. **Results:**A total of 138 toddlers were enrolled: 77 had a diagnosis of ASD, 27 had a diagnosis of a DD (Global Developmental Delay in 8, Language Delay in 17 and Behavioral Disorder in 2); 34 were TD. RITA-T scores were significantly different in the three groups: ASD: mean 20.4 (SD 3.8); DD: mean 12.7 (2.8) and TD: mean 10.2 (2.4) ($p < 0.0001$). The RITA-T total score strongly correlated with the MCHAT total score (Pearson correlation 0.66, $p < 0.0001$) and with the

ADOS (Pearson correlation 0.7, $p < 0.0001$). Based on DSM 5 criteria a cut-off score of 18 has a Sensitivity of 74.2%, Specificity of 76.2% and PPV of 82.1% for ASD vs. DD. Using DSM 4 criteria, a cut-off score of 18 has Sensitivity of 72.9%, Specificity of 85.3%, PPV of 91.1%. **Conclusion:** The RITA-T is a good level 2 ASD screening test for toddlers: in 10 minutes it fits well into clinic flow, is easy to learn reliably, and has good discriminative properties. The RITA-T may also have value in monitoring response to treatment and this is being investigated.

Abstract 3

Effectiveness of a Peer Model Education Curriculum in Training Peer Models to Teach Social Skills to Children with Autism Spectrum Disorders

Therese L. Mathews, PhD, Developmental Pediatrics, Vatland Chris, PhD, Special Education, Ashley Lugo, MA, Elizabeth Keonig, MA, Psychology, Munroe Meyer Institute, Omaha, NE

Purpose: Social skills deficits are a hallmark feature of Autism Spectrum Disorders (ASD). The inclusion of typical peers to model positive behaviors has shown effectiveness in acquisition, maintenance, and generalization of social skills in group settings; however most of this research is with preschool age children. There is very little research regarding peer model curriculum content or teaching strategies. This study examined the relationship between the use of the Peer Model Education Curriculum (PMEC) and corresponding changes in targeted skills for school-aged peer models. **Methods:**Four peer models were taught the didactic component of the PMEC along with 3 behavioral skills to be used while engaging with the children with ASD. The three skills taught were: a) initiating verbal interaction, b) prompting for social skills, and c) praising use of social skills. The peer models were delivered feedback of performance, and provided with verbal cues for prompting and praising. The cues were systematically introduced and faded. The design was a single-subject research design utilizing a multiple baseline across behaviors.**Results:**For each behavior, there was limited response to the teaching intervention (TI) alone. However, much higher levels of behavior were observed when performance feedback (PF) was introduced. Initiating verbal interaction was seen in 12.8% of intervals during baseline, 12.6% TI, and 65.8% PF. Prompting of skills was observed in 0% intervals in baseline, 2.6% with TI, and 35.2% with PF. Praise was 0% in baseline, 5.2% with TI, and 12.8% with PF. Prompting and praising behaviors did not generalize to a new setting, though there were continued high levels of verbal interaction. Both returned to higher levels

(17% for praise and prompt) with additional cuing and both continued with the fading of cues. On a 5 point Likert scale, the mean peer model social validity scores for effectiveness of training, enjoyment of training, and satisfaction with the program were 4.7, 4.3, and 4.7, respectively.**Conclusion:** This study showed that "train and hope"is not effective, but rather PF and prompting is needed to train peer models targeted skills that assist with social skills development in peers with ASD.

Abstract 4

Prevalence of Autism Spectrum Disorders and Obsessive Compulsive Disorder in Males with Duchenne and Becker Muscular Dystrophies

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Purpose: This is a pilot study to assess the prevalence of Autism Spectrum Disorders (ASD) and Obsessive Compulsive Disorder (OCD) in the childhood onset Duchenne and Becker Muscular Dystrophy (DBMD) population in a statewide sample. **Methods:**Fifty-four males with DBMD (median age 12 years, range 3-22 years) were screened for ASD using the Social Communication Questionnaire (SCQ), and 44 of those participants (median age 14 years, range 6-22 years) were screened for OCD using the Yale-Brown Obsessive Compulsive Scale. A score of 11 or greater on the SCQ or a score of 16 or greater on the Y-BOCS qualified participants for complete diagnostic evaluation. ASD diagnostic evaluation included the Autism Diagnostic Interview, Revised and Autism Diagnostic Observation Schedule. OCD diagnostic evaluation involved a semi-structured interview with a child and adolescent psychiatrist. **Results:**Scores on the SCQ ranged from 0-24 with a median of 5 (25th-75th percentile: 2-9). SCQ scores were evenly distributed across age groups (Spearman correlation: r=0.03, 95%CI: -0.24 to 0.30, p=0.828). Scores on the Y-BOCS ranged from 0 (26 participants) to 30 with a median score of 0 (25th to 75th percentile: 0-6). Y-BOCS scores rose with increasing age (Spearman correlation: r=0.30, 95%CI: 0.003 to 0.55, p=0.048). 7 participants qualified for diagnostic testing for ASD. An ASD was diagnosed in 2 participants (3.7%, 95%CI:0.4% to 12.8%). 6 participants qualified for diagnostic evaluation for OCD. OCD was diagnosed in 4 participants (9.1%, 95%CI: 2.5% to 21.7%). **Conclusion:** The reported frequency of symptoms indicating

