

Platform Session 1

Sunday, September 21, 2014 from 10:45am – 12:00noon

Broadway G/H

Abstract 1

Association of Bisphenol A Exposure and Attention-Deficit/Hyperactivity Disorder in a National Sample of U.S. Children.

Shruti N. Tewar, MD, Developmental and Behavioral Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, Peggy Auinger, MS, Neurology, University of Rochester, Rochester, NY, Joseph M. Braun, PhD, Epidemiology, Brown University, Providence, RI, Bruce Lanphear, MD, Health Science, Simon Fraser University, Vancouver, BC, Canada, Kimberly Yolton, Ph.D., Tanya E. Froehlich, MD, Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

Purpose: To determine the association between childhood Bisphenol A (BPA) exposure and Attention-Deficit/Hyperactivity Disorder (ADHD) in a national sample of U.S. children, and whether this association differs by child sex.

Methods: We used data from the 2003-2004 National Health and Nutrition Examination Survey, a cross-sectional, nationally representative sample of the U.S. population. Participants were 8 to 15 years of age (N=460). BPA exposure was assessed using concurrent urinary BPA levels. The Diagnostic Interview Schedule for Children (Caregiver Module) was used to ascertain the presence of ADHD in the past year based on Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) criteria. Analyses identified predictors of ADHD using multivariable logistic regression, and adjusted for child age, sex, race/ethnicity, household income, prenatal tobacco exposure, and levels of blood lead, urine organophosphate metabolites, and urine creatinine.

Results: Of the 460 participants, 7.1% [95% CI: 4.4-11.3] met DSM-IV criteria for ADHD. BPA was detected in the urine of 97% of children (median: 3.9 ng/ml). Children who had BPA levels above the median had higher rates of ADHD (11.2% [95% CI: 6.8-17.8]) than those with BPA levels below median (2.9% [95% CI: 1.1-7.2]). BPA exposure was a significant predictor of ADHD (adjusted odds ratio [aOR]: 5.68 [95% CI: 1.63-19.83] for BPA levels above vs. below the median). In sex-stratified analyses, these associations were stronger in boys (aOR=10.93 [95% CI: 1.39-85.97]) than girls (aOR=2.80 [95% CI: 0.37-21.29]), although the BPA* sex interaction term was not significant ($p=0.25$) when included in full sample models.

Conclusion: Higher urinary BPA concentrations were associated with ADHD in U.S. children, and these associations were stronger in boys than girls. Given the robust animal literature documenting adverse effects of BPA exposure on neuroendocrine systems and behaviors, and mounting evidence of adverse associations in children, further study is warranted to determine if reducing exposure to BPA represents an important avenue for ADHD prevention.

Abstract 2

Regional Estimates of ADHD Diagnosis and Treatment Among US Preschoolers

Susanna N. Visser, DrPH, Melissa L. Danielson, MSPH, Angelika H. Claussen, PhD, NCBDDD, Ruth Perou, PhD, Office of the Director, CDC, Atlanta, GA

Purpose: This study characterized the national and regional patterns in ADHD diagnosis and treatment among preschoolers to assess the alignment between practice and current guidelines.

Methods: Data from the 2007-08 and 2011-12 National Survey of Children's Health were concatenated and the weights adjusted in order to estimate national population counts of current ADHD diagnosis and current ADHD medication treatment among preschool-aged children (2-5 years). Weighted percentages of diagnosis and treatment were compared across the four US regions (Northeast: NE; Midwest: MW; South; West) using chi-squares. Data from the 2009-10 National Survey of Children with Special Health Care Needs were used to explore regional differences in preschool ADHD treatment (medication and behavioral therapy) among children with special health care needs (CSHCN).

Results: Parent-reported data from 2007-08 and 2011-12 revealed that about 194,000 preschoolers (1.2% of preschoolers) had a current ADHD diagnosis and 77,000 were taking medication for ADHD (0.5% of preschoolers, 40.2% of preschoolers with ADHD). Current ADHD prevalence varied across US regions (MW: 1.6%; South: 1.4%; NE: 1.2%; West: 0.7%; $p < .01$). Prevalence of current medication treatment among preschoolers varied across regions, but not significantly (MW: 52.4%; South: 37.6%; NE: 38.1%; and West: 23.2%; $p = 0.11$). Among preschool CSHCN, current ADHD rates were similar across regions (7.6% nationally). Regional rates varied for past week medication (MW: 62.5%; South: 59.5%; NE: 18.5%; West: 22.9%; $p < .01$), but not behavioral treatment (52.8% nationally) among preschool CSHCN with current ADHD. There was a trend for the NE having a higher rate of CSHCN with ADHD receiving neither medication nor behavioral therapy for ADHD (NE: 44.5%; West: 22.9%; South: 16.6%; MW: 10.0%; $p = 0.09$).

Conclusion: Among preschool CSHCN with ADHD, medication treatment was more common among those in the MW and South; those in the NE were most likely to go without either medication treatment or behavioral therapy. CSHCN data suggest that nearly half of US preschoolers with ADHD were not getting behavioral therapy, the recommended first-line ADHD treatment.

Abstract 3

Sleep Disorders and Sleep Related Procedures in Children with Autism Spectrum Disorder Diagnoses

Marilisa G. Elrod, MD PhD, Developmental-Behavioral Pediatrics, Madigan Army Medical Center, Joint Base Lewis McChord, WA, Cade M. Nylund, MD, Pediatrics, Uniformed Services University, Bethesda, MD, Gregory H. Gorman, MD, Pediatrics, Uniformed Services University, Bethesda, MD, Elizabeth J. Hisle-Gorman, PhD, Christine Erdie-Lalena, MD, Pediatrics, Uniformed Services University, Bethesda, MD

Purpose: Sleep disorders are common and important co-morbidities in children with autism spectrum disorder (ASD). Sleep problems are associated with intensified symptoms of autism or problems with day-time cognitive and adaptive functioning. The rate of diagnosis of sleep disorders and performance of sleep related procedures in children with ASD is unclear.

Methods: This retrospective matched cohort study included children aged 2-18 years old enrolled in the Military Health Systems Database (MHS) database between 2000 and 2013. The cohort was formed by matching children with ASD by birth date, gender, and enrollment time to 5 children without an ASD diagnosis. The MHS database was queried for the number of health care encounters with a sleep disorder ICD-9-CM diagnostic or procedure code during the specified period. We calculated incidence rate ratios (IRR) and 95% confidence Intervals (CI) for the encounters of sleep disorder related procedures and sleep diagnoses using conditional Poisson regression.

Results: The MHS dataset yielded 48,809 individuals with ASD, 30.7% of which had received sleep disorder diagnoses (see table).

Conclusion: This database review is the first to show sleep disorder diagnosis rates that resemble the epidemiologic estimates of prevalence in both the ASD and control populations. Children with ASD have higher incidence rates of Sleep Disordered Breathing and undergo sleep related procedures more frequently than those without an ASD diagnosis. Disclaimer: The views expressed are those of the authors and do not reflect the official policy of the U.S. Government.

	ASD (n=48809)	No ASD (n=244075)	IRR (95% CI)
Any Sleep Disorder	30.7%	13.9%	1.64 (1.59, 1.69)
Sleep Disordered Breathing	9.4%	4.1%	2.01 (1.90, 2.14)
Adenotonsillectomy	7.8%	5.6%	1.46 (1.41, 1.51)
Sleep Study	5.4%	1.4%	3.39 (3.17, 3.63)

Abstract 4

Transition Readiness Among Teens and Young Adults with Attention-Deficit Hyperactivity Disorder (ADHD)

Maria Mendoza, MD, Alyson Gutman, MD, Ruee Huang, MD, Ruth Milanaik, DO, David Meryash, MD, Pediatrics, Cohen Children's Medical Center of New York, New Hyde Park, NY

Purpose: The 2002 AAP, AAFP and ACP consensus statement on Health Care Transitions for Young Adults with Special Health Care Needs recommends creating a transition plan with patients (and their families) by age 14. This study focused on the transition needs of young individuals with ADHD, a chronic condition that persists into adulthood about 50% of the time.

Methods: The Adolescent Transition Readiness Survey (ATRS) was distributed to a convenience sample of ADHD patients. This original 20-item survey assessed knowledge of diagnosis, medication regimen, educational needs and future plans. Descriptive statistics and ANOVA were used in data analysis.

Results: Of the 73 participants, mean age was 17 (range 14-22); 78% were male; 62% were in high school and 38% in college. Reported mean (± 1 s.d.) grade point average was 2.96 ± 0.59 . The subjects had been with the authors' practice a mean of 6.5 ± 4.1 years. ADHD was correctly identified as their primary diagnosis by 89%, and learning disability by 8%. Accordingly, 3% did not know they had an ADHD diagnosis. Only 89% knew the name of their medication(s), 27% did not know their medications' side effects, and 62% did not know how to refill their prescription. Thirty-five percent would take medication in the future if *they* thought they still needed it; 11% said they would take medication if recommended by *their doctor*. Forty-four percent did not know where to receive treatment after "aging out" of the practice, and 12% said they would continue care with a neurologist. Of the 19 respondents with an individualized educational plan (IEP), 78% could describe their IEP. Among those who correctly reported having ADHD, there was a significant difference between the mean ages of subjects with and without knowledge of medication name (17.4 vs 15.3, $p < 0.02$), dose (17.4 vs 15.3, $p < 0.01$), and side effects (17.6 vs 15.9, $p < 0.01$). Older age was not associated with increased knowledge of diagnosis, educational support needs, or aspects of follow-up care.

Conclusion: Among teens and young adults who have been treated for ADHD an average of 6.5 years, there remain significant gaps in knowledge about their chronic condition, its treatment, and prognosis. Persistence of this knowledge deficit is a potential barrier to effective transitioning to the adult health care system. Earlier and repeated patient education is recommended.

Abstract 5

Management of Attention-Deficit/Hyperactivity Disorder by Developmental-Behavioral Pediatricians: A DBPNet Study

Elizabeth Harstad, MD, Division of Developmental Medicine, Boston Children's Hospital, Boston, MA, Nathan Blum, MD, Amy Gahman, BA, Behavioral Pediatrics, The Children's Hospital of Philadelphia,

Philadelphia, PA, Justine Shults, PhD, Division of Biostatistics, University of Pennsylvania School of Medicine, Philadelphia, PA, Eugenia Chan, MD, Division of Developmental Medicine, William Barbaresi, MD, Division of Developmental Medicine, Boston Children's Hospital, Boston, MA

Purpose: To describe practice patterns for developmental-behavioral pediatricians (DBPs) providing ongoing management for children with Attention-Deficit/Hyperactivity Disorder (ADHD) and determine how well they adhere to American Academy of Pediatrics ADHD Clinical Practice Guidelines.

Methods: Seventy eight DBPs at 12 academic medical centers participating in the Developmental-Behavioral Pediatric Research Network (DBPNet) completed encounter surveys for 10 consecutive patients with a primary diagnosis of ADHD or autism spectrum disorder seen for a follow-up visit between 12/2011 and 6/2012. Data regarding patient characteristics, comorbid conditions, and medication management were obtained via the encounter survey completed at the time of each visit.

Results: Fifty seven DBPs completed 301 ADHD follow up encounter surveys. Most patients were male (75.3%) with mean age 9.57 years (SD=3.3). Race/ethnicity was primarily white/non-Hispanic with similar numbers on private insurance (41.5%) versus Medicaid (45.5%). DBPs reviewed ADHD rating scales from teachers for 38% of encounters and from parents 44%; medication treatment status (defined as whether or not the patient was taking any stimulant medication) was not associated with frequency of use of rating scales ($p=0.628$). Only 36% of preschool children (< 6 years) were currently receiving behavioral counseling and DBPs recommended behavioral counseling for only 39% of the preschool children who were not currently receiving it. DBPs primarily (90.6%) prescribed medications FDA-approved for ADHD treatment; 96.0% of patients receiving other medications had documented psychiatric co-morbidities. Height and weight were recorded for 98.6% of encounters when patients were on stimulants.

Conclusion: DBPs are adhering to the recommended medication prescribing practices for ADHD, including use of FDA-approved medications and monitoring growth. However, DBPs do not consistently review ADHD rating scales or recommend behavioral counseling for children under 6 years of age as recommended. Further research is needed to identify potential barriers that may prevent DBPs from providing care consistent with current practice guidelines.



Platform Session 2

Sunday, September 21, 2014 from 10:45am – 12:00noon

Broadway J/K

Abstract 6

DSM-5 Symptom Profiles of Children Referred for Clinical Evaluation of Autism Spectrum Disorder: A Latent Class Modeling Analysis

Cynthia N. Martin, PsyD, Carrie Mauras, PhD, Developmental Medicine, Georgios Sideridis, PhD, Clinical Research Center, Sarah Weas, MPH, Developmental Medicine, Elizabeth Harstad, MD, Developmental Medicine Center, Boston Children's Hospital, Boston, MA

Purpose: To identify the relationship between age and symptom profiles of children referred for evaluation for ASD.

Methods: 227 children (1-18 years) referred for a multidisciplinary consultation for ASD concerns. Clinicians completed checklists of DSM-5 criteria. Latent class modeling (Bayesian Information Criteria) identified meaningful symptom profiles of children with shared characteristics on DSM-5. Profiles were cross-validated in a hold-out subset of the sample (N=55).

Results: Of the 227 children: 156 met criteria for ASD, 36 displayed significant symptoms of ASD but did not meet DSM-5 criteria, and 35 did not display core ASD symptoms. Latent class modeling independently classified 3 distinct profiles: children with a low indication of ASD (N=57), and 2 groups of children with a high indication of ASD as evident by high frequencies of DSM-5 symptoms. Age was a significant factor between the two groups ($p < .001$) that evidenced high indication of ASD. One group (N=79) was comprised of younger children ($m = 2.8$ years), and the second group (N=36) older children ($m = 7.6$ years). The older group evidenced both impaired social communication and social interaction (SCSI) and restricted interests and repetitive behavior (RRB). Specifically, 99% had difficulties with social reciprocity, 99% deficits in nonverbal communication, and 97% impairments in peer relationships. In the area of RRB, 78% evidenced stereotyped or repetitive behavior, 66% evidenced inflexibility, 80% restricted behavior, and 69% atypical sensory reactivity. In contrast, the younger group had similar patterns of SCSI impairments; however, RRBs were less frequent; 95% evidenced stereotyped or repetitive motor movements, while only 45% evidenced inflexibility, 53% restricted behavior, and 52% atypical sensory reactivity.

Conclusion: 2 distinct groups of children with high indication of ASD were identified based on DSM-5 symptom profiles. Age was confirmed as a relevant factor and children in the younger group were less likely to have multiple RRB symptoms. These findings raise concerns about the applicability of DSM-5 criteria for young children.

Abstract 7

Quality of Decisions About Treatment of Challenging Behaviors for Children with Autism Spectrum Disorder (ASD)

Julia S. Anixt, MD, Jareen Meinen-Derr, PhD, Halley Estridge, BA, Laura Smith, MS, William B. Brinkman, MD, Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

Purpose: Parents of children with ASD frequently face complex decisions about treatment of challenging behaviors. The purpose of this study was to describe the quality of decisions as characterized by the extent to which parents are well informed, well supported, and receive treatment plans that address their priorities.

Methods: We recruited parents of children 4-15 years old with ASD scheduled for a developmental behavioral pediatric (DBP) clinic follow-up visit. Prior to their visit, parents completed standardized rating scales (Child Behavior Checklist-CBCL, Aberrant Behavior Checklist-ABC, Parenting Stress Index-PSI) and reported their highest treatment priority from a list of common behavior problems in children with ASD. After the visit, parents completed a medication knowledge survey and the validated Decisional Conflict Scale-DCS. We audited medical records to assess alignment of the treatment plan with the parent's priority. We calculated descriptive statistics for the measures collected.

Results: We enrolled 55 parents of children with ASD. Child median age was 8.9 years, 86% were male. Common behavioral problems reported on the CBCL included: attention problems, withdrawn behavior, aggression, anxiety/depression, and thought problems. On the ABC, parents most commonly reported hyperactivity and irritability as concerns. Parents reported high levels of stress; mean PSI score (SD) = 69.8 (19.2). Parents most commonly identified the following behaviors as their primary treatment priority: ADHD (30%), anxiety (16%), tantrums (12%) and social (14%) and communication problems (12%). Parent knowledge about behavioral medication use was low (mean [SD] % correct = 66.2[16]). Parents reported elevated levels of uncertainty about treatment decisions on the DCS; mean (SD) = 32.9 (23.5). Parent-identified priorities were addressed in 61% of treatment plans. **Conclusion:** Parents leave DBP visits with knowledge gaps, feelings of uncertainty about treatment decisions, and with treatment plans that don't always address their priorities. Shared decision making interventions hold promise to improve the quality of ASD treatment decisions.

Abstract 8

Executive Functioning, Coping and Psychological Symptoms in Adolescents and Young Adults with Congenital Heart Disease

Gina M. Gerardo, BS, Center for Biobehavioral Health, Research Institute at Nationwide Children's Hospital, Columbus, OH, Kathryn Vannatta, PhD, Center for Biobehavioral Health, Research Institute at Nationwide Children's Hospital, Columbus, OH, Curt J. Daniels, MD, Internal Medicine, Ohio State University College of Medicine, Columbus, OH, Jamie L. Jackson, PhD, Center for Biobehavioral Health, Research Institute at Nationwide Children's Hospital, Columbus, OH

Purpose: To examine the relationship between executive functioning, coping and psychological symptoms in adolescent and young adult survivors of congenital heart disease (AYACHD).

Methods: Participants were (N=171) AYACHD (ages 15-39, Mage =26.5, SD=7.2) with a range of cardiac lesion severities (simple: 29%, moderate: 41%, complex: 30%). Participants completed the Behavior Rating Inventory of Executive Function, the Response to Stress Questionnaire (RSQ), and the Youth/Adult Self-Report measures. The RSQ assesses several aspects of voluntary coping strategies in response to CHD-related stress, including the use of primary control coping (PCC; i.e., efforts to change a stressor or one's emotional response to a stressor), secondary control coping (SCC; efforts to adapt to a stressor), and disengagement coping (efforts to avoid a stressor or deny one's reactions to a stressor). Pearson correlations examined associations between the variables and multiple regression analyses were conducted to test indirect effects using bootstrapping.

Results: Overall, participants reported similar levels of executive functioning and psychological symptoms as measure norms, which did not vary by lesion severity. Poor executive functioning and greater use of disengagement coping was associated with increased internalizing ($r=.73$, $p=.001$; $r=.21$, $p=.001$) and externalizing ($r=.71$, $p=.001$; $r=.22$, $p=.001$) symptoms. Less use of PCC and SCC were also associated with increased internalizing ($r=-.24$, $p=.001$; $r=-.36$, $p=.001$) and externalizing symptoms ($r=-.30$, $p=.001$; $r=-.25$, $p=.001$). The relationship between executive functioning and internalizing symptoms was, in part, explained by the use of less SCC (bootstrap CI: .0167-.1025).

Conclusion: These findings suggest that while most AYACHD do not report worse executive functioning or internalizing/externalizing symptoms than measure norms, the association between greater executive functioning impairment and worse internalizing symptoms is partially explained by difficulty adapting to stressors. Voluntary coping strategies are amenable to psychological intervention and may be particularly helpful for those with poorer executive functioning.

Abstract 9

Impact of Motivational Interviewing on Intention to Attend Parenting Classes and Parenting Class Attendance.

L O'Connell, MD, Child Behavior Health, J Lumeng, MD, A Miller, Center Human Growth Development, University of Michigan, Ann Arbor, MI

Purpose: Fewer than 25% of families recruited to parenting programs will participate. MI is a brief therapeutic technique that may be an effective strategy for increasing parent engagement. The objective of this study was to determine if there is an effect of motivational interviewing (MI) on 1) intention to attend parenting classes and 2) attendance at first parenting class.

Methods: Parents of 3- and 4-year-old children enrolled in Head Start preschool and previously randomized to participate in the Incredible Years parenting program (n=66) were randomized to receive either an MI or attentional control (AC) phone call prior to the first parenting class. The MI content was designed to evoke change talk and problem solving. The AC content was structured around TS GOLD® educational standards. Outcomes included 1) parent-reported intention to attend IYS sessions, which was obtained during the phone call and measured on a 5-point Likert scale, and 2) attendance at initial IYS session. Statistical analysis was performed with STATA and included chi square, ttest, and ordered logistic regression.

Results: Exposure to MI predicted increased levels of intention to attend parenting classes. See Table 1. 61% of participants attended the first parenting class. 57% of parents receiving the AC call attended versus 64% of parents receiving MI, but this difference did not reach statistical significance. **Conclusion:** MI increases parent intention to attend parenting classes, but this intention did not translate into parenting class attendance. Future studies should increase sample size and analyze for potential moderators, including parental self-efficacy, child behavior, maternal depression, and time between call and scheduled class.

Table 1. Parent-reported intention to attend parenting classes

	Proportion with high intention	Mean intention (5 point Likert)
MI (intervention)	96%	4.1
AC (control)	80%	3.1
		p=0.004

Abstract 10

Lactose-Free Formulas Do Not Improve Caregiver Perceptions of Infant Behavior and Caregivers Quality of Life: A Randomized Controlled Trial

Amanda L. Sherman, MS, Psychology and Human Development, Vanderbilt University, Nashville, TN, Julia Anderson, MD, Pediatrics, Vanderbilt University Medical School, Nashville, TN, Colin D. Rudolph, MD, PHD, Mead Johnson Nutrition, Evansville, IN, Lynn S. Walker, PhD, Pediatrics, Vanderbilt University Medical School, Nashville, TN

Purpose: This study tested the hypothesis that caregiver perceptions of difficulties in infants mood and behaviors and caregivers quality of life (QOL) would significantly improve on lactose free (LF) milk-based and LF soy-based formulas as compared to a milk-based, lactose containing formula.

