



2010 Annual Meeting

F i n a l P r o g r a m

September 11 - 14, 2010
The Boston Park Plaza Hotel & Towers
Boston, MA

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2010 Annual Meeting

September 11 - 14, 2010

The Boston Park Plaza Hotel & Towers

Boston, Massachusetts

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SDBP National Office

6728 Old McLean Village Drive ♦ McLean, VA 22101

703-556-9222 ♦ Fax 703-556-8729 ♦ Email info@sdbp.org ♦ www.sdbp.org

Schedule of Activities

On-site Registration Hours

Saturday, September 11.....	7:00am - 5:00pm
Sunday, September 12.....	7:00am - 5:00pm
Monday, September 13.....	7:00am - 5:00pm
Tuesday, September 14.....	7:00am - 12:00noon

Pre-meeting Workshops (A, B, C)

Saturday, September 11.....	9:00am - 12:00noon
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Pre-meeting Workshops (D, E, F)

Saturday, September 11.....	1:00pm - 4:00pm (or later, see program)
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Pre-meeting All-Day Workshop

Saturday, September 11.....	9:00am - 5:00pm
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Annual Meeting Scientific Sessions

Sunday, September 12.....	9:00am - 7:00pm
Monday, September 13.....	9:00am - 5:00pm

Poster Sessions

Sunday, September 12.....	6:00pm - 7:00pm
Monday, September 13.....	2:00pm - 3:00pm

Education Committee Workshops

Tuesday, September 14.....	7:45am - 1:30pm
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SDBP Business Meeting

Sunday, September 12.....	5:00pm - 6:00pm
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Saturday Evening Meetings

- Trainee Recent Graduate Workshop - Career Panel 5:30pm - 6:30pm
- Psychology Gathering 5:30pm - 6:30pm
- Nurse Practitioner's SIG..... 7:00pm - 9:00pm

Luncheon Meetings

Sunday, September 12.....	12:00pm - 1:30pm
• JDBP Editorial Board Meeting	
• Trainee/Recent Graduate Luncheon	
• Developmental-Behavioral Pediatrics Program Directors Luncheon	

ADHD SIG and Autism SIG

Monday, September 13.....	3:00pm - 5:00pm
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Exhibits

Saturday, September 11.....	5:00pm - 6:30pm
Sunday, September 12.....	8:30am - 7:00pm
Monday, September 13.....	8:30am - 3:00pm

SOCIAL EVENTS

Welcome Reception

Saturday, September 11.....	5:30pm - 6:30pm
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Dinner Social

Sunday, September 12.....	7:00pm - 10:00pm
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Schedule-At-A-Glance

Saturday, September 11	Sunday, September 12	Monday, September 13	Tuesday, September 14
8:00am - 5:00pm <i>Board of Directors</i>	7:00am - 9:00am <i>Committee Meetings</i>	7:00am - 9:00am <i>Committee Meetings</i>	7:45am - 1:30pm <i>Education Workshops</i> Teaching Developmental-Behavioral Pediatrics to Residents
9:00am - 5:00pm <i>All-Day Workshop</i> Pediatrics and the Family: Incorporating Systems Principles into Practice	8:30am - 7:00pm <i>Exhibits</i>	8:30am - 3:00pm <i>Exhibits</i>	
9:00am - 12:00noon <i>Half-Day Workshops</i> A. Puberty and Sexuality for Youth with Developmental Disabilities and Their Families B. Improve Your QI IQ C. Resource Development to Fund Developmental-Behavioral Pediatrics Programs: How to Close the Dream Gap	9:00am - 7:00pm <i>Posters Up - Session 1</i>	9:00am - 3:00pm <i>Posters Up - Session 2</i>	
	9:00am - 9:15am <i>Welcome</i>	9:00am - 10:15am <i>Plenary Session II (Abstract Presentations 6-10)</i>	
	9:15am - 10:30am <i>Plenary Session I (Abstract Presentations 1-5)</i>	10:15am - 10:30am <i>Break</i>	
	10:30am - 10:45am <i>Break</i>	10:30am - 11:30am <i>Plenary Session III (Abstract Presentations 11-14)</i>	
	10:45am - 12:00noon <i>Lectureship Presentation</i>	11:30am - 12:45pm <i>Lunch Break - on your own</i>	
1:00pm - 4:00pm (or later) <i>Half-Day Workshops</i>	12:00noon - 1:30pm <i>Trainee/Recent Graduate Luncheon</i>	12:45pm - 1:45pm <i>Presidential Address</i>	
1:00pm - 5:00pm D. Dbpeds Related to the Generalist and Subspecialty Practitioners	1:30pm - 3:00pm <i>Concurrent Sessions 1-3</i>	1:45pm - 2:00pm <i>Incoming Presidential Address</i>	
1:00pm - 4:30pm E. Reimbursement Strategies for DBPeds	3:00pm - 3:15pm <i>Break</i>	2:00pm - 3:00pm <i>Poster Session 2 - Meet the Author</i>	
1:00pm - 4:00pm F. A Dyslexia Primer: Basic Principles of Etiology, Evaluation and Management for the Pediatrician	3:15pm - 4:45pm <i>Concurrent Sessions 4-6</i>	3:00pm - 5:00pm <i>SIG Meetings and Concurrent Session</i> • Autism SIG • ADHD SIG • Concurrent Session 7 - Poster Symposium	
5:00pm - 6:30pm <i>Exhibits</i>	5:00pm - 6:00pm <i>Business Meeting</i>		
5:00pm - 5:30pm <i>Mentor/Mentee Reception</i>	6:00pm - 7:00pm <i>Poster Session 1: Meet the Author</i>		
5:30pm - 6:30pm <i>Welcome Reception</i>	7:00pm - 10:00pm <i>Dinner Social</i>		
6:30pm - 7:30pm <i>Trainee/Recent Grad Workshop - Career Panel</i>			
PhD/Psychology Gathering			
7:00pm - 9:00pm <i>Nurse Practitioner's SIG (no CME/CE credits offered)</i>			

General Information

Who Should Attend

This program is planned to meet the needs of pediatricians (researchers, teachers, and/or clinicians), pediatric psychologists, nurses, social workers and other healthcare providers and researchers interested in developmental and behavioral pediatrics. A variety of educational formats will encourage the exchange of new scientific and clinical information and support the interchange of opinions regarding care and management issues relevant to developmental and behavioral pediatrics. Scientific material will be presented through symposia, oral abstracts, concurrent sessions, plenary sessions, small group sessions designed for in-depth exploration of specific topics, and poster presentations.

Goals

After attending this meeting the participants will be able to:

1. Describe new methods of managing developmental-behavioral issues in practice,
2. Demonstrate strategies and skills for teaching others about topics in developmental-behavioral pediatrics,
3. Discuss advances in the treatment of ADHD, autism, and other developmental-behavioral disorders.
4. Discuss literacy promotion in pediatrics

Registration

All attendees must be registered for the meeting. Registration is located in the **Dartmouth/Exeter Foyer**. Registration hours are listed in the Schedule of Activities on page 2.

Pre-Meeting Half-Day Workshops

A select number of courses addressing the needs of pediatricians, psychologists and other professionals caring for children with developmental or behavioral problems will be presented again this year. Workshops will be in half-day formats. Registration for these sessions is in addition to the Annual Meeting registration.

Abstracts

Abstracts selected for the 2010 SDBP Annual Meeting will be presented in plenary, concurrent, and poster sessions highlighting the most outstanding papers from a variety of subspecialties related to pediatric developmental and behavioral medicine. All accepted abstracts of new and previously presented research are published in this SDBP program book. Abstracts presenting new scientific findings will also be published online in the *Journal of Developmental and Behavioral Pediatrics*.

Poster Sessions

Two different Meet the Author poster sessions highlighting both new and previously presented research will be held on Sunday, September 12 from 6:00pm - 7:00pm and Monday, September 13 from 2:00pm - 3:00pm, respectively.

Exhibits

Exhibits will be located in **Plaza Ballroom** throughout the duration of our meeting.

Camera and Cell Phone Use

Cameras and video cameras are not permitted in any event during the SDBP Annual Meeting. As a courtesy to fellow attendees, please turn off or silence cell phones during educational sessions.

Continuing Education

Satisfactory completion: Participants must have paid the tuition fee, attended their chosen sessions in their entirety and completed an online Attendance / Evaluation form in order to receive a Certificate of Attendance. Participants not fulfilling these requirements will not receive a certificate. Certificates are available immediately after completing the online evaluation form. You must complete the online form by October 15, 2010 (at www.CmeCertificateOnline.com, Password: 2010SDBP) in order to receive your certificate. The site will close after October 15, 2010 and certificates will no longer be available.

Physicians

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of the [Institute for the Advancement of Human Behavior (IAHB)] and the Society for Developmental and Behavioral Pediatrics (SDBP). The IAHB is accredited by the ACCME to provide continuing medical education for physicians.

AMA PRA Statement

The IAHB designates this educational activity for a maximum of 22.75 AMA PRA Category 1 Credit(s)™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Psychologists

This course is co-sponsored by Amedco and the Society for Developmental and Behavioral Pediatrics. Amedco is approved by the American Psychological Association to sponsor continuing education for psychologists. Amedco maintains responsibility for this program and its content. Maximum of 22.75 hours.

Social Workers

This program is approved by the National Association of Social Workers (Approval #8865304747633) for up to 22.75 Social Work continuing education contact hours

California Board of Behavioral Sciences

This course is co-sponsored by Amedco and the Society for Developmental and Behavioral Pediatrics. Course meets the qualifications for up to 22.75 hours of continuing education credit for MFTs and/or LCSWs as required by the California Board of Behavioral Sciences, Provider #PCE875.

General Information

ADA Statement

ADA accommodations will be made in accordance with the law. If you require ADA accommodations, please let the registration desk know. We cannot ensure the availability of appropriate accommodations without prior notification, as indicated on the registration material.

Full Disclosure Policy

All faculty participating in the continuing medical education programs are expected to disclose to the program audience any real or apparent conflict(s) of interest related to the content of their presentation(s). Full disclosure of faculty relationships can be found on page 11 of this program.

Evaluations

Your opinions are important to us! Please be sure to complete an evaluation form to aid the SDBP Program Committee in evaluating the effectiveness of this educational activity. These forms will be available online with your CME/CE Accreditation until October 15, 2010 at www.CmeCertificateOnline.com, Password: 2010SDBP.

Social Events

Welcome Reception

Plaza Ballroom

Saturday, September 11, 5:30pm - 6:30pm

Enjoy time with friends and colleagues in a casual setting.

Dinner Social

Georgian Ballroom

Sunday, September 12, 7:00pm - 10:00pm

After viewing the latest science in developmental and behavioral pediatrics at the Meet the Author Session (6:00pm in the Plaza Ballroom), join colleagues and friends for a fabulous dining experience. The Dinner Social is included in the Annual Meeting registration fee.

All guests must be registered as an Accompanying Person in order to attend the Social Events.

Committee Information

Sunday, September 12, 2010, 7:00am - 9:00am

Advocacy - Beacon Hill

Communications - Back Bay

Education - Statler

Research - Cambridge

Monday, September 13, 2010, 7:00am - 9:00am

Development - Cabot

Membership - Cambridge

Past Presidents - Cabot

Practice Issues - Beacon Hill

Committee Descriptions:

ADVOCACY

Adiaha Spinks-Franklin, MD, MPH, Co-Chair

Lynne Sturm, PhD, Co-Chair

The Advocacy Committee is an interdisciplinary group of SDBP members promoting one of the SDBP's Strategic Plan goals - "to be a leader in advocacy regarding public policy for children and professionals in the field." Current goals of the committee include:

- Increase SDBP members' awareness of the public policy issues that impact the wellbeing of children and their families. Committee members review pending national legislature and policy initiatives identified through emerging SDBP liaisons/partnerships with organizations such as the AAP, SRCD, APA and Zero to Three.
- Employ an Advocacy Listserv for interested SDBP members to communicate time sensitive information about national public policy issues and advocacy to equip members to respond at the national, local and state levels.
- Develop continuing education opportunities at the Annual Meeting for the membership to develop advocacy skills and become familiar with the advocacy activities of SDBP members.
- Increase the number of Commentaries published in the JDBP that relate to policy and advocacy topics. Also, increase reviews of books and films that have policy/advocacy implications as yet another way to bring relevant public policy issues to membership attention.
- Facilitate linkages with experts within SDBP membership when requests for support in conducting advocacy activities are received from SDBP members or from outside professional organizations.

The Advocacy Committee meets at the Annual Meeting and by periodic conference calls throughout the year. SDBP Members are encouraged to join the committee. If interested, please email *Adiaha Spinks-Franklin, MD, MPH, Co-Chair* (spinks@bcm.tmc.edu) or *Lynne Sturm, PhD, Co-Chair* (lsturm@iupui.edu).

COMMUNICATIONS

Robert Needlman, MD, Co-Chair

Susan Rosenthal, PhD, Co-Chair

The Communication Committee works closely with the management team at Degnon Associates to put out the newsletter, and to oversee the website. Our focus in the last year has been trying to make better use of social media -- Facebook, for example. We discovered in the process that younger brains than ours are needed, and are delighted by the input of members from the Trainee and Recent Graduate Committee, particularly *Nicole Wightman*. We welcome participation by members with ideas and energy. If communication is the heart of DBPs, then we in the Communications Committee are the heart of SDBP.

General Information

DEVELOPMENT

Dan Coury, MD, Chair

The Development Committee continues to explore new ways of increasing support for SDBP activities. Our most successful activities continue to be through donations to the SDBP Endowment or Research Grant funds through the option attached to our annual membership renewal process, and our continued solicitation of exhibitors at the Annual Meeting. This year's proposal for a NIH R13 Conference Grant was not funded, but we were successful in securing unrestricted educational grants from Lilly USA, LLC and The Centers for Disease Control and Prevention's "Learn the Signs. Act Early." We are also in discussion with potential sponsors for long-term collaborative efforts of interest to both SDBP and the sponsor. We continue to seek potential funding for the SDBP Research Grant via a federally funded grant process, possibly in connection with other efforts to secure funding for a developmental-behavioral pediatrics research network. If successful these activities could potentially help meet portions of the SDBP Strategic Plan pertaining to research and quality improvement as well as others not yet considered.

EDUCATION

Franklin Trimm, MD, Co-Chair

Carolyn Bridgemohan, MD, Co-Chair

The Education Committee is an interdisciplinary group that promotes innovative, efficient and effective education in Developmental and Behavioral Pediatrics at all levels of pediatric training to support optimal developmental and behavioral health for all children. Current goals of the committee include: 1) promoting optimal education in DB Pediatrics through our educational workshops that focus on model methods of teaching and evaluating medical students, residents, and fellows; 2) establishing an online library of such resources; 3) promoting lifelong learning of DB Pediatricians through additional educational activities (e.g. DB Prep, DB Peds Self-Assessment); and 4) providing for ongoing communication among DB Pediatrics educators to address new and ongoing concerns. The committee is open to any member wishing to participate and encourages the participation of fellows.

FELLOWSHIP TRAINING (this committee is meeting as part of the Program Directors lunch Sunday)

Carol Weitzman, MD, Chair

The DBP Fellowship Training Committee continues to be busy and is working hard on new initiatives. We continue to act as a resource for Fellowship Program Directors by providing consultation and support in regards to completing a PIF, meeting ACGME requirements and preparing for a site visit. We have a listserv that program directors can use to have a forum to discuss questions and issues across programs. We have now successfully presented workshops for the past 3 years at the Annual Meeting that are relevant to fellows and Program Directors. The educational needs of these groups have now been fully integrated into the Pre-Meeting Educational workshops. The MentorMatch Program, which has successfully matched approximately

25 fellows and junior faculty with more senior faculty, across disciplines continues. We match according to research & career interests, and according to requested mentoring needs. Program directors can alert trainees to the opportunity to participate in this program and obtain mentoring from faculty at other institutions. This year, DBP Fellowship Programs will participate in the NRMP Fall Match system. There was overwhelming support for this initiative and this committee along with SDBP accomplished the task of bringing DBP into the match. This will be discussed at the lunch this year to assure that programs have registered and to problem solve any outstanding questions. The Committee is open to new ideas and welcomes not only program directors to join but anyone with an interest in mentoring fellows. We welcome interdisciplinary participation in this committee.

MEMBERSHIP

Heidi M. Feldman, MD, PhD, Co-Chair

Terry Stancin, PhD, Co-Chair

The Membership Committee is hard at work on meeting Goal 1 of the strategic plan: "To become the organizational home for professionals engaged in interdisciplinary approaches to developmental-behavioral health." We seek new members from a wide range of professional backgrounds. We are particularly focused on increasing the racial and ethnic diversity of our membership. We would like to increase the proportion of trainees and young faculty. The committee is open to new members and welcomes creative ideas.

PAST PRESIDENTS

Ellen Perrin, MD, Chair

The Past Presidents Committee has laid out some goals for the coming few years:

1. Assist with maintaining and recording the institutional memory of the Society, including the history of its founding.
2. Serve as consultants to the Board of Directors, Officers, and Committees.
3. Play a role in the Annual Meeting -- such as moderating sessions or helping to plan a special session.
4. Assist with fundraising for the Society in general, and in particular for the Research Award.
5. Serve as mentors for Fellows and Junior members of the Society, in particular regarding career planning and advancement (e.g. promotions, tenure decisions, and taking on administrative responsibilities).
6. Present a workshop on advocacy.

Dr. Ellen Perrin agreed to serve as the first Chair of the Committee. She has attended Board meetings on behalf of the Committee.

In the past year the group has named Dr. Robin Hansen as the official "Historian" for the Society. We have interviewed (on videotape) nine past presidents and Robert Haggerty.

General Information

Several past presidents will serve as moderators of plenary sessions at the 2010 meeting, as well as participating in other activities at the meeting. The Group will meet at the SDBP Annual Meeting to move forward on its goals.

PRACTICE ISSUES

Rebecca Baum, MD, Co-Chair

Charles T. Morton, MD, Co-Chair

The Practice Issues Committee, which welcomes new members, will:

1. Facilitate discussion of practice issues, to include coding and reimbursement, access to care, and the use of Electronic Medical Records in DBP practice.
2. Determine strategies to champion interdisciplinary practice, to include periodic surveys of the membership and dissemination of successful models of interdisciplinary practice. Practice models may include, but are not limited to, collaboration between clinicians in the disciplines of DBP, Psychology, Nursing, and Social Work
3. Support Quality Improvement efforts related to DBP practice, to include the development and dissemination of tools for successful practice (such as the QI Toolkit); SIGs and research registries; and issues related to Maintenance of Certification.
4. Promote best practices in DBP to all child health care providers, to include participation in the development and implementation of standards of care, thereby continuing the work of the Benchmarks of Quality group.
5. Explore strategies to promote the exchange of information related to DBP practice. These may include print media, annual meetings, DB:PREP, and through collaboration with the AAP Section on DBP and related SDBP committees. The development of web-based resources and electronic tools will be pursued.

PROGRAM

Nancy E Lanphear, MD, Chair

The program committee plans the Annual Meeting. In this endeavor, we strive to achieve a balance of topics, to select the best science in our field and to present a broad range of topics to be interesting to a diverse group of clinicians, researchers and teachers. The committee selects workshops, evaluates abstracts and meets annually at the meeting. In addition, periodic conference calls occur. The committee is a small but dedicated group. If you are interested in being considered as a member, please contact Program committee chair, Nancy Lanphear, MD. We periodically have openings to join this group.

RESEARCH

Paul Wang, MD, Co-Chair

Susan P. Berger, PhD, Co-Chair

The research committee works in an interdisciplinary manner to support the SDBP Strategic Goal of promoting and disseminating research in developmental-behavioral health. Its membership spans a broad range of research interests, and is comprised of both experienced and less experienced individuals.

Goals for 2010-2011: Support mentoring of junior researchers within the SDBP. Support SDBP member participation in research networks relevant to developmental-behavioral health. Continue to coordinate the SDBP Research Award. Continue to support expert review of abstracts submitted for the SDBP and PAS Annual Meetings.

Open to new members. Please join us at our Committee meeting on Sunday morning!

TRAINEE/RECENT GRADUATE COMMITTEE

Lauren Boyd, MD, Co-Chair

Anna Malia May, MD, Co-Chair

Lisa Ramirez, BA, Co-Chair

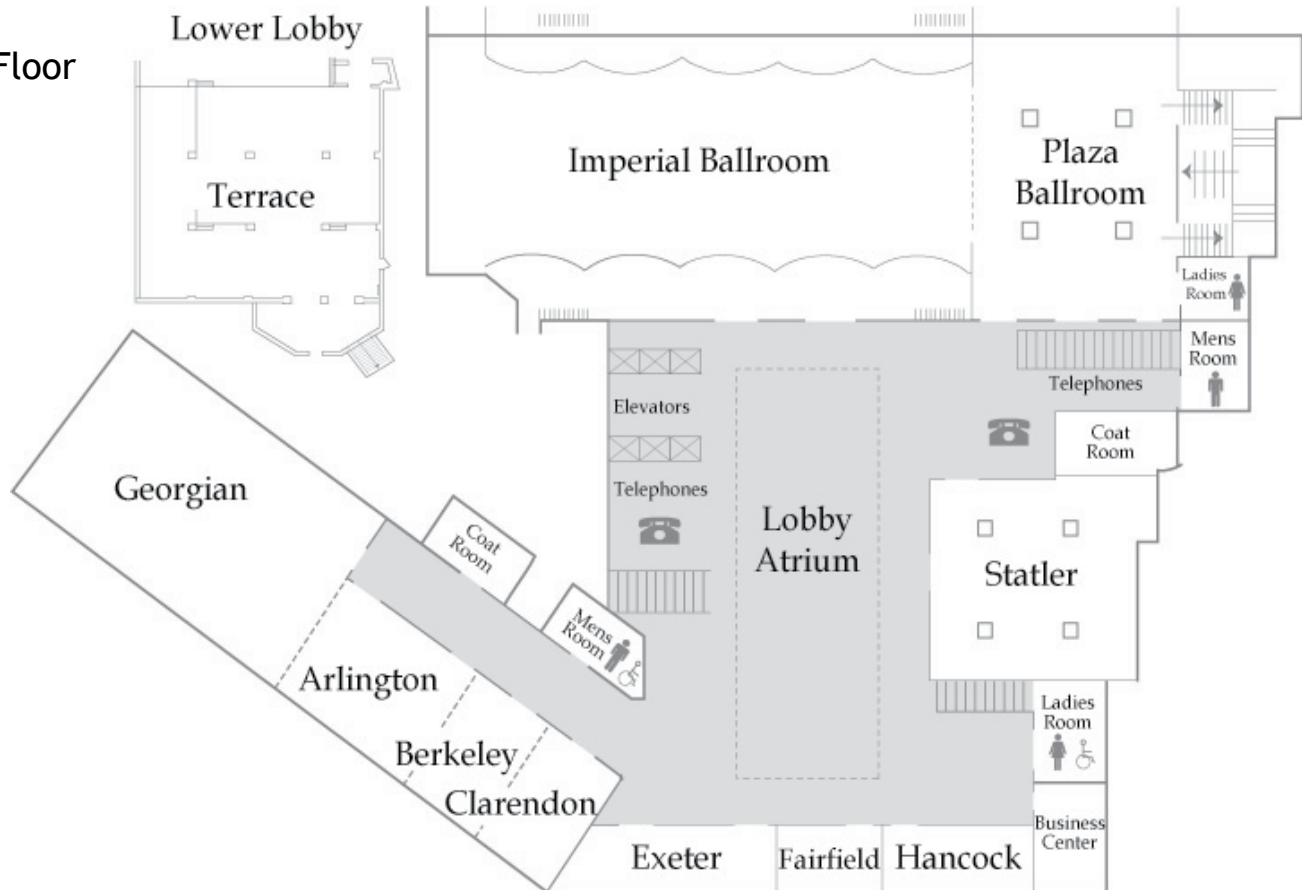
(TRGC) convened its official inaugural meeting at the SDBP's 2008 Annual Meeting and became a full committee of SDBP in 2009. The TRGC serves three purposes: 1) developmental-behavioral pediatrics and related fields (e.g., psychology and nursing) trainee and recent graduate (within the previous two years) representation and voice within the Society, 2) organized forum for addressing training issues, and 3) support for recent graduates. Significant areas of interest for the TRGC are the current state, trends, and future direction of the field of developmental-behavioral pediatrics; training matters; and the transition to a career in developmental behavioral pediatrics after completion of training. The TRGC consists of present associate member trainees as well as recent graduates (within the previous two years) of developmental-behavioral pediatrics specialties. The TRGC Co-Chairs typically represent two different allied disciplines.

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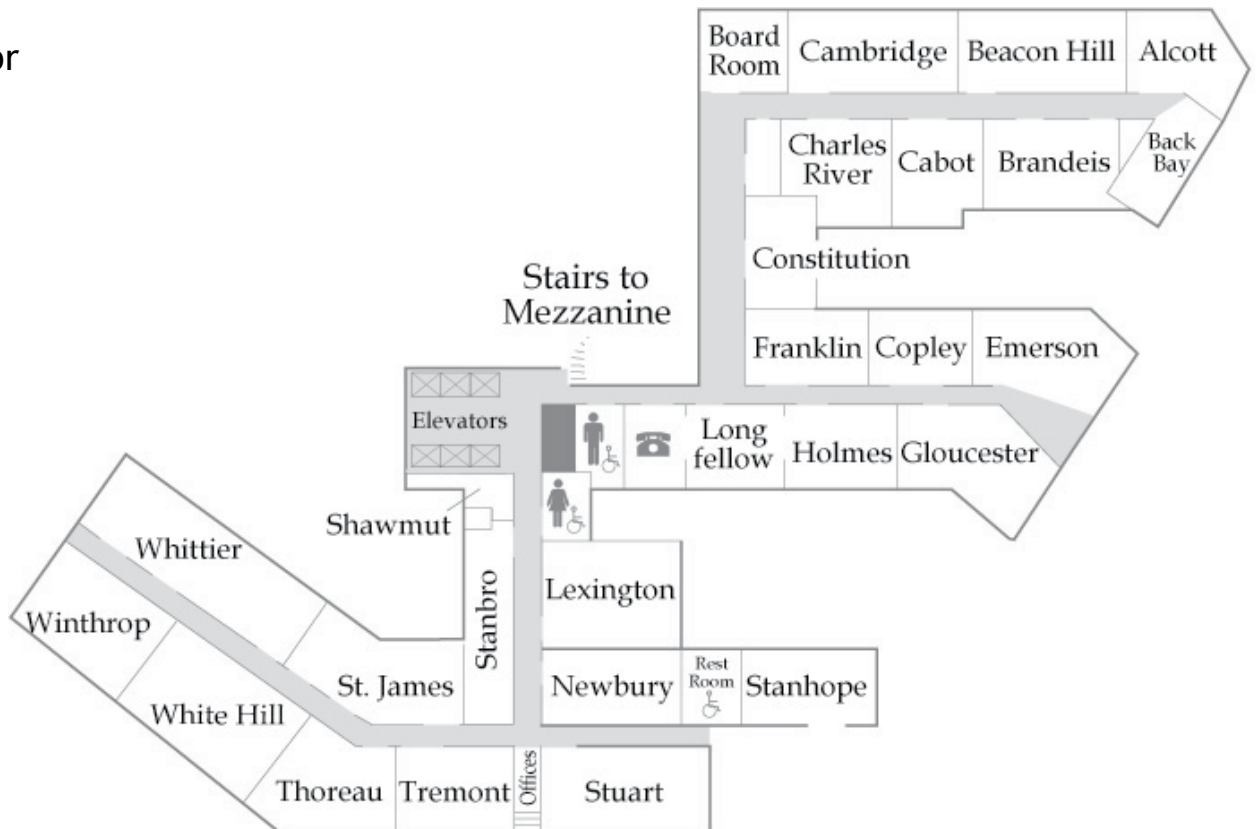
The TRGC consists of present associate member trainees as well as recent graduates (within the previous two years) of developmental-behavioral pediatrics specialties. The TRGC Co-Chairs typically represent two different allied disciplines.

Hotel Floor Plan

Second Floor



Fourth Floor



Program Committee & Board of Directors

SDBP 2010 Program Planning Committee



Nancy E. Lanphear MD, Chair
BC Children's Hospital, Vancouver

Nathan J. Blum, MD
Children's Hospital of Philadelphia

Sarah Schlegel, MD
Yale University School of Medicine

Carolyn F. Bridgemohan, MD
Harvard Medical School
Children's Hospital Boston

Ellen J. Silver, PhD
Albert Einstein College of Medicine

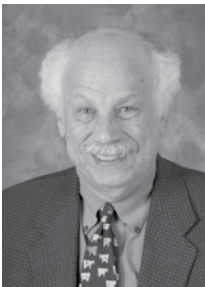
Robyn Mehlenbeck, PhD
George Mason University

Franklin Trimm, MD
University of Southern Alabama

Randy Phelps, MD, PhD
CDRS/OHSU

Paul P. Wang, MD
Seaside Therapeutics

2009 - 2010 Board of Directors



Executive Committee

President
Leonard Rappaport, MD (10)
Children's Hospital Boston

Secretary-Treasurer
Marilyn C. Augustyn, MD (12)
Boston University

President-Elect
Pamela C. High, MD (10)
Hasbro Children's / Rhode Island Hospital

Immediate Past President
Robin L. Hansen, MD (10)
Child Development/MIND Institute
UC Davis Medical Center

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Nathan J. Blum, MD (10)
Children's Hospital of Philadelphia

Adrian D. Sandler, MD (12)
Olson Huff Center

Desmond P. Kelly, MD (11)
Children's Hospital Outpatient Center

Lynne Sturm, PhD (10)
Riley Child Development

Robyn Mehlenbeck, PhD (11)
George Mason University

Carol Weitzman, MD (12)
Yale University School of Medicine

Executive Director
Laura Degnon, CAE
McLean, VA

Lectureship Recipient



The 2010 SDBP Lectureship Recipient is:

Barry Zuckerman, MD

Barry Zuckerman, M.D. is The Joel and Barbara Alpert Professor of Pediatrics at Boston University School of Medicine and Chief of Pediatrics at Boston Medical Center. He is a national and international leader in health and child development disparities. His most important scientific contributions involve identifying factors contributing to low birth weight including drugs, alcohol and maternal health and most recently gene environment interaction.

Dr. Zuckerman has also been involved in transforming health care to better meet the needs of low income and minority children. Their efforts are highlighted in four special health care innovations that due to their effectiveness have been disseminated nationally. For two decades, through the Reach Out and Read Program, pediatricians give children a developmentally and culturally appropriate book to take home at each pediatric visit until age 5 so that parents can read aloud to promote their development. Published research evaluating the impact of this effort has been remarkably positive and consistent; low-income parents are more likely to read to their children and their children's language scores, which are precursors of literacy, are significantly increased on vocabulary tests. Reach Out and Read is in over 4,000 practices and clinics around the U.S. reaching more than 3.5 million children with 5 million books in 2008. It is also in eight other countries.

Second, over thirteen years ago Dr. Zuckerman started the Medical-Legal Partnership for Children at Boston Medical Center, which uses legal advocacy in the health setting to address the non-biologic root causes of low-income children's health and developmental problems. The lawyers address children's basic needs including food, housing, education and safety to create home environments that are more supportive of health and development. In 2006, Dr. Zuckerman received funding to start the National Center of Medical Legal Partnership which has spawned over 180 similar programs around the country. The ABA has passed a resolution in support. Dr. Zuckerman and colleagues also developed the Healthy Steps Program for Children. This model of pediatric care provides a child development specialist as a new member of the pediatric team. This effort was implemented and evaluated in over 15 sites nationally with the results published in JAMA showing the positive impact on parenting behaviors that promote children's health and development and increased quality of care. Finally, he co-founded Project HEALTH which is now a national organization that uses college volunteers working in primary care settings for low income children to connect parents with community based resources for their children. This effort has won numerous awards and was recently highlighted by First Lady Michelle Obama as an important service effort.

In addition to his scientific publications, he has edited nine books, including Behavioral and Developmental Pediatrics: Handbook for Primary Care. He has provided leadership for the development of American Academy of Pediatrics Child Health Supervision Guidelines and Bright Futures Guidelines For Preventive Health Care. He has served on prestigious national committees, including the National Commission on Children and the Carnegie Commission on Meeting the Needs of Young Children. Dr. Zuckerman has been a consultant for UNICEF, providing technical assistance to Turkey and Bangladesh as they strengthen their child health services.

In recognition of his work on behalf of children and families, Dr. Zuckerman has received an Honorary Degree in Education from Wheelock College, a Policy and Advocacy Award from the Ambulatory Pediatric Association, the Robert F. Kennedy Embracing the Legacy Award for the MLPC, and the Confucius Award from UNESCO for Reach Out and Read. Dr. Zuckerman received The C. Anderson Aldrich Award from the American Academy of Pediatrics for contributions in early childhood development. He served on numerous boards and committees for the American Academy of Pediatrics and is a board member of Zero to Three - The National Center for Infants and Toddlers.

Participant Notification

Acknowledgement of Commercial Support

Opening Reception sponsored by:
Baylor College of Medicine - Medical Genetics Laboratories

Educational Grants received from:

Lily
The Centers for Disease Control and Prevention's "Learn the Signs. Act Early." Campaign

Physicians

The Institute for the Advancement of Human Behavior (IAHB) is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

AMA PRA Statement

The IAHB designates this educational activity for a maximum of 22.75 AMA PRA Category 1 Credit(s)™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Psychologists

This course is co-sponsored by Amedco and the Society for Developmental and Behavioral Pediatrics. Amedco is approved by the American Psychological Association to sponsor continuing education for psychologists. Amedco maintains responsibility for this program and its content. Maximum of 22.75 hours.

Social Workers

This program is approved by the National Association of Social Workers (Approval #8865304747633) for Social Work continuing education contact hours. Maximum of 22.75 hours.

California Board of Behavioral Sciences

Course meets the qualifications for up to 22.75 hours of continuing education credit for MFTs and/or LCSWs as required by the California Board of Behavioral Sciences, Provider #PCE875.

Objectives - After attending this program participants will be able to:

1. Describe new methods of managing developmental-behavioral issues in practice
2. Demonstrate strategies and skills for teaching others about topics in developmental / behavioral pediatrics
3. Discuss advances in the treatment of ADHD, autism, and other developmental / behavioral disorders
4. Discuss literacy promotion in pediatrics

Statement of Disclosure

All faculty/speakers, planners, abstract reviewers, moderators, authors, co-authors and administrative staff participating in the continuing medical education programs jointly sponsored by IAHB are expected to disclose to the program audience any/all relevant financial relationships related to the content of their presentation(s).

The list on the following pages includes all individuals in control of content for this CME activity.

Financial Relationship Key
G-Grant/Research Support
C-Consultant/Scientific Advisor
S-Speaker's Bureau
E-Employee
M-Stockholder
O-Other
N-Nothing to disclose

Resolution Key
R1-Restricted to Best Available Evidence & AC-
CME content validation statement
R2-Removed/Altered Financial Relationship
R3-Altered Control
R4-Peer Review with 2nd method of resolution
N/A-Not Applicable

Role Key
P: Presenter
PL: Planner
C: Co-Author

First	Last	Role	Disclosure / Resolution
Debbi	Andrews	P	N, N/A
Jacky	Au	C	N, N/A
Marilyn	Augustyn	C	N, N/A
Roland	Bammer	C	N, N/A

First	Last	Role	Disclosure / Resolution
William	Barbaresi	P	N, N/A
Hugh	Bases	P	N, N/A
Nerissa	Bauer	P	N, N/A
Rebecca	Baum	C	N, N/A

Participant Notification

First	Last	Role	Disclosure / Resolution
Robert	Belknap	C	N, N/A
Samantha	Berkule-Silberman	C	N, N/A
Elizabeth	Berry-Kravis	C	N, N/A
Jeffrey	Black	P	N, N/A
David	Blake	C	N, N/A
Nathan	Blum	PL	N, N/A
Hilary	Boorstein	P	N, N/A
Renato	Borgatti	C	N, N/A
Henny	Bos	P	N, N/A
Carolyn	Bridgemohan	PL, P	N, N/A
William	Brinkman	C	N, N/A
Carolyn	Brockmeyer	C	N, N/A
Gray	Buchanan	P	N, N/A
Lisa	Campbell	C	N, N/A
William	Carey	C	N, N/A
Marsha	Carpenter	C	N, N/A
Eugenia	Chan	P	N, N/A
Weerasak	Chonchaiya	P	N, N/A
Francesca	Ciceri	C	N, N/A
Brenda	Clark	C	N, N/A
Christopher	Colby	C	N, N/A
William	Coleman	C	N, N/A
Robert	Colligan	C	N, N/A
Lisa	Cordeiro	C	N, N/A
Patrizia	Cozzi	C	N, N/A
Edward	De Vos	C	N, N/A
Benard	Dreyer	C	N, N/A
Meredith	Dreyer	C	N, N/A
Kathryn	Ellerbeck	P	N, N/A
Jeff	Epstein	C	N, N/A
Heidi	Feldman	C	N, N/A
Adiaha	Franklin	C	N, N/A
Tanya	Froehlich	P	N, N/A
Nadine	Gaab	P	N, N/A
Carol	Garrison	C	N, N/A
Nanette	Gartrell	C	N, N/A
Betsy	Groves	C	N, N/A
Randi	Hagerman	P	G: Seaside Therapeutics, Roche, Forest Pharmaceutical, Johnson & Johnson Pharmaceutical, Novartis, Curemark; R4/R1
Robin	Hansen	C	N, N/A

First	Last	Role	Disclosure / Resolution
Malinda	Harris	P	N, N/A
Rochelle	Harris	C	N, N/A
Susan	Harris	C	N, N/A
Elizabeth	Hastings	PL	N, N/A
David	Hessl	P	N, N/A
Pam	High	PL, P	N, N/A
L. Kari	Hironaka	P	N, N/A
Karen	Hopkins	C	N, N/A
Laurie	Hornberger	C	N, N/A
Jill	Houbé	C	N, N/A
Ruee	Huang	P	N, N/A
Noelle	Huntington	C	N, N/A
Anna	Hus	C	N, N/A
Karen Kay	Imagawa	C	N, N/A
Vennecia	Jackson	C	N, N/A
Melissa	Johnson	C	N, N/A
Niko	Kaciroti	C	N, N/A
Robert	Kahn	C	N, N/A
Slavica	Katusic	P	N, N/A
Michelle	Keane	C	N, N/A
Desmond	Kelly	P	N, N/A
Jill	Killian	C	N, N/A
William	Kinard	C	N, N/A
Anne	Kinsman	C	N, N/A
Vibha	Krishnamurthy	C	N, N/A
Meredith	Laird	C	N, N/A
Nancy	Lanphear	PL	N, N/A
Eliana	Lee	P	N, N/A
Irene	Loe	P	N, N/A
Christine	Loock	P	N, N/A
Julie	Lumeng	C	N, N/A
Erin	Mark	C	N, N/A
Caroline	Martinez	C	N, N/A
Gretchen	Matthews	C	N, N/A
Malia	May	P	N, N/A
Robyn	Mehlenbeck	PL	N, N/A
Maria	Melquizo	C	N, N/A
Alan	Mendelsohn	P	N, N/A
Veronica	Meneses	C	N, N/A
Rosario	Montirosso	P	N, N/A
Charles	Nelson	P	N, N/A
Todd	Nick	C	N, N/A
Sarah	Nyp	P	N, N/A
Jay	Parker	PL	N, N/A

Participant Notification

First	Last	Role	Disclosure / Resolution
Georgina	Peacock	P	N, N/A
Ellen	Perrin	C	N, N/A
Megan	Pesch	P	N, N/A
Randall	Phelps	PL	N, N/A
Nancy	Powers	C	N, N/A
Livio	Provenzi	C	N, N/A
Leonard	Rappaport	P	N, N/A
Nora	Raschle	P	N, N/A
Barbara	Rathmell	C	E: Seaside Therapeutics; R4/R2
Daniela	Romero	C	N, N/A
Kate	Rosenblum	P	N, N/A
Wendy	Ross	PL, P	N, N/A
Mustafa	Sahin	C	C, G: Novartis; S: Athena Diagnostics; R4/R1
Ronald	Samuels	C	N, N/A
Sarah	Schlegel	PL	N, N/A
Andrea	Schneider	C	N, N/A
Amy	Schull	PL	N, N/A
Anna	Schweiger	C	N, N/A
Daisha	Seyfer	C	N, N/A
Prachi	Shah	P	N, N/A
Nicole	Shapiro	C	N, N/A
Laura	Sices	P	N, N/A
Benjamin	Siegel	C	N, N/A
Ellen	Silver	PL	N, N/A
Jean	Smith	P	N, N/A
Peter	Smith	P	N, N/A

First	Last	Role	Disclosure / Resolution
Neelkamal	Soares	P	N, N/A
Martin	Stein	P	N, N/A
Patrice	Stering	C	N, N/A
Paula	Sullivan	C	N, N/A
Mark	Swanson	P	N, N/A
Lane	Tanner	P	N, N/A
Jana	Thomas	C	N, N/A
Suzy	Tomopoulos	C	N, N/A
Franklin	Trimm	PL, P	N, N/A
Ed	Tronick	PL, P	N, N/A
Triana	Urraca	C	N, N/A
Agustini	Utari	C	N, N/A
Douglas	Vanderbilt	P	N, N/A
Robert	Voigt	C	N, N/A
Shari	Wade	P	N, N/A
Nicolay	Walz	C	N, N/A
Lulu	Wang	P	N, N/A
Amy	Weaver	C	N, N/A
Lynn	Wegner	P	N, N/A
Carol	Weitzman	C	N, N/A
Maura	Wendland	C	N, N/A
Kendra	Williams	C	N, N/A
Mark	Wolraich	PL	N, N/A
Marshalyn	Yeargin-Allsopp	C	N, N/A
Keith	Yeates	C	N, N/A
Rinaldo	Zanini	C	N, N/A
Barry	Zuckerman	C	N, N/A

IMPORTANT!

The online CE or CME certificate will only be available through **October 15, 2010**. After that date, the site will be removed and certificates will no longer be available.

If you need a CE or CME certificate, you must complete the evaluation and certificate process prior to **October 15, 2010**.

Don't forget to get your certificate at
www.CmeCertificateOnline.com, password: 2010SDBP

Exhibitor Product Descriptions

Ambry Genetics

Ambry Genetics, the first to apply next-generation sequencing for x-linked intellectual disabilities, enables you to diagnose and manage your patients by detecting genetic variants in all genes associated with XLID.

American Academy of Pediatrics (Journals)

Visit our booth for a free trial of the self-study program based on ABP content specifications for Maintenance of Certification. PREP DBPeds is approved for MOC Part 2: Lifelong Learning and Self-Assessment.

Athena Diagnostics

Athena Diagnostics has been the leader in genetic testing for developmental disabilities since launching Fragile X testing in 1993. Athena offers its advanced testing exclusively to physicians to help determine the underlying cause of developmental disorders. With a comprehensive menu of genetic markers for autism, and other developmental disabilities, Athena provides physicians the most advanced tools available for detecting genetic causes of disease.

Baylor College of Medicine - Medical Genetics Laboratory

Baylor College of Medicine's, Medical Genetics Laboratories offer a broad range of diagnostic genetics tests including DNA diagnostics, sequencing, cytogenetics, FISH diagnostics, cancer cytogenetics, chromosomal microarray analysis, biochemical genetics, and Mitochondrial DNA analysis. Please visit our booth for more information.

Bio Behavioral Diagnostics

BioBehavioral Diagnostics is the developer of the Quotient™ ADHD System, which measures motion, impulsivity and attention state to guide an objective, clear picture of ADHD.

Brookes Publishing Co.

Trusted resources for professionals working to enhance the health and success of children with and without disabilities - Publisher of the reliable screening tool Ages & Stages Questionnaires. Third edition (ASQ- 3™)
www.brookespublishing.com www.agesandstages.com

CHADIS

CHADIS is an online screening, diagnostic and management system that administers pre-visit questionnaires for all ages and provides Clinicians access to results and resources. CHADIS qualifies for MOC credit.

Elsevier Inc.

Elsevier is a leader in the Health Science Publishing industry. Please stop by our booth to see our newest books and Journals.

JDBP Book Reviewer Table

SDBP members are invited to select books from the table to review. Reviewers will submit their contact information, take the book home (and keep!) to review, then submit a review for the Journal of Developmental and Behavioral Pediatrics.

Kaiser Permanente - Southern California

Within The Southern California Permanente Medical Group (SCPMG), physicians find recognition, stability, opportunity and independence. The SCPMG delivers:

- An enhanced compensation and benefits package, including potential partnership status after three years of practice
- An integrated health care system emphasizing collaboration and decisions made by physicians
- A long-standing history of stability

Lippincott Williams & Wilkins - WKH

Lippincott Williams & Wilkins, a Wolters Kluwer Health company is a leading international publisher of medical books, journals, and electronic media. Please visit us to browse our comprehensive product line.

Pearson

Pearson offers assessment tools for pediatricians working with children of all ages. Our standardized, well-validated tools offer insights to help you understand developmental issues, attention and behavioral problems as well as learning disorders to enhance your decision making.

Society for Developmental and Behavioral Pediatrics (SDBP)

The Society for Developmental and Behavioral Pediatrics (SDBP) is an international organization dedicated to improving the health of infants, children, and adolescents by promoting research, teaching and evidence-based clinical practice and advocacy. Our Vision is to be the interdisciplinary leaders in optimal developmental and behavioral health for all children. SDBP's Core Values include Biopsychosocial model, Collaboration, Scientific basis of field, Interdisciplinary, Collegiality.

TPR Media, LLC

TPR Media provides Internet-based healthcare content provider and communication services. Our clients include more than 200 civilian and Department of Defense hospitals in the US and around the world.

Transgenomic, Inc.

Transgenomic Molecular Laboratory is a clinical reference laboratory specializing in mitochondrial and molecular testing. Our portfolio also includes tests for inherited, seizure and developmental disorders, 244K CMA and ARISK™ Familial Autism Panel.

Program Schedule

Saturday, September 11, 2010

7:00am - 5:00pm Registration
Dartmouth/Exeter Foyer

8:00am - 5:00pm Board of Directors Meeting
Statler

9:00am - 5:00pm Pre-Meeting All Day Workshop - **An extra fee applies to attend.**
Franklin

PEDIATRICS AND THE FAMILY: INCORPORATING SYSTEMS PRINCIPLES INTO PRACTICE

Lane Tanner, MD, Children's Hospital & Research Center at Oakland, Oakland, CA, William Coleman, MD, University of North Carolina School of Medicine, Chapel Hill, Chapel Hill, NC

9:00am - 12:00noon 3 Pre-Meeting Half Day Workshops - **An extra fee applies to attend.**

Workshop A - PUBERTY AND SEXUALITY FOR YOUTH WITH DEVELOPMENTAL DISABILITIES AND THEIR FAMILIES

Hilary C. Boorstein, PhD, Lisa Campbell, MD, Rochelle Harris, PhD, Laurie Hornberger, MD, MPH, Carol Garrison, MD, Children's Mercy Hospital and Clinics, Kansas City, MO

Georgian Ballroom

Workshop B - IMPROVE YOUR QI IQ

Eugenia Chan, MD, MPH, Children's Hospital Boston, Boston, MA, Robert F. Belknap, MD, MPH, Child and Adolescent Health Specialists, Cohasset, MA, Rebecca A. Baum, MD, Nationwide Children's Hospital, Columbus, OH

Arlington

Workshop C - RESOURCE DEVELOPMENT TO FUND DEVELOPMENTAL-BEHAVIORAL PEDIATRICS PROGRAMS: HOW TO CLOSE THE DREAM GAP

Desmond P. Kelly, MD, William Kinard, FAHP, CFRE, Children's Hospital of Greenville Hospital System University Medical Center, Greenville, SC

Berkely/Clarendon

3 Pre-Meeting Half Day Workshops - **An extra fee applies to attend.** (Note: End times of these workshops vary)

1:00pm - 5:00pm

Workshop D - DBPEDS RELATED TO THE GENERALIST AND SUBSPECIALTY PRACTITIONERS

Three presentations included:

COMMUNICATING WITH PARENTS ABOUT DEVELOPMENTAL SCREENING: STRATEGIES FOR IMPLEMENTATION

Laura Sices, MD MS, Edward De Vos, EdD, Benjamin Siegel, MD, Boston University/Boston Medical Center, Boston, MA

EARLY IDENTIFICATION OF INFANTS AT RISK FOR AUTISM

Charles A. Nelson, PhD, Children's Hospital Boston, Boston, MA

STIMULANT TREATMENT AND FUNCTIONAL OUTCOMES FOR CHILDREN WITH AD/HD

William J. Barbaresi, MD, Children's Hospital Boston, Boston, MA

Berkeley/Clarendon

1:00pm - 4:30pm



Program Schedule

Saturday, September 11, 2010, continued

Workshop E - REIMBURSEMENT STRATEGIES FOR DBPEDS

Two presentations included:

USING THE CODING SYSTEM TO IMPROVE PAYMENT FOR DEVELOPMENTAL/BEHAVIORAL SUBSPECIALTY SERVICES

Lynn M. Wegner, MD, University of North Carolina, Chapel Hill, NC

READING, WRITING, RVU'S!

