

2011 Annual Meeting

September 16 - 19, 2011
The San Antonio Marriott Rivercenter
San Antonio, TX

Table of Contents

Schedule of Activities	2
Schedule-at-a-Glance	3
General Information.....	4
Program Committee and Board of Directors.....	9
Lectureship Award	10
Exhibitor Product Descriptions.....	11
Program Schedule.....	12
2011 Lecture Award Handouts	21
Handouts for Concurrent Sessions.....	35
Plenary Session Abstracts.....	113
Poster Session Board Assignments	118
Poster Session Abstracts	124
Hotel Meeting Room Locator (Map)	Inside Back Cover

SDBP National Office

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Schedule of Activities

On-site Registration Hours

Friday, September 16.....	11:00am - 6:00pm
Saturday, September 17.....	7:00am - 5:00pm
Sunday, September 18.....	7:00am - 5:00pm
Monday, September 19.....	7:00am - 3:00pm

Education Committee Workshop

Friday, September 16.....	1:00pm - 7:30pm
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Pre-meeting Workshops (A, B, C, D)

Saturday, September 17.....	9:00am - 12:00noon
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Pre-meeting Workshops (E, F, G, H)

Saturday, September 17.....	1:00pm - 4:00pm (or later, see program)
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Trainee/Recent Graduate Workshop-Career Panel ADHD, Early Childhood and Nurse Practitioners SIGs

Saturday, September 17.....	7:30pm - 9:00pm
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Annual Meeting Scientific Sessions

Sunday, September 18.....	9:00am - 7:00pm
Monday, September 19.....	9:00am - 5:00pm

Poster Sessions

Sunday, September 18.....	6:00pm - 7:00pm
Monday, September 19.....	2:20pm - 3:20pm

SDBP Members Meeting

Sunday, September 18.....	5:00pm - 6:00pm
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Luncheon Meetings

Sunday, September 18.....	12:00noon - 1:30pm
* <i>JDBP</i> Editorial Board Meeting (<i>Editorial Board Members Only</i>)	
* Trainee/Recent Graduate Luncheon	
* Developmental-Behavioral Pediatrics Program Directors Luncheon	

Exhibits

Saturday, September 17.....	5:00pm - 6:30pm
Sunday, September 18.....	8:30am - 7:00pm
Monday, September 19.....	8:30am - 3:00pm

SOCIAL EVENTS

Welcome Reception

Saturday, September 17.....	5:30pm - 6:30pm
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Psychology Gathering

Saturday, September 17.....	6:30pm - 7:30pm
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Dinner Social

Sunday, September 18.....	7:00pm - 10:00pm
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Autism SIG

Monday, September 19.....	3:30pm - 5:30pm
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Schedule-At-A-Glance

Friday, September 16	Saturday, September 17	Sunday, September 18	Monday, September 19
<p>1:00pm - 7:30pm <i>Education Workshop</i> Teaching Developmental-Behavioral Pediatrics to Residents</p> <p>5:00pm - 9:00pm <i>Board of Directors</i></p>	<p>8:00am - 12:00noon <i>Board of Directors</i></p> <p>9:00am - 12:00noon <i>Half-Day Workshops</i></p> <p>A. Augmentative and Alternative Communication Systems: Will the Availability of New Mobile Technologies Benefit More Children?</p> <p>B. Different Annual Work Relative Value Unit Benchmarks for Developmental/Behavioral Specialist and Ways to Increase Annual Work Relative Value Units</p> <p>C. Fetal Alcohol Spectrum Disorders: Diagnosis, Differential Diagnosis and Management</p> <p>D. STAT-MD: A Rapid Autism Evaluation Model for the Developmental-Behavioral (Db) Clinician</p> <p>1:00pm - 4:00pm <i>Half-Day Workshops</i></p> <p>E. Electronic Health Records: Making Them Work for You</p> <p>F. A Multidisciplinary Perspective on the Assessment and Treatment of Feeding Disorders in Autism</p> <p>H. A Developmentalist's Guide to Preparing for MOC</p> <p>2:00pm - 5:00pm <i>Half-Day Workshop (no CME/CE credits offered)</i></p> <p>G. A Primer on Academic Promotion: Preparing for Promotion from Day One</p> <p>4:00pm - 5:00pm <i>DBPeds 101</i> Special Introduction Workshop for Medical Students <i>No CME Credit</i></p> <p>5:00pm - 6:30pm <i>Exhibits</i></p> <p>5:00pm - 5:30pm <i>Mentor Program</i></p> <p>5:30pm - 6:30pm <i>Welcome Reception</i></p> <p>6:30pm - 7:30pm <i>PhD/Psychology Gathering</i></p> <p>7:30pm - 9:00pm</p> <ul style="list-style-type: none"> • <i>Nurse Practitioner's SIG</i> • <i>ADHD SIG</i> • <i>Early Childhood SIG</i> • <i>Trainee/Recent Grad Workshop - Career Panel</i> <p>(no CME/CE credits offered for Saturday evening sessions)</p>	<p>7:00am - 8:50am <i>Committee Meetings</i></p> <p>8:30am - 7:00pm <i>Exhibits</i></p> <p>9:00am- 7:00pm <i>Posters Up - Session 1</i></p> <p>9:00am - 9:15am <i>Welcome</i></p> <p>9:15am - 10:30am <i>Plenary Session I (Abstract Presentations 1-5)</i></p> <p>10:30am - 10:45am <i>Break</i></p> <p>10:45am - 12:00noon <i>Lectureship Presentation</i></p> <p>12:00noon - 1:30pm <i>Trainee/Recent Graduate Luncheon</i></p> <p><i>Fellowship Directors Lunch</i></p> <p><i>JDBP Editorial Board Meeting (for Editorial Board Members only)</i></p> <p>1:30pm - 3:00pm <i>Concurrent Sessions 1-3</i></p> <p>3:00pm - 3:15pm <i>Break</i></p> <p>3:15pm - 4:45pm <i>Concurrent Sessions 4-6</i></p> <p>5:00pm - 6:00pm <i>Members Meeting</i></p> <p>6:00pm - 7:00pm <i>Poster Session 1: Meet the Author</i> <i>No CME Credit</i></p> <p>7:00pm - 10:00pm <i>Dinner Social</i></p>	<p>7:00am - 8:50am <i>Committee Meetings</i></p> <p>8:30am - 3:00pm <i>Exhibits</i></p> <p>9:00am - 3:30pm <i>Posters Up - Session 2</i></p> <p>9:00am - 10:15am <i>Plenary Session II (Abstract Presentations 6-10)</i></p> <p>10:15am - 10:30am <i>Break</i></p> <p>10:30am - 11:45am <i>Presidential Address</i> <i>Incoming Presidential Address</i></p> <p>11:45am - 1:00pm <i>Lunch Break - on your own</i></p> <p>12:00noon - 1:00pm <i>International SIG</i> <i>No CME Credit</i></p> <p>1:00pm - 2:15pm <i>Poster Symposium I</i> <i>Poster Symposium II</i></p> <p>2:20pm - 3:20pm <i>Poster Session 2 - Meet the Author</i> <i>No CME Credit</i></p> <p>3:30pm - 5:00pm <i>Concurrent Session 7</i></p> <p>3:30pm - 5:30pm <i>Autism SIG Meeting</i></p>

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.

Purpose

To bring together multidisciplinary clinicians, educators and researchers to advance the knowledge and management of children with developmental - behavioral issues and their families.

Goals

After attending this meeting the participants will be able to:

- Describe new approaches in managing children with developmental-behavioral issues and their families
- Discuss advances in the treatment of ADHD, autism, and other developmental-behavioral disorders.
- Demonstrate strategies and skills for teaching learners including students and parents about development and behavior in children.
- Identify the effect of socio-cultural influences on child development.
- Describe different ways diversity affects management of children with developmental-behavioral issues.

Registration

All attendees must be registered for the meeting. Registration is located in the **Salon I 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 2011 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 18 from 6:00pm - 7:00pm and Monday, September 19 from 2:20pm - 3:20pm, respectively.

Exhibits

Exhibits will be located in **Salon I** 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 31, 2011** (at www.CmeCertificateOnline.com, Password: SDBP11AM) in order to receive your certificate. The site will close after October 31, 2011 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 & Behavioral Pediatrics. The IAHB is accredited by the ACCME to provide continuing medical education for physicians.

Credit Designation Statement

The IAHB designates this live activity for a maximum of 23.5 *AMA PRA Category 1 Credit(s)*[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Psychologists

This course is co-sponsored by Amedco and the Society for Developmental & 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 23.5 hours.

ADA Statement

ADA accommodations will be made in accordance with the law. If you require ADA accommodations, please let the

General Information

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 in the Participant Notification handout provided at registration.

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 31, 2011 at www.CmeCertificateOnline.com, Password: SDBP11AM.

Acknowledgement of Commercial Support

Welcome Reception sponsored by:

Baylor College of Medicine - Medical Genetics Laboratories

Coffee Breaks sponsored by:

Baylor College of Medicine - Medical Genetics Laboratories
Seaside Therapeutics

Educational Grant received from:

Shire

Social Events

Welcome Reception

Salon I

Saturday, September 17, 5:30pm - 6:30pm
Enjoy time with friends and colleagues in a casual setting.

Dinner Social

Salon H

Sunday, September 18, 7:00pm - 10:00pm
After viewing the latest science in developmental and behavioral pediatrics at the *Meet the Author Session* (6:00 - 7:00pm in Salon I), 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.

DBPeds 101

This year, SDBP invited Medical Students with an interest in Pediatrics (but have not yet chosen Developmental-Behavioral Pediatrics as their subspecialty) to attend the Annual Meeting. They will have a general introduction to the field during the DBPeds 101 session on Saturday afternoon in Conference Room 7 at 4:15pm. Please feel free to stop by, it's open to everyone. Be sure to keep an eye out for the medical students - they will be wearing a ribbon on their name badge that says, "GUEST", please make them feel welcome!

Also, we encourage you to stop by the SDBP exhibit booth in Salon I to share why it is your field of choice.

Committee Information

Sunday, September 18, 2011, 7:00am - 8:50am

Advocacy - Conference Room 9

Coding - Conference Room 16

Communications - Conference Room 10

Education - Conference Room 8

Research - Conference Room 15

Monday, September 19, 2011, 7:00am - 8:50am

Development - Conference Room 10

Membership - Conference Room 15

Practice Issues - Conference Room 16

Program - Conference Room 9

Committee Descriptions:

ADVOCACY

Adiaha Spinks Franklin, MD, MPH, Co-Chair

Ann Kinsman, 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.
- Utilize 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.
- 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 Franklin MD, Co-Chair (Spinks@BCM.edu) or Anne Kinsman, PhD, Co-Chair (akinsman@ghs.org) and join us Sunday morning.