Methods: In this double-blind randomized controlled trial, infants (ages 2 - 12 weeks) with caregiver-reported feeding problems on a milk-based lactose containing formula were randomized to receive either LF milk-based (n = 96), LF soy-based (n = 97), or milk-based, lactose containing (n = 103) formula. Study formula was infants sole item of diet for fourteen days. The infants female caregivers completed measures of infant mood and behavior (rhythmicity, mood, and distractibility subscales of the Early Infancy Questionnaire; fussy-difficult subscale of the Infant Characteristics Questionnaire) and caregiver QOL (Maternal Efficacy Questionnaire; Mental Health Inventory) at baseline and fourteen day follow-up.

Results: Upon completion of the trial, infants who received LF formulas did not differ from those who received milk-based, lactose-containing formula on measures of infant mood and behavior or measures of caregiver QOL (Infant Rhythmicity: $F[2,283] = 0.09, p = 0.91$; Infant Mood: $F[2,283] = 1.75, p = 0.18$; Infant Distractibility: $F[2,282] = 0.39, p = 0.68$; Infant Characteristics: $F[2,277] = 0.83, p = 0.43$; Parenting Efficacy: $F[2,282] = 0.74, p = 0.47$; Overall Maternal Mental Health: $F[2,285] = 0.73, p = 0.48$). Scores on all outcome measures for both infants and caregivers were in the direction of improvement for all three formula groups.

Conclusion: Our study does not support LF milk or LF soy-based formulas to alleviate common infant behaviors such as fussiness, crying, or need for attention. Interventions other than switching formula, such as parent counseling, could help increase caregiver QOL and well-being in the face of difficult infant behaviors, such as colic, often attributed to common feeding problems.

Poster Symposium I: DBPeds Potluck

Monday, September 22, 2014 from 9:00am – 10:30am

Discussant: Pam High, MD

Legends E/G

Abstract 11

Low Health Literacy (HL): Potential Barrier to Using Parent-Completed Developmental Screening Tools (PCDST)

Victoria Chen, MD, Casilda I. Suarez Hesketh, MA, H. Shonna Yin, MD, Suzy Tomopoulos, MD, Benard P. Dreyer, MD, Karen M. Hopkins, MD, Hugh Bases, MD, Alan L. Mendelsohn, MD, Pediatrics, NYU School Of Medicine/Bellevue Hospital Center, NY, NY

Purpose: Ages and Stages Questionnaire-3 (ASQ) and Parents Evaluation of Developmental Status (PEDS) are common PCDST. We sought to determine if low HL is associated with PCDST completion difficulties.

Methods: Consecutive mother-child dyads in primary care at urban public hospital. Inclusion: 1) Child-15-34 mos; 2) Mother-Latino, primary language English/Spanish. Exclusion: 1) gest. age < 35 wks; 2) developmental delay or EI services. ASQ and PEDS (order randomized) were given to mothers to complete (Mother-Alone). Interviewer reviewed all questions explaining answers as needed (Interview). Predictor: HL- Short Test of Functional Health Literacy Assessment (STOFHLA) (low HL = marginal/inadequate STOFHLA score). Outcome variables: 1) Incomplete PCDST in Mother-Alone (ASQ: missing or >1 answered circled; PEDS: unable to score because incomplete); 2) Answers Changed (# ASQ answers changed from Mother-Alone with Interview); 3) Parent Ease of Use (difficulty completing PCDST). Associations between HL and outcome variables studied with independent samples t-tests and Pearson's χ^2 .

Results: 89 mother-child dyads assessed. Mothers: 98% Medicaid; 90% Spanish; mean(SD) Grade 9.0(3.4); 38% low HL. Child: Mean(SD) age 1.8(0.6) yrs, 61% male. Low HL group more likely to have Incomplete PCDST, more Answers Changed, and reported difficulty completing PCDST (all $p < 0.05$) (Table).

Conclusion: Low HL may be significant barrier to completion of ASQ and PEDS when done alone. Parents with low HL may benefit from developmental screening in interview format.

	Adequate HL (n=55/89)	Low HL (n=34/89)	p=value
Incomplete ASQ, Mean	1.11 (SD 1.77)	1.94 (SD 2.10)	p=0.048
Incomplete PEDS, n(%)	20 (36.4%)	23 (67.6%)	p=0.004
ASQ Answer Changed, Mean	5.85 (SD 3.58)	8.29 (SD 3.92)	p=0.003
ASQ Ease of Use (Easy), n(%)	49 (89.1%)	24 (70.6%)	p=0.027
ASQ Ease of Use (Hard), n(%)	6 (10.9%)	10 (29.4%)	
PEDS Ease of Use (Easy), n(%)	52 (94.5%)	27 (79.4%)	p=0.028

PEDS Ease of Use(Hard),n(%)	3 (5.5%)	7 (20.6%)	
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Abstract 12

Is Pediatric Residents' Parenting Advice Associated with the Parenting They Received?

Ami Bax, MD, Pediatrics, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Paul Shawler, MS, Pediatrics, Elizabeth DeGrace, PhD, Rehabilitation Sciences, Michael Anderson, PhD, Biostatistics and Epidemiology, Mark Wolraich, MD, Pediatrics, University of Oklahoma Health Sciences Center, Oklahoma City, OK

Purpose: To assess pediatric residents' self-reported experiences in giving parenting advice and determine relationships between parenting they received as children and parenting advice they give.

Methods: The Resident Parenting Questionnaire (RPQ) was developed, and a subsample of 13 OUHSC pediatric residents were individually interviewed to qualitatively assess experiences with parenting and to improve RPQ question integrity. The RPQ was then administered to 40 OUHSC residents. Using Baumrind's parenting style model (authoritative, authoritarian, permissive) for RPQ response categorization, simple kappa and regression analyses were used to assess relationships between how residents were parented and their types of parenting advice as well as other associations. Phenomenological analysis determined core interview themes.

Results: RPQ participants varied in how they were parented (75% authoritative; 25% authoritarian) and parenting advice style (78% authoritative, 8% authoritarian, 15% permissive), but these factors were not significantly associated (Simple Kappa=0.0625; $p=0.7653$; CI=-0.1521, 0.2771). Virtually all residents interviewed said their parenting advice is related to how they were parented, and those describing authoritative parents reported more authoritative advice while the others reported more variable advice. Core interview themes related to residents' parenting advice included anxiety about not being a parent, varying advice based on families' needs, and emphasis of positive interactions/consistency. Core themes related to how residents were parented included discipline being a learning process for their parents and recalling that their parents always had expectations yet always loved them.

Conclusion: Residents vary in how they were parented and parenting advice they give and likely rely upon childhood experiences to generate advice, but these experiences were not significantly correlated to parenting advice style. RPQ multisite administration is underway to improve generalizability and better understand what factors relate to residents parenting advice.

Abstract 13

Translations of Developmental Screening Instruments: An Evidence Map of Available Research

Ana F. El-Behadli, BA, Developmental-Behavioral Pediatrics, Floating Hospital, Tufts Medical Center, Boston, MA, Emily N. Neger, BA, Psychology, University of South Carolina, Columbia, SC, Chris Sheldrick, PhD, Ellen C. Perrin, MD, Developmental-Behavioral Pediatrics, Floating Hospital, Tufts Medical Center, Boston, MA

Purpose: There are significant disparities in the identification of developmental delays and disorders, particularly among non-English speaking families. Little is known about the availability and validity of translations of developmental screening instruments. Our goal was to create a map of the scientific evidence regarding translations of the 9 AAP-recommended screening instruments into languages other than English.

Methods: Evidence mapping is a new methodology, similar to a systematic review, supported by AHRQ and the Cochrane Collaboration to document the extent of evidence pertaining to a defined question. Consulting with a Research & Instruction Librarian, we conducted a systematic search

using Medline and PsycINFO, references of identified articles, publisherswebsites, and official manuals. Data extraction focused on 4 steps of the translation and validation process: (1) methods used, (2) pilot-testing, (3) evidence for reliability and validity, and (4) collection of normative data in the target language.

Results: Data regarding methods used (e.g., backtranslation) and follow-up assessment (e.g., panel review) of the translations varied greatly across different screeners and their translations. We identified 54 distinct translations (1-18 per screener), of which only 33 were supported by peer-reviewed published articles (1-3 articles per language). For only 16 translations was there evidence that cultural sensitivity was considered (e.g., Black bean was substituted for Cheerio in the Korean ASQ).

Conclusion: A few developmental screening instruments have been translated into many languages. Informal guidelines exist for conducting translation of psychometric instruments, but not for documentation of this process. Our evidence map demonstrates considerable variation in both the amount and the comprehensiveness of information provided about translated instruments. We propose that uniform guidelines be established for reporting translation research in peer-reviewed journals, similar to those for clinical trials (i.e., CONSORT) and studies of diagnostic accuracy (i.e., PRISM and STARD).

Abstract 14

Prevalence of Touchscreen Device Usage in Infants and Young Children and its Effect on Cognitive Development: A Pilot Study

Clayton Li, Division of Developmental and Behavioral Pediatrics, Cohen Children's Medical Center, Lake Success, NY, Ruth L. Milanaik, DO, Division of Developmental and Behavioral Pediatrics, Maria L. Mendoza, MD, Developmental and Behavioral Pediatrics, Cohen Children's Medical Center, Lake Success, NY, Janet Lee, BS, Developmental and Behavioral Pediatrics, Cohen Children's Medical Center of NY, Lake Success, NY, Anna Krevskaya, MD, Developmental and Behavioral Pediatrics, Cohen Children's Medical Center, Lake Success, NY, Chuck Ng, DO, Developmental and Behavioral Pediatrics, Cohen Children's Medical Center of NY, Lake Success, NY

Purpose: The 2011 AAP policy which predated recent technological advances such as smart phones and tablets discouraged the use of electronic media in children younger than age 2 citing potential adverse developmental effects and lack of evidence supporting educational benefit. The relationship between touch screen device usage (TDU) and cognitive development (CD) of children younger than 3 years has yet to be studied.

Methods: A survey was given to parents of high risk infants to assess TDU including initial onset, hours daily, type of media, and other factors. Survey results were paired to the child's Cognitive Adaptive Test/Clinical Linguistic Auditory Milestone Scale (CAT/CLAMS) development quotient (DQ) scores. Bivariate associations were examined using the two-sample t-test.

Results: Of 65 families surveyed, 63 (97%) reported owning a touchscreen device. Of these families, 44 (70%) reported TDU by a child younger than 3 years. The mean age at initial TDU was 11 ± 7.6 months, and the mean daily TDU was 36 ± 47 minutes. The most common forms of TDU were reported as: watching children's educational shows (30%), using educational applications (26%), pressing buttons on the screen aimlessly (28%), and playing non-educational games (14%). 60% of parents reported educational benefits of TDU as a reason for child TDU, which was reported as the most important reason by 53% of parents. 57% of parents believed other children to have higher TDU. There was no significant difference in CAT/CLAMS DQs between children with TDU and children without TDU exposure (CAT 99.6 ± 19.5 vs. 103.4 ± 19.8 ; CLAMS 104.0 ± 24.0 vs. 113.5 ± 26.2). Children who played non-educational games during TDU were found to have lower CLAMS DQs than those who did not play these games (86.5 ± 34.2 vs. 106.7 ± 21.4 ; $p = .055$).

Conclusion: TDU is highly variable among children ages 0-3. Although the majority of surveyed parents cited belief of educational benefits, developmental scores showed no statistical difference between children with and without TDU. Results indicate that children who play non-educational

games during TDU have lower receptive and expressive language development compared to children who engage in other types of TDU. A causal relationship is not implied as children with slower language development may prefer playing non-educational games, not vice versa.

Abstract 15

Adolescents and Young Adults with Asthma: Self-Identification, Adjustment and Psychological Distress

Ashley J. Junghans, MS, Psychology, Kristina I. Suorsa, MS, Psychology Department, Oklahoma State University, Stillwater, OK, Alayna P. Tackett, BA, Psychology, Oklahoma State University, Stillwater, OK, Larry L. Mullins, PhD, Edward Burkley, PhD, Psychology, Oklahoma State University, Stillwater, OK, John M. Chaney, PhD, Psychology, Oklahoma State University, Stillwater, OK

Purpose: An individual's acceptance or rejection of the identity of being asthmatic has a number of implications for treatment adherence (Adams, Pill, & Jones, 1997) and with adjustment outcomes. Young adults with asthma have greater difficulties with adjustment (e.g., fear of negative evaluation, greater self-focused attention) and internalizing disorders, which have been associated with an unfavorable illness course (McCauley et al., 2007) and less effective coping behaviors (Chaney et al., 1999). Thus, the purpose of this study was to investigate differences in psychological distress (e.g., anxiety and depression) and adjustment variables among AYAs who identify their asthma as a chronic illness (CI) versus those who do not.

Methods: Participants were 298 undergraduates with a history of childhood-onset asthma between the ages of 18 and 27 ($M = 19.43$, $SD = 1.56$). The majority of participants were female (66.2%), Caucasian (75.7%), and had an average age of asthma diagnosis of 8.3 years. Participants completed the Self-Consciousness Scale, the Brief Fear of Negative Evaluation Scale, the Brief Symptoms Inventory, and part of the International Study of Asthma and Allergies in Childhood questionnaire.

Results: Hierarchical regressions revealed that individuals who self-identify their asthma as a chronic illness (CI) was predictive of increased general self-focused attention ($\beta = .15$, $p = .01$), private self-focused attention ($\beta = .18$, $p = .004$), public self-focused attention ($\beta = .18$, $p = .004$), social anxiety ($\beta = .19$, $p = .001$) and fear of negative evaluation ($\beta = .18$, $p = .002$). Additional hierarchical regressions showed identifying asthma as a CI was predictive of generalized anxiety ($\beta = .15$, $p = .01$) and depression ($\beta = .17$, $p = .005$).

Conclusion: Results indicate that being an adolescent who identifies their asthma as a chronic illness is related to an increase in psychological distress, fear of negative evaluation, and self-focused attention. Implications for clinical practice, impact on other disciplines, and suggestions for future research will be presented.



Society for Developmental
& Behavioral Pediatrics

Poster Symposium II: ADHD/ASD Topics

Monday, September 22, 2014 from 9:00am – 10:30am

Discussant: Robin Hansen, MD

Broadway J/K

Abstract 16

Determining Goals and Skills of African-American Parents in the Management of Attention-Deficit/Hyperactivity Disorder: A Qualitative Study

Alexandria D. Saulsberry, MD, Melishia Bansa, BS, Daniela DeFrino, RN, Pediatrics, University of Illinois-Chicago, Chicago, IL

Purpose: Attention-Deficit/Hyperactivity Disorder (ADHD) is the most common mental health diagnosis in children, yet African-American children underutilize mental health care services compared with Caucasian children, even when controlling for sociodemographic factors and mental health need. Little is known about why current treatment modalities for ADHD are less often pursued by many African-American families, or what strengths African-American parents possess in effectively managing children with this disorder. The purpose of this study is to use a strengths-based approach to determine African-American parents' goals and skills for management of children with ADHD.

Methods: Four 90-minute focus groups were conducted to identify African-American parent beliefs about proper management of ADHD. A clinical vignette was used to discuss parents' knowledge of ADHD topics and barriers to mental health services. Sessions were audiotaped and transcribed, and responses were organized into themes that emphasized parenting strengths.

Results: Sixteen parents (100% African-American, 88% female) participated in the focus groups. Parents all had at least one child with ADHD. The following key strengths were identified: (1) parents saw themselves as advocates for a balanced view of the affected children, while family, friends, and educators often focused solely on problem behaviors, (2) parents pointed to doctors and educators as important people with whom they communicate regularly to make decisions about the management of their children with ADHD, and (3) parents recognized their own feelings and emotional well-being as affecting their success as parents. Because of this, many parents stated that group therapy and counseling had been helpful in managing their children's behavior. However, parents desired more knowledge about ADHD themselves, and also wished there was greater public awareness about ADHD.

Conclusion: African-American parents identified key strengths that can be used to create culturally tailored behavioral interventions for ADHD.

Abstract 17

Young Toddlers Score Differently on the M-CHAT Autism Screen than Older Toddlers

Raymond A. Sturner, MD, Pediatrics, Johns Hopkins University, Baltimore, MD, Barbara J. Howard, MD, Pediatrics, Johns Hopkins University, Baltimore, MD, Paul Bergmann, MA, Foresight Logic, Inc., St. Paul, MN, Talin E. Afarian, B A, Loyola University, Baltimore, MD

Purpose: To compare the rates of M-CHAT item failures in younger toddlers (<20 months) to older ones which may contribute to inaccuracies at younger ages identified by some researchers (Panday, 2008; Sturner, 2013).

Methods: Results of M-CHAT screening in primary care practices using a national online system were compared at the item level by age of child between the ages 16 months and 30 months at the item level. 96,818 screening records were identified with 73,760 associated with primary care doctors; recommended age range of the test (16 - 30 mos) and reliable prematurity adjusted data with 34,200 <20 mo and 39,520 older. The 23 M-CHAT items were sorted independently into groups: recently developed in young toddlers (10), established (8), not generally considered a milestone (5).

Results: 18 items differed significantly ($p < .0001$) in failure rate by age group; 4 were not significantly different. 14 items showed higher failure rates in the younger age group and 6 in the older group. Of the 9 items with >50% difference between age groups two have been removed in the revised test; 8 were those in the recently developed category. The table shows overall test failure rates by age adjusted for prematurity.

Conclusion: Item failure rates differ in younger toddlers versus older ones despite expected higher rates of true autism in the older group. This may help explain the poorer screening accuracy in the younger toddlers and suggest that alternative strategies and age related scoring are needed.

MCHAT Fail Rate by Adjusted Age Group (n=73760)

M-CHAT Version	Overall	16 - 20 mo	20 - 30 mo	Increase	Chi-Sq.	P
Original	6.34%	6.93%	5.84%	18.63%	36.51	<0.001

Revised	4.31%	4.76%	3.91%	21.69%	32.07	<0.001
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Abstract 18

Disparities in Access to Services for Autism Spectrum Disorders and Latino Families

Jack M. Levine, MD, Pediatrics, Nassau University Medical Center, East Meadow, NY, Marianne Sullivan, PhD, Public Health, William Paterson University of New Jersey, Wayne, NJ

Purpose: Researchers have documented a number of disparities related to autism spectrum disorders (ASDs) for Latinos. We conducted a community health assessment in Nassau County (NC), New York to determine if such disparities exist locally.

Methods: We obtained and analyzed data from government agencies providing ASD services in New York State and NC. We also conducted nine open-ended interviews with low-income Latino parents of children with ASD and with nine local ASD service providers.

Results: Latinos make up 17% of the school age population in NC but only 8.7% of the special education population with an autism classification. Among white children receiving special education, 9.1% are classified with autism while only 3.3% are Latino. While Latinos make up 14.6% of the population of NC, only 6.4% of recipients of the Office of People with Developmental Disabilities Home and Community Based Service waiver for autism were Latino. Similar disparities were noted in waiver access across all age groups. None of the families interviewed reported receiving services such as respite or social and recreational programs. Many did not know about the Medicaid waiver program and none were receiving the waiver. Almost all community providers thought the needs of low-income Latino families are currently not being met. They identified lack of bilingual services, transportation, and poverty as key factors.

Conclusion: Latinos appear to be under-represented in special education and public programs for children with ASD. Results are being used to advocate for Latino families with children with ASD.

Abstract 19

Treatment of ADHD in Youth with Epilepsy

Mary C. Kral, PhD, Michelle Lally, MD, Pediatrics, Medical University of South Carolina, Charleston, SC

Purpose: Youth with epilepsy are at risk for Attention-Deficit/Hyperactivity Disorder (ADHD). Historically, physicians have been reluctant to treat ADHD in youth with epilepsy based on concern that stimulant medication may lower the seizure threshold; however, an emerging body of research suggests that treatment is safe and effective. This study examined the safety (i.e., stimulant medication side effects and seizure exacerbation) and efficacy (i.e., decreased symptoms of ADHD) of stimulant medication for the treatment of ADHD in youth with epilepsy.

Methods: Side effects, assessed with the Side Effects Rating Scale (SERS), and efficacy of treatment, assessed with the Parent Conners 3, were compared at baseline and following initiation of treatment for a sample of youth with epilepsy (N = 20, ages 5-14). Youth were diagnosed with ADHD according to DSM-5 criteria via structured clinical interview and parent and teacher behavior rating scales. All participants were prescribed Concerta or Focalin, and the dosage of stimulant medication was titrated to achieve clinical efficacy. Side effects and symptoms of ADHD were compared pre- and post-treatment with one-way repeated measures ANOVA.

Results: Study participants demonstrated significant reduction in symptoms of inattention following treatment with stimulant medication (Conners 3 Inattention mean T-score = 64.38) as compared to baseline (Conners 3 Inattention mean T-score = 83.38, $p < .0001$), as well as significant reduction in symptoms of hyperactivity/impulsivity following treatment with stimulant medication (Conners 3 Hyperactivity/Impulsivity mean T-score = 59.38) as compared to baseline (Conners 3 Hyperactivity/Impulsivity mean T-score = 76.06, $p < .0001$). None of the study participants reported adverse side effects or increased seizure frequency. To the contrary, there was a significant reduction

in side effects following treatment with stimulant medication (SERS mean total score = 27.53) as compared to baseline (SERS mean total score = 41.65, $p = .0012$).

Conclusion: This study adds to an emerging literature that supports the safety and efficacy of stimulant medication for the management of ADHD in youth with epilepsy.

Abstract 20

Optimizing a Dosage Titration Methodology for the Treatment of ADHD: A Quality Improvement Project

Angela LaRosa, MD, Mary C. Kral, PhD, Christine Riyad, MD, Michelle Lally, MD, Michelle Macias, MD, Pediatrics, Medical University of South Carolina, Charleston, SC

Purpose: Although the American Academy of Pediatrics (AAP) practice guidelines for the treatment of ADHD recommend systematic monitoring of medication efficacy at regular intervals, research reveals widely variable treatment practices. Many youth with ADHD are treated only one to two times, rates of prescription refills are poor, and many are lost to follow up. The aim of this quality improvement (QI) project was to establish a methodology for optimal stimulant medication dose titration at regular intervals to achieve clinically significant symptom control for youth with ADHD.