Prachi E. Shah, MD, University of Michigan, Ann Arbor, MI

Arlington

1:00pm - 4:00pm

Workshop F - A DYSLEXIA PRIMER: BASIC PRINCIPLES OF ETIOLOGY, EVALUATION AND MANAGEMENT FOR THE PEDIATRICIAN

Jeffrey L. Black, MD, Marsha B. Carpenter, MD, UT Southwestern Medical Center, Dallas, TX, Vennecia Jackson, MD, Texas Scottish Rite Hospital for Children, Dallas, TX

Georgian Ballroom

5:00pm - 6:30pm

Exhibits
Plaza Ballroom

5:00pm - 5:30pm

Mentor/Mentee Reception
Plaza Ballroom

5:30pm - 6:30pm

Opening Reception
Plaza Ballroom

6:30pm - 7:30pm

Trainee/Recent Grad Workshop - Career Panel
Statler

Developed to provide advice about the process of searching for a job after fellowship.

6:30pm - 7:30pm

Psychology Gathering
Hancock

An opportunity to get together with your fellow psychologists in a casual setting. Trainees welcome!

7:00pm - 9:00pm

Nurse Practitioner's SIG Meeting - free to attend
Franklin

The Nurse Practitioner SIG provides a forum for advanced practice nurses to network and work on common concerns. Issues currently being discussed include educational preparation in DB Peds, certification, and the role of the NP in DB Peds.

Sunday, September 12, 2010

7:00am - 5:00pm

Registration
Dartmouth/Exeter Foyer

7:00am - 9:00am

Committee Meetings
Advocacy - Co-Chairs: *Adiaha Spinks-Franklin, MD, MPH and Lynne Sturm, PhD*
Beacon Hill
Communications - Co-Chairs: *Robert Needlman, MD and Susan Rosenthal, PhD*
Back Bay
Education - Co-Chairs: *Franklin Trimm, MD and Carolyn Bridgemohan, MD*
Statler
Research - Co-Chairs: *Susan Berger, PhD and Paul Wang, MD*
Cambridge

Program Schedule

Sunday, September 12, 2010, continued

8:30am - 7:00pm	Exhibits Plaza Ballroom
9:00am- 7:00pm	Posters Up - Session 1 Plaza Ballroom
9:00am - 9:15am	Welcome Imperial Ballroom
9:15am - 10:30am	Plenary Session I (Abstract Presentations 1-5) Chair: <i>David Schonfeld, MD</i> Imperial Ballroom
9:15am - 9:30am	Abstract #1: Incidence of Attention-Deficit/Hyperactivity Disorder (ADHD) and Learning Disabilities (LD) in Late Preterm Infants in a Population-Based Birth Cohort <i>Malinda N. Harris, MD, Gretchen A. Matthews, MD, Robert G. Voigt, MD, Pediatric and Adolescent Medicine, Mayo Clinic, Rochester, MN, William J. Barbaresi, MD, Medicine, Boston Children's Hospital, Boston, MA, Jill M. Killian, BS, Amy L. Weaver, MS, Health Sciences Research, Christopher E. Colby, MD, William A. Carey, MD, Pediatric and Adolescent Medicine, Slavica K. Katusic, MD, Health Sciences Research, Mayo Clinic, Rochester, MN</i>
9:30am - 9:45am	Abstract #2: Screen Time Use in Children with Autism Spectrum Disorders Compared to Typical Peers <i>Malia May, MD, Carol Garrison, MD, Meredith Dreyer, PhD, Developmental-Behavioral Sciences, Anna Schweiger, MD, General Pediatrics, Children's Mercy Hospital, UMKC-SOM, Kansas City, MO</i>
9:45am - 10:00am	Abstract #3: Increased Prevalence of Seizures, ASD, and ADHD in Boys with the Fragile X Premutation <i>Weerasak Chonchaiya, MD, Psychiatry and Behavioral Sciences, Jacky Au, BS, Pediatrics, Andrea Schneider, PhD, Psychiatry and Behavioral Sciences, Susan W. Harris, MS, Lisa Cordeiro, MS, Pediatrics, David R. Hessel, PhD, Psychiatry and Behavioral Sciences, Meredith Laird, BS, Pediatrics, UC Davis MIND Institute, Sacramento, CA, Agustini Utari, MD, Pediatrics, Diponegoro University, Semarang, Indonesia, Randi J. Hagerman, MD, Pediatrics, UC Davis MIND Institute, Sacramento, CA</i>
10:00am - 10:15am	Abstract #4: Disruptive Neural Response During Rapid Auditory Processing in Pre-Readers at Risk for Dyslexia - An fMRI Study <i>Nora M. Raschle, MS, Patrice L. Sterling, MEd, Nadine Gaab, PhD, Developmental Medicine, Children's Hospital & Harvard Medical School Boston, Boston, MA</i>

Program Schedule

Sunday, September 12, 2010, continued

- 10:15am - 10:30am Abstract #5: Arbaclofen Treatment Is Associated with Global Behavioral Improvement in Fragile X Syndrome (FXS): Results of a Randomized, Controlled Phase 2 Trial
Lulu Wang, MD, Randi Hagerman, MD, Pediatrics, MIND Institute UC Davis, Sacramento, CA, Barbara Rathmell, MD, Clinical Operations, Paul Wang, MD, Clinical Development, Seaside Therapeutics, Cambridge, MA, Elizabeth Berry-Kravis, MD, PhD, Pediatrics and Neurology, Rush University Medical Center, Chicago, IL
- 10:30am - 10:45am Break
Plaza Ballroom
- 10:45am - 12:00noon Lectureship Recipient Presentation
Trying to Make a Difference: The Journey from Clinical Care to Policy
Barry Zuckerman, MD, The Joel and Barbara Alpert Professor of Pediatrics, Boston University School of Medicine and Chief of Pediatrics at Boston Medical Center, Boston, MA
Imperial Ballroom
- 12:00noon - 1:30pm Luncheons
Trainee/Recent Graduate Luncheon - Chairs: *Lauren Boyd, MD, Anna Malia May, MD, Lisa Ramirez, BA*
Statler

Fellowship Directors Luncheon - Chair: *Carol Weitzman, MD*
an extra fee applies to attend
Cambridge

JDBP Editorial Board Luncheon - Chair: *Suzanne Dixon, MD*
Beacon Hill
- 1:30pm - 3:00pm Concurrent Sessions
- Concurrent Session 1: Training, Research and Policy for the Future
Barry Zuckerman, MD
Imperial Ballroom
- Concurrent Session 2: HEALTHCARE REFORM AND THE FUTURE OF DEVELOPMENTAL-BEHAVIORAL PEDIATRICS
Neelkamal Soares, MD, Pediatrics, University of Kentucky, Lexington, KY, Daisha Seyfer, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH
Georgian Ballroom
- Concurrent Session 3 - PREPARATION FOR ADULT PARTICIPATION: A MODEL FOR SERVICES AND RESEARCH
Mark E. Swanson, MD, Division of Human Development and Disability, Centers for Disease Control and Prevention, Atlanta, GA
Arlington/Berkely/Clarendon
- 3:00pm - 3:15pm Break
Plaza Ballroom

Program Schedule

Sunday, September 12, 2010, continued

3:15pm - 4:45pm

Concurrent Sessions

Concurrent Session 4 - ADVOCATING FOR CHILDREN'S DEVELOPMENTAL AND BEHAVIORAL HEALTH: MODELS FROM THE FIELD

Jean C. Smith, MD, Developmental and Behavioral Pediatrics, Wake County Human Services, Raleigh, NC, Adiaha A. Franklin, MD, Meyer Center for Developmental Pediatrics, Texas Children's Hospital/Baylor College of Medicine, Houston, TX, Marilyn Augustyn, MD, Division of Developmental-Behavioral Pediatrics, Boston Medical Center/Boston Univ School of Medicine, Boston, MA, Melissa Johnson, PhD, Pediatrics/Neonatology, WakeMed Health and Hospitals, Raleigh, NC

Imperial Ballroom

Concurrent Session 5 - AND DOWN CAME THE CRADLE, BABY AND ALL: IDENTIFYING PSYCHOLOGICAL TRAUMA IN EARLY CHILDHOOD

L. Kari Hironaka, MD, Betsy McAlister Groves, MSW, Pediatrics, Boston Medical Center, Boston, MA
Arlington/Berkely/Clarendon

Concurrent Session 6 - THE PROMISE OF TARGETED PHARMACOTHERAPY FOR NEURODEVELOPMENTAL DISORDERS

Mustafa Sahin, MD, PhD, Neurology, Harvard Medical School, Boston, MA, Randi Hagerman, MD, Pediatrics, MIND Institute UC Davis, Sacramento, CA, Jeannie Visootsak, MD, Human Genetics & Pediatrics, Emory University, Decatur, GA

Georgian Ballroom

5:00pm - 6:00pm

Business Meeting
Imperial Ballroom

6:00pm - 7:00pm

Poster Session I: Meet the Author
Plaza Ballroom

7:00pm - 10:00pm

Dinner Social
Georgian Ballroom

Monday, September 13, 2010

8:00am - 5:00pm

Registration
Dartmouth/Exeter Foyer

7:00am - 9:00am

Committee Meetings

Membership - Co-Chairs: *Heidi M. Feldman, MD, PhD and Terry Stancin, PhD*
Cambridge

Practice Issues - Co-Chairs: *Adrian D. Sandler, MD and Charles T. Morton, MD*
Beacon Hill

Past Presidents - Chair: *Ellen Perrin, MD*

Development - Chair: *Dan Coury, MD*

(Past Presidents and Development Committees are meeting jointly)

Cabot

8:30am - 3:00pm

Exhibits
Plaza Ballroom

Program Schedule

Monday, September 13, 2010, continued

9:00am - 3:00pm Posters Up - Session 2
Plaza Ballroom

9:00am - 10:15am Plenary Session II (Abstract Presentations 6-10)
Chair: *Marty Stein, MD*
Imperial Ballroom

9:00am - 9:15am Abstract #6: Pharmacogenetics of Methylphenidate Response in Attention-Deficit/Hyperactivity Disorder (ADHD)
Tanya Froehlich, MD, Robert Kahn, MD, Pediatrics, Children's Hospital, Cincinnati, OH, Todd Nick, PhD, Maria Melquizo, MS, Pediatrics, U Arkansas, Little Rock, AR, William Brinkman, MD, Jeff Epstein, PhD, Pediatrics, Children's Hospital, Cincinnati, OH

9:15am - 9:30am Abstract #7: White Matter Characteristics Correlate with Executive Function Skills in Preterm and Full-term Children
Irene M. Loe, MD, Eliana S. Lee, BS, Pediatrics, Stanford University, Palo Alto, CA, Roland Bammer, PhD, Radiology, Stanford University, Stanford, CA, Heidi M. Feldman, MD, PhD, Pediatrics, Stanford University, Palo Alto, CA

9:30am - 9:45am Abstract #8: The Developmental Course of Attention-Deficit/Hyperactivity Disorder (ADHD): Results from a Prospective, Population-Based Study
William J. Barbaresi, MD, Medicine, Children's Hospital Boston, Boston, MA, Robert C. Colligan, PhD, Psychiatry and Psychology, Amy L. Weaver, MS, Health Sciences Research, Robert G. Voigt, MD, Pediatric and Adolescent Medicine, Jill M. Killian, BS, Slavica K. Katusic, MD, Health Sciences Research, College of Medicine, Mayo Clinic, Rochester, MN

9:45am - 10:00am Abstract #9: A Randomized Trial of Teen Online Problem Solving to Improve Behavior and Executive Functioning following Adolescent Brain Injury
Shari L. Wade, PhD, Physical Medicine & Rehabilitation, Nicolay C. Walz, PhD, Behavioral Medicine and Clinical Psychology, Kendra M. Williams, MA, Physical Medicine & Rehabilitation, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, Erin Mark, MA, Keith O. Yeates, PhD, Pediatric Psychology and Neuropsychology, Nationwide Children's Hospital, Columbus, OH

10:00am - 10:15am Abstract #10: Cumulative Infant/Toddler Media Exposure Adversely Associated with Self-Regulation at 3 Years
Ruee Huang, MD, Suzy Tomopoulos, MD, Benard P. Dreyer, MD, Carolyn A. Brockmeyer, PhD, Samantha B. Berkule-Silberman, PhD, Karen M. Hopkins, MD, Caroline L. Martinez, MD, Hugh Bases, MD, Triana Urraca, BA, Daniela Romero, BA, Alan L. Mendelsohn, MD, Developmental-Behavioral Pediatrics, NYU School of Medicine and Bellevue Hospital Center, New York

10:15am - 10:30am Break
Plaza Ballroom

Program Schedule

Monday, September 13, 2010, continued

- 10:30am - 11:30am Plenary Session III (Abstract Presentations 11-14)
Chair: *Heidi Feldman, MD, PhD*
Imperial Ballroom
- 10:30am - 10:45am Abstract #11: Behavioral Effects of Testosterone Therapy in Adolescents with Klinefelter Syndrome/XXY, XYY, and XXY: Interim Study Results
Nicole R. Tartaglia, MD, Pediatrics, Natalie Ayari, BA, University of Colorado Denver School of Medicine, Aurora, CO, Susan Howell, MS, Pediatrics, University of Colorado School of Medicine, Aurora, CO, Philip Zeitler, MD, PhD, Pediatrics, University of Colorado Denver School of Medicine, Aurora, CO
- 10:45am - 11:00am Abstract #12: Can Family Characteristics Counteract the Negative Effects of Stigmatization?
Henny Bos, PhD, Child Development and Education, University of Amsterdam, Amsterdam, The Netherlands, Nanette Gartrell, MD, Center of Excellence in Womens Health, University of California, San Francisco, California, Ellen Perrin, MD, Pediatrics, Floating Hospital, Tufts Medical Center, Boston, MA
- 11:00am - 11:15am Abstract #13: Communicating with Parents about Developmental Screening in Primary Care
Laura Sices, MD, Nicole Shapiro, MA, Pediatrics, Boston University Medical Center, Boston, MA, Marilyn Augustyn, MD, Pediatrics, Boston University Med Ctr, Boston, MA, Edward De Vos, EdD, Pediatrics, Boston University Medical Center, Boston, MA
- 11:15am - 11:30am Abstract #14: Maternal Feeding Styles Identified via Semi-Structured Interview
Megan H. Pesch, BA, Department of Pediatrics, Kate Rosenblum, PhD, Niko Kaciroti, PhD, Julie C. Lumeng, MD, Center for Human Growth and Development, University of Michigan, Ann Arbor, MI
- 11:30am - 12:45pm Lunch Break - *on your own*
- 12:45pm - 1:45pm Presidential Address
Skate Where the Puck is Going OR What I learned this Year
Leonard Rappaport, MD
Imperial Ballroom
- 1:45pm - 2:00pm Incoming Presidential Address
Pamela C. High, MD
Imperial Ballroom
- 2:00pm - 3:00pm Poster Session 2: Meet the Author
Plaza Ballroom

Program Schedule

Monday, September 13, 2010, continued

3:00pm - 5:00pm

SIGs and Concurrent Session

Autism SIG - Co-Chairs: *Pam High, MD and Robin Hansen, MD*
Georgian Ballroom

ADHD SIG - Chair: *Mark Wolraich, MD*
Arlington/Berkeley/Clarendon

Concurrent Session 7 - Poster Symposium - Chair: *Karen Kuhlthau, PhD*
Imperial Ballroom

Abstract #15: Patient-Centered Medical Homes and Associated Outcomes for Children with ADHD

Sara L. Toomey, MD, General Pediatrics, Eugenia Chan, MD, Developmental Medicine, Jessica Ratner, BA, Mark A. Schuster, MD, General Pediatrics, Children's Hospital Boston, Boston, MA

Abstract #16: SES, Parenting, and Child Behavior are Associated with BMI in low- to middle-income Chilean and US 10-year olds

D. Eastern Kang Sim, MPH, Matthew Capiello, BA, Pediatrics, University of California San Diego, La Jolla, CA, Marcela Castillo, PhD, Psychology, Institute of Nutrition and Food Technology, Santiago, Chile, Suzanna M. Martinez, PhD, Estela Blanco, MPH MA, Pediatrics, University of California San Diego, La Jolla, CA, Betsy Lozoff, MD, Pediatrics and Communicable Diseases, University of Michigan, Ann Arbor, MI, Sheila Gahagan, MD, Pediatrics, University of California San Diego, La Jolla, CA

Abstract #17: Nighttime Sleep Duration and Externalizing Behaviors in Preschool Children

Rebecca Scharf, MD, Ellen J. Silver, PhD, Ruth E. Stein, MD, Pediatrics, Albert Einstein College of Medicine, Bronx, New York

Abstract #18: The Relationship between Tourette syndrome and Co-Occurring Emotional Disorders and Parental Aggravation

Lara Robinson, PhD, Child Development Studies, CDC, Atlanta, GA, Rebecca Bitsko, PhD, Child Development Studies, CDC, Atlanta, GA, Susanna Visser, MS, Child Development Studies, Laura Schieve, PhD, Developmental Disabilities, Ruth Perou, PhD, Child Development Studies, CDC, Atlanta, GA

Tuesday, September 14, 2010

7:45am - 1:30pm

Pre-Meeting Education Workshop - *an extra fee applies to attend.*

Teaching Developmental-Behavioral Pediatrics to Residents

Chair/Facilitators: Franklin Trimm, MD and Carolyn Bridgemohan, MD
Georgian Ballroom

The Education Workshop has been organized to help Developmental-Behavioral Pediatrics residency rotation directors and faculty address the challenges of teaching a significant curriculum in a limited time. The format will consist of an initial large group meeting followed by small group sessions and then closing with a large group discussion of new interpretations of rules from the RRC. These sessions will present creative methods to teach residents specific content including normal development, behavior management, mental health and ADHD. There will also be sessions on interactive teaching methods and evaluation of longitudinal curriculum. This workshop continues the tradition of previous successful education workshops in providing innovative tools for teaching through interactive and practical sessions.



Society for Developmental
& Behavioral Pediatrics

2010 SDBP Lectureship Recipient

Sunday, September 12, 10:45 am - 12:00 noon

Trying to Make a Difference: The Journey from Clinical Care to Policy

*Barry Zuckerman, MD, The Joel and Barbara Alpert
Professor of Pediatrics, Boston University School
of Medicine; Chief of Pediatrics, Boston Medical
Center, Boston, MA*

Imperial Ballroom

Trying to Make a Difference: The Journey from Clinical Care to Policy

Barry Zuckerman, M.D.
The Joel and Barbara Alpert Professor and
Chair of Pediatrics
Boston Medical Center/Boston University
School of Medicine

Early experiences are biologically embedded in development of brain and other organs

Early Experiences

Positive

- Nurturing and stimulation

Averse

- Stress/harmful interactions
- Neurotoxic exposure
- Inadequate nutrition



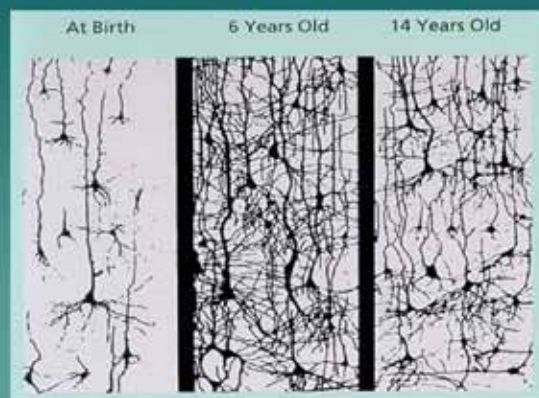
Child and Adult Health

Impact of Early Life Experience

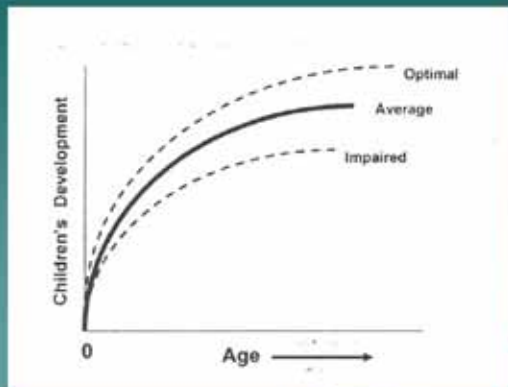
Life Course Problems Related to Early Life Experiences



Brain Development



Life Course Trajectory



Clinical Innovations to Improve Brain Functioning

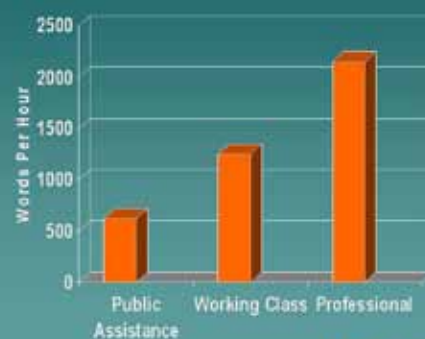


The Problem

35 % OF AMERICAN CHILDREN ENTER KINDERGARTEN UNPREPARED TO LEARN, MOST LACKING THE LANGUAGE SKILLS THAT ARE THE PREREQUISITES OF LITERACY ACQUISITION

NATIONAL ACADEMY OF EDUCATION, 1985

Parental Language Addressed to Child by SES



Hart & Risley, (1995)

Inadequate Language Development at Age 3

Professional: 1100 words
Working class: 700 words
Welfare: 500 words

RX: Reach Out and Read

One Solution: Books and Reading Aloud



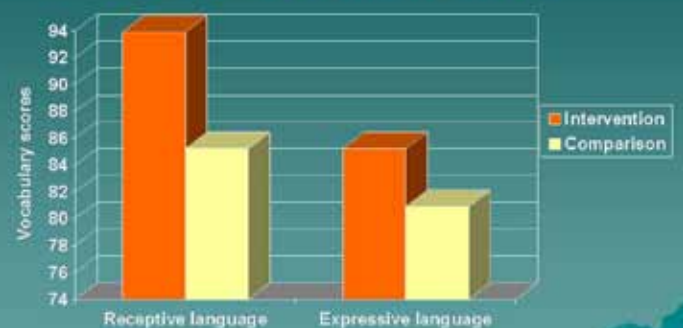


Evidence that ROR Works

13 Published Studies:

- ◆ Parent attitudes and reported behaviors
- ◆ Parent-child observed behaviors
- ◆ Child language (vocabulary) testing

Children's Expressive and Receptive Language Competencies



Mendolovich, et al., 1995

Reach Out and Read Statistics

- Founded in 1989 at Boston City Hospital
- Over 4,500 sites
- Over 3.5 million children from low-income families reached last year
- Over 5 million books distributed last year

Critical Components of Success

- ◆ Addresses a problem identified in primary care;
- ◆ Simple intervention, made sense, and enjoyable
- ◆ Grass root physician support and leadership;
- ◆ Evidence of effectiveness;
- ◆ The importance of physicians as messengers;
- ◆ Bipartisan political belief and support; Important for parents to read to their children.



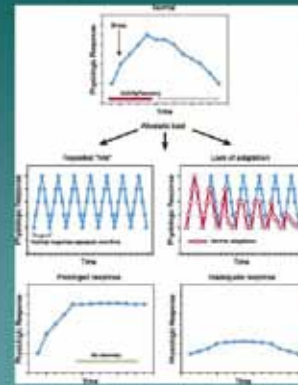
Unmet Basic Needs as a Source of Adverse Experiences

- ◆ Inadequate food
- ◆ Inadequate, unaffordable housing and utilities
- ◆ Violence
- ◆ Barriers to health care and appropriate education

Indirect Effects of Unmet Basic Needs

1. Worry budget, threats of eviction, utility shut-offs, not enough food
2. Interference with adherence
 1. Medications
 2. Nurturing/responsive parenting
 3. Prescribed home learning and behavior strategies
 4. Communicating with schools, EI personnel, etc.

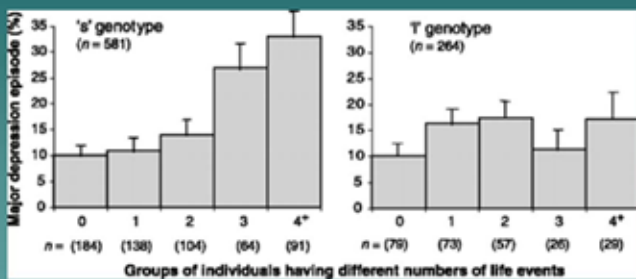
Adverse Experiences and Stress



McEwen, B. S. *Physiol. Rev.* 87: 583-604 2007
doi:10.1152/physrev.00041.2006

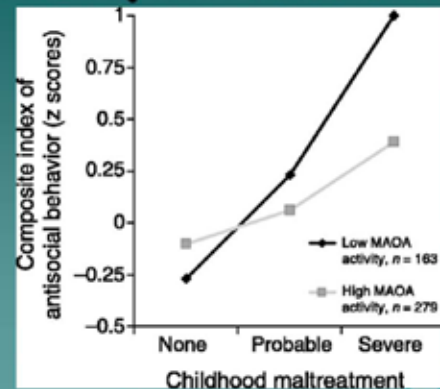
Physiological Reviews

Direct Effects of Stress: Genetic Vulnerability for Depression



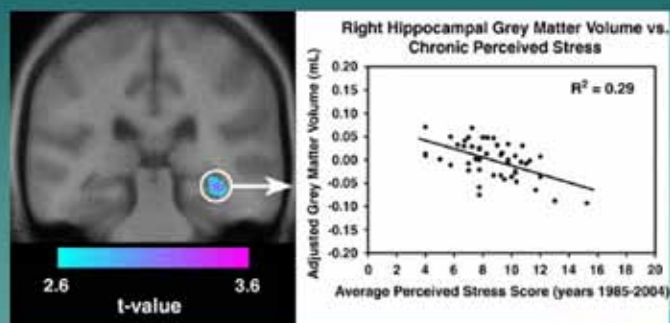
Caspi, A., et al. *Science* 301:851-854 2003

Direct Effects of Stress: Genetic Vulnerability for Antisocial Behavior



Caspi, A., et al. *Science* 297:851-854 2002

Direct Effects of Stress



A Medical-Legal Partnership: Approach to Preventing Adverse Experiences

Early adverse experiences impair children's health and development. MLP was founded on the understanding that many early adverse experiences can be addressed through legal intervention.

Medical-Legal Partnership for Disparity Reduction



Legal Interventions to Prevent...

- ◆ Poor nutrition
- ◆ Neurotoxic exposure
- ◆ Violence in the home
- ◆ Poor housing conditions
- ◆ Inappropriate educational placement
- ◆ Utility shut-off

NICU Babies Have Legal Needs

Baby Isabel, born 28 wks. Parents are legal immigrants from the Dominican Republic.

As a NICU patient, Isabel is eligible for many benefits and services that will protect her health and prevent re-hospitalization: SSI, early intervention, etc.

Parents don't understand if and how Isabel's access to benefits impact their immigration status. Front-line and hospital staff – nurses, case managers, pediatricians – don't know how to advise them.

Parents decide not to pursue benefits. Isabel is seen in the ED 3 months later with fever, secondary infection of diaper rash due to diarrhea and FTT.

Sometimes, good legal help is the best medicine

Los Angeles Times, March 12, 2010

When Doctor Visits Lead to Legal Help

The New York Times, March 23, 2010

MLP Multi-Level Strategy



Innovation in Practice: Healthy Steps

Healthy Steps Specialist who provides:

- | | |
|--|--|
| -Extended Well-Child Office Visits
-Child Development
-Parental Health
-Telephone Line
-Links to Community Resources | -Home Visits
-Parent groups
-Written Materials |
|--|--|

Changes in Parenting

Changes in Parents' Knowledge,
Beliefs, and Psychological Health

Improved Child Outcomes

Results (N=3737)

- ◆ **Quality of Care**
 - ↑ Home Visits (x16)
 - ↑ A.G. topics (x10)
 - ↑ Developmental assessment (x8)
- ◆ **Parenting**
 - ↓ Severe physical discipline (27%)
 - ↓ Sleep on stomach (24%)
 - ↑ Up to date on vaccines (50%)

Adapted from: A practice-based intervention to increase quality of care in the first 3 months of life. The Healthy Steps for Young Children Program (HSYC) was developed and implemented in a pediatric primary care setting. A community-based research team designed and implemented the intervention. The intervention was evaluated in a randomized controlled trial. The results of the trial are presented here.

Healthy Steps for Young Children: Longer term outcomes (5 ½ years)

- ◆ Parental satisfaction
- ◆ Parent reporting child's behavioral issue to clinician
- ◆ Parents less likely to use severe punishment
- ◆ Children receiving anticipatory guidance
- ◆ Continuity within same practice
- ◆ Children reading more

Source: Hickey et al.
Pediatrics 2010

Concurrent Session 1

Sunday, September 12, 1:30 pm - 3:00 pm

Training, Research and Policy for the
Future

Barry Zuckerman, MD

Imperial Ballroom

Concurrent Session 2

Sunday, September 12, 1:30 pm - 3:00 pm

Healthcare Reform and the Future of Developmental-Behavioral Pediatrics

*Neelkamal Soares, MD, Pediatrics, University
of Kentucky, Lexington, KY, Daisha Seyfer, MD,
Pediatrics, Nationwide Children's Hospital,
Columbus, OH*

Georgian Ballroom

HEALTHCARE REFORM AND THE FUTURE OF DEVELOPMENTAL-BEHAVIORAL PEDIATRICS

September 12, 2010 Concurrent Session 1:30-3:00 PM
SDBP Annual Meeting, Boston, MA

The Healthcare Reform Law

PL 111-148 Patient Protection and Affordable Care Act

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h3590enr.txt.pdf

PL 111-152 Health Care and Education Reconciliation Act

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h4872enr.txt.pdf

(be aware, over 1000 pages of text, consider before printing!)

Background on Health System

National Health Expenditure Data: NHE Fact Sheet Centers for Medicare and Medicaid Services

https://www.cms.gov/NationalHealthExpendData/25_NHE_Fact_Sheet.asp

The Health Insurance Portability and Accountability Act (HIPAA) United States Department of Labor

<http://www.dol.gov/ebsa/newsroom/fshipaa.html>

Work-Force Issues in Developmental-Behavioral Pediatrics

Work Force Data 2009-2010 American Board of Pediatrics <http://www.abp.org/>

Adair, R; Perrin, E; Hubbard, C; Savageau, J (2010) *Practice Parameters and Financial Factors Impacting Developmental-Behavioral Pediatrics* Journal of Developmental & Behavioral Pediatrics: 31 (6): 477-484

Factsheet Pediatric Subspecialist Physician Shortages Affect Access to Care (2009) NACHRI Pediatric Subspecialty Physician Survey of Children's Hospitals by NACHRI Child Health Policy Research & Analytics

Medical Home

Joint principles of the patient-centered medical home (2007) Washington, DC: American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, and American Osteopathic Association

Casalino, L; Rittenhouse, D; Gillies, R; Shortell, S (2010) *Specialist Physician Practices as Patient-Centered Medical Homes* New Engl Jnl of Med posted online April 21, 2010 (10.1056/NEJMp1001232)

Health Information Technology

Blumenthal, D; Tavenner, M (2010) *The “Meaningful Use” Regulation for Electronic Health Records*
New Engl Jnl of Med posted online July 13th, 2010 (10.1056/NEJMp1006114)

Statements from National Organizations

Association of Maternal Child Health Programs (AMCHP) <http://www.amchp.org/>

American Medical Association (AMA) <http://www.ama.org/>

American Academy of Pediatrics (AAP) <http://www.aap.org/>

Training Issues in Developmental-Behavioral Pediatrics

Phillips, R; Dodoo, M; Petterson, S et al. (2009) *Specialty and Geographic Distribution of the Physician Workforce: What Influences Medical Student & Resident Choices?* The Robert Graham Center: Policy Studies in Family Medicine and Primary Care

Williams, E; Redhead, CS (2010) *Public Health, Workforce, Quality, and Related Provisions in the Patient Protection and Affordable Care Act* Congressional Research Service, from <http://www.aamc.org/>

Sincere thanks to:

Rob Edwards & Mark Birdwhistell, UK Healthcare for the motivation to conduct this session



Health Reform and the AAP: What the New Law Means for Children and Pediatricians

Throughout the health reform process, the American Academy of Pediatrics has focused on three fundamental priorities for children and pediatricians, which are as simple as “A-B-C”— **A**ccess to covered services through appropriate payment rates and workforce improvements, age-appropriate **B**enefits in a medical home and health insurance **C**overage for all children in the United States. *The Patient Protection and Affordable Care Act* (Public Law 111-148) and *The Health Care and Education Reconciliation Act of 2010* (Public Law 111-152) not only address these goals, but also provide many additional benefits for children and pediatricians.

The Health Reform Law will:

Improve access to covered services:

- Invest an unprecedented \$8.3 billion in federal funds to bring parity to Medicaid and Medicare payments for primary care doctors. The increase applies to payments for evaluation and management codes recognized by Medicare starting in 2013 and running through 2014, and is available to physicians with a specialty designation of internal medicine, family medicine or pediatrics.
- Strengthen the pediatric primary care, subspecialty and surgical specialty workforce through Title VII and other improvements as well as a new loan repayment program (up to \$35,000 a year for three years) for individuals who pursue full-time employment in pediatric medical subspecialties, pediatric surgical specialties, or child and adolescent mental and behavioral health care fields.
- Fund state-based health insurance exchanges, which are designed to make health insurance more accessible for small businesses and individuals.
- Define Medicaid to include the provision of health care services, not just the financing of such services. This change should have a positive impact on the ability of Medicaid-eligible children to seek court enforcement ensuring access to needed health care.

Provide age-appropriate benefits to children:

- Cover all *Bright Futures* services for children with private and public insurance as an immediate benefit with no cost-sharing.
- Provide comprehensive, essential benefits for newly-established plans in the health insurance exchange, including habilitative care, pediatric services, oral and vision services. All plans will limit annual out-of-pocket expenses to \$5,000 per individual and \$10,000 per family. Exchanges must be ready to begin offering insurance by 2014, or the federal government will establish one for the state.
- Provide new funding for Medicaid medical home demonstration projects.

Increase health insurance coverage for children and families:

- Expand health insurance to cover nearly thirty-two million more children, parents and other individuals.
- Preserve the Children's Health Insurance Program with funding through fiscal year 2015 and provide an increased federal funding commitment to states through 2019.
- In 2010, ban pre-existing condition exclusions for children, and in 2014, prevent children and adults from losing access to health insurance if they become sick.
- Eliminate annual caps on health insurance coverage.
- In 2010, allow young adults to stay on their parents' health insurance until age 26. In 2014, the law will also require Medicaid coverage to be extended up to age 26 for foster children who have aged out of the foster care system.
- Beginning in 2010, require health plans in the private sector to provide coverage without cost-sharing for services such as *Bright Futures* services for infants, children and adolescents, immunizations, and additional preventive care and screenings for women.



Age-Appropriate Benefits

Prevention is the heart of pediatric medicine. The mission of pediatric care is to promote and monitor the physical, mental and behavioral health of children at every stage of development. Children and adolescents need to see their doctors for a set schedule of well-child visits, during which they receive crucial immunizations and are screened for a variety of conditions to ensure that their development is proceeding appropriately. Children's health is an investment in primary prevention, addressing the development of disease at its earliest and most preventable stages.

The American Academy of Pediatrics maintains that barriers to preventive care, such as deductibles and co-payments, should be removed. The Academy is pleased that the health reform law not only acknowledges that "standard benefits" included in many private and managed-care health insurance plans do not adequately address the specific health needs of the pediatric population, but also addresses the current limitations through the inclusion of provisions to ensure that children's unique health needs are met through comprehensive, age-appropriate benefits.

The Health Reform Law will:

- Require that public and private health insurance plans cover all *Bright Futures* services for children—the definitive standards for pediatric well-child and preventive care—as an immediate benefit with no cost-sharing. *Bright Futures* provides guidelines for all aspects of recommended well-child visits from birth through adolescence, including physical, developmental and mental health screenings as well as anticipatory guidance for parents and caregivers.
- Assure that all newly-established health insurance plans in the health insurance exchange provide comprehensive, essential benefits. All exchange plans will limit annual out-of-pocket expenses to \$5,000 per individual and \$10,000 per family. While private plans offered in the exchanges may vary the form of insurance by establishing different percentages of contribution by the plan versus individuals (also known as "actuarial value"), the essential benefits of every plan offered in the exchanges must meet a minimum standard. The minimum standard will provide children with many essential benefits including hospitalization; ambulatory patient services; emergency services; maternity and newborn care; mental health and substance use disorder services, including behavioral health treatment; prescription drugs; rehabilitative and habilitative services and devices; laboratory services; preventive and wellness services; chronic disease management; and pediatric services, including oral and vision care.
- Require Medicaid to cover tobacco cessation services for pregnant women.



Children and the Medical Home

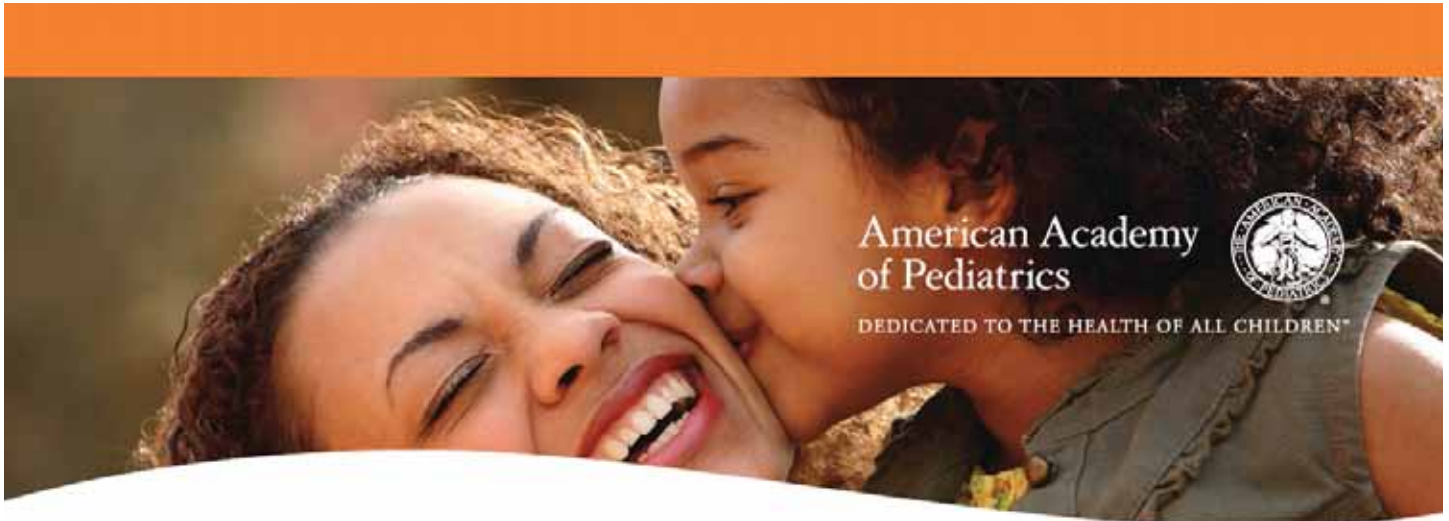
It is the position of the American Academy of Pediatrics that payers should be incentivized to adequately finance the medical home as the primary model of health care delivery for infants, children, adolescents and young adults. Payment and delivery systems should be reformed based on the principles of the patient-centered medical home agreed upon by physicians, family leaders, patient advocates and purchasers.

First pioneered by the Academy in the late 1960s, the medical home has become accepted by primary care medical associations, patient and family groups, and purchasers of health care as the standard for the delivery of primary health care services. A medical home is not a particular place, but an approach to providing primary care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate and culturally effective.

Through successful partnerships between families and providers, medical homes can provide the best care for children, appropriately utilizing limited resources and remaining responsive to health care costs. Major demonstration projects are under way in the public and private sectors. Many state Medicaid programs are also adopting incentive structures based on the patient-centered medical home model. The new health reform law will give states the opportunity to expand upon current medical home efforts. It is critical that states create medical home programs that meet the needs of children and pediatricians, including ensuring coverage of necessary services, better coordination between state programs and pediatric primary care providers, and payment for care coordination and other services provided in a medical home.

The Health Reform Law will:

- Create a Medicaid state option to provide medical assistance in a medical home (deemed “health home” in the law’s provision) to individuals with chronic conditions. An individual may select a provider, a team of health care professionals operating with such a provider, or a health team as their designated health home. The payment methodology for the program can be determined by states and may be tiered to reflect the severity or number of a patient’s chronic conditions and the specific capabilities of the provider. Payment models are not limited to per-member per-month. Those who may enroll include those eligible under the state plan or waiver with (1) at least two chronic conditions, (2) one chronic condition and a risk of developing a second, or (3) one serious and persistent mental health condition. Chronic conditions include, but are not limited to, a mental health condition, a substance use disorder, asthma, diabetes, heart disease and obesity.
- Provide grants to states or state-designated entities to establish community-based interdisciplinary, inter-professional health teams to support primary care practices and provide capitated payments to primary care providers. Health teams may include medical specialists, nurses, pharmacists, nutritionists, dieticians, social workers, behavioral and mental health providers (including substance use disorder prevention and treatment providers), doctors of chiropractic, licensed complementary and alternative medicine practitioners, and physicians’ assistants. These planning grants will be made available to states, but the total funding for the grants will not exceed \$25,000,000.



Access to Care Through Pediatric Payment Rates

It is the position of the American Academy of Pediatrics that health care providers must receive adequate payment if they are to provide comprehensive quality health services that meet the health needs of infants, children, adolescents and young adults. Ensuring health care access for children and adolescents in all communities to services provided by well-trained pediatricians, pediatric medical subspecialists, pediatric surgical specialists, and other child health professionals and specialist physicians requires a financial investment to improve Medicaid payment rates to at least equal those of Medicare.

The Health Reform Law will:

Improve Medicaid Payment:

The new law invests an unprecedented \$8.3 billion in federal funds to bring Medicaid payments to at least Medicare payment rates. This payment floor applies to some evaluation and management codes claimed by physicians with an internal medicine, family practice or pediatric primary designation. While the increase applies to codes recognized by Medicare starting in 2013 and running through 2014, states may begin increasing Medicaid payments before 2013 in order to avoid a steep rise and immediate fall in payment rates. The Academy will continue working with the Administration to improve and extend this investment.

Allow for Enforcement of Medicaid's Equal Access Clause:

Recent court decisions have ruled that Medicaid-eligible children do not have an enforceable right to receive standard health care services under state programs. Medicaid requires states to provide necessary health care services to each Medicaid-eligible child. The Medicaid law further requires states to provide sufficient Medicaid payments to health care providers to administer care and services to Medicaid beneficiaries that are at least equal to the services available to the state's privately insured population (commonly called the "equal access clause"). Despite these requirements, the Sixth and Tenth Circuits have held that Medicaid-eligible children do not have an enforceable right to receive these health care services and/or do not have a right to enforce the equal access provision. In light of these decisions, the Academy is pleased that the health reform law codifies Congressional intent defining Medicaid to include the provision of health care services, not just the financing of such services. This change should have a positive impact on the ability of Medicaid-eligible children to seek court enforcement ensuring access to needed health care.

What Does the Health Reform Law Mean for Pediatric Practices?

These two provisions within the health reform law—the first-ever financial investment to increase Medicaid payment rates and the clarification that the definition of Medicaid includes health care services—will significantly improve access to care and will enable pediatric providers, many of whom have been forced to cap or even cut their Medicaid caseload due to low payment rates, to continue to care for children enrolled in Medicaid and the Children's Health Insurance Program.

However, more work remains to be done to ensure that the health reform law provides access to all needed health services for children enrolled in public programs. For instance, the law's Medicaid payment increase only includes evaluation and management codes (recognized by Medicare) that are paid under the Medicare program, and excludes procedure codes. The inclusion of procedure codes is particularly important in providing access to pediatric subspecialists and pediatric surgical specialists, since these doctors often bill for services using procedure codes. As a result, the health reform law will not increase federal financial support for all codes used by subspecialists and surgical specialists. Excluded codes, such as well-child care codes, could limit access to the preventive services the law is trying to promote. The Academy will be advocating for Congress and the Administration to increase federal funding to states to cover payment for all needed services and to change the enforcement mechanism of the equal access clause to hold state governments accountable for ensuring that payment rates are adequate.



Support for Small Pediatric Practices

For the first time in modern history, fewer than half of U.S. small businesses provide health insurance to their employees. Most small businesses and physicians running pediatric practices would like to provide this benefit in order to attract and retain qualified employees, but they cannot afford the tremendous cost of health insurance coverage. The health reform law was designed to alleviate the burden on these employers and their employees, while at the same time modifying current laws to make existing health insurance coverage more effective, affordable and accessible.

The Health Reform Law will:

Help small businesses afford health insurance:

The law provides a sliding-scale tax credit (retroactive to January 1, 2010) to small businesses—including many pediatric practices—with fewer than 25 employees and with average annual wages of \$50,000 or less that purchase health insurance for employees. An estimated four million small businesses nationwide can qualify for the tax credit, which will provide a total \$40 billion in tax relief over the next 10 years. The full credit will be available to employers with 10 or fewer employees and average annual wages of \$25,000 or less. To be eligible for a tax credit, the employer must contribute at least 50 percent of the total premium cost. Thus, if a pediatric practice currently buys insurance for its employees, it may immediately qualify for a tax credit for up to 35 percent of the cost of that insurance.

Beginning in 2014, the law requires an employer with more than 50 full-time employees to offer insurance or pay a penalty. These larger employers that do not offer coverage and have at least one full-time employee receiving the premium assistance tax credit in the proposed health insurance exchanges will pay an assessment fee of \$2,000 per full-time employee, though the first 30 employees are not included as part of this calculation.

Also, once the health insurance exchanges are up and running beginning in 2014, eligible employers who purchase coverage through the exchange for their employees can receive a tax credit for two years of up to 50 percent of the employees' premium costs. As for employees within pediatric practices, tax credits will help make coverage affordable for many employees who choose to purchase private insurance through the health insurance exchanges. Employees who do not receive insurance through their employer and do so through the exchange will have access to sliding-scale tax credits to help them pay their premiums. Effective in 2014, for those with access to the exchange, sliding-scale tax credits will be provided to individuals as well as to families earning up to 400 percent of the federal poverty level (nearly \$90,000 for a family of four).



State Roles and Partnerships

Much of the implementation and enforcement of this groundbreaking transformation of the U.S. health care system will fall to states. As a result, states have a critical role to play in the ongoing health reform effort, by acting as system innovators and implementing newly enacted federal reforms. State chapters of the American Academy of Pediatrics are important partners in these innovation and implementation efforts, and their work will help ensure that the Academy's goals of appropriate access, benefits and coverage for children will become a reality as health reform provisions are implemented. The Academy is pleased that health reform strengthens and builds upon minimum standards set by the federal government by providing a structure for continued innovation and ongoing improvement of health insurance for children. This is particularly important as Medicaid, the Children's Health Insurance Program (CHIP) and the Maternal and Child Health Block Grant (Title V) are critical programs for children. The health reform law recognizes and strengthens state insurance plan requirements that protect children in the private health insurance market, and acknowledges the role states play in supplementing existing federal-state health care programs that impact children, including the financing of care provided to children through public health and human services programs.