SDBP AND AAP COLLABORATIVE CODING

Lynn M. Wegner, Co-Chair

Michelle Macias, MD, Co-Chair

In the fall of 2010, the Executive Committees of SDBP and AAP SDBP agreed to form a committee focused on issues related to medical diagnostic (ICD-9-CM) and procedural

General Information

(CPT) codes. Michelle Macias, current chairperson of the SODBP EC, and I are the inaugural co-chairpersons and we have developed a preliminary statement of purpose for the Committee:

This Committee is being formed as an organized effort to support the practice of child and adolescent developmental and behavioral care. Health services must have adequately valued Current Procedural Terminology (CPT) codes. Moreover, there must be codes accurately describing services particularly used in specialty DB care as well as DB care provided by general pediatric medical providers. Diagnostic codes (International Classification of Diseases-9th Edition, ICD-9-CM) also must be developed to enable, when possible, specific description of conditions encountered in rendering developmental and behavioral care.

With all good intentions, we had planned to have a series of conference calls this winter/spring to get all interested parties together and discuss issues. However, one of us (LW) broke her hip in January as she was trying to pull her daughters' wedding together while continuing her day job (of being the only db pediatrician at UNC).

Now, with several items put to rest we are really getting this group in gear!

Interested? Stop by our breakfast meeting on Sunday and consider joining this Committee. You do NOT have to have any coding expertise -just an interest in learning more about these issues and participating in these endeavors. What would this entail? Probably one conference call every 4 months, reviewing code proposals, and occasionally working on Powerpoint slides for presentations.

COMMUNICATIONS

Robert Needlman, MD, Co-Chair

Beth Wildman, PhD, Co-Chair

The Communication Committee works closely with the team at Degnon Associates to put out the newsletter, and to oversee the website. Beth has taken over from Susan Rosenthal as both committee co-chair, and newsletter co-editor. Nicole Wightman and Maya Lopez have joined the newsletter as associate editors. Robert rotates off the committee chair position in the coming year. The Committee is proposing major changes in its overall strategy: We will (pending board approval), discontinue the printed and mailed newsletter, which came out two times a year, in favor of an electronic newsletter published quarterly. (Hard copies can still be mailed to members who do not have email). We anticipate that cost-savings (printing, mailing) will more than offset additional costs for the new editions. We also propose to institute electronic message boards, which will upgrade the functions of the current listservs, allowing more

flexible participation. Damon Korb is taking the lead on this project. The Committee had two active conference calls, and will continue to meet, remotely, on a regular basis. We welcome participation by members with ideas and energy. If communication is the heart of DBPeds, then we in the Communication Committee are the heart of SDBP!

DEVELOPMENT

Paul Dworkin, MD, Chair

The Development Committee continues to explore new ways of increasing support for SDBP activities. Our most successful activities continue to be our solicitation of 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. We have participated in discussions of funding to support a developmental-behavioral pediatrics research network which would potentially help meet portions of the SDBP Strategic Plan pertaining to research and quality improvement. Other considerations under review include: Further activities to support the Annual Meeting (e.g., solicit support from Foundations [national, regional] for specific meeting components; solicit support from Industry [i.e., unrestricted educational grants] for specific meeting components); Explore potential revenue streams from SDBP products or programs (e.g., commercial support for Newsletter); Solicit support for specific priorities of the Society (e.g., promotion of global health, expansion of mentoring and training opportunities; Research Grant/ Young Investigators Awards; trainee memberships); Create new initiatives that can potentially serve as revenue enhancements for the Society (e.g., Registries for specific diagnoses/disorders [e.g., ADHD; autism]); and Optimize traditional fundraising strategies with membership, leadership, and past leadership groups.

EDUCATION

Franklin Trimm, MD, Co-Chair

Carolyn Bridgemohan, MD, Co-Chair

The Education Committee is an interdisciplinary group of individuals interested in promoting innovative, efficient and effective education in Developmental and Behavioral Pediatrics as a means of equipping teachers to help their trainees become competent in promoting optimal developmental and behavioral health for all children. Current goals of the committee include: 1) promoting optimal education in DB Pediatrics across the educational continuum through providing educational workshops focusing on model methods of teaching and evaluating medical students, residents and fellows; 2) establishing an online library of educational resources; 3) promoting interdisciplinary educational activities that incorporate medical and psychology students and faculty 4) promoting lifelong learning of DB Pediatricians through additional educational activities (e.g. DB Prep, DB Peds Self-Assessment); and 5) provide 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.

General Information

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

Carol Weitzman, MD, Co-Chair

Maris Rosenberg, MD, Co-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 begun a listserv for program directors to have a forum to discuss questions and issues across programs long after the meeting ends. We have now successfully presented workshops for the past 3 years at the Annual Meeting that are relevant to fellows and Program Directors including workshops on providing feedback to trainees and meeting the requirements for training fellows in QI. The educational needs of these groups have now been fully integrated into the Pre-Meeting Educational workshops. One of the biggest successes of the Committee has been the implementation of the MentorMatch Program, which has successfully matched approximately 25 fellows and junior faculty with more senior faculty, across disciplines. We match according to research & career interests, and according to requested mentoring needs.

2010 marked the first year of the D-B Pediatrics NRMP subspecialty match. Our committee is currently analyzing the results of an on-line survey of program directors to assess satisfaction with the process. Overall, DBP programs seemed to have a positive experience in our first ever match. Twenty-six of the 35 accredited D-BP fellowship programs participated in the match. 20 programs (77%) filled their available fellowship positions. In total, 25 fellowship positions (78%) were filled. Ten applicants (29%) were unmatched. Further information on the match is available at www.nrmp.org. Our committee plans continued discussion on issues relevant to the match, including the possibility of using the common ERAS application form. Finally, a subcommittee of the Fellowship Training Committee has developed a work-force survey that will query programs on regarding funding sources for fellows. This survey will give us a picture of the security of funding for DBP programs and the current pipeline.

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

H Lynn Starr, MD, Co-Chair

Gray Buchanan, 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. Robin Hansen is leading this effort.
2. Serve as consultants to the Board of Directors, Officers, and Program Committee.
3. Play a role in the Annual Meeting such as reviewing abstracts, 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 and/or academic leadership.

Dr. Ellen Perrin has served as Chair of the Committee since its formation. Several past presidents will serve as moderators of plenary sessions and room monitors at the 2011 meeting, as well as participating in other activities at the meeting. The Group will meet during the SDBP Annual Meeting to review its goals and to elect a new Chair.

PRACTICE ISSUES

Rebecca Baum, MD, Co-Chair

Neel Soares, MD, Co-Chair

The Practice Issues Committee, which is open to new members, will address the following objectives of the March 2009 Strategic Plan:

1. Facilitate discussion of practice issues, to include 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, 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

General Information

SDBP committees. The development of web-based resources and electronic tools will be pursued.

PROGRAM

Nancy E Lanphear, MD, Co-Chair

Robyn Mehlenbeck, PhD, Co-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 2011-2012: Support mentoring of junior researchers within the SDBP. Support SDBP member

participation in research networks relevant to developmental-behavioral health. Coordinate the SDBP Research Award. 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 Beckwith, MD, Co-Chair

Rob Dempster, MA, MS, Co-Chair

The Trainee/Recent Graduate Committee (TRGC) convened its official inaugural meeting at the SDBP's 2008 Annual Meeting. The TRGAHC serves three purposes: 1) developmental-behavioral pediatrics 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 TRGAHC are the current state, trends, and future direction of the field of developmental-behavioral pediatrics; training matters; and transitioning after graduation from training.

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

IMPORTANT!

The online CE or CME certificate will only be available through October 31, 2011. 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 31, 2011.

Don't forget to get your certificate at www.CmeCertificateOnline.com, Password: SDBP11AM.

Program Committee & Board of Directors

SDBP 2011 Program Planning Committee



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



Robyn Mehlenbeck, PhD, Co-Chair
George Mason University

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

Ellen J. Silver, PhD
Albert Einstein College of Medicine

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

Franklin Trimm, MD
University of Southern Alabama

Randy Phelps, MD, PhD
CDRS/OHSU

Paul P. Wang, MD
Seaside Therapeutics

Sarah Schlegel, MD
Yale University School of Medicine

2010 - 2011 Board of Directors



Executive Committee

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Hasbro Children's /Rhode Island Hospital

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Yale University School of Medicine

Nancy Roizen, MD (2013)
Rainbow Babies and Children's Hospital

Beth Wildman, MD (2013)
Kent State University

Executive Director
Laura Degnon, CAE
McLean, VA

Lectureship Award



The 2011 SDBP Lectureship Award Recipient is:

Cynthia García Coll, PhD

Cynthia García Coll is the Charles Pitts Robinson and John Palmer Barstow Professor of Education, Psychology and Pediatrics at Brown University. She has published on the sociocultural and biological influences on child development with particular emphasis on at-risk and minority populations. She has been on the editorial boards of many academic journals, including *Child Development*, *Development and Psychopathology*, *Infant Behavior and Development*, *Infancy and Human Development* and is the current Editor of *Developmental Psychology*. She was a member of the MacArthur Foundation Network: "Successful Pathways Through Middle Childhood" from 1994-2002. García

Coll has co-edited several books: *The Psychosocial Development of Puerto Rican Women*; *Puerto Rican Women and Children: Issues in Health, Growth and Development*; *Mothering Against the Odds: Diverse Voices of Contemporary Mothers*; and *Nature and Nurture: The Complex Interplay of Genetic and Environmental Influences on Human Behavior and Development*. She is a fellow of the American Psychological Association.

Exhibitor Product Descriptions

American Academy of Pediatrics (AAP)

<http://prepdb.aap.org>

Visit the AAP booth for a free trial of PREP® DBPeds and a special discount available only to conference attendees. Review for examinations; earn MOC points, and CME credit with the comprehensive review and education program that covers subspecialty content specifications developed by the ABP for MOCTM.

Baylor College of Medicine - Medical Genetics Laboratories

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.

BioBDx

BioBDx manufactures and markets the Quotient® ADHD System, an objective tool that accurately measures motion and analyzes shifts in attention state to give an objective report of ADHD symptoms.

Brookes Publishing Company

For over 30 years, Brookes Publishing has been a leading provider of resources on disabilities, autism, education, child development, early intervention, communication, language, behavior, and mental health. An independent company, Brookes Publishing is headquartered in Baltimore, Maryland. Website: www.brookespublishing.com.

CHADIS: Child Health & Development Interactive System

CHADIS is a system for parents, teens and teachers to complete pre-visit questionnaires online. Results appear linked to decision support and resources. CHADIS is accredited for MOC-4 and adds income.

IntegraGen, Inc.

IntegraGen is a biotechnology company dedicated to gene discovery with the goal of developing molecular diagnostic tests that provide clinicians with new tools to personalize diagnosis, treatment and therapy.

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.