Methods: Through chart review, the baseline practice for medication management for ADHD was ascertained in an academic outpatient Developmental Pediatrics practice. Through process change, a standardized method of symptom monitoring utilizing the Clinical Attention Problems Scale (CAPS) was implemented via follow-up visits after initiation of treatment. This process was then streamlined with specifically developed flow sheets created in the electronic medical record. Through QI review cycles (times 1 and 2), adherence to the dosage titration methodology was monitored and obstacles to quality improvement were identified.

Results: Provider distribution of CAPS forms increased significantly from baseline (38%) to time 1 (71%) and time 2 (92%). The rate of return of CAPS forms increased significantly from baseline (27%) to time 1 (47%) and time 2 (47%). Average days to return visit to the clinic decreased significantly from baseline (89 days) to time 1 (60 days) and time 2 (51 days). Although provider distribution of CAPS increased significantly from baseline to time 2, the rate of return of CAPS forms plateaued suggesting continued need for process change.

Conclusion: The implementation of a QI process change model using the CAPS to effectively monitor dose titration to achieve optimal treatment effectiveness for youth with ADHD was achieved, in compliance with AAP practice guidelines. The results of the CAPS entered into the electronic medical record improved the systematic monitoring of symptom reduction that can be compared over multiple dose administrations.

Poster Session 1

Sunday, September 21, 2014 from 6:00 pm – 7:00 pm
Legends Ballroom D

Abstract 21

Screening By Physicians For Anxiety and Depression in Young Children

Rebecca A. Hazen, PhD, Pediatrics, Case Western Reserve University/University Hospitals, Cleveland, OH, Amy Przeworski, PhD, Kimberly Dunbeck, MA, Psychological Sciences, Case Western Reserve University, Cleveland, OH, Denise Bothe, MD, Pediatrics, University Hospitals/Case Western Reserve University, Cleveland, OH

Purpose: The purpose of the current study was to examine (a) the frequency with which physicians assess for anxiety and depression in young children (ages 4-7), (b) physicians' comfort level with conducting such assessments, and (c) physicians' perceived barriers to family follow through on referrals. **Methods:** Ninety physicians, including 28 residents/fellows, completed an online survey on anxiety and depression screening in children. Sixty eight percent of respondents were primary care pediatricians, 12% were developmental and behavioral pediatricians, 3% worked in specialty clinics and 9% worked in other settings. **Results:** Physicians reported a mean of 53% of patients with Medicaid. Fifty percent of physicians responded that they never or rarely assess for depression and only 8% reported often or always assessing for depression in 4-7 year olds. Similarly, 37% of physicians reported that they never or rarely assess anxiety and 15% reported that they often or always assess anxiety in 4-7 year olds. When asked about comfort in assessing depression in 4-7 year olds, 35% reported being not at all or slightly comfortable and only 11% reported being very or extremely comfortable. With regard to comfort level in assessing anxiety in 4-7 year olds, 29% reported being not at all or slightly comfortable, 20% reported being moderately comfortable and 19% reported being very or extremely comfortable. The most frequently endorsed barrier to family follow-through on mental health referrals was lack of Medicaid providers. Other frequently endorsed barriers included distrust of the mental health system, treatment cost, and stigma related to mental health care. **Conclusion:** Results indicate that many physicians do not feel comfortable and do not assess for anxiety and depression in young children. Results suggest that system level barriers contribute to lack of follow through on mental health referrals. Education regarding assessment of internalizing symptoms and the integration of mental health services within the pediatric setting may help to increase identification of and treatment for anxiety and depression in young children.

Abstract 22

Developmental Behavioral Pediatrician Support of the Medical Home for Children with Autism Spectrum Disorders

Robyn Nolan, MD, Neurodevelopmental and Behavioral Pediatrics, Tarik Walker, MD, JFK Partners, Janice L. Hanson, PhD, EdS, Department of Pediatrics, Sandra Friedman, MD, MPH, Neurodevelopmental and Behavioral Pediatrics, University of Colorado School of Medicine, Aurora, CO

Purpose: To identify challenges primary care providers (PCPs) experience providing a Medical Home for children with ASD and to describe the role they envision developmental behavioral pediatricians (DBP) playing in the Medical Home Neighborhood. **Methods:** We used purposeful sampling to recruit 25 PCPs from around Colorado to participate in four focus groups. Questions

centered around experiences managing patients with ASD, the challenges of obtaining support for both patients and providers within the medical home, and the desired role of the DBP. Member checking was performed at the end of each group. Sampling continued until themes repeated and saturation was achieved. Focus groups were transcribed verbatim, and transcripts were analyzed using the constant comparative method; an outside reviewer audited the data. **Results:** Qualitative analysis yielded 30 themes that fell into seven larger categories: Provider education, shared model of care, initial diagnostic evaluation by the DBP, communication, office factors, cost and coverage, and access. PCPs identified knowledge gaps that led to decreased comfort, and desired ongoing education and a centralized resource for providers. They envision a shared care model with ongoing specialist collaboration and improved communication within the care team. A specific role of the DBP was to provide the initial diagnostic evaluation and a treatment plan with specific resources. Office factors including time and the need for trained support staff, high cost and variable coverage for services, and poor access to services were barriers to providing a Medical Home for children with ASD. **Conclusion:** PCPs face a large number of challenges in providing a medical home for children with ASD. Working to remove barriers to shared care as well as providing continued educational opportunities and resources will help improve PCPs comfort in providing a Medical Home for children with ASD. Advocacy is needed from all involved to help remove barriers related to cost and coverage and access to services.

Abstract 23

Is There an At-Risk Group of Children with ADHD who can be Identified Using Theory of Mind Testing?

Shelley Lanzkowsky, MD, Janet Oberman, PhD, Cathlin Lyons, MA, Child Development Center, Goryeb Children's Hospital, Morristown, NJ

Purpose: To address the question: Is there a group of children with ADHD who can be identified using theory of mind testing that are at increased risk for cognitive and/or social language difficulty. **Methods:** Two groups of 6-7 year olds matched for diagnosis of ADHD and absence of comorbidities were identified. One group, known as the theory of mind positive (ToM+) group, was able to pass a classic Sally-Anne test. The other group, known as the theory of mind negative (ToM-) group, was not. Both groups were further tested using the WISC-4 and Social Language Development Test (LinguiSystems). Significantly worse performance on testing in the ToM- group relative to the ToM+ group would show that failure to pass Sally-Anne was associated with worse cognitive and/or social language performance. **Results:** The ToM- group was found to score significantly lower in both measures of full-scale IQ and social language. For social language: ToM- (N=10, mean=13.8, SD=10.4); ToM+ (N=15, mean=49.3, SD=23.1); $p<.001$. For full-scale IQ: ToM- (N=10, mean=86.7, SD=10.0); ToM+ group (N=15, mean=108.8, SD=13.3); $p=.002$. No significant group differences were found regarding use of special education, medication or parental report. Executive-function constructs created from WISC-4 processing speed and active working memory raw scores showed no significant group difference. **Conclusion:** This study shows that a sub-group of children with ADHD also has difficulty with theory of mind. The ToM- group performs poorly on social language testing and has relatively lower IQ scores. If the ADHD children with social language difficulty can be identified using theory of mind testing, they can be more easily targeted for specific services. Our results highlight the use of theory of mind testing in developmental assessment. In addition, these results relate theory of mind ability to social language and IQ, but not to executive function, in the ADHD children studied.

Abstract 24

Active Video Gaming for Individual With Severe Movement Disorders: Results From a Community Study

Peter J. Chung, MD, Developmental-Behavioral Pediatrics, University of California, Los Angeles, Los Angeles, CA

Angeles, CA, Douglas L. Vanderbilt, MD, Pediatrics, Children's Hospital Los Angeles, Los Angeles, CA, Eileen J. Fowler, PhD, Orthopedic Surgery, University of California, Los Angeles, Los Angeles, CA, Sheree M. Schragar, PhD, Eugene Nguyen, BA, Hospital Medicine, Children's Hospital Los Angeles, Los Angeles, California

Purpose: Cerebral palsy (CP) constitutes a group of neurologic disorders manifested by difficulties in coordination, balance, and/or movement. Active video gaming has potential for positive health outcomes for individuals with CP, including benefits in exercise intensity, functional mobility, and self-esteem. However, most commercial active video game controls are not usable by individuals with severe disabilities, e.g. Gross Motor Function Classification System (GMFCS) level IV and V. The Flexible Action and Articulated Skeleton Toolkit (FAAST) is a software program that adapts the Microsoft Kinect for active video gaming. Its usability has not been demonstrated in a community setting. Our objective was to evaluate the accessibility and enjoyment for video games using the FAAST system among individuals with CP with GMFCS levels IV and V. **Methods:** We installed the system in a community center serving adults with CP and trained a staff member in its use. Participants completed a baseline survey assessing demographics, mobility, and prior video game experience; they then used the FAAST system and completed a 5-point Likert survey measuring their gaming experience. Descriptive statistics assessed overall enjoyment of the system, and Mann-Whitney U tests were conducted to determine whether responses differed by demographic factors, mobility, or prior experience. **Results:** Twenty-two subjects were recruited. The enjoyment scale demonstrated high internal consistency (Cronbachs alpha = 0.88). The mean total enjoyment score was 4.24 out of 5. Median scores did not significantly differ by ethnicity, gender, severity of cerebral palsy, or previous video game exposure. **Conclusion:** The FAAST with Kinect is a low-cost system that engages individuals with severe movement disorders across a wide range of physical ability and previous video game experience. Further research should be conducted for use in the home setting, potential benefits to socialization, and therapeutic applications.

Abstract 25

Do Pediatricians Recognize Fetal Alcohol Spectrum Disorder (FASD) in Children with Developmental and Behavioral Problems?

Pat Rojmahamongkol, MD, Pediatrics, Yale School of Medicine, New Haven, Connecticut, Ayesha Cheema-Hasan, MD, Pediatrics, Rhode Island Hospital, Providence, Rhode Island, Carol Weitzman, MD, Pediatrics, Yale School of Medicine, New Haven, CT

Purpose: FASD is the leading preventable cause of birth defects and developmental disorders in the US with a reported incidence of 1:100 live births. Limited studies have examined pediatricians knowledge, attitude and practice about Fetal Alcohol Syndrome (FAS), and none have examined Alcohol Related Neurodevelopmental Disabilities (ARND). The purpose of this study was to determine whether pediatricians consider an FASD (including ARND) when children present with developmental and behavioral problems. **Methods:** All pediatricians in New Haven County, CT were contacted to complete a web-based survey. Pediatricians were given 3 cases of preschool boys with developmental and behavioral problems (Fetal Alcohol Syndrome (FAS), ARND and Williams Syndrome (WS)) and an accompanying headshot. They were asked to make a diagnosis and were given a menu of choices, and to rate their confidence in this diagnosis. Pediatricians were able to access up to 7 more pieces of history and physical examination in whatever order they chose. Additional survey questions included demographic and practice information and experience with children with FASD and WS. **Results:** Of 149 surveyed pediatricians, 66 responded (44.3%) and 46 had complete data (30.9%). Significantly fewer pediatricians correctly diagnosed FAS vs. ARND and WS (8 vs. 29 and 34, $p < .001$) and they were significantly less confident in making a diagnosis of FAS and ARND than WS (10.9 % and 45.7% vs. 73.9% $p < .01$). They required significantly more pieces of information to make a correct diagnosis for FAS vs. WS (4.66 vs. 1.82, $p < 0.01$). There was no relationship between demographic or practice information and any DBP training with making a correct

FASD diagnosis. Overall, there was no significant difference in clinical experience between FASD and WS. **Conclusion:** Pediatricians are less likely to identify children with an FASD than they are to recognize children with a rare genetic syndrome, and they are less confident of the diagnosis. Pediatricians need more training regarding FASD and greater awareness of the possibility of an FASD in children with developmental and behavioral problems.

Abstract 26

Family-Driven Goals Improve Sleep in Children with Autism Spectrum Disorders

Kristin Sohl, MD, Child Health, University of Missouri, School of Medicine, Columbia, MO, Daniel Coury, MD, Pediatrics and Psychiatry, The Ohio State University College of Medicine, Columbus, OH, Terry Katz, PhD, Pediatrics, University of Colorado School of Medicine, Aurora, CO, Beth Malow, MD, Neurology and Pediatrics, Vanderbilt University School of Medicine, Nashville, TN, Susan Levy, MD, Pediatrics, University of Pennsylvania, Perelman Medical School, Philadelphia, PA

Purpose: Sleep concerns, including sleep onset delay, night time awakenings, and bedtime resistance, affect 50-80% of children with ASD. However, studies show providers identify sleep concerns in only 8% of patients. The Autism Intervention Research Network on Physical Health (AIR-P)/ Autism Speaks Autism Treatment Network (AS ATN), and NICHQ (National Institute for Children's Health Quality), established a Learning Collaborative to Improve Care for Children with ASD. The 7-team collaborative intensively supported families to track and improve sleep using quality improvement methodology. The primary aim was to improve sleep in children with ASD through family collaboration. The secondary aim was to identify a systematic process for clinicians to ask, assess, and address sleep concerns, modified regularly by family-reported data and goals. **Methods:** We used an N of 1 approach to intensively work with 1 child and family to optimize insomnia care. After screening, we assessed families willingness to test changes and provide weekly progress reports. We then established family-directed goals and feasible strategies. Families used four metrics to report data. Individual improvement teams coached families weekly, based on feedback and progress. The Learning Collaborative met biweekly to discuss, share, and review data. The small tests of change were given to families individually and as a group. **Results:** Through continuous process improvement, teams developed a system for 42 families to set family-led goals and achieve success. Median time to one sleep-related improvement (e.g, sleep onset delay, night time awakenings, or bedtime resistance) was 5 weeks and 7.5 weeks for two sleep-related improvements. **Conclusion:** Sleep concerns are common in children with ASD, but under-identified by providers. Sleep concerns may be reduced through systematic assessment, family-driven goals, and consistent follow-up. The 7 teams engaged in numerous small tests of change, developing a replicable system for other providers and settings.

Abstract 27

Autism Spectrum Disorder and Parental Health and Wellbeing

Candice Allen-Jara, MD, Pediatrics, Children's Mercy- Kansas City, Kansas City, MO, Cathleen O. Stough, MA, Clinical Child Psychology Program, University of Kansas, Lawrence, KS, Cy B. Nadler, PhD, Pediatrics, Children's Mercy- Kansas City, Kansas City, MO, Sarah S. Nyp, MD, Pediatrics, Children's Mercy- Kansas City, Kansas City, MO, Rebecca S. Romine, PhD, Kansas Intellectual & Dev Disabilities Research Ctr, University of Kansas, Kansas City, KS, Meredith L. Dreyer Gillette, PhD, Pediatrics, Children's Mercy- Kansas City, Kansas City, MO

Purpose: While current research suggests that parents of children with Autism Spectrum Disorder (ASD) are at increased risk for parental stress and poor physical and mental/emotional health, this investigation examines these relationships in a large nationally representative sample. **Methods:** The National Survey of Children's Health examined physical and mental/emotional health in children and

their parents using a cross-sectional survey of US households with parents serving as informants. Parents of children with and without ASD ($n = 1624$ and 83858 , respectively) were examined on the following variables using complex samples logistic regressions: coping with demands of parenthood, feeling their child is harder to care for than other children, feeling angry towards the child, having someone to turn to for emotional help with parenthood, general and emotional/mental health of the parent. **Results:** Parents of children with ASD reported more coping difficulties with the demands of parenthood ($\chi^2 (3) = 18.40, p < .001$), more frequently feeling their child is harder to care for than other children ($\chi^2 (4) = 571.72, p < .001$), more frequently having someone that they could turn to for emotional help with parenthood ($\chi^2 (1) = 5.47, p = .02$) and less frequently feeling angry towards their child ($\chi^2 (4) = 13.37, p = .01$). While mothers ($\chi^2 (4) = 11.55, p = .02$) and fathers ($\chi^2 (4) = 13.25, p = .01$) of children with ASD had poorer mental and emotional health, no differences were found in general health. **Conclusion:** Parenting a child with ASD is associated with significant burdens on parent mental/emotional health. Interestingly, parents of children with ASD were also more likely to report having social supports and less likely to report feeling angry toward their child. These coping strategies, while adaptive, do not appear sufficient for reducing their mental and emotional health burdens. Research should investigate what parenting self-care strategies are most effective in supporting the mental and emotional health of parents of children with ASD.

Abstract 28

Genomic Copy Number Analysis of Neurodevelopmental Disorders in Clinic-Counseling Challenge for Novel and Multiple Copy Number Variants

Qiong Xu, MD, Developmental and Behavioral Pediatrics, Children's Hospital of Fudan University, Shanghai, Shanghai, China

Purpose: The findings from research studies strongly support the application of genome wide copy-number variations (CNV) by chromosomal microarray (CMA) in detecting genetic defects of neurodevelopmental disorders including autism spectrum disorders (ASD) and intellectual disability (ID). However, the clinical benefit and related counselling issues of using CMA in real time in clinics have not been systemically evaluated. **Methods:** We analyzed the findings of CMA from a cohort of 115 children referred for clinical genetics evaluation of ASD and ID in autism genetics clinic. **Results:** A total of 49 CNVs were found in 39 probands with ASD and/or ID. Twenty-two cases (19.1%) have the CNVs that have been previously implicated in ASD and ID from research studies. Nineteen cases have single CNV and three cases carry multiple CNVs involving in the 22q13.3 deletion (Phelan-McDermid syndrome) and the 15q11-q13 duplication of Angelman and Prader-Willis syndrome region. In addition, a significant number CNVs are rare and novel but unknown clinical significance at this time. **Conclusion:** The counseling of these findings real time in clinic is quite challenging because significant percentage of pathogenic CNVs supported by research studies was inherited from healthy parents. The interpretation of novel and multiple CNVs is limited by the knowledge of functional consequence these CNVs. Although the CMA is clearly staged to replace current cytogenetic techniques technically, because the findings of CNVs has minimal impact on medical management in most cases and uncertain predictive value of CNVs, a symmetrical assessment is still warranted for the clinical benefit and indication of using CMA in clinical genetics evaluation of ASD and ID.

Abstract 29

Risk Factors for Neurodevelopmental Disorders in Pediatric Sickle Cell Disease

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Purpose: The study objective was to identify characteristics and complications associated with neurodevelopmental disorders in children with sickle cell disease. **Methods:** The study was a retrospective study of sickle cell disease children. A chart review of subjects seen at either or both of two medical centers, Kennedy Krieger Institute and Johns Hopkins Hospital, took place from May 2012 to March 2014. Charts were reviewed for reported neurodevelopmental diagnoses. A total of 59 subjects were included in the overall chart review. **Results:** The comparison group for these analyses was children without the primary neurodevelopmental diagnosis under review but with another neurodevelopmental diagnosis. There was a significant difference between the distribution of different types of sickle cell disease between children with and without reported attention issues (5% with attention issues in Hemoglobin SS (n=37), 0% with attention issues in Hemoglobin SC (n=12), 50% with attention issues in Hemoglobin S Beta +- thalassemia (n=6), Fisher's exact, $p < 0.005$). There was a significant difference between the educational services received by children with and without reported attention issues (of all the children with an Individualized Education Plan (n=26), 8% had attention issues; of all the children with a 504 Rehabilitation Plan (n=3), 67% had attention issues; of all the children with no educational services (n=7), 43% had attention issues; Fisher's exact, $p < 0.005$). Of note, reported history of stroke was not associated with increased risk of any neurodevelopmental disorders. Additional significant results showed differences in the prevalence of other reported neurodevelopmental disorders associated with specific complications of sickle cell disease. **Conclusion:** Children with certain types of sickle cell disease may have different risks for neurodevelopmental concerns such as attention issues. Children with and without a history of stroke may have a similar risk for different neurodevelopmental disorders. This preliminary study will aid in the design of prediction models to determine factors that may affect neurodevelopmental disorders in pediatric sickle cell disease.

Abstract 30

Toilet School For Children And Parents: Comparison Of A Group Therapy Model With Traditional Single-provider Medical Treatment For Fecal Incontinence

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Purpose: Medical treatment of fecal incontinence typically focuses solely on the child. However, a group therapy model may be better suited to address child and family concerns simultaneously. There is a need to compare the effectiveness of group-based therapy with individual medical treatment for children with fecal incontinence. **Methods:** We performed a retrospective chart review of children ages 4- to 6-years, 11-months seen for a primary diagnosis of fecal incontinence (ICD-9 codes: 307.7 or 787.6) in the Developmental Medicine Center at Boston Children's Hospital between January 2011 and December 2012. Cases (n=63) attended a 6-week toilet school group therapy where parents and children met concurrently with a psychologist and pediatric clinician, respectively. Controls (n=110) were seen in individual medical treatment with a single provider. All Controls had a clinical visit within 1 week of the initial session of Toilet School in which the Cases participated (Time 1) and had a follow-up visit within 6 weeks of the last session of Toilet School (Time 2). The primary outcome was the change in number of toileting benchmarks achieved from Time 1 to Time 2. We used linear regression to adjust for the effect of age, degree of neighborhood poverty, and treatment group on the outcome. **Results:** Children in individual treatment were older (5.73 vs 4.93 years; $p < 0.001$) and came from neighborhoods with higher rates of poverty (6.54% vs 4.72%; $p = 0.015$). Gender did not differ between the treatment groups. Children in group therapy achieved significantly more toileting benchmarks than those in individual treatment (3.24 vs 0.75; $p < 0.001$) and required fewer follow-up visits (1.53 vs 2.62; $p = 0.018$). The linear regression model revealed that only treatment group ($\beta = 2.46$, SE 0.244, $p < 0.001$) was significantly associated with toileting

progress. **Conclusion:** Treatments for fecal incontinence that involve both the child and the family may result in greater improvement in toileting outcomes than individual medical management.