At The State Level, the Health Reform Law will:

- Extend the federal funding of CHIP through fiscal year 2015.
- Maintain the CHIP program through 2019, and permit states to continue to expand coverage to children under the program.
- Increase federal funding provided in the Children's Health Insurance Program Reauthorization Act for Medicaid and CHIP enrollment and renewal activities by \$40 million (for a total \$140 million) through 2015.
- Beginning October 1, 2015, provide states with a 23 percentage point increase (up to a maximum of 100 percent) to their CHIP match rate.
- Require states to maintain the Medicaid and CHIP coverage and enrollment procedures they have now through maintenance of effort requirements.
- Establish state-based health insurance exchanges by 2014, from which individuals and small employers can buy insurance through private insurers or through multi-state health plans. Large employers will be allowed to participate beginning in 2017.
- Provide "no wrong door" procedures for states through a streamlined application process, so that the newly eligible will be screened and referred to the appropriate program (Medicaid, CHIP, or subsidized coverage under plans offered under state exchanges).
- Require the development of a Medicaid and CHIP enrollment website that is connected to the state-based exchange, and provide federal support to establish "navigators" (eligible entities include trade and professional organizations) to assist with public education and enrollment.
- Permit hospitals that participate in Medicaid to implement presumptive eligibility for all Medicaid populations.
- Use existing state level high-risk pools to provide insurance to vulnerable populations until provisions creating stronger consumer protections are implemented.
- Require the ongoing input of state legislators, governors, agency officials and other key state decision-makers as the regulatory framework for health reform takes shape.



Pediatric Workforce

An important component of the health reform debate was the challenge of ensuring an adequate supply of health professionals to care for newly-insured patients. The health reform law recognizes this need, and includes many important provisions to strengthen the pediatric workforce.

The Health Reform Law will:

- Create a loan repayment program for pediatric subspecialists, pediatric surgical specialists and providers of mental and behavioral health services for children and adolescents. The provision allocates a combined \$50 million per year for loan repayment to individuals who commit to pursuing full-time employment in pediatric medical subspecialties, pediatric surgical specialties, or child and adolescent mental and behavioral health care fields. Participants in this new program would be eligible for up to \$35,000 per year in loan repayment funds for three years if they meet to-be-determined requirements.
- Increase workforce supply and aid training of health professionals through scholarships and loans. The law supports primary care training and capacity-building and also provides state grants to providers in medically underserved areas. Provisions include training and recruiting providers to serve in rural areas, establishing a public health workforce loan repayment program, and providing medical residents with training in preventive medicine and public health.
- Amend the current law for federally supported student loan funding by easing criteria for schools and students to qualify for loans; lower interest rates; shorten payback periods; and ease the non-compliance provision.
- Establish a National Health Care Workforce Commission to make recommendations and disseminate information on workforce priorities, goals and policies, including education and training, workforce supply and demand, and retention practices.
- Reform the Graduate Medical Education (GME) program to increase the supply, education and training of doctors, nurses and other health care workers, especially in pediatric, geriatric and primary care fields. The health reform law increases the number of GME training positions by redistributing currently unused slots, with priorities given to primary care and general surgery and to states with the lowest resident physician-to-population ratios. It also increases flexibility in laws and regulations that govern GME funding to promote training in outpatient settings and ensure the availability of residency programs in rural and underserved areas.
- Establish Teaching Health Centers, which are community-based, ambulatory patient care centers. These include federally qualified health centers and other federally funded health centers that are eligible for Medicare payments for the expenses associated with operating primary care residency programs.
- Mandate the development of national and regional centers for health workforce analysis to collect and report data related to Title VII. The centers will collaborate with state and local agencies to collect labor and workforce statistical information and provide analysis and reports on Title VII programs to the National Health Care Workforce Commission.

Concurrent Session 3

Sunday, September 12, 1:30 pm - 3:00 pm

Preparation for Adult Participation: A Model for Services and Research

*Mark E. Swanson, MD, Division of Human
Development and Disability, Centers for Disease
Control and Prevention, Atlanta, GA*

Arlington/Berkeley/Clarendon



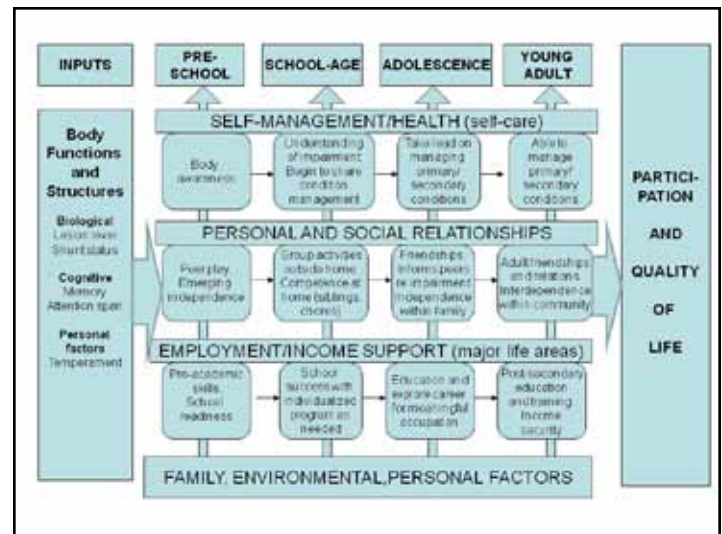
PREPARATION FOR ADULT PARTICIPATION: USING A LIFE COURSE MODEL AS A FRAMEWORK FOR SERVICES AND RESEARCH

Mark E. Swanson, MD, MPH
September 12, 2010
Centers for Disease Control and Prevention
National Center on Birth Defects and Developmental Disabilities

The findings and conclusions in this presentation have not been formally disseminated by the Centers for Disease Control and Prevention. They do not represent and should not be construed to represent any agency determination or policy.



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OUTLINE

- Adult outcomes
- Developmental model
- Impairment and development
- Use to families and professionals
- Public health roles



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ADULT OUTCOMES ASSUMPTIONS/VALUES

- Successful adult living follows effective preparation, demonstrated by making steady progress in life domains, starting in early childhood



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DEFINITIONS

- International Classification of Functioning, Disability and Health (ICF) – system for classifying impairments, activities and participation
- Impairment – compromised body structure or function



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DEFINITIONS

- Activity - execution of a task or action by an individual (often in a controlled situation, like home)
- Participation -involvement in a life situation (performing activities in the real world)
- Disability – activity limitation or participation restriction



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ADULT OUTCOMES FROM THE ICF

- International Classification of Functioning, Disability and Health (ICF) defines successful outcomes as participation in 8 domains
 1. Interpersonal interactions and relationships
 2. Major life areas
 3. Self-care (management)



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ICF CONCEPTS (not part of model)

4. Learning and applying knowledge
5. Communication
6. Domestic life
7. Community, social and civic life
8. General tasks and demands



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INTERPERSONAL INTERACTIONS AND RELATIONSHIPS

- **Informal social relationships** casual relationships with people living in the same community or with co-workers, students, or people with similar backgrounds or professions.
- **Formal relationships** Creating and maintaining relationships in formal settings, such as with employers, professionals or service providers.
- **Intimate relationships** Creating and maintaining close or romantic relationships between individuals



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MAJOR LIFE AREAS

- Education
- Work
- Economic life



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SELF-CARE (MANAGEMENT)

- **Looking after one's health:** Ensuring physical and mental well-being, by maintaining a balanced diet and an appropriate level of physical activity, avoiding harms to health and regular health visits (scheduling, talking to MD)
- **Specific topics for spina bifida could include:**
 - Self-catheterization
 - Checking for pressure sores



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OUTLINE

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DEVELOPMENTAL MODEL

- While ICF defines domains and outcomes, a developmental approach is needed to map trajectory to the outcome of successful participation. Full participation doesn't develop magically or in a vacuum. It results from interaction between impairment, personal factors and environment over time



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DEVELOPMENTAL MODEL

- Current clinical approaches to developmental progress often focus on activities (e.g., performance on most standardized tests)
- Focus should shift to participation (how one fares in the real world)



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DEVELOPMENTAL MODEL

- Compare **screening** and **assessment** tools, with **adaptive behavior** measures, including:
 - Interpersonal Relationships
 - Play and Leisure Time
 - Coping
 - Self-Help



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IMPAIRMENT AND DEVELOPMENT

ASSUMPTIONS/VALUES

- Children with impairments and families have same aspirations (ICF domains) for successful adult living as typical children
- Having an impairment is not the same as being unhealthy or having a disability
- Impairments, interventions (treatment) and environmental response can adversely affect development in children



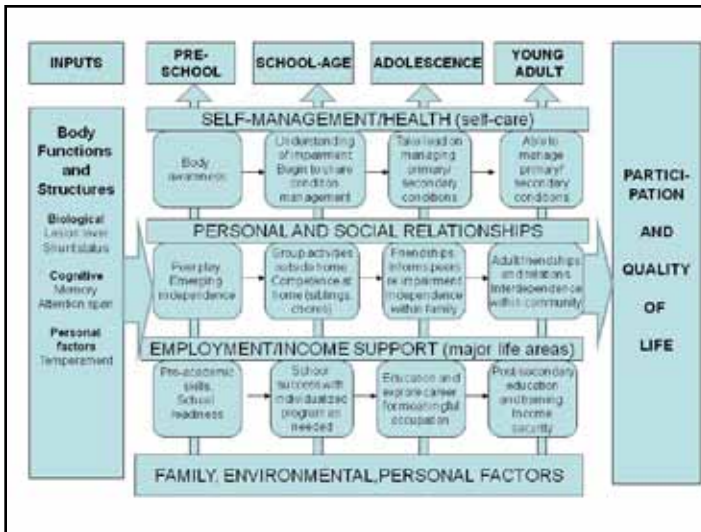
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IMPAIRMENT AND DEVELOPMENT

- Impairments are underlying conditions that are inputs into the Life Course Model. Impairment need not equate to disability. Impairments become disabilities when the interaction between impairments and environmental factors result in limits of participation. Personal factors also influence how an impairment may lead to limited participation.



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IMPAIRMENT AND DEVELOPMENT

- Natural history of many impairments is variable or unclear because:
 - only recently have children lived well into adulthood
 - physical health and functional outcomes have not been documented
 - Impairments may progress or stabilize, depending on the underlying condition



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IMPAIRMENT AND DEVELOPMENT

- Impairments and environmental response threaten the trajectory to full participation.

EXAMPLES

- Difficulty with information processing leading to school underachievement
- Incontinence restricting social relationships



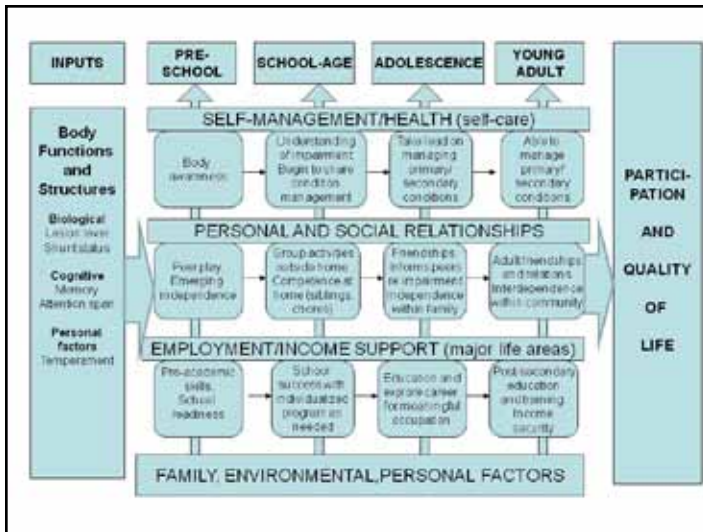
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OUTLINE

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USE TO FAMILIES AND PROFESSIONALS

- Tracks development in key domains across life course
- Focus is on positive outcomes rather than deficits



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USE TO FAMILIES AND PROFESSIONALS

- Prompt families to promote normalization
- Prompt professionals to track important variables in domains sometimes overlooked in clinical practice



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USE TO FAMILIES AND PROFESSIONALS

- Model has been fully articulated for spina bifida and will be launched as an interactive website in October
- Initial response from families and professionals has been encouraging



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Employment and Income Support

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TOPICS
Employment and Income Support
Personal and Social Relationships
Health and Self-Management

AGE
Pre-School
School-Age
Adolescent
Young Adult

Now that you have selected "Topic", let's narrow it down a bit.
Please select from the topic areas below. Once you select a topic, you will need to indicate which developmental age you would like to start with.

☐ Employment and Income Support
☐ Pre-School ☐ School-Age ☐ Adolescent ☐ Young Adult

☐ Health and Self-Management
☐ Personal and Social Relationships

CONTINUE

Best Success Stories
"Growing up with Down syndrome brought many challenges for me, but I have never considered it as a disability. I have always been proud of my child's achievements and as a parent of a child with a disability, I have been..."
Learn more about this story or share it.

Have a great story?
Learn about what it's like to be a parent of a child with a disability and how to help them reach their potential.

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We're almost there. Now we just need a little more information.
Please review each question below and select yes or no indicating that it does or does not apply.

Does your child engage in pretend play with objects that are not specifically representative of their use in the play activity? (For example, a cardboard box could represent a house or a toy car could be a character from a movie.) ☐ Yes ☐ No

Does your child organize toys or assign roles to others while playing? (For example, "you are the best guy") ☐ Yes ☐ No

Does your child act out sequences with figures or dolls? (For example, placing the figure in the house or being the car. Play is sequenced to show a pattern from a beginning to an end which tells a story.) ☐ Yes ☐ No

Does your child create imaginary characters? ☐ Yes ☐ No

Is your child able to perform tasks which require transfer to use both hands at the same time such as simple puzzles? ☐ Yes ☐ No

CONTINUE

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Your responses indicate that your child is on track in the following aspect(s) of development:

- Early Object Use [Learn More](#)
- Problem Solving Skills [Learn More](#)
- Symbolic Play [Learn More](#)

Your responses however indicate that your child may need more intervention in the following area(s):

- Visual/Cognitive Development [Learn More](#)

For more information on interventions or resources related to these areas, just click on the area above. Do you have a success story about your experience with one of these and want to share it with other parents or clinicians? [Click here](#)

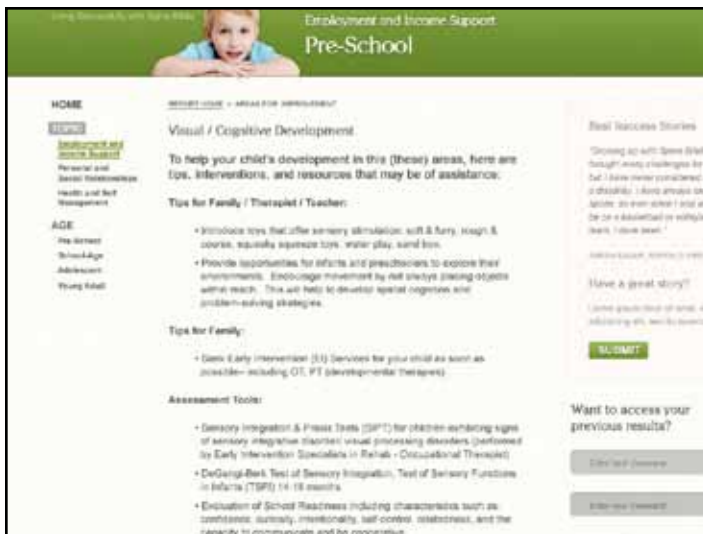
SAVE & CONTINUE **SAVE & EXIT** **PRINT**

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PUBLIC HEALTH ROLES

- Early identification of impairments
- Document the natural history
- Develop metrics for important variables (outcomes, mediators/moderators)
- Aggregate and analyze data from different conditions and sources
- Emphasize self-management of impairment as strategy for prevention of complications/secondary conditions



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EARLY IDENTIFICATION

- Earlier ID allows for intervention services to start earlier, which should improve outcomes

EXAMPLES

- Hearing loss
- Intellectual/global delay
- Motor delay



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EARLY IDENTIFICATION

- Two approaches
 - Screen entire population and have adequate follow-up to confirm impairment and look for underlying cause
 - Monitor clinically and quickly evaluate likely group for impairment, including underlying causes



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DOCUMENT THE NATURAL HISTORY

- What is happening to children at different stages of life course? Currently longitudinal data are lacking on how children with impairments make their way to adulthood
- Measurable variables in the various domains need to be defined and tracked over the life course



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DOCUMENT THE NATURAL HISTORY

- Look at critical time points when key outcome variables change (e.g., obesity following use of wheelchair)



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DEVELOP METRICS FOR IMPORTANT VARIABLES

- Variables include:
 - Proximal outcomes (at different life stages)
 - Mediators/moderators (environmental variables, such as family, community, school experience)



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DEVELOP METRICS FOR IMPORTANT VARIABLES

- Current health records tend to report traditional quantitative data (lab results, x-rays) pretty well but do not collect variables about participation, partly because there are no standard measures
Sometimes what counts most can't be counted - Einstein
- Personal health records are potential source for participation variables



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AGGREGATE AND ANALYZE INFORMATION

- Combine observations of experiences across related conditions by focusing on common affected body structures and functions
- Examples
- Mobility, continence, obesity for DMD, spina bifida and spinal cord injury
 - Sensory issues, decision-making, friendships in Fragile X and other cognitive impairments



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AGGREGATE AND ANALYZE INFORMATION

- Information from different data sources can be combined:
 - National surveys
 - Administrative data sets
 - Clinical registries
 - Web-based, condition-specific surveys



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AGGREGATE AND ANALYZE INFORMATION

- Use a variety of research techniques to test hypotheses or generate testable hypotheses that will establish interventions
- Required data collection can guide clinical practice
- Use of successful interventions can standardize clinical practice



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SELF-MANAGEMENT

- Lack of knowledgeable adult medical providers and lack of longitudinal data about natural history place more responsibility on individual and family for self-management of impairment.



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SELF-MANAGEMENT

- One goal is to prevent secondary conditions and complications related to the impairment
- Another is for person to be able to manage his/own care in adulthood
- Self-management needs to start early with child taking increasing responsibility for elements of care over time



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SELF-MANAGEMENT

EXAMPLES

- learning about impairment
- managing medications
- communicating with peers and health professionals about condition



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CHALLENGES

- Changing clinical practice
- Valid, reliable measures of outcomes
- Evidence-based interventions that affect outcomes



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WHAT NEXT?

QUESTIONS

COMMENTS



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CDC's
National Center on
Birth Defects and
Developmental Disabilities



*Promoting the health of babies, children, and adults,
and enhancing the potential for full, productive living.*



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Concurrent Session 4

Sunday, September 12, 3:15 pm - 4:45 pm

Advocating for Children's Developmental and Behavioral Health: Models from the Field

Jean C. Smith, MD, Developmental and Behavioral Pediatrics, Wake County Human Services, Raleigh, NC, Adiaha A. Franklin, MD, Meyer Center for Developmental Pediatrics, Texas Children's Hospital/ Baylor College of Medicine, Houston, TX, Marilyn Augustyn, MD, Division of Developmental-Behavioral Pediatrics, Boston Medical Center/ Boston Univ School of Medicine, Boston, MA, Melissa Johnson, PhD, Pediatrics/Neonatology, WakeMed Health and Hospitals, Raleigh, NC

Imperial Ballroom

Advocating for Children with Special Needs: A Medical-Legal Partnership

Pamela Tames JD
Marilyn Augustyn MD



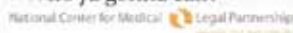
September 2010

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Miguel's story

- Miguel is a wonderful 4 9/12 boy w/ Autistic Disorder.
- Dx'd in our DBP program at 2 6/12, and referred to EI and enhanced services thru a local agency.
- He received 12 hrs of services per week (incl 11 ABA hrs) until his 3rd birthday on 6/25 - school was out of session.
- That summer, he did not get any school-based services.
- On 9/11, he started in an appropriate autism-specific classroom, but was not given any ABA services.
- Parents asked us for help with his repetitive behaviors, which included head banging and jabbing.
- We sent school a copy of our report describing Miguel's need for ABA, but 4 months later nothing.

Who ya gonna call?



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Miguel's story - Part II

- In January, parents report repetitive behaviors have increased, yet he still has not gotten ABA evaluation.
- We called school and spoke with ETF, who assured us it would be done.
- In April, parents report evaluation has not been done.
- Parents re-request evaluation. They are told evaluation will not be done until September.
- At this point, we contacted Medical-Legal Partnership | Boston for help.



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What is MLP?

MLP is a healthcare and legal services delivery model that aims to improve the health and well-being of vulnerable individuals and families by integrating legal assistance into the medical setting.

MLPs seek to:

- address negative impact of social determinants on health and
 - eliminate barriers to healthcare
- to help people meet their basic needs and stay healthy.



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Breaking the Cycle of Vulnerability



Adverse social conditions make people vulnerable to poor health, and poor health makes people vulnerable to adverse social conditions.

MLP helps patients escape this "cycle of vulnerability" by bringing legal and healthcare providers together.

National Center for Medical Legal Partnership
www.ncmlp.org

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What can you expect from MLP?

- Triage
 - Describe question or problem, brief history and circumstances
 - Determine whether advice can be conveyed through clinician or family needs direct legal assistance
 - Discuss time sensitivity
- Intake
 - Gather info, records and consent from patient-family
- Advocacy
 - Consult with referral source and other relevant clinicians
 - Seek info and records from school
 - Thru calls, letters and / or meetings persuade school to provide appropriate services
 - If necessary, appeal decision by requesting administrative hearing

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Did MLP | Boston help Miguel?

- In April, DBP contacted MLP. Clinician had done all she could. Advice would not secure ABA evaluation. Family needed direct help from MLP.
- MLP conducted intake / met with parent in early May.
- MLP called and wrote letter to ETF and her supervisor, citing violation of law entitling student to timely evaluation.
- ABA evaluation conducted in mid-June.

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Lessons learned

- DBP clinicians are knowledgeable and experienced at navigating the schools
- Clinician advocacy often helps patients and their families get what they need from schools
- Sometimes, clinician faces challenges and consults with MLP for help
- In many cases, clinician uses MLP advice to help patient-family
- In other cases, where clinician encounters intractable barriers, MLP works directly with patient-family

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History of MLP

- Founded in 1993 at Boston Medical Center by Dr. Barry Zuckerman
- Based on the idea that medicine alone cannot help patients get and stay healthy (e.g. a child with asthma will never get healthy if she keeps going home to mold-infested housing)
- Lawyers can help clinicians and patients navigate the complex legal systems that hold solutions to many social determinants of health (e.g. a lawyer can help improve housing conditions for family)

Why legal advocacy in the clinical setting?

- Pediatricians and other health care providers are trusted, credible resources for families
- Screening for legal issues in the clinical setting facilitates detecting legal problems before they reach a crisis

Partnership is Key

An MLP is comprised of at least one legal partner institution and one healthcare partner institution.

Legal Partners	Healthcare Partners
• Legal aid offices • Law schools • Private attorneys • Law firms • State bar associations	• Hospitals • Community health centers • Medical schools • State health departments • Healthcare associations and societies

Core Functions of an MLP

MLPs are marked by a commitment to three core functions:



Further Reading

- [Medical-Legal Partnerships: Transforming Healthcare. The Lancet. November 2008](#)
- [Why Pediatricians Need Lawyers to Keep Children Healthy. Pediatrics. 2004](#)
- [Medical-Legal Partnerships: Addressing the Needs of Health Center Patients. Geiger/Gibson RCHN Community Health Foundation Research Collaborative. May 2010.](#)

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ADVOCATING FOR HEALTHY FAMILIES

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The Wake County Young Child Mental Health Collaborative

Melissa Johnson, Ph.D.
SDBP September 2010

The challenge...

- Wake County, NC contains the state capital, major universities, 4 general hospitals, but 10 years ago, VERY limited mental health services for children under 6
- Existing services were disjointed; state MH systems explicitly started at age 3; only developmental services for children under 3. Most providers started services at ages 5 or 6.

The strategy...

- Core group of interested professionals started meeting informally
- Developed an action plan involving networking, educational efforts, grant-writing
- Obtained SMALL grant in 2001 to hire a part-time facilitator/organizer, located non-profit to receive funding and help coordinate
- Disciplines: pediatrics, child psychiatry, child psychology, social work, nursing, special education, child care consultant, training specialist, others

- Systems represented: hospitals, mental health non-profits, integrated preschools, 0-5 parent education program, public mental health, child protection, private practice.
- Membership flexible, evolved over time. Now includes child abuse prevention agency, university professor, domestic violence agency, Telehealth project

Some achievements...

- Extensive, coordinated series of trainings including local and national speakers (included Charles Zeanah, Mary Dozier) that eventually included formal mentoring project for professionals wishing to add 0-5 skills. Greatly expanded capacity in community
- Early Childhood Developmental Program: Ensuring Social/Emotional and Behavioral Health based in pediatric offices
- Children's Health and Development Project (children in foster care, CPS treatment)

- Child Development Community Policing Program
- Teen Parent Connection
- Current grant submissions: Project CATCH for children in homeless shelters; Early Head Start
- Over \$1.4 million in resources brought to county for 0-5 mental health from a variety of sources over 10 years, with investment of less than \$20,000/yr for coordinator, countless volunteer hours (with great benefit to participants in terms of networking, new resources to access)

Now that we have acted locally, we are thinking globally...

- Communication expands with surrounding counties, who also have great needs
- Connections made with other regions making similar efforts
- It becomes apparent that similar issues face entire state, typically with even fewer resources, AND NC's mental health system is in flux/under stress
- What to do?

Thinking through strategies

- Challenges include LACK OF DATA
- No one agency has a handle on the resources and needs
- We meet with several legislators. They are sympathetic but ask "what do you want from us?" Due to lack of information, difficult to advocate for specific change
- How to gain this information and be able to advocate more effectively?

Idea of an IOM study develops

- NC has an Institute of Medicine, provides state-supported formal studies of statewide health-related issues leading to recommendations (i.e. child abuse, drug treatment, etc.)
- We decide to request an IOM study on Young Child Mental Health issues
- Request and obtain a time to address the Legislative Oversight Committee on Mental Health
- NOW WHAT?

Collaborative comes together

- Committee develops a presentation with input from all players involved, obtains buy-in from agencies affected
- We make our presentation; one member presents, collaborative members present to help field questions from legislators, who are very interested- vary in knowledge base, but very supportive
- Funds for study are recommended and have been allocated; study is pending for next 1-2 years
- Our presentation...

Who are we and why are we here?

Volunteer group of interdisciplinary professionals from Wake and Mecklenburg counties concerned about mental health issues of children from birth to five throughout our state

Our goals for this meeting

- Demonstrate the need for strengthening mental health services for children birth to 5
- Request an Institute of Medicine study to determine statewide needs and suggest effective strategies
- Suggest expanding the capacity of existing services to include professionals skilled in addressing mental health issues in infants, toddlers, preschoolers and their families

What is young child mental health?

Positive social-emotional development

Developing the ability to:

- Form secure relationships
- Handle emotions
- Manage one's own behavior
- Feel safe, secure, and loved
- Explore and learn

Why is this need so urgent?

- Now is the perfect time to include birth-5 issues while the mental health system is being re-examined and improved.
- Healthy social/emotional development in young children builds the foundation for a well-functioning, economically vibrant community
- Effective support of birth-5 mental health will reduce future costs to the mental health, substance abuse, education, foster care, and juvenile justice systems, and create healthier, happier, and smarter citizens.

- Up to 20% of teens and adults have mental health problems
- In the first five years, we can OFTEN identify the children likely to have problems later AND intervene effectively
- The earlier the intervention, the more cost-effective; the costs of remediation increase with age



- Cognitive development is dependent on positive social-emotional development
- Mental health support from birth-5 can actually enhance the development of the growing brain
- Conversely, "toxic" environments without such support can damage developing brain structure and function



What children are we talking about? A few examples...

- Toddlers moved from foster home to foster home due to uncontrollable tantrums
- Preschoolers expelled from multiple day care centers, causing parents to lose jobs
- Children arriving at kindergarten unable to get along with other children despite normal intelligence
- Child witnesses or victims of violence
- Babies whose growth is stunted due to lack of nurturing care.



A few numbers...

- NC is 5th highest in pre-K expulsions among the 40 states with data; rate is 1 in 77 pre-K children expelled!
 - (Gilliam et al., 2005)
- Between 9.5 and 14.2 % of children 0-5 have social-emotional problems
 - (NCCP, 2009)
- Behavior problems in preschoolers: 10-20% at home or day care; for children in poverty, 20-50%
 - (Williford & Shelton, 2008)
- FPG study: screening resulted in 18.8% of pre-K children being referred for MH services
 - (Barbarin, 2007)



What do services entail?

- Helping families function more effectively
- Helping parents understand and support their child's emotional needs by enhancing their interactions with their child.
Intervening in child care settings AND the home to help children in distress
- Helping children develop competence in social and emotional tasks such as forming relationships, developing self-control, tolerating frustration, sharing, communicating needs appropriately

Isn't NC addressing this already? YES AND NO

Agency	Mission	Mental Health Services for 0-5
Smart Start	High quality comprehensive system of care and education for every child	Local Smart Start partnerships provide family support and health-related programs.
Child Development Services Agency (CDSA)	Helping children with development delay	Many infants and toddlers with mental health issues do not meet CDSA eligibility requirements; CDSA lacks access to full array of mental health services
Preschool Services	Meeting educational needs to prepare for school success	Not the focus; intensive family work not possible

Agency	Mission	Mental Health Services for 0-5
Child Protective Services	Keeping children safe	Mental health issues in 0-5 are part of a complex balance of family problems, domestic violence, employment, housing, substance abuse...
Health Care System	Mental, as well as physical, health of 0-5 often evaluated here first	Very limited access to mental health resources
Mental Health System	Currently designed for older children and for severe, persistent mental illness in children and adults	Limited family-based interventions available or funded. Limited access to research on effective methods. Few clinicians trained in the unique skills and strategies that work for 0-5 age group.

How can we move forward?

- Integrate, collaborate, and support the resources of each system to address the mental health needs of children from birth to five
- Obtain more information for our entire state, not only Wake and Mecklenburg.

An Institute of Medicine study could...

- Examine the needs, gaps, strengths and resources of service systems throughout the state as they affect 0-5 mental health
- Evaluate recent treatment research for its potential to work with our children
- Recommend ways to move forward, using our limited resources to best effect
- Spearhead policy shifts that will make a difference across North Carolina

Incorporating Birth to Five into current system

- If we consider the unique needs of this group in all our current efforts, we will be most effective in serving North Carolinians throughout life.

Lessons from this effort- what worked?

- Grass roots group, all committed to goal
- Low cost, high impact strategy
- Analysis of what we DIDN'T know as well as what we did know
- Interdisciplinary collaboration, welcoming all parties to table
- Cultivating relationships by meeting with legislators ahead of time and learning about their questions/concerns

Lessons from this effort- what worked?

- Meeting with IOM to fully understand their resources
- Developing presentation that educated legislators briefly and specifically; anticipated questions like “don’t we do that already?”
- Drew on resources in the community, in the literature
- Presented as a team and used skills and knowledge of collaborative re: content, adult learning, governmental processes
- Letting passion show

Healthy Development: A Summit on Young Children’s Mental Health

Jean C. Smith, MD
SDBP September 2010

Healthy Development: A Summit on Young Children's Mental Health

Held in partnership with communication scientists, collaborating across disciplines and leveraging impact to promote children's mental health.

*Denver, Colorado
April 2009*

What was the Summit?

- Sponsored by the Society for Research in Child Development with a planning committee
- Funding and representation from many organizations including the SDBP
- Specific purpose to advocate for a scientifically-based mental health policy for children

Goal of Summit:

Enhance the public's comprehension of child development and mental health by focusing on 2 main questions:

1. What does the science say about young children's mental health? What promotes it and what derails it?
2. What of this science constitutes useful information for communication science to improve public understanding?

Summit workgroups

- The importance of mental health for normal child development
- Everyday challenges for parents and child mental health
- Prevention opportunities in child mental health
- Effective treatments for childhood mental health problems

Charged with identifying empirically supported findings and the most useful ideas for improving public understanding.

Communication Science

- Research into how the American public understands various issues – particularly children's issues
- Informs how the public discourse on issues can be framed to advance policy outcomes
- The FrameWorks Institute has been working over the past several years with various groups on children's issues.

www.frameworksinstitute.org

Communication questions issues advocates ask

1. How do we get people to think about our issues?
2. How do we get them to think about our issues in such a way that they want to solve them through public policies, not only individual actions?
3. How do we get them to think about issues in such a way that they want to solve them through our public policies?

What communication research suggests

- People use mental shortcuts to make sense of the world.
- Incoming information provides cues about where to "file" it mentally.
- People get most information about public affairs from the news media which, over time, creates a framework of expectation, or dominant frame.
- Over time, we develop habits of thought and expectation and configure incoming information to conform to this frame.

What Is a Frame?

"Frames are organizing principles that are socially shared and persistent over time, that work symbolically to meaningfully structure the social world."

Stephen D. Reese, *Framing Public Life*, 2001

Briefing on the Report Healthy Development: A Summit on Young Children's Mental Health

May 3rd, 2010
Senate Office Building
Washington, DC

Briefing presentation

- Young Children's Mental Health: What does the context look like today?
- Why focus on young children's mental health and why now?
- What the public needs to know.
- Policy implications from the Summit on young children's mental health.

Conclusion

Public policies *informed by science* can ensure:

- The promotion of children's mental health and healthy development across settings,
- The prevention of mental health problems with promising interventions, and
- Widespread access to effective treatment of mental health problems

Advancing young children's mental health is an investment in the society's future health and prosperity.

Further reading and resources

- www.sccd.org

Click on "Policy and Communications" for
May 3, 2010

[Briefing on the Report:
Healthy Development: A Summit on Young Children's
Mental Health](#)

Complete Summit Report as well as all the Power Point presentations given at the May 3rd Briefing

- www.frameworksinstitute.org

The Frameworks Institute web site

Advocating for Children's Developmental and Behavioral Health: Models from the Field

REFERENCES: READILY AVAILABLE RESOURCES ON EARLY CHILDHOOD MENTAL HEALTH USEFUL IN ADVOCACY WORK

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Gilliam, W.S. (2005). Prekindergartners left behind: Expulsion rates in state prekindergarten systems. New Haven, CT: Yale University Child Study Center. Online: http://ziglercenter.yale.edu/resources/docs/National%20Prek%20Study_expulsion%20brief.pdf

Williford, A.P. & Shelton, T. L. (2008). Using mental health consultation to decrease disruptive behaviors in preschoolers: adapting an empirically-supported intervention. *The Journal of Child Psychology and Psychiatry*, 49:2, 191-200.

<http://gucchd.georgetown.edu/78358.html> What Works? A Study of Effective Childhood Mental Health Consultation Programs

www.developingchild.net Center on the Developing Child, Harvard University

http://www.nccp.org/publications/pub_882.html Social-emotional Development in Early Childhood: What Every Policymaker Should Know

www.zerotothree.org Website for Zero to Three National Center for Infants, Toddlers and Families; click on Public Policy link

www.challengingbehavior.org Technical Assistance Center on Social Emotional Intervention for Young Children

<http://www.youtube.com/watch?v=tLiP4b-TPCA>
"The Science of Early Child Development"

<http://www.youtube.com/watch?v=GbSp88PBe9E>
"Change the First 5 Years and You Change Everything"

The Wake County Young Child Mental Health Collaborative,
Sarah Sabornie, Coordinator, ssabornie@gmail.com

ZFive Infant Mental Health Working Group of Mecklenburg County
Libby Cable, Coordinator, lcable@tlwf.org

Concurrent Session 5

Sunday, September 12, 3:15 pm - 4:45 pm

And Down Came the Cradle, Baby and All: Identifying Psychological Trauma in Early Childhood

*L. Kari Hironaka, MD, Betsy McAlister Groves, MSW,
Pediatrics, Boston Medical Center, Boston, MA*

Arlington/Berkeley/Clarendon

And Down Came the Cradle, Baby and All: Identifying Psychological Trauma in Early Childhood

Betsy McAlister Groves, LICSW; Boston Medical Center
L. Kari Hironaka, MD MPH; Boston Medical Center

SDBP Annual Meeting - September 12, 2010

Teaching Points

1. Young children are highly aware of their environments and can be affected by stressful and traumatic events
2. A parent's response to traumatic stress is a strong predictor of the child's response
3. Early identification of child traumatic stress is a powerful form of intervention
4. Pediatric practitioners have a choice of interventions if a young child has been exposed to a traumatic stressor, ranging from in-office support and guidance to making a referral for mental health services.

Epidemiology of Trauma

- Young children are exposed to traumatic stressors at rates similar to those of older children.
- In one study of children aged 2–5, more than half (52.5%) had experienced a severe stressor in their lifetime (Egger & Angold, 2004)
- In a population of children age 2-18 referred for trauma-focused mental health services (n=1700), the average # of traumas was 3, and the average onset of first trauma was age 5.

(Blaustein, Harrison, Van der Kolk, 2003)

Traumatic Experiences in Early Childhood

- Physical or sexual abuse
- Exposure to violence in the home
- Loss or injury of loved one
- Accidents/dog bites
- Painful medical procedures
- Exposure to war/war-related atrocities

Early Childhood Trauma



- Young children have the highest rate of abuse and neglect and are the most likely group to die because of their injuries (US DHHS, 2008)
- Children under the age of five are hospitalized or die from drowning, burns, falls, choking, and poisoning more frequently than children in any other age group. (Grossman, 2000)
- The majority of children who are exposed to domestic violence are under the age of eight (Fantuzzo et. al. 1999; Atkins, & Marcus, 1997)

Trauma Affects Brain Development



- Early exposure to life stress associated with persistent changes in stress response systems, in particular, atypical patterns of cortisol production (Nemeroff, 2004; Dozier, 2006; Hart, Gunnar & Cicchetti, 1995)
- Traumatic experiences change the architecture of the brain (Shonkoff, 2005; Teicher, 2000; Perry, 1997)

PTSD in Very Young Children



- Presence of traumatic stress symptoms in very young children well documented (Scheeringa, 1995; 2001)
- Traumatic Stress Disorder – DC:0-3: Zero to Three, 1994
- Pre-school Post Traumatic Stress Disorder – Proposed diagnosis for the DSM V
- Trauma symptoms that are unique to early childhood: New aggression, separation anxiety, or fears and loss of previously acquired developmental skills

DC:0-3R Posttraumatic Stress Disorder



1. Exposure to traumatic event and symptoms lasting over one month
2. "Re-experiencing" symptoms (one)
 - a. Posttraumatic play
 - b. Recurrent recollections of the traumatic event
 - c. Repeated nightmares
 - d. Physiological distress at exposure to trauma reminders
 - e. Recurrent episodes of flashbacks or dissociation
3. Numbing of responsiveness/ interference with developmental momentum (one)
 - a. Increased social withdrawal
 - b. Restricted range of affect
 - c. Markedly diminished interest in significant activities
 - d. Efforts to avoid activities, places, or people that arouse recollection of the trauma

And Down Came the Cradle, Baby and All: Identifying Psychological Trauma in Early Childhood

DC:0-3R Posttraumatic Stress Disorder

4. Symptoms of Increased arousal (two)

- a. Difficulty falling asleep or repeated night waking
- b. Difficulty concentrating
- c. Hypervigilance
- d. Exaggerated startle response
- e. Increased irritability, anger, tantrums

Associated features may include developmental regression, aggression, new fears, etc.

Effects of Early Traumatic Exposure: Physical Health and Development

- **Adverse Childhood Experiences – ACE Study**
- Trauma exposure / trauma symptoms associated with a higher number of common health problems

Adverse Childhood Experiences-- ACE Study

Felitti, Anda, et al. (1998)



Behavioral Manifestations of Early Trauma

- Increased aggression
- Sleep difficulties
- Somatic symptoms
- Increased anxiety
- Increased distractibility and activity level
- Increased withdrawal/apathy
- Developmental regression
- Repetitive talk or play about the event
- Intrusive thoughts, memories, worries

Pediatric Management of Early Childhood Traumatic Stress



- Inquire about stressors in the child's life.
 - *Has something scary or upsetting happened to your child recently?*
 - *Have there been changes in your child's life?*
- Key questions:
 - *What do you notice about changes in your child's behavior?*
 - *When did this start?*
 - *What was happening at the time?*
- Provide developmental guidance about trauma response
- Provide education/guidance about behavior management, routines and daily living activities to promote recovery and sense of safety
- Refer for mental health intervention, if needed
- Provide close follow-up and ongoing monitoring

Case Study: Alyssa



- 4 year-old girl; single parent family
- Alyssa's school is concerned about her behavior
- Dr. Betances knows the family
- This is a "problem visit"

Dr. Betances' Intervention



- Building rapport
 - Mom: *"The school made me come in."*
 - Listening to the story
 - Dr. Betances: *"I had no idea."*
- Identifying the stressor
 - *"When was the last time the school had any discussion with you about Alyssa?"*
 - *"Have you noticed anything different at home?"*

DILEMMA



Should the child be in the room ... or not?

Dr. Betances' Intervention

- Developmental guidance
 - Exploring the meaning of Alyssa's behavior
 - Talking about how a 4-year-old copes with the sudden loss of a caregiver
 - "You might be able to explain to her—even just a little bit at a time..."
- Parental support
 - "Are you seeking support for yourself?"

The parent's response is closely linked to the child's response

- "We actually have two patients in the room."
- "Sometimes the parent is going to be the harder sell."

Alyssa—Follow-up Plan

- Return in 6 weeks
- Encourages mom to talk with Alyssa's teacher
- Wrote a note to the school

Pediatric Management of Early Childhood Traumatic Stress

- Inquire about stressors in the child's life.
- Key questions:
 - What do you notice about changes in your child's behavior?
 - When did this start?
 - What was happening at the time?
- Provide developmental guidance about trauma response
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Screening for Trauma Exposure in Pediatric Settings



"Since the last time I saw your child, has anything really scary or upsetting happened to your child or anyone in your family?"

Cohen, Kelleher, & Mannarino (2008)

Pediatric Emotional Distress Screening (PEDS)



- For evaluating children age 2-10 who have been exposed to a traumatic event within the past year
- 21 items, rated by parent
- Items rated 1-4: "almost never" to "very often"
- Higher score = greater distress

Saylor CF, Swenson CC (1999)

Screening Tool for Early Predictors of PTSD (STEPP)



- Brief, stand-alone screening tool consisting of 12 questions, developed for use during acute trauma care to assist in identifying at risk children and parents
- Developed for use in Emergency Department; could be used in other settings.

Winston, Kassam-Adams, Garcia-Espana, et. al (2003)

UCLA PTSD Reaction Index Parent Screening Version



- Brief screen for PTSD symptoms
- Children aged 0-8 who have been exposed to a potentially traumatic event
- Six items, rated by parent

Pynoos, Rodriguez, Steinberg, Stuber, & Fredericks, (1999).

When to refer a child for mental health services...



- When the symptoms persist for more than one month
- When the parents are unable to be supportive or attuned to the needs of the child
- When the parent is highly distressed and symptomatic
- When the trauma involves the sudden or violent loss of a caregiver or family member

Alyssa's Mom: "What can you do for a four-year-old"?



Treatment for Traumatic Stress Response in Young Children:

- Child-Parent Psychotherapy (CPP) (Lieberman and Van Horn, 2005)
- Preschool PTSD Treatment (Scheeringa, Cohen and Amaya-Jackson, 2002)
- Parent Child Interactional Therapy (PCIT)

Goals of the Treatment



- Enable parent to understand the child's response and to respond appropriately
- Manage behavioral symptoms
- Provide child the opportunity to share his/her perspective about what happened: fears, attributions, cognitive distortions.

In Summary...



WHY?

- Children are highly aware
- Parent response is a strong predictor
- Early identification is a powerful intervention
- Practitioners have a choice of interventions

HOW?

- Build rapport
- Be open to the possibility of trauma
- Ask basic/easy questions
- Identify the stressor
- Plan a course of action

Remember:



If you don't ask, they won't tell.

Acknowledgements



- National Child Traumatic Stress Network: Special Projects Grant
- Harris Foundation
- Our colleagues at Boston Medical Center:
 - Michelle Acker
 - Marilyn Augustyn
 - Jose Alberto Betances
 - Vincent Licenziano
 - Bob Sege
 - Barry Zuckerman

Resources



- National Traumatic Stress Network: NCTSN.org
- National Council on the Developing Child: <http://www.developingchild.net>
- Zero to Three: ZeroToThree.org

Concurrent Session 6

Sunday, September 12, 3:15 pm - 4:45 pm

The Promise of Targeted Pharmacotherapy for Neurodevelopmental Disorders

Mustafa Sahin, MD, PhD, Neurology, Harvard Medical School, Boston, MA, Randi Hagerman, MD, Pediatrics, MIND Institute UC Davis, Sacramento, CA, Jeannie Visootsak, MD, Human Genetics & Pediatrics, Emory University, Decatur, GA

Georgian Ballroom

DISCLOSURE

I disclose the following financial relationships with commercial entities that produce health-care related products or services relevant to the content I am presenting:

COMPANY	TYPE OF RELATIONSHIP
Athena Diagnostics	Honoraria

Any recommendations made in this presentation are based on best available evidence or are consistent with generally accepted medical practice.



Tuberous Sclerosis

Mustafa Sahin, MD, PhD

Department of Neurology, Children's Hospital and
Harvard Medical School, Boston MA

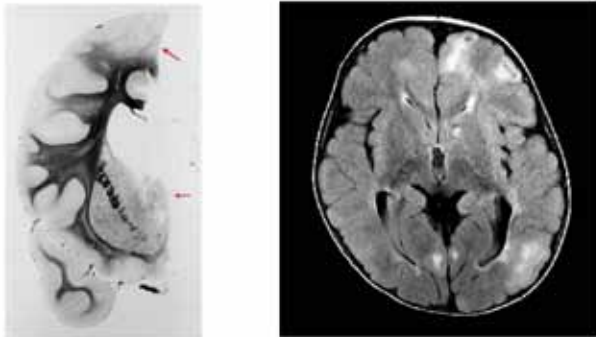
What is Tuberous Sclerosis Complex ?

- Multi-system disease
- Causes hamartomas in brain, eye, skin, kidneys, and heart
- Autosomal dominant + loss of heterozygosity
- Usually presents with seizures, mental retardation, autism
- Incidence: 1:6,000-10,000

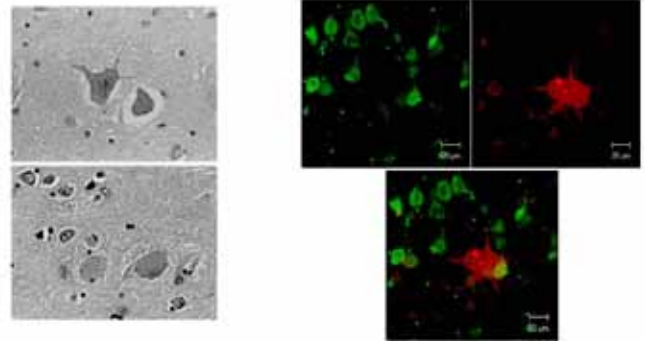
TSC: Major features

- Cortical tuber
- Subependymal nodule
- Subependymal giant cell astrocytomas (SEGAs)
- Multiple retinal hamartomas
- Facial angiofibroma or forehead plaque
- Ungual or periungual fibroma (non-traumatic)
- Hypomelanotic macules (> 3)
- Shagreen patch
- Cardiac rhabdomyoma
- Renal angiomyolipoma
- Pulmonary lymphangiomyomatosis

CNS pathology in TSC



Pathology of cortical tubers



Large ("giant") cells, expressing phenotypes intermediate between glia and neurons

Tuber

Hamartoma

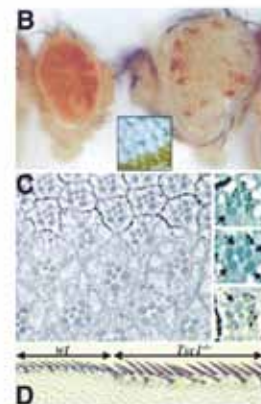
Tuberin

Hamartin

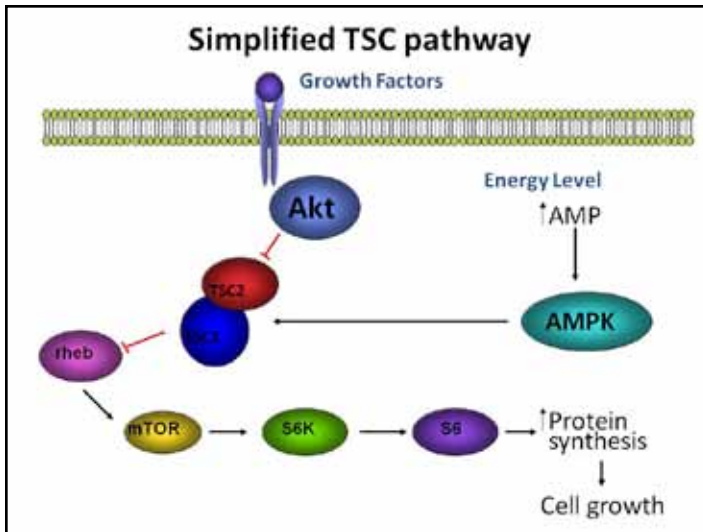
TSC2

TSC1

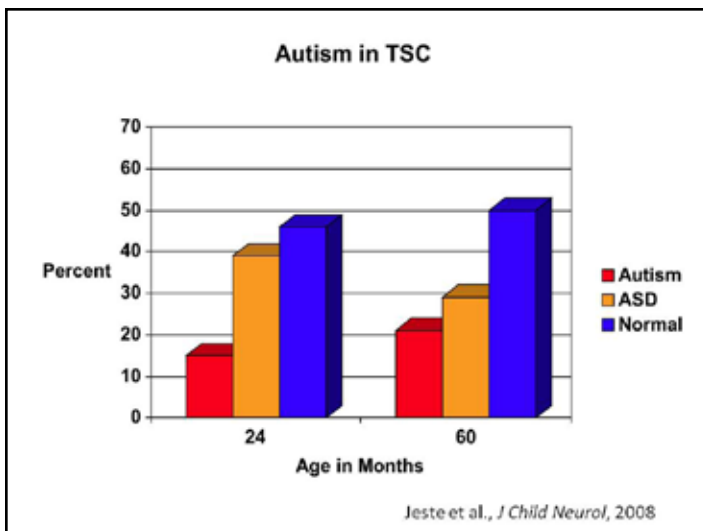
TSC is a disease of cell size...