Lineagen Inc.

At Lineagen, our mission is to enhance and accelerate the diagnostic evaluation of medical conditions so that the best possible outcomes can be achieved for patients and their families. Our FirstStepDx service provides physicians with a fully integrated genetic testing, counseling, and developmental screening service to aid in the earlier diagnosis of autism spectrum disorders (ASD) and related forms developmental delay. For more information, please visit www.lineagen.com.

Lippincott Williams & Wilkins

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

Pearson Clinical Assessment Group

Pearson offers standardized, well-validated assessment tools for pediatricians working with children of all ages. Our tools offer insights to help understand developmental issues and enhance decision making

PediaPlex

PediaPlex is a single location development pediatric health clinic, which provides comprehensive testing and therapy services for the North Texas area. Our focus is children with social, emotional, developmental, sensory and communication issues.

Pediatrix Medical Group

Pediatrix is the nation's leading provider of neonatal, maternal-fetal and pediatric physician subspecialty services. Our four affiliate practices provide developmental pediatric services supporting premature infants and children born with developmental disabilities.

PEDSTest.com, LLC

Publisher of print and online developmental-behavioral screens and NICU/Early Intervention follow-up measures: Parents Evaluation of Developmental Status (PEDS) and PEDS: Developmental Milestones. In English, Spanish and many other languages.

Seaside Therapeutics

Seaside Therapeutics is a biopharmaceutical company focused on creating novel medications that improve the course of autism, fragile X syndrome, and other neurodevelopmental disorders. Please visit www.seasidetherapeutics.com for more information.

Society for Developmental and Behavioral Pediatrics (SDBP)

The (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.

Shionogi Inc

Shionogi Inc. is the U.S.-based group company of Shionogi & Co., Ltd., a leading Japanese pharmaceutical company. Shionogi Inc, develops and commercializes pharmaceutical products that address unmet medical needs. Together with our Japanese corporate parent, Shionogi has been providing innovative medicines essential to people's health for over 130 years.

TPR Media, LLC

TPR delivers award-winning electronic communications solutions for healthcare, helping providers connect with patients to achieve better outcomes. Evidence-based content supports new parents and families through 200+ civilian and Department of Defense hospitals throughout the world.

Program Schedule

Friday, September 16, 2011

11:00am - 6:00pm Registration
Salon I Foyer

1:00pm - 7:30pm Pre-Meeting Education Workshop - **An extra fee applies to attend.**
Conference Room 17-18

TEACHING DEVELOPMENTAL-BEHAVIORAL PEDIATRICS TO RESIDENTS

Chair/Facilitators: Franklin Trimm, MD, Carolyn Bridgemohan, MD and Viren D'Sa, MD

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.

Saturday, September 17, 2011

7:00am - 5:00pm Registration
Salon I Foyer

8:00am - 12:00noon Board of Directors Meeting
Conference Room 12

9:00am - 12:00noon 4 Pre-Meeting Half Day Workshops - *an extra fee applies to attend*

Workshop A - AUGMENTATIVE AND ALTERNATIVE COMMUNICATION SYSTEMS: WILL THE AVAILABILITY OF NEW MOBILE TECHNOLOGIES BENEFIT MORE CHILDREN?

Sandra M. Grether, PhD, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

Conference Room 13-14

Workshop B - DIFFERENT ANNUAL WORK RELATIVE VALUE UNIT BENCHMARKS FOR DEVELOPMENTAL/BEHAVIORAL SPECIALIST AND WAYS TO INCREASE ANNUAL WORK RELATIVE VALUE UNITS

Lynn Wegner, MD, University of North Carolina, Chapel Hill, Chapel Hill, NC, Michelle Macias, MD, Medical University of South Carolina, Charleston, Charleston, SC

Conference Room 1-2

Workshop C - FETAL ALCOHOL SPECTRUM DISORDERS: DIAGNOSIS, DIFFERENTIAL DIAGNOSIS AND MANAGEMENT

Yasmin Senturias, MD, University of Louisville, Louisville, KY, David Wargowski, MD, University of Wisconsin School of Medicine and Public Health, Madison, WI

Conference Room 3-4

Workshop D - STAT-MD: A RAPID AUTISM EVALUATION MODEL FOR THE DEVELOPMENTAL-BEHAVIORAL (DB) CLINICIAN

Quentin A. Humberd, MD, Blanchfield Army Community Hospital, Ft Campbell, KY, Zachary Warren, PhD, Vanderbilt University, Nashville, TN, Wendy L. Stone, PhD, University of Washington, Seattle, WA

Conference Room 17-18

Program Schedule

Saturday, September 17, 2011, continued

1:00pm - 4:00pm 3 Pre-Meeting Half Day Workshops - *an extra fee applies to attend*

Workshop E - ELECTRONIC HEALTH RECORDS: MAKING THEM WORK FOR YOU

Rebecca A. Baum, MD, Amy Newmeyer, MD, Nationwide Children's Hospital, Columbus, OH, Neelkamal S. Soares, MD, University of Kentucky, Lexington, KY, Britt Nielsen, PsyD, MetroHealth Medical Center, Cleveland, OH

Conference Room 3-4

Workshop F - A MULTIDISCIPLINARY PERSPECTIVE ON THE ASSESSMENT AND TREATMENT OF FEEDING DISORDERS IN AUTISM

William G. Sharp, PhD, Emory University, Atlanta, GA, Rashelle Berry, MPH, MS, RD, LD, Marcus Autism Center, Atlanta, GA, Michele Cole, MEd CCC/SLP, The Marcus Autism Center, Atlanta, GA

Conference Room 13-14

Workshop H - A DEVELOPMENTALIST'S GUIDE TO PREPARING FOR MOC

Lead by Franklin Trimm, MD and Robyn Mehlenbeck, PhD

Conference Room 17-18

2:00pm - 5:00pm 1 Pre-Meeting Half Day Workshop - *an extra fee applies to attend*

Workshop G - A PRIMER ON ACADEMIC PROMOTION: PREPARING FOR PROMOTION FROM DAY ONE

Edward Christophersen, PhD, Mary Anne Jackson, MD, FAAP, Children's Mercy Hospitals and Clinics, Overland Park, KS

Conference Room 1-2

NOTE: No CME Credit Provided

4:15pm - 5:00pm DBPeds 101
Special Introduction Workshop for Medical Students
Conference Room 7

5:00pm - 5:30pm Mentor Program
Salon I

5:30pm - 6:30pm Exhibits
Salon I

5:30pm - 6:30pm Welcome Reception
Salon I

6:30pm - 7:30pm PhD/Psychology Gathering
Conference Room 12

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

7:30pm - 9:00pm Saturday Evening Sessions (No CME credits provided)
Nurse Practitioner's SIG **Conference Room 1-2**
ADHD SIG **Conference Room 17-18**
Early Childhood SIG **Conference Room 3-4**
Trainee/Recent Grad Workshop - Career Panel **Conference Room 13-14**
Developed to provide advice about the process of searching for a job after fellowship.

Program Schedule

Sunday, September 18, 2011

- 7:00am - 5:00pm Registration
Salon I Foyer
- 7:00am - 8:50am Committee Meetings
Advocacy - Co-Chairs: *Adiaha Spinks-Franklin, MD, MPH and Ann Kinsman, PhD*
Conference Room 9
Coding - Co-Chairs: *Lynn Wegner, MD and Michelle Macias, MD*
Conference Room 16
Communications - Co-Chairs: *Robert Needlman, MD and Beth Wildman, PhD*
Conference Room 10
Education - Co-Chairs: *Franklin Trimm, MD and Carolyn Bridgemohan, MD*
Conference Room 8
Research - Co-Chairs: *Susan Berger, PhD and Paul Wang, MD*
Conference Room 15
- 8:30am - 7:00pm Exhibits
Salon I
- 8:30am - 9:00am Coffee and Light Continental Breakfast
Salon I
- 9:00am - 7:00pm Posters Up - Session 1
Salon I
- 9:00am - 9:15am Welcome
Salon H
- 9:15am - 10:30am Plenary Session I (Abstract Presentations 1-5)
Chair: *Robin Hansen, MD*
Salon H
- 9:15am - 9:30am Abstract 1: Developmental and Neuromotor Outcomes of Children Whose Mothers Reported Loss of Fetal Activity During Pregnancy;
Andrew Adesman, MD, Pediatrics, Cohen Children's Medical Center of NY, Lake Success, NY, Sarah A. Keim, PhD, Pediatrics, The Research Institute at Nationwide Children's Hosp, Columbus, OH
- 9:30am - 9:45am Abstract 2: Association Between Screen Time Use and Developmental Outcomes in Hispanic Children under Age 3 Years
Helena Duch, PsyD, Marta Font, MS, Mailman School of Public Health, Caroline Taromino, BA, Ipek Ensari, BS, Teacher's College, Alison Harrington, BFA, Mailman School of Public Health, Columbia University, New York, NY, John Shuler, Psychology, Georgetown University, Washington, DC
- 9:45am - 10:00am Abstract 3: Grade at Entry to Special Education and Academic Achievement in Children with Reading Disorders
Jennifer Ehrhardt, MD, Noelle Huntington, PhD, Janine Molino, MS,

Program Schedule

Sunday, September 18, 2011, continued

William Barbaresi, MD, Division of Developmental Medicine, Children's Hospital Boston, Boston, MA

10:00am - 10:15am Abstract 4: Getting Ready for School: A preliminary evaluation of a parent-focused school readiness program
Helena Duch, PsyD, Mailman School of Public Health, Kimberly G. Noble, MD/PhD, GH Sergievsky Center and Dept of Pediatrics, Columbia University, New York, NY

10:15am - 10:30am Abstract 5: Symptoms of Attention Deficit/Hyperactivity Disorder (ADHD) Differentially Predict Social Functioning in High School Students
Julia S. Anixt, MD, Richard Gilman, PhD, Developmental & Behavioral Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

10:30am - 10:45am Break
Salon I

10:45am - 12:00noon Lectureship Recipient Presentation
The Immigrant Paradox: Is Becoming American a Developmental Risk
Cynthia García Coll, PhD, Professor of Education, Psychology and Pediatrics, Brown University, Providence, RI
Salon H

12:00noon - 1:30pm Luncheons
Trainee/Recent Graduate Luncheon - Chairs: *Lauren Boyd, MD, Anna Malia May, MD, Rob Dempster, MA, MS*
Salon J

Fellowship Directors Luncheon - Chair: *Carol Weitzman, MD*
an extra fee applies to attend
Conference Room 16

JDBP Editorial Board Luncheon - Chair: *Suzanne Dixon, MD*
Conference Room 10

1:30pm - 3:00pm Concurrent Sessions

Concurrent Session 1: THE IMMIGRANT PARADOX: CONTINUING THE DISCUSSION

Cynthia García Coll, PhD

Salon H

Concurrent Session 2: RATIONALE, DEVELOPMENT, AND COLLABORATION WITH CLINICAL RESEARCH NETWORKS: THE ATN AND DBPNET

Nathan J. Blum, MD, Department of Pediatrics, The Children's Hospital of Philadelphia, Philadelphia, PA, Daniel L. Cury, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH, Heidi M. Feldman, MD/PhD, Pediatrics, Lucile Packard Childrens Hospital, Palo Alto, CA, James M. Perrin, MD, Pediatrics, Massachusetts General Hospital for Children, Boston, MA

Conference Room 1-4

Program Schedule

Sunday, September 18, 2011, continued

Concurrent Session 3: TRANSITION FROM PEDIATRIC TO ADULT SERVICES FOR PEOPLE ON THE AUTISM SPECTRUM: WHAT SHOULD A PEDIATRIC SPECIALIST KNOW?