increased risk for an ASD did not change with age. The prevalence of ASD in DBMD in this study is similar to current general population rates in males. The number of OCD symptoms reported increased with age. The prevalence of OCD in DBMD in this study is elevated compared to general population rates, a finding that was suggested in one previous study. Prevalence of OCD should be further explored in a larger population of DBMD males. Confirmation of an elevated prevalence of OCD in DBMD could enhance early detection and symptom management.

Abstract 5

Parent Health Beliefs, Child Health Services Utilization, and Child Health Care Quality among US Children with Autism and other Developmental Disorders

Katharine E. Zuckerman, MD, MPH, Olivia Lindly, MPH, Brianna Sinche, MPH, Christina Bethell, PhD, MBA, MPH, Pediatrics, Oregon Health & Science University, Portland, OR

Purpose: To examine variation in parent beliefs about disease prognosis and treatment and the association of parent health beliefs with child health services utilization and health care quality, among children with special health care needs having autism (CSHCN+ASD) vs CSHCN with other developmental disorders (intellectual disability and/or developmental delay; CSHCN+DD).**Methods:**We used data from the 2011 Survey of Pathways to Diagnosis and Services and the 2009/10 National Survey of Children with Special Health Care Needs to assess parent health beliefs, child health service utilization, and health care quality among 1420 CSHCN+ASD and 2579 CSHCN+DD. Using logistic regression, we compared beliefs about disease prognosis ("condition is permanent versus temporary") and treatment efficacy ("condition can be prevented or decreased with treatment") in CSHCN+ASD versus CSHCN+DD, and among socio-demographic subgroups of CSHCN+ASD. We also assessed whether parent beliefs were associated with differential child health care utilization or quality among CSHCN+ASD.**Results:**CSHCN+ASD were more likely than CSHCN+DD to have parents who believed the child's condition was lifelong rather than temporary (AOR:1.83[1.36-2.46]) or could be improved with treatment (AOR 1.82[1.33-2.48]). Among CSHCN+ASD, those who were Hispanic or Black were less likely to have parents who believed that the condition was lifelong (AOR 0.36 [0.20-0.67]; AOR 0.31 [0.15-0.61]). Older age was associated with increased belief that the condition was lifelong and decreased belief that the condition improved with treatment. CSHCN+ASD whose parents believed treatment was effective were more likely to use

psychotropic medications, but were also more likely to report difficulty accessing community-based services. **Conclusion:**CSHCN+ASD and CSHCN+DD had parents who held different beliefs about disease prognosis and treatment. Among CSHCN+ASD, socio-demographic factors accounted for further variation in parent beliefs. Beliefs about ASD treatment efficacy were associated with different patterns of health services utilization. Providers should ask parents about their health beliefs since these beliefs may impact services use and satisfaction.

Platform Session II (Abstract Presentations 1-5)

Sunday September 29th, 2013 10:45am-12:00noon

Maryland A/E

Abstract 6

Deviant and Prosocial Peer Influence on Adolescent Suicidal Behavior

Dustin J. Davidson, BA, BS, Center for Innovation in Pediatric Practice, Nationwide Children's Hospital, Circleville, OH, Jeffrey A. Bridge, PhD, Epidemiology, College of Medicine, The Ohio State University, Columbus, OH

Purpose: Current research indicates that adolescents are significantly more susceptible to peer influence than adults and that this susceptibility may act as a predictor of risky behavior, substance use, and depression. However, the association between adolescent suicidal behavior and peer influence is still unclear. Thus, the purpose of this study was to examine the effects of deviant and prosocial peer influence on adolescent suicide attempts. **Methods:**Using the Peer Behavior Inventory (PBI), the authors examined the peer relationships of 40 adolescent suicide attempters, 13 to 18 years of age, and 40 never-suicidal, demographically matched psychiatric comparison subjects.**Results:**Of the four factors generated by the PBI, suicide attempters and comparison subjects differed significantly on two factors (prosocial behavior and suicidality). An independent-samples t-test was conducted; suicide attempters reported a significantly higher proportion of peers with suicidality (mean = .19, SD = .23 vs. .04 ± .09, t = 3.70, df = 76, $p < .001$), a difference that persisted after controlling for psychotropic medication use. Conversely, attempters reported a significantly lower proportion of peer engagement in prosocial behavior (i.e., getting good

grades, involvement in school clubs/teams, etc.) (mean = .66, SD = .23 vs. .78 ± .21, t = -2.40, df = 75, *p* = .019), a difference that was attenuated after controlling for psychotropic medication use. **Conclusion:** Adolescent suicidal behavior is associated with exposure to suicidal peers. Future research should examine the temporal association between exposure to suicidal peers and risk of suicidal behaviors, and determine longitudinally if prosocial peer interaction is protective for youths at risk of suicidal behavior.