Potter et al., 2002



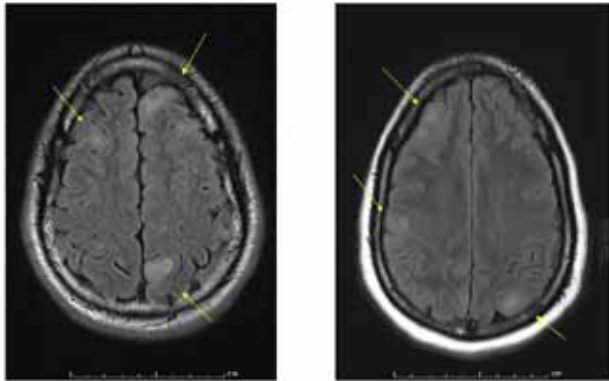
Neural Correlates of Autism in Tuberous Sclerosis Complex



Cortical Tubers and Autism

- Cortical tubers in temporal lobes necessary, but not sufficient (Bolton et al., *Brain* 2002).
- Several studies have failed to show a similar correlation, and others have implicated tubers in the cerebellum as a correlate of autism.
 - Walz et al., *J Child Neurol* 2002
 - Weber et al., *J Autism Dev Disord* 2000
 - Wang et al., *J Child Neurol* 2006
 - Eluvathingal et al., *J Child Neurol* 2006

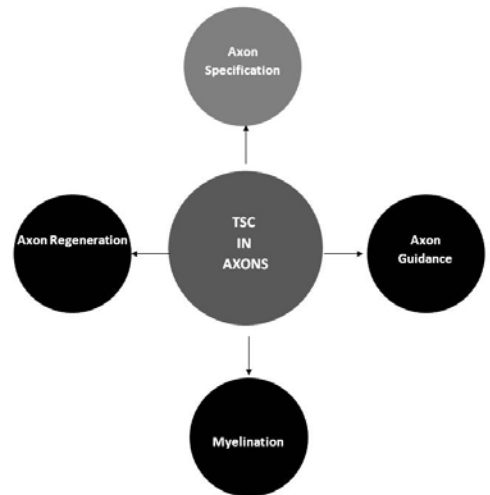
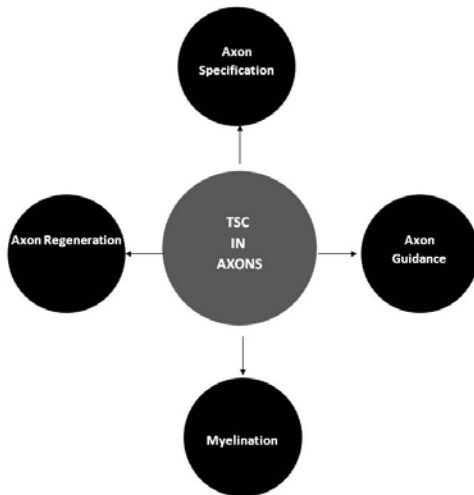
Two similar MRIs



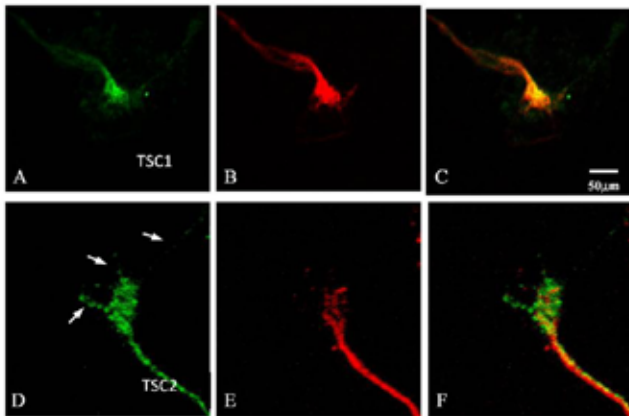
Different outcomes

Hypothesis:

the miswiring of axonal connections may contribute to the pathogenesis of TSC

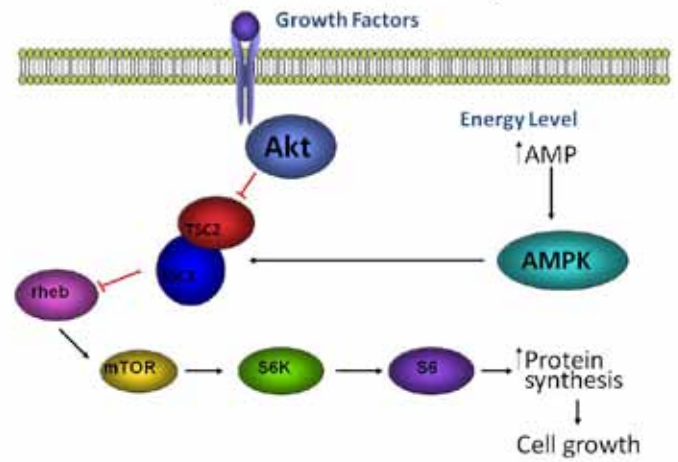


TSC1 and TSC2 are in the growth cone

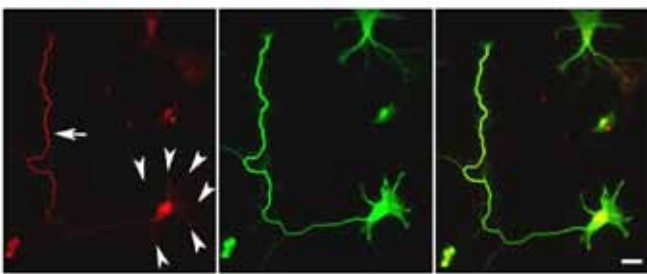


Haddad et al., 2002

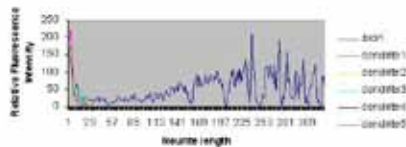
Simplified TSC pathway



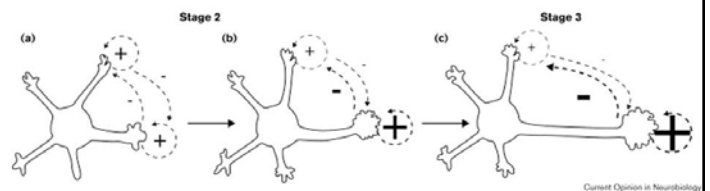
P-TSC2 Tuj1 merged



Distribution of Phospho-TSC2 in hippocampal neurons

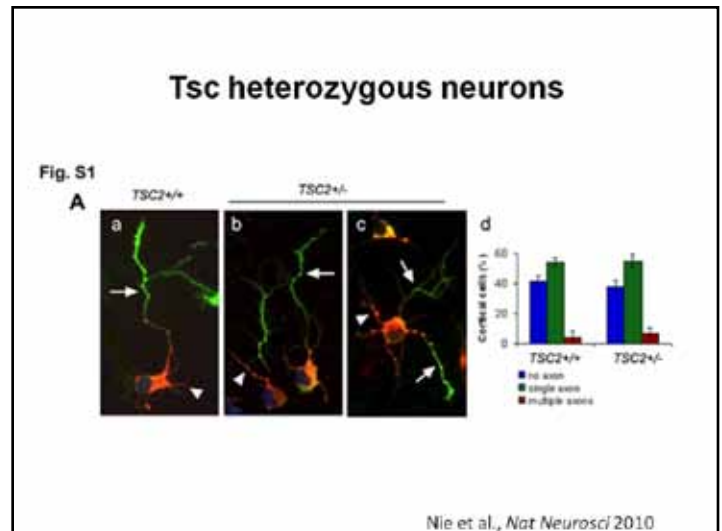
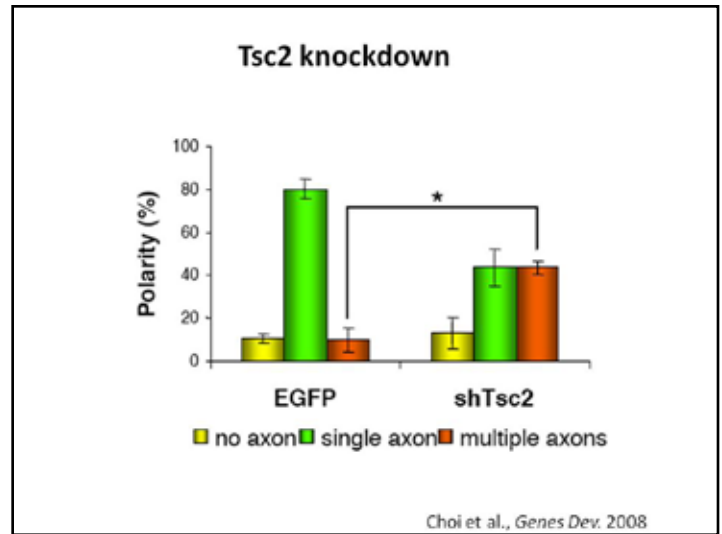
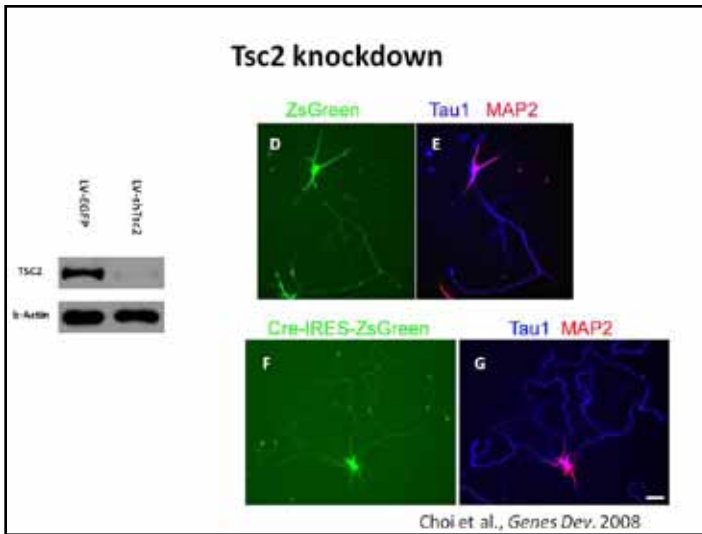


Establishment of neuronal polarity

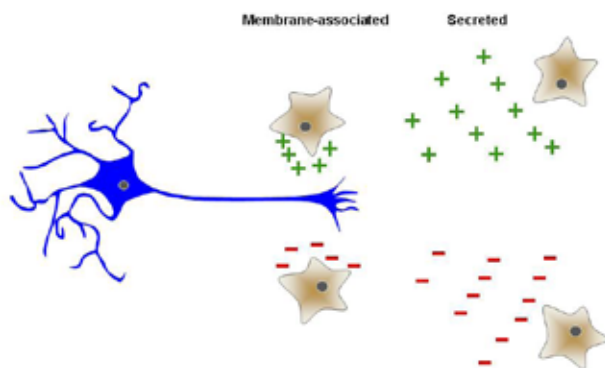


Current Opinion in Neurobiology

Bradke and Dotti, 2000

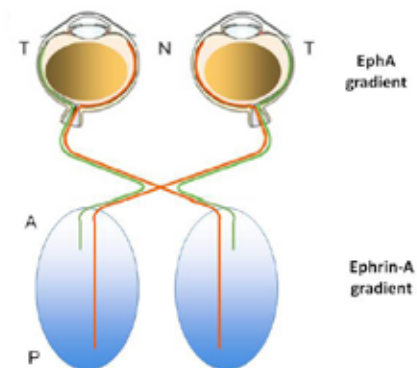


Axon Guidance



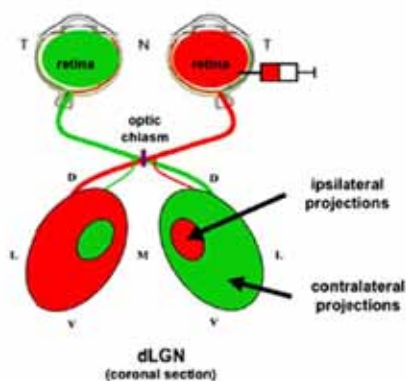
Goodman, Jessell, Tessier-Lavigne, Raper, Bonhoeffer, Flanagan and others

Axon Guidance of Retinogeniculate Projections: an Ephrin- & Eph-Dependent Process

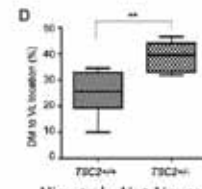
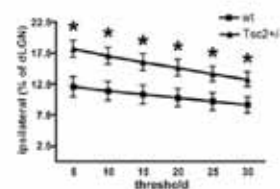
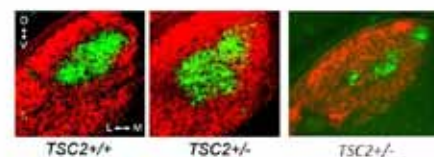


Modified from Guan and Rao, 2003

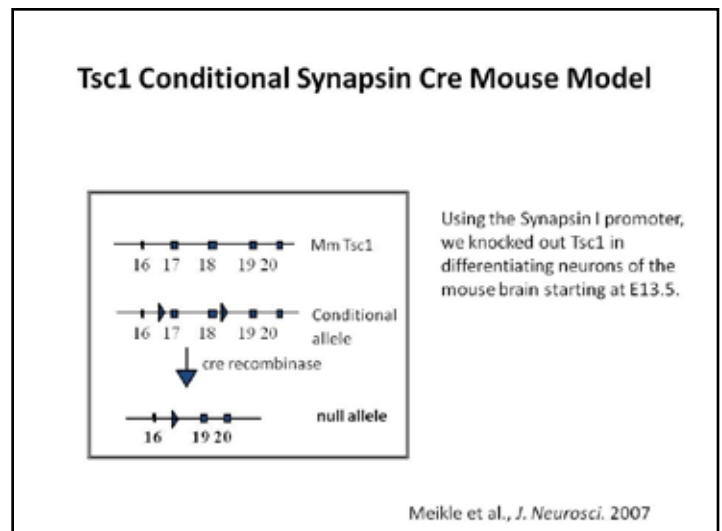
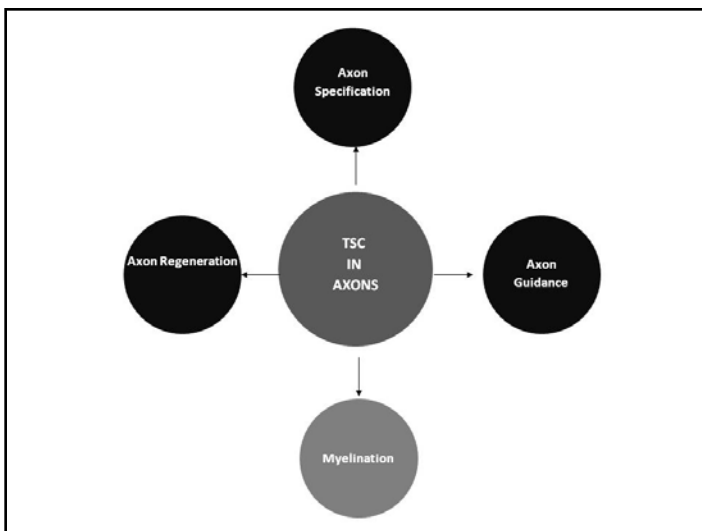
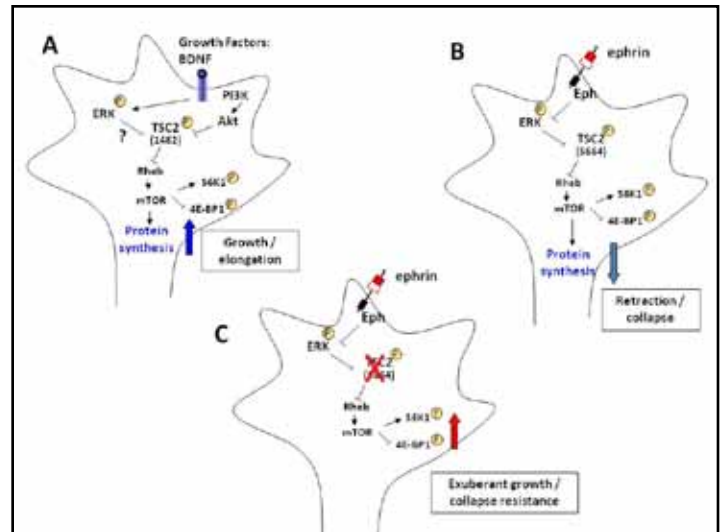
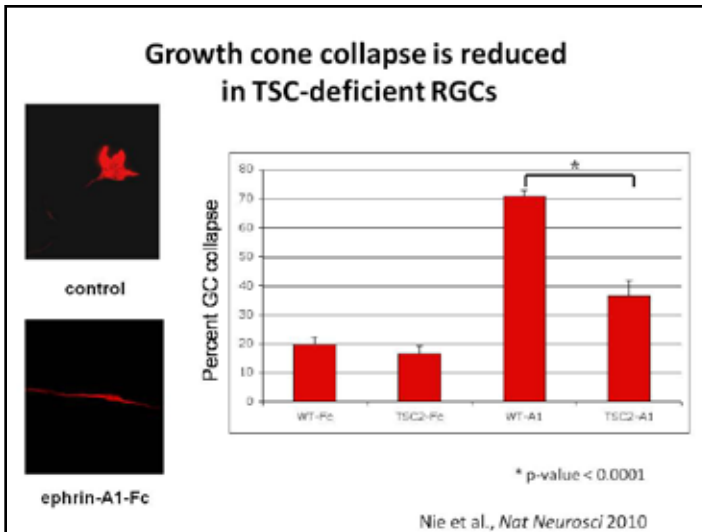
Retinogeniculate projections in mice



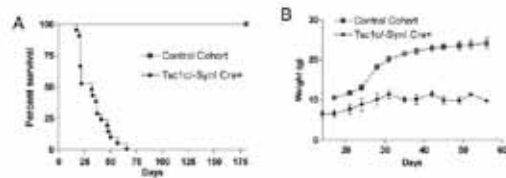
Ipsilateral projections to the LGN are aberrant in *Tsc2*^{+/-} mice



Nie et al., Nat Neurosci 2010

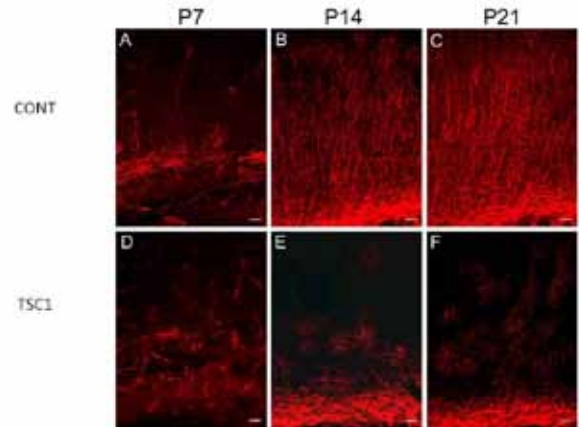


Tsc1c Syn1 Cre Phenotype



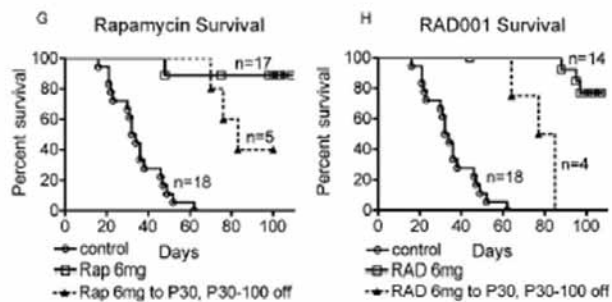
Meikle et al., *J. Neurosci.* 2007

Hypomyelination in Syn-Cre;Tsc1 brain



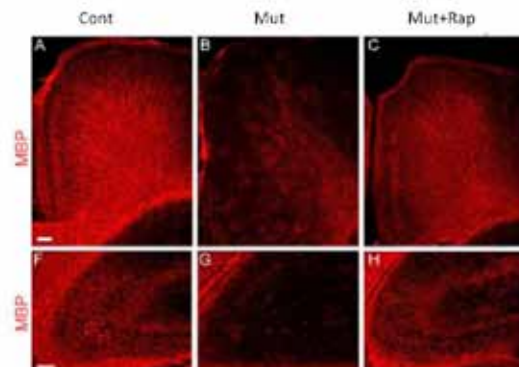
Meikle et al., *J. Neurosci.* 2007

Rapamycin treatment trial



Meikle et al., *J. Neurosci.* 2008

Rapamycin Treatment Rescues Hypomyelination



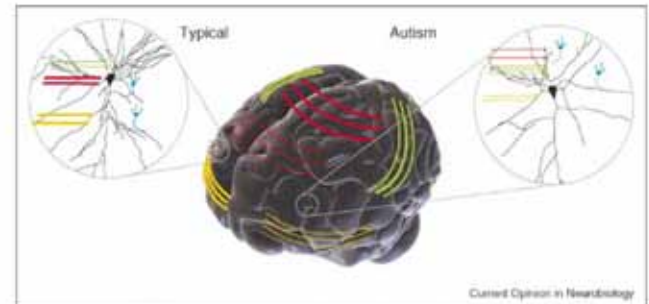
Meikle et al., *J. Neurosci.* 2008

Role of TSC in Axons

1. TSC pathway components are expressed in developing axons and determine neuronal polarity.
2. Tsc2 haploinsufficiency leads to axon guidance defects.
3. Neuronal deletion of Tsc1 results in myelination defects.

Autism spectrum disorders: developmental disconnection syndromes

Daniel H Geschwind¹ and Pat Levitt²



Why is Tuberous Sclerosis Complex unique in ASD?

- Many of the TSC patients are diagnosed pre- or neo-natally



Among fetuses or newborns with multiple cardiac tumors, the chances of having TSC is 95%.

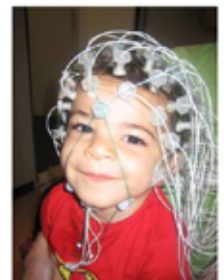
Tworetzky et al.,
Am J Cardio (2003)

Early Detection of Autism in TSC

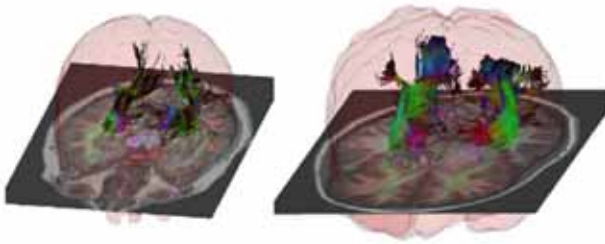
Can we detect which infants with TSC will develop autism?

1. Neurocognitive assessment of infants
2. Diffusion tensor imaging (MRI)
3. Neurophysiological assessment of face processing and other visual paradigms

In collaboration with Shafali Jeste, Simon Warfield and Chuck Nelson



Fiber tracking of visual pathways



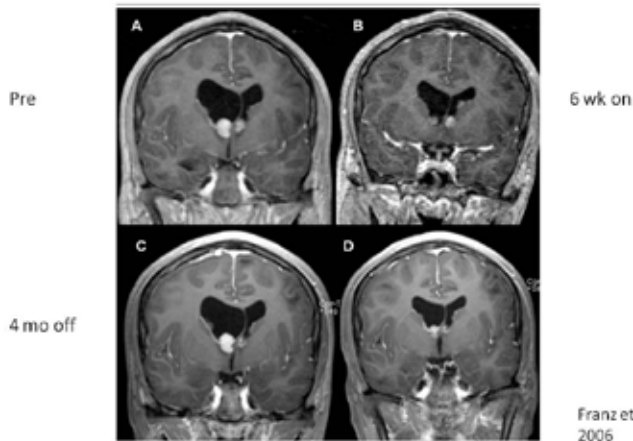
Disorganization of geniculocalcarine tract in a 17-year-old girl with tuberous sclerosis complex (TSC) and autism (left) as compared to a healthy girl of the same age (right)

Krishnan et al, *Pediatr Neurol*, 2010

mTOR inhibitors in TSC mouse models

1. Improves myelination (Meikle et al., 2008)
2. Prevents or stops seizures (Zeng et al., 2008) (Meikle et al., 2008)
3. Improves learning (Ehninger et al., 2008)

Rapamycin treatment of SEGAs



Franz et al., 2006

Randomized Phase II Trial of mTOR inhibitor in TSC: Neurocognition

- 6-21 year olds with TSC, IQ>60
- Randomized placebo controlled, double blind
- 55 patients from 2 sites
- Neurocognitive testing at baseline, 3 months, 6 months
- Secondary endpoints: autism, seizures, sleep

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Concurrent Session 7 - Poster Symposium

Monday, September 13, 3:00 pm - 5:00 pm

Abstracts 15 - 18

Patient-Centered Medical Homes and Associated Outcomes for Children with ADHD

Sara L. Toomey, MD, General Pediatrics, Eugenia Chan, MD, Developmental Medicine, Jessica Ratner, BA, Mark A. Schuster, MD, General Pediatrics, Children's Hospital Boston, Boston, MA

SES, Parenting, and Child Behavior are Associated with BMI in low- to middle-income Chilean and US 10-year olds

D. Eastern Kang Sim, MPH, Matthew Cappiello, BA, Pediatrics, University of California San Diego, La Jolla, CA, Marcela Castillo, PhD, Psychology, Institute of Nutrition and Food Technology, Santiago, Chile, Suzanna M. Martinez, PhD, Estela Blanco, MPH MA, Pediatrics, University of California San Diego, La Jolla, CA, Betsy Lozoff, MD, Pediatrics and Communicable Diseases, University of Michigan, Ann Arbor, MI, Sheila Gahagan, MD, Pediatrics, University of California San Diego, La Jolla, CA

Nighttime Sleep Duration and Externalizing Behaviors in Preschool Children

Rebecca Scharf, MD, Ellen J. Silver, PhD, Ruth E. Stein, MD, Pediatrics, Albert Einstein College of Medicine, Bronx, New York

The Relationship between Tourette syndrome and Co-Occurring Emotional Disorders and Parental Aggravation

Lara Robinson, PhD, Child Development Studies, CDC, Atlanta, GA, Rebecca Bitsko, PhD, Child Development Studies, CDC, Atlanta, GA, Susanna Visser, MS, Child Development Studies, Laura Schieve, PhD, Developmental Disabilities, Ruth Perou, PhD, Child Development Studies, CDC, Atlanta, GA

Georgian Ballroom

Abstract 15

Patient-Centered Medical Homes and Associated Outcomes for Children with ADHD

Sara L. Toomey, MD, General Pediatrics, Eugenia Chan, MD, Developmental Medicine, Jessica Ratner, BA, Mark A. Schuster, MD, General Pediatrics, Children's Hospital Boston, Boston, MA

Purpose: We aimed to determine, in a nationally representative sample of children, (1) the likelihood of having a patient-centered medical home (PCMH) for children with ADHD compared to other children with special health care needs (CSHCN), and (2) the impact of the PCMH on diagnosis, treatment, and functional outcomes for children with ADHD. **Methods:** We analyzed parent-reported data on 64,076 children ages 6-17 from the 2007 National Survey of Children's Health (NSCH). The outcome variables were: parent report of their child's primary care practice having the attributes of a PCMH, and ADHD diagnosis, ADHD treatment (medication use and mental health involvement), and functional outcomes (i.e., including participation in activities, attendance at school, and ability to make friends). Multivariate logistic regression analysis tested whether the likelihood of having a PCMH for children with ADHD differed from other CSHCN and whether having a PCMH was associated with being diagnosed with ADHD, treatment for ADHD, or functional outcomes, adjusting for child, family, and household covariates. Child covariates included depression/anxiety, learning disability, and ADHD severity. **Results:** Of children ages 6-17, 23.5% qualified as a CSHCN and 8.2% were reported currently to have ADHD. Compared to other CSHCN, significantly fewer children with ADHD had a PCMH (AOR .69, $p < .001$) and, more specifically, were less likely to have family-centered (AOR .82, $p = .05$) and coordinated care (AOR .55, $p < .001$). For those with a diagnosis of ADHD, children with a PCMH were more likely to be on medication for ADHD (AOR 1.47, $p = .02$) and less likely to have mental health involvement (AOR .54, $p < .001$). Compared to children with ADHD who did not have a PCMH, children with ADHD and a PCMH were less likely to have problem behaviors (AOR .62, $p = .003$), and less likely to have difficulties participating in activities (AOR .54, $p = .002$), attending school (AOR .32; 95% CI, .20, .51), and making friends (AOR .59, $p = .002$). **Conclusion:** These data suggest that although children with ADHD are less likely to have a PCMH than other CSHCN, those who have a PCMH experience better functional outcomes. Interventions to develop primary care practices into PCMHs should target children with ADHD in addition to CSHCN more generally.

Abstract 16

SES, Parenting, and Child Behavior are Associated with BMI in low- to middle-income Chilean and US 10-year olds

D. Eastern Kang Sim, MPH, Matthew Cappiello, BA, Pediatrics, University of California San Diego, La Jolla, California, Marcela Castillo, PhD, Psychology, Institute of Nutrition and Food Technology, Santiago, Chile, Suzanna M. Martinez, PhD, Estela Blanco, MPH MA, Pediatrics, University of California San Diego, La Jolla, California, Betsy Lozoff, MD, Pediatrics and Communicable Diseases, University of Michigan, Ann Arbor, Michigan, Sheila Gahagan, MD, Pediatrics, University of California San Diego, La Jolla, California

Purpose: To examine pathways from low SES and home environment through child behavior to growth in weight, height and BMI at 10-years old in a Chilean and a US sample. **Methods:** The Chilean children (N=1080) were studied since infancy as part of an iron deficiency anemia preventive trial. The US children (N = 774) were selected from the National Longitudinal Study of Youth to match the entrance criteria of the Chilean cohort (low- to middle-income and birth weight ≥ 3 kg). Low to middle SES was categorized by tertiles. The 10-year data was collected between 2001 and 2006 in both cohorts. Analyses were conducted using path analysis. The fit indices for the tested models showed a good model fit (CFI $> .95$, NFI $> .95$, NNFI $> .95$, RMSEA $< .05$). **Results:** We observed similar pathways in the 2 cohorts. Sample characteristics are in table 1. Family composition, specifically number of adults in the home, showed a direct relationship with higher weight at 10 years. Lower SES (compared to middle SES) was directly associated with lower height. Belonging to the lowest SES group was also indirectly related to growth outcomes through child behavioral characteristics. Parental sensitivity and responsiveness was associated with lower child weight. This relationship was mediated by decreased risk for behavioral problems. Higher BMI was indirectly related to more adults in the home, lower SES, and poorer parental sensitivity and responsiveness. **Conclusion:** In both Chile and the US, we find that lower income children are at risk for higher BMI. We find similar paths from SES and home environment through behavioral characteristics to BMI in Chile and the US. Parental responsiveness and sensitivity played an important role in both contexts.

Table 1. Sample characteristics for Chilean and U.S. children

Variables	Chile (n=1080)	NLSY (n=774)
	Mean (SD) or %	Mean (SD) or %
Height for age percentile	49 (27)	60 (32)
Weight for age percentile	63 (28)	65 (31)
BMI percentile	70 (26)	66 (32)
Overweight/obese (BMI $\geq$ 85%)	39%	41%

Abstract 17**Nighttime Sleep Duration and Externalizing Behaviors in Preschool Children**

Rebecca Scharf, MD, Ellen J. Silver, PhD, Ruth E. Stein, MD, Pediatrics, Albert Einstein College of Medicine, Bronx, New York

Purpose: To test the hypothesis that 4 year-old children who sleep less than 9.5 hours at night (1 standard deviation below the mean) are more likely to exhibit externalizing behaviors than their peers who sleep 9.5 hours or more. **Methods:** This study examines the Early Childhood Longitudinal Study, Birth Cohort, a nationally representative sample of children born in 2001. Parents of 4 year-old children reported what time their child went to bed and woke on a typical weekday. Nighttime sleep duration was calculated from this information. Parents rated their children on a portion of the Preschool and Kindergarten Behavior Scale - 2nd Edition, which assesses overactivity, anger, aggression, impulsivity, temper tantrums and annoying behaviors on a scale from 1-5. Externalizing behaviors of less concern (responses of 1- 3) and more concern (4 or 5) were compared with sleep categories using chi-square. **Results:** The ~ 8900 children slept a mean of 10.43 +/- .97 hours per night. The average bedtime was 8: 40 pm. Of the total sample, 46% had at least one externalizing behavior (54.5% of the children in the shorter sleep group vs. 45% in the longer sleep group, $p < .0001$). In chi-square analysis, 4 year-old children sleeping less than 9.5 hours were significantly more likely than children with longer sleep duration to exhibit over-activity (33.1% vs. 25.1%, OR 1.47, 95% CI 1.28-1.70), anger (27.1% vs. 21.1%, OR 1.39, CI 1.20-1.62), aggression (13.7% vs. 7.6%, OR 1.93, CI 1.58-2.36), impulsivity (13.4% vs. 10.5%, OR 1.31, CI 1.08-1.60), temper tantrums (22.7% vs. 16.1%, OR 1.52 CI 1.30-1.79) and annoying behaviors (8.7% vs. 6.4%, OR 1.39, CI 1.09-1.77) ($p < .0001$ for all analyses). **Conclusion:** As hypothesized, children with shorter sleep duration were more likely to exhibit externalizing behaviors. Further research is needed to examine causal relationships that cannot be determined in a cross-sectional analysis. These findings can alert parents and pediatricians to monitor nighttime sleep duration in preschool children.

Abstract 18**The Relationship between Tourette syndrome and Co-Occurring Emotional Disorders and Parental Aggravation**

Lara Robinson, PhD, Child Development Studies, CDC, Atlanta, GA, Rebecca Bitsko, PhD, Child Development Studies, CDC, Atlanta, GA, Susanna Visser, MS, Child Development Studies, Laura Schieve, PhD, Developmental Disabilities, Ruth Perou, PhD, Child Development Studies, CDC, Atlanta, GA

Purpose: Tourette syndrome (TS) is a childhood onset, neurobehavioral disorder characterized by multiple persistent motor tics and at least one vocal tic. Parents of children with TS have reported lower self concepts, higher caregiver burden, more difficulties with home activities, and higher parenting stress. Greater rejecting parenting style, increased impact of the disorder on the family, and more problematic family relations have also been reported in families of children with TS and co-occurring mental, emotional, or behavioral (MEB) disorders in contrast to families of children with TS alone. The current study examined the relative contribution of MEBs to the relationship between TS and parental functioning in a nationally representative sample. **Methods:** Parent-reported data from the 2007 National Survey of Children's Health were analyzed, including whether the child had been diagnosed with TS or an MEB. Weighted analyses were restricted to US children 6-17 years of age and adjusted for child age, sex, race and ethnicity ($n = 64,034$, un-weighted). **Results:** Among children with TS, 79% had another MEB, most commonly ADHD and behavioral or conduct problems (externalizing disorders) and depression and anxiety problems (internalizing disorders). Compared to children without TS, parents of children with TS were more likely to report they were aggravated by their child (composite score: harder sharing ideas, coping less well, harder to care for child, child did things that bothered the parent, and the parent was angered by the child; OR = 5.4, 95% CI: 2.5-11.8) and the mean aggravation scale was significantly higher among children with TS. When both externalizing and internalizing disorders were controlled for in the model, the relationship between TS and aggravation no longer reached statistical significance. Both externalizing (OR = 5.2, 95% CI: 4.3-6.4) and internalizing disorders (OR = 2.5, 95% CI: 1.9-3.1) were significant and externalizing disorders exerted the largest relative effect. **Conclusion:** Results from the current study suggest that parents of children with TS may experience increased stress and difficulties parenting their children; however, these difficulties may be associated with co-occurring conditions. Addressing externalizing and internalizing disorders with evidence-based interventions may mitigate parental aggravation associated with TS and improve family functioning.

Plenary Session Abstracts

Plenary Session I (Abstracts 1-5)

Sunday, September 12, 2010 from 9:15 am - 10:30 am

Abstract 1

Incidence of Attention-Deficit/Hyperactivity Disorder (ADHD) and Learning Disabilities (LD) in Late Pre-term Infants in a Population-Based Birth Cohort

Malinda N. Harris, MD, Gretchen A. Matthews, MD, Robert G. Voigt, MD, Pediatric and Adolescent Medicine, Mayo Clinic, Rochester, MN, William J. Barbaresi, MD, Medicine, Boston Children's Hospital, Boston, MA, Jill M. Killian, BS, Amy L. Weaver, MS, Health Sciences Research, Christopher E. Colby, MD, William A. Carey, MD, Pediatric and Adolescent Medicine, Slavica K. Katusic, MD, Health Sciences Research, Mayo Clinic, Rochester, MN

Purpose: Previous studies using primarily referred clinical samples that have followed children only until early school age have reported that late preterm infants have an increased risk of learning and behavioral problems compared to term infants. Our objective was to determine the cumulative incidence of ADHD and LD in reading, written language, and math in late preterm infants (born 34-<37 weeks) through 19 years of age in a population-based birth cohort. **Methods:** Subjects included all children born 1976-1982 in Rochester, MN, with gestational age available from electronic birth certificate data, and who remained in the community after age 5 years (N=5316). Children were divided into late preterm (34-<37 weeks) and term (37-<41 weeks) groups based on gestational age at birth. Records from all public/private schools and all sources of medical care were available to identify individuals who met pre-determined research criteria for ADHD and LD in reading, written language, and math. The Kaplan-Meier method was used to estimate the cumulative incidence of each disability; subjects were censored at the earliest occurrence of moving, death, or age 19. P-values are reported from Cox proportional hazards models that were fit to evaluate the association between gestational age category (late preterm vs. term) and disability, after adjusting for birthweight and maternal age. **Results:** We found no statistically significant differences in the cumulative incidence of any disability between the late preterm (N = 256) versus term (N = 3568) groups: ADHD (late preterm 6.7% vs. term 6.1% by 19 years of age; $p = 0.72$); Reading LD (late preterm 12.2% vs. term 10.9% by 19 years; $p = 0.47$); Written Language LD (late preterm 11.4% vs. term 12.7% by 19 years; $p = 0.74$); or Math LD (late preterm 13.7% vs. term 12.7% by 19 years; $p = 0.89$). **Conclusion:** Contrary to previous reports, these data from a population-based birth cohort indicate that late preterm infants have similar rates of ADHD and learning disabilities compared to term infants.

Abstract 2

Screen Time Use in Children with Autism Spectrum Disorders Compared to Typical Peers

Malia May, MD, Carol Garrison, MD, Meredith Dreyer, PhD, Developmental-Behavioral Sciences, Anna Schweiger, MD, General Pediatrics, Children's Mercy Hospital, UMKC-SOM, Kansas City, MO

Purpose: Increased screen time is a known contributor to childhood obesity and its co-morbidities. The American Academy of Pediatrics recommends limitation of total media to 2 hours or less per day. To date there has been little study of screen use by children with ASD. The social deficits and repetitive behaviors inherent in ASD may make screen use more appealing to these children, and may place this population at risk for excessive screen use. **Methods:** Parents of children ages 2-11 years (Mean age=6.4 years, SD=2.77, 66.9 % male), receiving care at a large, Midwestern Hospital were surveyed regarding their child's television and video game use, and physical activity for the typical school and weekend day, and age of initial interest in screen media. Data regarding height and weight was also collected. The sample included 100 parents of children without developmental concerns and 72 parents of children with ASD. **Results:** ASD subjects had greater daily screen use compared to typical peers, with a statistically significant ($p=0.024$) mean difference of 0.7 hours per day. The majority of all participants exceeded AAP screen recommendations with (75% of ASD and 67% of typical subjects; with average daily screen use of 3.76 and 3.06 hours respectively). When television and video game use were separately compared, there was no significant difference between groups for weekend television and all video game use. For school day television, ASD subjects had statistically significant ($p=0.008$) greater use, with a mean difference of 0.54 hours. For physical activity, there was no significant difference between groups for school days, but significantly more reported physical activity on weekend days ($p<.001$, mean difference 1.3 hours) for developmentally typical subjects. **Conclusion:** This study provides evidence to support the need for additional intervention to decrease screen use for all children. It also supports the concern that children with ASD are at greater risk for excessive screen use, and low levels of physical activity. Thus this population would likely benefit from increased guidance by medical providers to parents regarding screen use.

Plenary Session Abstracts

Abstract 3

Increased Prevalence of Seizures, ASD, and ADHD in Boys with the Fragile X Premutation

Weerasak Chonchaiya, MD, *Psychiatry and Behavioral Sciences*, Jacky Au, BS, *Pediatrics*, Andrea Schneider, PhD, *Psychiatry and Behavioral Sciences*, Susan W. Harris, MS, Lisa Cordeiro, MS, *Pediatrics*, David R. Hessel, PhD, *Psychiatry and Behavioral Sciences*, Meredith Laird, BS, *Pediatrics*, UC Davis MIND Institute, Sacramento, CA, Agustini Utari, MD, *Pediatrics*, Diponegoro University, Semarang, Indonesia, Randi J. Hagerman, MD, *Pediatrics*, UC Davis MIND Institute, Sacramento, CA

Purpose: Expansions in the FMR1 gene between 55-200 CGG repeats are known as the premutation range of fragile X which is relatively more common than the full mutation (> 200 CGG repeats). However, developmental, behavioral, and neuropsychological involvement in young individuals with the premutation remains uncertain across studies. Our study compares the prevalence of clinical involvement in young males with the premutation who participated in research in our clinic with non-probands and non-carrier male controls. **Methods:** Twenty one young males who presented clinically (probands), 19 males who were identified by cascade evaluation and did not present clinically (non-probands), and 33 typical male siblings without the FMR1 mutations were enrolled. Developmental, behavioral, and neuropsychological domains were assessed by appropriate measures. **Results:** Mean age of the probands (8.71 ± 4.48 years), non-probands (9.38 ± 4.48 years), and non-carrier male controls (9.63 ± 5.37) were similar among groups ($p = 0.733$). Cognitive and adaptive functioning was significantly higher in non-probands than in probands, but not higher than controls. The prevalence of autism spectrum disorders (ASD) was significantly higher in probands than in non-probands (66.7% vs. 26.3%, $p = 0.011$). The non-probands were more likely to be diagnosed with ASD (26.3% vs. 0%, $p = 0.046$) and attention deficit hyperactivity disorders (ADHD) (50% vs. 12.5%, $p = 0.02$) than controls. Furthermore, in those premutation carriers who have also had ASD together were more likely to have seizures (31.6% vs. 5.0%, $p = 0.044$), and ADHD (81.3% vs. 50%, $p = 0.031$); than those with premutation carriers alone. **Conclusion:** Boys with the fragile X premutation should be screened for seizures, ASD, and ADHD even if they do not present clinically. Furthermore, fragile X DNA testing should be highly recommended in those with ASD with and without other neurodevelopmental problems. Combined data of the premutation carriers from multi-sites of fragile X clinics is needed to examine this relevant clinical involvement further in order to improve the plan for optimal treatment and intervention.

Abstract 4

Disruptive Neural Response During Rapid Auditory Processing in Pre-readers at Risk for Dyslexia - An fMRI Study

Nora M. Raschle, MS, Patrice L. Stering, MEd, Nadine Gaab, PhD, *Developmental Medicine, Children's Hospital & Harvard Medical School Boston, Boston, MA*

Purpose: Developmental dyslexia (DD) is a specific learning disability characterized by difficulties with accurate and/or fluent word recognition, and poor spelling and decoding. Familial occurrences support a genetic basis for DD. The earliest predictors of future reading success include speech processing in infancy; event-related brain potentials during rapid auditory processing, and phonological skills. However, differences in whole-brain functional networks in pre-reading children at risk for DD remain unexamined. The goal of this study is to investigate possible neural and behavioral pre-markers of DD in pre-reading children with (FHD+) and without (FHD-) a family-history of DD. **Methods:** 31 right-handed children (17 FHD+/14 FHD-; 5.5y) completed standardized psychometric testing. Functional magnetic resonance imaging was performed during rapid auditory processing. Stimuli were non-linguistic with a spectro-temporal structure comparable to that of consonant-vowel-consonant speech syllables, with either rapid or slowed frequency transitions. Participants were instructed to indicate the pitch of the stimulus. Random-effects analyses for rapid versus slow transitions were performed. **Results:** FHD+ children, compared to FHD- children, showed significantly reduced expressive language, phonological processing and rapid naming skills. Performance inside the MR scanner indicated no significant group differences for pitch identification. However, preliminary imaging results directly comparing the two groups showed increased activation (FHD- > FHD+) in various brain areas including left prefrontal, bilateral auditory and bilateral inferior parietal regions. **Conclusion:** Our results suggest that pre-reading children with a family history of DD already show a disrupted response to rapid acoustic stimuli in similar brain regions as children and adults with a diagnosis of DD. A longitudinal follow-up study will determine whether these early differences in brain function can predict reading outcome. An early identification of children at risk is essential for developing and improving intervention programs which may prevent negative clinical, psychological and social outcomes of DD.

Plenary Session Abstracts

Abstract 5

Arbaclofen Treatment Is Associated with Global Behavioral Improvement in Fragile X Syndrome (FXS): Results of a Randomized, Controlled Phase 2 Trial

Lulu Wang, MD, Randi Hagerman, MD, Pediatrics, MIND Institute UC Davis, Sacramento, CA, Barbara Rathmell, MD, Clinical Operations, Paul Wang, MD, Clinical Development, Seaside Therapeutics, Cambridge, MA, Elizabeth Berry-Kravis, MD, PhD, Pediatrics and Neurology, Rush University Medical Center, Chicago, IL

Purpose: To explore the safety and efficacy of arbaclofen for behavioral symptoms in FXS. Arbaclofen, a GABA-B agonist, is one of the first targeted treatments for a neurodevelopmental disorder. The rationale for its testing in FXS include data from animal models of FXS, and the anecdotal clinical use of racemic baclofen in FXS. **Methods:** Double-blind, placebo-controlled, crossover, multisite trial. 63 subjects with FXS, ages 6-40 yrs, and who met severity criteria on the Aberrant Behavior Checklist - Irritability (ABC-I) subscale were enrolled. Arbaclofen was flexibly titrated over 2 weeks, then continued for 4 weeks at the optimal titrated dose. Up to 3 concomitant psychoactive medications were allowed. This research was supported by Seaside Therapeutics, Inc. **Results:** 49 subjects completed the study and had no major protocol deviations. In this group, clinicians ($p=0.05$) and parents ($p<0.10$) both reported a blinded preference for arbaclofen vs. placebo. These results were more robust among pediatric subjects who met criteria for autism ($p<0.01$). Similarly, significantly more subjects were responders on the CGI-I scale when receiving arbaclofen vs. placebo (35% vs 18% overall, 50% vs. 6% in the autism group). The ABC-I scale was not sensitive to these effects. However, a post-hoc analysis showed that subjects with higher ABC-Social Withdrawal baseline scores had significant improvement on that scale, consistent with parent reports of improved socialization and communication. Arbaclofen was very well-tolerated. A majority of subjects enrolled in an open-label extension study, and some have withdrawn from concomitant antipsychotic treatment. **Conclusion:** Arbaclofen shows significant potential for the treatment of behavioral symptoms in FXS, and possibly for the treatment of core social symptoms in autism.