M. Paige Powell, PhD, Sherry S. Vinson, MD, Robert G. Voigt, MD, Baylor College of Medicine/Texas Children's Hospital, Houston, TX

Conference Room 17-18

3:00pm - 3:15pm Break
Salon I

3:15pm - 4:45pm Concurrent Sessions

Concurrent Session 4: AUTISM 2011: CLINICAL RESEARCH ON NEW BEHAVIORAL INTERVENTIONS, PSYCHOPHARMACOLOGY, AND MEDICAL CO-MORBIDITY

Daniel L. Coury, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH, Stephen M. Kanne, PhD, Psychology, Baylor College of Medicine, Houston, TX, Jeremy Veenstra-VanderWeele, MD, Psychiatry, Vanderbilt University Medical Center, Nashville, TN

Salon H

Concurrent Session 5: INTERVENTIONS TO IMPROVE EARLY CHILDHOOD DEVELOPMENT. DO THEY WORK? SHOULD THEY BE EXPANDED?

Alan Mendelsohn, MD, New York School of Medicine, New York, NY

Conference Room 17-18

Concurrent Session 6: SLEEPING IN SAN ANTONIO: SLEEP HEALTH ADVOCACY FOR DBP PROVIDERS

Judy Owens, MD, Children's National Medical Center, Washington, DC

Conference Room 1-4

5:00pm - 6:00pm Members Meeting
Conference Room 17-18

6:00pm - 7:00pm Poster Session I: Meet the Author
Salon I

7:00pm - 10:00pm Dinner Social
Salon H

Monday, September 19, 2011

8:00am - 3:00pm Registration
Salon I Foyer

7:00am - 8:50am Committee Meetings
Development - *Chair: Paul Dworkin, MD*
Conference Room 10
Membership - Co-Chairs: *Lynn Starr, MD and Gray Buchanan, PhD*
Conference Room 15
Practice Issues - Co-Chairs: *Rebecca Baum, MD and Neel Soares, MD*
Conference Room 16

Program Schedule

Monday, September 19, 2011, continued

- 8:30am - 9:00am Coffee and Light Continental Breakfast
Salon I
- 8:30am - 3:00pm Exhibits
Salon I
- 9:00am - 4:00pm Posters Up - Session 2
Salon I
- 9:00am - 10:15am Plenary Session II (Abstract Presentations 6-10)
Chair: *Heidi Feldman, MD, PhD*
Salon H
- 9:00am - 9:15am Abstract 6: Gender Differences in Clinical Presentation of Autism Spectrum Disorders
Yamini J. Howe, MD, Developmental Behavioral Pediatrics, Hasbro Children's Hospital, Brown Medical School, Providence, RI, Yvette E. Yatchmink, MD, PhD, Developmental Behavioral Pediatrics, Hasbro Childrens Hospital, Brown Medical School, Providence, RI, Eric M. Morrow, MD, PhD, Dept of Molecular Biology, Cell Biology and Biochem, Brown University, Providence, RI
- 9:15am - 9:30am Abstract 7: Birds of a Feather do not Flock Together: Subtypes of Intellectual Functioning in Children with Mild Intellectual Disabilities
Nikhil S. Koushik, PhD, Pediatric Psychology, MetroHealth Medical Center, Cleveland, OH, Andrew Taylor, PhD, Psychology, Windsor Essex Community Health Centre, Windsor, Ontario, Canada, Cory Saunders, PhD, John Strang, PhD, Joseph Casey, PhD, Psychology, Ozad Institute, Windsor, Ontario, Canada
- 9:30am - 9:45am Abstract 8: Ostracism Predicts Increased Risk of Internalizing Conditions in Youth with Special Health Care Needs
Margaret McKenna, MD, Pediatrics, Medical University of South Carolina, Conway Saylor, PhD, Kaitlin Twomey, BS, Kristina Kenny, BA, Psychology, The Citadel, Eve Spratt, MD, Psychiatry, Michelle Macias, MD, Pediatrics, Medical University of South Carolina, Charleston, SC
- 9:45am - 10:00am Abstract 9: Developmental-Behavioral Pediatric Teaching of Medical Students: A National Survey of Clerkship Directors
Neelkamal S. Soares, MD, Pediatrics, University of Kentucky, Lexington, KY, Shibani Kanungo, MD, MPH, Lexington, KY, Daisha Seyfer, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH
- 10:00am - 10:15am Abstract 10: Dysphagia in Young Infants with Down Syndrome
Maria A. Stanley, MD, Pediatrics, Indiana University School of Medicine, Indianapolis, IN, Randall J. Roper, PhD, Biology, Nicole E. Shepherd, Undergraduate Student, Department of Biology, Indiana University-Purdue University Indianapolis, Indianapolis, IN, Charlene M. Davis, MSN, Pediatrics, Riley Hospital for Children, Indianapolis, IN, Marilyn J. Bull, MD, Pediatrics, Indiana University School of Medicine, Indianapolis, IN

Program Schedule

Monday, September 19, 2011, continued

- 10:15am - 10:30am Break
 Salon I
- 10:30am - 11:30am Presidential Address
EARLY BRAIN AND CHILD DEVELOPMENT: IMPLICATIONS FOR THE LIFE COURSE
AND OPPORTUNITIES FOR ADVOCACY
Pamela C. High, MD
Salon H
- 11:30am - 11:45am Incoming Presidential Address
Desmond P. Kelly, MD
Salon H
- 11:45am - 1:00pm Lunch Break - Lunch on own
- 12:00noon-1:00pm Past Presidents Committee Lunch Meeting
Conference Room 7
- International SIG Meeting
Salon J
- 1:00pm - 2:15pm Poster Symposium I: Integrating Primary Care and Developmental-Behavioral
Care: One Office?
Moderator: Ellen Johnson Silver, PhD
Discussants: Ellen Johnson Silver, PhD & Rahil Briggs, PsyD
Conference Room 1-4

Pediatricians' Views of Mental Health Screening and Intervention
Brandi S. Henson, PsyD, Emily N. Neger, BA, R. Christopher Sheldrick, PhD, Ellen C. Perrin, MD, Pediatrics, Tufts Medical Center, Floating Hospital, Boston, MA

Co-located Developmental and Mental Health Care within Pediatric Primary Care Practice
Kathryn Mattern, BA, R. Christopher Sheldrick, PhD, Ellen C. Perrin, MD, Pediatrics, Floating Hospital, Tufts Medical Center, Boston, MA

What's in a Name? Variation in Parents' Perception of Acceptability of Treatment
Aimee M. West, BA, Robert Dempster, MA, Beth Wildman, PhD, Psychology, Kent State University, Kent, OH, Diane Langkamp, MD, NeuroDevelopmental Center, Akron Children's Hospital, Akron, OH

Child Behavioral Severity and Parents' Perceptions of the Effectiveness and Likelihood of Seeking Behavioral Health Treatment
Aimee M. West, BA, Robert Dempster, MA, Beth Wildman, PhD, Psychology, Kent State University, Kent, OH, Diane Langkamp, MD, NeuroDevelopmental Center, Akron Children's Hospital, Akron, OH

Integrating Developmental and Maternal Depression Screening in Pediatric Practice
David O. Childers, MD, Pediatrics, UF College of Medicine, Jacksonville, Jacksonville, FL, Melena Smith, RN, JoAnn DiNicola, RN, Jane Veniard, RN, Department of Health, Partnership for Child Health, Jacksonville, FL, Edessa Jobli, MD, Jeffrey Goldhagen, MD, Pediatrics, UF College of Medicine, Jacksonville, Jacksonville, FL

Program Schedule

Monday, September 19, 2011, continued

1:00pm - 2:15pm Poster Symposium II: Screening and Practice Adaptations
Moderator: Randy Phelps, MD
Chair: Glen Aylward, PhD
Conference Room 17-18

How Comprehensive are Newborn Screening Programs in the U.S.: State-specific Sociodemographic and Fiscal Correlates -- An End-of Decade Analysis
Andrew Adesman, MD, Pediatrics, Cohen Children's Medical Center of NY, Lake Success, NY, Suzanne Sunday, PhD, Psychiatry, Feinstein Institute for Medical Research, Manhasset, NY

ADHD Medication Holidays: Factors involved in the Parental Decision whether or not to Continue Medical Treatment During the Summer
Jay H. Lee, MD, David Meryash, MD, Alyson Gutman, MD, Pediatrics, Cohen Children's Medical Center of New York, Lake Success, NY, Nina Kohn, MA, Biostatistics Unit, Feinstein Institute for Medical Research, Manhasset, NY, Andrew Adesman, MD, Pediatrics, Cohen Children's Medical Center of New York, Lake Success, NY

Quality Improvement and Clinician Adherence: A Plan to Increase Adverse Event Monitoring in Children Treated with Antipsychotic Medications
Rebecca A. Baum, MD, Developmental and Behavioral Pediatrics, Traci E. Hemming, MS, Center for Innovation in Pediatric Practice, Judy Lee, RN, Quality Improvement Services, John V. Campo, MD, Child & Adolescent Psychiatry, Nationwide Children's Hospital, Columbus, OH

An Evaluation of Community-Based Partnerships to Improve Developmental Diagnosis
John C. Duby, MD, Pediatrics, Northeast Ohio Medical University, Akron, OH, Marilyn Espe-Sherwindt, PhD, College of Education, Health, and Human Services, Kent State University, Tallmadge, OH, Jennifer Snyder, MD, Pediatrics, Northeast Ohio Medical University, Akron, OH

2:20pm - 3:20pm Poster Session 2: Meet the Author
Salon I

3:30pm - 5:00pm Concurrent Session 7
Implementing & Evaluating Integrated Behavioral Health in Primary Care: Program Models and Lessons Learned
Celia B. Neavel, MD, Pediatrics, UT Southwestern Austin Pediatrics, Austin, Texas, Lynda Frost, JD, PhD, Hogg Foundation for Mental Health, University of Texas at Austin, Austin, Texas, Robin Rosell, MSW, Social Work, People's Community Clinic, Austin, Texas, Toni Watt, PhD, Sociology, Texas State University at San Marcos, San Marcos, Texas
Conference Room 17-18

3:30pm-5:30pm Autism SIG Meeting
Conference Rooms 1-4
Co-Chairs: Georgina Peacock, MD and Robin Hansen, MD
Catherine Rice, MD, CDC, Atlanta, GA, Wendy Ross, MD, Einstein Hospital, Wynnewood, PA

The Autism SIG will focus on three main areas including: 1) a discussion of proposed changes in criteria for autism diagnosis in the DSM-V; 2) presentation of the CDC ACT curriculum and 3) an update on a program to support families with autism as they go through airports.



