

Plenary Session I

Sunday, September 30, 2007 from 9:15 AM – 10:30 AM

Abstract 1

Language & Behavior: Impact of Degree of Hearing Loss and Very Early Early Intervention

Betty R. Vohr, Pediatrics, Brown Medical School and Women & Infants' Hospital, Providence, RI, Julie A. Jodoin-Krauzyk, Richard Tucker, Pediatrics, Women & Infants' Hospital, Providence, RI, Deborah Topol, Linguistics, Mary Jane Johnson, Early Intervention, Rhode Island School for the Deaf, Providence, RI

Purpose: Children with permanent hearing loss and controls born between 10/15/02 and 1/31/05 were enrolled in a prospective study of child language and behavior outcomes. The objective was to determine the language and behavior outcomes of children with minimal/mild hearing loss (unilateral or bilateral hearing loss < 40 dB) and moderate to profound hearing loss (bilateral hearing loss > 40 dB) compared to hearing control children at 12-16 and 18-24 months of age and to examine the effects of very early enrollment (< 3 months) in early intervention. **Methods:** Child language and behavior was assessed in 30 children with hearing loss and 96 controls. Eighteen children had moderate to profound hearing loss and 12 children had minimal/mild hearing loss. *The MacArthur-Bates Communicative Development Inventory: Words & Gestures* was administered at 12-16 months of age. *The MacArthur-Bates Communicative Development Inventory: Words & Sentences* and *Achenbachs Child Behavior Checklist* were administered to mothers at the 18-24 month assessment. **Results:** The children in the moderate to profound hearing loss group had lower scores for phrases understood, early gestures, late gestures, total gestures, and words produced, compared to the children with minimal/mild hearing loss and control children. In addition, children with hearing loss enrolled in early intervention < 3 months versus > 3 months had a significantly greater number of phrases understood, words understood, and words produced. Regression models to test the effects of age of entrance into early intervention on language for children with hearing loss identified moderate to profound hearing loss and early intervention < 3 months as independent predictors of words produced. Furthermore, at 18-24 months of age, the children in the moderate to profound hearing loss group had significantly higher anxious/depressed and attention scores compared to the controls. **Conclusion:** Findings indicate the value of very early enrollment into early intervention for children with hearing loss; the potential for children with minimal/mild hearing loss to parallel their hearing peers in language and behavior development given appropriate intervention; and the continued need for comprehensive services for children with moderate to profound hearing loss in the first two years of life. Discussion will include a complete description of demographics, maternal and child characteristics, language and behavior outcomes, and regression analyses to predict language and behavior at both assessment periods.

Abstract 2

The Association of SES, Cognitive Abilities, and Language Skills at 3 and 4 years of age and Reading Skills at 9-12 years of age

Jason D. Yeatman, Irene M. Loe, Heidi M. Feldman, Pediatrics, Stanford University, Palo Alto, CA

Purpose: Longitudinal studies show an association between SES, cognitive abilities, and language skills in the preschool years and reading skills at school age. However, this literacy research is often limited by small sample sizes, restricted predictor measures, and short time intervals between prediction and outcomes. The primary objective of this study was to quantify the contribution of a variety of sociodemographic factors and child abilities assessed during preschool on reading abilities in late elementary school in a large, diverse sample of children. **Methods:** Subjects came from a prospective longitudinal study on child development and otitis media (N=741). At ages 3 and 4 years, children were administered the Peabody Picture Vocabulary Test (PPVT) and McCarthy Scales of Childrens Abilities (MSCA). Conversations between children and parents were scored for Number of Different Word used (NDW), Mean Length of Utterance in morphemes (MLUm), and Percent of Consonants Correct-Revised (PCC-R). Maternal education and race were used as measures of SES. At ages 9 to 12 years, reading abilities were assessed using the Woodcock Test of Reading Mastery. Factors that were significant on univariate correlations were used to create multiple regression models to predict Total Reading

(decoding plus comprehension). **Results:** The models using measures at age 3 and at 4 were able to predict 32% and 37% respectively of the variance in reading ability. The table below shows the beta values and significance of factors that contributed to the overall model. (The * indicates factors that did not contribute positively). **Conclusion:** Cognitive abilities and language skills in preschool were highly associated with reading skills at school age. SES did not contribute substantially after scores from these domains were included in the models. MSCA Perceptual Indices at ages 3 and 4 were more highly associated with later reading scores than were language measures.

Variable	Age 3		Age4	
	Beta	P	Beta	P
Maternal Education	.058	.101	.025	.458
Race	-.059	.127	-.073	.047
MSCA Perceptual Index	.192	.000	.194	.000
MSCA Verbal	.094	.048	.150	.001
MSCA Quantitative	*	*	.153	.000
PPVT	.108	.038	.101	.051
NDW	.113	.005	*	*
MLUm	*	*	.137	.000
PCC-R	.174	.000	*	*

Abstract 3

The Efficacy of Melatonin Treatment for Sleep Problems in Children with Autism and Fragile X Syndrome.

Juthamas Wirojanan, Sabastian Jacquemont, Beth Goodlin-Jones, Rafael Diaz, Thomas F. Anders, Randi J. Hagerman, M.I.N.D. Institute, University of California Davis, Sacramento, California

Purpose: To determine the efficacy of melatonin treatment for sleep problems in children with autism and fragile X syndrome (FXS). **Methods:** A 4-week randomized, double blind, placebo-controlled crossover design was conducted following a 1 week baseline period. Either melatonin 3 mg or placebo was given to participants for a two week trial and then they crossed over for an additional 2 weeks. Sleep variables including sleep onset time, total night sleep duration, sleep latency and number of night awakening were recorded by actigraphy. Sleep diaries were completed by parents. All participants had been thoroughly assessed for autism spectrum disorder (ASD) and also had DNA testing for diagnosis of FXS. **Results:** Data from 12 out of 18 participants was successfully obtained throughout the study (11 males, age range 2 to 15.25 years, mean 5.47). Eight of those had melatonin first. Five participants without FXS met diagnostic criteria for ASD, three had diagnosis of FXS alone, another three had FXS with ASD and one had the fragile X premutation without ASD. Ten of 12 participants improved their sleep duration on melatonin compared with placebo ($p = 0.012$). Sleep onset was earlier and sleep latency was shorter during treatment than placebo in nine participants (ns). Number of awakening at night decreased on melatonin in seven patients (ns). For the group, on melatonin compared to placebo, mean sleep duration was longer (8: 15 hr, SD 1: 15 versus 7: 53 hr, SD 1: 07, $p = 0.057$) and mean sleep onset was earlier (20: 44 hr, SD 1: 39 versus 21: 21 hr, SD 1: 55, $p = 0.028$). Although mean sleep latency was shorter and number of awakening was less during treatment than placebo, the difference was not significant. No side effects were reported with melatonin treatment. **Conclusion:** The results of this study support the efficacy and tolerability of melatonin treatment on sleep problems of children with ASD and FXS.

Abstract 4

Characterization of Autistic Symptoms in Children diagnosed with Autism Spectrum Disorder before age 2

Lisa H. Shulman, Pediatrics, Albert Einstein College of Medicine, Bronx, NY, Sabrina J. Goodman, Psychology, Fordham University, Hewlett, NY, Maria D. Valicenti-McDermott, Rosa M. Seijo, Deborah J.

Purpose: By definition, the onset of Autism Spectrum Disorders (ASD) is before age 3. Despite increasing evidence that children can be diagnosed by age 2, few studies have focused on the nature of symptoms in very young children. Understanding the ways young children present with ASD is important as we strive to identify these children as early as possible, to initiate early treatment that can optimize long-term prognosis. **Methods:** Retrospective chart review of 53 children, ages 1 to 3 presenting to a University Affiliated Program for initial multidisciplinary evaluation from 2003 to 2005, who received a diagnosis of ASD. Data included demographics, chief complaints, DSM-IV-TR symptom checklist, Childhood Autism Rating Scale (CARS), Autism Diagnostic Observation Schedule (ADOS), and the Bayley Scales. Statistical analysis included Chi-square, T test, Mann Whitney test and logistic regression. **Results:** Of the 53, 23 were under 24 months (age range 14-36). Children under 2 were more likely to be referred due to behavioral concerns (55% vs 14% $p=0.009$). On the DSM-IV, children under 2 were more likely to show a lack of shared enjoyment (87% vs 48% $p=0.007$) and preoccupation with parts of objects (68% vs 33% $p=0.01$) and less likely to present stereotyped language (9% vs 53% $p=0.001$) and inflexible adherence to nonfunctional routines (14% vs 50% $p=0.008$). These differences (except preoccupation with parts) persisted after adjusting for level of maternal education, socioeconomic status and cognitive level. On the CARS children under 2 had lower scores (less difficulty) on the subscale "adaptation to change" (1.8 ± 0.8 vs 2.4 ± 0.8 $p=0.01$) and "consistency of intellectual response" (2.2 ± 0.4 vs 2.6 ± 0.5 $p=0.006$). On the ADOS children younger than 2 were more likely to meet criteria for autism as opposed to ASD than older children (91 % vs 55% $p=0.01$) but there were no differences in the 4 subscales. **Conclusion:** Parents of children with ASD diagnosed before age 2 are more concerned about behavioral issues as opposed to language or the possibility of autism than parents of children diagnosed at an older age. Clinically, young children are more likely to lack shared enjoyment while older children are more rigid and present with more stereotyped language and splinter skills.

Abstract 5

Cultural influences on Health Care Use: perceptions of unmet needs and expectations by Latino and Euro-American parents of children with special health care needs

Mary E. Gannotti, Physical Therapy, University of Hartford, West Hartford, Connecticut, Lawrence C. Kaplan, Pediatrics, Dartmouth Medical School, Lebanon, New Hampshire

Purpose: To examine disparities in health status of Latino children with special health care needs we compared Latino (LF) and Euro-American families' (EAF) utilization of services, perceptions of unmet needs, expectations of health care providers, and the contribution of cultural values and beliefs in choosing services. **Methods:** Structured and semi-structured interviews were conducted with 42 Latino families from communities served by a State Title-V (CSHCN) program. Each family was matched with a Euro-American family for per capita household income, age of child, severity and category of disability. 20 families from each group were interviewed by a fluent Spanish speaker, and these data were analyzed for content. All study and control families underwent a semi-structured interview to create a structured survey which focused on eight categories of potential unmet needs. **Results:** LF cited unmet needs in health care, rehabilitation therapy, and information and support. EAF cited unmet needs in day care, respite services, recreational programs, and home health aides. EAF expected well trained home health aides; LF had never considered this resource. EAF expected better access to respite and day-care; LF did not. EAF saw it as their responsibility to initiate contact with providers; LF believed this was the professionals' role. LF felt they should not be the final decision-makers in their children's care, EAF believed they should be. LF felt it was inappropriate to confront professionals over health care issues; EAF saw this as often necessary. **Conclusion:** Latino cultural values play an important role in how families perceive and utilize services for children with special health care needs. Understanding these values can facilitate culturally sensitive care; not understanding them can contribute to the barriers that prevent effective communication and care.

Plenary Session II
Monday, October 1, 2007 from 8:30 AM - 9:45 AM

Abstract 6

Impact of Media Exposure and Content on Later ADHD Related Symptoms

Purnima T. Valdez, Pediatrics, Weill Medical College of Cornell University, New York, NY, Emily K. Forrest, Benard P. Dreyer, Suzy Tomopoulos, Alison B. Smoller, Alan M. Mendelsohn, Pediatrics, NYU School of Medicine, New York, NY

Purpose: To determine whether preschool media exposure is associated with ADHD related symptoms as children enter elementary school. **Methods:** Prospective study, with enrollment of low education Latino mother-infant dyads, and assessment of media exposure at 21 and 33 mos (24 hr media diary) and ADHD related symptoms (sx) at age 5-7 yrs. Each program was characterized as educational young-child oriented, non-educational young-child oriented (e.g. cartoons), school-age/teen oriented (e.g. violent content), adult oriented (e.g. soap operas), or unknown based on industry ratings, with average exposure calculated. ADHD related sx were assessed using the NICHQ Vanderbilt Assessment Scale (with total positive sx summed to derive a score) and with the Child Behavior Checklist (CBCL). **Results:** Of 73 dyads receiving a media assessment at both 21 and 33 mos, 55 were assessed for ADHD related symptoms at age 5-7. Average media exposure was 126.4(87.3) min. School-age/teen media (10.1% of exposure) was associated with increased parent Vanderbilt ADHD sx ($r=.29$, $p=.03$), and increased CBCL Attention Problems (AP) ($r=.30$, $p=.03$) and ADHD Problems ($r=.32$, $p=.02$). In multiple regression analyses adjusting for maternal depressive sx, difficult child temperament, education, country of origin, and gender, school age/teen media continued to be associated with Vanderbilt sx ($sr=.32$, $p=.02$) and CBCL AP ($sr=.31$, $p=.02$) and ADHD Problems ($sr=.35$, $p=.009$). No associations were seen for other categories of media or other behavioral outcomes. **Conclusion:** This is the only study to our knowledge that has assessed the relationship of specific media content in young children to school-age ADHD sx. ADHD sx were related to exposure to programs with ratings that reflected inappropriate content for young children. Continued attention by policymakers to young children's exposure to media with potentially harmful content is indicated. Supported by: SDBP Research Grant Award 2005 and Children of Bellevue, Inc.

Abstract 7

The Effect of Caregiving on Attention in Institutionalized and Previously Institutionalized Children.

Persephone Jones, Noelle L. Huntington, Charles A. Nelson, Children's Hospital Boston, Harvard Medical School, Boston, MA

Purpose: Children raised in institutions have an increased risk of behavioral concerns including attentional difficulties. Many of these behavioral difficulties are thought to be related to the reduced quality of their caregiving environments. This study investigates the relationship between caregiving and attention in children who are currently institutionalized, formerly institutionalized, or never institutionalized. **Methods:** Data are from the Bucharest Early Intervention Project, an ongoing randomized controlled trial of foster placement. There were 136 institutionalized children ages 6 to 32 months at entry into the study. 68 remained in an institution (IG), and 68 were assigned to foster care (FCG). 72 never-institutionalized children served as controls (NIG). Caregiver quality was measured at 42 months with the Observational Record of the Caregiving Environment (ORCE). Attention was measured using the Infant-Toddler Social and Emotional Assessment (ITSEA) at 42 months and the Preschool Age Psychiatric Assessment (PAPA) at 54 months. **Results:** Caregiver quality scores were lower in the IG than in the FCG or NIG, with no differences between the FCG and NIG ($p<0.05$). The ITSEA and PAPA measures of attention both showed the same pattern with the NIG earning significantly better attention scores and no differences found between the FCG and IG ($p<0.01$ and $p<0.05$). In other words, though the foster care group received caregiving equal in quality to the never-institutionalized group, their attention scores were similar to the institutionalized group. **Conclusion:**

While not directly tested here, the results suggest the potential impact of early caregiving experiences on later attention. Future research should investigate the relationship between early caregiving and later attention, as well as whether attention is influenced by the age at placement into foster care or the amount of time spent in foster care.

Abstract 8

Relationship Between Childhood Internalizing Symptoms and Feeding Problems

Kristoffer S. Berlin, Department of Psychiatry and Human Behavior, Brown Medical School, Providence, RI, Debra J. Lobato, Department of Child and Adolescent Psychiatry, Brown Medical School/Rhode Island Hospital, Providence, RI, Kathryn S. Holman, Psychology, University of Wisconsin-Milwaukee, Milwaukee, WI, Alan H. Silverman, Pediatrics, Medical College of Wisconsin, Milwaukee, WI, W. Hobart Davies, Psychology/Pediatrics, University of Wisconsin-Milwaukee/Medical College of Wisconsin, Milwaukee, WI

Purpose: Eating a nutritionally balanced diet is critical for the health and development of all children; unfortunately, there are complex interactions among many factors that impede the development of healthy eating habits. The prevalence rates of feeding problems are alarmingly high among children with typical development (25% to 45%) and developmental disabilities (85%). These feeding problems place children at risk for severe weight loss, malnutrition, lethargy, impaired development, growth retardation, and/or death. Anecdotally, it is known that children with feeding problems often present comorbid internalizing symptoms; however, there is scant empirical literature on the overlap of these disorders. Therefore, the goal of this study was to examine the relationship between feeding problems and internalizing symptoms; and if found, to identify potential mediators and moderators of this relationship. **Methods:** Community parents (N = 224) of children age 2 to 6 completed measures of feeding strategies, feeding problems, family mealtime environment, and internalizing symptoms.