Plenary Session II (Abstracts 6-10)

Monday, September 13, 2010 from 9:00 am - 10:15 am

Abstract 6

Pharmacogenetics of Methylphenidate Response in Attention-Deficit/Hyperactivity

Tanya Froehlich, MD, Robert Kahn, MD, Pediatrics, Children's Hospital, Cincinnati, OH, Todd Nick, PhD, Maria Melquizo, MS, Pediatrics, U Arkansas, Little Rock, AR, William Brinkman, MD, Jeff Epstein, PhD, Pediatrics, Children's Hospital, Cincinnati, OH

Purpose: Due to significant individual variability in ADHD medication response, there is increasing interest in identifying genetic predictors of treatment effects. This study examines the role of catecholamine-related candidate genes in moderating ADHD treatment response. **Methods:** 89 stimulant-naïve children with ADHD aged 7-11 participated in a prospective, randomized, double-blind, 4-week crossover trial of long-acting methylphenidate (MPH). Parents and teachers assessed each child's response on placebo and three MPH dosages via the Vanderbilt ADHD rating scales. Participant saliva samples were genotyped. Linear mixed models evaluated gene, dose (mg/kg/day), and gene*dose effects on hyperactive-impulsive (HI) domain and inattentive (IA) domain symptom scores, adjusting for IQ, subtype, mental health comorbidities, and a rater variable (to accommodate both parent and teacher ratings in the same model). **Results:** A main effect on HI domain scores was detected for an adrenergic alpha-2A receptor (ADRA2A) promoter polymorphism, with G allele homozygotes having higher levels of symptoms on placebo and across MPH doses ($p=0.025$). Gene*dose interactions were seen on the HI domain for dopamine receptor D4 (DRD4) exon 3 and catechol-O-methyltransferase (COMT) codon 158 polymorphisms, with those lacking the DRD4 4-repeat showing less improvement across MPH doses compared to those carrying a 4-repeat ($p=0.037$), and COMT val allele homozygotes experiencing greater improvement with increasing doses compared to other groups ($p=0.048$). No significant effects were observed for the dopamine transporter, norepinephrine transporter, or synaptosomal-associated protein-25 on either symptom domain, or for ADRA2A, DRD4, or COMT on the IA domain. **Conclusion:** This study suggests three catecholamine-related genetic variants that may influence ADHD medication response, although more research is needed to confirm the clinical utility of our findings.

Plenary Session Abstracts

Abstract 7

White Matter Characteristics Correlate with Executive Function Skills in Preterm and Full-term Children

Irene M. Loe, MD, Eliana S. Lee, BS, Pediatrics, Stanford University, Palo Alto, CA, Roland Bammer, PhD, Radiology, Stanford University, Stanford, CA, Heidi M. Feldman, MD, PhD, Pediatrics, Stanford University, Palo Alto, CA

Purpose: Executive function (EF) skills are an interrelated set of abilities that include working memory, organization and planning. Preterm children have difficulties with EF skills compared to full-term peers. Diffuse white matter injury in preterm children is common. Little is known about the relationship between white matter injury and EF problems in preterm children. **Methods:** Preterms (n=19, mean age 11.9 yr) and controls (n=15, mean age 13.4 yr) were assessed on the CANTAB, a computerized EF battery. Outcome measures for each task: Spatial Working Memory (SWM, working memory for spatial location) strategy score; Stockings of Cambridge (SOC, a complex measure of spatial planning, organization and response inhibition) problems solved in minimum moves (PS); Spatial Span (SSP, a measure of spatial memory capacity) span length (SL). Four diffusion tensor imaging (DTI) acquisitions of 60, 2mm-thick slices were collected in 30 different diffusion directions (b = 900). DTI data were pre-processed with FSL Diffusion Toolbox. Tract-Based Spatial Statistics based on fractional anisotropy (FA) defined the centers of major white matter tracts throughout the brain. We evaluated correlations between FA of these tracts and EF skills, covarying by age. We set $p < .05$ after correcting for multiple comparisons. **Results:** Preterm and control groups did not differ in FA; however, EF skills were correlated with FA. SWM strategy was negatively correlated with FA; better strategy was associated with higher FA, $p < .01$. Regions of significant correlation include corpus callosum (CC), bilateral (B) superior longitudinal fasciculus (SLF), and B inferior fronto-occipital fasciculus (IFOF). SOC PS was positively correlated with FA; better overall performance on a complex EF task was associated with higher FA, $p < .05$. Significant regions include CC, B SLF, and B IFOF. SSP SL showed a trend for positive correlation with FA, $p < .09$. **Conclusion:** Preterm and full term children show significant associations between EF skills and white matter microstructure in multiple brain regions. These regions include long tracts which run from posterior temporal and occipital regions to frontal regions implicated in EF. Though preterm children as a group did not have obvious white matter damage compared to full-term controls, a measure of white matter microstructure was sensitive to individual differences in EF in children and adolescents.

Abstract 8

The Developmental Course of Attention-Deficit/Hyperactivity Disorder (ADHD): Results from a Prospective, Population-Based Study

William J. Barbaresi, MD, Medicine, Children's Hospital Boston, Boston, MA, Robert C. Colligan, PhD, Psychiatry and Psychology, Amy L. Weaver, MS, Health Sciences Research, Robert G. Voigt, MD, Pediatric and Adolescent Medicine, Jill M. Killian, BS, Slavica K. Katusic, MD, Health Sciences Research, College of Medicine, Mayo Clinic, Rochester, MN

Purpose: Previous research on the developmental course of ADHD, including the rate of persistence of ADHD into adulthood, has been limited to biased samples. Estimated rates of persistence of ADHD into adulthood have varied widely. The developmental course of ADHD therefore remains uncertain. The objective of this study is to determine the rate of persistence of ADHD into adulthood among all incident cases of research-identified childhood ADHD from a population-based birth cohort. **Methods:** Subjects from a 1976-1982 birth cohort (N=5699), including those with research-identified childhood ADHD (N=379) and non-ADHD controls, were invited to participate as young adults in a research study that included a DSM-IV based, structured, diagnostic interview (MINI International Neuropsychiatric Interview). Participating subjects included young adults with research-identified childhood ADHD (N=231; mean age 27.0 years; 166 males, 65 females). Controls (N=335; mean age 28.6 years; 210 males, 125 females) included young adults from the same birth cohort. Adult ADHD was defined from the MINI ADHD module as item endorsements exceeding 2 standard deviations above the mean for the control subjects and endorsement of the statement indicating that symptoms were having a significant, negative impact in two or more settings. **Results:** Among the 231 childhood incident cases of ADHD, 67 fulfilled criteria for adult ADHD (29.0%, 95% CI 23.2-34.9). Rates of persistent ADHD were similar for males (28.9%, 95% CI 22.2-35.8) and females (29.2%, 95% CI 18.2-40.3). If the requirement that subjects report significant negative impact of symptoms were disregarded, the rate of persistent ADHD would be 38.5% (95% CI 32.3-44.8). **Conclusion:** This is the first prospective, population-based study of the rate of persistence of ADHD into adulthood. A significant percentage of adults with a history of childhood ADHD will continue to manifest a sufficient number of ADHD symptoms to exceed a population-based diagnostic threshold. This finding provides a more precise description of the developmental course of ADHD and highlights the importance of careful, longitudinal follow-up and treatment for all individuals with ADHD.

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Abstract 9

A Randomized Trial of Teen Online Problem Solving to Improve Behavior and Executive Functioning Following Adolescent Brain Injury

Shari L. Wade, PhD, Physical Medicine & Rehabilitation, Nicolay C. Walz, PhD, Behavioral Medicine and Clinical Psychology, Kendra M. Williams, MA, Physical Medicine & Rehabilitation, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, Erin Mark, MA, Keith O. Yeates, PhD, Pediatric Psychology and Neuropsychology, Nationwide Children's Hospital, Columbus, OH

Purpose: Traumatic brain injury is a leading cause of long-term morbidity in adolescence resulting in executive dysfunction, behavior problems, and impaired social adjustment. We report results from a randomized clinical trial (RCT) of Teen Online Problem Solving (TOPS) in improving behavioral outcomes of adolescent TBI. **Methods:** RCT comparing the efficacy of TOPS to access to internet resources regarding TBI (IRC) in improving parent and self-reported executive function (EF) and behavior problems. Individuals in TOPS received 10-14 online sessions providing training in problem solving, communication skills, and self-regulation. EF and behavior problems were assessed at baseline and at a follow-up assessment an average of 7 months later. Injury severity and socioeconomic status (SES) were examined as potential moderators of treatment efficacy by examining their interactions with treatment group status. **Results:** Twenty-one participants were randomly assigned to TOPS and 21 were assigned to the IRC group with follow-up assessments completed on 35 participants. Improvements in teen EF and behavior following TOPS were moderated by injury severity. Teens with severe TBI reported significantly greater improvements in self-reported EF skills and their parents reported greater reductions in internalizing symptoms such as anxiety and depression following TOPS versus IRC. Family SES also moderated the efficacy of TOPS in improving both parent and teen reported behavior problems. Parents reported greater improvements in externalizing symptoms among children with lower SES following the TOPS treatment. Conversely, adolescents of higher SES in the TOPS group reported greater improvements in externalizing symptoms than those in the IRC group, whereas no group differences were found among adolescents of lower SES. **Conclusion:** The findings suggest that TOPS contributes to improvements in parent and self-reported behavior problems following adolescent TBI for certain subsets of participants. Differences between parent and teen perceptions underscore the need to assess outcomes from multiple perspectives.

Abstract 10

Cumulative Infant/Toddler Media Exposure Adversely Associated with Self-Regulation at 3 Years

Ruee Huang, MD, Suzy Tomopoulos, MD, Benard P. Dreyer, MD, Carolyn A. Brockmeyer, PhD, Samantha B. Berkule-Silberman, PhD, Karen M. Hopkins, MD, Caroline L. Martinez, MD, Hugh Bases, MD, Triana Urraca, BA, Daniela Romero, BA, Alan L. Mendelsohn, MD, Developmental-Behavioral Pediatrics, NYU School of Medicine and Bellevue Hospital Center, New York

Purpose: Self-regulation is critical for school readiness and educational achievement. We sought to determine whether media exposure in at-risk low socioeconomic status (SES) infants/toddlers was adversely associated with self-regulation at 3 yrs. **Methods:** Longitudinal analysis of mother-infant dyads followed from birth-36m as part of larger study. Inclusion criteria: English/Spanish language, no medical complications. Independent variable: Electronic media exposure (6,14,24,36m): 24-hr recall diary, with cumulative exposure based on sum of 4 time points; primary study variable was media reported to be watched by child. Dependent variables (3yrs): 1) Executive functions: Working memory (CELF Preschool-2 Recalling sentences); Inhibitory Control (IC; Spatial conflict task); 2) Sustained attention: Preschool Self-Regulation Assessment (PSRA-observation); 3) Hyperactivity (Behavior Assessment System for Children; BASC-2). Potential confounders: maternal depression (PHQ-9), temperament (STSI), cognitive stimulation (StimQ), sociodemographics. **Results:** 95 dyads with media assessments at all 4 times were included in analyses. Mothers: 35% HS grads; 93% Latina. Mean(sd) cumulative media exposure 538(324)mins, with 369(249)mins watched by child. Cumulative exposure watched by child was associated with reduced working memory/attention and increased hyperactivity in both unadjusted analyses and multiple regressions adjusting for all confounders (See Table). High cumulative exposure (>360 mins) associated with increased hyperactivity in "at risk" range (64 vs. 41%, chi-sq=4.0, p<.05; Adj OR 2.7, 95% CI 1.0, 7.2). Associations not seen for IC. **Conclusion:** Cumulative media exposure from 6-36m was adversely associated with self-regulation. Interventions to enhance school readiness and educational outcomes should address early media exposure in the home. **Funding:** SDBP Research Grant, NICHD(R01 HD047740), Tiger Foundation, Marks Family Foundation, Children of Bellevue, Inc., KiDS of NYU.

Associations between cumulative media exposure & self-regulation

	Working memory (CELF)	Attention (PSRA)	Hyperactivity (BASC)
Unadjusted (r)	-.22*	-.20*	.19t
Adjusted (beta)	-.23*	-.19t	.17t
*p<.05; t: p<.10			

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Plenary Session III (Abstracts 11-14)

Monday, September 13, 2010 from 10:30 am - 11:30 am

Abstract 11

Behavioral Effects of Testosterone Therapy in Adolescents with Klinefelter Syndrome/XXY, XXYY, and XXXY: Interim Study Results

Nicole R. Tartaglia, MD, Pediatrics, Natalie Ayari, BA, University of Colorado Denver School of Medicine, Aurora, CO, Susan Howell, MS, Pediatrics, University of Colorado School of Medicine, Aurora, CO, Philip Zeitler, MD, PhD, Pediatrics, University of Colorado Denver School of Medicine, Aurora, CO

Purpose: Males with supernumerary X chromosomes share a phenotype that includes the development of primary hypogonadism (testosterone deficiency) in adolescence, leading to the need for testosterone replacement therapy (TRT). Males with Klinefelter syndrome (KS/XXY), XXYY, and XXXY also have increased risks for language-based cognitive impairments and neurodevelopmental or behavioral disorders, which are more significant in the tetrasomy conditions (XXYY, XXXY) compared to KS/XXY. The psychological and behavioral effects of TRT have not been well studied in these patients. Here we present interim behavioral results from a pilot study evaluating changes in neuropsychological function and behavior before and after testosterone therapy in adolescent males with KS/XXY, XXYY, and XXXY. **Methods:** A convenience sample of 23 participants starting on testosterone therapy have been enrolled to date (10 XXY, 10 XXYY, 3 XXXY), and 14 have completed 12 months of therapy. The Behavior Assessment System for Children-2 (BASC-2) parent-report and self-report were collected as part of the battery at baseline and after 12 months, and results on the subscales of externalizing behavior, internalizing behavior, attentional problems, and adaptive scales were analyzed by paired t-test. **Results:** Preliminary results of the parent-report BASC-2 show significant improvements attentional symptoms ($p=0.02$), a trend toward improvements in internalizing symptoms ($p=0.08$), and no differences in externalizing behaviors ($p=0.82$) or adaptive skills ($p=0.32$) following 1 year of TRT. There were no significant differences in self-report BASC-2 scores. **Conclusion:** TRT may improve attentional skills, and did not lead to worsening of behavioral problems in KS/XXY, XXYY, or XXXY. Final study results including more detailed analysis of neuropsychological, motor skills, and behavior are pending, but suggest that a placebo controlled trial is an important next step.

Abstract 12

Can Family Characteristics Counteract the Negative Effects of Stigmatization?

Henny Bos, PhD, Child Development and Education, University of Amsterdam, Amsterdam, The Netherlands, Nanette Gartrell, MD, Center of Excellence in Womens Health, University of California, San Francisco, California, Ellen Perrin, MD, Pediatrics, Floating Hospital, Tufts Medical Center, Boston, MA

Purpose: The purpose of the study is to test factors within lesbian families that may counteract the hypothesized negative effects of stigmatization on adolescents adjustment. **Methods:** This analysis is based on the 5th wave of the USA National Longitudinal Lesbian Family Study (NLLFS). The data were collected through online questionnaires completed by 78 adolescents ($M=17$ years, $SD=.36$) and their birthmothers ($n=77$, $M=52$ years, $SD=3.89$). Stigmatization was assessed through the question: Have you been treated unfairly because of having (a) lesbian mom(s)? Items from the Adolescent Quality of Life Scale assessed family connection: How many days did the family eat dinner together during the previous week?, and family compatibility: I feel I am getting along with my parents or guardians. Family preparation for stigmatization was measured by the question: Has (have) your mother(s) done anything to help prepare you in case you are treated badly because of having (a) lesbian mother(s)? Birth mothers completed the Child Behavior Checklist. A hierarchical multiple-regression analysis was conducted, with CBCL total problem behavior as the outcome variable. Reported experience of stigmatization was entered in Step 1. Family connection, family compatibility, and family preparation were entered in Step 2. **Results:** 41% of the adolescents reported having experienced stigmatization because of their motherssexual orientation. In Step 1, the experience of stigmatization predicted total problem behavior $R^2 = .11$, $F(1, 66) = 7.72$, $p < .01$. Including family connection, family compatibility, and family preparation for stigmatization in Step 2 produced a significant change in R^2 ($R^2 = .19$, $F(1, 63) = 6.43$, $p < .001$). Only family compatibility was significantly related to total problem behavior. **Conclusion:** The results indicate that although reported stigmatization was associated with more problem behavior, family compatibility neutralized this negative influence. Having a close, positive relationship with their lesbian mothers provided adolescents resilience in response to stigmatization.

Abstract 13

Communicating with Parents about Developmental Screening in Primary Care

Laura Sices, MD, Nicole Shapiro, MA, Pediatrics, Boston University Medical Center, Boston, MA, Marilyn Augustyn, MD, Pediatrics, Boston University Med Ctr, Boston, MA, Edward De Vos, EdD, Pediatrics, Boston University Medical Center, Boston, MA

Purpose: Revised AAP guidelines on developmental screening (DS) (2006) are likely to increase use of systematic screening in primary care. Little literature exists to guide providers in communicating about the purpose and results of DS tests with families. We sought

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to develop such recommendations. Methods: Semi-structured interviews were conducted with 15 experts nominated by 10 national organizations in relevant fields to develop initial recommendations. Focus groups were then conducted with parents of children in Early Intervention (EI) (4 groups, 27 parents), parents of children who had not received EI services (4 groups, 20 parents) and primary care providers (4 groups, 17 providers) to refine recommendations. Interviews and focus groups were audio-recorded and transcribed. Transcripts were coded by 2 raters to identify themes and recommendations. Results: In preparing families for DS, experts, parents, and most providers recommended communicating explicitly to all families that DS is a routine part of practice. In communicating DS results for a failed screen, experts recommended: a) gauging families' level of awareness of the suspected problem, b) emphasizing strengths, and c) communicating the utility and limitations of screens. Themes from parent groups included: a) the importance of rapport with the provider, b) that parents were likely to feel blamed if their child was not meeting milestones, c) that providers let parents know that developmental delays are common ("you are not alone"), and d) that screens be described as a "first step." Themes from provider groups included: a) that parents' awareness of a delay was an important factor in tailoring communication, and b) surprise that parents may feel blamed when children are not meeting milestones. In the choice and specificity of terms to use with families in discussing DS results, the type of diagnosis being considered and parents' concerns were cited as important considerations in tailoring communication. Conclusion: These recommendations can address an important barrier to implementing systematic screening, parent-provider communication, in this complex area of practice. In particular, providers' anticipation of parents' unvoiced concerns and perspectives provide an opportunity to improve communication about developmental screening.

Abstract 14

Maternal Feeding Styles Identified via Semi-Structured Interview

Megan H. Pesch, BA, Department of Pediatrics, Kate Rosenblum, PhD, Niko Kaciroti, PhD, Julie C. Lumeng, MD, Center for Human Growth and Development, University of Michigan, Ann Arbor, MI

Purpose: To identify maternal feeding styles from a semi-structured interview and to evaluate associations with demographics and child obesity. Methods: 133 mothers of preschool-aged children of diverse socioeconomic status and races/ethnicities (45 black, 44 white, 12 Asian, 32 Hispanic) participated in a semi-structured interview about their feeding beliefs and practices. Interviews were audiotaped and transcribed. Each participant was then categorized, based on their interview narrative, within: Authority (High v. Low), Emotional Investment in feeding (Deep v. Mild v. Removed), Confidence in feeding (Confident v. Conflicted v. Unopinionated) and general parenting focus and goal orientation (Interpersonal Interaction v. Moral Obedience v. Shares Limited Insight). A subset of 83 mother-child dyads participated in questionnaires, a videotaped feeding interaction, and anthropometry. Cluster analysis was used to identify maternal feeding styles based on Authority, Emotional Investment, and Confidence. Chi square and ANOVA were used to compare subject characteristics across clusters. Results: The 6 clusters were: Authoritative Higher Emotion, Authoritative Lower Emotion, Indulgent, Laissez-Faire, Conflicted Control and Disengaged. Cluster membership was associated with maternal race/ethnicity ($p < .0001$) and child weight status ($p < .02$) such that black mothers were more likely to be Laissez-Faire or Disengaged, white mothers Authoritative, and Hispanic mothers Indulgent. Validity for the clusters was supported by significant differences across clusters in responses to the Preschool Feeding Questionnaire ($p < .05$) as well as observed video-taped feeding interactions ($p < .05$). Children of mothers in the Conflicted Control cluster had the highest prevalence of obesity (60%) ($p < .05$). Conclusion: Maternal feeding styles, which extend beyond the classic four parenting styles when characterized via semi-structured interview, are associated with maternal race/ethnicity and child weight status. Healthcare providers must consider how mothers think about child feeding for effective communication.

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19	FruitZotic: Evaluating An Early Childhood Nutrition Education Program Using Child Development Theoretical Frameworks	Srimathi Kannan, PhD
20	Promoting Pediatric Mental Health Competency in Residency Training	Nerissa Bauer, MD MPH
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23	The Role of Hope with Psychological Adjustment and Quality of Life in a Pediatric Cancer Population	Julie Germann, PhD
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30	Do Questions about Parent Concerns Provide Adequate Surveillance?	Shela Merchant, MA
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32	Treadmill Stepping in 2-10-month-old Infants with Myelomeningocele: Enhancing Sensory Input to Improve Motor Activity	Beverly Ulrich, PhD
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56	A primary care-based Spanish parenting intervention to address behavioral problems in children: A study of feasibility and barriers	Lisa Ramirez, MA
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Poster Session Abstracts

Concurrent Session 7 - Poster Symposium

Monday, September 13, 2010 from 3:00pm - 5:00pm

Abstracts 15-18

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Poster Session 1

Sunday, September 12, 2010 from 6:00pm - 7:00pm

Abstract 19

FruitZotic: Evaluating An Early Childhood Nutrition Education Program Using Child Development Theoretical Frameworks

Srimathi Kannan, PhD, Caitlin M. Smith, BA, Valerie Willyard, BS Candidate, Christine Foley, BS, Rebecca Smith, BS, Nutrition, UMass Amherst School of Public Health and Sciences, Amherst, MA, Suzanne Severin, BS, Head Start, Community Action, Greenfield, MA

Purpose: FruitZotic (FZ) is an early childhood nutrition education program aimed at promoting the consumption of exotic fruits among children enrolled in rural Western Massachusetts Head Start sites. The objective of FZ is to incorporate a sensory theme nutrition curriculum and to help young children broaden their knowledge and awareness about locally available exotic fruits. **Methods:** During the five week-program, 80 children from 6 classrooms were presented with exotic fruits which they observed and tasted. Factors facilitating children's willingness to sample exotic fruit (mango, peach, pineapple, pomegranate) included reinforcement through fruit tasting, book reading, and art activities (Social Learning Theory) and exploration of fruits through the sensory observations (Constructivist Theory). Sensory exploration-themed, developmentally-appropriate learning activities increased the use of schemes, assimilation and accommodation (Cognitive Development, Constructivist, Behaviorist, and Social Learning Theories). **Results:** Consistent with Piaget's Pre-Operational Stage (Theory of Cognitive Development) a parent's night component was concurrently implemented in order to further encourage willingness to try new fruits. Parents stated that they enjoyed the involvement of the children with food demonstrations and the children were excited to share their knowledge with their parents. Overall, more than 90% of the children improved their skills in identifying the fruits, and sufficiently described the sensory properties of the fruits. Teachers and parents rated the program positively. **Conclusion:** Sensory themed nutrition education guided by life-stage readiness and developmentally appropriate theoretical modes has the potential to increase young children's familiarity with exotic fruits. Exotic fruit nutrition education that targets young children should be tailored for the specific developmental stages, skills, and processes seen during this stage in life.

Abstract 20

Promoting Pediatric Mental Health Competency in Residency Training

Nerissa S. Bauer, MD, MPH, Pediatrics & Children's Health Services Research, Paula D. Sullivan, PhD, Pediatrics, Anna M. Hus, BS, Pediatrics & Children's Health Services Research, Indiana University, Indianapolis, IN

Purpose: We adapted an evidence-based parenting program to teach basic child behavior management strategies within a larger developmental-behavioral pediatrics curricular model that includes both core knowledge and skill building components. We evaluated our model's effect on residents' self-efficacy (comfort) in the identification, treatment and counseling of mental health issues. **Methods:** From August 2007 through January 2010, residents participating in the developmental-behavioral pediatrics (DBP) rotation completed a self-assessment questionnaire at two time points, baseline and at rotation end. Residents rated their comfort with the identification, treatment, and counseling of mental health problems using a 5-point scale. **Results:** Ninety-six residents participated in the DBP rotation and completed self-assessments. At baseline, categorical pediatric residents possessed higher self-efficacy towards identification (group mean 2.8 vs. 2.3 for non-categorical pediatrics residents, $p < 0.05$), treatment (group mean 2.6 vs. 2.2, $p < 0.05$) and counseling of mental health issues (group mean 2.7 vs. 2.1, $p < 0.005$). Residents who were parents also possessed higher baseline self-efficacy. At rotation end, all residents showed significant improvements in self-efficacy (baseline mean 2.6 vs. post-test mean 4.0 for identification, $p < 0.05$; baseline mean 2.4 vs. post-test mean 4.0 for treatment, $p < 0.05$; and baseline mean 2.4 vs. post-test mean 4.0 for counseling, $p < 0.05$). This remained true regardless of being a categorical pediatric resident, a parent or primary care-oriented. **Conclusion:** Our curricular model promotes residents' self-efficacy in dealing with mental health issues. Increasing residents' self-efficacy may influence the frequency of active discussion of these types of issues during well-child visits and lead to earlier diagnosis and needed treatment.

Poster Session Abstracts

Abstract 21

Yoga in an Urban School for Children with Emotional-Behavioral Disabilities

Naomi J. Steiner, MD, Department of Pediatrics, Radley C. Sheldrick, PhD, Tahnee Sidhu, BA, Ellen C. Perin, MD, Pediatrics, Tufts University, Boston, MA

Purpose: We aimed to examine the feasibility and efficacy of delivering yoga sessions to a group of children with emotional/behavioral disorders at an urban school. Previous research has shown yoga and meditation to be beneficial for youth with emotional/behavioral conditions. We hypothesized that children who participate in a series of yoga sessions will have: 1) lower stress levels as measured by salivary cortisol; and 2) diminished emotional and behavioral symptoms. **Methods:** Children were enrolled over two school years. The 3 ½ month intervention consisted of two formal yoga sessions a week in groups of 7-10 students in grades 4 and 5. Sessions were taught by a yoga teacher experienced in teaching yoga to children. Parents, children and teachers completed a systematic assessment pre- and post-intervention. At each assessment salivary cortisol was measured at arrival at school, before lunch, and after lunch. **Results:** 43 children were enrolled for the intervention; they adapted easily to the yoga classes. Children, parents and classroom teachers enjoyed and anticipated the yoga sessions, and noted the relaxation benefit. Preliminary data analysis shows improved attention in class ($p = 0.03$) and a reduction in depression ($p=0.03$), somatization ($p=0.04$), and internalizing symptoms (0.03) as reported by teachers. Salivary cortisol increased pre- to post-intervention ($p>.10$). **Conclusion:** These data suggest that yoga administered in small groups in an urban school setting may be effective in reducing symptoms in children with emotional-behavioral disabilities.

Abstract 22

The Prevalence of Attention-Deficit/Hyperactivity Disorder: Its Diagnosis, and Treatment in Four School Districts in Two States

Mark L. Wolraich, MD, Pediatrics, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Robert E. McKeown, PhD, Public Health, University of South Carolina, Columbia, SC, Susanna Visser N. Visser, MS, Centers for Disease Control and Prevention, Atlanta, GA, David Bard, PhD, Pediatrics, University of Oklahoma Health Sciences Center, Oklahoma City, OK, PLAY Team, OU Health Sciences Center/U of SC/U of FL/CDC, Oklahoma City, OK

Purpose: Estimates of the prevalence of attention-deficit/hyperactivity disorder (ADHD) vary greatly. However, the significant impact of this disorder on public health makes it imperative to determine ADHD prevalence in a community context. The objectives of this study were to: (1) investigate the prevalence of children with ADHD in diverse communities and (2) describe current and previous receipt of treatment among children with ADHD. **Methods:** This community-based epidemiological study screened elementary school children in 4 school districts in 2 states (SC and OK) for ADHD to determine the DSM-IV based prevalence utilizing teacher and parent information. Teacher rating scales and parent screeners determined strata of risk. Subsequent parent structured psychiatric interviews and teacher scales rating the high and low risk children were used collectively to define cases. **Results:** The estimated prevalence of ADHD was 9.3% in SC and 12.2% in OK. The estimated prevalence of children taking ADHD medication, regardless of case status, was 9.9% (SC) and 7.8% (OK). In SC and OK 4.5% and 3.0%, respectively, met the case definition for ADHD and reported being treated with ADHD medication. An additional 5.4% (SC) and 4.9% (OK) were currently taking ADHD medication and did not meet case criteria. **Conclusion:** The rates of ADHD documented here are at the upper end of the range estimates found in previous studies. Our ADHD prevalence estimates did not include the 4-5% who were on medication but did not meet the case definition due to our inability to differentiate between adequately and inappropriately treated cases; thus, the estimates may be conservative.

Abstract 23

The Role of Hope with Psychological Adjustment and Quality of Life in a Pediatric Cancer Population

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Purpose: Little is known about the relationship between hope, defined as goal-directed thinking, in which people appraise their capability to produce workable routes to goals (pathway thinking), along with their potential to initiate and sustain movement via a pathway (agency thinking), and co-morbidities of depression, anxiety and quality of life in pediatric patients with cancer. **Methods:** Newly diagnosed cancer patients (8-17 years of age) are enrolled onto a prospective observational study that examines the prevalence of depression and anxiety at diagnosis (within 4 weeks) and at 3 month intervals during the first year after diagnosis. Twenty patients (approximately 50 anticipated by September 2010) have completed Snyders Hope Scale as well as the Pediatric QOL Cancer Module, Childrens Depression Inventory, and the State-Trait Anxiety Inventory. Parents also completed Snyders Hope Scale and rated

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their child's Quality of Life. Results: Correlational analyses revealed that for children (ages 8-14), fewer symptoms of depression at diagnosis was associated with higher hope scores at diagnosis ($r(4) = -0.910$, $p < .05$) and 3 months after diagnosis ($r(3) = -0.927$, $p < .05$). Higher quality of life at diagnosis and at 3 months was also associated with higher child hope at 3 months ($r(3) = 0.967$ and 0.974 respectively, $p < .01$). Generally, older children endorsed higher hope ($r(5) = 0.905$, $p < .01$). For teens (ages 15-18) higher hope at diagnosis was related to lower state anxiety ($r(9) = -0.612$, $p < .05$) and higher quality of life ($r(9) = 0.646$, $p < .05$) during the same time period. Finally, higher parent hope at 6 months correlated with higher ratings of their child's quality of life at both 3 ($r(9) = 0.611$, $p < .05$) and 9 months ($r(2) = 0.954$, $p < .01$). Conclusion: Preliminary results suggest there is an association between hope and psychological comorbidity in these patients. Because hope is a construct which responds to intervention, it may provide an avenue for improved quality of life and psychological adjustment. Further assessment of the impact of hope on coping with pediatric cancer is warranted.

Abstract 24

Quality of Life Changes Associated With Long-Term Guanfacine Extended Release Treatment

Raun D. Melmed, MD, Psychiatry, Melmed Center, Scottsdale, AZ, Jonathan Rubin, MD, MBA, Clinical Development and Medical Affairs, Sharon Youcha, MD, Global Clinical Medicine, Shire Development Inc., Wayne, PA

Purpose: To characterize quality of life (QoL) changes associated with guanfacine extended release (GXR; IntunivTM, Shire Development Inc., Wayne, PA) treatment. **Methods:** Subjects aged 6-17 years ($n=240$) with attention-deficit/hyperactivity disorder (ADHD) who participated in a double-blind randomized trial enrolled in an open-label extension study of GXR (2, 3, or 4 mg/d) $\leq$ 24 months. Dose escalation occurred within the first month. Spontaneously reported adverse events (AEs) data were collected at each visit. The Child Health Questionnaire-Parent Form (CHQ-PF50), a validated QoL measure yielding physical and psychosocial summary scores, was completed at baseline of the lead-in study and at 3, 6, 9, 12/13, 18, and 24 months. **Results:** Mean (SD) CHQ-PF50 psychosocial summary score improvement from baseline to endpoint was 12.3 (12.35) ($P < 0.001$); significant improvements were also observed when analyzed by dose prior to tapering ($P < 0.001$ for all dose groups) and age group ($P < 0.001$ for both the 6-12 years and 13-17 years). CHQ-PF50 physical summary scores were not significantly affected from baseline to endpoint. The most common treatment-emergent AEs (TEAEs) were sedative in nature. Overall, 43.3% of subjects ($n=104$) reported ≥ 1 TEAE of somnolence, sedation or hypersomnia (SSH). Most were mild (48.7%) or moderate (45.4%) in severity and did not result in discontinuation. The incidence of these events was 30.8% at month 1 and $< 7\%$ at each subsequent month. **Conclusion:** Long-term treatment with GXR was associated with significant improvements in the psychosocial summary score of the parent-rated CHQ-PF50 for both children and adolescents. This open-label study suggests improvement in QoL in the areas of behavior and family functioning with GXR treatment. Most treatment-emergent SSH events were mild to moderate in severity and did not result in discontinuation.

Abstract 25

First Step to Success in Hawai'i Preschools

Jean Johnson, DrPH, Naomi L. Rombaoo Tanaka, MS, Ranilo Laygo, PhD, Susan Mrazek, MA, Center on Disability Studies, University of Hawaii at Manoa, Honolulu, HI, Annemieke Golly, PhD, Special Education, University of Oregon, Eugene, OR

Purpose: The three objectives of First Step to Success include screening, school intervention, and home based intervention. Coaches work closely with students, parents, and teachers for 30 classroom days and 6 weeks of a home component that includes lessons on Communication, Cooperation, Limits, Problem Solving, Friendship, and Confidence. To date, the program has been implemented in Hawaii with 49 Target Students from 17 classrooms in 5 preschool sites. **Methods:** Social behaviors are measured by Academic Engaged Time classroom observations and ESP Adaptive, Maladaptive, and Aggression Rating Scales completed by teachers at key intervals. Student academics are measured using the Peabody Picture Vocabulary Test, 4th Edition and the Expressive Vocabulary Test, 2nd Edition. Improved child and family interactions are measured by the Parent Pre and Post Surveys, and Parent and Teacher Satisfaction surveys. **Results:** The average Academic Engaged Time Pre Post scores of 31 students observed changed from 74.1% to 90.2%. The average Pre Post ESP scores are the following: Adaptive Behavior Scale= 23.3 to 31.4 for 32 students; Maladaptive Behavior Scale= 26.2 to 18.7 for 33 students, and Aggression Subscale= 21.7 to 14.4 for 31 students. These results are statistically significant. The average Standard Scores of 31 students who have Pre and Post PPVT-4 data is 95.4 at Intake and 95.6 at Post Intervention. The average Standard Scores of 30 students who have Pre and Post EVT-2 data is 94.8 at Intake and 97.6 at Post Intervention. The results of the Teacher Satisfaction Report thus far show that teachers are generally satisfied with the program, with averages responses ranging from 3.8 to 4.8 out of 5. Most teachers found the program easier to implement with each passing round of experience. The results of the Parent Satisfaction Report thus far show that parents are generally satisfied with the program as well, with averages responses ranging from 3.9 to 4.9 out of 5. **Conclusion:** To date, these findings suggest that implementation of the First Step to Success program in Hawai'i preschools is making a positive impact on its participants. One year to work with additional students and collect data remains.

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Abstract 26

Behavioral Profiles of Typically Developing (TD) Siblings of Children with Autistic Disorder (AD) in Mumbai, India

Shireen Cama, BA, Harvard Medical School, Boston, MA, Kerim Munir, MD, MPH, DSc, Psychiatry, Children's Hospital Boston, Boston, MA, Vibha Krishnamurthy, MD, Ummeed Child Development Center, Mumbai, Maharashtra, India, Sonali Talsania, BA, Harvard Medical School, Boston, MA

Purpose: This study examined the behavioral profiles of TD siblings of children with AD who attended the Ummeed Child Development Center and the relationship of these profiles with maternal and family characteristics. **Methods:** Mothers of index AD children (N=49) completed the Child Behavior Checklist (CBCL) with respect to their TD children (24M, 25F; ages, 1.5-13yrs), the General Health Questionnaire-12 (GHQ-12) with respect to their own psychological well-being, and a questionnaire about family support and their TD child's understanding of autism. **Results:** The mean CBCL T-scores for internalizing (I), externalizing (E), and total (T) problem behavior subscales for the TD siblings were all within non-clinical ranges as per standard cut-offs. Using linear regression, significant relationships were found between T-scores and the number of years that the TD child has been exposed to the child with AD (I, $r=1.76$, $p<.01$; E, $r=1.29$, $p=.02$; T, $r=1.57$, $p=.02$), how well the TD child understands his/her AD sibling's special needs (I, $r=-2.45$, $p=.05$), and how often the mother talks to her TD child about the AD child's special needs (I, $r=-3.85$, $p<.01$). Surprisingly, higher CBCL scores were also correlated with maternal report of increased support from other members of her family (I, $r=3.99$, $p=.03$; E, $r=3.47$, $p=.03$; T, $r=4.13$, $p=.04$) and increased comfort in talking to members of her family about her concerns regarding her AD child (I, $r=1.00$, $p<.001$; E, $r=.56$, $p<.001$; T, $r=.94$, $p<.001$). No significant correlation was found between CBCL scores and maternal psychological distress as measured by the GHQ-12 or whether the child lived in a joint vs. nuclear family. **Conclusion:** These results suggest that living with a sibling with AD is associated with increased behavioral problems, but that discussion of the AD sibling's needs with the TD child may be somewhat protective. The correlation between increased maternal perception of familial support and increased behavioral problems in the TD child may reflect a greater real need for support by the mothers confronted with greater behavioral challenges in their children.

Abstract 27

Autism Rapid Diagnosis Clinic: a New Model for Efficient Early Diagnosis and Referral

Roula Choueiri, MD, Susan Mangan, BS, Ellen Perrin, MD, Developmental and Behavioral Pediatrics, Floating Hospital, Boston, MA

Purpose: Demand for early autism diagnostic evaluations continues to grow as long waits for them delay access to crucial early services. We describe here a new diagnostic clinic model we pioneered for children younger than 3 years. **Methods:** We reviewed the number of children seen over a one year period in this new clinical model, gender, age, diagnosis, wait time to be seen, rates of no shows and of follow-ups. **Results:** The clinic is staffed by a neurodevelopmental pediatrician and a receptionist. Evaluations follow this protocol: a 90 minutes visit that includes neurodevelopmental and medical history; review of parental intake form and of Early Intervention evaluation; neurodevelopmental testing including ADOS and/or Mullen administration based on concerns and observations; physical examination. Diagnosis and recommendations are discussed then and families are provided with a letter to start setting services up. A full report follows. Referrals to further medical evaluations are made as needed. When a diagnosis of an ASD is made, the family is given extensive information about the disorder and access to an autism resource specialist. All are scheduled for a follow-up in 2-3 months. During the period January 2009 to December 2009, 59 children were evaluated; 41 (69.4%) were males and 18 (30.5%) were females. Only 3 (5%) did not keep their appointment. Age ranged between 9 and 35 months with an average of 28 months. Wait time between referral and the evaluation varied between 1 and 3 months with an average of 2 months. A diagnosis of ASD was provided in 37 (62.7%), language delay in 15 (25.4%), Global Developmental Delay in 6 (10%) and Behavioral Disorder, NOS in 1(1.6%). Forty-one (69.5%) came for at least 1 follow-up and of these 3 (5%) changed diagnosis. **Conclusion:** The clinical protocol described was successful in providing quick and efficient diagnostic evaluations for children younger than 3 years with concerns suggesting an autism spectrum disorder.

Abstract 28

Using 2D Digital Photographic Measurements to Aid in the Diagnosis of Fetal Alcohol Syndrome

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Purpose: Evaluate 2D digital photographic measurements (PM) as an aid in diagnosis of Fetal Alcohol Syndrome (FAS). **Methods:** From 2006 to 2009, 121 patients were evaluated by PM and by clinical examination (CE) by a nurse practitioner and a pediatrician trained in FAS dysmorphology. Facial features were assessed in 3 views using digital photographs and analyzed using standardized facial software. Correlations, chi-square and positive predictive value (PPV) were computed. **Results:** Participants: 56% male; 9 +/- 5 years; 90% with non-biological parent; 56% adopted. Diagnoses: FAS 10% by both methods; Alcohol Related Neurodevelopmental Disorder (ARND) 75% by CE, 76% by PM; and no alcohol-related disorder 15% by CE, 14% by PM. Diagnoses by each method were correlated ($r=0.78$, $p<0.01$). PPV for diagnosis of FAS, ARND, and no disorder were 0.50, 0.92, 0.94 respectively. No sex-, age- or race-based differences found in final diagnosis or facial measurements. **Conclusion:** PM may be useful when a dysmorphologist is unavailable.

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The 2 methods were equivalent for diagnosis of ARND and no disorder. However, modest correlations for facial features raise questions about precision of PM related to CE. Poor agreement for diagnosis of full FAS raises concerns that small disagreement in facial measurements could result in different final diagnosis.

Correlation Table

Variables (n=121)	Correlation (r)
Final Diagnosis	0.78
Facial Rank	0.60
Palpebral Fissure Length	0.75
Palpebral Fissure Mean Score	0.55
Philtrum Score	0.41
Lip Score	0.56

Abstract 29

The Use of Complementary and Alternative Medicine in Children with Autistic Spectrum Disorders in the Stony Brook Service Area

Pei-Chi Wu, MD, Pediatrics, Stony Brook University Medical Center, Stony Brook, NY, Catherine Riley, MD, Developmental Behavioral Pediatrics, Dept of Pediatr, SUNY Stony Brook, Stony Brook, NY

Purpose: Parents of children who have an autism spectrum disorder (ASD) often seek complementary and alternative medicine (CAM). This study was designed to review the patterns of CAM use by ASD patients in the Stony Brook service area. **Methods:** This is a cross-sectional study of the parents of children with ASD. The children were selected by reviewing the diagnostic codes 299.0, 299.01 or 299.80 used for medical billing over the last 3 years. 125 patients were identified and surveyed in this pilot study. The survey includes questions about the family/child's demographic information, and specific CAM modalities including the following four categories: dietary, supplements, vaccinations, and others. **Results:** 33 questionnaires were returned and included in the data analysis. The most frequently used CAM is dietary supplementation, 54.5% of the subjects have tried some form of supplement. The second most popular treatment is sensory integration, 33.3% of the patients have used this therapy. The third most used CAM is diet modification, 30.3% of the patients have tried this modality. 18.2% of the parents choose to withhold some vaccinations. For patients who are on supplements, 39.4% use vitamins and minerals, and 30.3% use melatonin. Casein free and gluten free diets are the most popular in our subject group, with 27.3% on a casein free diet, and 24.2% have tried a gluten free diet. 50% of the parents who withhold vaccinations have no intention to give their children the rest of the recommended vaccines. **Conclusion:** A high percentage of parents have adopted some form of CAM to help manage their child's ASD. Supplementation is the most commonly used CAM in our patient population. However, the majority of the patients who are on vitamins are taking them for health maintenance reasons. Diet modification is also popular among our surveyed group. This can cause nutritional deficiency since children with ASD already have very restricted diets due to their sensory problems. Withholding immunizations is common in our patient population. This can potentially lead to public health issues and unnecessary medical workup.

Abstract 30

Do Questions about Parent Concerns Provide Adequate Surveillance?

Shela Merchant, MA, Emily N. Neger, BA, Ellen C. Perrin, MD, R. Christopher Sheldrick, PhD, Pediatrics, Floating Hospital, Tufts Medical Center, Boston, MA

Purpose: The American Academy of Pediatrics recommends surveillance of children's behavior and development by asking parents "Do you have concerns about your child's behavior? Development? Learning?", but no published data confirm the usefulness of these questions. As part of a larger study, parents were asked these 3 questions. Data were analyzed to determine how well parents' concerns reflected problems identified by validated screening measures. **Methods:** 447 parents of children ages 2 months to 5.5 years were recruited from urban and suburban primary care pediatric waiting rooms. In addition to specific questions about developmental milestones, behaviors, and concerns, parents completed the Ages and Stages Questionnaire-Social-Emotional (ASQ-SE), a behavioral screener, and the Ages and Stages Questionnaire (ASQ-3), a developmental screener. We assessed the psychometrics of each question individually and all three as a group. **Results:** 99 parents (22%) reported having a concern about their child on one or more questions. Using clinical scores on the ASQ and/or the ASQ-SE as a criterion, the sensitivity of this group of 3 questions was 48%; specificity was 83% and positive predictive validity was 33%. Individually, each question was more sensitive in relation to behavioral risk than to developmental risk. In particular, parents who reported developmental problems in the absence of behavioral problems were unlikely to report concerns on any of the 3 questions. Family income and parent education were not related to concerns. **Conclusion:** Fewer than half of the parents of children who scored in the clinical range on the ASQ or ASQ-SE reported having one or more concerns. Parents' concerns appear to be particularly inconsistent with their own reports of developmental problems that occur in the absence of behavioral symptoms. Thus, these questions are not sufficient for effective surveillance.

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Sensitivity of parent concerns to ASQ and ASQ-SE scores:

	Clinical Range ASQ-SE Only	Clinical Range ASQ3 Only	Clinical Range Both
Concerns about Development	34%	13%	36%
Concerns about Behavior	59%	4%	20%
Concerns about Learning	21%	9%	24%
Any Concerns	60%	17%	36%

Abstract 31

Accuracy of Pediatricians' Identification of Developmental and Behavioral Problems

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Purpose: Pediatricians are important gatekeepers to mental health and developmental services. Many investigators claim that unless they use validated screening instruments, pediatricians are not accurate in identifying developmental or behavioral problems. However, the data to support this claim have not been systematically reviewed. **Methods:** We conducted a systematic literature review based on searches of Medline and bibliographies of relevant articles. We identified 11 studies that included: 1) an assessment of pediatric identification; 2) an independent criterion assessment (e.g., diagnostic interview, validated screening instrument, or qualification for services); and 3) follow-up of a sufficient number of cases to determine sensitivity and specificity. For each study, we calculated relevant statistics and evaluated quality using QUADAS criteria, a standard way to assess study methodology in systematic reviews of diagnostic accuracy. **Results:** Two studies were excluded because they focused on a single disorder (sleep problems, language delay), and two other studies were excluded because data were based solely on parents' reports of their discussions with pediatricians. In each of the remaining 7 studies, the sensitivity of pediatricians' identification was far lower than the specificity. Sensitivity ranged from 14% to 54%, while specificity ranged from 76% to 100%. Because of the high variability in study quality, meta-analytic summary variables could not be calculated. **Conclusion:** These studies demonstrate that pediatricians identify a relatively low proportion of children who have a developmental or behavioral problem, but they do identify correctly most children who do not have such a problem. Systematic screening programs are likely to improve pediatricians' sensitivity in detecting developmental and behavioral problems. However, given pediatricians' generally high specificity, use of screening instruments may result in more false positives.