Society for Developmental
& Behavioral Pediatrics

2011 SDBP Lectureship Award

Sunday, September 18, 10:45 am - 12:00 noon

The Immigrant Paradox: Is Becoming
American a Developmental Risk

*Cynthia García Coll, PhD, Professor of Education,
Psychology and Pediatrics, Brown University,
Providence, RI*

Salon H

**The Immigrant Paradox:
Is becoming American a
developmental risk?**



Cynthia Garcia Coll, Ph.D.

Brown University
University of Puerto Rico

SDBP 2011 Annual Meeting
San Antonio TX

Outline

1. Defining the Immigrant Paradox
2. Evidence for the Immigrant Paradox
 1. Health
 2. Academics
 3. Behavior
3. What is missing? What are the caveats?
4. Findings from two of my own studies
 1. Children of immigrants: a local study
 2. Reanalysis of Add Health: understanding the immigrant paradox
5. Further questions

Defining the Immigrant Paradox



Comparing

- Immigrants vs. native born (within same ethnic/racial group)
 - 1st generation vs. 2nd generation and beyond (1st generation: born outside the US)
- Children of immigrant parents vs. children of native born parents
- Differences in acculturation (within 1st and 2nd generation)

Findings

- Across health, education and behavior measures, 1st generation immigrants in general do better when compared to subsequent generations/more acculturated peers
- The research suggests that the evidence in support of the immigrant paradox may be uneven across groups, age and outcome measured

Early references to the Immigrant Paradox

- **Wirth (1931)**
 - “the second generation of immigrants generally come into contact with the courts as delinquents more frequently than the first one...not difficult to understand...living in an isolated immigrant colony... (the first generation immigrant) is at least supported and controlled by Old world traditions...personal morale and community control are maintained”
Social Forces, vol. 9, number 4, page 487

Immigrant Paradox

- Most research done with adults
- Important questions:
 - How early in life?
 - In what areas of human development- health, academic, behavior- do we find consistent evidence? In what groups? In what developmental stages?
 - **What are the underlying mechanisms?**
 - What can be done to prevent deterioration of developmental outcomes over time?

1. Health: Epidemiological Paradox

- Markides & Coreil (1986) coined the term in a review of the literature on the health status of Latinos in the Southwestern U.S.
 - Noted low socioeconomic status, other high risk factors (low levels of formal education, low acculturation)
- Yet....
 - lower infant mortality
 - longer life expectancy
 - lower mortality from cardiovascular diseases & major types of cancer
 - better measures of functional health

Health: Epidemiological Paradox

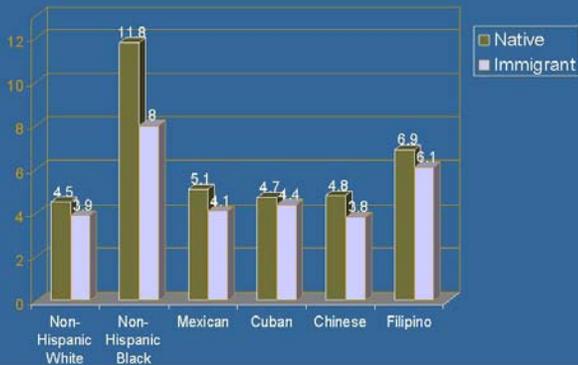
- Has been established in many outcomes since then
 - Low Birth Weight
 - Infant Mortality
 - Adult Health Outcomes/Mortality
- Also in different ethnic groups
 - Immigrants and Non-Immigrants (Nativity) from Hispanic and Asian backgrounds

Low Birthweight

- At least ten studies document fewer low-birthweight infants born to immigrant women compared to US-born women of various races and ethnicities
 - A study of national linked birth/infant death records for 1985-1987 revealed that foreign-born status was associated with 7% lower risk of a low-birthweight infant (Singh & Yu, 1996)
 - Infants of Mexican-heritage or less acculturated Latina mothers displayed robust birth outcomes, compared with other ethnic groups (Fuller, 2008)
 - A one point increase on the HHANES acculturation index was associated with an increase of 1.19 in risk of low-birthweight (Scribner & Dwyer, 1989)

The Immigrant Paradox: Is Becoming American a Developmental Risk

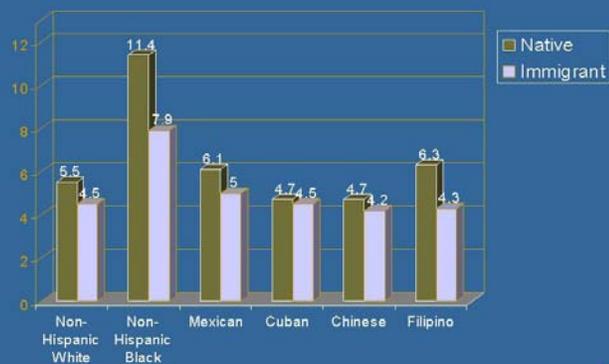
Percent Low Birthweight Infants By Native Origin and Race/Ethnicity: 1990



Infant Mortality

- Study of national linked birth/infant death records for 1985-1987 indicates that foreign-born mothers enjoy a 20% lower risk of infant mortality (Singh & Yu, 1996)
- In fact, for virtually every racial and ethnic group in the United States, immigrants have better birth outcomes than U.S.-born mothers (Reichman, 2005)
- Although foreign-born status does not protect against LBW among white women, it increases the risk among Asian women by 24%, it reduces the risk by 25% among black women and by 19% among Hispanic women (Acevedo-Garcia, Soobader, Berkman, 2005)

Infant Mortality Rates By Native Origin and Race/Ethnicity: 1989-1991



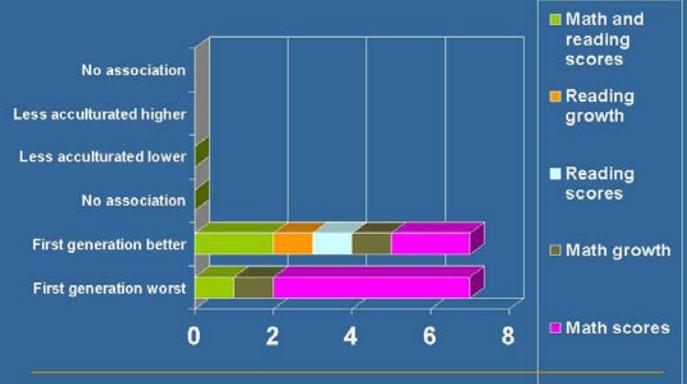
Adult Mortality

- Immigrant men & women, respectively, have an 18% & 13% lower risk of mortality compared to those born in the US
 - Immigrants are at significantly lower risk of death from cardiovascular diseases, lung and prostate cancer, COPD, cirrhosis, pneumonia and influenza, unintentional injuries, and suicide (Singh & Siahpush, 2001)
 - Studies indicate that foreign-born individuals are in better health than native-born Americans, including individuals of the same race/ethnicity. They tend to have lower mortality rates and are less likely to suffer from circulatory diseases, overweight/obesity, and some cancers (Cunningham, Ruben, Narayan, 2007)

2. Academic Outcomes: Evidence for the Immigrant Paradox

- Looking at 40 studies of academic outcomes in elementary, middle, high school and higher education across generation and acculturation groups
- Findings differ across type of academic outcome and across ethnic groups
- Stronger evidence of the paradox in adolescent academic outcomes than in early childhood outcomes

Academic Paradox in Early Childhood



Academic Paradox: Catching up



For the first generation, low-income Latino students, even starting out at a significantly lower level at kindergarten...

- By 3rd grade, their reading skills are better than those of American born Latinos
- They show lower math scores at school entry, but show much greater gains over time
- They show significantly lower levels of aggression and hyperactivity
- And show higher level of social skills by 5th grade. (Palacios, in press)

Academic Paradox in Middle Childhood

Figure 5. Standardized Test Scores of 3rd through 8th graders for American-born and Immigrant Youth, New York Sample

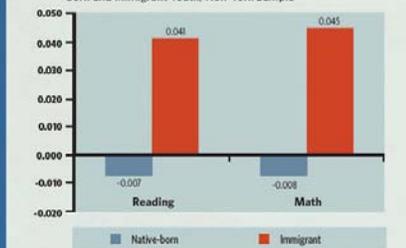


Figure from Conger, D., Schwartz, A., Stiefel, L. (2003) *Who Are Our Students: A Statistical Portrait of Immigrant Students in New York City Elementary and Middle Schools*. New York, NY: The Urban Research Center. (New York Public School Data, 1999-2000, 3rd-8th grade.)

Academic Paradox : Adolescence

Fuligni and colleagues(1997)

- Children from Immigrant families have higher grades in both Math and English than their peers from native families

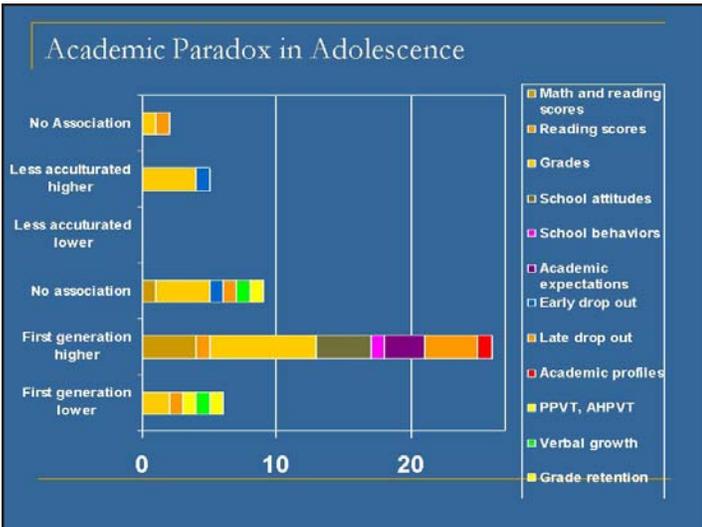
Suarez-Orozco and Suarez-Orozco (1995, 2001, 2008):

- Children from immigrant families
 - Both success and failure
 - The less acculturated, the more positive academic attitudes and outcomes

Academic Paradox

Portes and Rumbaut (2001):

- Adolescents from immigrant families
 - Are doing relatively well academically
 - Acculturation leads to more English proficiency, but less school effort and hence, lower grades
 - Females earn higher grades and reading scores; also demonstrate stronger bilingualism and higher educational expectations



Other findings (to appear in Garcia Coll and Marks, in press)



- In some groups, and at certain ages, children of immigrants perform better on standardized scores than American-born children
- First generation immigrant children have higher GPAs than their peers
- They have higher school attachment and commitment; they also value school more than their peers
- Immigrant children in 3rd through 8th grade *outperform their American-born* peers in standardized tests
- First generation immigrant 1st – 8th graders have *stronger school* attendance rates than their American-born peers.