Results: A significant relationship between internalizing symptoms and feeding problems ($p < .01$) that was moderated (buffered) by increased parent age ($p < .01$) and mealtime structure ($p = .077$). A multiple mediator model was tested and found that internalizing symptoms were also related to child's cues of hunger/satiety, mealtime structure, and parent aversion to mealtime, which in turn, were related to mealtime behavior problems (all p 's $< .01$ including indirect effects). **Conclusion:** A notable relationship exists between internalizing symptoms and mealtime behavior problems. This relationship lessens as parent's age and mealtime structure increase. Preliminary mediation analyses suggest that possible mechanisms by which internalizing symptoms lead to feeding problems may include disruptions to a child's ability to attend to their cues of hunger/fullness, the mealtime structure provided by parents, and parents' reported aversion to mealtimes. These findings also highlight the importance of considering family-based conceptualizations and intervention strategies when working with children with feeding problems and internalizing symptoms.

Abstract 9

Sleep in Hospitalized Children

Julie Boergers, Psychiatry & Human Behavior, Judith A. Owens, Pediatrics, Brown Medical School, Providence, RI, Meredith Halsey, Brown University, Providence, RI, Darryl Etter, Rhode Island Hospital, Providence, RI

Purpose: Children with chronic or acute medical conditions are at risk for sleep disruption. Moreover, the hospital environment poses challenges to the maintenance of children's typical sleep patterns. However, surprisingly little is known about the sleep of hospitalized children. The purpose of this study was to examine the sleep patterns of hospitalized children in comparison to their home sleep patterns.

Methods: Survey study with a convenience sample of children who spent 1-7 nights on non-intensive care units at a northeast children's hospital. Mothers (who stayed overnight with the subject at the hospital) reported on children's bedtime, wake time, time awake during the night, and total sleep time at home vs. in the hospital. Subjects were 86 children aged 3-12 ($X=7.5$ years; 57% male; 82% Caucasian). **Results:** Hospital sleep parameters did not differ by medication status

(presence/absence of sedative), admission service (medical vs. surgical), or prior hospitalizations (presence/absence). A series of within-subject paired t-tests (with Bonferonni correction for multiple comparisons) indicated that subjects had significantly later bedtimes in the hospital than at home ($t=7.04$, $p<.001$, mean difference=1.5 hrs) and achieved less nighttime sleep in the hospital than at home ($t=5.37$, $p<.001$, mean difference=1.6 hrs). Wake time and time awake during the night did not differ across settings. **Conclusion:** In this sample of preschool and school-aged children, bedtimes were significantly delayed and nighttime sleep was significantly decreased in the hospital as compared to subjects' typical sleep patterns at home. Because disturbed sleep is known to have a detrimental impact on multiple physiological systems, including the immune system, results could have important implications for children's recovery and healing. Future research with larger samples should examine sleep patterns in hospitalized children by diagnostic group. Potential interventions to improve the sleep of hospitalized children might focus on modifications of the hospital environment, including greater bedtime structure and reduced light and noise.

Abstract 10

Determinants of Psychosocial Morbidity in Children with Asthma

Madeleine U. Shalowitz, Pediatrics, Northwestern University, Feinberg School of Medicine, Evanston, IL, Laura Curtis, Christopher Lyttle, Institute for Healthcare Studies, Northwestern University, Feinberg School of Medicine, Chicago, IL, Lisa Sharp, Medicine, University of Illinois in Chicago, Chicago, IL

Purpose: School-aged children with asthma are at higher risk for psychosocial morbidity. We evaluate asthma-related determinants of psychosocial morbidity of children in the CHIRAH project. **Methods:** 509 caregivers of children age 8_14 years old with physician-diagnosed, persistent, symptomatic asthma completed the CHIRAH baseline interview. Caregivers reported race-ethnicity, socioeconomic status, highest level of education, their own general health and symptoms of depression (CES-D). They reported their child's general health and on their asthma burden, a 2 week recall of 1) daytime and nighttime asthma symptoms; and 2) use of beta agonists and/or inhaled corticosteroids. 12 month recall was used for steroid bursts. The Pediatric Symptom Checklist (PSC) was used to screen for psychosocial morbidity. Subscale scores represented internalizing factors, externalizing factors and attention. **Results:** 59% of the children were male with a mean age of 10.6 years. 13% of caregivers had less than a high school education; 19% were college graduates. 48% of households had incomes less than 30,000. 24% of caregivers reported their own health as fair or poor; the mean CES-D score was 14. 41% of children had asthma symptoms more than 2 nights in 14; 35% reported asthma symptoms more than 4 days in 14. 91% used inhaled beta agonists; 50% used inhaled corticosteroids. 69% required at least one steroid burst in the prior year. The mean total PSC score was 22.5; 30% scored above the cutoff indicating high risk for psychosocial impairment. The internalizing, externalizing score and attention subscores were each higher in children with frequent night asthma symptoms. We regressed each of the PSC subscale scores on asthma symptoms and overall health, controlling for inhaled beta agonists, inhaled corticosteroids and steroid bursts, and symptoms of maternal depression. Night symptoms were related to internalizing symptoms, but not to externalizing symptoms or attention. Medication use was not significant in any of the analyses. There was a modest, consistent effect of increasing symptoms of maternal depression reports of behavior symptoms, with the largest effect on reports of child internalizing symptoms. **Conclusion:** Night symptoms due to asthma are most consistently related to internalizing symptoms in a model that controls for demographics, medication and caregiver health. Caregiver reports of their children's psychosocial morbidity are influenced by their own mental health.

Plenary Session III
Monday, October 1, 2007 from 9:45 AM - 11:00 AM

Abstract 11

Developmental Disregard Predicts Improvement after Constraint-induced Movement Therapy in Hemiplegic Children

Trenna L. Sutcliffe, Pediatrics, Stanford University, Palo Alto, CA, William C. Gaetz, Diagnostic Imaging, William J. Logan, Neurology, Douglas O. Cheyne, Diagnostic Imaging, Darcy L. Fehlings, Pediatrics, University of Toronto, Toronto, Ontario, Canada

Purpose: Developmental disregard describes infrequent use of a hemiplegic extremity despite hand function. Constraint-induced (CI) movement therapy is a treatment for hemiplegia. The relationship between disregard and CI success has not been reported. **Methods:** A prospective intervention study design evaluated five subjects (age 7-13yrs) with hemiplegia. Clinical and functional MRI (fMRI) measures were done at baseline and post-CI. The primary clinical measure was increased arm use on the Pediatric Motor Activity Log (PMAL). Secondary clinical measures included: improved quality of movement measured on the Quality of Upper Extremity Skills Test (QUEST); improved bimanual use on the Assisting Hand Assessment (AHA); and improved grip strength. A baseline developmental disregard ratio was calculated (% of arm use on PMAL divided by arm quality on QUEST). A ratio <1 represented disregard; a ratio >1 represented absence of disregard. The percentage of disregard was then calculated. Correlations between percent of disregard and improvements on measures after CI were calculated using SAS v9.1. fMRI measured the lateralization of cortical activity during motor tasks of the hemiplegic hand. **Results:** Clinical improvement post-CI occurred in 4/5 subjects. All 4 had improved PMAL and grip strength; 2/4 had improved QUEST and AHA. Developmental disregard ratios <1 were measured in 4/5 subjects. The one subject without disregard (ratio=1.33) had no clinical improvement on measures. Baseline percent of disregard (range 0-76%) was highly correlated with improvement on the PMAL ($r=0.94$; $p=0.018$), grip strength ($r=0.97$; $p=0.007$) and AHA ($r=0.86$; $p=0.06$). Disregard did not correlate significantly with improved quality of hand function on the QUEST ($r=0.66$; $p=0.22$) nor change on fMRI ($r=0.51$; $p=0.49$). Baseline frequency of arm use on the PMAL did not significantly correlate with improvement on the PMAL ($r=-0.59$; $p=0.29$) nor other clinical measures. fMRI showed shift of cortical activity to contralateral hemisphere post-CI for subjects who had ipsilateral activity for hemiplegic hand movement pre-CI. **Conclusion:** Baseline measurement of developmental disregard, and not frequency of use, was strongly associated with improved clinical outcome on the PMAL, grip strength, and AHA after CI. The calculation of disregard in this study is a novel measure not previously described and warrants further evaluation.

Abstract 12

Types of Childhood Trauma as Differential Predictors of Health-Related Quality of Life

Allison M. Smith, Christine B. Sieberg, Ellen C. Flannery-Schroeder, Psychology, University of Rhode Island, Kingston, RI

Purpose: In 2005, an estimated 899,000 children were known victims of child abuse or neglect (US Dept. of Health & Human Services, 2007), making childhood trauma a serious public health problem. Research has shown a strong relationship between childhood trauma and physical/psychological difficulties later in life because of alterations to physical, emotional, cognitive, and social development (Mulvihill, 2005, Silverman et al, 1996). Current literature focuses on specific illnesses as outcomes of childhood trauma. However, health is not merely the absence of disease. Therefore, this study investigated health-related quality of life to broaden our understanding of the impact of childhood trauma. Specifically, we examined how the experience of various types of childhood trauma (e.g., physical abuse, sexual abuse, emotional abuse, emotional neglect, and physical neglect) might differentially predict various aspects of health-related quality of life in college students. **Methods:** Participants (N=232) were undergraduates enrolled in a mid-sized northeastern university who received extra credit for their participation. They completed the Childhood Trauma Questionnaire

(CTQ, Bernstein & Fink, 1998) and the Health-Related Quality of Life Measure (HRQOL-14, Center for Disease Control & Prevention, 1993). The CTQ is a 28-item retrospective self-report measure that assesses emotional, physical, and sexual abuse, as well as emotional and physical neglect. The HRQOL is a 14-item self-report measure that assesses perceived health over the past 30 days. It asks participants to rate their overall health, as well as the number of days of poor physical health, poor mental health, feeling that health has impacted quality of life, feeling depressed, feeling anxious, pain, getting little to no sleep, and feeling full of energy. **Results:** A series of step-wise multiple regressions was conducted with the five trauma types as predictors of various areas of health-related quality of life. Consistent with recent research, we found that emotional abuse was a strong predictor of self-reported poor health, poor mental health, and feelings of depression and anxiety. Unsurprisingly, emotional neglect negatively predicted feeling full of energy. Interestingly, physical neglect was inversely related with poor mental health. Sexual abuse best predicted poor physical health and days in pain. Childhood trauma types were not significant predictors of sleep quality. **Conclusion:** Our findings indicate that various types of childhood trauma significantly differentially predict various aspects of health-related quality of life in young adulthood. Generally, emotional abuse predicted poor mental health, while sexual abuse was more associated with poor physical health. These findings broaden our conception of the impact of childhood trauma. Future research should examine variability in health-related quality of life across gender, culture, and other types of traumatic experiences.

Trauma Types as Predictors of HRQOL

HRQOL Area	Sig. Pred.	Adj. R2	beta	t	p
Health Rating	Emo. Abuse	.025	.171	2.575	<.05
Poor Phys. Health	Sexual Abuse	.057	.247	3.766	<.001
Poor Ment. Health	Emo Abuse	.152	.478	6.508	<.001
	Phys Neglect	.013	-.152	-2.074	<.05
Health Affects QOL	Emo Abuse	.065	.265	3.861	<.001
Pain	Sexual Abuse	.026	.176	2.627	<.01
Depressed	Emo Abuse	.099	.321	5.045	<.001
Anxious	Emo Abuse	.047	.226	3.438	<.01
No Sleep	n.s.	n.s.	n.s.	n.s.	n.s.
Full of Energy	Emo Neglect	.034	-.195	-2.948	<.01

Abstract 13

The PedsQL(tm) as an Internet-Administered Health-Related Quality of Life Instrument in Pediatric Endocrinology

Christine A. Limbers, Psychology, James W. Varni, Pediatrics, Landscape Architecture & Urban Planning, Texas A&M University, College Station, Texas, Tasha M. Burwinkle, William Bryant, Don P. Wilson, Pediatrics, Texas A&M University Health Science Center, Temple, Texas

Purpose: While the importance of measuring health-related quality of life (HRQOL) in a variety of pediatric conditions has been advocated for a number of years, the measurement of HRQOL using internet based administration is a more contemporary conceptualization, and generally unexplored in pediatrics. The application of internet based administration to the measurement of patient self-report and parent proxy-report may reduce some of the burden associated with the administration and completion of standardized HRQOL instruments, and consequently represents one method for potentially overcoming some of the barriers to the routine use of these measures in pediatric clinical practice. The objective of the present study was to test the feasibility of an internet mode of administration of the PedsQL 4.0 Generic Core Scales in pediatric endocrinology. **Methods:** Participants included 133 families of children receiving healthcare in a hospital-based pediatric endocrinology clinic. To assess response equivalence of the electronic administration of the PedsQL (ePedsQL) with the paper-and-pencil format of the PedsQL, a cross-over randomized controlled trial design was employed. Parents and pediatric patients were randomized to either paper or internet administration, varying by order of administration, such that all participants completed both versions of the PedsQL in a cross-lag design. Participants also completed the Computer Use and Satisfaction

Questionnaire. **Results:** Across each PedsQL Scale and Summary Score for both child self-report and parent proxy-report, mean scores across mode of administration (internet administration vs. paper-and-pencil administration) were nearly equivalent with no statistically significant differences ($P > .05$). Intraclass Correlations (ICC) between modes of administration for both child self-report and parent proxy-report across the PedsQL Scales and Summary Scores were in the excellent agreement range (ICCs ranged from 0.81-0.92). 82.6% of the children and 83.2% of the parents indicated a clear preference for the internet mode of administration. **Conclusion:** These analyses demonstrate the equivalence of internet and paper-and-pencil administration of the PedsQL. Parents and pediatric patients preferred the internet administration, suggesting the potential application of this mode of administration as a viable alternative to paper and pencil administration in future clinical research and practice.

Abstract 14

Parent-Child Interactions shortly after Brain Injury in Young Children

Shari L. Wade, Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, Britt Nielsen, Psychiatry, Terry Stancin, Pediatrics, MetroHealth Medical Center, Cleveland, OH, H. G. Taylor, Pediatrics, Case Western Reserve University, Cleveland, OH, Nicolay C. Walz, Lori A. Bernard, Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, Keith O. Yeates, Pediatrics, Children's Hospital Columbus, The Ohio State Univ., Columbus, OH

Purpose: To examine parent-child interactions shortly after traumatic brain injury compared with those of children who had an orthopedic injury (OI). **Methods:** We used a concurrent cohort/prospective research design to follow children aged 3-6 years with TBI or OI requiring hospitalization and their families. 96 children with TBI and 110 children with OI were videotaped with their parents during free play and a structured teaching task. Using a coding scheme developed by Landry et al., we rated parental warmth/responsiveness, and negativity as well as child warmth, cooperation, and behavioral dysregulation. Raters also completed counts of parental directives and restrictions. 10% of tapes were rated by two raters to establish inter-rater reliability. Group differences were analyzed using general linear models with race and census tract income serving as covariates. **Results:** Compared with parents of preschoolers with OI, parents of preschoolers with TBI were rated as exhibiting less warm responsiveness. Parents in the TBI group also issued more directives than did those in the OI group, both overall and during the teaching task. However, the groups did not differ in parental negativity or restrictions. Children in the TBI group were rated as less warm and less well regulated (all $p_s < .05$). Parental responsiveness was more closely related to the child's behavior in the OI than in the TBI group such that parents in the OI group were less responsive if the child's behavior was dysregulated. **Conclusion:** These findings provide the first direct, observational evidence that parent-child interactions are adversely affected in the initial months following TBI. Although the direction of causality is unclear, significant correlations between child behavioral dysregulation and parental warm responsiveness suggest that parents may become less responsive as they are required to exert greater efforts to manage the child's behavior. Previous research suggests that parental warmth and responsiveness facilitate cognitive growth and development, particularly among children with neurological vulnerabilities. Thus, it will be important to understand whether these decrements in parental responsiveness persist and contribute to less recovery over time in this population.