Abstract 32

Treadmill Stepping in 2-10-month-old Infants with Myelomeningocele: Enhancing Sensory Input to Improve Motor Activity

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Purpose: Infants born with the neural tube defect, myelomeningocele (MMC) have incomplete spinal sensory and motor neuron loss, making leg control significantly delayed or unattainable. We hypothesize a critical factor in this poor outcome is their general lack of spontaneous activity, which promotes neural organization and motor control. Previously we showed that infants with MMC, when supported on a treadmill, produce some steps, though significantly less than their healthy peers (Teulier et al., 2009). Here we tried to increase their responsiveness by enhancing the sensory stimulation provided by the treadmill context. **Methods:** We tested 2-5 month-olds ($n=11$) and 7-10-month-olds ($n=16$) w/MMC in their homes by supporting them upright on a treadmill during Baseline and enhanced sensory conditions: Visual Flow, Unloading, Weights, Velcro, Friction. Trials were 30s, presented twice in random order, in two sets; we used two cameras to record babies movements. Behavior coders identified the occurrence of alternating, single, parallel, and double steps. Spinal lesion level categories were: High (L1-3), Mid (L4), Low (L5-S4). **Results:** A 2 (Age) X 3 (Lesion Level) X 6 (Condition) ANOVA w/repeated measures, for total steps, showed significant Age ($p<.016$), Lesion ($p<.063$), Condition ($p<.043$) main effects, and Age X Condition ($p<.011$) and Lesion X Condition ($p<.04$) interaction effects. Older infants stepped more frequently and infants increased steps in the Friction and Visual Flow conditions, compared to Baseline. Infants with Lower Lesions produced more steps in all enhanced sensory conditions compared to Baseline. Those with Higher Lesions showed a small increase in the Visual, Unloading, and Friction conditions. **Conclusion:** Results suggest that enhancing the sensory input when supporting infants on a motorized treadmill improves stepping, particularly when the sensory source is Visual and tactile (increased Friction) and more for older than younger infants. In future, we will test the impact of combining Visual Flow and Friction, and the impact of extended practice stepping on a treadmill on the development of neuromotor control in babies born with MMC.

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Abstract 33

Observed Maternal Feeding Style and Toddler Weight Status

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Purpose: To determine the independent association of observed maternal feeding style with child weight status. **Methods:** Mother-child pairs participating in the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development were videotaped during a laboratory snack session when the child was aged 15, 24, and 36 months. Intrusiveness was coded as yes versus no. Number of physical encouragements, verbal encouragements, and verbal food offers were counted. Child weight and height were measured and weight-for-length or body mass index z-score calculated. Generalized estimating equations were used to examine the relationship of intrusiveness (yes v. no), as well as number of prompts and prompt type, with child weight status z-score, controlling for child sex, race, maternal education, maternal depressive symptoms, and maternal weight status. **Results:** 1253 children, 85% white and 50% male, were included. In the adjusted models, the mother being intrusive during feeding was associated with a slightly higher weight-for-length or BMI z-score across toddlerhood (0.08 standard deviation units (SDU), SE 0.03, $p = .002$). Mothers whose prompts to eat were always verbal food offers, as opposed to other types of prompts, had children with significantly lower weight-for-length or BMI z-scores (0.17 SDU, SE 0.07, $p = .02$), while mothers whose prompts to eat were always verbal encouragements had children with significantly higher weight-for-length or BMI z-scores (0.16 SDU, SE 0.07, $p = .03$). **Conclusion:** The style with which a mother was observed to feed her toddler was associated with the toddlers weight status, such that a more intrusive style was associated with a higher weight status, independent of confounders. The results are consistent with prior studies demonstrating an association between less sensitive parenting and a higher risk of child obesity. The results therefore suggest that pediatricians should encourage mothers to use a more sensitive and less intrusive feeding style as one potential strategy to prevent the development of obesity.

Abstract 34

Clinical Genetic Clues to the Origins and Outcomes of Autism Spectrum Disorders

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Purpose: Autism Spectrum Disorders (ASDs) are the most common childhood developmental disorder. The ASD population is heterogeneous and despite high prevalence and clear evidence that early interventions can optimize development, ASDs are often not recognized until age 3 or older. In up to 40% of cases, ASD behaviours are recognized as a component of specific medical, genetic or chromosomal disorders. In most others, affected children can have seizures, co-existing psychiatric disorders, intellectual disability, and major or minor physical anomalies. These co-morbidities often occur as clusters of symptoms, suggesting syndromic relationships to each other and to ASDs. We aim to identify reliable biomarkers of ASD susceptibility, etiology and co-morbidity that may lead to earlier detection and improved management. **Methods:** We applied a series of standardized measurement tools to select specific genetic, medical and teratogenic conditions known to co-exist with ASDs amongst a randomly selected cohort of >300 individuals with an ADOS and ADI-R confirmed ASD. All individuals received standardized clinical genetics consultation by a certified medical geneticist including review of family, medical and developmental history and dysmorphology exam. Clinical investigations included Fragile X gene testing, karyotype, subtelomeric and targeted FISH testing for common rearrangements of autism-associated loci at 2q37, 7q11, 15q11, 22q11 and 22q13. Data were analyzed to identify ASD clusters/subgroups that may differ in etiology, associated co-morbidities, outcome and genetic measures. **Results:** Comprehensive clinical genetic assessments revealed heightened frequency of co-existing intellectual disability (ID), as well as craniofacial, systemic, growth and neuroclinical anomalies (seizures, vision) within each different ASD-associated genetic, chromosomal, genomic syndromic and non-syndromic disorders. **Conclusion:** By identifying several cases sharing the same phenotypic pattern of symptoms, co-morbidities and/or clinical genetic/syndromic contributors to ASDs, we can begin to generate guidelines to facilitate optimal anticipatory management and functional outcomes for individuals and families living with ASDs. Our findings aim to set the standard for Clinical Genetic and Child Health Services critical to recognizing and managing brain and body features/co-morbidities of autism to improve individualized therapies and management.

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Abstract 35

Parent-Administered Early Literacy Screening of Preschoolers during Well-Child Visits

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Purpose: To determine the feasibility and acceptability of parent-guided administration of an early literacy screen, Get Ready To Read! Screen (GRTRS), delivered in pediatric primary care, with urban, low-income families, to compare parent and RA scoring, and to observe any problems with parent administration. **Methods:** 110 parents administered GRTRS to their 4-5 year old children at a well-child visit. Parents were randomly assigned to complete either a computer- or paper-based version of the screen with their child, and completed PEDS developmental screen. An RA independently documented children's answers on the GRTRS. **Results:** Ten children (9.1%) scored "at risk" on GRTRS (score <9/20). Increasing the cutoff score to <11 more than doubled the number of children identified (20%). On average, parents assigned scores 0.52 points (SD 1.1) higher than the RA (range: 0-6 points). Mean scores and distribution of "at risk" scores was similar for both versions. Most parents enjoyed completing the screen with their child. No parent of a child with an "at risk" score (<9) indicated concerns about early academic skills on PEDS, and only 2/10 failed PEDS. **Conclusion:** Parental administration of an early literacy screen as part of the well-child visit was feasible and acceptable to parents. Development of a standardized audio-recorded version of the screen could address parental score inflation, as well as parent literacy barriers. Literacy screening identified children at risk who would not have been identified based on parental concerns alone.

Abstract 36

Examining the Relationship between Varying Symptom Presentation in Children with Autism Spectrum Disorder and the Adjustment of their Typically Developing Siblings

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Purpose: Numerous studies have focused on potential challenges faced by typically developing (TD) siblings of children with physical or developmental disability, including Autism Spectrum Disorder (ASD) (Bagenholm & Gillberg, 1991; Knott, Lewis & Williams, 1995; Opperman & Alant, 2003; Hastings, 2007; Barr, McLeod & Daniel, 2008). This study aims to examine how the varying symptom presentation in children with ASD relates to the adjustment of their TD siblings. **Methods:** A convenience sample of 99 families, with a child aged 4 to 18 affected with ASD, as well as a TD child aged 6 to 23, have participated. To verify ASD diagnosis in the proband, the Autism Diagnostic Observation Schedule (ADOS) and Autism Diagnostic Interview-Revised (ADI-R) were performed. In addition, cognitive and behavioral measures were administered. Overall severity of symptoms was calculated using the Calibrated Severity Score (CSS) (Gotham, Pickles & Lord, 2009). To confirm neurotypical development in the unaffected child, parents completed the Social Responsiveness Scale (SRS) and provided medical and educational information. In addition, parents completed measures to characterize emotional and behavioral development of their TD child, including the Child Behavior Checklist (CBCL) and the Vineland Adaptive Behavioral Scales-II (VABS-II). **Results:** A regression analysis tested for associations between proband behavioral phenotype and TD sibling emotional and behavioral development. When compared to the Restricted and Repetitive Behaviors and Interests (RRBI) domain on the ADI-R, ten of the fifteen subdomains in TD siblings tested on the VABS-II and CBCL were found to be statistically significant ($p < .05$). All other domains on the ADOS and ADI-R, including those assessing social interaction and communication deficits, as well as CSS, were not associated with difficulties in TD siblings. **Conclusion:** Children with ASD who have an increased presence of RRBI have siblings with a higher prevalence of social, emotional and behavioral difficulties, when measured using subscales on the CBCL and VABS-II. Social interaction and communication domains on the ADI-R and ADOS, as well as CSS were not significantly correlated with difficulties in the TD sibling. Future studies will need to clarify the relationship between RRBI and their effects on TD sibling development.

Abstract 37

Early Changes in Selected Attention-deficit/Hyperactivity Disorder Rating Scale Items for Predicting Longer-term Response to Atomoxetine in Pediatric Patients

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Purpose: To identify early changes in individual Attention-deficit/Hyperactivity Disorder Rating Scale (ADHD-RS) items that can predict future atomoxetine treatment response in pediatric patients. **Methods:** Utilized were data from 4 double-blind, placebo-controlled, 6- to 9-week clinical trials examining the safety and efficacy of atomoxetine in pediatric ADHD outpatients, aged 6 to 17 years. Data from 2 studies were pooled ($n=148$) to develop 2 classification models using Classification and Regression Trees analysis, in order to predict treatment response after 6 weeks based on single ADHD-RS item scores collected after 1 or 2 weeks of treatment. Data from 2 independent studies served as a validation dataset ($n=272$). **Results:** At the end of Week 1, a score decrease of ≥ 1 point

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in ADHD-RS Item 15 ('easily distracted') predicted treatment response (defined as a reduction of $\geq 25\%$ in ADHD-RS total score) at 6 weeks with a positive predictive value (PPV) of 84.9% and a negative predictive value (NPV) of 52.6% in the training dataset (validation dataset: PPV=74.3%; PV=50.5%). At the end of Week 2, a score decrease of ≥ 1 point in ADHD-RS Item 17 ('forgetful') predicted treatment response at 6 weeks in both training and validation datasets (PPV=86.1% and PPV=73%, respectively), while the absence of a score decrease of ≥ 1 point on ADHD-RS Item 17 and Item 11 ('avoids tasks with sustained mental effort') predicted treatment non-response (NPV=79.2% and NPV=57.8%, respectively). Conclusion: We were able to identify single ADHD-RS items predicting future response to treatment with atomoxetine in pediatric patients with ADHD.

Abstract 38

Correlates between Mental Health and Language Development in Children and Adolescents with Hearing Impairments

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Purpose: The aim of this study is to elucidate factors of language development and communication related to the high rate of Mental Health disorders seen in those with impaired hearing, including social factors and audiological measures. **Methods:** A representative sample of 95 pupils (47 females, 48 males; mean age 11y 1mo, range 6y 5mo to 16y, SD 2y 7mo) with hearing impairments of at least 40 dB and normal non-verbal intelligence (IQ 97.5, SD 19.5), was assessed audiological and with a structured clinical interview (Kinder-DIPS) giving both current and lifetime diagnoses, and the Strengths and Difficulties Questionnaire. Detailed social information was gathered from parents and teachers. Language skills and conversational proficiency in spoken/heard and signed language as well as reading comprehension were assessed with standardized instruments. **Results:** Prevalence of Mental Health disorders was about twice as high as in the general population. Outcomes for spoken and written language were strongly related to the degree of hearing loss. Mental Health disorders were 4.12 times (1,2-14,1) more likely to be found in children who had problems to make themselves understood in the family but were not significantly related to the degree of hearing loss, academic skills (reading comprehension) and spoken or signed language proficiencies. Children who were not able to make themselves understood in their family were more frequently victims of adverse experiences at school. Peer relationship problems of adolescents did not correlate with the degree of hearing impairment or discrete linguistic skills but with the level of language used in conversation with peers at school whether in signed or spoken language. **Conclusion:** The priority of family communication in early years is emphasized. In adolescents decisions of school placement have to consider the level of language competence in the mode used by peers.

Abstract 39

Sleep & Internalizing Behaviors In Inner City Children: Unexpected Findings

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Purpose: To examine prevalence of parasomnias in inner city school-age children and to test whether children with parasomnias are more likely to have internalizing symptoms than either children without any sleep problems or those with sleep disordered breathing (SDB). **Methods:** Cross sectional study of 70 otherwise healthy children, 7-12 yrs, presenting at an inner-city center for well visit/minor illness. **Measures:** Children's Sleep Habits Questionnaire, Pediatric Sleep Questionnaire-SDB Subscale, Vanderbilt Scale for ADHD, Screen for Child Anxiety Related Emotional Disorders and Children's Depression Inventory. Information about family history and psychosocial stressors was obtained. ANOVA and Chi square analysis were used to compare behavioral measure results among different sleep disorders. **Results:** Mean age: 9.8 yrs; 59% female; 47% Hispanic, 24% African American. 44 children had no sleep problems (NS). Of 26 with sleep problems, only 4% (n=3) had parasomnias (PS) alone, 14% (n=10) SDB, 4% both and 10 other sleep issues (OTHER). More of the 26 with sleep problems had symptoms of separation anxiety ($p < .01$) and school avoidance ($p < .02$) than NS. 2/3 with PS alone had negative behavioral screens. SDB group did not differ from SDB+PS. Compared to NS and OTHER, SDB+PS (n=13) had higher separation anxiety ($p < .05$), school avoidance ($p < .01$), inattention ($p < .001$) and oppositional defiant disorder ($p < .02$) than NS. Positive family history and presence of marital discord were associated with higher scores on behavioral measures. Only 5% of NS had externalizing symptoms, but 39% had symptoms of anxiety and 18% had symptoms of depression. **Conclusion:** In this sample, there was a lower prevalence of parasomnias and higher prevalence of SDB than previously reported. The few with parasomnias did not display more internalizing symptoms. It is notable that 39% of children with no sleep problems had positive anxiety screenings and 18% had positive depression screenings. This should alert pediatricians to look for internalizing behaviors in children, even those without sleep problems and particularly if families have a psychiatric history and/or marital discord is present.

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Abstract 40

Influences of Family Stress on Externalizing Behaviors of Urban Children

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Purpose: Externalizing behavior problems in urban children are associated with school drop-out and delinquency. A randomized controlled trial of an innovative home visiting program, The MOM Program, offers promise in reducing aggression in urban children. In a prior analysis, at age 60 months, children in the intervention group showed significantly less aggression than children in the control group. This report presents results from the 8-year follow-up of 180 children (60% of the original cohort). **Methods:** To evaluate family contributors to child externalizing behaviors, we used the Family Inventory of Resources and Stressors (FIRST) and the Beck Depression Inventory-II (BDI-II). **Results:** There were no group differences in child behavior problems, family stress, and maternal depression. For the combined sample, child externalizing behaviors were significantly related to family stress and maternal depression, (see table). Stepwise multiple regression of predictors of child externalizing behaviors demonstrated that the beta weight for family stress exceeded that for maternal depression. In a separate stepwise multiple regression, elements of family stress most strongly predictive of child externalizing behaviors included maternal disorganization and forgetfulness, family arguments and temper outbursts, and family mental illness. **Conclusion:** This study offers support for the development of interventions to enhance maternal executive functioning and family conflict management.

Means, Standard Deviations, and Intercorrelations for Measures

Variable	M	SD	1	2
CBCL Externalizing	53.53	10.56	.498*	.432*
Predictor Variables				
1. Family Stress	42.47	9.81	-	.574*
2. Maternal Depression	6.38	7.32	.574*	-

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The MOM Program: Demonstration RCT to Promote Resilience Through Homevisiting

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Purpose: Women living in U.S. urban poverty face many challenges to effective child-rearing. To address the complex, interactive issues of poverty, and to promote mother/child resilience, home visiting programs have proven effective in short- and long-term outcomes. This report presents 60-month results of The MOM Program, an innovative home visiting program using a mixed model of nurse practitioners and community staff, in which families were visited at key transitional points in children's development to provide child development information and to facilitate routine medical care appointments for children. The main hypothesis was that mothers randomized to the intervention condition of The MOM Program would be more effective at creating home environments that support child resilience, evaluated through behavioral competence, than mothers in the usual care, control condition. **Methods:** Mothers (n = 302) who had just given birth in an urban hospital living in ZIP Code regions with high poverty rates were randomized into a five-year intervention study. The intervention group received home visits timed to well child visits, and follow-up reminders to keep missed appointments or to obtain recommended early intervention services. Both groups, including control group mothers, received only information on community services for young children and families. At 60 months after study enrollment, surveys were completed of children's behavior (Child Behavior Checklist), maternal depression (Beck Depression Inventory), family stress (Family Inventory of Stressors and Resources), and other family variables, including number times the family had moved in the past 60 months. **Results:** By 60 months of age, children in the intervention group showed significantly decreased externalizing behavior problems than children in the control group [effect estimate = -2.58 (1.22), p = .04]. Simultaneous multiple linear regression determined that family stress (p = .01) and housing instability (p = .01) were also predictive of increased child externalizing behavior outcomes. Maternal depression was significantly related to increased child behavior problems only in the control group (p < .001), providing further support for the effectiveness of the intervention. **Conclusion:** This innovative mixed model home visiting program shows promising effectiveness to empower mothers living in poverty to support lasting child behavioral resilience.

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Abstract 42

Detection of Neuromotor Abnormalities in Former Preterm Infants by Parent Completed Screening Tools

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Purpose: Neuromotor impairment is a significant area of disability in former preterm infants. Given financial and time constraints, physicians often rely on their physical/neurologic examination and parent-completed developmental screening questionnaires (PQ) to detect motor abnormalities despite the lack of supporting evidence for use of PQ for this purpose. This study evaluated the ability of parent-completed questionnaires to detect neuromotor impairment in the former preterm infant, in comparison to a directly administered motor screen. **Methods:** Infants <37 weeks gestation were consecutively enrolled. Parents completed the Parents Evaluation of Developmental Status (PEDS) and the Ages and Stages Questionnaire, 3rd edition (ASQ-3) for child's age corrected for prematurity at their routine developmental follow-up visit. The Alberta Infant Motor Scale (AIMS) was administered as the gold standard for motor function and scored for corrected gestational age. Total AIMS scores below 25% for corrected gestational age were considered concerning. The PEDS was considered a "concern," if the parent marked "yes" or "a little" to concerns on the gross motor question. The ASQ was considered a "concern" on the gross motor portion if the score interpretation was borderline or below the cut-off. **Results:** Participants ranged 2 to 4 months, corrected for gestational age. Of the 25 participants, 76% were male, 52% were White and 44% African-American. Gestational age ranged 26 to 35 weeks, birth weight from 750 to 2465 grams. 36% of the patients had AIMS scores below 25%. Sensitivity of the PEDS to detect gross motor abnormalities was 22%, specificity 94%. Sensitivity of ASQ-3 to detect gross motor abnormalities was 33%, specificity 88%. **Conclusion:** Parent questionnaires around the 3 month corrected gestational age had low sensitivity in detecting neuromotor abnormalities, when compared to a physician administered neuromotor gold standard tool. Physicians should consider performing a standardized neuromotor assessment and not rely solely on parent-completed questionnaires to detect early neuromotor abnormalities in the high-risk infant.

Abstract 43

Acupuncture for Adolescents with Chronic Pain: Pain and Health-Related Quality of Life

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Purpose: Adolescents with chronic pain have been shown to have significant impairments in quality of life. While acupuncture research has primarily been conducted in adult and pediatric populations with a variety of diseases, including gastrointestinal and neuropathic disorders, to date only a few investigations have examined the effects of acupuncture on HRQOL in adolescents with chronic pain. **Methods:** A case series on four adolescents (mean age 15.25, 3 females) with chronic pain is presented as part of an ongoing 8-week pre- and post- test acupuncture intervention in an interdisciplinary outpatient pediatric pain management clinic. Participants completed measures of pain intensity (i.e., Faces Pain Scale-Revised, and the Color Analogue Scale (CAS)), and health related quality of life (PedsQL) at weekly sessions. **Results:** All participants self-reported decreased pain intensity from pre- to post-acupuncture per session on the Faces Pain Scale-revised ($t = 3.62$, $p < 0.001$) and the CAS Scale ($t = 4.81$, $p < 0.0001$). Three of the four participants showed overall improvement in health-related quality of life, as demonstrated by the total PedsQL summary score ($M = 45.66$ (T1), $M = 73.91$ (T8)). Three of the four participants showed overall improvement in the physical PedsQL subscale ($M = 30.21$ (T1), $M = 61.46$ (T8)), emotional subscale ($M = 51.67$ (T1), $M = 75.00$ (T8)), and social subscale ($M = 65.00$ (T1), $M = 91.67$ (T8)). All participants reported an improvement on the PedsQL academic subscale ($M = 48.75$ (T1), $M = 70.00$ (T8)). **Conclusion:** Adolescents who received 8 weekly acupuncture treatments demonstrated decreases in pain intensity and increased functional health-related quality of life. Future work should evaluate the long-term pain relief and quality sleep associated with acupuncture in adolescents with chronic pain. Acupuncture may be an efficacious complementary treatment in modulating pain and increasing functioning for adolescents and therefore, an essential part of a multidisciplinary treatment approach for adolescents with chronic pain.

Abstract 44

How Parents want to Learn about Parenting

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Purpose: Less than 20% of parents of children with behavior problems obtain treatment. The goal of the present study was to assess how parents in a rural community would like to receive information regarding parenting and to identify factors that predict whether or not parents will attend parenting classes. **Methods:** 69 parents of children ages 2-8 were recruited in the waiting room of a Midwestern, rural, primary care pediatric practice. Parents completed instruments assessing where they obtain and would like to receive advice on parenting, their child's behavior, barriers to treatment, perceived stigma regarding treatment, and beliefs regarding the effectiveness of various interventions. **Results:** Repeated measures ANOVA found that parents believe that parenting advice

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obtained during individual appointments at their child's pediatric office, whether during a well child or separate visit, would be significantly more helpful than group classes, DVD, internet, or handouts ($p < .05$). Although parents most often received parenting advice from their family and friends, parents reported wanting advice from their child's pediatrician more often than any other source, including friends, family, mental health professionals, child care workers, and clergy. Results of a linear regression demonstrated that parents are most willing to attend parenting classes when they believe the classes will be effective ($p < .01$), and when they believe that their child has a behavioral problem ($p < .05$), after controlling for barriers. A t-test demonstrated that parents believe that if they attend parenting classes, their child will receive more stigma than the parent ($p < .01$). Conclusion: Parents want to receive parenting advice from their child's pediatrician more than any other source and believe that advice obtained from their child's pediatrician will be most effective in treating child behavior problems. The finding that parents are more likely to attend treatment that they believe will be helpful underscores the importance of emphasizing the effectiveness of treatments when describing them to parents. Physicians should attend to parent concerns regarding stigma toward their child as potential barrier to attending treatment.

Abstract 45

Depression of Mothers with High-Risk Preterm Infants and Infant-Centred Quality of Care in NICUs

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WITHDRAWN

Purpose: There is a higher incidence of depressive symptoms in mothers of pre-term infants than mothers of full-term infants. The aim of this study was to investigate the relation between levels of infant-centered quality of care in NICUs and maternal depressive symptoms. Methods: 178 mothers of high-risk healthy preterm infants were recruited in the 28 NICUs of the NEO-ACQUA study, a multi-center, longitudinal Italian study of NICU care. The NEO-ACQUA Quality of Care Index (QCI), a 19 item checklist, was developed specifically to assess the level of infant-centred quality of care in each of the NICUs. Items included: unrestricted access to mothers vs. limited access; the amount and frequency of kangaroo mother care; the kind of care intervention offered to infant (e.g., postural manoeuvres, reduction of disturbing tactile stimulation). Based on their score on the QCI each NICU was assigned to one of three levels of quality of care: low (8 NICUs and 42 mothers), medium (6 NICUs and 55 mothers), and high (14 NICUs and 81). Maternal depressive symptoms were assessed at two times: at the infants discharge from hospital (T1) using the Edinburgh scale, and at 6 months of life of the infants (T2) using Beck Depression Inventory ($N = 149$, 84% of the sample at T1). Results: Two separate ANOVAs revealed that: at T1 depressive symptoms were higher in the mothers from NICUs with low levels of quality of care than the mothers of NICUs from medium and high levels of care ($F(2,177) = 10.29$, $p < .000$, respectively, 13.29, 8.15, 9.56); and at T2 a marginal difference was found ($F(2,148) = 2.78$, $p = .06$). Post-hoc comparisons indicated that maternal depressive symptoms were significantly higher in the NICUs with low levels of quality of care (mean = 9.09) than the NICUs with high level of care (mean = 5.53). Conclusion: The findings suggest that a higher level of infant centered quality of care mitigates against maternal depression in the post natal period. By providing mothers with more opportunity to be involved in the process of nurturing of the infant, higher levels of quality of care reduces stressful effects of the marginalization of their parental role.

Abstract 46

Developmental Profile Of Infant With Autism

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Purpose: Few studies have examined whether ASD can be identified in children younger than 12 months in a community setting. The objective is to identify early signs of ASD using a new autism screening tool, Red Flags for Communication scale (RFC) and a general developmental screening, the Ireton Child Development Chart (ICDC). Methods: This is a prospective study, within groups. Educators from 26 Parents as Teachers Programs screened 3067 children ages 5 to 27 months for signs of autism. These children were assessed every 6 months using the ICDC. In addition the RFC was used for children ages 6 and 12 months and the M-CHAT at the ages of 18 and 24 months. Children who failed the RFC or the M-CHAT were referred for assessment using the ADOS, Mullen Scales of Early Learning, Vineland Adaptive Behavior Scales and DSM-IV-TR. Results: 17 children (ages 12-27 months) who failed the autism screening test were referred to our clinic, 11 were enrolled and 10 completed the testing. 4 were identified as ASD and 6 were identified as non-ASD. All children from the non-ASD group had developmental delays. T-tests for independent samples were used to compare the early developmental profile of the ASD group ($n=4$, age range 22-27 months, 75% males) vs. the non-ASD group ($n=6$, age range 12-23 months, 67% males). Lower scores in ICDC language and social developmental quotients in the ASD group were observed at 12,

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18 and at 24 months of age. At the age of 5-7 months the ASD group had statistically significant lower scores in language (ASD group: mean=88.75, SD=12.99; non-ASD group: mean=116.40, SD=21.54; $p<0.05$). At the age of 12 months, the ASD group had statistically significant lower scores in social skills (ASD group: mean=64.00, SD=1.73; non-ASD group: mean=108.80, SD=26.57; $p<0.05$). At the age of 24 months, the ASD group had statistically significant lower scores in language (ASD group: mean=59.75, SD=12.84; non-ASD group: mean=77.67, SD=6.80; $p<0.05$). Cluster analysis also revealed that patterns of failure of RFC were different between the ASD and the non-ASD groups at 6 and at 12 months of age. Conclusion: Children with ASD have a specific developmental profile that can be identified as early as 5-7 months of age. The combination of a general developmental screening with an autism screening may improve the identification of ASD in the first year of life.

Abstract 47

Family Impact of Toddlers' Disruptive Behavior

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Purpose: Child behavioral problems can have a negative impact on family functioning. The extent to which parents attribute family difficulties to their children's disruptive behavior is unknown. We assessed the impact of toddlers' behavior problems on families using a modified Impact on Family (IoF) scale. **Methods:** We administered the modified IoF scale to 263 parents of 2 to 4 year old children whose parents reported disruptive behavior problems. Parents were asked to rate their agreement with 30 statements describing family stresses such as financial burden, emotional strain, and parental conflict. They were then asked to rate the extent to which each issue resulted from their child's behavior. Two IoF scores were calculated; one for family stress, and a second for negative attributions to the child's behavior. IoF scores were compared to concurrent measures of parenting (Parenting Scale; Parenting Practices Inventory; Parent Problem Checklist), child behavior (Infant-Toddler Social and Emotional Assessment), and social support (Family Support Scale). **Results:** High scores on IoF correlated with over-reactive parenting ($r = .32, p < .01$), harsh parenting ($r = .37, p < .01$), parental depressive symptoms ($r = .36, p < .01$), parental conflict ($r = .3, p < .01$), child dysregulation ($r = .35, p < .01$) and weak social support ($r = .3, p < .01$). Most families attributed few stresses to their child's behavior problems, but those families who did (upper quartile; $n = 78$) showed significant differences from those who did not with regard to harsh parenting ($p < .01$), child dysregulation ($p < .01$), parental depressive symptoms ($p < .01$), and parental conflict ($p < .01$). Family stresses most often attributed to child behavior problems included thinking about not having more children, parental fatigue, conflict with siblings, and interference from extended family. **Conclusion:** Although most parents of children with disruptive behavior attribute few or no family problems to their children's behavior, those that do experience significant dysfunction. This study supports the validity of this modified version of the IoF to measure the perceived impact of behavioral problems on family functioning.

Abstract 48

Physicians' Perception of Mental Health Services Effectiveness, acceptability, and Availability

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Purpose: Psychosocial problems affect 15-20% of children with less than 5% being referred to mental health professionals by their primary care pediatricians (PCPs). We extended previous research by examining PCP perception of mental health services effectiveness, acceptability, and availability as well as how PCPs manage psychosocial problems within their practices. **Methods:** Participants were 50 PCPs in and around a midsize Midwestern city. Physicians completed a brief objective questionnaire with questions were rated on a 7-point scale. **Results:** Similar to past research, PCPs endorsed that addressing mental health problems is important for their patients' health, yet reported a lack of confidence in dealing with these issues. Paired sample t-tests revealed that PCPs thought there were significantly more mental health services available for children with private insurance ($M=4.33, SD=1.76$) than with Medicaid ($M=3.45, SD=1.47, p<.01$). There was considerable variability in PCP perception of service availability, despite all PCPs practicing in the same area. Repeated measures ANOVA found that PCPs reported they are more likely to refer children with psychosocial problems to a mental health professional than they are to prescribe medication ($p<.01$) and that they would be likely to refer at higher rates if services were more available ($p<.01$). PCPs reported that they prescribe medications more than counseling parents themselves ($p<.01$) or watchful waiting ($p<.01$). PCPs believe that children's behavior problems are more likely to improve with mental health services than with medication ($p<.01$); however, medication was seen as the most available treatment ($p<.01$). PCPs report they believe parents would be more satisfied with a mental health referral than being prescribed medication ($p<.05$) but when PCPs believe parents will be accepting of medication, they are more likely to prescribe ($p<.05$). **Conclusion:** The present findings demonstrate variability among PCPs in their perception of mental health services availability. Perception of parent acceptability and satisfaction is related to management choices, in spite of PCP perception of effectiveness.

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Body Composition as a Nutritional Marker in Neurodevelopmental Outcomes of Preterm Infants <1250 gm at Birth

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Purpose: Preterm infants are at risk for growth failure and adverse neurodevelopmental outcomes (NDO). It is unclear whether or not body composition (% Fat) is associated with NDO. **Methods:** Infants were evaluated in a neonatal high risk follow-up clinic at 6 mos age, with growth measurements (weight (WT), length (HT) & head circumference (HC) percentiles) and body composition assessment (%Fat) using air plethysmography (PeaPod). Neurodevelopmental assessment measures included the Capute Scales (CAT/CLAMS) for cognitive (CAT) and language (CLAMS) skills and modified Peabody Gross Motor Scale for gross motor skills, with calculation of developmental quotients adjusted for prematurity (adjusted age, AA). **Results:** 95 infants (52 females; 43 males) were evaluated at mean chronological age 6.3 months (56.7 weeks post-menstrual age, PMA) with mean WT %ile: 33.3; HT %ile: 31.3; HC %ile: 40.1; and %Fat 18.7 (range 1-32.9%). Mean CAT AA DQ was 109.4; CLAMS AA DQ was 125.9; and Gross Motor AA DQ was 106.2. % Fat and AA DQs were not associated with gender or feeding type. DQs did not differ by race, but African American infants had lower mean % Fat vs. Caucasian infants (17.6 vs 21.2%; $p=0.02$). %Fat was associated with: WT% ($r=0.43$, $p=0.0001$); HT% ($r=0.24$, $p=0.02$); and HC% ($r=0.21$, $p=0.05$). When controlling for PMA, % Fat was associated with CAT AA DQ ($p=0.002$) and CLAMS AA DQ ($p=0.02$), but not with Gross Motor AA DQ ($p=0.22$). CAT/CLAMS DQs increased as % Fat increased. **Conclusion:** %Fat correlated with cognitive and language skills but not gross motor skills. This indicates that body composition measurement (% Fat) is an important measure for nutritional status and related to cognitive and language NDO in preterm infants. It may be less important for motor development.

Abstract 50

Examining Fluent Reading Networks in Adults: Implications for Developmental Dyslexia?

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Purpose: Reading fluency entails rapid and accurate written language processing with comprehension and requires the coordination of various reading subskills. Slow, dysfluent reading is a key feature of developmental dyslexia (DD) but to date no study has examined the neural correlates of reading fluency in children. Here, we piloted a child-appropriate task in adults to examine speed-related changes in the reading fluency network. We hypothesized greater speed would increase cognitive demands and increase network activation. **Methods:** 13 right-handed adults (12 female; mean age 24.05 yrs) completed two fMRI reading tasks at individually determined slow, comfortable and fast speeds. In the fluent sentence reading task, words constituting a sentence accrued sequentially on a screen and subjects were asked to select an image that best illustrated the meaning of the sentence from distracters. In the letter reading task, matched groups of identical letters and a single target were similarly presented, and subjects were asked to identify the target. Letter stimuli were matched to the sentences in overall number and letter grouping. Null periods were presented between trials. **Results:** Behavioral performance for both tasks was over 95%. The three fluent sentence reading contrasts (each speed > null) were associated with bilateral occipito-fusiform, left middle temporal and left inferior frontal gyrus activation. As speed increased, so did activity in the occipital cortex and the visual word-form area (fusiform gyrus; left > right). Letter reading tasks (tasks > null) engaged lateral occipital cortex bilaterally, along with fronto-parietal, subcortical and frontal regions at all three speeds. In this task greater presentation speed elevated superior parietal and supramarginal activation. Thus increasing reading speed in fluent reading with comprehension increases activation in the visual word-form area. **Conclusion:** Increased reading speed during fluent reading leads to activation increases in brain areas engaged in visual word form processing but not in higher-order components of the reading network. We are now evaluating fluent network-related changes in children with and without a diagnosis of DD using this task.

Abstract 51

Who Doesn't Know? Mothers Who Have Not Heard About the Dangers of Shaking a Baby

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Purpose: Controversy exists regarding the definition of 'Shaken Baby Syndrome' and its true incidence. Abusive head trauma (AHT) is one of the most common causes of infant morbidity and mortality. The 2009 AAP policy statement supports pediatricians in their role as educators to prevent 'Shaken Baby Syndrome.' Our objective was to determine demographic and psychosocial characteristics associated with a lack of knowledge of the safe handling of babies in a population based sample of recent mothers in Rhode Island.

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Methods: Using the CDC's Pregnancy Risk Assessment Monitoring System 7,934 RI women giving birth between 2004-7 were surveyed (73.8% weighted response rate). Lack of Knowledge of Shaken Baby Syndrome (LKSBS) was assessed by asking mothers if they had heard or read about the dangers of shaking a baby. **Results:** LKSBS was reported by 6% of mothers. Significant differences were found by maternal race/ethnicity (NHWhite 2%, NHBlack 17%, Hispanic 13%, Asian/PI 16%, other 5%, $p<.0001$). A logistic regression found that LKSBS was independently associated with mothers who were of minority status including NHBlack (AOR=3.4; CI=2.0-5.7, $p<.0001$), Hispanic (AOR=1.9; CI=1.1-3.2, $p<.05$), and Asian/PI (AOR=3.3; CI=1.8-6.3, $p<.001$). Other factors predictive of LKSBS included mothers who were: immigrants (AOR=3.0; CI=1.2-2.4, $p<.0001$), primiparous (AOR=1.7; CI=1.2-2.4, $p<.01$), acknowledged symptoms of post-partum depression (AOR=1.7; CI=1.1-2.5, $p<.01$), and reported < 5 of 5 social supports (AOR=1.6; CI=1.1-2.3, $p<.01$). Factors associated with LKSBS in bivariate analysis that were no longer predictive of LKSBS in this model were: infant inconsolability, maternal age, education, insurance status, marital status, other race and recent exposure to intimate partner violence. **Conclusion:** Despite campaigns to raise awareness regarding the dangers of shaking a baby, 1 in 17 mothers of young infants in RI lacked this knowledge. This study suggests that new educational efforts should be designed to reach out to minority, immigrant, and first time mothers to address this public health concern. Expansion of this analysis to a more nationally representative sample is warranted.

Abstract 52

Neural correlates of Phonological Processing are Disrupted in Pre-readers at Risk for Developmental Dyslexia

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Purpose: Developmental dyslexia (DD) is one of the most prominent specific learning disabilities, affecting 5-17% of all children. Longitudinal studies in children with a family history of DD identified phonological processing as one of the key predictors of DD. Functional neuroimaging (fMRI) studies have revealed that children and adults with DD exhibit reduced or absent activation in perisylvian, occipito-temporal and parieto-temporal cortical regions that are activated in typical readers during phonological tasks. However, analysis of whole-brain functional networks in pre-reading children at risk for DD remains unexplored. This study seeks to investigate possible neural and behavioral premarkers of DD in pre-reading children with (FHD+) and without (FHD-) a family history of DD. **Methods:** 52 right-handed children completed standardized psychometric tests. Whole brain fMRI was performed on 32 participants (16 FHD+/16 FHD-; 5.5y) during phonological processing. Participants were instructed to listen to two subsequently presented common object words spoken in a female or male voice. During the experimental task, participants performed a first-sound-matching task. In the control task, participants were asked to perform a voice-matching task. Random-effects analyses for experimental versus control tasks were performed. **Results:** FHD- children performed significantly better than FHD+ children on behavioral assessments of expressive language, phonological processing and rapid naming, but not nonverbal IQ. Preliminary imaging results revealed reduced activation in a left-hemispheric network including the temporo-occipital junction, similar to that seen in children and adults with a diagnosis of DD. **Conclusion:** Pre-reading children with compared to those without a family-history of DD already show a disruption in the neural response to phonological processing tasks that is similar to that seen in children and adults with a diagnosis of DD. Future longitudinal studies will have to determine whether the identified differences may serve as neural pre-markers for the early identification of children at risk for DD.

Abstract 53

Maternal Worry about Language and Behavior from Early Childhood to Elementary School

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Purpose: To examine whether worry type (language/behavior), problem severity, and child sex impacts parent worry about child development from toddlerhood to elementary school **Methods:** Participants comprised a randomly selected birth sample. This report included 4 waves of mother-report data from 12 months to second grade (N=1,036). Behavior problems were measured using the Infant-Toddler Social and Emotional Assessment in Years 1/2 and the Child Behavior Checklist/6-18 in elementary school. We measured language problems with the MacArthur-Bates Communicative Development Inventories. Parents answered 2 Likert scale questions: How worried are you about your child's behavior/language development? **Results:** Maternal worry diminished over time; worry about language showed a steeper decline than worry about behavior (language: $F(3, 828)=17.01$, $p<.001$, partial $\eta^2=.06$, behavior: $F(3, 824)=3.38$, $p<.05$, partial $\eta^2=.01$). At each wave, mothers worried more about behavior than language and boys than girls. In elementary school, boys mothers reported more behavior/language problems than girls mothers (X2 range=3.79 to 13.65, $ps<.05$), but there were no sex differences in Year 1 or 2. Mothers of children with behavior/language problems showed higher rates of worry, but most were not worried. Behavior was a better predictor of worry as children aged. **Conclusion:** Screening based on worry may underestimate problems particularly in young children and girls

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Maternal Worry by Problem Type and Child Sex

	n	M (SD)	Worry (%)	Chi Sq Type	Worry Girls %	Worry Boys %	Chi Sq Sex
Year 1 Behavior	1023	24.5 (7.2) mo	150 (14.9)	113.19***	67 (12.5)	83 (17.4)	4.38*
Year 1 Language			131 (13.0)		48 (9.0)	83 (17.5)	15.10***
Year 2 Behavior	1016	36.6 (7.3) mo	153 (15.3)	117.91***	66 (12.6)	87 (18.2)	5.52*
Year 2 Language			103 (10.2)		38 (7.2)	65 (13.5)	10.16**
K Behavior	980	6.4 (.4) yrs	111 (11.5)	46.34***	40 (7.9)	71 (15.4)	12.55***
K Language			83 (8.6)		32 (6.3)	51 (11.1)	6.27*
2nd Grade Behavior	961	8.0 (.5) yrs	116 (12.2)	29.54***	40 (8.0)	76 (16.9)	16.62***
2nd Grade Language			56 (5.9)		21 (4.2)	35 (7.7)	4.83*

Abstract 54

Old Wives' Tales: Do General Pediatricians Subscribe To Common Myths about Child Development and Behavior?

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Purpose: Parents subscribe to many myths regarding children's development and behavior (D-B). Although pediatricians are expected to provide parents with accurate information, no study has specifically examined pediatrician knowledge regarding common D-B parenting misconceptions. The objective of this study was to assess to what extent general pediatricians subscribe to common D-B parenting myths and old wives' tales, and to identify which sociodemographic variables are associated with a greater belief in these myths. **Methods:** The Pediatric Health Beliefs Questionnaire was developed to sample pediatricians' knowledge about common parenting myths. The PHBQ contains 34 myths (9 of which focused on development and/or behavior) and 14 true statements. Pediatricians were asked to what extent each of the 48 health belief statements was true, likely true, unsure, likely false, or false. The PHBQ also included items regarding the physicians' personal and professional demographics. It was mailed to a random sample of 5,000 U.S. born, board-certified primary care pediatricians. In addition to descriptive statistics, demographic variables were analyzed using chi square ($p < .05$); where significant, pair-wise comparisons were done with $p < .01$ and Bonferroni correction for multiple comparisons. **Results:** Responses were received from 1002 pediatricians. Only 34% correctly identified all 9 D-B myths as being false or likely false. The majority of pediatricians wrongly endorsed at least 1 myth as being true, and 33% incorrectly identified 2 or more myths as correct. For example, 12% of pediatricians noted that babies who listen to Mozart or other classical music will be smarter, and another 13% were unsure. Four percent believed that sugar causes hyperactivity in school-age children, and 11% were unsure. Five percent believed reading in the dark causes later problems, and 7% were uncertain. Pediatricians who never raised children endorsed more myths, as did female physicians, those working in clinic settings, and those who were in practice for a shorter period of time. **Conclusion:** Many myths about children's development and behavior are widely believed by pediatricians. Greater educational efforts must be made to ensure that pediatricians themselves provide accurate parenting information to parents.

Abstract 55

Anxiety, but not Intelligence, Predicts Adaptive Functioning in Children with Chromosome 22q11.2 Deletion Syndrome/VCFS

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Purpose: Clinical features of 22q11.2 deletion syndrome (22q11.2DS-also known as Digeorge/Velocardiofacial Syndrome) include developmental delay, lower IQ scores, learning disabilities, and psychiatric comorbidities such as anxiety. We predict that higher IQ scores and lower anxiety ratings would be associated with better adaptive functioning. **Methods:** Clinical evaluation of 22 children ages 7-14 with 22q11.2DS was part of a larger study of neurocognitive development. WISC-4 full scale IQ (FSIQ) scores were used as a measure of cognitive ability. Parents quantified severity of anxiety symptoms via the Spence Children's Anxiety Scale (SCAS). Parents rated their child's adaptive skills using the Adaptive Behavior Assessment System-II (ABAS-II). Linear regression was performed to investigate the relationship between cognitive ability or anxiety symptoms and adaptive functioning. **Results:** Mean FSIQ was 76.3 (range 52-102). Mean GAC was 70 (range 47-101). FSIQ was not related to the ABAS-II General Adaptive Composite (GAC) (95% CI: -0.47 to 0.35, $p = 0.75$) or any of the anxiety scores. Lower parent ratings of their child's anxiety (i.e. fewer anxiety symptoms) were related to better adaptive functioning as measured by the ABAS-II GAC variance for panic/agoraphobia (95% CI: -0.72 to -0.35, $p = 0.028$) and separation anxiety (95% CI: -1 to -0.06, $p = 0.028$). For parents' report of physical injury and obsessive compulsive symptoms, there were trends in the same direction for lower SCAS scores being associated with higher adaptive scores (physical injury 95% CI: -0.92 to -0.05, $p = 0.07$; OCD 95%CI: -0.56 to 0.04, $p = 0.09$). **Conclusion:** Contrary to the association reported between IQ and adaptive functioning in typically developing populations, FSIQ scores were not predictive of adaptive functioning in children with

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22q11.2DS. Anxiety symptoms seem to interfere with the ability for children with 22q11.2DS to maximize their cognitive potential in everyday living skills. These results offer a target for intervention and suggest that treatment of underlying anxiety symptoms may help improve adaptive behaviors in children with 22q11.2DS.

Abstract 56

A Primary Care-based Spanish Parenting Intervention to Address Behavioral Problems in Children: A Study of Feasibility and Barriers

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Purpose: Latino children living in the United States are at increased risk for behavioral problems than their non-Latino peers (1), yet fewer than 25% receive the mental health care they need (2). Behavior disorders respond well to early childhood intervention (3), and primary care clinics are emerging as innovative and effective settings for detecting and providing interventions for child behavior problems even before children begin school (4). The current study implemented a behavioral parenting intervention in a pediatric primary care clinic specializing in treating Latino, mainly Puerto Rican, bilingual patients. The outcome of this study focused on assessing feasibility of implementation, including evaluating desirability, acceptance and effectiveness of the intervention. **Methods:** A validated behavioral parenting intervention was pilot tested in a Hispanic pediatric primary care clinic. Latino parents with children aged 2-8 years were screened. Measures included weekly acceptance and helpfulness ratings, pre- and post-intervention responses on the Spanish versions of the Child Behavior Checklist, the Parenting Sense of Competency, and the Parenting Practices Scale, and the Center for Epidemiologic Studies scale for Depression, and the Therapy Attitude Inventory. **Results:** Forty-four Latino parents of children were approached and screened for child behavior concerns. Thirty-five parents endorsed concern, 23 parents were interested in the intervention and 9 eventually participated. A total of 6 mothers completed the parenting intervention, which was rated as useful, desirable, and associated with an increase in parenting satisfaction and trends toward a decrease in maternal depression and child internalizing symptoms. **Conclusion:** Spanish-language primary care-based parenting groups were shown to be feasible, however limited child care services and difficulty contacting parents for follow-up negatively impacted the number of parents enrolled in the intervention. Future research should focus on how to overcome systemic barriers and maximize the effectiveness of parenting interventions in Latino populations.

Abstract 57

Healthy Sleep Habits in Young Children: Results of a Children's Museum Parent Survey

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Purpose: While sleep is clearly important for optimal functioning and good health in children, caregivers may lack knowledge regarding basic healthy sleep habits. The purpose of this study was to examine the association between sleep habits and parental knowledge and beliefs about healthy sleep. **Methods:** A convenience sample of parents visiting the Children's Museum of Manhattan were asked to complete a brief two page survey developed and piloted by the authors to assess their child's sleep habits (12 items) and parental sleep beliefs (4 items) and sleep knowledge (10 items). **Results:** 253 parents (mean age 35.5±6.1 years, 61% white, 96% > high school education) completed the survey. Mean age of the children was 3.4±2.0; 54% female. Sleep habits: 23% do not have a consistent bedtime, 56% frequently fall asleep with an adult present, 23% have > 1 electronic device in the bedroom, 96% have a regular bedtime routine which includes television viewing in 33%, 5% consume caffeinated beverages daily. Compared to average recommended 24 sleep duration ranges for age, 24% of the children were getting inadequate sleep. Sleep beliefs: 52% of parents underestimated their child's average sleep needs for age; however, 80% reported that their child gets enough sleep and 74% believe their child has healthy sleep habits. Sleep knowledge: 35% of parents gave correct answers for <50% of the questions. There was no demographic variable differences between children getting adequate vs too little sleep or between-group differences regarding having an adult present at bedtime or TV viewing habits. Children getting an inadequate amount of sleep had significantly later bedtimes ($p<.001$); insufficient sleep was also associated with lack of a consistent bedtime (OR 2.48), and parental underestimation of sleep needs (OR 2.17). **Conclusion:** Even in a well-educated sample, parental knowledge of recommended sleep amounts and the importance of healthy sleep habits for young children is relatively low. Educational interventions to address this knowledge gap in a variety of settings are needed.