Abstract 7

Medical Evaluation of Children with Intellectual Disability: Clinician Non-Compliance with Published Guidelines

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Purpose: Children with intellectual disability (CWID) are typically referred to developmental pediatricians (DP) and child neurologists (CN) for medical evaluation. Although the AAP and AAN have published evaluation guidelines, experience suggests DP and CN frequently order tests not recommended (i.e., EEG and MRI) and fail to order indicated tests (i.e., chromosomal microarray (CMA) and DNA for Fragile X (FraX)). Our goal was to assess the extent to which DP and CN follow published clinical guidelines for evaluating CWID.**Methods:**A 2-page questionnaire was mailed to all DP and CN in the US asking for demographic information and which specific laboratory tests they would "routinely order" for 3 hypothetical cases. This analysis focuses on the case of a 3½ year old boy with Full Scale IQ=58, and no seizures, lethargy, regression, dysmorphic features, vomiting or macrocephaly (height = 50%; head circumference = 90%). Chi square tests were performed to compare the two disciplines (CN vs DP). **Results:**131 DP and 125 CN responded. Overall, only 18% DP and 2.4% CN complied with AAP and AAN guidelines respectively (DP>CN; X^2= 16.11; p<.0001), and compliance did not differ with # years in practice ($\leq$15 vs $\geq$16 years; X^2=0.29, p=0.59). Although neither an EEG nor MRI are indicated in this case, 10% CN and 1.5% DP noted they would routinely order an EEG (CN>DP; X^2=9.13, p=.002) and 58% CN and 10% DP would routinely order an MRI (CN>DP; X^2=67.38, p<.0001). Although indicated, 30% CN and 24% DP would not routinely order CMA (DP~CN;X^2=1.47, n.s.), and 37% CN and 20% DP would not order FraX (CN>DP;X^2=9.09, p=.003). 2.3% DP and 6.4% CN would order an outdated karyotype without CMA (X^2=2.63, n.s.). Lead screening would be ordered by 44% DP and 33% CN (DP>CN; X^2=3.11, n.s.). CN practice setting did not influence EEG or

and MRI ordering. **Conclusion:** The overwhelming majority of CN & DP in a national sample fail to follow published clinical guidelines for lab evaluation of CWID. Relative to DP, CN are more likely to order inappropriate EEGs and MRIs, yet less likely to order recommended genetic tests (FraX and CMA) and metabolic tests (lead level).

Abstract 8

The Concerns Of Parents at High Psychosocial Risk: Can Families in Crisis Identify Developmental-Behavioral Problems in Their Children and Follow Through with Referral Recommendations?

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Purpose: Background: 2-1-1 is a national call line serving annually 16 million families with non-emergent crises (e.g.,eviction, food instability). 211 Los Angeles (211LA) receives ½ million calls per year and provides developmental-behavioral (DB) screening. Research questions include: Are families in crisis willing to spend time on DB screening? Do their children have elevated needs for health and DB services? How well do families follow through with referral recommendations? How do detection and follow-through rates compare to general pediatric samples? **Methods:**PEDS Online was used to support interview administrations of Parents' Evaluation of Developmental Status (PEDS), the Modified Checklist of Autism in Toddlers (MCHAT) and PEDS: Developmental Milestones (PEDS:DM). **Results:**70% of 211LA families (N = 3919) completed one or more screens on their children (mean age = 3 years). Of parents: 45% spoke Spanish; 52% lived in poverty; 37% were high school graduates; and 88% were minorities. 69% raised concerns on PEDS.60% performed below the 16th percentile in one or more domain on PEDS:DM. 16% failed the M-CHAT. 211LA findings were compared to data on 8367 children seen in 12 general pediatric clinics in 6 US States. Family demographics were nationally representative: Spanish-speaking (12%); poverty levels (23%); high school graduation (78%); minorities (34%). Children of 211LA families were 4 times as likely to raise health or DB concerns [OR = 4.2 (CI = 2.21 8.00)]. Children were twice as likely to have health problems or DB delays, and elevated risk for autism spectrum disorder [OR = 1.8 (CI =1.00 - 3.08); OR = 1.9 (CI = 0.81 - 4.59)]. 211LA referred (via live call transfers) all uninsured children and those with DB issues: 57% were successfully connected to SCHIP, Early Head Start, IDEA, etc. In contrast, referral uptake rates from general pediatric clinics (typically using non-live referral

methods such as fax, voice-mail or email) is ~ 20% [OR = 5.3 (CI = 2.82 - 9.96), p < .0001]. **Conclusion:** Parents, even in the midst of domestic crises, are willing to discuss worries about their children. Such families have children with high rates of non-emergent health and DB problems and are willing to follow through with referral recommendations.