Abstract 31

Improving Missed Appointment Rates in a Developmental-Behavioral Pediatrics Clinic

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Purpose: To evaluate whether implementing an appointment reminder phone call from a person would decrease missed appointments and late cancellation rates as compared to an automated reminder phone call in Developmental-Behavioral (D-BP) clinics. **Methods:** The change in percentage of missed appointments in D-BP clinics was examined for patients receiving an automated reminder call (Auto Call group) versus a reminder phone call from a research assistant (Personal Call group). In the Personal Call group, patients were called 3 to 5 days (mean of 4.51 days) in advance of their appointment, over a preliminary 7-week period in 2014. Data were collected on appointment confirmation, rescheduling, cancellation, messages left, and total time on the phone. Data were compared to the Auto Call group of patients seen over the same period in 2013. Unpaired t-tests were used to evaluate differences between the two groups with regard to appointments which were missed (no-shows plus late cancellations made <48 hours before the appointment time), rescheduled or completed. Family comments about why appointments were cancelled were also collected. **Results:** Missed appointment percentages for the Auto Call and Personal Call groups were 20.2% and 18.0%, respectively, during the preliminary period. The 2.2% decrease for the Personal Call group did not meet statistical significance. Of the late cancellations, there was a trend toward increase of appointments rescheduled for a later date in the Personal Call group compared with the Auto Call group (47% vs. 33%, $p=0.15$). Phone calls took the research assistant an average of 1.15 minutes per patient. **Conclusion:** Based on our pilot data, personal reminder calls may decrease missed appointment rates and facilitate rescheduling of future appointments. Further work to better establish this relationship will continue through this intervention over an additional 2 months. Better understanding of parent's reasons for missed appointments, cost-benefit analyses, and socio-demographic associations may lead to more effective future interventions.

Abstract 32

Body Mass Index and Parent-Identified Eating Concerns in Children with Autism Spectrum Disorders

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Purpose: To examine the relationship between parent-identified eating concerns and body mass index (BMI) and to identify risk factors of eating concerns among young children with autism spectrum disorders (ASD). **Methods:** We conducted a medical record review of data gathered at first visits of children aged 2 to 5 years seen over 5 years at a development clinic who received a diagnosis of ASD. Data gathered included demographics, diagnoses, maternal education, BMI z-score, parental concern for eating concerns (yes versus no), and scores on Achenbach Child Behavior Checklist (CBCL) items related to eating. CBCL item responses were grouped as any concern versus none. T-tests were used to examine difference of BMI Z scores between groups. A multivariate linear regression model (LR) was used to examine influence of parental concern for feeding on BMI Z-score. **Results:** Data on 526 children were analyzed: 82% boys; 28% Hispanic; 12% African American; 45% white; and 16% Asian. 48% of parents expressed concerns about eating. Among the 441 who completed the CBCL, 49% indicated concern about refusal to eat and 62% indicated concern for chewing on things that are not edible. Children with parental concern about eating had

marginally significantly lower BMI Z score (0.50) than those without feeding difficulties (0.68, $p=0.09$). Specifically, CBCL concern for refusal to eat was significantly associated with lower BMI Z score ($p<0.05$). CBCL concern for chewing on things that are not edible was marginally significantly associated with lower BMI Z score ($p=0.07$). When adjusted for sociodemographic characteristics in a multivariate LR, BMI Z score was not significantly associated with eating concern response ($p=0.16$). **Conclusion:** Many parents of ASD children have concerns for their child's eating. Children with eating difficulties were shown to have marginally lower BMI z scores than children who did not have feeding difficulties. Further research is required to explore the nature of this problem in children with ASD as well as interventions that are appropriately targeted to this population of children.

Abstract 33

Support for Mothers' Decision to Breastfeed Beyond One Year of Age: Healthcare Providers, Family, and Friends

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Purpose: To assess to what extent mothers feel comfortable discussing their decision about extended nursing with healthcare providers, family, and close friends, and whether mothers feel each were supportive of extended nursing. Also, to assess if there are gender differences among healthcare providers regarding comfort or perceived support by mothers. **Methods:** An online questionnaire focused on extended nursing was developed and disseminated to nursing mothers via e-mail, online support groups & chat rooms, listserves, etc. In addition to questions about demographics and nursing history, mothers were asked how comfortable they felt discussing their extended breastfeeding decision and how supported they felt. **Results:** A total of 31,281 questionnaires were completed by women living in the U.S. between ages 18-50 years who breastfed beyond 1 year of age. Women who taught breastfeeding were excluded ($n=4,278$), leaving a final sample of $n=27,003$. The majority of respondents were white (95.4%) and 30-39 years old (60.4%). Women felt generally supported and comfortable discussing extended nursing, especially with their lactation consultants (97.5% supported, 98% comfortable) and significant others (89.6% supported, 95.6% comfortable). Gender differences were noted, as mothers were significantly more comfortable discussing extended breastfeeding with their child's female primary healthcare providers (PCPs) than with their child's male PCPs (chi-square=9.21, $p=0.002$). The gender difference was also significant for mothers' comfort with their own female PCPs versus male PCPs (chi-square=7.68, $p=0.006$), as well as perceived support (chi-square=16.49, $p<0.0001$). Among family and friends, aside from their significant others, mothers felt more comfortable with and supported by their closest friends (93.9% comfortable, 83.4% supported) than their own mothers (86% comfortable, 74.3% supported). **Conclusion:** Although women who chose to breastfeed beyond infancy reported feeling comfortable discussing with - and supported by - their child's healthcare provider and their own healthcare provider, gender differences were noted.

Abstract 34

Maternal Ratings of Factors that Influenced Their Decision to Breastfeed Beyond 1 Year of Age

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Purpose: To delineate, in a large national sample, what factors are important in a mother's decision to continue nursing beyond a child's first birthday. **Methods:** An online questionnaire focused on extended nursing was developed and disseminated to nursing mothers via e-mail, online support groups and chat rooms, list-serves, etc. In addition to questions about demographics and

breastfeeding history, mothers were asked to rate, according to a Likert scale (4=very important, 3=important, 2=somewhat important, 1=not important), to what extent 15 different factors influenced their decision to nurse one or more of their children beyond 1 year of age. **Results:** A total of 31,281 questionnaires were completed by women living in the U.S. between ages 18-50 years who breastfed one or more children beyond 1 year of age. Women who taught breastfeeding were excluded from the analysis (n=4,278), leaving a final sample of N=27,003. Ratings for 15 factors that can influence extended breastfeeding reveal that the nutritional value of milk was the most important factor for most mothers (avg. rating=3.93), whereas the least important factor was recommendations from mothers' own doctors (avg. rating=1.67). Other important factors include other health benefits of milk (avg. rating=3.90), building a strong bond with the child (avg. rating=3.89), and the child's enjoyment of breastfeeding (avg. rating=3.84). Breastfeeding support organizations were also important influences on extended nursing, including La Leche League (avg. rating=2.71) and the Woman, Infants and Children Program (avg. rating=2.15). Unimportant factors include mothers' ethnic background and/or cultural beliefs (avg. rating=1.72), recommendations of child's primary healthcare provider (avg. rating=1.89), and recommendations of mothers' friends (avg. rating=1.92). **Conclusion:** In deciding to continue breastfeeding beyond 1 year of age, women were most influenced by nutritional and health benefits and by pro-social reasons. Nursing support organizations were also important. Women who do extended nursing were least influenced by the recommendations of healthcare providers, family and friends.

Abstract 35

The Use of Psychoeducational Group Therapy within a Pediatric Residency Continuity Clinic as a Novel Treatment Approach for Children with ADHD

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Purpose: To develop a portable psychoeducational group therapy curriculum for ADHD treatment and assess the feasibility of implementation within a pediatric continuity clinic. **Methods:** Eligible children ages 6-18 and their parents were recruited from a pediatric clinic if the child had a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD), was stable on medications for 3 months and did not have co-morbid conduct disorder, autism, or severe intellectual impairment. Parent-child dyads were randomized to intervention or usual care. Siblings were not excluded as long as they met eligibility criteria. A total of 9 parents/13 children in intervention & 11 parents/16 children in control participated in 5 visits (every 3 months). Child psychoeducational curriculum was created by child psychologist and implemented by pediatric resident. Parent psychoeducational curriculum was created by behavioral pediatrician and implemented by general pediatrician. Children & parents participated in simultaneously run but separate groups for total of 60 minutes followed by 15 minute individual med management appointment. The HOME severity scale for adaptive functioning was administered at baseline & 1 year. Parent and child feedback was audiotaped separately and transcribed for theme extraction. **Results:** Seven of 9 families attended all group visits. Children reported group enjoyment and application of skills learned to increase organization & make new friends. Parents reported improved communication with their child and positive impact on their children's self-esteem. Follow up was improved with average 5.3 ADHD visits for intervention vs. 3.4 ADHD visits during same period for controls. There was a significant difference in HOME adaptive functioning severity scores over time for intervention participants versus controls (p=0.0036 vs. p=0.8003). **Conclusion:** Group visits were feasible within a busy pediatric clinic & led to improved follow up. Participation in the group therapy model led to significant parent-reported improvements in adaptive functioning in the home.

Abstract 36

Collaboration of Developmental/Behavioral Care in Medical Home

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Purpose: The Medical Home Model (MHM) as presented by the Center for Health and Human Services requires increasing coordination of a family centered model of care and decreasing health care costs. This model is particularly useful for children with behavioral health diagnoses, though the use of the MHM in reducing costs has not been adequately explored. The following study examines the collaboration between a MHM and a Developmental Behavioral practice. **Methods:** A newly implemented MHM case management records (N=40) were reviewed from the General Pediatrics Clinic of a medical center in Upstate New York which serves a 25-county catchment area. **Results:** The mean age of children was 9.42 years (sd=3.99). Mean emergency room visits prior to the utilization of MH case management was 2.23 visits (sd = 2.55). Upon utilizing the MHM, mean emergency room visits was 0.10 visits (sd = 0.30). Diverse diagnostic comorbidities were present. These include executive dysfunction associated with Attention Deficit disorder (25%) non-specific Anxiety disorder (18%), Depressive Disorders (13%), Bipolar Spectrum Disorder (8%), Neurodevelopmental Impairments (8%), and Obsessive Compulsive Disorder (5%). Table 1 includes mean emergent hospitalization pre and post MHM intervention. In summation, children diagnosed with Neurodevelopmental disorders had higher levels of emergent hospitalizations than other diagnostic comorbidities. This finding is significant for the field of Developmental /behavioral Pediatrics in terms of interventions for families who may utilize services at higher rates. **Conclusion:** The results of the current study present positive findings for the collaboration between the MHM and a Developmental Behavioral Practice to reduce costs associated with behavioral comorbidities.

Pre and Post MHM Emergent Hospitalization

Diagnosis	Pre- Medical Home	Post- Medical Home
Neurodevelopmental Impairment	5.0	0.0
Depression	1.0	0.0
Anxiety	1.42	0.14
Bipolar Spectrum Disorders	4.25	0.23
ADHD	1.54	0.01

Abstract 37

Executive Functioning and Coping with Headache Pain

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Purpose: Chronic pain presents unique challenges to children and adolescents. Pain often impacts general functional and has reinforcing qualities such as increased attention from family, and dismissal from school/home demands. Stressors such also social isolation and feeling misunderstood due to pain occur as well. Neuropsychological factors such as executive functioning may contribute to the experience of pain for children. This vulnerability associated with coping skills impact the experience and subsequent mitigation of pain for children. The current research sought to examine the role of executive functioning as it relates to coping with pain. **Methods:** The current chart review was compiled based upon pre-assessment data as apart of a comprehensive headache program in a medical center in Upstate New York. Families completed the BRIEF (Behavioral Rating Inventory of

Executive Functioning). Children completed the Coping Strategies Questionnaire - Revised (CSQ-R), an indice of cognitive strategies for pain. **Results:** The mean age of children in the sample was 12.6 years (sd = 2.8 yrs). Pain coping strategies utilized included Distraction, Catastrophizing, Prayer, Distancing, and Coping Self-Statements. Analyses suggest that executive functioning skills such as Emotional Control are related to Attentional Shifting ($r = .59$; $p = .05$) and Initiation ($r = .57$, $p = .05$). Emotional Control was also related to coping strategies such as the Distancing from pain ($p = .08$). Regression analyses suggest the children's Metacognitive skills predicted the use of Distraction as a coping strategy. Additionally, children's Metacognitive skills predicted Working Memory abilities. **Conclusion:** The current research suggests that children's executive functioning skills exert influence on coping, particularly with pain. Headache pain may uniquely influence executive functioning skills. Due to an abundance of literature citing the use of cognitive behavioral interventions in integrated and collaborative health care, this research supports the utility of exploring these issues with pediatric pain populations.

Abstract 38

The Spiral Autism Case: A Novel Teaching Intervention for Residents.

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Purpose: To develop a novel case-based teaching intervention designed to increase the knowledge, competence, and confidence of pediatric residents conducting initial autism assessments. **Methods:** This prospective cohort study included 16 pediatric residents (PR) (sample population) and 3 pediatric neurology residents (PNR)(controls) at the Alberta Childrens Hospital. PR received the Spiral Autism Case intervention, a 2-hour facilitated small group teaching session that guides residents through an initial autism assessment. Layers of complexity are added to the case to build knowledge, promote higher thinking, and develop CanMEDs competencies. Following the intervention, an 18-question short answer autism test was given to all PR (received teaching intervention) and PNR (did not receive teaching intervention). PR were asked to rate their confidence in ability to conduct independent autism assessments pre-and post-intervention and completed a 7-item Likert retrospective self-report survey ranking the format, content, and effectiveness of the session. **Results:** PR demonstrated significantly higher knowledge (mean 77.4%; SD 9.0%) on the post-intervention autism test compared to PNR (mean 52.4%; SD 15.3%) $t(17)3.99$, $P = 0.0009$. PR expressed high levels of satisfaction with the content and format of the spiral case (mean score 4.21/5; SD 0.36) and reported significantly increased confidence in their ability to conduct autism assessments after the Spiral Autism Case teaching session (mean score 3.83/5; SD 0.41) compared to prior to the session (mean score 2.00/5; SD 0.89) $t(10)4.57$, $p = 0.0010$. **Conclusion:** The spiral autism case appears to be an effective and well-liked resident teaching tool. The spiral case design can be adopted to teach multiple topics or skills and incorporate multiple levels of learning including knowledge acquisition, higher thinking abilities, and competency development, making it well suited to outcome-based curricula including CanMEDs based residency programs. A future randomized controlled study is planned to compare the spiral case tool to standard lecture based teaching.

Abstract 39

A Pilot Study of a Screening Model to Triage Toddlers Referred for Autism Spectrum Disorder (ASD) to a Tertiary Care Center (TRC) Using the Rapid Interactive Test for Autism in Toddlers (RITA-T).

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Purpose: To evaluate a screening model to expedite autism evaluations in toddlers in a TRC by trained speech pathologists and a developmental pediatrician (SP-DP) **Methods:** The RITA-T includes 9 activities that evaluate social communication skills in toddlers in less than 10 minutes. We have established its scoring algorithm, manual, developed a training protocol and demonstrated its discriminative properties in specifically identifying toddlers with ASD.. Over five weeks, toddlers under 39 months of age waiting to be evaluated, were administered first the MCHAT and the RITA-T by the SP-DP. They were then assigned to 3 different risk groups based on their respective scores. Another team of clinicians administered the following tests and provided diagnoses of ASD or Non-ASD accordingly: Low Risk: DSM 5 checklist and the Vineland Adaptive Behavior Scales (VABS); Medium Risk: DSM 5, VABS and the ADOS; High Risk: DSM 5 and a developmental evaluation. **Results:** Twenty-two toddlers (82% boys) were evaluated. Mean age was 29.8 months (17-39 months). 18% were low risk, 41% were in each medium and high risk groups. ASD diagnoses were 0%, 67% and 100% in the 3 groups respectively. In total, 15 (68%) had a diagnosis of ASD. The RITA-T total score, DSM-5 criteria checked, and the MCHAT critical items failed were significantly different between the ASD and Non-ASD groups (ANOVA, $p < 0.01$) and between the 3 risk groups (ANOVA, $p < 0.01$). There were no significant differences on the VABS. The RITA-T was significantly correlated with the DSM & MCHAT measures (Pearson $\text{corr} = 0.49$, $p < 0.01$). **Conclusion:** The RITA-T is useful in a screening protocol in expediting autism evaluations of toddlers in a TRC. Testing of this paradigm continues.

Abstract 40

A World of Opportunity: Survey of Neurosurgical Spina Bifida Care Across the Globe

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Purpose: New technologies continually advance the standard of care for patients with Neurodevelopmental Disabilities, who receive services through multidisciplinary teams across the lifespan. Recently, in-utero interventions for Spina Bifida (SB) have received considerable attention among developed nations; less attention has been given to the implementation of conventional approaches to SB and hydrocephalus in low-resource settings. The purpose of our study was to explore the history and current forms of neurosurgical management in spina bifida and hydrocephalus across the globe and to describe successful models of care in low-resource settings. **Methods:** A PubMed® search was performed to identify articles by querying the terms (spina bifida AND neurosurgery). Articles were excluded if no management guidance was offered. Articles meeting inclusion criteria were classified according to management focus, country of origin, and stratified by World-Bank specified income level. **Results:** A total of 3,374 articles were identified; 259 met inclusion criteria. From 1975 - 2014, there was observable growth in the number of publications on neurosurgical management. Institutions in nations with high, upper-middle, lower-middle, and low income countries published 192 (74%), 15 (6%), 26 (10%), and 26 (10%) articles respectively. Authors from countries represented outside of high income economies included Bulgaria, Cambodia, China, India, Kosovo, Malaysia, Nigeria, New Guinea, Senegal, South Africa, Turkey, Tanzania, Uganda, and Zimbabwe. Characteristics of the successful models in LMIC included: development of technologically-appropriate surgical approaches, implementation of transnational population-level research, and surgical capacity-building within the region. **Conclusion:** Although there are a few successes in the care of SB and hydrocephalus in LMIC, scarce clinical guidelines have been written outside high-income countries. Thus, guidance that is culturally and technologically appropriate for 85.4% of the world's population is lacking. This represents an opportunity for academicians in high-income countries to collaborate with counterparts in lower-middle income nations to develop appropriate guidelines for the global SB population.

Abstract 41

Psychotropic Medication Use in Children and Adolescents with Down Syndrome

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Purpose: 1) Estimate the prevalence of psychotropic medication use in children and adolescents with Down syndrome (DS). 2) Describe age-related trends in psychotropic medication use. **Methods:** Data were extracted from electronic health records at a large academic pediatric medical center. The sample included 832 children with DS ages 5-21 years seen by a medical provider from 2010 to 2013, for a total of 5324 visits, representing 1871 person-years. We examined the following medication classes: CNS stimulants (ST), selective serotonin reuptake inhibitors (SSRI), atypical antipsychotics (AAP), and alpha adrenergic agonists (AAG). Cochran-armitage tests of trend evaluated prevalence of medication use across ages. Repeated measures models with generalized estimating equations assessed changes in rates of medication use over time. **Results:** The sample (55% male, 82% white) had a mean age of 10.6 years (SD 4.8). Overall, 17% of children ages 5-11, and 25% of children ages 12-21, were on at least one psychotropic medication. For 5-11 year olds, the odds of being on all classes of psychotropic medication increased with age: for ST by 1.36 (95%CI 1.22, 1.51), for SSRI by 1.44 (95%CI 1.22, 1.70), for AAP by 1.45 (95%CI 1.19, 1.77), and for AAG by 1.30 (95%CI 1.13, 1.51). After age 12, the prevalence of ST use significantly decreased ($p=0.0008$), and the rates of AAP and AAG use remained stable. However, the odds of being on an SSRI increased by 1.16 (95%CI 1.04, 1.28) for each year of age between 12 and 21. A significant gender interaction was found for AAP with males ages 5-11 years being more likely to be on an AAP than females ($p=0.03$). **Conclusion:** This study demonstrates varying patterns of psychotropic medication use with age in children and adolescents with DS, likely reflecting changing behavioral concerns across the developmental span. The prevalence of use of all medication classes increased between ages 5-11. Further, from 12-21 years of age, ST use decreased and SSRI use increased. These findings inform current prescribing practices and help guide next steps evaluating medication use in relation to behaviors and psychiatric symptoms in children with DS.

Abstract 42

Snack Time Intervention for Preschoolers with Autism Spectrum Disorders: Fun and Function

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Purpose: Children with Autism Spectrum Disorders (ASD) experience eating difficulties (estimated prevalence as high as 90%) and social difficulties. Various interventions for picky eating in children with ASD have yielded positive outcomes. Snack time offers the potential for positive social skill development. This study intervention combined environmental arrangement, child-centered play (choice and imitation), responsivity, scaffolding, modeling and encouraging peer interaction. The specific aims were (I) to determine if child-centered snack time intervention will increase 1) frequency of food-related behaviors, 2) variety of foods eaten, 3) child's social communication, 4) appropriate mealtime behaviors at home and (II) to examine the feasibility and fidelity of snack time intervention. **Methods:** This quasi-experimental design included 4 children, aged 3 to 4 years, diagnosed with ASD. It is a play-based and child-centered snack time intervention provided in a group of 2-3 children for 8 weeks, bi-weekly, at 10 minutes per session. IRB was approved and parental consent was obtained for all participants. A combination of 3-4 familiar and novel foods were offered at each session. Food selection was determined by results from Food Frequency Questionnaire (FFQ), food allergies and parental preferences. Sessions were videotaped for scoring frequencies. Data from FFQ, Brief Assessment of Mealtime Behavior in Children (BAMBIC) and 2 other questionnaires were collected from parents pre-intervention, at 5 weeks and 2 weeks post-

intervention. **Results:** There were no substantial changes in the FFQ or BAMBIC from baseline to post-intervention. However, depending on food options, skills in requesting snacks improved from 0-3 to 0-12 requests. There were also increased communication attempts from 0-29 to 6-33 attempts. Increased food variety eaten was noted in all children during snack time intervention. Children tried 4-7 new foods by the end of intervention. **Conclusion:** Play-based, child-centered snack time increased the variety of foods eaten and explored as well as improved socialization behaviors. Snack time group treatment is feasible within a preschool curriculum.