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Abstract 58

Parents Perceptions of School-based Telemedicine for Rural Children with Special Health Care Needs

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Purpose: To qualitatively analyze parents experiences with school-based telemedicine (TM) to connect to the medical home for children with special health care needs (CSHCN) for acute minor illnesses in 2 rural schools for children with developmental disabilities. **Methods:** We collected qualitative data in structured interviews and focus groups with parents to ascertain their perceptions of their child's TM experience. We analyzed data using grounded theory. **Results:** The study enrolled 152 children (mean age = 9.2 years). We performed 165 TM visits for 73 children. Four themes emerged from the parents perceptions of TM. The first theme was Benefits/Challenges. Benefits include that the TM visit levels the playing field making medical care easier to use, provides more immediate access to care for acute illnesses, and is less disruptive to family routines. Parents reported that children with challenging behaviors were less stressed by a TM visit than by an office visit. Disadvantages of TM included delays in communication between the physician and parent if the visit occurs late in the day. The second theme was the Medical Home Concept. Parents perceived that their child received more appropriate care with their own primary care provider via TM rather than going to an urgent care or emergency room after the parent finished work. The third theme was Acceptance of Telemedicine. Parents were highly satisfied and considered TM visits to provide care of equal value as an office visit. The fourth theme was Future Directions. Parents want to expand TM care to include other types of medical services in addition to minor acute illnesses. **Conclusion:** School-based TM improves access to care for minor acute illnesses for rural CSHCN. Parents are highly satisfied with TM and plan to continue to use TM. Parents of children with behavioral challenges found greater benefit with a TM visit. Parents are willing to advocate for expansion of TM to include subspecialty care.

Abstract 59

Parenting Stress and Positive Social Behaviors: Are They Connected?

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Purpose: Research shows that parenting stress (PS) is higher in autism spectrum disorders (ASD) than in other childhood conditions. ASD is characterized by a lack of positive social behaviors (PSB). The objectives of this study were 1) to compare PS and PSB for children with ASD vs. typically developing children and 2) to test the hypothesis that PS and PSB are more strongly correlated in ASD than among children with typical development. **Methods:** Analysis was conducted using the 2007 National Survey of Children's Health, a random-dial, cross-sectional, public use dataset. PSB and PS scales were created using questions from the interviews, where higher scores reflect better social skills and more parenting stress. Mean PS and PSB scores and the correlations between them were compared between 2 mutually exclusive groups: typically developing children and ASD. To be included, children had to be >6 and the respondent had to be the mother. Children in the typically developing group had no chronic health conditions. The ASD group included all eligible children who were reported by their parents to have ASD. Means were compared using ANOVA. Fisher's r to z transformation was used to compare correlation coefficients. **Results:** Parents of children in the ASD group had significantly higher PS (8.41, $n=558$) than parents of typically developing children (5.67, $n=33,412$). Children in the ASD group had significantly lower PSB scores (14.12) than typically developing children (17.48), both significant at $p < 0.001$. Correlations between PSB and PS were -0.333 in the ASD group and -0.349 in the typically developing group. These correlations were not significantly different. **Conclusion:** PS was higher and PSB lower in the ASD group compared to the typically developing group. Inverse correlations of comparable strength existed between PS and PSB for both groups. Further study is needed to investigate to what extent PSB contributes to PS in these and other chronic childhood conditions.

Abstract 60

Early Language Screening in the Course of Pediatric Preventive Medical Checkups

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Purpose: To evaluate the feasibility and effectiveness of screening for persisting language delay in the pediatric office at two years of life. **Methods:** 24 out of 36 pediatricians in the region of Upper Austria included all the children coming for a healthy baby check at two years of age into a language screening program. The procedure consisted of a parental checklist (adaptation of MacArthur CDI) of word production and a questionnaire on putative risk factors such as family history for language delay or parental concerns and a short assessment of word comprehension by the pediatrician. Perinatal risk factors were also included. At the age of three language was assessed by use of a German adaptation of the MacArthur CDI-3 parents wordlist. **Results:** In a logistic regression model with expressive vocabulary below or above 10% at the age of three as dependent variable only vocabulary at 2 years of age (OR .976***), maternal education (OR .434***) and single parenting (OR 2.17*** showed significant influence (Nagelkerkes $R^2 = .341$). The test of word comprehension was of no discriminative value. By use of ROC curves the cut value of the classification table was adjusted to achieve the highest possible combination of sensitivity (72%) and specificity (86%). However, this led to a high number of predicted positives (92%) and a rather low PPV of 36%. **Conclusion:** With this model sufficient sensitivity and specificity was achieved.

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However, PPV still needs to be increased, e.g. by inclusion of other family or language variables (such as language comprehension) into the screening procedure. Nevertheless, acceptance of the procedure by parents and pediatricians was very high and costs were low. By offering parent counselling and group training programmes rather than child directed intervention expenses can be kept low, even though the majority of children probably would catch up without specific intervention. Due to a large variability in vocabulary in young children a second screening at the age of three is necessary.

Abstract 61

Use of Child Gender as a means of Improved Genetic Risk Assessment in the Autism Spectrum Disorders

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Purpose: The inheritance pattern in most cases of autism is complex. The risk of autism is increased in siblings of autistic children and the level of risk can be further identified by the accumulation of multiple susceptibility genes allowing for the identification of a high risk subgroup of individuals. As a result of the gender difference in the prevalence of autism, we explored the potential for identifying gender-specific autism susceptibility genes in siblings of autistic children and the ability to develop a gender-specific risk assessment genetic scoring (GS) system. **Methods:** Single nucleotide polymorphisms were chosen from genes known to be associated with autism and validated using a sample of 483 families which included at least two autistic children. Stability for the different markers were evaluated as the proportion of samples that provided an OR > 1.00 in males but not in females, in females but not in males, in both males and females. Differing GS models were then constructed to develop a gender specific risk score designed to identify individuals with a higher risk of autism. **Results:** We identified 6 genes contributing to autism risk in males and 5 genes contributing to risk in females each significantly associated with ASD and developed a GS which demonstrated a significant association with autism ($p=2.2 \times 10^{-6}$ and 1.9×10^{-5} respectively). Assuming an accepted 10% sibling recurrence risk of autism and a 4:1 sex ratio, the sibling recurrence risk in males and females are estimated respectively to 16% and 4%. For males with a GS of greater than 9 points, the positive PPV was 24% (95% CI: 20%-29%) with a 0.23 sensitivity and a 0.86 specificity. For females, the PPV is 10% (95% CI: 7%-15%) with a 0.37 sensitivity and 0.85 specificity. **Conclusion:** Risk determination in male and female siblings of children with autism is improved by accounting for the gender in genetic risk scores.

Abstract 62

Infants Stress Response to the Still-Face and Its Relation to Interactive Flexibility

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Purpose: Infants exhibit a stressful response when their mothers adopt a still face following a period of normal interaction in the Still-Face (SF) paradigm. Little is known about whether the quality of their interaction prior to the SF alters infants' stress response during the SF, or how effectively dyads are able to resolve the stress during a normal interaction following the SF. This study examined whether the flexibility of the infant-caregiver interaction observed prior to the SF was associated with the infants' stress response during the SF or to the quality of the dyads' stress resolution during normal interaction following the SF. We expected that greater dyadic flexibility during normal interaction prior to the SF would be related to infants' lower stress response during the SF and to a better quality of dyadic stress resolution during normal interaction after the SF. **Methods:** Analyses were based on the micro-analytically coded affective behavior of 68 mother-infant dyads videotaped in the Still-Face Paradigm when the infants were 3 months old. Dyadic flexibility was defined as the ability of the dyad to effectively coordinate their interaction along several dimensions (e.g., predictability, range, perseveration). Infants' stress response was operationalized as the amount of negative affect they displayed during the SF. Dyadic stress resolution was operationalized as the amount of positive affect mothers and infants shared during the normal interaction following the SF. **Results:** Contrary to our expectation, infants in dyads with high dyadic flexibility showed greater negative affect during the SF perturbation. Also, dyads with greater flexibility prior to the SF engaged in less positive affect sharing during the play following the SF. **Conclusion:** Greater levels of dyadic flexibility during normal interaction were associated with higher levels of infant stress during the SF and poorer quality of dyadic resolution of stress following the SF. These findings are inconsistent with several models of the organization of infant-adult interactions and support the idea that greater predictability in interactions may buffer infants against stress.

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Abstract 63

Traumatic Brain Injury Effects on School Readiness

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Purpose: To determine the likelihood that young children with a moderate or severe TBI will score lower than 85 points on age-specific measures of school readiness compared to children who sustained orthopedic injuries (OI). Methods: Children with TBI or OI participated in a longitudinal study examining the impact of TBI between the ages of 3 and 7 on child cognitive and behavioral functioning over the initial 18-months post injury. Of the 217 children enrolled, 157 children had valid baseline and 12-month follow-up data on measures of academic readiness and achievement. At-risk was defined as a standard score of less than 85 on any of the following measures: (Bracken, Woodcock Johnson: Applied problems subtest, spelling subtest, story recall subtest, or letter/word subtest). Those scoring 85 or above on all tests were considered not at risk for academic difficulties. Results: 16 children had Severe TBI, 49 with Moderate TBI, and 92 children had OI. At the 12-month follow-up, 31.2% of the Severe TBI group were considered at risk for academic difficulties compared to 16.3% in the Moderate TBI group, and 8.7% in the OI group. After controlling for baseline characteristics such as sex, socio-economic status, family environment, and age at injury, children with severe TBI were almost 5 times more likely to be at risk than those with OI (AOR = 4.9, $\chi^2 = 15.5$, $p < 0.0001$). Conclusion: Results support prior research that children with Severe TBI have a greater risk of poor academic performance. The findings underscore the potential risk for academic difficulties among young children with Severe TBI. Unlike prior studies, however, these results hold true when controlling for economic and environmental conditions.

Abstract 64

Traumatic Brain Injuries in Preschool Age Children: Significant Problems with Behavior Two Years Following Injury

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Purpose: Behavior problems constitute one of the most common and troubling consequences of childhood traumatic brain injury (TBI), yet few studies have examined behavior problems in early childhood TBI over time using standardized measures. This study looked at the emergence of behavior problems during the initial 24 months following TBI in young children relative to a cohort of children with orthopedic injuries (OI). Methods: A concurrent cohort/prospective research design was used with repeated assessments of children aged 3-7 years with TBI or OI requiring hospitalization and their families. Parents of 100 children with TBI (23 severe, 77 mild to moderate) and 117 with OI completed The Child Behavior Checklist (CBCL) within 3 months post-injury and again 6, 12, 18, and 24+ months post-injury. Parents' initial post-injury ratings were based on the child's functioning prior to the injury. Analyses of variance using race and baseline score as covariates were used to examine group differences in internalizing and externalizing behavior problems at each assessment. Results: The OI and TBI groups demonstrated significant differences in internalizing behavioral problems at six, $F(2, 163) = 4.04$, $p < .05$, twelve, $F(2, 152) = 6.09$, $p < .01$, eighteen, $F(2, 152) = 5.23$, $p < .01$, and twenty-four, $F(2, 137) = 4.15$, $p < .05$, months. Similarly, significant group differences were seen in terms of externalizing behavior problems at six, $F(2, 163) = 10.64$, $p < .001$, twelve, $F(2, 152) = 5.15$, $p < .001$, eighteen, $F(2, 152) = 4.55$, $p < .05$, and twenty-four, $F(2, 137) = 4.61$, $p < .05$, months. Subsequent pairwise comparisons indicated that the severe TBI group had significantly higher scores, indicative of worse functioning, than the OI group. Additionally, at the 12-month follow-up, both the moderate and severe TBI groups had higher levels of behavior problems than the OI group. Conclusion: Results suggest that both moderate and severe TBI are associated with post-injury increases in externalizing and internalizing behavior problems and that these problems fail to resolve over time. Understanding the emergence and persistence of behavioral problems in young children with TBI has critical implications for developing interventions.

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Poster Session 2

Monday, September 13, 2010 from 2:00pm - 3:00pm

Abstract 65

Infant Memory for a Social Stress Measured by HPA Reactivity

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WITHDRAWN

Purpose: Infants are often stressed by daily events but little is known about their memory stressors. The objective of this study was to investigate 4 month old infants memory for a stressful social event (i.e., still-face) after a 15 day recall interval using changes of salivary cortisol, an index of HPA reactivity, as a measure of memory. The Face-to-Face Still-Face (FFSF) paradigm was chosen as a well-established social-emotional stressor for this study. Methods: 68 4 month-old infant-mother dyads were randomly assigned to one of two groups: Experimental Group: 32 dyads who were exposed to the SF at 4 months-old and again 15 days later; Control group: 36 dyads who were exposed to the SF only once at 4 months + 15 days. The dyads were seen in the double SF exposure procedure. Five infant salivary cortisol samples were taken (2 baseline before the FFSF, and 3 after the FFSF ended at 20, 30, and 40 min). Based on their cortisol response to their initial exposure to the SF in the first session both the experimental and the control infants were placed in one of two response groups: 1] Reactive: infants who showed an increase in cortisol to the SF, and 2] Non-reactive: infants who showed a decrease in cortisol to the SF. Results: Both experimental groups evidenced a significant memory at the second exposure, but in different ways. From the first to the second session 2 weeks later Reactive Experimental infants showed a significant decrease in cortisol reactivity ($Z = -2.46$; $p < .01$) and significantly less reactivity on the second exposure compared to the Reactive Controls ($U = 103.00$; $p < .01$), whereas Non-reactive Experimental infants showed a significant increase in cortisol reactivity ($Z = -2.67$; $p < .01$) and significantly less reactivity on the second exposure compared to the Non-reactive controls group ($U = 28$; $p < .01$). Conclusion: These findings uniquely demonstrate infant memory for a social stress, an effect related to individual differences (temperamental) in infants HPA reactivity. The findings have implications for evaluating infant memory and the effects of stress on infant development.

Abstract 66

Quality of Care and Neurobehavioral Performance in very Low Birth Weight Healthy Preterm

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WITHDRAWN

Purpose: Preterm infants are at risk for poor neurobehavioral developmental outcome. However, the neurobehavior of preterm infants in relation to different levels of infant-centred quality of care in NICUs has not been evaluated. The objective of this study was to assess the association between the level of infant-centered quality of care and the neurobehavior of preterm infants. Methods: 178 high-risk healthy preterm infants were recruited in the 25 NICUs of the NEO-ACQUA study. The NEO-ACQUA Quality of Care Index (QCI), a 19 item checklist, was developed specifically to assess the level of infant-centred quality of care in each of the NICUs (e.g., unrestricted access to mothers vs. limited access). NICUs were divided into 12 Low Care ($N = 97$ infants) vs. 13 High Care ($N = 81$ infants) based on a median split on the QCI. Infant neurobehavioral performance was evaluated using NICU Network Neurobehavioral Scale (NNNS) at post conceptual age 31-43 weeks. Results: Infants from lower infant-centred quality of care NICUs exhibited higher levels of stress ($t = -4.77$, $p = .00$), higher excitability ($t = 2.40$, $p = .02$) and had lower scores on regulation ($t = 2.56$, $p = .01$). A trend for the attention ($t = -1.89$, $p = .06$) suggested that infants from high infant-centered care NICUs performed better. Conclusion: Our findings suggest that optimizing environmental factors to enhance the quality of care in the NICU could be a form of neuroprotection which promotes neurobehavioral maturation and functioning.

Abstract 67

Does Serial Screening Enhance Prediction of 36-Month Cognitive and Motor Outcome in At-Risk Infants?

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Purpose: To determine if optimal scores on critical items obtained from serial (longitudinal) screening at 6-, 12- and 24-months would enhance prediction of 3-year outcome. Methods: Sample consists of 383 NICU follow-up infants. All were at biologic risk and were evaluated at 6-, 12- 24- and 36-months. The Bayley Infant Neurodevelopmental Screener (BINS) was given on the first 3 evalua-

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tions; either the McCarthy Scales, BSID-II or BSID-III at 36-months. Cognitive/motor outcome was considered a dichotomous variable (85). Chi square, ORs, and logistic regression (LR) were employed in analyses. Stepwise LR was used to predict optimal (>85) and nonoptimal (< 85) 3-year cognitive and motor outcome. Results: At 3-years 35% of children had non-optimal cognitive outcome; 35% had non-optimal motor outcome. At 6-months 2 items predicted 36-month cognitive, and 4 predicted motor outcome; at 12-months, 4 items predicted cognitive and 4 predicted motor outcome; at 24-months there were 5 cognitive and 4 motor BINS critical items included in the model. Additional regression models were developed to determine the likelihood of optimal outcome using optimal scores on the critical items on 1, 2 or 3 BINS administrations (6-, 12-, 24-months); 63-69% received 1 out of 3 optimal scores, 33-39% 2/3 optimal, and 13% had optimal scores on all critical items at 3/3 time points. Optimal cognitive scores on 1 out of 3 time points yielded an OR of 4.02 (95% CI 2.23-7.25, $p<.0001$); optimal motor scores on 1/3 produced an OR of 5.53 (3.06-9.99, $p<.0001$). Optimal cognitive scores on 2/3 time points, produced an OR of later optimal cognitive function of 7.39 (3.56-15.32, $p<.0001$); for 3/3 the OR was 5.62 (1.66-18.98, $p<.005$). With motor outcome, optimal scores on 2/3 time points produced an OR of 6.97 (3.35-14.5, $p<.0001$); for 3/3, OR=4.34 (1.47-12.79, $p=.008$). Conclusion: There is variability over time in longitudinal follow-up: very few children score optimal on all critical items over 3 evaluations. Although optimal scores on critical items at any one time point enhance the likelihood of later optimal cognitive or motor outcome, optimal scores on any 2/3 time points is associated with a 7-fold increase in the likelihood of optimal 3-year cognitive or motor outcome. This finding is based on a total of only 17 critical items.

Abstract 68

Critical Early Neurodevelopmental Items in Prediction of 36-month Cognitive and Motor Outcome in High Risk Infants

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Purpose: 1)To identify specific items from the Bayley Infant Neurodevelopmental Screener (BINS)that are predictive of optimal 36-month outcome Methods: Sample consists of 374 biologically at-risk infants followed at 6-, 12-, 24- and 36-months, enrolled in a NICU follow-up program. Infants were given the BINS at the first 3 evaluations and the MSCA, BSID-II, or BSID-III at 3-years. Cognitive and motor outcome was considered dichotomous(85). X², ORs, and logistic regression (LR) were employed. Results: At 6 months 8 cognitive items had an OR >2 (median OR=2.43), as did 11 motor items (3.03); at 12 months, 10 cognitive (2.87) and 11 motor items (3.38) had ORs >2; at 24 months, 13 cognitive (5.46) and 13 motor (4.37) items met this criterion. LR was then used: Six months: cognitive-2 items (OR range 2.06-2.96), motor-4 items (1.80-2.92); 12-months: cognitive-4 items (1.76-3.08), motor-4 items (1.92-4.00); 24-months cognitive-5 items (2.04-5.38), motor-4 items (2.41-6.04) ($p<.02$). If all 6-month items predicting cognitive function were optimal, OR for optimal cognitive function was 2.60; if all 4 motor items were optimal, motor function OR = 4.12. At 12-months, all 4 optimal cognitive items produced an OR = 3.45; all 4 optimal motor items OR= 6.13. At 24-months, all 5 optimal cognitive items OR= 11.26, and all 4 motor items OR= 9.56 ($p<.0001$). When cognitive or motor factors were combined with days of hospitalization or maternal education all three variables predicted 36-month outcome, except maternal education was deleted in prediction model of 24-month motor function and 36-month motor outcome. Conclusion: Overlap exists among items predicting cognitive and motor function; 36-month cognitive and motor outcome share 25% of the variance. This also underscores the lack of differentiation at early ages. Better prediction corresponds to increasing age. Prediction is particularly good at 24-months: there is a 10-11 fold increase in the likelihood of optimal 3-year outcome. Marker environmental and biologic variables have a lesser contribution to prediction than critical neurodevelopmental items.

Abstract 69

Barriers to Autism Screening in Family Medicine Practice: A Qualitative Study

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Purpose: To explore potential barriers to adoption of recommended screening for autism by family physicians at the 18 and 24 month well child visits. This study focuses on physician attitudes about autism and the screening process, and the role of attitudes as potential barriers to autism screening. Methods: Three focus groups and six interviews were conducted with 15 family physicians in the Kansas City metropolitan area using a semi-structured format. Verbatim transcripts were inductively coded and data were analyzed using standard text analysis. Results: Participants had differing views on the increased incidence of autism. Most participants attributed the increase to change in diagnostic criteria. There was no consensus about the benefit of implementing universal screening for autism during the 18 or 24 months visits. Many preferred to identify potential problems via general developmental assessments and observations. No participant used autism specific screening tools, and only one participant was aware of such a tool(M-CHAT). Participants wanted a stronger evidence base showing the benefits of routine screening, rather than policy guidelines based on expert opinion. Lack of adequate training about child development and screening methods, and limited availability of community based resources to manage children with autism were seen as major barriers to routine screening. Suggested solutions included stronger evidence base to show the benefit of screening, continuing education, and better resident training in child development and behavior. Conclusion: Universal screening for autism at the 18 and 24 months visits is not widely accepted or implemented by family physicians.

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Abstract 70

Parent Report of Receipt of an Individualized Education Program Among Children with Autism Spectrum Disorders

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Purpose: Previous studies show that 12-20% of children with autism spectrum disorders (ASDs) do not receive Individualized Education Programs (IEPs), special education services for which they are eligible. The objective of this study is to determine which clinical and demographic factors are associated with receipt of an IEP among children with ASDs. **Methods:** We employed the 2007 National Survey of Children's Health, a nationally representative cross-sectional survey conducted from April 2007-July 2008. Of the 91,642 completed telephone interviews, we utilized data from children ages 6-17 years old whose parents reported a current diagnosis of ASD (N=759). The outcome variable was parent report of the presence or absence of an IEP. We included as co-variables: autism severity, speech problems, need for care coordination, school type, US region, internalizing and externalizing behaviors, maternal education, and income. We included co-variables with a univariate p value < 0.2 in the logistic regression model. **Results:** Our sample had a mean age of 11.5 years, 82% were male, and 13% were not on an IEP. The significant findings from the adjusted analyses are shown in the table below. **Conclusion:** It is reassuring that the most severe and involved children with ASD are already receiving an IEP. However, it is concerning that less severely affected children, who are most likely to benefit from services, are the least likely to receive them.

Significant Co-variables Associated with Receipt of an IEP

Co-variate	Adjusted Odds Ratio (CI)
Presence of speech problems	1.8 (1.1, 3.1)
Autism severity (severe vs mild)	3.9 (1.1, 13.2)
Need coordination of care	2.6 (1.6, 4.2)
School type (private vs public)	0.3 (0.1, 0.5)

Abstract 71

Impact of Guanfacine Extended Release on Cognitive Problems and Inattention

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Purpose: To further examine the effect of guanfacine extended release (GXR; Intuniv™ Shire Development Inc., Wayne, PA) on inattention and cognition in subjects treated for attention-deficit/hyperactivity disorder (ADHD). **Methods:** In an 8-week treatment, double-blind, forced-dose escalation study, subjects aged 6-17 years with ADHD were randomized to placebo (n=86) or GXR once daily at 2 (n=87), 3 (n=86), or 4 mg/d (n=86). The Cognitive Problems/Inattention subscale of the Conners' Parent and Teacher Rating Scales-Revised: Short Forms (CPRS-R and CTRS-R, respectively) were completed at baseline, week 4, and week 5. Spontaneously reported adverse events (AEs) were collected at all visits. **Results:** Placebo-adjusted least squares mean reductions from baseline to endpoint in mean day CPRS-R Cognitive Problems/Inattention scores were significant for all GXR dose groups: -2.02, -1.92, and -2.58 for the 2-, 3-, and 4-mg/d groups, respectively (P<0.04 for all). Results for CTRS-R Cognitive Problems/Inattention scores were similar: -1.60, -1.50, and -1.71 for the 2-, 3-, and 4-mg/d groups, respectively (P<0.01 for all). Most treatment emergent adverse events (TEAEs) were mild to moderate in severity. TEAEs of somnolence, sedation, and hypersomnia (SSH) were reported by 44.2% of subjects receiving GXR. Most SSH TEAEs were mild (54.6%) or moderate (36.8%) in severity, occurred during the first 2 weeks of dose optimization, and did not result in discontinuation. **Conclusion:** Among children and adolescents with ADHD, treatment with GXR resulted in significant improvements in parent- and teacher-reported cognitive problems and inattention. This supports previously reported findings of improvement in inattentive symptoms with GXR. Most TEAEs were mild to moderate in severity.

Abstract 72

Comparison of Maternal Estimate of Behavior Age versus Clinically Assessed Functional Receptive Language

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Purpose: Developmental surveillance is a critical component of pediatrics. Functional receptive language (fRL) is a critical developmental stream. fRL (Internal Monologue) is the basis of comprehension, judgment, attention and behavior. Maternal estimate of Behavioral Age (BA) is a key component of a Devo Hx providing a starting point for a GPed screening. **Methods:** Retrospective chart

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review from 2003-2008 on patients 12-59 mo with a comprehensive devo assessment by a BC DevPed was completed. fRL was assessed by a combination of CLAMS, ELMS, BSID & clinical assessment of lang including gen' knowledge and short-term memory. Mat'l estimate of child's BA was obtained in months. Mat'l est of BA was compared to clinical assessment of fRL in months. Results: 392 charts met criteria. Mother was primary respondent for 368 (94%). Mean age of children 3.29 yrs; 7.9% (=29) 1 yo, 33.4% (=123) 2 yrs, 29.3% (=108) 3 yrs, and 29.3% (=108) 4 yrs. 31 (8.4%) Dx ADHD by the Dev Ped (1 < 3yo). 22 (71%) with ADHD were 4 yo. 82% reported sibs. Mat'l characteristics: 30.7% <30yrs, 54.1% 31-39 yrs and 14.9% >40 yrs. 16% of mothers were in special ed as children. 39.4% had bachelor's degree or higher, 29.1% had some post high school education, 25.5% had high school diploma. 6% had < high school education. Overall correlation between mat'l estimate of the BA and DevPed fRL was significant ($P < .001$; $r^2 = .43$). Overall mean difference between DevPed fRL subtracted and mat'l estimate of BA (BA-fRL) was 1.56 months (95% C .36, 2.8). Mean differences at 1yr = 2.52 mo (95% C .29, 4.75), 3.00 mo (95% C 1.79, 4.21) at 2 yo, 1.67 mo (95% C -1.0, 4.33) at 3 yo, & .46 months (95% C -3.20, 2.27) at 4 yo. Linear regression demonstrated demographic characteristics were not associated ability to estimate the BA accurately. Conclusion: Maternal estimate of BA was within 2-3 mo of DevPed fRL assessment. This allows a time savings by focusing developmental assessments in a time constrained genl ped visit with selecting appropriate screening instruments/questions increase screening. This single question can increase the index of suspicion of developmental language problems.

Abstract 73

Resident Education in Developmental-Behavioral Pediatrics (DBP): What's in a Month . . . Not Much!

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Purpose: A structured curriculum for DBP was instituted as part of the 1997 American College of Graduate Medical Education Resident Education Guidelines (ACGME). Despite this formalized experience, practicing pediatricians have reported this has had little impact on their ability to manage developmental or behavioral concerns. This study attempted to better understand this discrepancy by quantifying the amount of time residents spend in their DBP rotation and determine what barriers may limit their experiences. **Methods:** 195 ACGME-accredited pediatric residency programs were contacted regarding pediatric residents' experiences in DBP. 121 provided information for the person(s) most knowledgeable about the rotation (62%). A 13-item internet survey reviewing 3 separate months of resident rotations was distributed to those 121 programs and 81 programs (42% total response rate) completed the survey. Respondents included program directors/coordinators, rotation directors/coordinators, and chief residents. Results: Respondents were asked to calculate the number of ½ days residents spent in DBP-specific experiences, with the national average being 22 half-days/month. The most significant barrier identified included 50% of programs allowing residents to take vacation, with 45% of those taking equal to 1 work week off. Other significant barriers included 68% of programs requiring participation in non-DBP activities (training conferences, call-coverage, residency projects), 35% reporting DBP department limitations (too few faculty, clinics, etc.), and 21% of reporting duty hour restrictions as adversely impacting resident education. Despite 50% of the respondents indicating post-call days as a barrier, 57% of residents take <3 calls/month. Conclusion: Despite an already identified deficiency in training, most residents continue to get limited DBP exposure. Work hour restrictions have had some impact, but the majority of residents have limited experiences due to vacations, other residency requirements, or DBP department limitations. Programs should re-assess the experiences of their residents in DBP to ensure adequate training opportunities are available, as well as to ensure compliance with vacation policies. Individual sections should also consider alternative strategies to increase resident exposure to DBP, especially if not enough DBP faculty/clinics are available.

Abstract 74

Health and Sexual Education: Youth with Moderate to Severe Intellectual Disability

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Purpose: To inform the design and modification of health and sexual education resources for youth with moderate to severe intellectual disability, given their high risk for unwanted pregnancy, sexually transmitted infections, and abuse, and the few resources adapted to their unique needs. **Methods:** Using a community-based participatory research approach, we developed semi-structured qualitative interviews on health and sexual education needs, facilitators, and barriers, and interviewed principals (n=5), nurses (n=2), psychologists (n=3) and teachers (n=13) at four special education centers in a large urban school district from January 2007 to June 2008. Three reviewers used content analysis and grounded theory methodology to independently code the verbatim interview transcripts and identify key sub-themes. To enhance reliability, a fourth investigator independently reviewed the coded transcripts and sub-themes identified. Results: Most stakeholders identified no current formal sexual education programs. Key sub-themes for health and sex education knowledge needs were: normal development, hygiene, inappropriate/appropriate behaviors, sexuality, birth control, sexual abuse, and youth self-esteem. Individual and group settings were proposed for delivering youth and parent

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education, with programs tailored to youth cognitive level, behaviors, and diagnoses. Most stakeholders believed a team approach including teachers, nurses, and psychologists should be offered through the school, with linkages to community resources. Key barriers identified included parent denial around youth puberty and sexuality; parents' work schedules, transportation, and child-care needs; a lack of staff with specialized training in sexual education; and an academic focus for Individualized Education Plan (IEP) goals. Key facilitators identified were youth motivation to learn about sexuality, small group settings in special education centers, and the format for annual IEP meetings. Conclusion: Through this collaborative research project, we identified several primary barriers and facilitators that will be used to inform the design and delivery of a health and sexual education program.

Abstract 75

Outpatient Early Intervention and Therapeutic Services (OEITS) Utilized by Infants in High Risk Infant Follow-Up (HRIF) Programs in California: Initial Results of a Quality Improvement and Research Network.

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Purpose: To evaluate and compare OEITS utilization among different birth weight (BW) groups of infants who are at high risk for neurodevelopmental problems following NICU discharge. Methods: A primary analysis of a population-based data set from a network of HRIF programs supported by California Children's Services as part of Title V. Infants qualified for HRIF based on CCS-defined neonatal medical risk factors. Standardized visits and assessments were conducted through 36 months of age, the first of which occurred at 4-8 months. OEITS utilized were collected from the medical record and caregiver report. Early intervention consists of a government-funded program. Therapeutic services range from feeding therapy to home nursing to occupational therapy. The study population was divided into 4 groups based on standard BW classifications. Descriptive statistics determined the distribution of OEITS utilized by BW group. Results: Almost a third of infants in this sample population were utilizing 1 or more OEITS by the first visit, with the ELBW group having the highest % (Table). The NBW group had the highest % of children utilizing 3 or more OEITS. Developmental care (7%) and physical therapy (9%) were the most utilized therapeutic services. The ELBW group had the highest % of infants utilizing early intervention followed by the NBW group. Conclusion: The distribution of OEITS utilized within the first year after NICU discharge is consistent with the medical morbidities expected for this population. A high proportion of NBW infants utilized several OEITS, underscoring their neurodevelopmental vulnerability is as significant as those of lower BW. This data has the potential to be used for the planning of public health programs.

	ELBW, <1000g	VLBW, 1000-1499g	LBW, 1500-2499g	NBW, 2500g+	Total
	n=337 (%)	n=573 (%)	n=451 (%)	n=493 (%)	N=1854 (%)
1 or more OEITS	167 (50)	170 (30)	98 (22)	166 (34)	601 (32)
3 or more OEITS	29 (9)	34 (6)	28 (6)	48 (10)	139 (8)
Early Intervention	113 (34)	95 (17)	61 (14)	106 (22)	375 (20)

Abstract 76

Association Between ADHD Clinical Characteristics and Quality of Life Domains

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Purpose: We explored the relationships between ADHD clinical characteristics and different health-related quality of life (HRQL) domains. Methods: We analyzed data from a larger study on ADHD information exchange. Parents of children with ADHD reported on ADHD symptoms, ADHD medications and side effects, and HRQL using the 50-item Child Health Questionnaire (CHQ-50). Primary outcomes were scaled scores (range 0-100, higher indicates better HRQL) for each of the 10 CHQ-50 domains. We analyzed the effect of ADHD clinical characteristics (disease control-good/poor; screen for co-morbid conditions-positive/negative; medication side effects-minimal/significant; ADHD care environment-streamlined/complex) on each domain using multivariate linear regression adjusting for child age, gender, and race/ethnicity. Models for parent-focused domains also adjusted for parent birth outside of the United States and use of the internet (a proxy for socioeconomic status). Results: HRQL scores were lower for Parent Emotional Impact (51±24) and Behavior (53±21) and higher for physical function domains. Overall, ADHD clinical characteristics contributed differently across the 10 HRQL domains. For example, good disease control and negative co-morbidity screen were significantly associated with higher Behavior and Social-Emotional Role Limitations scores, while minimal medication side effects and negative co-morbidity screen were associated with higher Mental Health scores. Self-Esteem scores were higher if there was good disease control, a streamlined care environment, negative co-morbidity screen, and younger child age. Older child age, good disease control, and minimal side effects contributed toward higher Parent Time scores, but higher Parent Emotional scores were significantly associated with older child age, parent birth in the US, good disease control, negative co-morbidity screen, and a streamlined care environment. Conclusion: ADHD symptom control, medication side effects, symptoms of co-morbidities, and ADHD care team structure contribute differently to different domains of HRQL. Scores for specific HRQL domains can thus help establish treatment priorities for ADHD.

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Abstract 77

Exploring Emotion Discrimination in 6-month-old Infants: Is it the Emotional Intent or the Change in Features?

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Purpose: Past research demonstrates that infants respond differently to a neutral expression compared to an emotional expression. Emotional expressions typically involve movements in both the eyes and mouth while neutral expressions lack both of these characteristics. For example, a fearful expression is characterized by wide eyes, raised eyebrows, and an open mouth. Infants tend to look longer at a fearful expression compared to happy. Consequently, are infants responding to the difference in emotion or are they merely reacting to changes in the facial features? **Methods:** To address this question, 20 6-month-olds watched a series of photographs of actors posing four target emotional facial expressions (sad, fearful, disgusted, angry) and two target control expressions (neutral, novel). The novel expression lacked emotional meaning yet retained movement in the eyes and the mouth while the neutral expression lacked both emotional intent and movement. All faces were disguised in the context of peekaboo games. Each peekaboo series was modeled after a familiarization paradigm in which infants viewed two happy expressions, a target expression, and two additional happy expressions (Montague & Walker-Andrews, 2001). This pattern was repeated until infants saw all six targets. The comparisons of interest were between each target and the previous happy expression. Similarities between novel and target emotion expressions may be related to differences in facial movements rather than differences in emotional meaning. **Results:** Changes in looking time and heart rate were recorded. Relative to the preceding happy face, there was a significant deceleration in heart rate for the novel ($p = 0.020$) and fear ($p = 0.049$) targets but no difference for neutral. In addition, infants looked significantly longer at the novel face compared to the preceding happy face ($p = 0.018$) while this pattern was not evident for the neutral target. **Conclusion:** In conclusion, these findings suggest that although infants noticed the changes in expression, they may have relied more on featural differences as a means of discrimination rather than emotional intent.

Abstract 78

Brain-Derived Neurotrophic Factor in WAGR Syndrome and Autism Symptoms

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Purpose: WAGR syndrome is a rare genetic disorder caused by heterozygous chromosome 11p13 deletions of variable size. Due to its role in brain development and function, we hypothesized that haploinsufficiency of brain-derived neurotrophic factor (BDNF), a gene that is often deleted in patients with WAGR syndrome, may play a role for autism spectrum disorder (ASD) development in this population. **Methods:** Twenty patients with WAGR syndrome (10F/10M, age 6-37y) were recruited to the NIH through the International WAGR Syndrome Association. ASD symptoms were assessed using Autism Diagnostic Interview-Revised (ADI-R, parent interview, N=20), Autism Diagnostic Observation Schedule (ADOS, direct behavioral observation, N=15), and clinical judgment of doctoral level psychologists. Deletion boundaries were determined by array comparative genomic hybridization. Prevalence of ASD was compared by Fisher's exact test. **Results:** The deletion sizes ranged from 2.9 to 15.1 Mb. Thirteen subjects had heterozygous BDNF deletion (+/-) while 7 had intact BDNF (+/+). All but one subject met criteria for mental retardation, ranging from mild to severe. Visual impairment ranged from legal blindness to complete lack of vision. Using ADI-R, 7 out of 13 BDNF +/- subjects met "ever" ASD criteria compared to none out of 7 BDNF +/+ subjects [54% (95% CI: 25-80%) vs. 0% (95% CI: 0-41%), $p=0.04$]. However, using ADI current codes, ADOS, and clinical judgment, only 1 out of 9 BDNF +/- subjects met ASD criteria (with 1 other also meeting criteria only on the ADI-R) compared to none out of 6 BDNF +/+ subjects [11% (95% CI: 0-48%) vs. 0% (95% CI: 0-45%), $p=1.00$]. **Conclusion:** Because WAGR syndrome includes visual impairment, mental retardation, and serious medical illness in early childhood, current functioning may be more reliable than ADI-R "ever" codes in assessing autism symptoms in this population. Further exploration of cognitive and/or visual impairments is needed to validate the observation of an association between BDNF haploinsufficiency and a history of autism symptoms. (This research was supported by the Intramural Research Program of the NICHD and NIMH, NIH.)

Abstract 79

A Volunteer Program in the OPD to Improve the Early Detection of Developmental Delays

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Purpose: The timely identification of children with developmental delays is an important aspect of primary care. This study was undertaken to document the efficacy of a volunteer-run program in the outpatient clinic designed to detect delays in 9 to 30 month old children. **Methods:** Intervention group: A convenience sample of English and Spanish speaking families waiting for well child care in an urban hospital-based clinic participated. Premature and chronically ill children were excluded. Trained volunteers met individually with families. The volunteers asked about the child's current developmental attainments and any history of referrals to early intervention or a developmental specialist. They reviewed age appropriate milestones, elicited any parental concerns, and assisted the parents in marking any concerns on a developmental passport to be given to the pediatrician. A tracking form was generated for any child with suspected developmental delays and given to the clinic coordinator. All data was entered onto a spreadsheet. The

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spreadsheet and medical charts were reviewed by the investigator once the children reached 30 months (n=50). Control group: A retrospective chart review (n=265) was conducted on a comparable group of patients who had reached 30 months in the year prior to the initiation of the project in order to establish a baseline referral rate to early intervention or developmental services. Results: The referral rate in the control group was 19% (50/265). The referral rate in the intervention group was 32% (16/50). The difference in referral rates was significant (chi square= 4.38, $p < .05$). Speech and language were the predominant concerns in both groups. The average age at referral for communication problems was 22 months in both groups. Conclusion: The volunteer program significantly increased the number of referrals. Its advantages include its modest cost, the help it provides to low health literacy parents who may have difficulty filling out questionnaires designed to elicit their concerns, and the tangible developmental passport that facilitates a discussion of development with the pediatrician.

Abstract 80

The Effect of Drug Testing in Reducing Drug Use by Adolescents with Substance Use Disorders

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Purpose: To explore how random drug testing impacts behavior of adolescents participating in an outpatient substance abuse program. **Methods:** We conducted 12 individual parent interviews and 4 focus groups (opioid dependent adolescents (n=4), teens with an alcohol and/or marijuana disorder (n=5), and 2 with their parents (n=8) to discuss how random drug testing impacts behavior. All research participants had experience with drug testing. We facilitated focus group discussions using a semi-structured interview guide; field notes were taken by 2 or more research assistants per session. Authors reviewed field notes, discussed major themes and then presented a summary to the original participants for confirmation. **Results:** 11/12 of the parents interviewed individually and all focus group participants believed that drug testing helped reduce their substance use. Opioid dependent adolescents reported that drug testing only reduced use when they were ready to accept treatment. Adolescents with other drug disorders seemed more susceptible to parental pressure to stop using drugs even if they were not seeking treatment. All adolescents said that seeing negative tests and parental praise helped reduced use, while punishments (grounding, etc.) led to cravings. Most parents used at least one punishment though almost all said these led to negative behaviors (yelling, arguing, etc.). One parent believed expressing disappointment helped her child without escalating behavior. **Conclusion:** Preliminary findings suggest that drug testing may help adolescents in treatment to reduce drug use. Rewards and simple disapproval appear to be a much more effective than punishments, though authors caution that logical consequences for safety (such as suspending driving privileges) may be necessary even if they escalate behavior. Outcomes may be associated with the underlying disorder and readiness to accept treatment. Further focus group discussions will confirm whether these findings are consistent, and explore the efficacy of internal rewards (improved self esteem) and verbal praise as compared to material rewards.

Abstract 81

A State-wide Survey of Adolescent Substance Use Screening Rates and Practices in Primary Care

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Purpose: To describe attitudes towards screening, screening rates and screening practices used by physicians practicing in Massachusetts. **Methods:** Survey questionnaire mailed to physicians registered with the Massachusetts Board of Registration in Medicine as practicing pediatrics (N=2,176) family medicine (N=1,335) or both (N=8). **Results:** Out of 3,377 surveys that reached the intended address, we received 926 responses for a response rate of 27%. Among the returned surveys, 183 did not treat adolescents and were excluded from analyses, leaving a final analysis sample of 743 respondents. More than 90% of respondents agreed or strongly agreed that primary care physicians should screen adolescents for substance use. A large majority of respondents (86%) reported that they screen adolescents for substance use annually with younger physicians significantly more likely to do so than their older colleagues (92.4% vs. 79.4%, chi-square=26.7, df=3, $p < .001$). Less than 1% of respondents reported that they do not screen adolescents for substance use at all. Fifty-nine percent of respondents did not use a validated screening tool, 33.9% said they use the CRAFFT and 7.5% said they use the CAGE. Family practice physicians were as likely to use the CAGE as the CRAFFT (17.4% vs 16.1% respectively), while pediatricians were far more likely to use the CRAFFT over the CAGE (43.2% vs. 2.6%). **Conclusion:** Physicians agree that adolescents should be screened for substance use, and screening rates appear to be improving over time. However, many physicians are using ineffective screening practices. Further physician training could improve the effectiveness of routine screening for alcohol and drug use by adolescents.

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Abstract 82

The Developmental Trajectory of Newborn Stepping in Infants with and without Down Syndrome (DS): A Potential Early Intervention for Reducing the Delay in Walking in DS

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Purpose: Developmental researchers have demonstrated that newborn stepping is present during the first 8-10 weeks of age in most infants. Several researchers have demonstrated that the slope of newborn steps over age is influenced by rapid weight gain and arousal level in typically developing (TD) infants and the slope can be extended meaningfully by practicing the newborn stepping behavior (Thelen et al, 1984; Zelazo et al, 1972). The purpose is to describe the trajectory of newborn stepping in the Down syndrome (DS) population known to be significantly delayed in walking onset. **Methods:** Six infants with DS and six TD infants matched on corrected age and gender entered the study as soon as they turned four weeks corrected age. Newborn steps were elicited via standardized procedures in their home biweekly. **Results:** The results indicate that the slope of step frequency is correlated with the slope of weight gain ($r=.85$) and the slope of arousal level (.62) similar to results reported by Thelen et al (1984). The average age when stepping stopped was significantly different in that TD infants stopped at 10 weeks while the infants with DS stopped at 15 weeks on average (Effect size = 1.35). The stepping trajectory of individual infants in the DS and TD groups varied greatly from their group trajectory as would be expected. The mean steps taken at 4, 6, and 8 weeks were significantly higher in the DS group but no group differences were observed for rate of weight gain and arousal level. **Conclusion:** Now that a baseline trajectory of newborn stepping has been recorded, the next logical step is to test the hypothesis that newborn stepping practice (Zelazo et al, 1972) will extend the stepping trajectory over developmental time, lead to earlier onset of treadmill elicited stepping and subsequent earlier onset of independent walking in infants with DS.

Abstract 83

Observations in Psychotropic Medication Usage in Patients with Behavior Disorders

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Purpose: In recent decades, research studies have reported increased usage of psychotropic medications in children. This study was performed to investigate whether this trend was observed in a population of children with behavior disorders in a rural US state. **Methods:** A review of appointment books as well as the computerized clinic record for children seen in the Behavioral Pediatrics Clinic from January 2001 to December 2007 was completed. Children meeting the study criteria were identified, and demographic data, clinical data, and current medication usage data were recorded and analyzed. The cohort inclusion criterion was having one or more of the following diagnoses seen in clinic at the time of the first appointment: disruptive behavior disorder (DBD), behavior management issues/problems/concerns (BMI), or disruptive behavior (DB). Children with diagnoses of autism spectrum disorder or intellectual disability were excluded from the study population. After data was collected, this analysis was then compared with other reports in the biomedical literature. **Results:** A total of 709 charts of children with behavior problems were reviewed for this study. The number of children referred over the seven year period increased from 77 in 2001 to 127 in 2006, a 39% increase. The increasing number of children diagnosed with disruptive behavior disorder/behavior management issues was mirrored by an increased number of referrals. While the number of children on medications at time of first visit also increased over the 7-year period, this was mirrored by an increased number of behavioral diagnoses. The overall percentage of children on medications at time of first visit did show some variability, but it did not necessarily increase over the years 2001 to 2007. **Conclusion:** The results of this study suggest that the previously documented upward trend of psychotropic medication usage in pediatric patients may not be applicable across all diagnostic categories and/or may not apply to all areas of the United States. This particular study design is unique in that we started out with a specific population (i.e., children with behavior problems) and chose to study that group, rather than studying the pediatric population at large. More studies are needed to determine if psychotropic medication prescription practices vary across diagnostic categories in other parts of the country and/or the world as well.

Abstract 84

An Abbreviated Screen for Autism Spectrum Disorders

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Purpose: To pilot test an abbreviated and simplified screening checklist for autism, intended for parents to complete prior to primary care visits. **Methods:** The Parent's Observations of Social Interactions (POSI) is a 7 item checklist intended to identify risk for Autism Spectrum Disorders (ASD) in young children, but it has not yet been validated. Parents requesting an evaluation for their child of <5 years old at a tertiary developmental center completed the M-CHAT and the POSI prior to the clinical evaluation. Results of the two checklists were compared to the outcome of the clinical evaluation. **Results:** Of the 117 children evaluated over a six month period in 2009-10, 62 (53%) received a clinical diagnosis of an ASD. Of these, 41 had a positive score on the M-CHAT and 42 had a positive score

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on the POSI. Among those children who did not receive a diagnosis of an ASD, 31 were correctly identified by the M-CHAT and 43 by the POSI. Based on these findings (see Tables) the M-CHAT had a sensitivity of 66.1%, specificity of 56.4%, and positive predictive value (PPV) of 63%. The POSI had a sensitivity of 67.7%, specificity of 78.2%, and PPV of 77.8%. Conclusion: The POSI appears to provide equally good sensitivity, and better specificity and positive predictive value compared to the M-CHAT in this initial study. If these data are reproduced in larger and more diverse samples, the POSI may provide an efficient alternative for primary care screening for autism.