Abstract 15

The Impact of the Family and Social Environment on Preschool Developmental Outcome of Low and Normal Birth Weight Children

Ameeta Dudani, Hala Tamim, Alison Macpherson, School of Kinesiology and Health Science, York University, Toronto, Ontario, Canada

Purpose: Few studies have examined the predictors of early developmental outcome in a large, representative sample of low birth weight children, as compared to normal birth weight children.

Moreover, the influence of the family and social environment on preschool development of these children remains unclear. The aim of this study was to examine the factors associated with poor motor and social development for low and normal birth weight children, from a population-based sample aged 1 to 3 years. **Methods:** This was a cross-sectional study which considered data from Cycle 1 (1994-1995) of the Canadian National Longitudinal Survey of Children and Youth. The primary outcome measure was the Motor and Social Development (MSD) age-standardized score, with a score of < 85 representing poor MSD. Covariates included child-related, maternal, and social and environmental factors. Analyses were based on children whose mother had completed the survey, and were carried out separately for low (LBW, < 2500g) and normal birth weight (NBW, >2500g) children. **Results:** Among the NBW children (n = 4726), 13.8% displayed poor MSD, whereas 26.6% of LBW children (n = 267) displayed poor MSD. After adjusting for all covariates, social and environmental factors (low income adequacy, low social support, low family functioning, and low neighbourhood safety) were significantly associated with poor MSD for LBW children, whereas for NBW children, maternal factors (such as older age and lower education) were more predictive of poor MSD. **Conclusion:** Social and environmental factors play a significant role in the preschool development of low birth weight children, more so than for normal birth weight children. Changes in the immediate and external environment may need to be incorporated earlier for low birth weight children, in order to ensure optimal developmental outcome at preschool age and beyond.

Poster Session

Sunday, September 30 from 6-7pm

Abstract 16

Family experience of youth with Tourette syndrome

Samuel H. Zinner, Pediatrics, Tari D. Topolski, Health Services, University of Washington, Seattle, Washington, Roger D. Freeman, Psychiatry, University of British Columbia, Vancouver, British Columbia, Canada, Todd C. Edwards, Donald L. Patrick, Health Services, University of Washington, Seattle, Washington

Purpose: Tourette syndrome is a chronic motor and vocal tic disorder that ranges in severity and expression. It is under-recognized medically, but tics can be functionally and/or socially impairing and stigmatizing. Additionally, many youth with TS also have associated, or _co-morbid_ conditions. Our objective was to identify family mediating and modifying factors influencing quality of family life for families of youth with Tourette syndrome. Anecdotal data suggest that the impact of TS with and without associated conditions is mediated or moderated by the family, including parental relationship discord, negative or positive feelings about parenting, and financial burden in caring for the youth.

Methods: The influence on family functioning of adolescents with Tourette syndrome (TS) was investigated, as part of a larger study identifying factors that contribute to the quality of life (QOL) of adolescents ages 11-18 with TS. Data from mothers of youth with TS were compared to data from mothers of youth with Attention Deficit Hyperactivity Disorder (ADHD) and a group of mothers whose children did not have any chronic conditions (NCC). This is an observational study using a cross sectional design. Data reported here are from the Family Impact Questionnaire. **Results:** Data from 43 mothers of youth with TS were compared to data from 25 mother of youth with ADHD and 16 NCC mothers. Mothers of youth with TS and mothers of youth with ADHD reported significantly lower feelings of positive parenting (TS=10.1, ADHD=9.0,) compared with the control mothers (17.4); a larger impact on the sibling (TS=5.4, ADHD 6.1, NCC 2.9); and, greater financial impact (TS=5.5, ADHD=6.8, NCC=1.8). **Conclusion:** Mothers of Youth with TS report a negative impact of this condition on the family as do mothers of youth with ADHD. These findings emphasize the need to consider the entire family, as youth live within the context of their families and family members influence one another throughout development and life course.

Abstract 17

Quality of Life among Youth (ages 11-18) with Tourette Syndrome

Samuel H. Zinner, Pediatrics, Tari D. Topolski, Health Services, University of Washington, Seattle, Washington, Roger D. Freeman, Psychiatry, University of British Columbia, Vancouver, British Columbia, Canada, Todd C. Edwards, Donald L. Patrick, Health Services, University of Washington, Seattle, Washington

Purpose: To describe the quality of life (QOL) of youth ages 11-18 with Tourette Syndrome (TS) from their perspective and to describe the association between self-reported symptoms of ADHD, depression and anxiety on QOL of youth with TS. TS is characterized by motor and vocal tics that can lower school performance and/or interfere socially. Many youth with TS also have co-existing conditions such as ADHD, Obsessive Compulsive Disorder and learning disabilities, shown to impact QOL. Self-reported assessment of the impact of TS on QOL, however, has not been studied in this age group. **Methods:** Youth with TS were recruited through two clinical practices specializing in TS. Thirty youth completed semi-structured interviews. They and 12 youth participating in the family interview completed the generic Youth QOL Instrument Research Version (YQOL-R) and measures of depression, anxiety and ADHD. The YQOL-R assesses Relationships (family and peer), Environment (School and Neighborhood), Self (Belief in Self and Sense of Self) and General Perceived QOL. Data from the YQOL-R were compared to data from youth without chronic conditions. **Results:** The predominantly male sample had a mean age of 13.9. People-staring and social withdrawal were common TS-associated themes reported during the QOL interview. Lower scores on the YQOL-R Self and Relationship (66.3 and 79.7) domains were observed for TS youth than for youth without chronic conditions (79.9 and 81.6), respectively. **Conclusion:** Youth with TS report a negative impact of TS on QOL similar to youth with ADHD, especially in areas of Self and Relationships. These findings suggest enhanced social skills training to empower youth with TS to participate with peers may be beneficial. Study supported by Association of University Centers on Disability - US Centers for Disease Control and Prevention

Abstract 18

Parent Decision-Making and Experience With Using Complementary and Alternative Medicine (CAM) in Children With Autism Spectrum Disorders (ASD) and ADHD

Angela Huang, Bonnie O'Connor, Pediatrics, Brown Medical School, Providence, RI

Purpose: To identify factors influencing parent decision-making on CAM use in children with ASD and ADHD and to explore parent experiences of CAM use. **Methods:** IRB-approved qualitative study. Parents were recruited via fliers (3 sites) to 5 Focus Groups to discuss experiences/opinions of CAM. Groups were audiotaped, transcribed, and examined independently for themes by 2 researchers. **Results:** 17 mothers (88% W, 6% AA, 6% Hisp; 59% some college, 29% advanced degrees) of 19 affected children (84% ASD, 16% ADHD, mean age 8yrs., 74% male) participated. 53% had used CAM, including diets & supplements, relaxation techniques, Reiki, homeopathy, chelation, antifungals, exercise, and varied personal coping strategies. Decisional factors included goals for self and child(ren), dissatisfaction with conventional treatments (CT), and lay models of disease etiology. Most decisional processes appeared rational and oriented to practical problem solving; families made choices based on desired & apparent outcomes. Concerns about CAM included safety, lack of scientific studies. Concerns about CT included toxicity, poor results, and aversion to giving children drugs. **Conclusion:** Parent decision-making on CAM for ASD and ADHD is multifactorial. Alternatives are considered when CT are ineffective, do not reach parent treatment goals, or do not address perceived disease etiology. CAM often supplements CT. Parents commonly report dissatisfaction with schools for delayed or insufficient services and with healthcare providers for not listening, or delay in diagnosis. They are less likely to seek CAM if satisfied with CT. More research is needed to improve clinician understanding of what is important to families when considering CAM for children with ASD and ADHD and to inform discussions on CAM use between clinicians and families.

Abstract 19

Tower of London Performance in Subtypes of Attention-Deficit/Hyperactivity Disorder

Irene M. Loe, Pediatrics, Stanford University, Palo Alto, CA, Beatriz Luna, Psychiatry, University of Pittsburgh, Pittsburgh, PA, Jason D. Yeatman, Heidi M. Feldman, Pediatrics, Stanford University, Palo Alto, CA

Purpose: ADHD is divided into subtypes based on behavioral symptom checklists. Although ADHD is characterized by executive function (EF) deficits, traditional tests of EF do not consistently differentiate ADHD-Combined (C) and ADHD-Inattentive (I) subtypes. Previous studies are limited by heterogeneous samples (e.g., mixing subtypes, comorbid conditions, learning problems) and inconsistent measures across studies. The Cambridge Neuropsychological Testing Automated Battery (CANTAB), a computerized battery of EF tests, offers the advantages of nonverbal task stimuli, standard testing and scoring, and recording of precise reaction times. **Objective:** To determine how responses of a well-characterized sample of children with ADHD-C, ADHD-I, and controls differ on the CANTAB Tower of London (TOL) **Methods:** Cross-sectional study of 8-13 year olds with ADHD-C, ADHD-I and controls. Subjects on stimulants withheld medication the day of testing. Controls were group-matched to subjects on age, sex, IQ, and SES. The TOL, a measure of problem solving and spatial planning, requires rearrangement of three colored balls to match a specific pattern in the minimum number of moves. Outcome measures include problems solved in minimum moves; mean moves, initial thinking time (ITT, time to plan the problem solution) and subsequent thinking time (STT, average measure of time after the initial move, divided across remaining moves) for 2, 3, 4, and 5-move problems. Task difficulty is divided into easy (2/3 moves) and hard (4/5 moves). **Results:** There were no group differences for problems solved in minimum number of moves, mean moves, ITT or STT (p ns). See the table below for correlations between ITT, STT and performance (as indicated by mean moves) on the TOL. Longer ITT was associated with better TOL performance (fewer moves) on hard problems for children with ADHD, but not controls. Shorter STT was associated with better TOL performance on easy and hard problems for controls, but not children with ADHD. **Conclusion:** The CANTAB TOL outcome measures did not differentiate the groups. Despite similar overall performance, correlations between thinking times and performance revealed differences in how controls and children with ADHD completed the task. The association of shorter STT with better performance in controls but not children with ADHD suggests that controls use the ITT effectively, while ADHD children may require continued planning of responses during later phases of the task.

			Controls n=30	ADHD (all) n=26	ADHD-C n=14	ADHD-I n=12
Correlation						
ITT-TOL	Problems					
	Easy	r (p)	.195 (.312)	-.044 (.835)	.090 (.770)	-.216 (.523)
	Hard	r (p)	.102 (.599)	-.494 (.012)*	-.698 (.008)*	-.356 (.282)
STT-TOL						
	Easy	r (p)	.588 (.001)*	.269 (.204)	.216 (.500)	.457 (.184)
	Hard	r (p)	.338 (.078)+	.088 (.681)	-.068 (.833)	.336 (.342)
*=significant	+ =trend					

Abstract 20

Development in Infants with Deformational Plagiocephaly

Brent R. Collett, Psychiatry & Behavioral Sciences, University of Washington School of Medicine, Seattle, WA, Eileen Twohy, Child Psychiatry & Behavioral Medicine, Seattle Children's Hospital Research Institute, Seattle, WA, Darcy King, Bay Sittler, Craniofacial, Seattle Children's Hospital, Seattle, WA, Catherine J. White, Child Psychiatry & Behavioral Medicine, Seattle Children's Hospital Research Institute, Seattle, WA, Jacqueline R. Starr, Pediatrics/Epidemiology, Michael Cunningham, Pediatrics, Matthew L. Speltz, Psychiatry & Behavioral Medicine, University of Washington School of Medicine, Seattle, WA

Purpose: Positional or deformational plagiocephaly (DP) refers to flattening of the infant skull due to external pressure. It is unknown whether this relatively common condition adversely affects

development. We are examining this relationship in a longitudinal cohort study of children with and without DP (Matthew Speltz, P.I.). **Methods:** Cases with DP are being recruited at the time of diagnosis, between 4-11 months of age, excluding infants born at <32 weeks gestation and those with known neurodevelopmental syndrome (e.g., Down's Syndrome). Participating children received a clinical examination of skull shape and developmental testing (Bayley Scales of Infant Development-III [BSID]), and mothers completed a medical/developmental history interview and the BSID-III Adaptive Behavior scale. Preliminary data are available for 70 cases, and data collection and processing are ongoing (target enrollment N=250). **Results:** The mean age of the sample is 7.2 months [standard deviation (SD)= 1.5; range = 4.7-11.1]. The sample is predominately male (61%), Caucasian (71%), and of middle to upper socioeconomic status. Seventeen percent of the sample were delivered between 32-38 weeks. Based on clinician judgments of DP severity at the time of diagnosis, 39% were considered 'mild,' 50% 'moderate,' and 7% 'severe.' Relative to test norms for the BSID-III, preliminary findings suggest that cases score within the average range with regard to their cognitive development [Mean (M) = 101.2, SD =14.0]. Though still within the average range, cases scored slightly below test norms in language (M= 92.3, SD=8.8) and motor development (M= 94.9, SD=12.4). Adaptive behaviors also appear to be normal (M = 101.5, SD= 13.6). **Conclusion:** These findings suggest that infants with DP are generally developing as expected. There may be subtle differences in language and motor development, for which cases score 5-8 points below the population average of 100. Ultimately, our comparisons with demographically matched controls and evaluation of developmental trends in these areas over time will help to determine the clinical significance of these subtle differences.

Abstract 21

Reading in Children with and without Orofacial Clefts

Brent R. Collett, Psychiatry & Behavioral Sciences, University of Washington School of Medicine, Seattle, WA, Eileen Twohy, Heather Violette, Child Psychiatry & Behavioral Medicine, Seattle Children's Hospital Research Institute, Seattle, WA, Michael L. Cunningham, Pediatrics, Matthew L. Speltz, Psychiatry & Behavioral Sciences, University of Washington School of Medicine, Seattle, WA

Purpose: Children with isolated orofacial clefts have been found to be at increased risk for learning problems and academic underachievement, with particular vulnerability in reading. However, to date, studies have been methodologically limited in several respects (e.g., reliance on test norms versus unaffected controls for comparison). This study is being undertaken to examine early reading skills in children with clefts of the lip and/or palate compared with unaffected controls. **Methods:** Children ages 5-7 years old (grades k-2) with cleft lip only (CLO), cleft palate only (CPO), and cleft lip and palate (CLP) have been identified through the craniofacial program at a major pediatric tertiary care center. Unaffected controls have been identified through a child participant pool (i.e., families who have agreed to be contacted regarding research participation) and public advertisements. Preliminary data are available for 32 cases and 13 control participants, and recruitment is ongoing (target enrollment N=36 per group). Participants have completed assessments drawn from the dyslexia literature, including selected subtests from the Woodcock-Johnson-III (WJ-III), the Comprehensive Test of Phonological Processing (CTOPP), Test of Word Reading Efficiency (TOWRE), and the Rapid Automatized Naming/Alternating Stimulus Test (RAN/RAS). **Results:** Age and gender distributions are comparable for cases and controls (mean age = 83.6 months, 82.2 months; 75%, 69% male for cases and controls, respectively). Relative to test norms, cases and controls both scored within the average to high average range on all measures administered. Although differences are not statistically significant ($p < 0.05$) after controlling for multiple comparisons, cases received lower scores than controls with regard to basic reading skills (WJ-III Basic Reading mean=108.4, 117.7), phonological awareness (CTOPP Phonological Awareness mean=104.1, 109.2), rapid letter naming (RAN/RAS Letter mean=98.1, 108.8), and word reading efficiency (TOWRE Total mean=99.4, 112.2). **Conclusion:** Findings suggest that children with clefts are within the average range in reading relative to test norms. However, they received lower scores than unaffected controls. Although these differences are not statistically significant, given the relatively small sample size for these preliminary analyses, differences appear relatively large (i.e., 5-13 points). In our final analyses, we will have

greater statistical power to detect group differences and will explore potential confounds that might account for these differences (e.g., differences in SES). As one of only a handful of studies including a healthy control sample and detailed assessment battery, this study contributes to our understanding of early learning in children with orofacial clefts.