Abstract 43

Prevalence of co-occurring autism spectrum disorder and other developmental disorders among children with heart conditions

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Purpose: Children with congenital heart defects (CHD) are at increased risk for neurodevelopmental problems. However, little is known about the risk for autism spectrum disorder (ASD) and other developmental disabilities in this population. The purpose of this research is to determine, within a population of children with special health care needs, if there is a higher prevalence of ASD, developmental delay (DD), and intellectual disability (ID) in children with heart conditions compared to those without. **Methods:** Analyses were conducted within the National Survey of Children with Special Health Care Needs (CSHCN) 2009-2010, which includes 40,242 children younger than 18 years old. The prevalence of ASD, DD, ID, and parent perceived severity of developmental impairments in children with and without a heart condition were compared using a Wald chi-square test. Unadjusted Odds Ratios (OR) were determined using logistic regression. SAS survey procedures were employed to adjust for the complex survey design. **Results:** Heart conditions were present in 2,145 children (5.3%). Among CSHCN, children with a heart condition had a higher prevalence of ASD (14.2% v. 10.4%, p value=0.03), DD (42.5% v. 23.3%, p value <0.0001), and ID (18.9% v. 6.5%, p value <0.0001) compared to those without heart conditions. The odds of having a co-morbid developmental diagnosis in the setting of a heart condition relative to no heart condition was: 1.33 for ASD (CI: 1.06, 1.68), 2.18 for DD (CI 1.85, 2.56), and 3.13 for ID (CI 2.47, 3.96). There were no significant differences in parent perceived severity for ASD and DD. However, the odds of having moderate relative to mild severity ID was 2.15 (CI 1.31, 3.52) for children with ID + a heart condition vs. ID without a heart condition. **Conclusion:** Prevalence rates of ASD are significantly increased in CSHCN with heart conditions compared to those without. However, the magnitude of the prevalence increase for ASD in children with heart conditions is smaller than for the other developmental disabilities studied: DD and ID.

Abstract 44

The Study and Application of Chinese Version Short Sensory Profile in Chinese Children

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Purpose: To evaluate the reliability and validity of Chinese version Short Sensory Profile (SSP-CV) in Chinese age-appropriate children, and to explore the severity and subtypes of sensory processing disorder in children with autism spectrum disorder. **Methods:** The Chinese Version Short Sensory Profile were completed by parents or caregivers of the children diagnosed with autism spectrum disorder (ASD, n=81) and Global Developmental Delay/Mental Retardation (GDD/MR, n=52) and age-matched typically developing children (TD, n=48). The internal consistency, test-retest reliability, construct validity and discriminate validity were examined. The data of ASD group (n=81) were used

to further explore the severity and the subtypes of sensory processing disorder in children with ASD. **Results:** 1. Cronbach's alpha of the whole scale was 0.902 indicating strong internal consistency. The test-retest reliability coefficient of the whole scale was 0.907. Factor analysis supported the 7-factor structure of the original scale. The scores of the ASD children were significantly lower than those of typically developing children. 2. The majority (86.42%) of children in the ASD group exhibited sensory processing dysfunction overall. The children in ASD group can be categorized into 4 subtypes according to their features of sensory processing dysfunction. Subtype 1(n=19, 23.5%): this subtype is characterized by definite sensory processing dysfunctions across all domains measured by SSP, especially the movement sensitivity and Low Energy/Weak domains. Subtype 4(n=9, 11.1%): this subtype is characterized by severe difficulties in the Taste/Smell domain, but typical performance or only mild difficulties in Movement Sensitivity and Low Energy/Weak domains. The performances in other domains are mildly to moderately atypical. Subtype 2 and 3(n=53, 65.4%): both are characterized by mostly typical sensory processing function, except in the domains of Underresponsive/Seeks Sensation and Auditory Filtering. The difference between the two subtypes is that subtype 3(n=23, 28.4%) is more likely to seek sensation than subtype 2(n=30, 37.0%). **Conclusion:** 1. SSP-CV is a reliable and valid instrument for evaluating children's sensory processing functions in China. 2. Sensory processing dysfunction are identifiable in children with ASD, and different features could be observable in different subtypes of children.

Abstract 45

The More You Know: Investigating the Efficacy of a One-Day Educational Conference on Autism Service Quality and Availability in Central Pennsylvania

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Purpose: Autism spectrum disorders (ASD) are complex in their diagnosis and management, with a high economic and service burden. Parental education, resources, and support are critical to improving comfort and acceptance of this diagnosis. Prior studies have demonstrated the value of using comprehensive and longitudinal parental education programs to improve confidence and coping with their child's diagnosis. Our study's purpose was to investigate the effectiveness of a multidisciplinary one-day conference educating parents on quality, evidence-based services for preschool aged children with ASD. **Methods:** Methods for this study included the development of a multidisciplinary conference discussing resources and services available in our region of Central Pennsylvania for autism. Surveys were administered at baseline and six months following the conference. 16 of 33 initial respondents (48%) completed both phases of the study. The results were collected and analyzed using a paired t-test to determine if the conference increased parental confidence and ability to recognize quality services. **Results:** Results showed a significant improvement in confidence in parental knowledge of available resources (post-conference (M=70, SD=21, N=15) and pre-conference (M=54, SD=27, N=15); $t(14)=2.35$, two tailed $p=0.033$) and number of recognized commonly used service terms (example: Applied Behavior Analysis) (post-conference (M=5.9, SD=1.7, N=15) and pre-conference (M=5.2, SD=1.9, N=15); $t(15)=2.15$, two tailed $p=0.047$). This did not translate into a statistically significant increase in the variety or intensity of services delivered to their children (post-conference (M=3.6, SD=1.7, N=15) and pre-conference (M=3.1, SD=1.5, N=15); $t(14)=1.2$, two tailed $p=0.25$). **Conclusion:** We conclude that a one-day conference on evidence-based services for autism can be effective at increasing confidence in parents' knowledge. Despite this increase, the ability to access resources was not impacted, possibly secondary to the limited availability in our area.

Abstract 46

Contribution of Psychosocial Comorbidities on School Attendance and Peer Relationships

Among Children with Chronic Illnesses

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Purpose: While school accommodations are made for children with chronic health conditions, less attention has been given to the contribution of comorbid behavioral and emotional problems that may interfere with school and social functioning that are frequently present in these children. We examined whether psychosocial problems added to difficulty attending school and making friends among children included in the National Survey of Children with Special Health Care Needs (CSHCN). **Methods:** The CSHCN (2009-2010) includes interviews of over 40,000 parents of children with special health care needs ages 0-17. Parents answered questions about the health and functional status of their child with diabetes, asthma, epilepsy, migraines, and other chronic illnesses. **Results:** Overall, 14.4% of children with chronic illnesses experienced problems attending school and 32.1% had issues initiating and maintaining friendships. Of those with difficulty attending school, 26.3% had ADHD, 46.1% had depression, 38.0% had anxiety, and 42.1% had behavioral/conduct problems. Problems attending school were significantly more common among children with comorbid psychosocial problems, with odds ratios ranging from 1.70 (ADHD) to 4.44 (depression). Problems with friendships were more frequent and also significantly higher when comorbid psychosocial problems were present (OR range: 5.50 for ADHD to 13.08 for behavioral or conduct problems). **Conclusion:** Our findings highlight the importance of addressing psychosocial functioning in children with chronic health conditions. Often psychosocial problems are less likely to receive medical attention and school accommodations than the child's medical needs. Yet, psychosocial problems interfered more with functioning in school and with peers than did their chronic health conditions alone.

Abstract 47

Peer Experiences and Emotional Distress among Pediatric Brain Tumor Survivors

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Purpose: Pediatric brain tumor survivors (PBTS) are often reported to have social and emotional difficulties. Our work examines whether peer victimization accounts for differences in emotional distress for PBTS and healthy peers. We also examined whether demographic characteristics or having of a reciprocated best friendship moderated this indirect effect or contributed directly to child well-being. **Methods:** Participants were 187 PBTS, 1-5 years post-treatment at 5 oncology centers in the United States and Canada and 179 comparison classmates (CC) ages 8-15 ($M = 11.2$, $SD = 2.2$) and 53% m/f. Classmates of each PBTS completed the Revised Class Play and a Best Friend Nomination form to assess victimization and reciprocated friendship. Mothers of PBTS and CC completed the Child Behavior Checklist. Analysis of direct, indirect, and moderated indirect effects were conducted using multiple regression analysis with cross-products of mean-centered predictors to test interactions and post-hoc bootstrapping to test the significance of indirect effects. **Results:** Overall, PBTS experienced more peer victimization ($d = .53$, $p < .001$) and had scores on the CBCL Anxious-Depressed subscale ($d = .36$, $p < .005$) than CC. Victimization was found to partially account for differences in anxiety and depression between PBTS and CC; a bootstrapped 95% CI of .07-.63 indicated that this was a significant indirect effect. A significant interaction ($B = 0.57$, $p = .006$) found that this indirect effect was stronger for girls (bootstrapped 95% CI: .09 -.98) than boys (bootstrapped 95% CI: .01 -.39). Although similar interactions involving grade level or reciprocated friendship were not significant. **Conclusion:** PBTS are at risk for emotional distress after treatment and this may be

partially accounted for by negative peer experiences, particularly for girls. It was expected that friendship would buffer the negative effects of victimization on emotional distress, however, support for this was not found.

Abstract 48

Allocation of Treatment Responsibility in Adolescents with Epilepsy

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Purpose: Taking responsibility for one's own medical treatment can be challenging for adolescents because they are often balancing their strife for autonomy and independence with increased responsibility. Treatment adherence has been shown to decline during this developmental period across several chronic illness populations. Although continued parental involvement and clear roles have generally been associated with improved medical outcomes, little is known about the allocation of treatment responsibility in pediatric epilepsy and how it relates to treatment adherence. This study has two aims: 1) examine the psychometric properties of the adapted Allocation of Treatment Responsibility scale in a sample of adolescents with epilepsy and 2) examine the relationship between discrepancies in caregiver and adolescent reports of treatment responsibility and adherence. **Methods:** Fifty adolescents ages 13-17 with epilepsy ($M=15.4\pm 1.5$) and their caregiver completed the adapted Allocation of Treatment Responsibility scale (ATR; Pai, 2010) to assess responsibility for oral medication, clinic visits, and labs, and the Pediatric Epilepsy Medication Self-Management Questionnaire (PEMSQ; Modi, 2010) to measure adherence. **Results:** ATR total scores had excellent internal reliability for adolescent and caregiver measures (.83-.90; subscales .75-.97). Validity was supported by significant associations between age and medication responsibility for both respondent measures ($r=.41, .42, p<.01$) and total and clinic visit responsibility per adolescent-report ($r=.41, .31, p<.05$). Age was not correlated with caregiver responsibility. Discrepancies in treatment responsibility were not associated with adherence ($p>.05$). Both report measures indicate greater caregiver treatment responsibility (except medication). **Conclusion:** The ATR is a reliable and valid measure of treatment responsibility in adolescents with epilepsy. The ability to discontinue medication after two years of seizure-freedom may have implications for allocating regimen-related tasks in this population. Future studies need to examine associations between treatment responsibility and health outcomes.

Abstract 49

Correlation of Touchscreen Device Usage and Television Viewing to Feeding Habits, Night Waking Episodes, and Parent Frustration: A Pilot Study

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Purpose: The effect of electronic device usage in young children ages 0-3 years is unknown. Our aim was to examine the relationship between feeding habits, night waking (NW) episodes, and parent frustration with the amount of television viewing (TV) and touchscreen device usage (TDU) in infants and toddlers. **Methods:** A questionnaire was given to parents of high risk infants and toddlers to assess daily hours of TV and TDU as well as feeding and NW issues. We asked: How would you describe your child's eating habits? Responses were selected from a 3-point Likert scale ranging from extremely uncooperative to very cooperative. Parents were requested to quantify: On average, how

many times does your child wake up in the middle of the night? Parent frustration was assessed with a single question: How often are you frustrated because your child misbehaves or does not follow directions? Responses were selected from a 5-point Likert scale ranging from never to very often. The Kruskal-Wallis test and Spearman correlation coefficients were used to evaluate these relationships. **Results:** 63 of 65 families who completed questionnaires reported owning a touch screen device, 44 (70%) reported TDU by a child younger than 3 years. Median TDU hours was greatest for children reported as extremely or somewhat uncooperative during feeding, and lowest for that of very cooperative children (30 vs. 15 min; median daily TDU 17.5 min). NW was reported with a median of 1 time / night. No association was found between TV or TDU and NW. Daily hours of TV was positively correlated with TDU ($\rho=0.39$, $p<0.0076$). No association between TDU and parent frustration was noted. Children who were reported to sometimes/often frustrate their parents, had higher TV than children who were reported to rarely/ never frustrate their parents (median 60 vs. 30 vs. 12.5 minutes respectively, $p<0.0045$). **Conclusion:** TV and TDU in children less than 3 years of age may correlate with decreased feeding cooperation. No significant association was seen with NW. On average, children who frustrate their parents more watched more hours of television. A causal relationship cannot be implied however, pediatricians should be aware of these correlations and begin AAP suggested counseling of media awareness at an early age.

Abstract 50

Changes in Parenting and Communication over the First Year of a Child's Diagnosis of Cancer

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Purpose: Increased stress during a child's cancer treatment can have detrimental effects on parent-child interactions. Changes in these interactions may vary as a function of child gender, age, and informant. We expected that parenting and communication would decline throughout the first year post-diagnosis, particularly from the perspective of adolescents and girls. **Methods:** Families of 104 children ages 10-17 ($M = 14.56$, $SD = 2.23$) were surveyed 1-2 months after a child's diagnosis of cancer (T1) and again 1 year later (T2). Half of the sample of children were male (50%), and most were White (86%). Difference scores between T1 and T2 for child and parent reports of openness and problems in communication, as well as warmth/acceptance, psychological control, and behavioral control parenting behaviors were computed. Dependent samples t-tests examined informant differences, while multiple regressions tested interaction effects for child age and gender on changes in communication and parenting scores. **Results:** Relative to parent report, children reported more negative parent-child interactions at T1, particularly with moms. At T2, there were no differences between child and dad report, but children reported more negative parenting on several domains by moms. Relative to boys, girls reported that moms' psychological control increased more over time ($B = .21$, $p = .05$) and warmth decreased ($B = -.15$, $p = .04$). Moms of daughters reported greater increases in open communication ($B = .26$, $p = .02$) than moms of sons. For gender x age interactions, moms with younger sons reported a decrease in behavioral control from T1 to T2. Moms with younger daughters reported an increase in behavioral control ($B = -.06$, $p = .001$) and communication problems ($B = -.09$, $p = .04$) over time. **Conclusion:** Parenting and communication may decline after a child's diagnosis of cancer, but family perspectives differ based on the child's age and gender. These discrepancies show the importance of multi-informant data and family-based interventions targeting parent-child interactions after a diagnosis of cancer.

Abstract 51

Age as a Predictor of Health Care Utilization in Children with Inflammatory Bowel Disease

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Purpose: Crohns Disease and ulcerative colitis, collectively known as inflammatory bowel disease (IBD) are two of the most significant chronic gastrointestinal conditions. Patients diagnosed with IBD account for \$6.3 billion in disease-related health care costs annually with children under the age of 20 yielding significantly higher care costs than costs for adults (Kappelman et al., 2008). These costs were largely associated with utilization of inpatient and ambulatory services rather than medicinal costs. The aim of this study is to determine relationship between age, sex, disease severity and health care utilization in youth with IBD. **Methods:** Physician disease severity ratings and retrospective chart review for 236 youth ages 7-20 years (M=14.29, SD=3.04) were utilized to examine healthcare utilization in the past 12 months. Correlations between age, sex, disease severity, and health care utilization as well as differences in health care utilization were examined between children (7-12 years;n=76) and adolescents (13-20 years; n=160). **Results:** Child age was significantly correlated with health care utilization such that older youth age was associated higher rate of hospital admissions, ER visits, psychological visits, GI clinic visits, and number of phone calls to provider regarding IBD (all p values < .04). T-tests revealed that adolescents age 13-20 utilized all forms of healthcare significantly more than children (all p values <.01). When entered simultaneously into a regression equation, both age and disease severity are significant predictors of hospital admissions, ER visits, psychological visits, and phone calls to providers (all p values for age and disease severity < .05). **Conclusion:** Although physicians do not rate disease severity as higher in adolescents with IBD, adolescents engage in increased health care utilization such as hospital admissions, ER visits, psychological visits, GI clinic visits, and phone calls to a provider compared to children with IBD. Future studies should examine differences in costs related to health care utilization for adolescents and children as well as investigate additional predictors of health care utilization in adolescents with IBD.

Abstract 52

Is there a Correlation between Sleep Difficulties and Behavior Concerns in Children with Down syndrome?

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Purpose: The purpose of the present study is to describe correlations between parent report of specific sleep concerns and maladaptive behaviors in children with Down syndrome. **Methods:** Children with trisomy 21, Robertsonian translocation, were included in the data collection from the Down Syndrome Clinic at Vanderbilt. Internal Review Board approved the study. Measures included the Child Sleep Habits Questionnaire (CSHQ) and Aberrant Behavior Checklist (ABC), focused on children who were over 2.5 years of age. Analysis was administered by SPSS to determine statistical significance. **Results:** Data from sixty-one patients was analyzed. Male subjects comprised 61.5%, with all subjects being over 2.5 years of age. Parents responded on CSHQ, and most commonly identified restless in sleep (36.2%) as a concern. ABC responses identified does not sit still most frequently as a concern. Pearson correlation coefficient found a weak negative correlation (0.2161) between restless sleep and not sitting still, which was therefore not statistically significant (p=0.09). No correlation was noted between snoring and hyperactivity or sleep bruxism and repetitive behaviors. **Conclusion:** The present study indicates either a negative or absent correlation between components of sleep difficulties and specific maladaptive behaviors. Previous reports suggested that children had more difficulty with night waking and bedtime resistance, which were not as prevalent in the present cohort. Sleep difficulty in DS is a noteworthy clinical occurrence, requiring comprehensive

evaluation and treatment from surgical and medical perspectives. More research is needed to determine additional clinical correlations between sleep disorders and developmental-behavioral profiles in children with DS.

Abstract 53

Best Predictors of Health-Related Quality of Life among Adolescents with Crohns Disease

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Purpose: Crohns Disease (CD) is a chronic gastrointestinal illness characterized by unpredictable symptoms (e.g., diarrhea) and rigorous treatment (e.g., multiple medications and surgical interventions). The effect of family and emotional functioning on HRQOL in adolescents with CD is currently unknown. The current study examines the predictors of generic and disease-specific HRQOL in youth with IBD when considering physician-rated disease severity, depressive symptoms, parenting stress, family functioning, and parent-report of adolescent HRQOL. **Methods:** Eighty adolescents with CD and their parents completed the Pediatric Quality of Life Inventory (PedsQL), the IMPACT-III and Childrens Depression Inventory at a GI clinic visit at one of two sites. Parents completed the Pediatric Inventory for Parents, Family Assessment Device and the PedsQL Parent-Report. Physicians completed the Pediatric Crohns Disease Activity Index- Short Form rating of disease severity. **Results:** Results suggest that depressive symptoms are the best predictor of generic HRQOL in adolescents with CD. Similarly, depressive symptoms and physician-rated disease severity appear to be the best predictors of disease-specific HRQOL in adolescents with CD. These results suggest an overall trend such that the presence of depressive symptoms is associated with impaired HRQOL. Parenting stress, family functioning, and parent-report of teen HRQOL do not appear to be predictors of generic or disease-specific HRQOL. **Conclusion:** Depressive symptoms appear to be the best predictor of HRQOL in adolescents with CD. This trend is consistent between generic and disease-specific HRQOL, suggesting that a shorter, generic HRQOL measure (i.e., the PedsQL, a 23-item measure) may be a clinically sufficient measure. As may be expected, physician-rated disease severity is a predictor of teen-reported disease-specific HRQOL. This highlights the impairment that youth with CD experience on a daily basis, with those who experience higher rates of GI symptoms reporting more impairment on their daily life. It is important for clinicians to consider the relationship between disease-severity and HRQOL impairment.

Abstract 54

Behavioral Health Care Integration in Primary Care Settings

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Purpose: To rate providers and staff level of integrating behavioral health care services pre and post primary care practice intervention: Lessons from pediatric practices participating in South Carolina CHIPRA **Methods:** A modified Level of Integration Measure (LIM), which includes clinic system integration, beliefs and commitment, clinical practice, and interdisciplinary alliance sub-scales, was used to assess behavioral health integration at baseline and 12 months after participating in learning collaborative that focused on integrating behavioral health (BH). As part of the collaborative, practices received technical assistance, and conducted PDSA cycles on implementing strategies to improve integration. Additionally, individual provider and staff interviews were conducted to explore providers/staff attitudes and challenges around BH integration. **Results:** LIM results showed 100% of

practices in yr2 refer to behavioral health specialist (BHS) in the community compared to 89% in yr1. Across both years >75% of practices reported insufficient BHSs who accept patients with Medicaid. Data showed little to no movement in total scale scores. The greatest gains were associated with subscale items e.g. treatment plans in our practice integrate the behavioral and physical health needs into one treatment plan with 50% more respondents agreeing with this statement in yr2. In qualitative interviews providers and staff expressed commitment to improve integrated BH. Challenges continue to limit the effectiveness of integration - lack of pediatric friendly EMRs, lack of child psychiatry services, and billing and reimbursement are major hurdles. Additional support and training for providers, with time, were indicated as essential to more fully embrace BH. **Conclusion:** Although progress has been made, CHIPRA providers are challenged to fully integrate BH in their pediatric practices. Building capacity of pediatric providers to offer short-term/limited behavioral health care, reducing administrative burden of BHS to serve as Medicaid providers within different insurance models, e.g., carve-in environment, encouraging tele-psychiatry as an option for BH consultation will result in greater integration of BH.