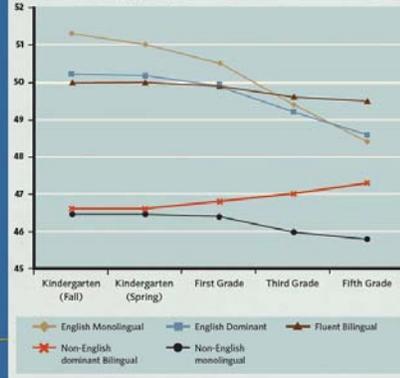
Family Processes: Explanations for Immigrant Paradox ?

- Parent child conflict, Parental Monitoring, Parental academic expectations
- Research finds higher levels of monitoring behaviors in Latino and Asian 1st generation parents
- Lower parental conflict and higher expectations for first generation Latino and Asian

Language skills: explanations for Immigrant Paradox



Figure 6. Trends in Math Scores for Latino Kindergarten through Fifth Graders Across Language Groups

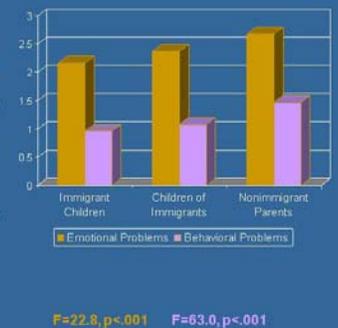


3. Behavior: Evidence for the Immigrant Paradox

- Found on behavioral measures in children
 - Jutte, Burgos, Mendoza, Ford & Huffman (2003)
 - Studied population of low-income Mexican-American children, 79% foreign-born, in Palo Alto using Child Behavior Checklist
 - 12.9% of children positive for Clinically Significant Behavior Problems on CBCL using standard cutoff
 - This rate is on par with rate of 12% in middle-class white populations
 - And way less than the rate of 30% found in other studies of low-SES minority populations

Behavior: Evidence for Immigrant Paradox

- Beiser, Hou, Hyman & Tousignant (2002)
 - Data from Canada's National Longitudinal Survey of Children and Youth on 23,000 children from birth – age 11 using parents' reports of behavioral problems
 - Immigrant children were twice as likely to be poor
 - Yet, they show fewer emotional and behavior problems



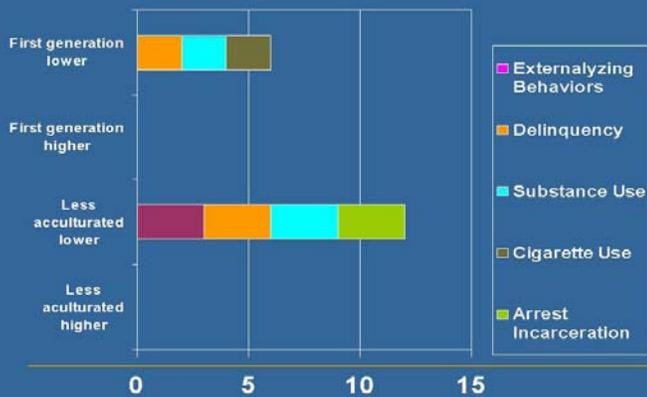
Behavior: Evidence for the Paradox in Adolescence and Adulthood

- Rumbaut (1997): assimilation leads to less positive outcomes for children
 - Second-generation youth more likely to have engaged in deviant behaviors than foreign-born youth
 - Among foreign-born youth, the longer the time in the U.S., the greater the propensity to engage in risky behaviors
- Escobar, Nervi, and Gara (2000):
 - Mexico-born immigrants, despite significant socioeconomic disadvantages, have better mental health profiles than do U.S.-born Mexican Americans.
 - Possible explanations for the better mental health profile of Mexican immigrants include research artifacts such as selection bias, a protective effect of traditional family networks, and a lower set of expectations about what constitutes "success" in America.

Evidence for Immigrant Paradox in Behavior

- Looking at 18 articles examining externalizing behavior, delinquency, substance and cigarette use and arrest/incarceration across generation and acculturation groups.
- Find that 100 percent of these studies find some evidence of the paradox

Evidence for Immigrant Paradox in Behavior during Adolescence

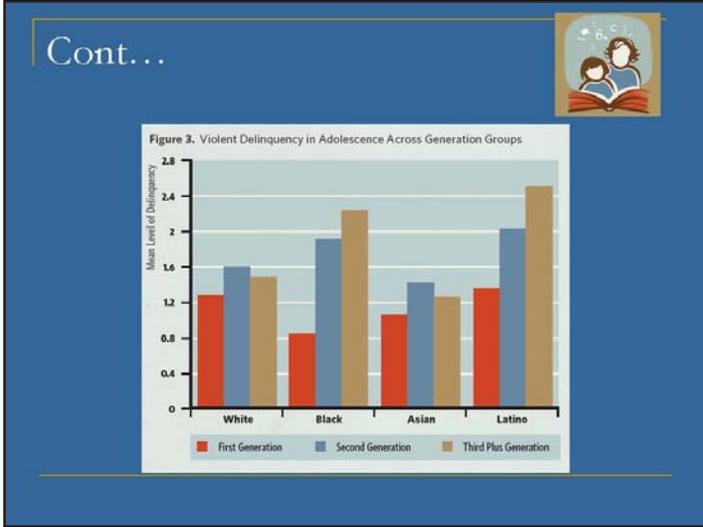
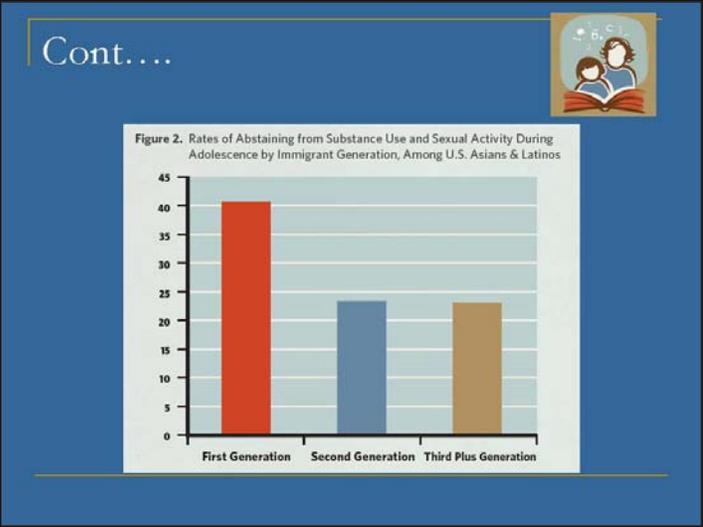


More recent evidence to appear in Garcia Coll and Marks (in press)



First generation immigrant youth are... (Raffaelli and Kang, in press)

- Significantly more likely than their second or third plus generation peers to report that they have never tried alcohol, tobacco or other drugs
- Less likely to commit property or violent crimes than their American-born peers
- Significantly more likely to have their first sexual experience at an older age than their second or third plus generation peers



Sample Characteristics (Garcia Coll and Marks, 2009)

	Portuguese n = 99 M (SD)	Dominican n = 101 M (SD)	Cambodian n = 131 M (SD)	Test Statistic
Gender:				
Female	43.4%	47.5%	45.7%	ns
Male	56.6%	52.5%	54.3%	
Cohort:				
Younger	39.4%	46.5%	46.9%	ns
Older	60.6%	53.5%	53.1%	
US Born	84.8%	72.3%	87.7%	ns
Mother's Year of Immigration	1978 (10.1)*	1985 (7.9)	1984 (3.4)	$F_{(df=2,294)} = 21.9, p < .001$
Parents' Education (yrs.)	9.88 (3.7)	11.1 (3.2)	4.28 (4.5)*	$F_{(df=2,306)} = 13.4, p < .001$
Parent's Comfort w/ English Language (0=none – 6=high)	2.27 (1.0)*	1.43 (.93)	1.24 (.89)	$F_{(df=2,305)} = 34.8, p < .001$

Immigrant Group: Portuguese

- New immigrants are part of a long migrant stream
- Well-established Portuguese institutions (e.g. Holy Ghost societies) are focal points for community
- Local political machine dominated by Portuguese Americans
- Dominant and almost exclusive ethnic group in school district from which they were recruited

The Immigrant Paradox: Is Becoming American a Developmental Risk

Immigrant Group: Dominican



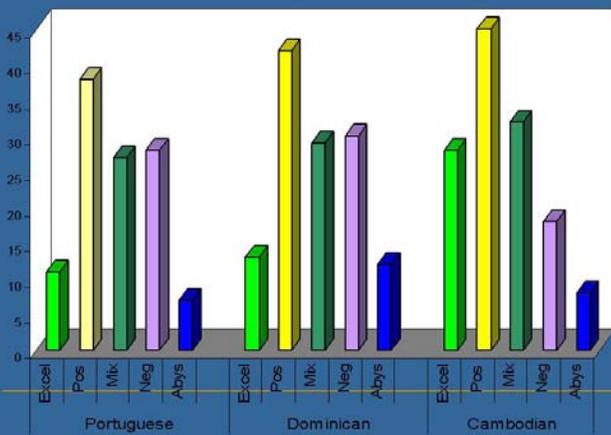
- Relatively new, growing community
- 8,000 in 1990; 15,000 in 2000
- Joined with well-established Latino community
 - Spanish-language churches, businesses, media and community organizations
 - Latinos represent about 44% of the elementary school students in the districts from which they were recruited

Immigrant Group: Cambodian

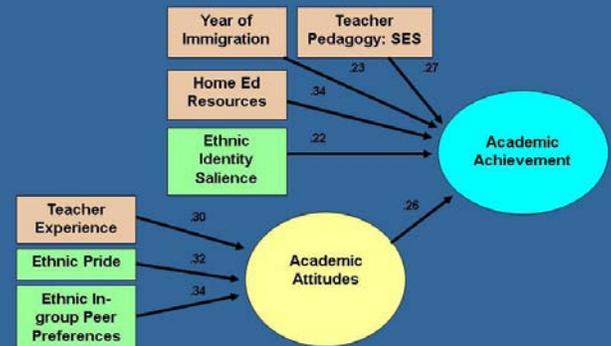


- Refugees, arriving between 1980 and 1986
- Federal resettlement site, organizations sponsored refugees
- About 3,000 in 1990 and 3,500 in 2000
- Few Cambodian businesses, no Cambodian media
- Community centers around temple

Academic Pathways



Cambodian Structural Equation Model



Notes. Model fit statistics: $\chi^2/df = 1.31$, $p = .05$; Normed Fit Index = .97; Comparative Fit Index = .99; Root Mean Square Residual = .04; path coefficients are standardized, and are significant at $p < .05$. Model controls for child gender & age on Achievement.