	Cases (n=32)	Controls (n=13)
WJ-III Basic Reading	108.4(15.0)	117.7(10.5)
CTOPP Phonological Awareness	104.1(12.2)	109.2(20.7)
RAN/RAS Letter Naming	98.1(16.1)	108.8(11.3)
TOWRE Total Score	99.4(9.6)	112.2(16.4)

Abstract 22

Psychometrics of the Strength and Difficulties Questionnaire and the Vanderbilt ADHD Diagnostic Teacher Rating Scale

Wolraich L. Mark, David Bard, Melissa A. Doffing, Pediatrics, Barbara R. Neas, Biostatistics and Epidemiology, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Robert E. McKeown, Epidemiology and Biostatistics, University of South Carolina, Columbia, SC, Susanna N. Visser, National Center on Birth Defects & Dev. Disabilities, Centers for Disease Control and Prevention, Atlanta, GA

Purpose: Previous studies have demonstrated the reliability and validity of the SDQ, making it a useful brief instrument for measuring child and adolescent psychopathology (Goodman, 1997; Goodman et al., 1998; Goodman, 2001). The psychometric properties for the VADTRS are reported with multiple samples (Wolraich & Baumgaertel, 1996; Wolraich, Lambert, Baumgaertel et al., 2003; Wolraich, Lambert, Doffing et al., 2003). The current study assessed the concurrent and predictive validity of select subscales. **Methods:** In a large epidemiologic study of ADHD in Oklahoma and South Carolina, teachers completed two brief behavioral screening instruments and two questions about ADHD diagnosis and medication status for each student in grades Pre-K through 5th ($n = 10,457$). The ethnic and racial backgrounds of the sample included: Hispanic 17%, African American 27%, Native American 7%, White 50%, and other race 3% (race ethnicity categories are not exclusive). Gender was evenly split, 51% male. Parents ($n = 4,117$) answered two questions about their child's ADHD diagnosis and medication status. Content analysis was performed to identify common sets of items across instruments. Items from these subscales were subjected to multidimensional item response modeling to test construct validity of instrument construction and later concurrent validity of overlapping item content domains. Finally, models regressing teacher- and parent-reported diagnosis and medication status for ADHD on the hyperactive and inattentive item domains of each instrument (in isolation and combination) were fit to assess predictive validity. **Results:** Content analysis identified five overlapping item domains in the SDQ and VADTRS. Items from these scales are currently under evaluation from an IRT modeling perspective. Preliminary comparison of subscale scores revealed moderate to strong polychoric correlations ranging from .53 to .91. Comparison of risk classifications from each subscale fared much worse, producing Kappa agreement coefficients ranging from .25 to .46. **Conclusion:** There appears to be varying agreement between the SDQ and VADTRS behavioral screening instrument subscales. The strength of agreement seems to depend on both the subscale of interest and the scoring system used for quantifying risk. Future item analysis work is underway to investigate whether disagreement depends on established risk thresholds or more fundamental construct-related differences.

Abstract 23

Cognitive Evaluation of School-aged Children with Multiple Disabilities

Timothy J. Hamway, Psychology, Kean University, Westfield, New Jersey

Purpose: Background: The assessment of the cognitive abilities of school-age children with multiple disabilities, primarily cerebral palsy, has been a consistent challenge. Commonly used instruments for

intelligence testing have been unable to capture the true ability of levels as performance is strongly influenced by visual, verbal, and fine-motor skills. The purpose of this study was to explore the use of three alternative assessments of intelligence for this population that has been often regarded as untestable. **Methods:** Twenty-one multiply disabled children (mean age of 10.7 years) took part in this study. Each was measured on the Pediatric Evaluation of Disability Inventory (PEDI), the Leiter International Performance Scale- Revised (Leiter- R), and a Cognitive Assessment Teacher Rating Scale. **Results:** The PEDI Social Subtest significantly correlated with both the Leiter-R Brief I.Q. and the Leiter-R Full I.Q. as well as the Cognitive Assessment Teacher Rating Scale. There was a significant relationship between the social/communication measure of the PEDI, the Leiter-Revised I.Q. Scores, and the teacher assessment of cognitive ability. **Conclusion:** Three different methods of tapping cognitive assessment resulted in similar results. Therefore, when it comes to assessing the cognitive ability of school-age children with cerebral palsy, we can utilize a variety of methods in place of traditional intelligence test administration. This study has expanded our understanding of children who in the past were regarded as untestable and presents viable alternatives to traditional assessment methods. Keywords Intellectual disability, assessment, cerebral palsy.

1: Correlational Matrix: PEDI Social, Leiter-R & Teacher Rating

	Self Care	Self Care CG	Mobility	Mobility CG
Self Care	1.00	.83*	.57*	.62*
Self Care CG		1.00	.69**	.78**
Mobility			1.00	.92**
Mobility CG				1.00

Abstract 24

Auditory Brainstem Responses (ABRs) in Healthy Term Newborns Correlate with Bayley Scores at 1 Year.

Randall A. Phelps, Child Development Unit, Children's Hospital of Pgh/ University of Pittsburgh, Pittsburgh, PA, Lindsey E. Keogh, Audiology, John D. Durrant, Communication Sciences and Disorders, University of Pittsburgh, Pittsburgh, PA, Diane L. Sabo, Audiology and Communication Disorders, Children's Hospital of Pgh/University of Pittsburgh, Pittsburgh, PA, Kevin E. Kip, Epidemiology, Herbert L. Needleman, Psychiatry, University of Pittsburgh, Pittsburgh, PA

Purpose: In this study we sought to test whether ABRs performed on a cohort of low-risk newborns would correlate significantly with developmental assessment at 1 year of age. **Methods:** n=34; gestational age >37 weeks; birth-weight 2500-4500gms; no perinatal distress or transfer to the NICU; no jaundice; no major anomalies; mother English-speaking; maternal age >18 years. Research-quality auditory brainstem responses, using conventional lead-placement and auditory stimulus (70 dB clicks) were performed on newborns. Bayley Infant Developmental Scales were performed at 1 year. **Results:** Participants are mostly of middle to high socioeconomic status, with standardized scores on the Bayley Cognitive Composite ranging from a low of 100 to a high of 145. Neonatal ABR Wave V latency was significantly inversely correlated with scores at one year on the cognitive composite, fine motor subscale, and motor composite of the Bayley. Neonatal ABR wave V amplitude was significantly directly correlated with scores at one year on the cognitive composite, fine motor subscale, and motor composite of the Bayley. **Conclusion:** ABR wave latency has been shown to be predictive of developmental delay in high risk groups. It has not been previously determined whether ABR can detect subtle neurodevelopmental differences among low-risk newborns. In this study, the inverse correlation of wave latency in newborns and motor and cognitive scores at 1 year holds true even within a cohort of low-risk infants. An additional novel finding is that wave V amplitude was highly correlated with scores on the Bayley. These findings are suggestive that ABR wave amplitude has relevance to neurodevelopmental function. Implications: the ABR is a powerful, non-invasive, and inexpensive technique for the detection of subtle neurophysiologic differences that have neurodevelopmental relevance in low-risk infants.

Abstract 25

Assessment of Risk for Neurodevelopmental Sequelae in Preterm Infants: A Comparison of the Neurodevelopmental Risk Exam and the Neurobiologic Risk Score Methods

Tyler K. Hartman, William J. Barbaresi, Pediatric and Adolescent Medicine, Slavica K. Katusic, Health Sciences Research, Robert C. Colligan, Psychiatry and Psychology, Amy L. Weaver, Health Sciences Research, Robert G. Voigt, Pediatric and Adolescent Medicine, Mayo Clinic College of Medicine, Rochester, MN

Purpose: Premature infants are at risk for adverse neurodevelopmental outcomes, yet methods for early assessment of risk are limited. Two instruments, the Neurodevelopmental Risk Examination (NRE) and the Neurobiologic Risk Score (NBRS) have been shown to have moderate correlation with developmental outcome. The correlation between these two instruments is unknown, and their predictive value in the contemporary NICU is uncertain. The objective of this study was to compare the NRE and NBRS methods for assessing risk for neurodevelopmental sequelae in infants <32 weeks gestational age. **Methods:** Subjects were 219 neonates <32 weeks discharged from the NICU between 2001 and 2006 who had undergone both the NRE and NBRS. The NRE includes 5 categories: sensory and behavioral response, axial tone, extremity tone, deep tendon reflexes, and primitive reflexes. The NBRS includes 7 categories: episodes of acidosis, infection, seizures, intraventricular hemorrhage, periventricular leukomalacia, hypoglycemia and mechanical ventilation. Both the NRE and NBRS independently generate a summary score that correlates with low, intermediate or high risk for neurodevelopmental sequelae. **Results:** Subjects had mean birth weight of 1101g and mean gestational age of 27.8 weeks. Risk scores for the two instruments were distributed as follows: NBRS-- 161 (75.2%) low, 29 (13.6%) intermediate and 24 (11.2%) high; NRE-- 97 (98%) low, 4 (2%) intermediate, 0 (0%) high. The correlation coefficient between the two exams was 0.43 with the ventilation and pH categories of the NBRS having the highest individual correlations with the overall NRE score (0.34 and 0.37, respectively). **Conclusion:** Both the NRE and NBRS have previously been shown to correlate with risk for neurodevelopmental sequelae in preterm infants, yet these two instruments have only a modest correlation with each other. This suggests that one or the other instrument may no longer be a valid method for assessing risk in the contemporary NICU environment. Future follow-up studies of this cohort will address the predictive value of each of these two instruments, and their components, in an effort to identify a valid method to assess risk for neurodevelopmental sequelae in the contemporary NICU.

Abstract 26

The Effect of Parenting Stress on Later Child Behavior: An Examination in a Sample Prenatally Exposed to Cocaine

Daniel M. Bagner, Stephen J. Sheinkopf, Psychiatry and Human Behavior, The Warren Alpert Medical School of Brown University, Providence, RI, Cynthia Miller-Loncar, Linda L. LaGasse, Pediatrics, Women & Infants Hospital of Rhode Island, Providence, RI, Barry M. Lester, Psychiatry and Human Behavior, The Warren Alpert Medical School of Brown University, Providence, RI, Jing Liu, Pediatrics, Women & Infants Hospital of Rhode Island, Providence, RI, Ronald Seifer, Psychiatry and Human Behavior, The Warren Alpert Medical School of Brown University, Providence, RI, Charles R. Bauer, Pediatrics, University of Miami, Miami, FL, Seetha Shankaran, Pediatrics, Wayne State University, Detroit, MI, Henrietta Bada, Pediatrics, University of Tennessee at Memphis, Memphis, TN, Abhik Das, N/A, Research Triangle Institute, Rockville, MD

Purpose: Parenting stress in the infant period has been shown to predict later child functioning in non-clinical populations. Mothers who used drugs during pregnancy have been shown to have higher levels of parenting stress; however, the longitudinal relationship between early parenting stress and later child behavior has not yet been examined in this population. Identifying the relations between parenting stress and childhood outcomes in infants with prenatal cocaine exposure would enhance our understanding of the influences on problem behaviors in this population, and would help to refine preventive interventions. **Methods:** This study examined the stability of parenting stress over time, the relationship between early parenting stress and later child behavior, and the effect of drug exposure on

the relationship between parenting stress and child behavior in the Maternal Lifestyle Study, a large sample of child-caregiver dyads with prenatal cocaine exposure and a non-exposed comparison sample. **Results:** Correlations between caregiver rating of parenting stress at 4 and 30 months were moderate, demonstrating high stability of parenting stress over time. Parenting stress at 4 months significantly predicted child externalizing behavior at 36 months. These relations were unaffected by cocaine exposure, indicating that the relationship between parenting stress and behavioral outcomes are found for at-risk children regardless of drug exposure history. **Conclusion:** These results extend the findings of the relationship between parenting stress and child behavior to a sample of children prenatally exposed to cocaine. Implications for outcome and treatment are discussed.

Abstract 27

Bowel Management and Social Acceptance in Spina Bifida

Rebecca Felsenthal, Barbara Jandasek, Grayson N. Holmbeck, Psychology, Loyola University Chicago, Chicago, IL

Purpose: The purpose of this study is to address relations between bowel program management and social functioning in youth with spina bifida. **Methods:** Participants were recruited within a larger longitudinal study addressing psychosocial adjustment in youth with spina bifida. Youth were 8-9 years old at Time 1 (T1), and data was collected every 2 years for a total of 5 waves. Families (n=26) completed questionnaires regarding bowel program adherence, desire for autonomy, and responsibility, and peer acceptance. Mother, father, nurse and child reports were used. **Results:** Parents reported up to 2 bowel management methods: enemas (T1 27%; T3 18.9%), suppositories (T1 18.9%; T3 18.9%), habit training programs (T1 5.4%; T3 2.7%), digital stimulation (T1 27%; T3 10.8%), manual disimpaction (T1 0%; T3 16.2%), bulk-forming agents (T1&3 5.4%), lubricants (T1 2.7%; T3 5.4%), diet (T1 0%; T3 13.5%), miscellaneous medications (T1 5.4%; T3 0%), a combination of methods (T1 2.7%; T3 0%), or other (T1&3 5.4%). At T1, 73.3% reported that their child toileted with complete assistance (T3 53.8%), 20% with partial assistance (T3 15.3%), 3.3% with reminding (T3 15.3%), and none toileted independently (T3 15.4%). Reports of bowel program adherence were not correlated across reporters. Child reports of bowel program responsibility and peer acceptance were correlated (T5; .468, $p<.05$). Mother report of bowel program adherence (T4) predicted mother report of peer acceptance (T5) ($p<.05$). Child report of peer acceptance (T4) predicted mother report of child's desire for autonomy in bowel management (T5) ($p<.05$). **Conclusion:** Families of children with spina bifida utilize a range of methods to manage the neurogenic bowel. Responsibility for bowel management increases as youth enter adolescence. Lack of correlation across reporters for bowel program may be due to discrepancies among reporters. Child reports of bowel program responsibility and mother reports of program adherence were related to reports of peer acceptance, indicating that medical adherence has a positive impact on social acceptance.

Abstract 28

Autism Spectrum Disorders in XXY, XYY, and XXYY Syndromes

Nicole R. Tartaglia, Department of Pediatrics, University of California - Davis Medical Center, Sacramento, CA, Susan Bacalman, MIND Institute, Robin L. Hansen, Pediatrics, UC-Davis Medical Center, Sacramento, CA, Shanlee Davis, School of Medicine, Mayo Clinic, Rochester, MN, Beth Goodlin-Jones, Psychiatry, Lesley Deprey, Michele Ono, MIND Institute, Randi J. Hagerman, Pediatrics, David Hessl, Psychiatry, UC-Davis Medical Center, Sacramento, CA

Purpose: Previous reports on males with sex chromosome aneuploidy (SCA) describe a variety of features including language delays, social deficits, executive dysfunction, and autistic behaviors. Many cases of autism spectrum disorder (ASD) have been reported in children with SCA. In this study we conducted standardized assessments for ASD on a group of male children with the most common forms of SCA including XXY, XYY, and XXYY syndromes. **Methods:** Males with XXY (n=20), XYY (n=22), and XXYY (n=20) age 3-21 were recruited from SCA family organizations. All participants completed a protocol including the Social Communication Questionnaire (SCQ) and the Autism

Diagnostic Observation Schedule (ADOS-G). The Autism Diagnostic Interview (ADI-R) was completed if the SCQ score was 15 or above, or if there was a previous concern for ASD by a parent or other professional. Age-appropriate developmental (Mullen Scales), cognitive (WASI) and adaptive functioning (Vineland-II) assessments, and a developmental-behavioral medical evaluation were also completed. A final diagnosis of autistic disorder, PDD-NOS, or no ASD was determined by a consensus of these measures and clinical impression. **Results:** Full ASD evaluation on 62 males with SCA (20 XXY, 22 XYY, 20 XXYY) showed that 0% of XXY, 36% of XYY, and 50% of XXYY had a diagnosis of ASD (XYY autistic disorder 5%, PDD-NOS 31%; XXYY autistic disorder 15%, PDD-NOS 35%). Children with a postnatal diagnosis of SCA were more likely to receive a diagnosis of ASD compared to prenatally diagnosed children. In those without ASD, 30% (13/44; 3/20 XXY, 7/14 XYY, 3/10 XXYY) met ADOS criteria in at least one domain. ASD symptomatology on the ADOS negatively correlated with verbal IQ and adaptive functioning across groups. **Conclusion:** ASD is an important clinical consideration in male children with SCA. ASD is more common in the groups with Y chromosome aneuploidy, and more common in children with a postnatal SCA diagnosis. Children with SCA without ASD can have a behavioral phenotype that overlaps with ASD. Results also support the importance of cytogenetic testing for all children with ASD. Further research investigating genetic polymorphisms and expression of X&Y chromosome genes involved in neurodevelopment is underway.