	M-CHAT +	M-CHAT -	Total
Clinical Diagnosis of ASD	41	21	62
Clinical Diagnosis not ASD	24	31	55
Total	65	52	117
	POSI +	POSI -	Total
Clinical Diagnosis of ASD	42	20	62
Clinical Diagnosis not ASD	12	43	55
Total	54	63	117
	M-CHAT	POSI	
Sensitivity (%)	66.1	67.7	
Specificity (%)	56.4	78.2	
Positive Predictive Val (%)	63	77.8	

Abstract 85

The Effect of a Relationship-based Neurobehavioral Intervention on parents' Understanding of their High-risk Newborn.

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Purpose: Parents of high-risk newborns demonstrate elevated rates of depression and anxiety. High-risk newborns demonstrate neurobehavioral difficulties that interfere with feeding, sleeping, and social interaction. Early intervention (EI) can ameliorate these difficulties, however, many EI clinicians are not trained in the unique needs of the high risk parent-infant dyad. **Methods:** This was a multi-site randomized controlled trial. Families of newborns referred to EI were randomly assigned to an intervention or usual care group and followed until the infant was 12 weeks corrected gestational age. The intervention group received weekly home visits by a clinician certified in the Newborn Behavioral Observation (NBO)- a neurobehavioral, relationship-building tool designed to simultaneously highlight the infant's strength and areas of difficulty while promoting optimal parent-infant interaction. The control group received weekly home visits by an EI provider. The outcome measure was the Profile of Nursing Care - a 25 item index measuring the quality of home visits. **Analyses** first entailed evaluating the measurement properties of the index and then examining differences between groups. **Results:** The study cohort includes 38 families (control=25, experimental=13) across 3 EI programs. Study newborns were predominantly white (70%), low birth weight (60%), and male (60%); 2/3 had newborn intensive care hospitalizations (67.6%); 1 in 5 had feeding difficulties (20.2%); about 1 in 4 lacked family social supports (26%), and 41% had mothers with at least some post-high school education. There were no differences between the groups with regard to socio-demographic or medical characteristics. Confirmatory factor analysis of the index revealed three domains: home visitor's advice, home visitor's listening, parent's knowledge of their baby. Hierarchical linear regression revealed no group differences in overall scores, home visitor's advice and home visitor's listening domains, but the experimental group demonstrated, on average, a statistically significant ($p=0.02$) 3-point higher score (beta = 3.02, s.e. beta = 1.2) on parent's knowledge of their baby. **Conclusion:** Integrating a neurobehavioral, relationship-building tool such as the NBO into EI home visiting promotes parent's understanding of their baby's neurodevelopment and optimal parent-infant interaction.

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Abstract 86

Infant and Maternal Factors Associated with Postpartum Depressive Symptoms: Insight from RI PRAMS 2004-2007

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Purpose: Post partum depressive symptoms (PPDS) occur in 12-26% of mothers and have been associated with impairment of the maternal child relationship and many adverse developmental and behavioral outcomes in children. Our objective was to determine prevalence and factors associated with PPDS in a population-based sample of mothers and their infants. **Methods:** Data from CDC's Pregnancy Risk Assessment Monitoring System, surveying 7934 mothers of 2-5 mo babies born in 2004-7 in RI were analyzed (73.8% weighted response rate). PPDS was identified with maternal responses of 'always' or 'often' to 1) lost interest/pleasure in activities or 2) felt down, depressed or hopeless, since giving birth. **Results:** PPDS was reported by 13.4% of RI mothers. A multivariate logistic regression found that PPDS was independently associated with bwt <2500 g (AOR=1.38; CI=1.1-1.6, p<.01), inconsolable infants (AOR=1.8; CI=1.3-2.6, p<.001), and mothers who: were teens (AOR=1.6; CI=1.0-2.6, p<.05), 20-29 yo (AOR=1.5; CI=1.2-2.0, p<.01), NHBlack (AOR=1.7; CI=1.2-2.5, p<.01), other race/Al (AOR=2.3; CI=1.1-4.7, p<.05), multiparous (AOR=1.4; CI=1.0-1.7, p<.05), lacked knowledge of the danger of shaking a baby (AOR=1.6; CI=1.1-2.5, p<.05), reported recent intimate partner violence (AOR=1.6; CI=1.1-2.3, p<.05) and had <5 of 5 social supports (AOR=2.6; CI=2.1-3.4, p<.001). Factors associated with PPDS in bivariate analysis but no longer predictive of PPDS in this model included: maternal smoking, breast feeding, Hispanic and Asian/PI ethnicity, and insurance type. There was a trend toward unmarried mothers (AOR=1.3; CI=1.0-1.7, p=.07) and those with < HS education (AOR=1.3; CI=1.0-1.7, p=.09) having more PPDS. **Conclusion:** In the neonatal period, pediatricians see mothers more often than maternal health care providers and should consider screening for PPD. In particular, pediatricians working with underserved populations should inquire about maternal mental health during this critical period, and should be aware of family focused interventions and community based resources to help affected mothers and their families.

Abstract 87

The Comorbidity of Written-Language Disorder (WLD) and Attention-Deficit/ Hyperactivity Disorder (AD/HD): Population-Based Birth Cohort Study

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Purpose: Previous research indicates that children with learning disorder (LD) are at increased risk for co-morbid AD/HD. There are no population-based studies of AD/HD in children with written-language disorder (WLD). **Methods:** Subjects included all children born 1976-1982 in Rochester, MN who remained in the community after age 5 (N=5,718). Records from all public/private schools, all sources of medical care and private tutoring were reviewed in detail for every child in the birth cohort. All individually administered IQ and achievement tests and information required to establish AD/HD case status were abstracted. Three formulas (regression-based discrepancy, non-regression-based discrepancy, low achievement) were used to identify cases with WLD. Research identified AD/HD cases were defined by a model combining three categories of information (DSM-IV criteria, AD/HD-specific questionnaire, and clinical diagnoses). Associations were summarized using odds ratios with 95% confidence intervals. **Results:** Overall, children with WLD are 11.6 times more likely to have AD/HD than non-WLD children (p<0.001). Girls with WLD were 14.0 times more likely to have research identified AD/HD than girls without WLD (95% CI=9.1-21.5; p<0.001). Boys with WLD were 9.3 times more likely to have AD/HD than boys without WLD (p<0.001). Boys with WLD are 1.9 (95% CI=1.3-2.7; p<0.001) times more likely to have AD/HD compared to girls with WLD. **Conclusion:** These population-based birth cohort data indicate that AD/HD is more frequent among children with WLD (overall and in both sexes) than among non-WLD children. Further, these data suggest that medical and educational professionals should monitor, evaluate and consider comprehensive /timely intervention for the children with co-morbid WLD and AD/HD.

Abstract 88

Associations between Family Factors, Emotional/Behavioral Functioning and Child BMI in a Cohort of Chilean 10-yr olds

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Purpose: This study examined potential mechanisms explaining the relationship between maternal education and the home environment on BMI in Chilean 10-yr olds. **Methods:** We assessed 1126 10-yr-old children who were part of an infancy iron deficiency anemia

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preventive trial and follow up study. Structural equation modeling was used to examine pathways from family factors to child BMI through parenting and child emotional/ behavioral functioning. The tested model showed acceptable fit indices (CFI=91, RMSEA=.03, SRMR=.04). Results: Results: Descriptive statistics are in Table 1. Mothers with higher education promoted more family recreation (B=.02) which was associated with a positive parent-child disciplinary approach (B=.44), fewer child somatic complaints (B=-.26), lower child depressive symptoms (B=-.40), less overeating (B=.22) and lower child BMI (B=.14.5). Physical home environment was also related to child BMI through the parent-child disciplinary approach mechanism described above (B=.25). In addition, the physical home environment was related to greater parent-child interaction (B=.19), higher child self-esteem (B=1.2), lower child depressive symptoms (B=-.14), which was indirectly related to lower BMI as mentioned above. All associations were significant at $t > 1.96$. Conclusion: In a cohort of Chilean 10-yr olds with a high prevalence of overweight and obesity, higher maternal education and better physical home environment related to parenting and child emotional/behavioral functioning resulting in lower BMI.

Table 1. Characteristics of Chilean 10-yr-olds

MATERNAL	Mean $\pm$ SD or %
Education	9 $\pm$ 3
BMI	29 $\pm$ 5
CHILD	
Male	54
BMI %ile	70 $\pm$ 26
Too sick to play	40
Overeats	57

Abstract 89

Anticipatory Guidance Needs in Parents of Children Ages 0 to 6 Years at Well Child Examinations

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Purpose: Adequate discussion of all recommended anticipatory guidance topics in the limited time of well-child visits is unrealistic. Only a few selected topics are discussed at each visit. While parent-directed education has been shown to cover more topics, physician-selected education appears to produce more overall satisfaction. This study aimed to discover what parents wish to learn in order to help physicians prioritize their discussion topics. Methods: Suggested anticipatory guideline topics for ages 0 to 6 years from Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents, 3rd Edition, were categorized into 14 major topics and included in a survey. The surveys were distributed to parents at a single academic primary care pediatrics clinic along with other check-in materials at well-child exams. Parents were asked to rank their top 3 topics of interest at the current visit. The surveys were collected anonymously during check-out. Results: Between January 19, 2009 and November 30, 2009, there were 3,474 well-child examinations of children ages 0-6 years at the primary care clinic. A total of 425 surveys were collected during this period. At least 1 topic was identified as a need in 82.6% of surveys. The most commonly identified topics overall were normal development, 41.4%, feeding, 40.7%, discipline and behavior, 23.8%, and sleep, 23.1%. The most popular topics at various ages were: 0-3 months: feeding, 50.0%; 4-8 months: diet, 67.9%; 9-14 months: normal development, 54.0%, discipline, 41.9%; 15-23 months: discipline, 41.9%; 2 years: toileting, 47.2%; 3 years: discipline and normal development, 42.5% each; 4 years: normal development, 31.4%; 5 years: discipline, learning, and normal development, 41.7% each; 6 years: normal development, 40.0%. Conclusion: The anticipatory guidance topics most important to parents vary for each age group of children, but always include normal development. This data will allow clinicians to make their educational discussions at each visit more relevant to parents. It can also be used to structure and improve primary care resident education.

Abstract 90

Standard vs. Projective Parent Proxy Reports of Quality of Life in Adolescents with Autism Spectrum Disorders.

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Purpose: To compare two different types of parent proxy reports regarding the quality of life (QoL) of adolescents with Autism Spectrum Disorders (ASDs): (1) standard proxy reports, in which parents report their own perspective on their adolescent child's QoL, and (2) projective proxy reports, in which parents report as they believe their adolescent child would answer. Methods: Thirty-nine adolescents with ASDs and their parents completed the Pediatric Quality of Life Inventory (PedsQL). Parents completed the form twice, once using standard proxy instructions and again using projective proxy instructions. Results: Correlations were higher between parent projective proxies and adolescent self-reports than between standard proxies and adolescent self-reports. In addition, aver-

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age scores on the parent projective proxy were closer to adolescents' self-reports than were average scores on the standard proxy. Conclusion: These results demonstrate that parents of adolescents with ASDs have different opinions about their children's quality of life than their children do, and that they are aware of these differences. Asking parents to report on their child's QoL as they believe their children would reduces discrepancy between parents and their adolescent children with ASDs.

Correlation between adolescent and parent reports.

	Physical Subscale	Emotional Subscale	Social Subscale	School Subscale	Total QoL
Parent Standard	0.46**	0.22	0.30	0.35*	0.40*
Parent Projective	0.51**	0.35*	0.54**	0.48**	0.58**

Abstract 91

Friendship Quality and Social Behavior of Pediatric Brain Tumor Survivors

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Purpose: To examine friendship quality in pediatric brain tumor survivors (BTS) relative to comparison classmates (CC) and examine the extent to which perceptions of friendship quality varies as a function of behavioral reputation. Methods: BTS (n=42), ages 9-18 (12.3 2.5) and 1-6 years post treatment, were recruited from two pediatric oncology centers. Classmates (n=39) matched for gender, race, and age were recruited for a comparison group. Data included peer report on the Revised Class Play (Masten, Morison, & Pellegri, 1985) which measures children's patterns of behaviors and social interaction on five dimensions including Leadership-popularity, Prosocial, Aggressive-disruptive, Sensitive-isolated, and Victimization. The Friendship Quality Questionnaire-Revised (Parker & Asher, 1989) was completed by BTS and CC. This self-report measure assesses the extent of Companionship and recreation, Help and guidance, Validation and caring, Conflict and betrayal, Conflict resolution, Protection, and Intimate disclosure characterizing the relationship with a best friend. Results: No significant group differences were found on subscales measuring friendship quality. BTS were rated higher on Victimization and Sensitive-isolated, and lower on Leadership-popularity. Victimization and Sensitive-isolated behavior were associated with multiple dimensions of friendship quality for CC. For example, they were negatively correlated with positive friendship qualities (e.g., Validation and Caring, Help, and Protection). Correlations for BTS were non-significant. Fischer z transformations indicated that correlations between friendship quality and social behavior were significantly different for BTS and CC, particularly with Victimization and Sensitive-isolation. Conclusion: Although survivors experience deficits in social behavior, it appears that when compared to classmates, they perceive having similar quality relationships with their best friend. Negative social behaviors were related to friendship quality in the expected direction for classmates, however there was no association between behavior and friendship quality for survivors.

Abstract 92

Markers of Maternal Depression in an Urban Pediatric Clinic

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Purpose: To identify markers of maternal depression in pediatric medical records of children less than 5 years old. Methods: This study is part of a larger study of mothers who were screened for depressive symptoms at well child visits from June 2007 - June 2008 in an urban pediatric clinic. The Quick Inventory of Depressive Symptomatology (QIDS) was the screening measure used. A case-control methodology was utilized in which cases are mothers who had a positive screen on the QIDS & controls are mothers who had a negative screen. Three categories of factors were collected from the child's medical record: 1) maternal factors such as age at delivery, social work (SW) referral and child protective services referral (CPS); 2) child health care utilization such as ED visits, hospitalizations and missed appointments; and 3) child health such as prematurity and reports by the mother of behavioral, sleep & speech concerns. Results: To date we have collected data on 92 cases and 197 controls. Under maternal factors, a mother with a history of depression (OR: 2.8, CI: 1.2-6.5) and who is involved with SW services (OR: 1.9, CI: 1.1-3.2) is more likely to screen positive for depression. In contrast, the chances of screening positive for depression is not significantly different in both groups with regards to being a single mother and involvement with CPS. Under child health, mothers who reported about behavior concerns about their children are more likely (OR: 2.5, CI: 1.4 - 4.4) to screen positive for depression. In contrast, maternal reports of speech and sleep concerns are not significantly different between the two groups. Under child healthcare utilization, both groups are not significantly different in terms of the variables in this category. Conclusion: These preliminary results indicate that there is information from pediatric medical records that can be used as markers for maternal depression. In this study, mothers who screened positive for depression were substantially more likely to report behavioral problems prior to the screen. These mothers were also more likely to be recognized as depressed at previous health encounters and referred for social work services.

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Abstract 93

Which Children Fail Classroom Behavior Management? Comparing Methods

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Purpose: To explore the potential of school screening to identify children at risk for disciplinary problems, comparing 3 procedures for scoring teacher ratings: (1) standard clinical; (2) statistical modeling; or (3) decision rules from information theory. Methods: Vanderbilt Teacher ADHD ratings were completed online via CHADIS for all 5727 consented children in grades 1-5, yielding 1174 (20%) positive for ADHD. At year-end, disciplinary interventions were noted by teachers for children positive for ADHD and 102 random negative children. These schools utilize a hierarchical disciplinary system. Disciplinary outcome was defined as an office referral implying a failure of classroom management. Vanderbilt Teacher rating data was used to predict this outcome: (1) Standard ADHD Clinical groupings: Oppositional/Conduct; Anxiety/Depression; (2) Factor analytic derived groupings; (3) Classification and Regression Trees (CART) analyses which select one variable at a time that best differentiates the independent variable. Analytic models were developed on one subset of data and tested on another. For these analyses the 7 standard Vanderbilt performance items were divided into subscales of: 3 achievement, 2 executive functioning, and 2 behavior. Results: Standard Vanderbilt Groups yielded % disciplined (or PPV): ADHD + OD/CD (125) 67.7%; ADHD Combined (246) 52.8%; ADHD Hyperactive (116) 38.8%; Any ADHD (807) 35.1%; ADHD Inattentive (445) 26.7%; No ADHD (108) 7.8%. CART analyses yielded subgroups with better prediction; the best being: 100% for 26 children with high OD/CD symptoms (>1.5) >8.2 yrs old; 94% for 16 boys >8.4 yrs with a somewhat or worse behavior performance score (>7.5) and worse than average executive performance score (>10.5); 81% for 131 boys with high ADHD score (>26.5) and average or less behavior performance. Others (213) were in groups with lower PPVs (60-77%). Factor analytically derived groups included one predicting at 80% comprising a mix of inattentive/hyperactive/ODD/poor peer relations (70) and 3 other groups predicting 68-79% for 299 children. Conclusion: One goal of school ADHD screening is to avoid discipline. Standard teacher ratings identify more children than feasible for intervention. Derived groupings were found to predict office referral better than standard groups and CART better than factor analysis. Teacher ratings of behavior performance are better predictors of discipline than ADHD symptom scales.

Abstract 94

The Lives of Gay Fathers and their Children

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Purpose: A growing body of research has documented the wellbeing of children and their lesbian parents, but little is known about parenting among gay men. Dramatic changes in the social environment and in reproductive technology have led to increasing numbers of gay men becoming fathers 76,000 male couples were raising children in 2007. Methods: A convenience sample of 24 men (12 couples) in Massachusetts included men who adopted their children, used a surrogate carrier, and/or partnered with a lesbian couple to become fathers. Many more men have become fathers while in a heterosexual relationship; they were not included in our sample. All parents completed an extensive questionnaire that provided information about their actual and desired division of household and child care tasks, their sense of competence as parents, perceived social support, experiences of stigma, and parenting stress. A semi-structured interview explored their experience of becoming and being a father. Results: Over 90% of the men reported that they shared child care and household chores equally, and were content with these decisions. Most fathers considered themselves to be effective parents (range 3.8-7.0; median 5.5) and to be moderately satisfied with their parenting abilities (range 1.7-5.5; median 3.4). Reported parental stress varied widely, with very high levels of stress (>90th percentile) related to childrearing acknowledged by 7 fathers. Grandparents were reported to have regular contact with all the children. Most men reported that their child(ren) had ongoing and close relationships with women in their extended families and/or among their friends. While none of the men reported direct stigmatization, several acknowledged a perceived need to justify their status as a family in initiating school, religious, and community interactions, and some reported experiences of discrimination against their children. Conclusion: These gay couples in Massachusetts are raising children in relationships characterized by equal sharing of child care and household responsibilities, with supportive extended families and substantial community support. Their experiences of stigmatization are primarily limited to subtle concerns about acceptance.

Abstract 95

Early Neurodevelopmental Outcomes of Infants with Congenital Heart Disease

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Purpose: Children who undergo surgical repair for congenital heart disease (CHD) are at increased risk for developmental concerns. Infant CHD is associated with higher rates of gross and fine motor difficulties, language and attention concerns, and emotion and

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behavioral regulation problems, especially during school age. The effect of developmental delays or deviations can often be reduced if detected early, thoroughly evaluated, and systematically treated. However, limited data are available describing the early developmental status of infants with CHD. The objective of this study is to examine the early outcomes of infants with CHD following cardiac surgery. Methods: Subjects included 12-19 month old infants (N=30, mean age =13.66 months) who were seen in an infant cardiac neurodevelopmental follow-up program. Severity of the cardiac condition and repair varied from a simple surgical repair for ventricular septal defect to multiple surgeries for more complex conditions such as hypoplastic left heart syndrome. All subjects underwent a comprehensive neurodevelopmental battery which included the Bayley Scales of Infant Development (BSID-III) and the Receptive-Expressive Emergent Language Test (REEL-3). Results: Findings at one-year of age indicate uneven performance on the BSID-III. Cognitive skills were solidly in the Average range (Scaled Score (SS)=11.10 $\pm$ 6, Age equivalence (AE) =14.6 months). In contrast, Receptive Communication (SS=9.76 $\pm$ 4, AE =13.23 months); Expressive Communication (SS=9.03 $\pm$ 5, AE =12.73 months); and Fine Motor skills (SS=9.58 $\pm$ 7, AE =13.06 months) were within the average range but reduced relative to overall cognitive functioning outcomes. Performance on the REEL-3 indicated Receptive Language (Standard Score=90) and Expressive Language (Standard Score=86) skills one-half to nearly a full standard deviation below expectations. Further, BSID-III Gross Motor skill scores (SS=7.0 $\pm$ 5, AE =11.68 months) were significantly reduced with performance in the Low Average range. Fifty-five percent of infants received Early Intervention services post-surgery. Conclusion: Motor and language delays are prominent in this sample of young children with CHD, often requiring early intervention support. Future work will examine developmental outcomes across a range of CHD severity. Findings from this study inform recommendations for routine neurodevelopmental follow-up for children with CHD.

Abstract 96

How Accurate are Clinical Impressions, Based on a Parent Interview and Informal Observation of the Child in Clinic, in the Assessment of Attention Deficit Hyperactivity Disorder?

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Purpose: The purpose of this study is to determine the validity and diagnostic utility of clinical impressions generated from a clinical interview of the parents and informal observation of the child in the clinic setting in the diagnosis of Attention Deficit Hyperactivity Disorder (ADHD). **Methods:** The study consisted of 104 patients between 6 and 12 years of age that were referred for evaluation of suspected ADHD. Clinicians conducted a semi-structured interview with the parents. The child was present (informal observation) during all or part of the parent interview. Immediately after the interview and informal observation, the clinicians rated whether or not they felt the child had ADHD (Yes/No) and their confidence in this diagnosis (1 = No confidence, 5 = High Confidence). Clinicians were blind to parent and teacher rating scales, a structured diagnostic interview, and testing data that were obtained as part of the study. Spearman correlation was used to determine associations between the clinician's confidence in the diagnosis of ADHD and other behavior rating measures. The classification utility of clinical impressions was examined using several quality indices. **Results:** The clinician's confidence in the diagnosis of ADHD based on parent interview and patient observation showed small to medium correlations with other measures of ADHD. The diagnostic utility of clinical impressions was fair to moderate. **Conclusion:** A number of tools are available to aid in the diagnosis of ADHD. Clinicians differ in which tools they implement and how much weight is placed on each of these tools. This study showed that the information obtained during an interview and observation in clinic alone may not be sufficient to make a diagnosis of ADHD, and that a variety of assessment tools should continue to be utilized in the evaluation of ADHD.

Abstract 97

Predictors of Parental Posttraumatic Stress after Adolescent Traumatic Injury

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Purpose: This study aims to evaluate factors associated with the development of posttraumatic stress disorder symptoms (PTSS) in parents of adolescents who experience a traumatic injury. **Methods:** 98 parent-adolescent pairs participated. Adolescents were admitted to a Level I Trauma Center after injury. Exclusion criteria included self-inflicted injury and injury too severe for participation. Data were collected within 30 days (baseline) of injury and 2, 5 and 12 months after injury. Injury-related variables (injury severity score (ISS), length of hospitalization, ICU days), parental variables (age, gender, baseline PTSS, number of preinjury traumatic events, number of postinjury stressful life events, parent rating of adolescent general health) and adolescent variables (age, gender, baseline and 5 month PTSS, baseline and 5 month depressive symptoms and self-rated baseline pain) were investigated. The outcome variable was inverse transformed for regressions. Separate linear regressions were initially conducted for injury-related, parental and adolescent variables. Variables with $p < 0.1$ were considered in the final model. **Results:** Parents were 79% mothers with mean age of 44 $\pm$ 7 years. Adolescents were 67% male with mean age of 16 $\pm$ 2 years. Mean ISS was 10 $\pm$ 7 (max. 29). Length of hospitalization was 5.5 $\pm$ 6.5 days (range 1-44). 33% spent time in the ICU. At baseline, 24% of parents had levels of PTSS consistent with posttraumatic stress disorder, and 54% showed significantly elevated PTSS. By 12 months after injury, 5% and 25% of parents

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reached these symptom levels respectively. Higher parental baseline PTSS ($\beta = -.456$, $p < 0.001$), more parental postinjury stressful life events ($\beta = -.232$, $p < 0.02$), higher adolescent 5-month PTSS ($\beta = -.412$, $p < 0.02$) and lower adolescent baseline depressive symptoms ($\beta = .358$, $p < 0.01$) were all significantly associated with higher parental 12-month PTSS. This model explained 50% of the variance in the risk for development of PTSS. Conclusion: Parental PTSS are present after adolescent injury and may have a significant negative impact on parenting, family functioning and adolescent recovery. Both parental and adolescent factors appear to be important and represent potential points of intervention.

Abstract 98

Teaching Clinical Skill Assessment of Normal Child Development to Medical Students: An Integrated, Evidence-based Approach

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Purpose: We have integrated several published strategies on teaching normal development clinical skills into a small group learning experience for Year 2 (preclinical) students to address practical and logistical problems of approaches used individually. The components are live parent-child dyads, video clips and use of a standardized screening tool. This study examines effectiveness of this integrated approach using student evaluations. **Methods:** Year 2 medical (MS) and dental (DS) students are divided into small groups for a 2-hour clinical skills block in normal child development. After orientation, groups rotate through three 30-minute stations, each set up with a volunteer parent-child dyad, appropriate toys, and a preceptor. The developmental stages represented are infant, toddler, and pre-school/ kindergarten. Parents interact normally with their child and provide developmental history as requested. The preceptor's role is to encourage interaction between the parent-child dyad, to help students make naturalistic observations about development and ask appropriate history, and to demonstrate the use of a screening tool, the Ages and Stages Questionnaire (ASQ). Rooms are equipped with a computer and flat screen TV with immediate access to DVD video clips for back-up should there be not enough live parent-child dyads, if a child becomes ill or if during the session a child becomes fatigued or non-cooperative. DVDs were prepared in advance using volunteer families to mirror an ideal educational experience. **Results:** Of 193 students, 191 attended sessions (156/158 MS, 35/35 DS), and 178 consented to participate study and completed evaluation forms (92% participation). Evaluations used a Likert scale (1 = low, 5 = high). Students ranked the overall experience 4.6 with a range of 4-5. On two occasions, families were unable to participate and video clips were substituted for one station of the three stations. Students in those cycles rated the overall experience 4.5 with a range of 4.1-4.8. **Conclusion:** This integrated approach is highly acceptable to students. Video clip usage, live dyads, clear written objectives and use of a standardized tool preserve the interaction and immediacy of a clinical encounter while maintaining consistency in content. Although student comments express preference for live dyads, ratings of video experiences were also satisfactory.

Abstract 99

A Randomized Trial of Computer Attention Training in Children with Attention-Deficit/Hyperactivity Disorder

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Purpose: Parents, schools, and physicians have searched for an alternative and/or complement to medications for treating ADHD. We report preliminary results from a study in 17 schools that examines the efficacy of two computer-based attention training systems in teaching children with ADHD to concentrate more effectively. We compared a neurofeedback (EEG) computer system that teaches children to alter their brainwave activity with a standard computer format (SCF) system. We hypothesize that both treatments will result in improved school-based outcomes compared to a control condition. **Methods:** Forty-five children with ADHD in grades 2 and 4 were randomly assigned to receive the EEG, SCF, or a Waitlist Control condition (WLC). Children received forty 45-minute sessions three times a week at school for 4 months. Teachers completed the Swanson, Kotkin, Agler, M-Flynn and Pelham Rating Scale-Teacher Version (T-SKAMP) that assesses symptoms of ADHD in the classroom, while students completed the Permanent Product Measure of Performance (PERMP), a math test that analyses speed and accuracy. Double-blind classroom observations (Behavioral Observation of Students in Schools, BOSS) were conducted at three separate times for each student before and after the intervention. **Results:** Pre-post changes in the PERMP, T-SKAMP, and BOSS were analyzed. The EEG intervention group showed improvement on the PERMP math test ($p = 0.03$), and a decrease in ADHD symptoms as reported by teachers on the T-SKAMP Attention scale ($p = 0.01$). The SCF group showed improvement on the PERMP math test ($p = 0.01$), and a trend towards decreased ADHD symptoms on the T-SKAMP. The WLC showed no significant effects on either the PERMP or the SKAMP. Effects on the BOSS followed similar trends but were not statistically significant. **Conclusion:** Preliminary results suggest that computer-based attention training programs offered in an elementary school setting may be effective in improving the performance of children with ADHD.

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Abstract 100

Developmental Trajectories of Social Skills in Low Socioeconomic Status (SES) Infants and Toddlers

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Purpose: Social skills are important for educational achievement. There has been limited study of infant/toddler characteristics associated with later social competence in at-risk low SES children. **Methods:** Longitudinal analysis of mother-infant dyads followed from birth-36m as part of larger study. Inclusion criteria: English/Spanish language, no medical complications. **Dependent variable:** Social Skills (36m) - Behavior Assessment System for Children (BASC-2). **Independent variables:** Regularity (6m): Short Temperament Scale for Infants; Imitation/play (24m): Infant Toddler Social Emotional Assessment (ITSEA). **Potential confounders** (enrollment, 6, 14, 24m): child language development (PLS-4); cognitive stimulation in the home (StimQ); maternal depression (PHQ-9); sociodemographics. **Results:** 109 dyads included in analysis. Mothers: 32% HS grads; 94% Latina; 90% low SES. Infant regularity was associated with toddler imitation/play in both unadjusted analyses and multiple regression analyses adjusting for all potential confounders; both were associated with preschool social skills (see Table). In path analyses, the association between infant regularity and preschool social skills was mediated by toddler imitation/play, meeting Baron and Kenny criteria with bootstrap indirect effect .59 (95% CI .17, 1.1). **Conclusion:** The developmental trajectory of social skills for low SES preschool children is shaped by infant regularity and toddler imitation/play. Interventions to enhance social competence and long-term educational outcomes should address parent-child interactions in young infants and toddlers. **Funding:** NICHD (R01 HD047740), Tiger Foundation, Marks Family Foundation, Children of Bellevue, Inc., KIDS of NYU.

6m regularity, 24m imitation/play, and 36m social skills

	Imitation/play (24m)		Social skills (36m)	
	Unadjusted (r)	Adjusted (beta)	Unadjusted (r)	Adjusted (beta)
Regularity (6m)	.32**	.27**	.25*	.25*
Imitation/play (24m)			.33**	.33**

Abstract 101

Self-Reported Internalized Distress in 5-to-7 Year Old Chinese American and European American Children

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Purpose: The Berkeley Puppet Interview (BPI) assesses children's perception of their own symptomatology (Measelle, Ablow, Cowan, & Cowan, 1998). Studies have demonstrated the BPI as a reliable and valid assessment for young children in community and clinical settings (Ablow, et al., 1999). Psychometrically sound instruments are lacking for ethnic minorities, and especially more so with ethnic minority children. Thus far, studies conducted on Asian- and Chinese American adolescents suggest that they tend to experience higher levels of psychological distress compared to other ethnic groups (e.g. Zhou, Peverly, Xin, Huang, & Wang, 2003; Sue & Frank, 1973). The purpose of the study was to examine the internal consistency and mean differences of the internalizing scales of the BPI in Chinese American and European American children. **Methods:** Participants included 70 Chinese American (CA) and 52 European American (EA) children from the San Francisco Bay Area. Children were 5 to 7 years old ($M = 6.35$, $SD = 0.81$). Two dog puppets were used to interview children. After offering opposing statements about themselves, the puppets asked the child to provide a response pertaining to their own perception of themselves. Two coders coded on a 7-point Likert scale. In this study, only the internalizing subscales were examined. Higher BPI scores indicate greater levels of symptomatology. **Results:** The internal consistency of the CA group ranged from .55 to .65 (Depression $\pm = 0.60$; Overanxious $\pm = 0.65$; Separation Anxiety $\pm = .61$; Asocial With Peers $\pm = .55$; Social Inhibition $\pm = .61$). For the EA sample, the internal consistency ranged from .54 to .68. (Depression $\pm = 0.68$; Overanxious $\pm = 0.54$; Separation Anxiety $\pm = .59$; Asocial With Peers $\pm = .56$; Social Inhibition $\pm = .66$). An ANCOVA was conducted while controlling for age, gender, and SES. CA children reported greater levels Overanxiousness ($CA=3.29$ (.11); $EA=2.94$ (.10); $F(1, 141)=4.95$, $p<.05$), and Separation Anxiety ($CA=3.53$ (.12); $EA=2.88$ (.11); $F(1, 141)=14.35$, $p<.001$), than EA children. **Conclusion:** The alpha values are consistent with previous studies that have used these scales in community samples and considered acceptable for child report (Ablow et al., 1999; Measelle et al., 1998). CA children tended to report greater distress than EA children, which parallel findings among older children and young adults.

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Abstract 102

Early Adolescent Drug Use: Longitudinal Analysis of Cognition, Impulsivity and Problem Behaviors

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Purpose: Many longitudinal studies have examined patterns of risk behavior in children with developmental delay, conduct disorder, and troubled family environments. Fewer studies have examined patterns of actual engagement in risk behaviors in community samples of youth prior to peak ages of risk for drug use. We examined drug use in youth at four annual assessments to determine if drug-using subjects (DU) can be differentiated from non-drug users (NU) in NC function, impulsivity, problem behaviors and non-drug risk taking. **Methods:** Youth ages 10-12 y (n=387) of mixed SES were enrolled from Philadelphia schools. Annual evaluations included: self reported risk behaviors, e.g., fighting, sexual activity; 2) NC functioning; 3) Impulsivity (IMP); and 4) problem behaviors (YSR)). For this report, DU (n=58) were defined as those reporting drug use at each of three annual assessments; NU (n=172) reported no drug use at any assessment. Participants not included reported other drug use patterns across assessments. **Results:** The most frequently used drugs by DU were alcohol (78%), cigarettes (34%), marijuana (22%), and inhalants (9%). DU were older than NU at project initiation (11.70.9 vs.11.2 0.8, $p<.001$), more likely male (59% vs. 41%; $p=.022$), and of lower SES than NU, $p=.015$. Using GEE, we examined effects of group (DU, NU), age at testing, gender, and time on NC, IMP, problem behavior and non-drug risk taking. DU had higher IMP, $p=.017$, problem behaviors (Internalizing, Externalizing, and Total Problem scores) than NU at all time points, $p<.001$, and exhibited higher non-drug risk taking than NU, $p<.001$. After adjustment for multiple comparisons, DU and NU were similar in NC function, with scores for both improving over time. There were no group by time interactions. **Conclusion:** At an early age DU youth differ from NU in IMP, problem behaviors and non-drug risk taking, but not NC function. These results suggest that strategies for prevention of DU should address issues of impulsivity and problem behavior rather than cognitive function.

Abstract 103

The Relation of Paternal Depressive Symptoms and Infant Negative Affect

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Purpose: Paternal depression has been linked to long-lasting effects on children's well-being across childhood but little is known about its relation to infant affective development. This study evaluated the individual and combined contribution of paternal and maternal depressive symptomatology to infants' negative affect observed during naturalistic home observations. We expected to find an independent relation between paternal depression and infant negative affect and an interaction of paternal and maternal depression to infant negative affect. **Methods:** 68 low-risk European-American mother-father-infant triads participated. At 3 months postpartum, mother-infant everyday activities were videotaped for 30 minutes at home; fathers were not present. Each parent completed the Center for Epidemiological Studies-Depression Scale (CES-D). Parents were classified into three symptom groups: low (0-1); normative (2-15); or high (16+). Coders blind to parental symptomatology coded infants' displays of negative affect (negative facial expressions, vocalizations) from videotaped interactions. A stepwise regression model evaluated (1) the association between level of paternal and maternal depressive symptoms and the percentage of time infants displayed negative affect, and (2) the interaction effects of maternal and paternal depression on infant negative affect. **Results:** Contrary to our expectation neither paternal symptomatology ($R^2=.065$, $F(2,66)=2.259$, $p=.0113$) nor the interaction between maternal and paternal symptomatology ($R^2=.047$, $F(3,64)=1.608$, $p=.0208$) were related to infants' negative affect. Consistent with previous findings, infants of high symptom mothers exhibited more infant negative affect ($R^2=.063$, $F(2,66)=4.414$, $p<.05$). **Conclusion:** Given the relation of paternal depression to children's development, the lack of relation of paternal depressive symptoms to infants' negative affect and the lack of an indirect effect via the mother are surprising, and require further exploration.

Poster Session Abstracts

Abstract 104

How Do Screening Tests Perform in Settings Serving At-risk Populations?

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Purpose: Quality screens are standardized on a sample of children and families whose socio-economic and demographic characteristics represent those of an entire nation (e.g., in the US by creating a normative group that reflects Census Bureau population parameters). Standardization of tests on such a sample defines what is typical performance and, in the case of screening tests, predicted frequencies of referral rates. Should researchers and clinicians working with Medicaid, NICU follow-up, or other at-risk groups expect their referral rates to differ from national norms? Methods: Referral rates based on national norms for Parents Evaluation of Developmental Status (PEDS) (N = 771) were compared to those from a pediatric clinic serving mostly Medicaid patients in Milwaukee, Wisconsin (N = 744), and to 211LA, a warm line serving mostly ethnic minority families (47% Latino and 30% African-American) in non-medical crisis (e.g., housing or food instability) (N = 257). Results: Chi-square comparisons among the three groups revealed that clinics serving families with elevated rates of psychosocial risk (e.g., poverty, less than a high school education, limited English proficiency, etc.) had significantly higher rates of children with problematic performance on PEDS ($p < .0001$). These results are corroborated by other studies of at-risk samples who were administered different screening tests. Conclusion: The impact of psychosocial risk on development is well known to developmental-behavioral specialists. Helping trainees and generalist pediatricians anticipate increased referral rates when working with at-risk populations is needed. Screening test authors should help by reporting, not only the frequency of problematic performance on nationally representative samples, but also frequencies for various at-risk populations (e.g., children in foster-care, NICU follow-up, etc.).

Abstract 105

Core White Matter Characteristics Related to Behavioral Problems in 9-16 Year Old Preterm and Full-term Children

Eliana S. Lee, BS, Irene M. Loe, MD, Pediatrics, Stanford University, Palo Alto, CA, Roland Bammer, PhD, Radiology, Stanford University, Stanford, CA, Heidi M. Feldman, MD, PhD, Pediatrics, Stanford University, Palo Alto, CA

Purpose: Preterm children have more behavior problems, including inattention and anxiety symptoms, than full-term peers. To date, the only study on behavior, white matter (WM) microstructure, and prematurity found areas of abnormal WM, e.g. internal and external capsules and long fascicles, in 15-year-old preterms were related to inattention, social deficits, and overall mental health, but not specifically to anxiety or hyperactivity (Skranes et al., 2007). Methods: Preterms (n=19, mean age 11.9 yr) and full-term controls (n=15, mean age 13.4 yr) were assessed on the CBCL, a standardized behavior rating scale. Outcomes were t scores for anxiety (Anx), social (Soc), attention (Att), and Externalizing (EXT, rule-breaking and aggressive behavior) problems. DTI data were pre-processed with FSL Diffusion Toolbox. Tract-Based Spatial Statistics, based on fractional anisotropy (FA), defined the centers of major WM tracts throughout the brain. We evaluated correlations between FA of tract centers and behavior symptom scores. We set $p < .05$ after correction for multiple comparisons. Results: Preterm and control groups did not differ in FA in the centers of major WM tracts; however, behavior scores correlated with FA. More Anx ($p < .01$), Att ($p < .01$), EXT ($p < .05$), and Soc ($p < .07$) problems were associated with lower core FA in multiple tracts. Tracts correlated with Anx included corpus callosum (CC), left (L) superior longitudinal fasciculus (SLF), inferior fronto-occipital fasciculus (IFO), inferior longitudinal fasciculus (ILF), posterior limb of internal capsule (PLIC), right (R) external capsule (EC), cingulum (CNG), corona radiata (CR), and cerebral peduncle (CP). Tracts correlated with Att overlapped in CC, L SLF, IFO, ILF, L PLIC, CNG, CR, and CP; but also included R SLF, L anterior limb of IC (ALIC), and L EC. Tracts correlated with EXT overlapped in CC, L SLF, IFO, ILF, and CR; but included L ALIC and L EC, similar to Att. Tracts correlating with Soc included CC, L SLF, L IFO, L ILF, and CR. Conclusion: Compared to a previous study, we found additional links between anxiety and externalizing problems and core WM microstructure. We replicated findings for attention and social problems even when preterms as a group had no obvious WM damage compared to full-terms. Our study found significant associations using a more conservative WM analysis method while including a wider age range of children.

Abstract 106

Effects of Behavioral Parent Training on Injury Risk Behaviors in Children

Heather M. Babyar, BA, Adam T. Morris, BA, Beth G. Wildman, PhD, Psychology, Kent State University, Kent, Ohio, John C. Duby, MD, Neurodevelopment Center, Akron Children's Hospital, Akron, Ohio

Purpose: Unintentional injury is the single largest cause of death among children in the U.S., resulting in more deaths than all other diseases combined. Children with externalizing behavior problems are at increased risk for injury. In addition to controlling access to hazards and modifying the environment as means to decrease injury, data show children are less likely to be injured when parents more closely and actively supervise their children. The present study evaluated the effectiveness of Triple P (Positive Parenting Program), an empirically-supported behavioral parent training program, for decreasing injury risk among 3-7 year-old children. Methods: Participants were 20 parents referred by primary care pediatricians in and around a Midwestern city due to their child's externalizing behavior prob-

Poster Session Abstracts

lems. Information regarding child injury risk and externalizing behavior problems was collected from parents before Triple P (Time 1), at the conclusion of Triple P (Time 2) and 8-weeks following Triple P (Time 3) using the Injury Behavior Checklist, and the Eyberg Child Behavior Inventory. Results: A paired sample T-test revealed significant decreases in injury risk behaviors from Time 1 ($M=21.72$, $SD=12.30$) to Time 2 ($M=15.72$, $SD=8.59$), $t(17)=2.28, p<.05$. Further analysis indicated these results were maintained at Time 3 ($M=14.36$, $SD=10.70$), $t(10)=2.71, p<.05$. Additional analyses found significant decreases in externalizing behavior problems from Time 1 ($M=148.00$, $SD=22.77$) to Time 2 ($M=119.83$, $SD=26.00$), $t(17)=4.39, p<.05$, with a similar pattern maintained at Time 3 ($M=115.55$, $SD=21.66$), $t(10)=5.73, p<.05$. Changes in externalizing behaviors ($r^2=-.22$, ns) did not account for changes in injury risk. Conclusion: Preliminary results indicated child injury risk behaviors and externalizing behaviors decreased over time for families who participated in a behavioral parent training program. The present findings suggest parenting practices around risk behaviors may have had reduced injury risk, not changes in child behavior alone. The present findings support the utility of parent training to decrease injury risk in children with externalizing behavior problems.

Abstract 107

Attention-Deficit/Hyperactivity Disorder (ADHD) among Children with Autism: A Population-based Study

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Purpose: Autism is a developmental disability characterized by impaired communication and social interactions with associated restricted interests and stereotypic behaviors. Children with autism may also exhibit hyperactive, impulsive or inattentive symptoms, magnifying challenging behaviors. Although studies utilizing referral populations or identifying autism through questionnaires have demonstrated that children with autism can also meet criteria for ADHD, there are no population-based studies using research-confirmed diagnoses of autism to verify this association. Other studies have shown that ADHD symptoms in children with autism respond to treatment with stimulant medication; however, DSM-IV criteria for the diagnosis of ADHD exclude individuals with pervasive developmental disorders. This exclusion potentially prevents the recognition and treatment of ADHD symptoms in children with autism. Methods: Subjects included a population-based incidence group of 121 previously identified individuals who met research criteria for autism from 1976-1997 in Olmsted County, Minnesota, and 242 age- and gender-matched controls. Through the Rochester Epidemiology Project, a computerized record indexes all inpatient and outpatient medical diagnoses. This record was used to identify all case and control subjects who received a diagnosis of ADHD prior to the age of 21. Results: Among the 121 subjects with research-identified autism, 71 (58.7%) received a physician diagnosis of ADHD. In the control population of 242 subjects, 33 individuals (13.6%) received a diagnosis of ADHD. Conclusion: Our data indicate that individuals with autism are more likely to be diagnosed with ADHD than age- and gender-matched controls. Maximizing symptomatic control of co-morbid conditions and optimizing the ability to attend to therapeutic encounters will provide children with autism the greatest opportunity for success. Our data from a population-based study support proposed changes to the DSM-5 criteria for ADHD that remove the exclusionary diagnosis of pervasive developmental disorder. Children with autism should be evaluated for ADHD symptoms and treated accordingly.



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- **Understand** the role of pharmacotherapy and nonpharmacotherapy modalities of treatment in the management of adolescent and adult ADHD patients
- **Develop** a strategy for tailoring individualized, comprehensive treatment plans and monitoring for medication adherence to effectively treat and manage ADHD in adolescent and adult patients
- **Review** potential cardiovascular risks associated with some ADHD treatments and understand how to conduct a thorough clinical review to screen for at-risk patients
- **Understand** value of neuropsychological tests and rating scales along with performing a thorough clinical interview utilizing DSM-IV criteria
- **Summarize** the benefits of cognitive behavior therapies to improve outcomes for ADHD patients

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The Education and Research Committees of the SDBP have recently established a program for on-going mentoring of junior faculty and trainees in DBP (including MDs, PhDs, and others). Trainees and junior faculty are paired with experienced SDBP researchers from outside the mentee's home institution. The specific mentoring arrangements vary in each instance, but we expect that most mentor-mentee pairs will communicate periodically by email or phone, and might also meet informally at the SDBP Annual Meeting. The duration of the mentoring relationship will also vary and it may be discontinued at any time by either the mentor or mentee.

We're very excited to be putting this program in place, in support of SDBP's long-term strategic goals of promoting research and fostering careers.

We will be having a reception for mentors and mentees on Saturday from 5-5:30. Carol & Paul will both be there, and even if you have not signed up for the program but have questions or just want to check it out, please come by!

To volunteer as a mentor, or to request a mentor, go to the Members Only section of the SDBP website or visit the SDBP Registration Desk.

www.sdbp.org



Our Vision

To be the interdisciplinary leaders in optimal developmental and behavioral health for all children



About Us

The Society for Developmental and Behavioral Pediatrics (SDBP) was founded in 1982 by a small group of forward-thinking pediatricians and their colleagues. Now over a quarter of a century later, the SDBP has become an international organization dedicated to improving the health of infants, children, and adolescents by promoting research, teaching and clinical practice in developmental and behavioral pediatrics. Comprised of more than 700 members, the society strives to promote an integrated understanding of the biological, social, educational, and cultural influences on children and their families.

Apply for membership
On-Line (New!)
Printable applications are available
Visit www.sdbp.org
-or-
visit the SDBP Registration
Desk during the meeting

"Great journal, great annual conference, great opportunity to network with great colleagues!"
Ron Marino DO, MPH, Director, Winthrop University Hospital, Mineola, NY USA

Benefits of Joining SDBP

- A subscription to the *Journal of Developmental and Behavioral Pediatrics*
- Semi-annual copies of Behavioral Developments, SDBP's official newsletter
- Discounts for the SDBP Annual Meeting workshops and registration fees
- Discounts for DB:PREP courses
- Access to the Members' Only section of the www.sdbp.org, with an online directory of members and a Tool Shed of materials for education and practice
- Advocacy opportunities on behalf of children with developmental and behavioral disorders and their families
- Mentoring of Junior Faculty and trainees in DBP
- Opportunities to get involved in a dynamic and growing organization





Notes

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SAVE THE DATES!!

2011 SDBP Annual Meeting

September 16 - 19

San Antonio, TX

Teaching DBPeds Workshops

September 16

Half-Day Workshops

September 17

**Plenary, Poster and Concurrent
Presentations**

September 18 - 19

2012 SDBP Annual Meeting

September 7 - 10

Phoenix, AZ

Teaching DBPeds Workshops

September 7

Half-Day Workshops

September 8

**Plenary, Poster and Concurrent
Presentations**

September 9 - 10