Possible Explanations

- Family
 - Family obligations (e.g. Fuligni)
 - Higher parental expectations and higher parental monitoring/strictness (e.g. Fuligni; Kao; Glick & White; Pong, Hao, & Gardner)
- Neighborhood
 - Ethnic enclaves (e.g. Portes)
- Peers
 - Peers share academic and social values (e.g. Fuligni; Harris, Harker & Guo)
- Schools
 - Teacher's experience and pedagogy (Garcia Coll & colleagues)
- Biculturalism
 - Connection and competence in both cultures and strong ethnic identity (Garcia Coll and colleagues; Suarez-Orozco and Suarez-Orozco)

Advertisement in Chinese newspapers: College prep. programs and seminars

- "MIT prep. & tutoring"
- "Free seminar on how to get into MIT"
- "Free seminar on SAT & AP, and college applications"



Language Use

- Studies examining the role of language use among immigrant youth have demonstrated language use to be a powerful marker of the cultural "self"
- Children who practice their parents' primary culture-of-origin language demonstrate a strong self of self and ethnic identity

Language as a Protective Factor

- Bronfenbrenner's ecological theories emphasize the protective role of family settings and the person X setting interaction
- Accordingly, it can be theorized that the many psychological and social benefits of parents sharing their native language at home with their children might serve as a protective factor for 2nd and 3rd generation adolescents' risk behaviors

The Current Study

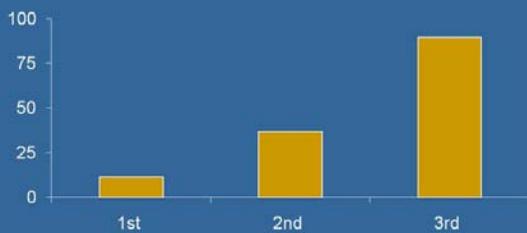
- Utilized data from the National Longitudinal Study of Adolescent Health (Add Health)
- Dependent Variables
 - alcohol experimentation
 - ever pregnant
 - sexual risk
 - self-reported STDS
 - violent delinquency
 - property delinquency
- Analyses conducted on all Latino and Asian adolescents with valid data at each wave

The Current Study

- Analyses used ordinary least squares or logistic regression depending on the form of our dependent variable
- The immigrant paradox has been demonstrated with wide variability with respect to immigrants' ethnicities
- As such, analyses were conducted separately for Latinos (n=3272) and Asians (n=1418)

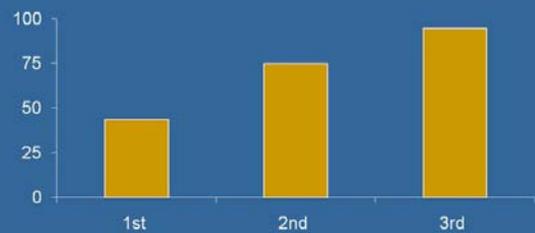
Results: Is English the Primary Language at Home?

Latinos' Language Use
(% Speaking English at Home by Generation)*



Results: Is English the Primary Language at Home?

Asians' Language Use
(% Speaking English at Home by Generation)*



Tests for Language as Mediator

- In the initial step, the DV(risky behavior) was regressed on immigrant generation
- In the second step, the DV was regressed on language preference
- In the final model, the DV was regressed on both immigrant generation and language preference to test mediation
- All models controlled for child gender, family SES, and parent education levels

Mediation Results Overall

	Latinos	Asians
Alcohol Experimentation	✓	✓
Tobacco Experimentation		✓
Ever Pregnant	✓	•
Self-Report STDs	✓	
Sexual Risk	✓	✓
Violent Delinquency	•	
Property Delinquency	•	

• partial mediation

Language as a Mediator for Latinos

- Among Latino adolescents, the paradox is fully explained by non-English language use at home for:
 - Experimentation with alcohol
 - Sexual risk behaviors
 - Adolescent pregnancy
 - Self-reported rate of STDs
- Speaking a non-English language at home appears to have protective benefits for 2nd and 3rd generation Latino youth against these risk behaviors

Language as a Mediator for Latinos

- The paradox for Latinos in both violent and property delinquency was also partially mediated by non-English language use
- This again demonstrates a protective effect of non-English language use at home for 2nd and 3rd generation Latinos

Language as a Mediator for Asians

- The paradox is fully explained by non-English language at home for:
 - Alcohol experimentation
 - Tobacco experimentation
 - Sexual risk behaviors
- The paradox for Asians in adolescent pregnancy was also partially mediated by non-English language use in the home

Summary

- These findings provide new evidence regarding the benefits of bilingualism for 2nd and 3rd generation immigrant adolescents
- One of the only setting-level variables found to reliably offer full mediational evidence for explaining the immigrant paradox in risk behaviors

Further Questions

- Why is the paradox stronger in some developmental stages than others?
- What are the mechanisms behind ethnic and country of origin differences?
- How do aspects of the developmental contexts (i.e., Families, neighborhoods, schools, peers) of immigrant youth combine to support positive outcomes?
- ...and the ultimate question...
 - How can families, schools and communities better support each generation of immigrant youth?

Still true.....

- Pauline V. Young (1936)
- "the situation has been complicated by the fact that schools and social agencies have attempted to solve the problems of the immigrant without an adequate knowledge of the life within the immigrant community and without experimental research which would provide them with the knowledge of "what works" and "does not work" in the adjustment of the immigrant.(page 429)
 - Social Problems in the Education of the Immigrant Child , *American Sociological Review* , Vol. 1, No. 3. (Jun., 1936): 419-429)



Society for Developmental
& Behavioral Pediatrics

Concurrent Session 1

Sunday, September 18, 1:30 pm - 3:00 pm

The Immigrant Paradox: Continuing the Discussion

Cynthia García Coll, PhD, Professor of Education, Psychology and Pediatrics, Brown University, Providence, RI

Salon H

No additional handouts, continuing the discussion from Keynote Address



Society for Developmental
& Behavioral Pediatrics

Concurrent Session 2

Sunday, September 18, 1:30 pm - 3:00 pm

Rationale, Development, and Collaboration
with Clinical Research Networks: The ATN
and DBPNet

Nathan J. Blum, MD, Department of Pediatrics, The Children's Hospital of Philadelphia, Philadelphia, PA, Daniel L. Coury, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH, Heidi M. Feldman, MD, PhD, Pediatrics, Lucile Packard Childrens Hospital, Palo Alto, CA, James M. Perrin, MD, Pediatrics, Massachusetts General Hospital for Children, Boston, MA

Conference Room 1-4

Rationale, Development, and Collaboration with Clinical Research Networks: The ATN/AIR-P and DBPNet

Nathan J. Blum, M.D.
The Children's Hospital of Philadelphia
Daniel Coury, M.D.
Nationwide Children's Hospital
Heidi Feldman, M.D., Ph.D.
Lucile Packard Children's Hospital
James Perrin, M.D.
Massachusetts General Hospital



Acknowledgement and Financial Disclosure

- The AIR-P/ATN is funded by:
 - Cooperative agreement with the Maternal Child Health Bureau (UAMC11054), Health Resources and Services Administration, Department of Health and Human Services
 - Autism Speaks
- DBPNet is funded by:
 - Cooperative agreement with the Maternal Child Health Bureau (UAMC20218), Health Resources and Services Administration, Department of Health and Human Services
- Presenters have no conflicts of interest related to this presentation



Overview

- Rationale for Clinical Research Networks
- Overview of the ATN / AIR-P
- Overview of DBPNet
- ATN / AIR-P Research Protocols
- DBPNet Research Proposals
- Questions and Discussion



Rationale for Clinical Research Networks

- Improve research external validity
- Improve research efficiency
- Increase the speed with which research can be conducted
- Study relatively rare childhood conditions
 - Especially when you subgroup by age, developmental level, subtypes, co-morbidities, etc.
- Monitor infrequent adverse outcomes



Pediatric Clinical Research Networks: Current Status

- At least 70 exclusively pediatric research networks
 - 50% Specialty Care Networks
 - 29% Primary Care Networks
 - 21% Disease Specific Networks
- 73% are national or international
- Network age: median of 8 years (0-56 yrs)

Slora et al, Pediatrics 2010;126:740-745.



Clinical Research Network Productivity

- Children's Oncology Group (since 1955)
 - >5000 peer-reviewed articles
- Other Research Networks
 - 0-143 peer-reviewed articles
 - Mean 23.8 SD 36.1

Slora et al, Pediatrics 2010;126:740-745.



ATN Mission

- To promote a sustainable national system of community accessible programs offering state-of-the-art comprehensive and coordinated medical care for all children and adolescents with ASD and to develop evidence and support the improvement of medical care for these children and their families



Autism Intervention Research in Physical Health (AIR-P) Network

- Funded by a grant from the Maternal and Child Health Bureau, Health Resources and Services Administration
- The AIR-P has a goal of
 - Conducting research in physical health aspects of autism spectrum disorders (ASD)
 - Developing evidence-based guidelines for care in ASD
 - Providing community education regarding ASD
- The AIR-P project utilizes the infrastructure of the ATN to carry out its projects; hence, frequently see ATN / AIR-P designation on joint activities



AIR-P Studies 2008-2011

Diet and Nutrition

- "Diet and Nutrition in Children with Autism Spectrum Disorders: An Autism Treatment Network Collaborative Study" PI - Susan Hyman, MD
- "Markers of Iron Status and Metabolism in Children with ASD" PI - Ann Reynolds, MD

Sleep

- "Development of a Parent-Based Sleep Education Program for Children with Autism Spectrum Disorder" PI - Beth Malow, MD
- "Defining the Relation of Sleep Disturbance in Autism Spectrum Disorder to Psychiatric and Behavioral Co-morbidities" PI - Suzanne Goldman, PhD



AIR-P Studies 2008-2011

Metabolism and Biomarkers

- "Prevalence of Creatine Deficiency Syndromes and Genetic Variability in Creatine Metabolism in Children with ASD: A Pilot Study" PI - Andreas Schulze, MD
- "Constipation and Toilet Training in Autism" PI - Peggy Marcon, MD
- "Maternal Cholesterol and Autism" PI - Jean-Baptiste Rouillet, MD
- "The Study of Toddlers with Autism and Regression (STAR): Screening for treatable disorders and biomarkers of inflammation and immune activation in plasma and CNS" PI - Alvin Loh, MD
- "Bone Mineral Density in Children with Autism Spectrum Disorders" PI - Ann Neumeyer, MD