Abstract 29

Impact of Neighborhood and Family Factors on Child Disability in 17 US Cities

Michael E. Msall, Ronald R. Espinal, Pediatrics, University of Chicago, Chicago, IL, Roger C. Avery, Dennis P. Hogan, Sociology, Brown University, Providence, RI

Purpose: To assess rates of motor, sensory-communicative, and self-care functional limitations in school children and other family members living in United States (US) metropolitan regions. We used these activities as indicators of disability in functioning. We hypothesized that disability rates for other household members would be substantially higher in the city compared to suburbs, especially in households where there was a child with disability. **Methods:** Using Y2000 Census data from the Integrated Public Use Microdata Series (IPUMS), we analyzed a 6% sample of the 18,456,982 children ages 5-17 years living in 17 US metropolitan regions. **Results:** 34% of children lived in outer suburbs, 29% in inner suburbs, and 27% in central cities. Among children with disabilities who lived in cities, there were significantly higher rates (compared to their suburban peers) of not having access to a car or phone, limited adult education, unemployment, poverty, and inadequate housing. These children also were far more likely to live in a household with another disabled person. Table 1 documents the rates of child disability as well as rates of disability in other household members for children with and without disability living in the inner city compared to outer suburbs. In NY, LA, and Chicago, the data are highlighted for the areas with the most concentrated poverty. **Conclusion:** In US inner city metropolitan areas, children with disability disproportionately live in households with another family member with disability. This will require more resources to provide family-centered interventions that optimize participation.

	Child and Famil	y with Dis.	Child Disabilit	y Rates	Child and Famil	y w/o Dis.
	Inner City	Outer Suburbs	Inner City	Outer Suburbs	Inner City	Outer Suburbs
	Poverty		2.07%	1.80%	Poverty	
New York	62.19%	38.01%	1.98%	1.66%	26.35%	13.69%
LA	55.49%	41.36%	1.96%	1.63%	20.10%	12.94%
Chicago	64.91%	39.45%	3.01%	2.03%	24.26%	12.50%
SF-Oakland	58.20%	48.80%	2.30%	1.55%	19.92%	15.45%
Dallas	56.41%	41.35%	2.40%	1.56%	18.56%	13.95%
Philadelphia	61.06%	43.78%	2.67%	1.66%	27.48%	14.30%
Houston	50.58%	42.56%	2.95%	1.60%	18.79%	13.64%
DC	60.00%	43.30%	3.06%	1.58%	22.65%	13.35%

Atlanta	46.94%	38.14%	2.80%	1.39%	16.82%	11.69%
Boston	59.12%	41.22%	3.24%	1.57%	20.49%	14.03%
Miami	53.66%	29.05%	3.32%	1.49%	19.50%	14.80%
Detroit	58.44%	45.40%	3.52%	1.46%	27.73%	14.67%
Phoenix	57.29%	41.55%	2.48%	1.42%	20.46%	14.62%
San Diego	50.19%	39.53%	3.16%	1.65%	21.98%	13.66%
Minneapolis	65.00%	35.74%	2.59%	1.49%	17.56%	11.77%
St Louis	58.14%	38.94%	2.07%	1.80%	19.64%	13.99%
Denver	45.54%	37.99%	1.98%	1.66%	19.31%	13.34%

Abstract 30

Collaborative Office Rounds (COR): Multidisciplinary continuing professional education in children's developmental and behavioral health at Children's Hospital at Dartmouth--results of the 2005 participant survey.

Lawrence C. Kaplan, Pediatrics, Craig L. Donnelly, Psychiatry, Dartmouth Medical School, Lebanon, New Hampshire

Purpose: Collaborative Office Rounds were designed to help Medical Home Providers improve their skills in the behavioral and developmental aspects of child health. Through roundtable case discussions, diverse health care providers from NH and VT meet to discuss psychological, social, and medical issues critical to child health particularly in our rural setting. To assess participant experiences, a survey is administered annually, the results of which are shared with the group and presented at a National COR Program Directors meeting. The results of the 2004-2005 academic year survey are presented here. **Methods:** A survey instrument was administered to evaluate participant experiences and attitudes towards the COR Program during the 2004-2005 academic year, and reviewed with participants. **Results:** Satisfaction by COR participants in this program was high (80%). The experience did not office management(80%), but the majority felt the COR experience improved their knowledge about the diagnosis and management of developmental and behavioral health issues in children, or community (90%). Working directly with other colleagues and sharing concerns and opinions was a great benefit (100%), and the majority intended to continue as regular participants in the program. Participants found COR valuable to their practices, but criticized lack of follow-up information. More didactic sessions and guest speakers were requested (80%), and most felt that this program should be better advertised and promoted (80%). Unexpected findings included a desire to use this model to teach developmental and behavioral pediatrics to pre and post doctoral students, and to use this forum for research, and publication (80%). **Conclusion:** The Dartmouth COR Program is highly valued by its participants and is considered an essential part of their continuing medical education experience.

Abstract 31

A Randomized Clinical Trial of Neurofeedback in Children with Attention Deficit/Hyperactivity Disorder.

Naomi J. Steiner, Developmental-Behavioral Pediatrics, Floating Hospital - Tufts University, Boston, MA, Ellen C. Perrin, Radley C. Sheldrick, Developmental-Behavioral Pediatrics, Floating Hospital for Children - Tufts University, Boston, MA, David G. Gotthelf, Brown Middle School, Newton Public Schools, Newton, MA, Amanda E. Price, Developmental and Behavioral Pediatrics, Floating Hospital for Children - Tufts University, Boston, MA

Purpose: Parents, schools, and physicians have searched for an alternative and/or complement to medications in the treatment of ADHD. This study examined the efficacy of two computer-based training systems to teach children with ADHD to attend more effectively. We compared a system that teaches children to alter their brainwave activity using Neurofeedback (NF) with another system that does not use neurofeedback (AT). The hypotheses are: 1) Both treatments will result in improvements

in ADHD symptoms compared to a control condition; and 2) Improvements in the NF condition will be superior to those in the AT condition. This study is the first that we know of that looks at this treatment approach using an RCT and is executed within a school system. **Methods:** Thirty children in grades 6, 7, and 8 with a diagnosis of ADHD were randomly assigned to NF, AT, or waitlist(WL) groups, and completed the first semester of the project. Children received 45 minute sessions twice a week at school for 4 months. Parents, children, and teachers completed Conners, BRIEF and BASC questionnaires and children completed a Continuous Performance Test 1) at enrollment; 2) immediately after the program; and 3) 4 months after the program. **Results:** Preliminary analyses of variance are based on 23 children on whom full data are currently available. Mothers_ ratings on all 4 subscales of the Conners rating scale reflected improvement in the NF group compared to the WL group ($p<.05$). Differences between AT and WL groups showed a similar trend ($p<.15$). Teachers_ ratings showed a similar trend only for Conners subscales 1 and 2. **Conclusion:** These data suggest that computer-based attention training programs, especially those that utilize neurofeedback mechanisms, may be effective in reducing symptoms of ADHD among middle school children. Because of the small sample size and the complex logistical challenges of delivering the treatment within the school system, final conclusions await analyses based on all instruments from the full sample.

Abstract 32

Training Pediatric Residents in Behavioral Consultation with Triple P Positive Parenting Program

John C. Duby, Pediatrics, Northeastern Ohio Universities College of Medicine, Akron, OH, Melody Tankersley, College of Education, Kent State University, Kent, Ohio, Ann E. Salvator, The NeuroDevelopmental Center, Akron children's Hospital, Akron, Ohio

Purpose: The study evaluates the effect of training pediatric residents in behavioral consultation using the Triple P Positive Parenting Program. **Methods:** 52 pediatric residents were trained in the Primary Care Triple P: Positive Parenting Program in 2005-2007. Residents completed the Triple P pre-training questionnaire assessing the trainee_s beliefs regarding their training, confidence, and proficiency in behavioral consultation. Upon completion, trainees also completed the Triple P questionnaire. Pre- and post-results were compared. Results were compared to surveys completed by 26 trained faculty and staff. **Results:** The pediatric residents scored significantly better on the post vs pre scores on the questions regarding trained (mean difference, 1.39; 95% confidence interval [CI], 0.69 to 2.09; $p=0.0004$), confident (mean difference, 1.48; 95% confidence interval [CI], 0.85 to 2.10; $p<0.0001$) and proficient (mean difference, 1.19; 95% confidence interval [CI], 0.74 to 1.65; $p<0.0001$). The faculty scored significantly better on the post vs pre scores on the questions regarding trained (mean difference, 2.00; 95% confidence interval [CI], 1.66 to 2.34; $p<0.0001$), confident (mean difference, 1.96; 95% confidence interval [CI], 1.63 to 2.28; $p<0.0001$) and proficient (mean difference, 2.20; 95% confidence interval [CI], 1.82 to 2.58; $p<0.0001$) as well. Pediatric residents vs Faculty mean differences in pre and post scores were compared. There were no significant differences between pediatric residents vs faculty on the trained question (mean difference, -0.61; 95% confidence interval [CI], -1.28 to 0.61; $p=0.06$) or confident (mean difference, -0.48; 95% confidence interval [CI], -1.11 to 0.14; $p=0.09$). The faculty had a significantly higher difference on proficient post - pre scores than the pediatric residents (mean difference, -1.00; 95% confidence interval [CI], -1.64 to -0.36; $p=0.002$). **Conclusion:** Pediatric residents demonstrate significant improvement in their beliefs regarding level of training, confidence in their ability, and proficiency in behavioral consultation after completing Primary Care Level Triple P.

Abstract 33

Predictors of Independent Decision Making in Adolescents with Spina Bifida

Jill M. Zukerman, Grayson N. Holmbeck, Clinical Psychology, Loyola University, Chicago, IL

Purpose: There is a dearth of research examining the impact of chronic illness during late

adolescence, a time characterized by gaining autonomy and independence from parents. Spina bifida is a common congenital birth defect, associated with several neurological, cognitive, and orthopedic consequences. The purpose of the current study is to identify predictors of successful independent decision making in youth with spina bifida during their transition to adulthood and out of pediatric care.

Methods: Participants are part of a larger longitudinal study exploring family relationships and psychosocial adjustment of youth with and without spina bifida. The larger study includes 68 families with 8 and 9 year old children with spina bifida at Time 1 (T1). Fifty-two adolescents with spina bifida and their families participated in the present study. Data collection occurs every 2 years and multiple reporters are used for questionnaire data. Cross-sectional and longitudinal models examine several developmental skills (functional abilities, cognitive ability, and intrinsic motivation) at T4 as predictors of independent decision making at T5. **Results:** Cross-sectional analyses suggest intrinsic motivation and executive skills are significant predictors of adolescent independent decision making. Greater illness management by youth predicts increased independent decision making for non-illness related activities. Father report of executive functioning (T4) significantly predicts independent decision making (T5), with fewer executive deficits predicting more independence. Mother report of higher levels of personal care at T4 predicted higher levels of independent decision making at T5. **Conclusion:** Parents and clinicians should foster executive and adaptive skills necessary for independent decision making. Motivation also plays an important role in the development of independence. Implications for informing and improving services to meet the needs of these youth as they transition into adulthood and out of pediatric care are discussed.

Abstract 34

ADHD Guideline Adherence in a School-based Telemedicine Clinic

Georgina Peacock, Developmental Pediatrics, AUCD, Decatur, GA, Eve-Lynn Nelson, Pediatrics, Jessica Foster, Developmental Disabilities Center, University of Kansas, Kansas City, KS

Purpose: Primary care providers have become gatekeepers in ADHD evaluation, especially for underserved communities. Despite high pediatrician awareness of the American Academy of Pediatrics (AAP) guidelines for ADHD evaluation, only a quarter routinely report adhering to all guidelines. No previous studies have addressed AAP guideline adherence using telemedicine. **Methods:** A new ADHD Telemedicine clinic, connecting the school nurse's office with the medical center team was conducted with a child psychologist and developmental pediatrician, with LEND trainees and residents in attendance. Provider adherence to AAP guidelines was tracked using clinic rating forms. Providers and trainees also reported barriers and facilitators to guideline adherence. Consenting trainees completed online telemedicine rotation surveys. **Results:** To date, seventy new and follow-up encounters were completed across 25 unique patients. Most patients (23 of 25) were male and the mean age was 9 years. Most presented with co-morbid learning and psychiatric concerns. Approximately 15 pediatric trainees participated across clinical consultations. Very high adherence to each of the six AAP guidelines was observed. Initial results indicate gaps in trainee knowledge and gains in self-efficacy with the telemedicine technology and intention to use the technology in practice. In open-ended questions, trainees report benefit of the experience, particularly collaborating with the school nurses. **Conclusion:** Telemedicine presented few challenges specific to the technology in implementing national guidelines for ADHD evaluation. Adherence barriers related to the underserved population and the school-based setting rather than telemedicine per se. Trainee surveys indicated knowledge gaps and benefit of community experience via telemedicine. The trainee feedback will be used to generate a more structured telemedicine vignette-based questionnaire. The feedback will also be used for quality improvement of the TeleKidcare ADHD rotation.

Abstract 35

Identifying Children at Risk Prior to Parental Military Deployment

Eric M. Flake, Beth Ellen Davis, Developmental Pediatrics, Madigan Army Medical Center, Tacoma, WA

Purpose: The Global War on Terror has resulted in multiple, long and dangerous deployments for more than 150,000 US soldiers every year since 2001. Unlike previous wars, 50% of deployed service members are married and have children. The effects of deployment on two million military children during this period are unknown. Previous studies have determined predictable patterns of response during a deployment cycle. During the months prior to service members' deployment children have been observed to demonstrate increased internalizing symptoms and emotional withdrawal. The Pediatric Symptom Checklist (PSC) is a valid screening tool to identify at risk children for emotional problems. **Methods:** Parents attending a pre-deployment briefing for Active Duty Army and National Guard units were asked to complete a child deployment survey consisting of the Pediatric Symptom Checklist, Perceived Stress Scale and demographic information. **Results:** Eight hundred Active Duty (600) and National Guard (200) soldiers deploying to Iraq provided 115 eligible families with elementary school children. An initial sample of thirty parents (26%) voluntarily completed surveys. Fifty-three percent of the children were female (46% male) with a mean age of 7.2 years (age range 4-13). Thirty percent of Active Duty Army families were preparing for their second or more deployment. Four (14%) children had significant PSC scores for psychosocial and behavior problems; 3 from Active Duty, 1 from National Guard. All four children were already identified as having a medical condition (1 ADHD, 2 Autism and 1 Anxiety disorder) and were receiving medical assistance. Sixty percent of the parents reported that their child sometimes or often "complains of aches and pains" or "spends more time alone". Forty percent report that sometimes or often their child "worries a lot" or "wants to be with them more than before". The average Perceived Stress Scale score was 3.5 based on an Index 0 as low stress - 16 high stress. Increased stress index corresponded with higher PSC scores. Eighty-five percent of the Active Duty families and 75% of the National Guard families reported feeling supported by the military. **Conclusion:** Children at highest risk for psychosocial problems and family stress were those with underlying medical conditions. Internalizing symptoms were highly prevalent which may warrant further monitoring throughout the deployment cycle. Pre-deployment, a brief screening tool demonstrated low stress in the majority of this sample which may be reflected by family satisfaction of perceived military support.