Abstract 9

National Trends in Psychotropic Medication Use in Very Young U.S. Children with Behavioral Disorders: 1994-2009

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Purpose: To examine recent national trends in psychotropic prescriptions for very young children with behavioral disorders at U.S. outpatient medical visits.**Methods:**Data for 2-5 year old children (n=43,598) from the 1994-2009 National Ambulatory and National Hospital Ambulatory Medical Care Surveys was used to estimate the weighted percentage of visits with identified behavioral disorders (attention-deficit/hyperactivity, disruptive behavior, pervasive developmental, sleep, anxiety, mood, or adjustment disorders), and weighted percentage of visits with psychotropic prescriptions (psychostimulant, antipsychotic, antidepressant, anxiolytic, or antiadrenergic) in this group of children. Multivariable logistic regression was used to identify factors associated with behavioral disorders and psychotropic use.**Results:**Behavioral disorder rates in 2-5 year old outpatient visits increased from 1.24% in 1994-97 to 1.94% in 2006-09. When adjusted for age, sex, race, and insurance type, the likelihood of having an identified behavioral disorder increased by 55% over time (AOR for 2006-09 vs. 1994-97, 1.55 [95%CI 1.13-2.12]). Among visits with identified behavioral disorders, psychotropic usage rates declined from 43.3% in 1994-97 to 29.2% in 2006-09, as the likelihood of psychotropic use in 2006-09 was half that of 1994-97 (AOR for 2006-09 vs. 1994-97, 0.47[95%CI 0.26-0.85]). **Conclusion:** Despite rising rates of behavioral disorder identification, the likelihood of psychotropic use in in very young U.S. children with behavioral disorders decreased from the mid-1990's to the late 2000's.

Abstract 10

Diagnostic Assessment of Attention-Deficit/Hyperactivity Disorder (ADHD) by Developmental-Behavioral Pediatricians (DBP)at Academic Medical Centers:A DBPNet Study

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Purpose: Understanding clinical practice patterns is a prerequisite in developing practice guidelines for diagnosis of ADHD for DBP. We studied practice patterns in the 12 academic medical centers of DBPNet between 12/2011 and 6/2012. **Methods:**All DBPs who evaluate children with ADHD were asked to complete a one-page synopsis of demographic and clinical information for <11 consecutive new cases that resulted in the diagnosis of ADHD. Forms were analyzed using descriptive statistics. For age analyses, children were divided into young(Y<6yrs) vs old(O=or>6yrs). **Results:**52 DBP returned =or>1 forms for a total of 208 diagnostic encounters (range 5-36/site, 1-10/DBP). Children were 76% male, 62% white, 24% African American, and 21% Hispanic. Mean child age was 8.4+3.1 yrs; 78% were in the old group. DBPs reviewed parent behavior-rating scales in 84.4% and teacher-rating scales in 69.2% of cases. DBPs reviewed or completed =or>1 developmental assessments in 79.8% of cases, including intelligence (61.1%) and academic tests (58.6%), or assessments of fine motor or visual-motor (39.4%), speech/language (35.1%), or adaptive skills (29.3%). Academic testing was more frequently reviewed or done in the old group (Y 41% vs O 64%; p=0.007) and motor assessments in the young group (Y 64% vs O 35%; p=0.019). 14.9% of the cases resulted in a provisional diagnosis; the proportion was higher in the young group (Y 30.4% vs O 10.5%; p<0.001). 82.7% of cases were diagnosed with >1 co-existing conditions, including learning disabilities (32.2%), speech/language disorders (32.2%), anxiety (14.2%), externalizing disorders (11.1%), and sleep disorders (9.1%). Difference in prevalence of co-existing condition by age was significant only for learning disabilities (Y 4.3% vs O 40.1%; p<0.001). Recommendations at the conclusion of the visit included counseling/behavior management (47.1%), further psychoeducational assessment (23.5%), and additional speech/language services (22.6%).**Conclusion:** Within DBPNet, DBP are highly likely to review parent- and teacher-rating scales, review or complete =or >1 developmental assessment, and identify =or >1 co-existing conditions in the initial diagnostic assessment of ADHD. They infrequently make the diagnosis of a co-existing externalizing disorder with the initial diagnosis.