Abstract 55

Psychiatric Comorbidity in Type 1 Myotonic Dystrophy: A Population-Based Study Using Electronic Health Records

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Purpose: Type I Myotonic Dystrophy or Steinert disease (DM) is the most frequently inherited neuromuscular disease. Previous research has suggested a relatively high psychiatric co-morbidity in DM; however, most studies have involved very few subjects and have not examined the full array of psychiatric and/or neurodevelopmental conditions that can co-exist with DM (Douniol et al., 2009; Goosens et al., 2000; Steyaert et al., 2008). We examined psychiatric and/or neurodevelopmental comorbidity in individuals with a diagnosis of DM drawn from a large population-based database **Methods:** 410 individuals (220 males; 200 females) between the ages of birth and 39-years (M= 38.4) with a clinical diagnosis were drawn from a large population-based database. The ethnic composition of the sample was as follows: Caucasian (63%), Unknown (19%), African American (4%), Other (6%). **Results:** Approximately 20% of our sample met co-morbid criteria for a mood disorder. Approximately 22% had co-morbid sleep difficulties. 7.3% and 5% had co-morbid ADHD and anxiety disorders respectively. **Conclusion:** Consistent with previous literature our results suggest a rate of psychiatric and/or neurodevelopmental co-morbidity in patients with DM comparable to the general population. Mood and sleep disorders were particularly prevalent. Our findings reiterate the importance of adequately screening for psychiatric and/or neurodevelopmental disorders in this patient population as such conditions can significantly compromise quality of life and long-term outcomes.

Abstract 56

Psychiatric Comorbidity in Congenital Hereditary Muscular Dystrophy: A Population-Based Study Using Electronic Health Records

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Purpose: Previous literature suggests that psychiatric and/or neurodevelopmental disorders are common in children with congenital muscular dystrophies [MD] (Bresolin & D'Angelo, 2006; Darke et al., 2006; Hendriksen & Vles, 2008, Hinton et al., 2009, Kohane et al, 2012). However, most studies have involved few subjects or a case study format. Here we aim to better characterize psychiatric and/or neurodevelopmental co-morbidities of MDs in a population-based sample. **Methods:** We examined psychiatric and/or neurodevelopmental co-morbidity in 560 individuals (360 males; 200

females) between birth and 39 years (M= 21-years) with a diagnosis of MD drawn from a large population-based database. The ethnic composition was as follows: Caucasian (62%), African American (12%), unknown (12%), multi-racial (1%), Asian (1%), other (1%). **Results:** Approximately 16% of the sample met co-morbid criteria for a mood disorder. Nineteen percent of the sample had co-morbid sleep difficulties. ADHD or anxiety disorders were co-morbid in 5.3% of participants. Finally 1.8% met criteria for an Autism Spectrum Disorder (ASD). **Conclusion:** Psychiatric and/or neurodevelopmental conditions may occur equally as frequently in individuals with congenital muscular dystrophy as in the general population. Depression and sleep issues are particularly prevalent. Our findings highlight the importance of screening for psychiatric and/or neurodevelopmental conditions in this patient population. We have observed an incidence of ASD in this population significantly less than prior studies, 5.6% Khane et al and 3.1% Hendriksen, suggesting that our population may possibly be under reporting ASD as a co-morbidity.

Abstract 57

Ethnic Disparities in Accessing Services for Children with Autism Spectrum Disorders

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Purpose: To examine disparities in access to developmental and educational services among children with autism spectrum disorders (ASD) from low socio-economic status **Methods:** Retrospective chart review of children with autistic disorder, pervasive developmental disorder (PDD) and Aspergers disorder, seen at a mental health program of an urban children's hospital, between 1/1/2009 and 12/31/2011. The clinic serves only families with Medicaid. We used a standardized data collection protocol and entered into a research database. Predictor variables include ethnicity and parental acculturation measured by foreign birth, primary language, and length of US residency. Outcomes were presence of individualized educational plan (IEP) goals in communication and social skills, state disability program access, and number of hours of direct services by their state disability program. Data were analyzed with linear and logistic regression **Results:** Of 152 charts included, 76% had autism, 21% PDD, and 3% Aspergers Disorder. 84% were boys. 69% were Latino. 66% of parents had a primary language other than English. Significant differences in services were seen based on parents primary language: Controlling for child's age at diagnosis, gender, ethnicity, and institution where the ASD diagnosis was made, children with parents whose primary language was English were significantly more likely to have social skills goals (OR=4.8, p<.01) and communication goals (OR=11.0, p<0.01) in their IEP. Although there were no language-based differences in state disability program access, children of primary English speakers received significantly more hours of direct services from their state disability program ($\chi^2=.24$, p<.05) **Conclusion:** Racial and ethnic disparities accessing health care have been described in children with autism. This study confirms that services targeting core symptoms of autism are also subject to disparities. In this sample, disparities were related to acculturation differences. Language barriers may affect parents ability to advocate for services. Acculturation factors need to be considered in more detail in future studies when analyzing disparities in autism

Abstract 58

The Utilization of Parental Support Groups Among Parents of Children with Autism Spectrum Disorder

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Purpose: The purpose of this pilot study is to understand the facilitators that influence the utilization of parental support groups and to explore if there are any racial differences among parents of children with autism spectrum disorder (ASD). **Methods:** Parents were recruited from the community and through a developmental-behavioral pediatric clinic to participate in one of two focus group sessions. The focus group sessions were held at a local university and at a developmental-behavioral pediatric clinic. Sessions utilized seven open-ended questions to identify benefits, barriers, and facilitators that influence participation in parental support groups. Parents responded to each question individually, and they were allowed to provide their written responses to support and validate session responses. Parents' responses were recorded by manual transcription. **Results:** Results of two focus groups (N=11) identified common themes of the benefits, barriers, and facilitators that influence participation in parental support groups. Ninety-One percent of parents in the focus groups were females. Sixty-Four percent of parents were African-Americans, who were recruited from the community while 36% of parents were Caucasians recruited primarily from a developmental-behavioral pediatric clinic. Thirty-Six percent of parents believe support groups could be beneficial, and 80% believe support groups are needed. Only 1 parent out of the 11 (9.1%) has ever attended a parental support group. Parents identified that learning more information on how to parent a child with ASD and learning from other parents on what treatments has worked for their child as topics they would like to be addressed in a support group. Barriers identified include: knowledge of accessible support groups, time to attend, and transportation. Parents expressed that their child's medical doctor did not recommend support groups to them. There were no racial differences found in the utilization of parental support groups. **Conclusion:** Majority of parents of children with ASD did not utilize parental support groups even though they believe that support groups are needed. Further studies are needed to see if parental support groups can be used in family-centered treatment of ASD.

Abstract 59

Parent-Child Activities And Developmental Outcomes After Adverse Childhood Experiences
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Purpose: Adverse childhood experiences (ACE) in settings of poverty, can profoundly impact a child's health, developmental, and educational outcomes. A growing body of research has demonstrated that the association between poverty and positive developmental outcomes is, in part, mediated by parenting practices that are less responsive and interactive. However, population-level data to describe parent-child interactive activities and associations with developmental outcomes are lacking. We sought to describe (1) parent-child interactive activities (i.e. reading to children, telling stories/singing songs) among a nationally representative sample of children ages 0-3 years, (2) differences between parent-child interactive activities across diverse demographic factors and (3) whether participating in parent-child interactive activities is associated with parental concern about developmental delay. **Methods:** Descriptive analysis of cross sectional data obtained from the National Survey of Children's Health 2011-2012 was conducted on 3711 mothers or fathers of children aged 0-3 years who had experienced at least one ACE. **Results:** 55% of children were white, 10% black, 22% Hispanic, and 13% multi-racial/ other. 49% of parents reported reading to their children daily; 67% sang or told stories daily. Children without private health insurance, supported by the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Program, and of racial minorities were less likely to engage in parent-child interactive activities. 10% of parents reported concerns about their child's development. Participating in parent-child interactive activities was correlated with a decreased likelihood of reporting developmental concerns. **Conclusion:** This population study adds to research data from genetic, biological, and behavioral sciences emphasizing the importance of interactive parent-child interactions in promoting developmental competencies. Further strategies and interventions that enrich supportive relationships in early childhood should be evaluated with respect to their impact on developmental trajectories among vulnerable children experiencing adversity.

Abstract 60

Impact of Rapid Developmental Evaluation on Access for Children with Developmental Concerns

Susanne P. Martin-Herz, MD, PhD, Pediatrics, Stanford University School of Medicine, Stanford, CA, Cheryl Goldfarb-Greenwood, RNC, MN, CNS, Anne DeBattista, APRN, PhD(C), Heidi Feldman, MD, PhD, Pediatrics, Stanford University School of Medicine, Palo Alto, CA

Purpose: This project studied the impact on wait times and referrals to tertiary Developmental-Behavioral Pediatrics (DBP) of Rapid Developmental Evaluation (RDE) conducted by a Developmental-Behavioral (DB) Pediatrician co-located in a Primary Care Health System. **Methods:** Four Pediatric clinics from a Federally Qualified Health Center were chosen for study. Over 10 months, a DB pediatrician provided mid-level RDE to children referred by primary care providers. RDEs were conducted 1-2 times per month at each site. Evaluations included history, physical exam and targeted assessment to evaluate need for services (e.g., early intervention services (EIS) or IEP evaluation) or tertiary DBP referral. **Results:** 52 children were evaluated. Average age was 46±26 months (range 3-131). 73% were male, 81% Hispanic/Latino and 65% Spanish-speaking. 94% had government sponsored insurance. 6% were uninsured. Reasons for referral included concern for Autism Spectrum Disorder (ASD; 30%), Speech-language Delays (27%), and unspecified Developmental Delays (19%). Average time from referral to RDE was 33±22 days (range 2-94). All children received appropriate clinical referrals (e.g., audiology, EIS, IEP) and related guidance for parents. Provider education was given. Seventeen children (33%) were referred to the tertiary DBP center for full evaluation. To date, 9 of these children have been evaluated, 8 of whom were diagnosed with ASD. Average wait time for tertiary DBP visit was 3.0±1.6 months. Average wait time for non-RDE referrals was 6 to 8 months, in part due to need for clinical information gathering prior to scheduling. Challenges included interpretation for non-English speaking families and staff support in primary care clinics. **Conclusion:** Co-location of DBP for RDE is a feasible model of care which can result in shorter patient wait times and reduced referrals to tertiary DBP, while providing patients, families and providers with appropriate education and referrals for services. Next steps include investigation of physician and patient satisfaction and detailed follow-up of children not referred to tertiary DBP to assure needs are being met.



Poster Session 2

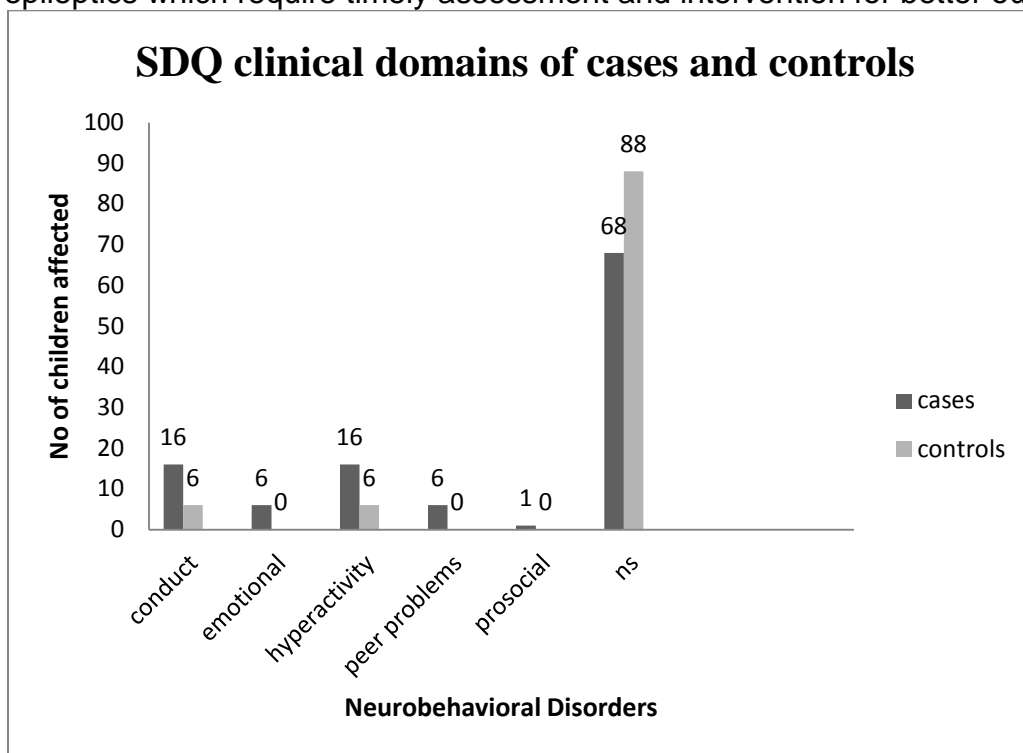
Monday, September 22, 2014 from 1:00 pm – 2:00 pm
Legends Ballroom D

Abstract 61

Prevalence of Neurobehavioral Disorders in Children With and Without Epilepsy - A Case Control Study.

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Purpose: Epilepsy is the commonest neurological disorder of childhood and a high percentage (29%) have a coexisting behavioral disorder. **Methods:** 100 consecutive children attending the pediatric epilepsy OPD between the ages of 4 -12 years with an average IQ were enrolled. 100 children, who were age, gender and socio economic status matched (usually siblings) were included as controls. Children with neurodevelopmental disorders such as cerebral palsy, mental retardation, autism, genetic abnormalities, febrile seizures and metabolic seizures were excluded. All the participants were administered SDQ (Strength and Difficulty Questionnaire). The SDQ is a standardized validated international tool available in Hindi. The SDQ taps various 5 domains including 1) emotional issues (fear, nervousness) 2) behavioural issues like hyperactivity 3) prosocial tendencies 4) conduct problems (tantrums, lying, stealing) and 5) peer problems. The data thus obtained was analysed using Fischers exact tests for comparing between the cases and controls. **Results:** 61% of the cases were males (M:F 1:56). Maximum number of cases were in the age of 10-12 years. Upto 83% had generalised epilepsy and the etiology was of idiopathic in 92% of the cases and in 8% the epilepsy was due to neurocysticercosis. 90% of the cases were treated with monotherapy of which sodium valproate was the most common drug used. 31% of the cases as compared to 12 % of the controls reported neurobehavioral problems which was significant as analysed by the chi square test of significance ($p < 0.005$). Among the 31%, 19% had conduct problems, 6.4% had emotional issues, 32% had behavioral problems including hyperactivity and 6.45% had problems in peer relationships. On logistic regression a close association was seen between cases and conduct problems, hyperactivity disorders. 4 children had significant impairment due to hyperactivity leading to school dropouts. The prevalence of neurobehavioral disorders in our study was 31%. The only other Indian data available in this regard is a study done at Vellore which showed a prevalence of 53.8%. Our study had reported 35.5% of the neurobehavioral problems secondary to conduct problems and hyperactivity in epileptics. **Conclusion:** Neurobehavioral disorders are significant comorbid conditions seen in epileptics which require timely assessment and intervention for better outcome.



Abstract 62

Clinician Disparities in Screening for Anxiety and/or Trauma Among Children with ADHD in

General Pediatric and Mental Health Settings

Joseph Spitzer, MD, Douglas L. Vanderbilt, MD, Karen Kay Imagawa, MD, General Pediatrics, Sheree M. Schrager, PhD, Hospital Medicine, Children's Hospital Los Angeles, Los Angeles, CA

Purpose: Epidemiologic and clinical samples of children with ADHD and anxiety disorders reveal a comorbid association of nearly 25% between these disorders. It is often unclear whether these anxiety disorders are serving as the primary etiology or an exacerbating factor of ADHD symptoms. With many anxiety disorders, including PTSD, symptoms may appear as ADHD-like. It is crucial to differentiate ADHD from anxiety disorders since treatment options differ. Additionally, anxiety without ADHD may be considered a contraindication to stimulant medication, which is the first line treatment of ADHD. **Methods:** Data were retrospectively collected from children 4-18 years of age with an ADHD diagnosis seen between 2009-2012 in an academic children's hospital's general pediatric (GP) setting and in the community mental health (MH) setting of this same institution. Documentation for any form of an anxiety and/or trauma screen was assessed. Screening rates were compared between visits in the GP vs. MH setting, and between visits with a developmental-behavioral pediatrician (DBP) present vs. visits without a DBP. **Results:** Analysis of 200 charts (100 GP, 100 MH) revealed an overall 44% documented anxiety or trauma history screen when diagnosing a child with ADHD. DBPs were responsible for 53 (26.5%) of the cases; with DBP involvement, screening rates for anxiety or trauma rose to 77% as compared to no DBP involvement. Screening rates showed significant variation by setting and clinician type ($\chi^2(3)=103.51$, $p<0.001$): General pediatrician in GP setting, 6%; DBP in GP setting, 36%; therapist in MH setting, 69%; therapist with DBP in mental health setting, 92%. **Conclusion:** Clinicians in the GP setting, including DBPs, document screening for anxiety or history of trauma significantly less often than clinicians in the MH setting when evaluating for ADHD. Developmental-behavioral pediatricians have an opportunity to improve the rate of anxiety and trauma screening when evaluating for ADHD in all settings.

Abstract 63

Evaluation of a Text Messaging Program to Educate Low-Socioeconomic-Status Parents on Language Promoting Activities

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Purpose: To assess the feasibility of using text messages to educate parents on how to stimulate their child's language development. **Methods:** 28 parents of children ages 12-36 months with risk of speech delay seen by primary care providers at a large urban safety net clinic were enrolled in the program. Participants were sent three text messages per week for 12 weeks. Text messages contained activities parents could do to stimulate child language development and information on local child development programs. Telephone surveys were conducted pre- and post-program to assess demographics of participants, as well as feasibility and usefulness of the program. Optional survey questions were delivered by text message during the program to assess active participation. We used Wilcoxon signed-rank and paired t-test to test significance of pre- and post-survey results. **Results:** 26/28 parents completed the program, and 25 parents completed both pre- and post- program surveys. 68% of enrolled parents were Hispanic/Latino and 18% were Black. 50% of parents were primarily Spanish speaking. Pre- and post- surveys demonstrated significant improvement in parents self-reported knowledge of language promoting activities ($p=0.0025$), knowledge of community programs ($p=0.001$), and participation in language promoting activities ($p=0.014$). Parents also reported a significant increase in library visits ($p<0.006$). The vast majority of parents found the program valuable (96%), and all would recommend the program to other parents (100%). In addition 55% of participants responded to at least one optional text survey question. Total cost of the program per participant was estimated at \$0.27. **Conclusion:** Text messaging is an inexpensive, feasible, and engaging method for providing regular developmental education to low-

income families of children with speech delay. This pilot program was both overwhelmingly valued by parents and also improved parents knowledge of and participation in language promoting activities.

Abstract 64

Over-Referral of Children on Psychotropic Medication for Autism Spectrum Disorder Diagnostic Evaluations

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Purpose: Despite limited FDA indications and a lack of clinical guidelines, it has been reported that up to 64% of children with Autism Spectrum Disorders (ASD) have filled a prescription for psychotropic medication. However, the accuracy of ASD diagnoses in children suspected of ASD who have been prescribed psychotropic medication has not been previously reported. Our goal was to determine the percentage of children on psychotropic medication at the time of their presentation to a regional autism diagnostic clinic, and of these children suspected of an ASD, the prevalence of true ASD diagnoses. **Methods:** The electronic medical records of all patients evaluated at a regional autism diagnostic clinic between April 2011 and August 2012 were retrospectively reviewed. Information abstracted included demographic information, clinical diagnoses and psychotropic medication use at the time of the diagnostic visit. **Results:** 82(24%) of the 348 children were being treated with psychotropic medication at the time of their initial diagnostic evaluation. Of the children on medication, 49% (N = 40) were on more than one medication; 61% (N = 50) were taking stimulants; 5% (N =4) were taking a norepinephrine reuptake inhibitor; 43%(N=35) were taking antipsychotics; 6% (N = 5) were taking a mood-stabilizer; 30%(N=25) were taking alpha-agonists; 18% (N = 15) were taking selective serotonin reuptake inhibitors and 6% (N=5) were taking other antidepressants. Children on psychotropic medication were older (9 years 2 months \pm 3 years 6 months vs. 5 years 8 months \pm 2 years 11 months) and less likely to receive an ASD diagnosis than those on no psychotropic medication (50% [N=41] of children on psychotropic medication received an ASD diagnosis vs. 65% [N=172] of children on no psychotropic medication; $p=0.017$). **Conclusion:** Nearly one quarter of children suspected of an ASD are already being treated with psychotropic medication prior to their diagnostic evaluations at a regional autism clinic. However, only half of children suspected of an ASD who are already on psychotropic medication have a true ASD diagnosis. This over referral of children for ASD evaluation among children with behaviors that have been determined to require treatment with psychotropic medication warrants enhanced efforts to both educate providers and create clinical guidelines to ensure diagnostic accuracy and appropriate psychopharmacologic therapy.

Abstract 65

Perceptions and Expectations of Caregivers of Children with Fragile X Syndrome Toward the Next Generation of Targeted Treatments

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Purpose: Behavioral and psychological concerns are prominent and wide-ranging in individuals with Fragile X Syndrome (FXS). We now find ourselves at the cusp of a new and potentially effective approach to treating individuals with FXS requiring human clinical trials to determine efficacy and safety. This is the first study seeking to identify views and expectations of clinical trials and targeted treatments among caregivers of children with FXS. **Methods:** Through focus groups, we examined caregivers' views of current FXS clinical trials. Caregivers from the local community were recruited through a FXS clinic's parent liaison and through the National Fragile X Foundation. Information

gathered was audio-recorded, transcribed, and analyzed using qualitative thematic methods. A recent large trial did not reach the primary outcome and the trial ended during the course of this study, and views expressed regarding this event were collected. Currently, two focus groups with 5 caregivers of 5 children between the ages of 9 and 17 years old have participated, and additional groups are planned. **Results:** Predominant themes included the unpredictability and anxiety of children with FXS, as well as the guilt associated with being a FXS caregiver. Caregivers emphasized wanting the medical community to provide in-depth, translational knowledge and individualized options for treatment. The 3 most common symptoms caregivers would like new treatments to target were anxiety, impulsivity and sensory issues. Themes related specifically to clinical trials ranged from fear of their child's being a guinea pig, to possible compromise of their child's autonomy, to concerns about potential changes in their child's personality. Families also reported being more skeptical of clinical trials after a recent large trial ended, however caregivers continued to express a willingness to participate in future trials. **Conclusion:** Ethical concerns were important considerations for FXS caregivers in their decision to enroll their child in clinical trials, particularly after a large trial ended when participants were seeing benefits of their treatment. This study has identified outcomes of targeted trials important for caregivers of children with FXS. This is particularly critical when considering how we measure success of treatment while designing clinical trials for this population.