Abstract 36

Types of Childhood Trauma as Differential Predictors of Later Eating Dysfunction

Christine B. Sieberg, Psychology, University of Rhode Island, Kingston, Rhode Island, Allison M. Smith, Ellen C. Flannery-Schroeder, Psychology, University of Rhode Island, Kingston, RI

Purpose: Research suggests that childhood trauma is linked to adverse health outcomes such as eating disorder symptomatology (Everill & Waller, 1995). Moreover, many studies examining the effects of trauma on later development focus on a single type of trauma (Krupnick, Green, Stockton, Goodman, Corcoran, & Petty, 2004), namely sexual abuse. Such studies often do not address how additional types of childhood trauma, (e.g., emotional neglect, emotional abuse, physical neglect, physical abuse, & sexual abuse) each contribute to later eating dysfunction. According to the National Center of Child Abuse and Neglect, of the 1.5 million verified child abuse cases, over 750,000 represent neglect while approximately 700,000 are comprised of sexual, physical, or emotional abuse cases combined (Sedlack & Broadhurst, 1996). This suggests that there is a vital need to look beyond sexual abuse as a factor in the development of later eating pathology. This study aims to bridge a gap in the literature by examining how various types of childhood trauma (e.g. emotional neglect, emotional abuse, physical neglect, physical abuse, and sexual abuse) differentially predict later eating dysfunction. **Methods:** Participants were 232 students enrolled in a mid-size northeastern university who received extra credit for their participation in the study. Participants completed the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) and the Eating Disorders Inventory, 2nd Edition (EDI; Garner, 1991) as part of a larger study examining childhood trauma and later health outcomes. **Results:** A series of statistical regressions (step-wise method) was conducted using emotional abuse and neglect, sexual abuse, and physical abuse and neglect (CTQ) as predictor variables and the total EDI score as well subscales of the EDI. Results found that types of childhood trauma differentially predict later eating dysfunction (See Table). **Conclusion:** These findings suggest that in addition to sexual abuse, other types of childhood trauma such as emotional abuse and neglect as well as

physical neglect may be important in shaping later eating pathology. Surprisingly, physical abuse was not predictive of eating dysfunction and it might be of interest to explore this specific variable in future research. This research not only provides insight into the specificity of childhood trauma and its predictive value in later eating dysfunction but may also serve to inform future prevention and treatment efforts.

Dependent Variable	Predictor Variable	R2 Change	df	F-Statistic	Beta
Total EDI	Emotional Abuse	0.098	1, 212	23.051***	0.253
	Sexual Abuse	0.035	2, 211	16.128***	0.195
Body Dissatisfacti	Emotional Abuse	0.023	1, 219	5.265*	0.153
Interceptive Aware	Emotional Abuse	0.075	1, 218	17.602***	0.273
	Sexual Abuse	0.029	2, 217	12.570***	0.180
Ineffectiveness	Emotional Abuse	0.119	1, 218	29.557***	0.346
	Emotional Neglect	0.042	2, 217	20.830***	0.231
Bulimia	Sexual Abuse	0.082	1, 220	19.771***	0.198
	Emotional Neglect	0.029	2, 219	13.795***	0.193
Maturity Fears	Sexual Abuse	0.059	1, 220	13.909***	0.244
Interpersonal Dist	Emotional Neglect	0.094	1, 219	22.812***	0.307

Abstract 37

SDBP Practice Parameters Survey: Overview of Full Time Developmental-Behavioral Pediatricians

Robin Adair, Pediatrics, UMass Med Sch, Worcester, MA, Ellen Perrin, Pediatrics, Tufts Univ Sch of Med, Boston, MA, Carol Hubbard, Pediatrics, Maine Med Ctr, Falmouth, ME, Judith Savageau, Family Medicine, UMass Med Sch, Worcester, MA

Purpose: The purpose of this survey was to characterize the nature of developmental-behavioral pediatric (DBP) practice and the impact of productivity goals. **Methods:** 468 SDBP members (excluding trainees, retirees, and those without known e-mail addresses) received a 3-part on-line survey via e-mail. **Results:** We received 138 complete responses to Part I (29%), 98 to Part II (21%), and 78 to Part III (17%). The 78 full-time MD respondents who provide clinical care are widely distributed in age, geographic location, and salary. About half are women; 77% are Board certified; 85% have academic appointments, 46% at the clinical associate professor level or higher; and 40% are credentialed as mental health providers. They see, on average, 7.5 new and 15.4 follow-up patients/week. On average, 41% of patients have ADHD, 25% have autism spectrum disorders, and 16% have other developmental disabilities. Wait time for first appointment is <2 months for 41%, 2-6 months for 43%, and 6-12 months for 16%. For initial visits, 65% use consultation billing codes (99241-5) and 35% use new patient codes (99202-5); 12% use 96110 and 19% use 96111 for developmental testing. On average, 37% of patients are covered by Medicaid and 39% by other payers. 41% of respondents have productivity goals; of their employers, 41% use national productivity benchmarks and 18% enforce their productivity policies. 15% of respondents know their annual RVU (relative value unit) production and 15% are familiar with national productivity benchmarks. **Conclusion:** This survey illustrates the diversity within DBP practice and potential benefit of coding and productivity training. The analysis is limited by the small sample size of full time physicians and the possibility it may not be representative of the field.

Abstract 38

Predictors of Pain and Activity Restriction in Children and Adolescents with Chronic Pain Conditions

Amy S. Lewandowski, Psychology, Case Western Reserve University, Cleveland, Ohio, Tonya M. Palermo, Anesthesiology and Peri-Operative Medicine, Oregon Health & Science University, Portland, OR, Dennis Drotar, Division of Behavioral Pediatrics and Psychology, Rainbow Babies & Children's

Hospital, Cleveland, Ohio

Purpose: The current study tested a single predictive model to examine the longitudinal relationship between pain and activity restriction in children and adolescents with recurrent headache (HA) and juvenile chronic arthritis (JCA). The study compared children's responses on prospective (daily diary reports) and retrospective measures over a 12 month period to determine 1) whether the different type of assessment tools similarly assessed pain and activity restriction, and 2) to determine if either type of measurement tool showed consistent bias with children over-inflating or under-reporting symptoms.

Methods: Data were gathered as a part of a larger study examining the longitudinal impact of chronic pain on the physical and psychological functioning of children and adolescents. The sample consisted of 89 children and adolescents recruited at a baseline visit and who were diagnosed with recurrent headaches (HA) or juvenile chronic arthritis (JCA). Data collection included administration of prospective and retrospective measures of pain, activity restriction and depressive symptoms. Both linear regressions and hierarchical linear modeling (HLM) were used in data analysis.

Results: Findings using both types of measures revealed that level of pain intensity consistently predicted children's degree of restriction in daily activities. Individual characteristics particularly age, gender, income level, depressive symptoms and illness group impacted the strength of this relationship. In addition, group differences between the pain conditions emerged with HA participants reporting significantly higher levels of pain and greater activity restriction than those with JCA. In terms of specific activity limitations, participants with HA reported more activity restriction in social domains whereas those with JCA reported more limitation in physically demanding activities. Contrary to hypotheses, results did not reveal uniform biases in retrospective versus prospective reports.

Conclusion: This study extends previous research by showing that the predictive relationship between pain and activity level remains consistent within individuals, over time, and across different pain conditions. Obtaining similar results using prospective and retrospective measures indicates that in this sample retrospective assessment tools of pain and activity restriction were not consistently biased or over-inflated. Preliminary findings suggest that retrospective reports may be an acceptable alternative to more costly, labor intensive diary data for assessment in clinical practice.

Abstract 39

Assessment of Physician Documentation of Developmental Status at Hospital Admission

Carolyn A. Kippes, Carol B. Garrison, Vinnie Barone, Susan VanScoyoc, Laurie Hornberger, Pediatrics, University of Missouri-Kansas City, Kansas City, MO

Purpose: We examined the admission records of physicians to assess documentation of developmental status at hospital admission. **Methods:** The Children's Mercy Hospital Pediatric Institutional Review Board approved this retrospective medical record review of admissions to general pediatrics services. Group 1 included resident admission database forms with a developmental milestone screen in 1999. Group 2 included resident records and Group 3 included hospitalist records. Both from 2003 without a milestone screen. The first 250 eligible records were selected in each group and reviewed for the presence/absence of: 1) gross motor history, 2) fine motor history, 3) language history, 4) observed gross motor, 5) observed fine motor, 6) observed language, 7) head circumference, 8) family history of developmental problems, 9) developmental impression and 10) referral for services. Medical records were excluded for patient age >36 months or admission to another service. **Results:** A second reviewer reviewed 10% of the records with 94.5% agreement. Overall, documentation was greater for history (55.4%) than for observed (10.5%) developmental skills. History of development documentation was highest in Group 1 using a milestone screen and in Group 3 with development in the review of systems. Group 1 documented the most observed skills (18%). Overall, 43.9% of medical records documented head circumference, with Group 1 the highest (65.2%). All groups rarely documented family history of developmental problems. Overall, 6.8% of medical records had a developmental impression of the patient. Of medical records with an impression statement, appropriate referral was documented in 80% for Groups 1 and 2 and in 67% for Group 3.

Conclusion: A developmental screen improves some aspects of developmental documentation at admission. The presence of a physician developmental impression statement led to more appropriate

referrals. Use of a developmental screen upon admission to the general pediatrics service may improve developmental documentation. However, emphasizing physician documentation of developmental impressions should increase appropriate referrals and improve patient outcomes.

Abstract 40

Equity in the Age of Diagnosis and Medication Initiation for Attention Deficit Hyperactivity Disorder

Scott Stuart, Division of Genetics and Developmental Pediatrics, Medical University of South Carolina, Charleston, SC, Conway Saylor, Psychology, The Citadel, Charleston, SC, Michelle Macias, Division of Genetics and Developmental Pediatrics, Medical University of South Carolina, Charleston, SC, Natalia Davila, Brandon Jordan, Psychology, The Citadel, Charleston, SC

Purpose: The objective was to identify the presence of racial, gender, and clinic disparities regarding the age of diagnosis and medication initiation for Attention Deficit Hyperactivity Disorder (ADHD).

Methods: Concerns have been raised about healthcare disparities in the management of developmental behavior problems. After IRB approval, a retrospective chart review was conducted. Study criteria included 6-12 years of age, diagnosis of ADHD, current medication treatment, medical management by the divisions of General or Developmental Pediatrics and at least three clinic visits. A sample of n=388 met study criteria. Twenty five subjects of each gender and clinic were randomly selected for study (n=100). **Results:** Of the patient sample, 70% were black ethnicity and 81% had public health insurance. Utilizing ANOVA and effect size analyses, ethnicity, gender and location of care were compared against age of diagnosis and age of medication initiation. In each category, the statistical significance was $p > 0.1$. Effect size was moderate for ethnicity and clinic, and mild for gender. **Conclusion:** In these data of a randomly selected school age cohort, there was no statistical difference between ethnicity, gender and location of care when compared against age of diagnosis and medication initiation for ADHD. Future research should be directed toward differences in pharmacologic treatment and follow up care.

Abstract 41

Parenting Stress and Concern for Child Bullying

Kimberly A. Twyman, Michelle M. Macias, Developmental-Behavioral Pediatrics, Medical University of South Carolina, Charleston, SC

Purpose: Bullying is recognized as a cause of significant distress for the victims. While some child risk factors have been identified in children who are more likely to be bullied, family risk factors for bullying in children have been less explored. This study explores the possible association between parenting stress factors and a higher likelihood of a child being bullied. **Methods:** We completed a cross sectional study using data from the 2003 National Survey of Children's Health, placing subjects into 2 groups based on parent's concern their child was being bullied (a lot vs. a little/not at all). Pertinent data collected included demographic information and responses related to questions pertaining to parenting stress, including: parent involvement and support, household disagreements, and the Aggravation in Parenting Scale. Binomial logistic regression analyses were used to determine the potential association between each of the variables and concern for being bullied. **Results:** The two groups differed on nearly all of the demographic factors, and were included in the multiple logistic regression analyses to control for any effect on key child and parenting stress variables. Parents of bullied children reported poorer overall coping with day to day demands vs. the non bullied group (56.8 vs. 46.8%, aOR 1.50, 95% CI 1.44-1.55), and were more likely to report aggravating parenting factors such as difficulty caring for the child (aOR 1.84, 95% CI 1.70-2.00), feeling the child did things that bothered them (aOR 1.58 95% CI 1.45-1.71) and feeling angry with the child (aOR 1.62 95% CI 1.45-1.80). Other variables were significant to a lesser degree. **Conclusion:** An association between poor parent coping skills and child bullying suggests children may be taught maladaptive coping strategies for encounters with aggressive peers. Angry and otherwise negative parent feelings toward a child may impact a child's self esteem, also contributing to a higher risk of being bullied. Screening for

bullying risk in children is important, especially when parents report high stress, and could be implemented by the child's primary care provider. Obtaining history for parenting stress during a parent's preventive care visit may help identify other children at risk for bullying.

Abstract 42

Parental Concerns Predictive for Failed Critical Items on the Modified Checklist for Autism in Toddlers

Kimberly A. Twyman, Michelle M. Macias, Developmental-Behavioral Pediatrics, Medical University of South Carolina, Charleston, SC, Frances Page Glascoe, Pediatrics, Vanderbilt University, East Berlin, PA

Purpose: As early detection of autism spectrum disorders (ASD) is crucial for best outcomes, it is essential to identify the specific characteristics on developmental-behavioral (DB) screening that call for further ASD screening. This study determines what DB concerns on the Parents' Evaluation of Developmental Status (PEDS), a parent completed DB screening tool, were associated with critical failures on an ASD specific screening tool, the Modified Checklist for Autism in Toddlers (M-CHAT), and if specific concerns are predictive for certain failed M-CHAT critical items. **Methods:** By retrospective chart review, demographic data and scores for M-CHAT and PEDS were abstracted from the website www.forepath.org. Subjects who failed the M-CHAT were divided into two groups: Critical vs. Non-Critical Failure. One or more predictive concerns on PEDS constituted a failed screen. Concerns in each PEDS developmental domain were analyzed for prediction of critical M-CHAT failures, and if particular concerns were associated with certain failed items. **Results:** Of the 361 subjects, 59% failed on the basis of critical items. With respect to demographic factors, the 2 groups differed only on residential location. The Critical Fail group was more likely to have a PEDS score that would lead to referral for further testing (OR 4.3 CI 1.34-13.77). The predictive items on PEDS for M-CHAT critical failure included expressive language (OR 2.1 CI 1.01-4.55), receptive language (OR 2.3 CI 1.33-3.91), and self-help (OR 2.2 CI 1.30-3.69), while behavior concerns were less predictive (OR .46 CI .21-.99). Each of these domains was associated with failed responses for 3 M-CHAT items: imitation, sharing, and joint attention; receptive language was also associated with response to name ($p < 0.05$). **Conclusion:** Concerns within language domains are expected, as these are prominent ASD features. The association between the self-help domain and M-CHAT critical items reinforces the importance of assessing joint attention in detecting a possible ASD. Particular attention to the language and self-help domains in DB screening tools such as PEDS may elicit concerns for behaviors most sensitive to ASD which require further screening.

Abstract 43

Long-Term Effectiveness and Safety of Lisdexamfetamine Dimesylate in Children Aged 6 to 12 Years With Attention-Deficit/Hyperactivity Disorder

Steven Valliere, Shire Development Inc., Wayne, PA, Robert L. Findling, Child & Adolescent Psychiatry, University Hospitals Case Medical Center, Cleveland, OH, Ann C. Childress, Center for Psychiatry and Behavioral Medicine, Las Vegas, NV, Suma Krishnan, Shire Development Inc., Wayne, PA, James McGough, Neuropsychiatric Inst & David Geffen School of Med, Los Angeles, CA, Anthony DeLeon, Shire Development Inc., Wayne, PA

Purpose: To evaluate the safety and effectiveness of long-term lisdexamfetamine dimesylate (LDX, Vyvanse™) treatment in children aged 6 to 12 years with attention-deficit/hyperactivity disorder (ADHD). **Methods:** This long-term, open-label, single-arm extension study enrolled children aged 6 to 12 years with DSM-IV-TR® diagnosis of ADHD (combined and hyperactive/impulsive subtypes) who may or may not have received prior LDX treatment. Subjects were titrated to 30, 50, or 70 mg/d LDX over 4 weeks. Treatment was maintained for up to 11 more months, during which time the dose could be adjusted to maintain optimal effectiveness and tolerability. The primary effectiveness measure was the ADHD Rating Scale (ADHD-RS); the secondary effectiveness measure was the Clinical Global Impression (CGI) scale. Safety assessments included adverse events (AEs), physical examinations,

vital signs, laboratory evaluations, and electrocardiogram. **Results:** The intent-to-treat (ITT) population consisted of 272 subjects (189 boys, 83 girls). At endpoint, the mean (\pm SE) change in ADHD-RS total score from baseline was 27.2 (\pm 12.8) ($P < .0001$), a $>60\%$ reduction from the baseline value of 43.3 (\pm 7.7). Reductions from baseline were observed at each post-baseline visit beginning at Week 1 and throughout the 12 months. No differences were found between subjects who were or were not previously treated with LDX. At endpoint, investigators rated $>80\%$ of the ITT subjects as improved or very much improved on the CGI scale. Treatment was generally well tolerated. Most AEs ($>95\%$) were mild to moderate in severity and occurred during the first 8 weeks of treatment. The most common AEs were decreased appetite (33%), insomnia (17%), weight decrease (18%), headache (18%), upper abdominal pain (11%), irritability (10%), and upper respiratory tract infection (11%). **Conclusion:** Long-term treatment with 30, 50, and 70 mg/d LDX resulted in persistent improvements in ADHD symptoms and was generally well tolerated in children. Supported by funding from Shire Development Inc.

Abstract 44

Atomoxetine For Children and Adolescents with ADHD and Reading Disorders

Calvin Sumner, Linda Wietecha, US Medical Division, David Williams, Information Sciences, Eli Lilly and Company, Indianapolis, IN, Thomas Lock, Child Study Center, University of Oklahoma, Oklahoma City, OK, Richard Rubin, Psychiatry, Vermont Clinical Study Center, Burlington, VT, Michael Greenbaum, Child Psychiatry, Capstone Clinical Research, Libertyville, IL

Purpose: Assess efficacy of atomoxetine for ADHD symptoms in youth with ADHD and dyslexia/reading disorder (ADHD+RD), and assess related measures of reading performance and neurocognitive function. **Methods:** Youth ages 10 to 16 years with ADHD and ADHD+RD received open-label atomoxetine for 16 weeks. The ADHD Rating Scale (ADHD RS), Reading Subtests of the Kaufman Test of Educational Achievement (K-TEA), and the Working Memory Test Battery for Children (WMTB-C) were assessed. **Results:** Both treatment groups showed significant symptom reduction on ADHD RS and improved reading scores on the K-TEA. The ADHD group showed significant improvement on WMTB-C central executive measures in contrast to the ADHD+RD group, who showed improvements on visuo-spatial sketchpad and phonological loop component scores. **Conclusion:** Atomoxetine was associated with significant reduction in ADHD symptoms in both groups. Baseline reading scores for the ADHD+RD group were lower than the ADHD group but showed comparable significant improvements. Measures of central executive function and visuo-spatial sketchpad and phonological loop components scores on the WMTB-C differed between groups. The meaning of these differences between groups in relation to the comparable changes in improvement in ADHD symptoms is unclear but could suggest that brain regions related to the therapeutic benefit of atomoxetine may be different with comorbid reading disorder. Funding was provided by Eli Lilly and Company

Abstract 45

Caregiver Self-Efficacy and Childhood Unintentional Injury: Injury Prevention Behavior as a Mediator

Shanna M. Guilfoyle, Bryan T. Karazsia, Beth G. Wildman, Psychology, Kent State University, Kent, OH

Purpose: Childhood unintentional injury (CUI) is the leading cause of death to children. Recent works have highlighted the need for greater application of behavioral-change theories to CUI prevention (e.g., DiGiuseppi & Roberts, 2000; Gielen & Sleet, 2003). Although the Health Belief Model (Becker, 1974) provides a framework to enhance child safety, we propose the application of Protection Motivation Theory (PMT; Prentice-Dunn & Rogers, 1986) to CUI prevention. PMT may provide unique theoretical contributions that assist to identify underlying caregiver traits that influence CUI (Morrongiello, 2005). The current objective was to evaluate caregiver sense of parenting efficacy and how much caregivers engaged in injury prevention behavior. Using PMT to guide choice of variables,

the present study examined whether performance of injury prevention behavior (IPB) mediated the association between caregiver perceived self-efficacy and CUI (Morrongiello, 2005; Morrongiello, et al., 2004a, 2004b). **Methods:** Caregivers completed an assessment packet (demographic questionnaire; Parent Sense of Injury Competence, PSIC, adapted from Johnston & Mash, 1993; Injury Prevention Behaviors Questionnaire, IPBQ, unpublished; Injury Behavior Checklist, IBC, Speltz, et al., 1990) in waiting rooms of their children's primary care physician offices. Co-caregivers (i.e., fathers) not present in the waiting rooms were contacted via telephone to recruit participation. Participants (N = 104) received \$10 compensation for their time. **Results:** Perceived efficacy was significantly associated with CUI risk and performance of IPB. However, performance of injury prevention behavior was not significantly correlated with CUI risk. Thus, performance of IPB could not be tested as a mediator. Use of PMT in the study of CUI was empirically supported. **Conclusion:** Findings suggest that perceived efficacy is linked to IPB and CUI risk for both mothers and fathers. Interestingly, mothers and fathers may have differential perceptions of CUI risk (i.e., developmental benefits of minor injury). In turn, such perceptions could influence implementation and performance of IPB. Results also highlight the importance of addressing contextually specific behaviors (Morrongiello, 2005). Results could be limited by use of measures with limited psychometric data.

Abstract 46

Prevalence of Tic Disorders in a School-Based Population

Mark L. Wolraich, Melissa A. Doffing, Pediatrics, Barbara R. Neas, Biostatistics and Epidemiology, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Suzzana Visser, National Center on Birth Defects & Dev. Disabilities, Centers for Disease Control and Prevention, Atlanta, GA, Lawrence D. Scahill, School of Nursing and Child Study Center, Yale, New Haven, CT

Purpose: Epidemiologic data on the frequency of tics, tic disorder, and Tourette syndrome in a non-referred population are sparse and the results are highly discrepant with prevalence ranging from 1 - 10 per 1,000 to 20% (Scahill, Sukhodolsky, Williams & Leckman, 2005). This study provides information about the presence of tic disorders in a community setting. **Methods:** Participants in the current study of the frequency of tic disorders and ADHD included 5748 public school children in Pre-K through 6th grade. The sample was 51% male and included children from diverse ethnic/racial backgrounds: Hispanic 5%, Non-Hispanic 88%; African American 30%, Native American 4%, White 59%, other race 3%. Teachers (n = 5748) and parents (n = 1378) completed coordinated screening questions regarding presence of motor and phonic tics, tic interference, ADHD symptoms, functioning in school and diagnosis and medication treatment for ADHD and tic disorders. **Results:** The sample included 140 (2.4%) children who were reported to have tic symptoms nearly every day, 924 (16%) children that met symptom criteria for ADHD, and 88 (1.5%) children who met both tic and ADHD criteria. In the 35 cases where parents reported a diagnosis of tic disorder, only one teacher was aware of the diagnosis. When parents reported an ADHD diagnosis, teachers were aware about half of the time. **Conclusion:** This study provides a base of knowledge about current rates of these disorders in a non-clinical setting and addresses questions about the value of school-based screening for tic disorders. These findings also raise questions on how to provide educational services to children whose parents may not inform schools about their child's tic diagnoses.

Abstract 47

Outgrowing Attention Deficit/ Hyperactivity Disorder (ADHD): Adolescent and Parent Perspectives

Julia Anixt, Pediatrics, University of Maryland School of Medicine, Baltimore, MD, Neil Powe, Medicine & Epidemiology, Neal deJong, Johns Hopkins University, Baltimore, MD, Paul Lipkin, Center for Development & Learning, Kennedy Krieger Institute, Baltimore, MD

Purpose: Despite increased recognition that ADHD persists into adulthood in 66-80% of cases, it is a common public perception that children outgrow ADHD. Adolescents with untreated ADHD symptoms are at high risk for poor functional outcomes and teens with ADHD tend to underreport their

impairments. The purpose of this study is to compare teen and parent views about the persistence of ADHD symptoms and continued need for treatment. **Methods:** Cross-sectional study of adolescents (13-18 y/o) previously evaluated at a specialty clinic and diagnosed with ADHD before age 10. Adolescents and their parents were contacted by mail, consented, and completed questionnaires about their experiences with ADHD. The standardized Conners' Parent and Self-Report Rating Scales were used to measure current ADHD symptoms. Parent-teen responses were compared using McNemar's test. **Results:** Questionnaires have been completed by 115 families (56% of those agreeing to participate). The mean adolescent age is 15.5 yr (SD 1.7 yr), and the sample is 73% male. The study participants are 29% African American, 70% Caucasian, and 27% are low-income. Most participants are currently taking medicine for ADHD (63%). On the Conners Scales, 61% of adolescents have clinical-range ADHD symptoms (>95th% for age-gender matched norms) based on parent report, whereas only 31% have symptoms in this range by self-report (χ^2 27.5, $p < 0.001$). Consistent with reporting higher levels of clinical symptoms, only 9% of parents think their child has outgrown ADHD, compared to 16% of teenagers (χ^2 4, $p = 0.046$). Whereas 66% of parents think their child needs medicine for ADHD, only 45% of adolescents think so (χ^2 17.1, $p < 0.001$). When asked about the long-term prognosis of ADHD, 52% of parents versus 21% of adolescents feel ADHD is a life-long condition never outgrown (χ^2 28.5, $p < 0.001$). **Conclusion:** A follow-up of adolescents diagnosed with ADHD before age 10 shows they later report ADHD symptoms at significantly lower rates than their parents and more often feel they have outgrown their ADHD. Teens are less likely than parents to report needing medication and to view ADHD as a life-long condition. Adolescent perceptions of outgrowing ADHD symptoms could lead to poor adherence to effective treatments for this condition.

Abstract 48

Childhood Obesity: The Role of Self-Concept in Motivation to Change

Amy Beck, Aileen A. Vedda, Ludmila Zaytsev, Psychology, Loma Linda University, Loma Linda, CA, Kim Hamai, Pediatrics, Loma Linda University Children's Hospital, Loma Linda, CA, Mary Catherin Freier, Psychology and Pediatrics, Loma Linda University, Loma Linda, CA

Purpose: Prevalence of pediatric obesity is on the rise. Understanding facilitators of change among youth is essential for intervention. The impact of physical and psychological factors on motivation to change was examined in participants of a pediatric obesity program. **Methods:** Overweight children participating in a 12-week program targeting both physical and psychosocial functioning completed an intake evaluation, which included: Piers-Harris Self-Concept Scale (PH), Readiness for Change Questionnaire (RFC), and body fat percentage. PH scales, which suggested more negative self-perceptions were Popularity, Intellectual and Social Status, and Physical Appearance and Attributes. The RFC factors include Cognitive (awareness of a problem and consideration of change) and Emotional (identification of feelings and situations that promote change). Correlations were used to investigate relationships. **Results:** No significant correlations between percentage of body fat and RFC factors were found. The Popularity scale significantly correlated with the Emotional RFC factor ($r = .35$, $p < .05$, $n = 117$). The Intellectual and Social Status scale significantly correlated with the Cognitive RFC factor ($r = .26$, $p < .05$, $n = 118$). The Physical Appearance and Attributes scale significantly correlated with both the Cognitive RFC factor ($r = .20$, $p < .05$, $n = 118$) and the Emotional RFC factor ($r = .31$, $p < .05$, $n = 117$). **Conclusion:** Although percentage of body fat did not relate to readiness to change, perceptions of social, intellectual, and physical self did. Children who felt more popular (feeling less teased and/or isolated from peers) showed a greater emotional readiness to change. Children who perceived higher intellectual and school status (feeling competent/smart at school) demonstrated a greater cognitive readiness to change. Children with an increased physical perception of self (feelings about appearance) demonstrated both greater cognitive and emotional readiness to change. This study suggests that child's perception of self is a very powerful motivator for change perhaps more than true physical characteristics. Thus, addressing psychosocial factors is important in pediatric obesity prevention and intervention programs.

Abstract 49

Neurobehavioral Assessment Predicts Motor Outcome in Preterm Infants

Bonnie E. Stephens, Pediatrics, Brown Medical School, Providence, RI, Jing Liu, Barry Lester, Pediatrics, Women and Infants Hospital, Providence, RI, Maternal Lifestyles Steering Committee, NIDA, Bethesda, MD

Purpose: Though survival of infants \leq 1250g has improved, incidence of disability has increased. Up to 20% have cerebral palsy (CP) and 29-40% have a Bayley psychomotor development index (PDI) $<$ 70 at 18 months corrected age (CA). Yet there is no reliable predictor of poor motor outcomes. The Neonatal Network Neurobehavioral Scale (NNS) is a standardized neurobehavioral assessment of the high-risk neonate. In cocaine exposed neonates scores correlate with PDI at 12 months. In preterm infants scores may correlate with outcome. There is no conclusive data correlating NNS and motor outcome in infants born 1250g. The objective of this study was to determine whether NNS Summary Scores at 44 weeks are predictive of CP at 12-36 months or low PDI at 24 months, in infants born 1250g from the Maternal Lifestyles Study (MLS). **Methods:** We analyzed data collected on all preterm infants in the MLS who had an NNS performed at 44 weeks and a neurologic exam at 12-36 months CA (n=395) or a Bayley PDI performed at 24 months CA (n=270). Logistic regression analyzed NNS summary scores associated with CP or PDI $<$ 70, while controlling for birth weight 1250g. Summary scores were entered into the model as z scores. Criteria for entry into the model was $p < 0.05$. **Results:** 18/395 infants (5%) had CP, and 24/270 infants (9%) had PDI $<$ 70 (2 sd below mean). CP was associated with low quality of movement, (OR 1.95, 95% CI 1.24-3.06, $p=0.004$), and high lethargy (OR 1.67, 95% CI 1.01-2.76, $p=0.045$). This model contributed 19% of the variance in diagnosis of CP at 12-36 months ($R^2=0.19$, $p=0.000$). Bayley PDI $<$ 70 was associated with low handling (OR 1.83; 95% CI 1.12-2.99, $p=0.017$), low quality of movement (OR 2.16; 95% CI 1.38-3.38, $p=0.001$), and hypotonia (OR 1.63; 95% CI 1.14-2.32, $p=0.007$). This model contributed 26% of the variance in PDI $<$ 70 at 24 months ($R^2=0.26$, $p=0.000$). **Conclusion:** Findings suggest that the neurobehavioral profile of underarousal in the 44 week preterm infant may be a harbinger of poor motor outcome.

Abstract 50

Limited Interactions between Mothers and 6 Month Old Infants During Media Exposure

Alan L. Mendelsohn, Samantha B. Berkule, Suzy Tomopoulos, Harris S. Huberman, Benard P. Dreyer, Pediatrics, New York University School of Medicine, New York, New York

Purpose: Mother-infant language interactions have the potential to moderate the impact of media exposure on developmental-behavioral outcomes. We sought to assess mother-infant interactions related to media exposure in 6 month-olds and the relationship between these interactions and media content. **Methods:** Eligible dyads were consecutively enrolled in the post-partum unit of an urban public hospital. Inclusion criteria: language English or Spanish, no medical complications. Infant media exposure was assessed at age 6 mos with an interviewer-administered recall diary. Information obtained for each program included name, duration, maternal co-viewing, and dyadic interactions (e.g., talking about or singing with the program). Program content was categorized based on industry ratings. **Results:** 166 dyads viewing 477 programs were assessed at mean (sd) infant age 6.6 (1.0) months. 95.9% reported infant media exposure, with median exposure 120 min. The largest category of exposure was school-age/teen/adult oriented (48.4%). Dyadic Interactions were present for 28.6% of exposures, with educational young child content associated with interaction in 47.2% of exposures compared to 17.0% of school-age/teen/adult exposures (AOR 5.4, 95% CI 3.0 - 9.9). Interactions were greater for programs that were co-viewed by mothers compared to those that were not for overall exposure (40.3% vs. 7.1%, AOR 3.7, 95% CI 3.7, 15.3) as well as educational young-child programming considered separately (68.4% vs. 15.6%, AOR 10.4, 95% CI 4.3, 24.9). However, educational young-child programming was not associated with increased co-viewing. **Conclusion:** Dyadic interactions related to media are not common during infancy, even with educational programs. In families with ongoing media exposure, providers should counsel parents to limit television to educational programming that is co-viewed, as co-viewing is most likely to be associated with

interactions. Our findings do not support development of infant-directed educational programming in absence of strategies to increase maternal co-viewing. Funded by: NICHD R01 HD047740-02.