Abstract 66

Needs Assessment Group for Newborn Hearing Screening Systems

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Purpose: National data from 2011 indicated 35.3% lost to follow-up rate after a failed Newborn Hearing Screening (NHS). NHS is a multifaceted system of education, screening, diagnosis, referral, treatment, and ongoing evaluation of the effectiveness of all components. Although universal NHS has dramatically reduced the number of late-identified hearing loss in children, there are still barriers that prevent the timely follow-up of all babies. The purpose of this study was to identify barriers to follow-up after referred NHS through the perceptions amongst stakeholders (i.e. parents, screeners, doctors, audiologists) and to determine gaps in the NHS system that contributes to loss to follow-up. **Methods:** Descriptive, qualitative data about the health beliefs and behaviors regarding utilization of NHS systems were collected using a Group Level Assessment (GLA) model. Participants included a group of ~30 stakeholders used to gather information about the NHS system in the Greater Cincinnati area. Participants were invited via already-established contacts within the NHS community including: parents, audiologists, physicians, speech-language pathologists, and birth hospitals. A non-human subjects IRB proposal was approved. **Results:** Five major themes concerning what is needed for the improvement of the NHS process emerged through the small group discussions: consideration of the various family emotional aspects of the NHS process, consistency among the people involved in the NHS process; improved communication among the different people involved in the NHS process and the community, family involvement in the NHS process, and NHS system gaps. **Conclusion:** Based on the thoughts and ideas generated during the GLA, community members, health professionals, and academic partners will continue to come together and collaborate to generate plans and ideas that will help to compensate for the barriers that many individuals face in the NHS process. Individual action groups may be developed at a next meeting to begin work on most-needed areas.

Abstract 67

Caregiver Perspectives on Barriers to Care in Childhood Attention-Deficit/Hyperactivity Disorder: Opportunities to Improve Care

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Purpose: To ascertain caregiver perspectives on obtaining medical care for children with ADHD, identify previously unrecognized challenges inherent in the process, and opportunities to improve care. **Methods:** Qualitative depth interviews were conducted with consecutively enrolled caregivers of children with ADHD ages 5-12 years covered by Medicaid or the State Children's Health Insurance Program who were followed in an academic developmental-behavioral pediatric clinic and had a history of inconsistent care. Caregivers were enrolled until thematic saturation, which is standard in qualitative research. Data were transcribed, content coded, and analyzed for emergent themes. **Results:** Fifteen caregivers were interviewed, 80% of whom were mothers. Caregivers identified their perception of the physician, their child's school difficulties, previous experiences in health care, barriers to access, cultural and personal understanding of ADHD, perceptions of treatment for ADHD and family characteristics as significant factors for engagement in care for their child's ADHD. The perception of the physician was a consistent theme across interviews. Caregivers needed their concerns validated and a sense that the physician cared about their child to continue to seek any care for their child's ADHD. Caregivers who felt that the physician did not listen to them or care about their child tended to be suspicious of the medical system and hesitant to engage with their child's physician. **Conclusion:** Positive rapport and good communication between parents and physicians was perceived to be a cornerstone of effective medical care. Negative interactions with a physician contributed to lack of engagement in care and unwillingness maintain consistent care. Some parents describe barriers in the system of care for ADHD but all caregivers are concerned about their relationship with their child's physician. These findings suggest that physicians can improve care from the caregiver perspective by ensuring a positive collaborative relationship with caregivers around treating their child's ADHD.

Abstract 68

Economics of Developmental-Behavioral Services in Primary Care

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Purpose: To describe the costs of services related to developmental-behavioral surveillance and screening in primary care. **Methods:** Time and cost values of screening materials and related services were analyzed by review of literature. Professional and staff salaries with overhead were set at \$72 per hour (\$1.20/minute). AAP policy recommendations for the 24 month old visit consisting of surveillance and screening of both general development and autism spectrum disorder were used. Tools studied were the Parents' Evaluation of Developmental Status (PEDS), PEDS:Developmental Milestones (PEDS:DM), and the Modified Checklist for Autism in Toddlers (M-CHAT). Furthermore, costs of surveillance, screening and directly related services were compared between hand written versus electronic method. **Results:** Costs were calculated for services and materials including: interview (\$12/10 min), screening tools (both copyrighted and reproducible-0.47; online 2.50), scoring(4.80/4 min), results explanation (2.40/2min-36/30 min), developmental promotion (6/5 min), referral letters (18/15 min as needed), take-home summaries (6/5 min), documentation (9.60/8 min), care coordination (25.20/21 min-36/30 min). Costs were also compared by patient complexity, adding in late-arising concerns (3.60/min) and interpreter services (25.75). With electronic mode, time for scoring, referral letters, summary was reduced, providing some cost savings. **Conclusion:** The Affordable Care Act values the prevention of chronic disease and public health improvement.

Developmental screening leading to early intervention improves health and socioeconomic outcomes. Whether administered online or by print, the time and costs involved in service delivery of developmental-behavioral screening may not be recognized and advocacy for adequate payment is needed.

Abstract 69

Comparison of Processing Speed, Math Performance, and Reading Performance in ADHD Children on Paper vs. Digital Interfaces

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Purpose: The use of electronic technology such as iPads or computers is increasing in academic settings. It is unknown whether these technological advances will be beneficial to children diagnosed with ADHD or whether these devices will add additional distraction. **Methods:** 51 ADHD children, ages 7-17, were given a battery of tests to measure processing speed, math performance, and reading speed and comprehension on paper and on iPad. Half the children (n=26) took the tests on paper first, half (n=25) on iPad first. 5 different tests were used: cancellation test(CT), Math Test(MT) and Reading Tes(RT). MT had 2 parts: # completed and # correct. The RT also had 2 parts: speed and comprehension. All analyses were carried out separately for each test. The Mann-Whitney test and the Spearman correlation coefficient were used. **Results:** 49 children (41 male) completed testing, with a mean age of 10.8. There were significant differences in scores between iPad and paper, as summarized in the table. See Table** There were no differences in any of the tests due to gender, age, grade, computer usage or TV>14 hours/week or ADHD medication usage. **Conclusion:** Children with ADHD performed better on cancellation, reading comprehension and math testing on paper compared to iPad. These results may suggest that ADHD children perform better on paper rather than electronic devices in the classroom setting. As computer and iPad usage in secondary school setting increase, more studies are required both with control and ADHD subjects in order to further explore electronic device effects on learning and testing.

Differences in scores between iPad and paper

	iPad	Paper	
TEST	Mean (SD)	Mean (SD)	p-value
CT	10.5 (3.7)	12.1 (3.8)	0.0009
MT Completed	10.5 (3.7)	12.2 (4.6)	<0.0001
MT Correct	9.5 (4.1)	11.5 (4.6)	<0.0001
RT Speed*	3.0 (1.8)	2.8 (1.5)	N.S.
RT Comprehension*	1.8 (1.3)	2.3 (1.2)	0.0087

Abstract 70

Depression at 4 Months Postpartum: Cognitive-Appraisal's Role

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Purpose: Depression in the postpartum period (DPP) is the most common psychiatric disorder associated with childbirth, negatively impacting the mother-infant dyad. DPP symptoms have been attributed to a combination of biopsychosocial stressors. Clinical guidelines call for screening of

maternal mood disorders at infant well-child checks through the first 4 months of life, and the Beck Depression Inventory, 2nd Edition (BDI-II) has been validated for use in the postpartum period to assess maternal depressive symptoms. The present study tests a theoretical model emphasizing the role of intrapersonal cognitions (cognitive-appraisal) on the report of DPP as compared to somatic symptoms (somatic-exhaustion) and interpersonal (impairment) factors. **Methods:** Mothers 4 months postpartum (N=100) were assessed for depressive symptoms using the BDI-II and a Structured Clinical Interview for DSM-IV (SCID). Confirmatory factor analysis (CFA) was conducted to identify the latent factor structure of the BDI-II, and a path analysis was conducted to test the hypothesis that a cognitive-appraisal latent factor on the BDI-II drives elevated scores and correlates with a SCID diagnosis of depression. **Results:** CFA supported a 3-factor model of the BDI-II with cognitive-appraisal, somatic-exhaustion, and impairment latent factors identified ($\chi^2_{(186)}=211.39$, ns; CFI=0.95; RMSEA=0.04). Path analysis supports the proposed hypothesis based on good model fit estimates ($\chi^2_{(204)}=231.92$, ns; CFI=0.95; RMSEA=0.04), and the proposed influence of cognitive-appraisal on somatic-exhaustion ($B = .75$) and impairment ($B = .48$) was supported. Additionally, cognitive-appraisal demonstrated the highest correlation ($r = .66$) with SCID diagnosis, compared to either somatic-exhaustion ($r = .46$) or impairment ($r = .01$). **Conclusion:** Preliminary support is offered for a theoretical model emphasizing the role of cognitive-appraisal on DPP. Endorsement of cognitive-appraisal items on the BDI-II at 4 months postpartum may warrant clinical assessment of DPP.

Abstract 71

Psychotropic Medication Prescriptions in Children with Autism Spectrum Disorder

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Purpose: Previous studies describe polypharmacy among children with Autism Spectrum Disorder (ASD) without comparison to control groups. We studied the rates of psychotropic medication prescriptions in children with ASD using the Military Health System (MHS) database in relation to a matched cohort. **Methods:** A retrospective matched cohort study was performed using prescription data for children aged 2-18 years old enrolled in the MHS database between 2000 and 2013. Five controls were matched without replacement to each child with ASD by age, gender, and enrollment time. Conditional logistic regression was performed with odds ratios (OR) with 95% confidence intervals calculated for having been prescribed the medication. **Results:** Of the 48,810 individuals with ASD and 244,045 without ASD, our query showed that 48% with ASD had been prescribed a stimulant as opposed to 11.7% of children without ASD, OR of 8.5 (8.25, 8.67). Of children with ASD, 30.4% were prescribed an atypical antipsychotic while only 2.1% without ASD had the same medication prescribed, OR 23.8 (22.89, 24.8). For Selective Serotonin Reuptake Inhibitors (SSRI) the data showed that 27% of those with ASD were prescribed an SSRI and only 4.1% of children without an ASD were given an SSRI, OR 10.95 (10.59, 11.31). **Conclusion:** Children with ASD in the MHS database are prescribed stimulants, atypical antipsychotics, and SSRIs more frequently than children who do not have an ASD diagnosis. This data may also indicate that they are given these medications at higher rates than expected compared to rates of comorbid conditions for which these medications are typically given. **DISCLAIMER:** The views expressed are those of the author(s) and do not reflect the official policy of the Department of Defense or the U.S. Government.

Abstract 72

Effect of Parent Education on Autistic Regression in Preschool-Aged Children

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Purpose: It has been estimated that approximately one third of children with ASD experience developmental regression in the areas of language, social skills, or mixed regression (Barger, et al., 2013; Baird, et al., 2008; Stefanatos, 2008; Lord, et al., 2004). Previous studies have reported that mothers with more education are more likely to report regression than mothers with less education (Lord, et al., 2014). **Methods:** The ATN is a comprised of a diverse community referral patient population at 17 sites across the US and Canada. All Non-Hispanic Black, non-Hispanic White, and Hispanic children from 37 to 71 months of age in the ATN database with data from a parent completed questionnaire regarding developmental regression were included. We determined the rate of parent-reported developmental regression and evaluated this rate by parental education among preschool-aged children. Using logistic regression, we controlled for, race, ethnicity, insurance status, and prior diagnosis of autism. **Results:** Controlling for race, ethnicity, insurance status, and prior ASD diagnosis, the odds of a child having developmental regression differed by primary caregiver education level overall ($p=0.0150$). Compared to children of parents with less than a high school education level, children of parents with post graduate education are at about half the odds of having developmental regression (OR 0.470, 95% CI 0.239-0.925, $p=0.0287$). **Conclusion:** We found that parents with post-graduate education were less likely to report autistic regression than parents with less than a high school education. Our findings are in contrast to previous reports that parents of higher education were more likely to report autistic regression in their children. Further studies are needed to better characterize parental factors that are related to reported autistic regression.

Abstract 73

The Relationship between Responsibility and Perceived Treatment Compliance in Adolescents with Sickle Cell Disease: Differences in Parent and Adolescent Perception

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Purpose: Less than 40% of children adequately adhere to treatment regimens; adherence rates are lowest in adolescence. A likely cause for this decrease is the transition of responsibility for disease management from the parent to the adolescent. We examined reports of responsibility and adherence among adolescents with sickle cell disease (SCD) and their parents. **Methods:** Sixteen African-American adolescents ($M=14.1$ years, $SD=2.0$; 69% female) with SCD completed the Responsibilities Questionnaire (modified from the ARQ; McQuaid et al., 2001) and Self-Care Inventory. Parents completed the Coping Health Inventory for Children (CHIC). **Results:** Teens who reported that they held more responsibility for their regimen had parents who reported greater treatment compliance (CHIC) ($r=.73$, $p<.05$). Teens reported that they took significantly more responsibility for their treatment regimen than their parents reported that their teens took ($t(27) = 2.96$, $p < .01$). Teens and parents agreed least about who is responsible for ensuring activity restrictions (54% agreement) and maintaining a proper diet (57%), with teens reporting sharing responsibilities and parents reporting they took primary responsibility. **Conclusion:** Teens who report having more responsibility for their regimen have parents who perceive them as more adherent. However, parents and teens disagree on who is responsible. Despite who is actually responsible, when teens perceive that they hold responsibility for their treatment, their parents report more treatment adherence. Research is needed to determine accuracy of report and how to improve transition of responsibility.

Abstract 74

Teacher Perceptions of Common Classroom Accommodations

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Purpose: Teachers play a critical role in providing accommodations for children with chronic health conditions. Some research has found that despite teachers' experience with these conditions, they feel unprepared and/or not responsible for dealing with condition-related issues (Clay et al., 2004). Further, accommodation burden has been negatively correlated with willingness to provide that accommodation (Smith et al., 2013). This study examined teacher perception of five common accommodations. **Methods:** 140 teachers recruited via e-mail completed a questionnaire assessing attitudes toward accommodations for children with health conditions. Participants were mostly female (88%) and teaching for more than 10 years (80%). **Results:** Repeated measures ANOVAs with Greenhouse-Geisser corrections, followed by post hoc tests using the Bonferroni correction, found that attending educational classes about the needs of children with chronic conditions was significantly more burdensome than rearranging the classroom, providing privacy for disease management, and educating the child's classmates about the condition ($p < .05$). Teachers reported that other teachers would be more willing to rearrange the classroom, allow missed class time, and educate classmates than attend classes ($p < .001$). Additional analyses found that teachers had less experience with ($p < .01$) and were less willing to ($p < .05$) attend educational classes than rearrange the classroom or educate classmates about the condition. There were no differences in teacher perception of the benefit of the accommodations. **Conclusion:** Despite seeing a benefit to attending educational classes about the special needs of children with health conditions, teachers reported more burden with and less willingness to enact this accommodation when compared to other, common accommodations. Further, teachers report a belief that their peers would also be less willing to attend classes when compared to other accommodations. This finding presents challenges to assuring that teachers understand the importance of accommodations. Future research should identify ways to assure appropriate preparation for teachers.

Abstract 75

Receipt of Behavioral Health Care in Children with Chronic Illness: Relationship among Type of Psychosocial Problem, Communication, and Disease

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Purpose: Data from the National Survey of Children with Special Health Care Needs (CSHCN) found that parents report 26.4% of children with chronic illnesses have psychosocial problems that need behavioral health care, less than found with standardized measures. Even fewer children receive this care. We examined the relationship between receipt of behavioral health services and type of psychosocial problem, family-focused communication between the physician and patient/family, and disease type. **Methods:** The CSHCN (2009-2010) includes interviews of over 40,000 parents of children with special health care needs ages 0-17. Parents answered questions about the health and functional status of their child, as well as disease status and communication with health care providers. **Results:** Overall, 80% of children identified by parents as having a psychosocial problem received treatment. Linear regressions were conducted for the entire sample and for each illness with type of psychosocial problem entered first and communication added in the second step. All three psychosocial problems were significant predictors of receiving care: anxiety/depression (Standardized Beta = .09, $p = .000$), acting out/bullying (Standardized Beta = .114, $p = .000$), and making/keeping friends (Standardized Beta = .053, $p = .000$). Six of the independent provider-family communication items and a composite of the communication questions significantly predicted receiving treatment after accounting for psychosocial problem. Similar findings were obtained for asthma and frequent headaches or migraines. Other chronic conditions were significant for one or two of the psychosocial problems. Additionally, significant differences were obtained in communication by child

age. **Conclusion:** Findings support the importance of communication between parents and health care providers in order for children with chronic illnesses to receive behavioral health care. Type of chronic illness is related to receipt of behavioral health care.

Abstract 76

How do Latino Families Perceive Autism Diagnosis and Management?: Early Intervention Providers' Experiences

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Purpose: To identify cultural factors in Latino families that impact how they interpret an Autism Spectrum Disorder (ASD) diagnosis and the resulting barriers to care, as seen through the experiences of Early Intervention Providers (EIPs) **Methods:** Focus groups were conducted with EIPs experienced in working with Spanish-speaking families. Of the initial 13 agencies contacted in 6 Eastern Massachusetts communities, 7 agreed to participate (54%). Interviews addressed (a) EIPs' experiences working with Latino families, (b) families' beliefs surrounding child development and ASD, and (c) barriers and facilitators to referral for ASD diagnosis and intervention services. Data were transcribed verbatim, content coded, and analyzed for emergent themes. **Results:** Seven focus group were conducted with 26 EIPs; the majority were developmental specialists and about 1/3 indicated Spanish language-proficiency. EIPs identified specific cultural beliefs surrounding child developmental norms including differences in expectations of early self-help skills and the role of adults in children's play. Barriers to early ASD diagnosis included differences in perceiving symptoms as a diagnostic problem, reliance on the experiences of other family members, communication barriers that exist despite use of interpreters, and the process of forming trust between providers and parents. EIPs identified factors that impact service delivery, including a paucity of bilingual service providers and difficulties engaging families as active participants in service plan. In addition, intensive in-home services impact functioning of the entire family, and draw attention to the child's problems, which may be stigmatizing. **Conclusion:** The findings reinforce that interventions to promote early ASD diagnosis and family-centered management in Latino families should take into account beliefs about child developmental norms, and address barrier to communication in order to promote trust and engagement in service plans.

Abstract 77

Preparing Medical Students to Care for Patients with Autism Spectrum Disorder

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Purpose: Medical education is increasingly expected to address under-served and vulnerable populations and teach medical students to be culturally competent. We developed a curriculum that incorporates didactic instruction, patient interviews and panel discussions to teach medical students how to care for patients with autism spectrum disorder (ASD). Our goal was to discover whether patient panels can effectively teach students patient care issues from the patient or family perspective. **Methods:** Medical students were asked nine closed-ended questions about the training using SurveyMonkey. Quantitative analysis of student feedback (N=99) was carried out using SPSS. **Results:** Students' age ranged from 23 to 37 years old (M = 25.5; SD = 2.25) and 50 students were male (49 female). No statistically significant difference was found in personal or professional knowledge about developmental disabilities between males and females. Overall, students reported positive or very positive changes after the training in areas including, knowledge about what to do or say (86.7%), level of understanding for the challenges that people with ASD face (86.6%), skills (77.3%), confidence (62.6%), competence in communication (70%), and ability to provide better care (80%). Males were almost 3 times less likely than females to report a change in their communication

skills ($p < .01$) and were less optimistic about future training being beneficial ($p < .05$). No differences were found based on race or ethnicity. Those without previous professional knowledge about ASD were significantly more likely to find the training helpful ($p < .05$). **Conclusion:** Disability specific education results in positive changes in students' knowledge, confidence and competence. Dissemination efforts are needed to incorporate disability in medical education.

Abstract 78

Outcomes of Group-Based Encopresis Treatment.

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Purpose: Group-based treatment for constipation and encopresis was first described in the 1980s; however, few studies have replicated the short-term outcomes of this approach to this common medical problem. **Methods:** Over 8 years, 162 patients with encopresis (age 3-13 years) participated in a six-session group-based treatment. The outcomes were defined as the difference between sessions 1 and 6 of weekly soils, weekly outputs, and average daily fiber and fluid intake. Covariates included patient age, age at toilet training, gender, race/ethnicity, and parent marital status. Statistical analysis was performed using SPSS and STATA. Analysis included paired t-test, t-test, and linear regression. **Results:** Between group sessions 1 and 6, participants had a significant increase in outputs and significant increases in fiber and fluid intake. Participants had decreased numbers of soils, approaching statistical significance. See Table 1. Bivariate analyses showed associations of: increased age at toilet training and single parent household with increased weekly soils; male gender with increased toilet outputs; and increased age at treatment with increased fiber and fluid intake. In multivariate regression, age at treatment, age at toilet training, gender, race/ethnicity, and parent marital status were not associated with changes in weekly soils, outputs or fiber/fluid intake. **Conclusion:** Group-based encopresis treatment led to improved patient outcomes. Bivariate analyses indicate outcome associations with some patient factors. Future studies should evaluate long-term outcomes.

Table 1. Impact of Group on Weekly Soils, Outputs, and Fiber/Flu

	Change between Week 6 and Week 1	95% CI
Soils (#/wk)	-0.6	-1.5, 0.3
Outputs (#/wk)	2.7	1.3, 3.9*
Fiber (g/d)	5.0	3.7, 6.4*
Fluid (oz/d)	10.5	8.4, 12.6*
		* $p < 0.001$

Abstract 79

Early Identification of Children at Greatest Risk: How do we Assess Parental Trauma?

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Purpose: Healthy parent-child interactions in the first 5 years of life lay the foundation for a child's

cognitive and socio-emotional development. Parental trauma history may interfere with the ability to foster this development. Identifying traumatized parents can allow for targeted interventions and limit the intergenerational transmission of trauma. The Adverse Childhood Experiences Screen (ACEs) is an important tool to assess trauma history, though little is known about how administration methods impact responses. **Methods:** The study was conducted at two primary care pediatric practices in Bronx, New York with a sample that was 78% female, 31% Hispanic, 22% black, and 75% received Medicaid. Both sites used the ACEs, a 10 item questionnaire about traumatic experiences (e.g., abuse, neglect), during the 2-month well-child visit, to identify families with children at greatest risk for poor outcomes. In the first clinic, a social worker administered the measure to parents. In the second, front desk staff asked parents to fill out the measure independently. **Results:** In total, 210 (134 CA and 76 SA) parents completed the ACEs. Chi-squares and t-tests were run to compare the groups on gender, ethnicity, insurance, and parental age. The two samples only differed significantly for gender, with more males in the CA group (29% vs. 7%, $p < .001$). Significant covariates were included in linear regression analyses. Differences between administration methods were found; the CA group had higher Total ACEs scores than the SA group ($B = .32$; $p < .0001$), after controlling for gender. **Conclusion:** The CA screen yielded a higher rate of traumatic events than the SA measure. Given the nature of this topic, a skilled clinician may be able to increase a parent's comfort level with revealing traumatic life events. As parental ACEs are shown to be important for predicting child outcomes, these results have implications for screening efforts intended to identify families in greatest need of interventions.

Abstract 80

The Role of Social Workers in Developmental-Behavioral Pediatrics

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Purpose: To assess the role of social workers in Developmental-Behavioral Pediatrics (DBP) practice. **Methods:** A 10-question Survey Monkey® survey on the role of social workers in DBP practice was posted on the SDBP on-line Discussion Board. SDBP members received emails informing them of a new thread on the Discussion Board with a brief description of the research; a reminder e-mail to complete the survey was sent 3 weeks later. Survey responses were compared between DBP practices that included a social worker versus those that did not using Fischers exact test. **Results:** 50 SDBP members completed the survey. 72.0% ($N = 36$) reported having access to a social worker; however only 22% ($N = 11$) reported having a social worker exclusively dedicated to their DBP practice. DBP practices with access to social workers were more likely to rate the roles of social workers to refer patients to community resources ($p > 0.001$) and to educate medical trainees ($p = 0.009$) as important compared to those without access to social workers. **Conclusion:** Despite the universal need to connect children with developmental-behavioral disorders and their families to community-based interventions and to provide support for families under stress, nearly 1 in 3 of DBP practices do not have access to social workers, and only 1 in 5 DBP practices have a social worker exclusively dedicated to their practices. These data indicate that social workers are being underutilized in DBP practice.

Abstract 81

Behaviorally Effective Healthcare in Pediatrics (BEHIP): Identifying Needs and Improving Collaboration for Primary Care and Mental Health Providers

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Purpose: Determine factors impacting implementation of American Academy of Pediatrics (AAP) proposed mental health competencies and develop a collaborative training model for community primary care and mental health providers. **Methods:** Telephone surveys of primary pediatric and email surveys of behavioral health providers who were members of a statewide network were reviewed to determine responses on a sample of practice readiness and practice change questions adapted from the AAP Mental Health Toolkit. Responses highlighted practice needs around screening, assessment and care coordination for primary care and behavioral health. Content developed based upon the identified needs guided a series of 3 hour face to face training events delivered statewide and evaluated by post training surveys. **Results:** 856 primary care and 574 behavioral health providers were contacted, resulting in 184 primary care and 143 completed interviews (21.5% and 25% respectively). For primary care providers 57% did not have or needed to improve a system to identify children and adolescents receiving behavioral health services. 47% indicated they needed to implement or improve the use of validated emotional/behavioral and substance abuse screening tools. For behavioral health providers, barriers to communication around records and contact with primary care providers were identified. Whereas 91% of respondents continued to collaborate with primary care once contact was established, 23% were unable to obtain records and 26% could not make contact via telephone at the time of initial referral. 12 training events were attended by 203 providers over 15 months: 136 primary care and 67 behavioral health. 91% of participants stated the BEHIP training addressed a need in their practice. **Conclusion:** Barriers to implementation of proposed mental health competencies can be addressed via a collaborative training methodology involving primary care and behavioral health providers in local communities. This program demonstrates an effective way to increase knowledge around mental health competencies in community settings.

Abstract 82

Safety and Tolerability of RG1662, a Selective Negative Allosteric Modulator of the GABAA \pm 5 Receptor (GABRA5), in Young Adults with Down Syndrome

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Purpose: We explored the safety and tolerability of RG1662 in people with Down syndrome (DS) aged 18 to 30 years. Experiments in the Ts65Dn mouse model of DS show improvement in learning after exposure to molecules that block GABRA5. Non-selective inhibitors of GABA-A receptors may however induce seizures and anxiety. Selective inhibition of GABRA5 enhances learning and memory in animals without these effects. In vitro, RG1662 is more than 100-fold selective for the GABRA5 compared to other GABA-A receptors. **Methods:** Study subjects received RG1662 at doses of 80, 160 and 370 mg BID or placebo for 5 weeks. Doses were predicted to occupy 30-80% of GABRA5 at trough. Each dose group included 11 subjects (8 subjects received RG1662 and 3 the placebo). Safety measures included vital signs, ECG, adverse events (AE), the Anxiety Depression and Mood Scales (ADAMS), EEG (baseline, Day 1 and Day 10 around Tmax), clinical chemistry, hematology and urinalysis. **Results:** One subject (370 mg BID) withdrew due to convulsive syncope in the context of vasovagal reaction (Day 10, preceding abdominal discomfort and pallor, hypotension, normal EEG recorded 2 hrs. after event). The proportion and type of AEs were not different across groups (16 AEs each in 80 and 370 mg- , 13 in 160 mg- and 22 in placebo- cohort). AEs were of mild and moderate intensity except for one episode of severe headache. A 15% increase in serum creatinine reversed promptly after end of treatment and probably reflects inhibition of tubular creatinine secretion. No

treatment-emergent epileptiform abnormalities in EEG were observed in any subject. There was no evidence of drug-related anxiety (AE reports, ratings on the ADAMS) nor were sleep abnormalities seen. No drug-related alterations in vital signs, ECG and other lab parameters emerged. **Conclusion:** Doses of RG1662 predicted to occupy GABRA5 up to > 80% were safe and well tolerated in young adults with DS. We did not observe the safety liabilities predicted with less selective inhibitors of the GABA-A receptor.

Abstract 83

Racial and Ethnic Differences in Developmental Regression in Children with Autism Spectrum Disorder

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Purpose: It is estimated that 15-47% of children with Autism Spectrum Disorder (ASD) experience developmental regression. Previous studies have found no difference in gender or socioeconomic status among children with ASD who regress and those who do not. However, there is limited information on the effect of race on the prevalence of regression in children with ASD. The Autism Treatment Network (ATN) is a collaborative of 17 centers caring for children with ASD. The purpose of this study was to determine the risk of regression among preschool-age children with ASD in the ATN Registry based on race/ethnicity. **Methods:** Subjects were all non-Hispanic Black, non-Hispanic White, and Hispanic children from 37 to 71 months of age in the ATN Registry with information available on developmental regression and the other factors controlled for in the study. Prevalence of developmental regression among the included subjects was determined. Logistic regression analysis was performed to determine odds ratios for risk of regression based on race (controlling for primary caregiver education, insurance status, and prior ASD diagnosis). **Results:** Among 2050 preschool-age children, 1353 were included in the study. We found that 26.8% of subjects had experienced developmental regression. Non-Hispanic Black children were at about twice the odds of regression compared to non-Hispanic White children (OR 2.060, 95% CI 1.385-3.064, $p=0.0004$); and Hispanic children were at about 1.5 times the odds of regression compared to non-Hispanic White children (OR 1.507, 95% CI 1.040-2.183, $p=0.0301$). **Conclusion:** We found that 26.8% of preschool-age children in the ATN Registry had experienced parent-reported developmental regression. We also found that non-Hispanic Black and Hispanic preschool-age children with ASD were significantly more likely to have developmental regression than non-Hispanic White preschool-age children with ASD. Further studies are needed to elucidate factors contributing to these racial and ethnic differences in regression among children with ASD.

Abstract 84

Stability of Autism Spectrum Disorder (ASD) Diagnoses in Children Ages 2-17: Analysis of 2011-2012 National Survey of Children's Health Data

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Purpose: 1) To examine the stability of ASD diagnoses in a nationally representative data set 2) To clinically characterize children whose parents report their children no longer have ASD 3) To compare this cohort with children who still have ASD **Methods:** Data from the 2011-12 National Survey of Children's Health (NSCH) were analyzed. The NSCH is a nationally representative, cross-sectional data set of non-institutionalized youth 0-17 years. Analyses were limited to parent responses about an ASD diagnosis past & present in youth ages 2-17. For youth who no longer had an ASD diagnosis,

analyses were done on questions regarding clinical course & diagnostic validity. **Results:** The NSCH sample consisted of 85,482 children ages 2-17. By parent report, 1,967 (2.3%) children were given a prior diagnosis by a healthcare provider of ASD (ASD-Prior). Of these, 82.6% (1624/1967) had autism at time of interview (ASD-Current), and 17.4% (343/1967) no longer had a diagnosis of ASD (ASD-No Longer). When parents of children with ASD-No Longer were asked if they thought their child ever had autism, 66.5% (228/343) agreed that ASD was once a valid diagnosis, 28.3% (97/343) reported it was invalid, and 5.2% (18/343) responded they did not know. There were significant differences in the following clinical variables between ASD-Current and ASD-No Longer children: age at ASD diagnosis; current use of medical care, mental health, or educational services; current functional impairment; current use of physical, occupational, or speech therapy; having an emotional, developmental, or behavioral problem needing treatment; current learning disability; and ever having anxiety. All differences were noted with significance level $p < 0.0001$. **Conclusion:** Based on parent report, 1 in 6 children previously diagnosed with an ASD no longer merit that diagnosis. In some cases, parents question the validity of the original ASD diagnosis; in other cases, parents report the diagnosis was given to justify developmental services. Future analyses of more robust, longitudinal data sets will better delineate the clinical course of ASDs in children.

Abstract 85

Sonographic Screening for Developmental Dysplasia of the Hip in Preterm Breech Infants

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Purpose: Breech infants are at higher-risk for developmental dysplasia of the hip (DDH) due to prolonged in utero knee extension and hamstring forces on the hip. Since the physiological in utero version to vertex presentation occurs at around 32 weeks gestational age (GA), breech infants born <32 weeks GA may not undergo necessary mechanical forces to warrant hip US screening for DDH. Furthermore, since the maturation of the hip is a dynamic process that continues into the postnatal period, the optimal timing of hip US for breech preterm infants is important to reduce unnecessary treatment. Hip US screening for high risk infants is recommended at 4-6 weeks after birth. The aim of the present study was to evaluate the incidence of abnormal findings on hip US for DDH in preterm breech infants <32 weeks and 32-37 weeks GA. A secondary aim was to investigate the incidence of DDH findings on hip US for preterm breech infants performed at a corrected age below full-term (<40 weeks), before the recommended screening age (40-<44 weeks), and at the recommended screening age (≥ 44 weeks). **Methods:** Hip US of 318 preterm breech infants were examined for abnormal hip morphology and stability. Findings were compared between infants born <32 weeks, or before the physiological in utero version, and infants 32-37 weeks GA. Findings were also compared between infants of corrected ages <40, 40-<44, and ≥ 44 weeks at the time of US. Exact logistic regression was used to determine relative risk for DDH findings. **Results:** Infants <32 weeks ($n=135$) had 3 (2%) positive findings for DDH, and infants 32-37 weeks ($n=183$), had 17 (9%) positive findings for DDH. Infants <32 weeks were less likely to have DDH findings compared to infants 32-37 weeks GA (odds ratio: 0.22, 95% CI: 0.04-0.79; $p < 0.01$). Infants <40 weeks corrected age at time of hip US were more likely to have DDH findings compared to infants ≥ 44 weeks corrected age (odds ratio: 8.11, 95% CI: 2.27-30.80; $p < 0.001$). **Conclusion:** Infants born <32 weeks exhibited a reduced risk for DDH findings as compared to infants born 32-37 weeks GA. Infants screened at a corrected age of <40 weeks had about 8 times the risk for DDH findings compared to infants screened at a corrected age of ≥ 44 weeks. This suggests that current hip US screening policies may need to be revised to take into consideration the GA and corrected ages of preterm breech infants.

Abstract 86

Satisfaction with Healthcare of Parents of Children with Developmental Disabilities and Physical Illnesses

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Purpose: The purpose of this study was to determine the level of satisfaction with healthcare of parents of children with developmental disabilities (DD) compared to parents of children with chronic physical illnesses (CI). **Methods:** The National Survey for Children with Special Health Care Needs (NS-CSHCN; 2011-2012) is a nationally representative telephone survey of over 40,000 families of children aged 0-17 with special healthcare needs. Parents responded to questions about their children's healthcare needs, their access to healthcare, and ways in which their healthcare affects other areas of life. **Results:** Parents of children with DD (Autism Spectrum Disorders, developmental delay, intellectual disability/mental retardation, or Down's Syndrome) reported lower levels of satisfaction on all measures than parents of children with CI (asthma, diabetes, epilepsy, heart problems, or blood problems). Satisfaction questions included whether healthcare providers (mean difference on 4-point scale listed in parentheses): spent enough time with the child (.28), listened carefully to the parent (.22), was sensitive to the family's values and customs (.16), gave the parent the specific information they needed (.35), helped the parent feel like a partner in his or her child's care (.22), discussed the range of options to consider (.31), encouraged the parent to ask questions or raise concerns (.21), made it easy for the parent to ask questions or raise concerns (.22), and respected treatment choices the parent thought would work best (.20). All differences were significant at the $p < .001$ level. Lower socioeconomic status, minority status, less parent education, and being uninsured were also associated with lower satisfaction scores. **Conclusion:** Parents of children with DD report less satisfaction with healthcare providers than parents of children with CI. Despite both groups having a burden of caring for their child, we found that parents of children with DD may require greater attention and care to be satisfied with their child's care.

Abstract 87

Home Language and Barriers to Health Care Affect Problems Attending School Among Children with Chronic Illnesses

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Purpose: Chronic illnesses and/or special healthcare needs often interfere with school attendance. Families for whom English is not the language spoken at home face additional challenges obtaining healthcare and attending school. We evaluated the relationship between reported number of barriers to healthcare and trouble attending school for children with special healthcare needs and how primary (home) language affects this relationship. **Methods:** The National Survey for Children with Special Health Care Needs (NS-CSHCN; 2011-2012) is a nationally representative telephone survey of over 40,000 families of children aged 0-17 with special healthcare needs. Parents responded to questions about their children's healthcare needs, their access to healthcare, and ways in which their healthcare affects other areas of life, such as school. **Results:** Hierarchical Linear Regression revealed a main effect for number of barriers to healthcare predicting trouble attending school ($B = .224$; $p < .001$). Additionally, language spoken at home moderated this relationship ($B = -.052$; $p < .05$). When insurance (covered vs. uninsured), income level, and parent education were entered as controls, the main effects for both barriers and home language remained ($B = .236$; $B = .028$; p 's $< .001$), but the moderation was no longer significant. **Conclusion:** Healthcare providers and teachers must be attuned to the needs of children with special healthcare needs, especially when the child is in a home where English is not the primary language. Parents who do not speak English have more difficulty managing their child's medical and educational needs. Other factors (such as income, education, or

access to insurance) also affect this relationship. Additional research is needed to understand these relationships and to develop effective clinical interventions to improve school attendance.

Abstract 88

Differential Impact of Growth Variables on Neurodevelopmental Domains in ELBW Infants Less Than 26 Weeks Gestational Age

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Purpose: To assess the impact of growth variables on neurodevelopmental domains (NDD) in ELBW infants GA < 26 wks. **Methods:** ELBW infants (n=64) GA < 26 wks. NDD measured by developmental quotients (DQ) in gross motor (GM) [Peabody scale], CAT and CLAMS [Capute scales] adjusted for prematurity (ADQ) at a follow up of 5 to 11 months. Growth variables included weight gain (WG) gm/d, length gain (LG) cm/d, and head circumference (HCG) cm/d measured from birth to follow up (B-F). Ages and stages questionnaire (ASQ) and motor quality noted. Statistical analysis utilized Pearson correlation coefficients. **Results:** ELBW infants included mean GA 24.6wks, BW 714gm, 51% black, 63% male, 11% SGA, 20% had IVH, 31.3% had ROP, 23% discharged on breast milk, 50% discharged on oxygen, 63% received steroids, ASQ domain failure rate ranged from 10 to 23%, 50% had abnormal tone. Overall, ADQ means for CAT and GM were in the average range and ADQ mean for CLAMS was above average. WG and HCG were significantly associated with increased ADQs in all domains. LG improved CAT and CLAMS ADQ, but not GM-ADQ. Discharge weight (DCWT), discharge head circumference (DCHC), and length of stay (LOS) affected CAT-ADQ AND GM-ADQ. BW only affected GM-ADQ. Table demonstrates which variables measured significantly affected NDD. **Conclusion:** Multiple growth variables had a differential impact on NDD in ELBW infants GA < 26 wks. ADQs for CAT and GM were average and for CLAMS were above average. WG B-F and HC B-F improved all three NDDs while LG B-F improved only CAT and CLAMS ADQ. DCWT, DCHC, and LOS affected CAT-ADQ AND GM-ADQ. BW only affected GM-ADQ.

	BW	DCWT	DCHC	LOS	WG B-F	HCG B-F	LG B-F
GM-ADQ	S	S	S	S	S	S	NS
CAT-ADQ	NS	S	S	S	S	S	S
CLAMS-ADQ	NS	NS	NS	NS	S	S	S

Abstract 89

Social-Environmental Factors and Cognitive Function in Children with Sickle Cell Disease

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Purpose: Children with sickle cell disease (SCD) experience problems in cognitive function and school achievement (Schatz et al., 2002). Prior research has focused primarily on biomedical risk factors (e.g., observable or silent stroke, oxygen saturation) for cognitive impairment, however, recent studies have pointed to additional risk due to family factors (household income and head of house education) (King et al., 2014). The current study examined chronic stress due to economic adversity and potential for verbal stimulation by parents (as measured by parents verbal IQ as a proxy) as risk and protective factors for verbal intelligence in a sample of 21 children with SCD (mean age = 10.1 years, SD = 3.4) and their parents. **Methods:** Children with SCD and their parents each completed the Weschsler Abbreviated Scale of Intelligence, Second Edition (WASI-II). This measure produces a Verbal Comprehension Index score which assesses verbal concept formation. Additionally, parents

self-reported family income. **Results:** On the Verbal Comprehension Index (VCI) of the WASI-II, both children ($M = 91.2$, $SD = 12.7$) and their parents ($M = 92.1$, $SD = 8.9$) showed scores that were significantly lower compared to norms; $t(20) = -4.37$, $p < .001$, and $t(20) = -3.05$, $p = .006$, respectively. Childrens VCI was significantly correlated with parentsVCI ($r = .43$, $p = .044$). Family income was correlated with parentsVCI ($r = .62$, $p = .005$) and childrens VCI ($r = .48$, $p = .025$). When family income and parentsVCI were tested as predictors of childrens VCI, family income was significant in the first step ($\beta = .48$, $p = .050$). In the second step of the equation, family income and parentsVCI accounted for 26% of the variance in childrens VCI, but this effect for family income was no longer significant ($\beta = .36$, $p = .241$) when parentsVCI was entered in the equation. **Conclusion:** These findings show that verbal intelligence in children with SCD is significantly related to family economic adversity and that this relationship is accounted for by the effects of economic adversity on parentsverbal functioning and potentially their ability to provide a verbally stimulating environment for the child. Subsequent analyses of data from this sample will examine direct observations of parenting behaviors to provide a more direct index of verbal stimulation for children with SCD in the home environment.

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Faux Pas Recognition Testing and Underestimated Social Deficits in ADHD Children

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Purpose: 1. To assess social deficits in ADHD youth in a distraction-free environment using Faux Pas Recognition tests. 2. To assess accuracy of parent predictions of their child's performance. **Methods:** Faux Pas Recognition tests (FPR), a measure of Theory of Mind and social awareness, adapted from Simon Baron-Cohen, were administered to ADHD patients. These FPR contain vignettes with and without social faux pas. Subjects are requested to correctly identify the presence or absence of a faux pas, appropriately ascribe feelings to characters in the vignettes, and answer control questions. Results were compared to previously published norms. In our study, parents were asked to predict their ADHD child's accuracy on these FPR tests as well as rate their child's level of social development. These results were compared to the individual child's performance. Results were analyzed using t-tests and an ANOVA (analysis of variance). **Results:** Sample consisted of 50 patients with ADHD (41 male) aged 7 to 17 years (mean 9.9 ± 2.5 y). ADHD children performed worse on the absence of faux pas condition than non-ADHD children (one-sample $t(63) = -2.50$, $p = 0.0150$.) A one-way ANOVA showed that the effect of age was significant, $F(3,46) = 6.16$, $p = 0.0013$. Children aged 7 and 8 scored lowest on FPR. Parents grossly overestimated their child's accuracy at perceiving faux pas (paired $t(49) = -5.70$, $p < 0.001$). **Conclusion:** ADHD children performed significantly worse on FPR testing than non-ADHD norms, indicating that ADHD children may have substantial difficulties evaluating social situations in comparison to their normal peers. A large discrepancy was noted between subjects FPR scores and their parents' predictions. This highlights the question as to whether ADHD parents are appropriately able to anticipate their child's social needs. Further analysis with a larger sample is needed with direct comparison with other measures of social impairment.