Abstract 51

Substance Abuse among Children with Learning Disorder (LD) and Attention-Deficit/Hyperactivity Disorder (ADHD)

Slavica K. Katusic, Health Sciences Research, William J. Barbaresi, Pediatric and Adolescent Medicine, Robert C. Colligan, Psychology, Amy L. Weaver, Health Sciences Research, Robert G. Voigt, Pediatric and Adolescent Medicine, Mayo Clinic College of Medicine, Rochester, MN

Purpose: Previous research suggests that children with ADHD are at increased risk for substance abuse. There is little information about risk for substance abuse among children with LD-only, ADHD and LD and ADHD-only. **Methods:** Subjects included incident cases of research identified children with LD-only (N=438), ADHD and LD (N=185), and ADHD-only (N=194) from a 1976-1982 birth cohort (N=5,718). Cases were retrospectively followed from age 5 until emigration, death, high school graduation/dropout. Records from all public and private schools in the community, all sources of medical care and private tutoring centers were abstracted. LD status was determined by two regression based discrepancy formulas from individually administered IQ and achievement tests. Research identified ADHD cases were defined by a model combining three categories of information (DSM-IV criteria, ADHD-specific questionnaires, clinical diagnoses). The date of recorded substance (alcohol/drug) abuse prior to age 18 was abstracted from medical and school records. The association between case status and substance abuse was evaluated by logistic regression. The strength of the association was summarized using odds ratios (OR) and 95% confidence intervals (CI). **Results:** Substance abuse was significantly different among three groups of subjects ($p < 0.001$). Subjects with LD-only were less likely to have documented substance abuse compared to subjects with ADHD-only ($p = 0.001$, OR=0.46, 95% CI=0.29-0.74), and subjects with ADHD and LD ($p < 0.001$, OR=0.57, 95% CI=0.46-0.72). There was no statistically significant difference between subjects with ADHD and LD compared to ADHD-only ($p = 0.17$, OR=1.4, 95% CI=0.8-2.3). There was evidence of a gender by group interaction ($p = 0.01$). The results were true for boys. However, there were no statistically significant differences among the three groups of girls ($p = 0.95$). **Conclusion:** These population-based birth cohort data suggest that boys with ADHD (alone or with LD) are at increased risk for later substance abuse compared to boys with LD-only. This important information deserves the attention of clinicians and researchers.

Abstract 52

Traumatic Brain Injuries in Preschool Age Children: Initial Impact on the Family

Terry Stancin, Pediatrics, Case Western Reserve University/MetroHealth Med Ctr, Cleveland, OH, Shari L. Wade, Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, H. Gerry Taylor, Pediatrics, Case Western Reserve University, Cleveland, OH, Keith O. Yeates, Pediatrics, The Ohio State University, Columbus, OH, Nicolay C. Walz, Behavioral Medicine, Lori A. Bernard, Physical Medicine & Rehabilitation, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

Purpose: To examine the acute family impact of a traumatic brain injury (TBI) in preschool children compared with children who had an orthopedic injury (OI). **Methods:** A concurrent cohort/prospective research design was used with repeated assessments of children aged 3-6 years with TBI or OI requiring hospitalization and their families. Parents of 89 children with TBI (21 severe, 22 moderate, 46 mild) and 117 with OI completed the Family Assessment Device to assess preinjury family functioning and the Brief Symptom Inventory (caregiver emotional distress) and Family Burden of Injury Interview (injury related family burden and stresses) within 2 months post injury. Hierarchical regression analyses examined group differences in parental burden and distress. Contrast terms were used to compare levels of TBI severity to the OI group. **Results:** Compared with parents of preschoolers with OI, parents of preschoolers with severe and mild TBI reported greater caregiver burden related to the injury. Parents of children with severe TBI also reported more stress with their spouse. Severe TBI

was associated with higher levels of parental anxiety, depression, and global distress than orthopedic injuries (all p 's < .05). Child's age moderated the effects of severe TBI on injury-related burden and distress, with parents of older children (>5 years) reporting significantly higher levels of both than parents of younger children (<5 years). Groups did not differ on pre-injury measures of family functioning suggesting that differences in caregiver stress were not an artifact of pre-injury functioning. **Conclusion:** Although children with TBI and OI require substantial care in the initial months following injury, parents of young children with severe TBI report greater psychological distress and burden. Moreover, TBI in older children (5-6) is associated with greater distress, perhaps due to additional concerns with school re-entry and academic performance. Understanding the role of the social environment in recovery from TBI in young children has critical implications for developing interventions.

Abstract 53

Prenatal depression and antidepressant use: Effects on fetal behavior

Amy L. Salisbury, Pediatrics, Brown University/Women & Infants Hospital, Providence, RI

Purpose: Recent studies suggest that gestational exposure to serotonin reuptake inhibitors (SSRIs) is associated with transient adverse neonatal symptoms consistent with serotonin discontinuation syndrome (withdrawal) seen in adults. This study examined fetal neurobehavior to determine if SSRI-exposed fetuses show differential autonomic and behavioral patterns prior to withdrawal of the medication. **Methods:** 82 pregnant women ages 18-40 were enrolled in the study before 28 weeks gestational age (wks GA). Psychiatric diagnoses of major depression (MDD) and other disorders were made or confirmed using a semi-structured interview. Fetal neurobehavior was observed, recorded, and coded at 26 and 36 wks GA using ultrasound and fetal actocardiograph monitoring for 60 minutes (40 min baseline, 3 sec vibroacoustic (VAS) stimulus, 20 min post-stimulus). Analyses were conducted using 2 (SSRI) X 2 (MDD) ANCOVA_s, forming 4 groups: a no-exposure control group (CON), a SRI-exposed/no MDD group (effectively treated; SSRI-only), a MDD/No SRI group (MDD) and a group with both exposures (SSRI+MDD). **Results:** At 26 weeks GA, SSRI-exposed fetuses had less activity ($F=14.95$, $p<.001$) and more jerky movements ($F=6.75$, $p<.02$) than non SSRI-exposed fetuses. SSRI-only fetuses showed a decrease in activity after the VAS, while the CON and MDD fetuses showed an increase in activity ($F=2.26$, $p<.05$) after the VAS. At 36 weeks GA, SSRI+MDD fetuses showed minimal reactivity to the VAS, while the SSRI-only fetuses showed a heightened response to the VAS for both FHR ($F=2.47$, $p<.05$) and activity ($F=4.18$, $p<.002$). **Conclusion:** Prenatal SSRI exposure appears to have an effect on the fetus. Although both SSRI groups showed differences from the CON and MDD groups, infants exposed to both maternal MDD and SSRIs appear to be the most affected. These results are preliminary, but indicate that neurobehavioral differences attributable to SSRIs may begin in utero, before withdrawal of the SSRI. These effects may be influenced by the presence of maternal MDD. Further study of fetal neurobehavioral development in SSRI-exposed fetuses is warranted.

Abstract 54

The Relationship of Parental-Provider Language Concordance and the Quality of Pediatric Preventive and Developmental Health Care

Alexy D. Arauz Boudreau, Massachusetts General Hospital Dept. Pediatrics, Harvard Medical School, Boston, MA, Christina Fluet, Massachusetts General Hospital Dept. Pediatrics, Harvard Medical School, Boston, MA, Colleen Rueland, Child and Adolescent Health Measurement Initiative, Oregon Health & Science University, Portland, OR, Kuhlthau Karen, Massachusetts General Hospital Dept. Pediatrics, Harvard Medical School, Boston, MA

Purpose: Most recommended preventive and developmental care is provided in the context of discussions between pediatric providers and parents. **Methods:** We conducted a cross-sectional survey using the Promoting Healthy Development Survey,© to compare the quality of care Latino children receive in language concordant and discordant parent-provider dyads. Families from three

health centers with children ages 9-50 months were surveyed by phone or mail in Spanish or English according to respondent's preferences. The primary medical providers were separately surveyed to obtain provider characteristics. We assessed the relationship between quality and language concordance using multilevel regression models. **Results:** Eligible Latino families completed 463 surveys, for a response rate of 44% among low-income minorities. Children in concordant dyads had higher quality mean scores (66 vs., 59; scale 0-100; $p=.04$) for provider assessment of family social environment (FSE). This domain assesses parental depression, firearm possession, and substance use. In adjusted analysis language concordance no longer was associated with quality of care. However, interpreters increased the mean scores of the FSE domain by 12.5 points ($p=.02$) and the likelihood of discussing 80% of anticipatory topics assessed (OR 2.38; CI: 1.08-5.62), though interpreters did not affect family's report of having their anticipatory guidance and parental education needs met. In multilevel analysis providers who rated themselves as being very effective in caring for Latino patients vs. those who rated themselves less than very effective, received higher scores in the domains of family centered care (+ 9.0 points; p -value: 0.03) and helpfulness of care (+16.3 points; $p=.02$). **Conclusion:** Among a highly concentrated Latino population, language concordance does not affect the quality of primary care, though interpreters do affect the quality of care in domains that characterize what content is delivered. Provider self reported effectiveness increases quality scores in domains that characterize how content is delivered. This study suggests cultural sensitivity, as measured by a provider's perception of effectiveness in caring for a specific ethnic population, can transcend language barriers and can be acquired separate from language skills.

Abstract 55

Improving Primary Care Pediatrician Management of Behavior Problems: Impact of Location of Services

Beth G. Wildman, Psychology, Kent State University, Kent, OH, Diane Langkamp, Division of Developmental and Behavioral Pediatrics, Children's Hospital Medical Center of Akron; NEOUCOM, Akron, OH, Robert Dempster, Elissa Lampe, Psychology, Kent State University, Kent, OH

Purpose: Primary care pediatricians (PCPs) fail to identify approximately half of the 20% of children who present with psychosocial problems, and actively treat only a small percentage of the children whom they identify. Literature suggests that integrating behavioral health services into primary care may increase PCP identification and referral of these children. However, there is a lack of data on the impact of integrating services. The present study compared the rates of scheduled and attended appointments for two types of integrated care to referral as usual to the same evidence-based parenting program for externalizing behavior problems in children aged 2 -12 years. **Methods:** Two primary care pediatric practices had the parenting program (Positive Parenting Program; Triple P) available within the practice (on-site; 7 PCPs), and two practices had Triple P available in the community through a dedicated referral phone line (off-site; 6 PCPs). Triple P was available at the hospital for all pediatric practices in the region. Results are based on 11,213 and 9,704 visits for well and acute care in the on-site and off-site conditions, respectively. **Results:** 55 families (.49%) and 17 families (.175%) had appointments scheduled for Triple P in the on-site and off-site conditions, respectively. The rate of scheduled appointments and attendance was significantly higher in the on-site versus off-site condition ($\chi^2 = 15.08$; $p<.0001$; OR = 2.81; 95% CI (1.63,4.84), $\chi^2= 7.95$; $p<.005$; OR = 2.35; 95% CI (1.27,4.35), respectively for scheduled and attended appointments. Only 1 child was referred to Triple P as usual from among the 20 PCPs in the remaining practices. **Conclusion:** The availability of behavioral parenting training in the primary care setting, as well as through dedicated referral services, resulted in increased rates of scheduled and attended appointments, both conditions far exceeding the rate of scheduled appointments in a traditional referral system. Services located in the primary care practice resulted in significantly higher rates of scheduled and attended appointments. These results support the development and evaluation of behavioral health services within primary care practices.

Abstract 56

Influence of Foster Placement on Developmental Outcomes in Infants with In-Utero Methadone Exposure

Jo-Ann B. Bier, Complex Care Services/General Pediatrics, Children's Hospital Boston/Harvard Medical School, Boston, MA, Theresa Johnson, Physical Medicine, Doranne Grenon, Maternal and Child Health, Ellen Mullane, Social Work, St. Luke's Hospital, New Bedford, MA

Purpose: We have shown previously that maternal methadone use places infants at risk for impaired developmental outcomes. Moreover, mothers with a history of drug addiction may have difficulty providing optimal care for their high risk infants following hospital discharge. The purpose of this study is to determine the relationship between the discharge placement of infants with in-utero methadone exposure and developmental outcome during their first year of life. **Methods:** Sixty-eight infants with in-utero methadone exposure have been enrolled to date in a prospective study examining their growth and developmental outcome during infancy. Infants were divided into two groups: those discharged with their biological mothers (n=45) and those discharged into foster placement (n=23). Follow up data at 4 and 8 months corrected age included growth parameters and developmental testing. Standardized testing included the Bayley Scales of Infant Development and the Alberta Infant Motor Scale (AIMS). **Results:** Infants placed in foster care were of lower gestation (36±3 vs. 38±4 weeks; p<0.05) and lower birth weight (2819±625 vs. 2325±592; p<0.025). There were no differences in maternal age (27±6 vs. 28±5 years), maternal methadone dose (96±54 mg vs. 110±80 mg), and the number of infants who presented with neonatal abstinence syndrome requiring treatment (40/45 and 20/23, Home vs. Foster placement). There were no differences in growth parameters between the groups at 4 and 8 months. Four and 8 month Bayley MDI and AIMS scores (%) are shown in table. Regression analysis confirmed a significant relationship between discharge into foster placement and a higher 8 month AIMS score (R=0.4, p<0.025). **Conclusion:** Infants with in-utero methadone exposure, despite having lower gestational age and lower birthweight, have higher 8 month developmental outcomes when placed in foster care. Strategies aimed at supporting the birth mother's ability to nurture her infant's early development are crucial in the discharge planning process

	Home	Foster placement	P
4 mos MDI	93 ± 12	96 ± 7	ns
8 mos MDI	92 ± 13	96 ± 8	ns
4 mos AIMS	38 ± 24	37 ± 24	ns
8 mos AIMS	36 ± 23	56 ± 22	<0.025

Abstract 57

Mothers' Postpartum Expectations for Shared Reading: Implications for Reading Activities at 6 Months

Samantha B. Berkule, Benard P. Dreyer, Harris S. Huberman, Alan L. Mendelsohn, Pediatrics, New York University School of Medicine, New York, New York

Purpose: While programs such as Reach Out and Read begin as early as 6mos, there is limited information about factors related to initiation of reading in infancy. We sought to determine whether mothers' attitudes and resources following birth related to shared reading predict later reading behaviors with 6-month-olds. **Methods:** Dads were enrolled in the postpartum unit of an urban public hospital. We assessed attitudes and resources related to shared reading: anticipated age of beginning to read aloud, activities planned in infancy for school success, number of baby books in home. At 6mos, we assessed shared reading behaviors (StimQ-Infant READ). We performed multiple regression analyses assessing associations between birth attitudes/resources and 6mo behaviors adjusting for birth order, education, language, marital status. **Results:** 173 mother-infant dyads were assessed at birth and at mean(sd) 6.4(.7) mos (44% of mothers HS grads, 72% Spanish speaking). Earlier anticipated age of shared reading, plans to read as a strategy for school success, and baby books in the home following birth, respectively, were associated with higher 6mo StimQ READ (sr=.30, p<.001; sr=.15, p=.05; sr=.23, p<.001), more baby books in the home (sr=.14, p<.05; sr=.18, p<.001; sr=.18, p<.001) and more frequent reading aloud (sr=.14, p<.05; sr=.13, p<.06; sr=.14, p<.05).

Cumulative number of attitudes/resources predicted higher 6mo StimQ READ ($r=.35$, $p<.0001$) and increased likelihood of shared reading (AOR=6.3, $p<.001$ for 2-3 attitudes/resources compared to 0-1).

Conclusion: Mothers' plans and resources for shared reading reported following birth were associated with shared reading behaviors at 6mos. Pediatricians and other providers should consider provision of anticipatory guidance about shared reading prior to 6 mos, and possibly prenatally.

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