Neurology and Behavioral Outcomes

- "Epileptiform Discharges and its Relation to Cognition and Behavior in Children with Autism Spectrum Disorders" PI - Greg Barnes, MD
- "The Autism Impact Measure: A New Tool to Measure Treatment Outcome in ASD" PI - Stephen Kanne, PhD



ATN AIR-P Research Metrics

Research Metrics

Active/completed AIR-P research projects	11
Participants enrolled in AIR-P studies	1200+
Accepted abstracts at scientific meetings	38
Accepted manuscripts	7
Requests for data/analysis by ATN investigators	50+
Concept Development Proposals submitted	17
Proposals solicited from AIR-P RFA cycles	30
External investigators (LEND/DBP, others) interested in ATN collaborations	15
Requests for ATN Custom Forms (research and clinical use)	13



ATN Registry

- Over 3,700 children and youth in ATN Registry
- Much data on initial evaluation
- Increasing data on follow up and outcomes
- Major opportunities for collaboration with external investigators



Algorithms and Toolkits

Our guidelines under development have focused on the most common parental and clinician concerns:

- Insomnia / night-waking
- Constipation
- EEG
- Behavioral
- Medication monitoring
- Medication Choice
- MRI
- Metabolic evaluation
- Genetic evaluation



DBPNet Mission Statement

- To conduct collaborative, interdisciplinary research in developmental and behavioral pediatrics that advances clinical practice, supports research training, and optimizes the health and functional status of children with developmental and behavioral concerns and disorders, including children with autism spectrum disorders and other developmental disabilities.

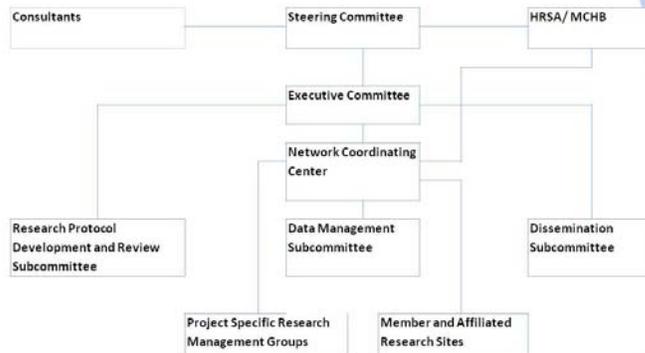


DBPNet Sites

DBPNet Site	Site PI
Albert Einstein College of Medicine	Ruth Stein, M.D.
Boston Medical Center	Marilyn Augustyn, M.D.
Children's Hospital Boston	William Barbareski, M.D.
Children's Hospital of Philadelphia	Nathan Blum, M.D.
Cincinnati Children's Hospital Medical Center	David Schonfeld, M.D.
Hasbro Children's Hospital	Pamela High, M.D.
Lucile Packard Children's Hospital	Heidi Feldman, M.D., Ph.D.
Rainbow Babies and Children's Hospital	Nancy Roizen, M.D.
University of Arkansas	Jill Fussell, M.D.
University of California-Davis MIND Institute	Robin Hansen, M.D.
University of Oklahoma	Mark Woltrach, M.D.
Yale University	Carol Weitzman, M.D.



DBPNet Organizational Structure



DBPNet Leadership

- Steering Committee
 - Chairperson: Heidi Feldman, M.D., Ph.D.
 - DBPNet Site Pls
 - Society for Developmental-Behavioral Pediatrics Member: Terry Stancin, Ph.D.
- Consultants to Steering Committee
 - Daniel Coury, M.D.—Autism Intervention Research Network—Physical Health (ATN / AIR-P)
 - Connie Kasari, Ph.D.—Autism Intervention Research Network—Behavioral Health (AIR-B)
 - Amy Kratchman--Parent
 - Richard "Mort" Wasserman, M.D.—Pediatric Research in Office Settings Network (PROS)



Network Coordinating Center: CHOP

- Nathan Blum, M.D. Principal Investigator
 - blum@mail.chop.edu
- Christopher Forrest, M.D., Ph.D., Co-Investigator
- Amy Gahman, B.A. Network Coordinator
 - gahmana@email.chop.edu
- Preeti Prabhakar, M.S. Database Manager
- Justine Shults, Ph.D., Biostatistician



DBPNet Subcommittees

- Research Protocol Development and Review
 - Review and approve preliminary protocols
 - Appoint DBPNet representative to work with investigators on development of full protocol
 - Must approve full protocol prior to protocol being sent to Steering Committee for final approval
- Dissemination
 - Must approve all presentations and manuscripts that use data generated through DBPNet



ATN / AIR-P Strengths and Challenges

STRENGTHS

- Leadership and organization
- Common procedures and standardization
- Increased diversity and size of practice and population
- Ability to recruit large population

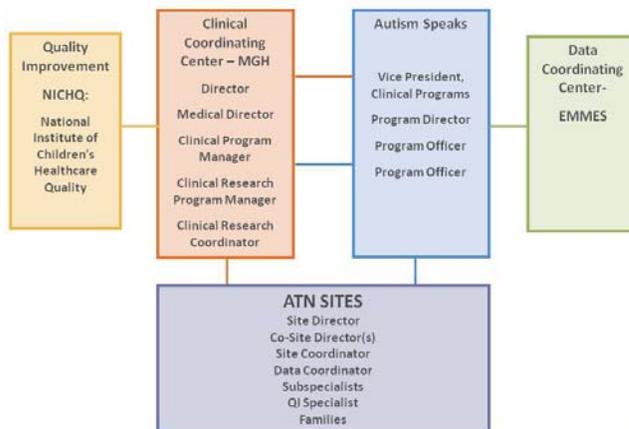


What are Strengths of the ATN?

- A *collaborative network* of leading academic medical centers that provide clinical care to children and adolescents with ASD
- A well-established *clinical and research infrastructure* across multiple institutions
- Large *patient registry* with on-going active recruitment providing the a global picture about ASD in these children
- Considerable collective experience in the *diagnostic and medical evaluation and treatment* of individuals with ASD
- Demonstrated capacity in the *systematic collection* of behavioral and medical information
- Specialty committees in the areas of GI, Sleep Disorders, Neurology, Metabolics/Genetics, Pediatrics, and Behavioral Science are leading the field in the *development of standards and guidelines* for the clinical management of individuals with ASD



ATN Leadership and Organizational Structure



Clinical Coordinating Center

- Based at MassGeneral Hospital for Children in Boston, MA
- Key Roles:
 - Provides clinical leadership for the AS ATN sites
 - Leads the development and implementation of the ATN Care Model
 - Oversee implementation of QI initiative
 - Oversee implementation of the ATN Registry
 - Provide sites support in the application and implementation of ATN-based/AIR-P research studies
- Program Staff:
 - Director: Jim Perrin, MD
 - Medical Director: Dan Coury, MD
 - Clinical Program Manager: Kirsten Klatka, MSW
 - Research Program Manager: Brian Winklosky, MA
 - Clinical Research Coordinator: Rebecca Panzer, MA, RD, LD



"Diet and Nutrition in Children with Autism Spectrum Disorders: An ATN Study"

- Lead PI: Susan Hyman, MD
- Lead Site: University of Rochester
- Collaborators: Jill James, Arkansas; Patty Manning, Cincinnati; Ann Reynolds, Colorado; Cindy Johnson, Pittsburgh
- Study Aims:
 - Assess nutritional intake and dietary patterns in a large and well characterized cohort of children with ASD
 - Assess excess intake from nutritional supplementation
 - Compare iron status and vitamin D levels to dietary intake
 - Describe relationship of diet and nutrition to physical symptoms related to sleep and GI function
 - Enrollment goal: 450 (367 at this time)



"Markers of Iron Status and Metabolism in Children with ASD"

- Lead PI: Ann Reynolds, MD
- Lead Site: University of Colorado
- Collaborators: **AIR-P Nutrition Sites**
(Arkansas, Cincinnati, Pittsburgh, Rochester)
- Enrollment: 158 subjects across 5 sites
- Study aims:
 - To evaluate iron intake, iron status and associated sleep disorders in a large, well characterized sample of children with ASD



**Diet and Nutrition in ASD :
Summary of Diet Analysis**

Over 240 children recruited and over 75 records completely analyzed across 5 sites
Preliminary Report of Top 5 Areas of Deficit (less than 2/3 RDA)

Nutrient	%	Implication For...
Potassium	78%	High Blood Pressure
Vitamin D	64%	Bone; Immune Health
Fiber	62%	Constipation
Choline	33%	Precursor for Acetyl Choline & Betaine Metabolism
Vitamin K	25%	Clotting; Bone Health



**Diet and Nutrition in ASD :
Future Goals**

1. Nutrition recommendations for children and youth with ASD
2. Clinical trial for treatment of GI symptoms
3. Clinical trial for treatment of sleep symptoms



"Parent-Based Sleep Education Program for Children with Autism Spectrum Disorders"

- Lead PI: Beth Malow, MD
- Lead Site: Vanderbilt University Medical Center
- Collaborators: Cindy Molloy, Cincinnati
Ann Reynolds, Colorado
Wendy Roberts, Toronto
- Study aims:
 - To determine the efficacy of a sleep education pamphlet compared to no sleep education in children with ASD
 - To compare two nurse-led sleep interventions in children with ASD
 - To conduct a larger scale RCT comparing the more effective intervention developed in Phase 1, with the control intervention (sleep education pamphlet)
 - To determine if the intervention improves sleep latency, as measured by actigraphy



ATN / AIR-P Challenges

- Multisite IRB
- Limited resources
- Variation across sites



DBPNet Opportunities and Challenges

- Large size
- Variation across sites
- Multiple levels of peer review
- Multiple IRB reviews
- Limited resources
- Need to collaborate with a DBPNet site to submit a protocol



DBPNet Sites

- Faculty
 - 93 Developmental-Behavioral Pediatrics Faculty
 - 46 Fellows in Developmental-Behavioral Pediatrics
 - Over 100 Psychology Faculty associated with these programs
- Patient Volumes
 - Over 16,000 new patient visits per year
 - Over 6000 diagnosed with developmental delay or ID
 - Over 3000 diagnosed with ASD
 - Over 3000 diagnosed with ADHD



Clinics at DBPNet Sites involving Developmental-Behavioral Pediatrics

- 3-15 Different Clinics Per Site
- 66 Different Clinics
 - 60 of clinics are multi-disciplinary
 - 6 clinics involve only developmental-behavioral pediatrics
 - 7 Sites organize clinics around diagnosis or concern
 - 5 Sites use a mix of age and diagnosis or concern



Variation Across Sites: ASD Clinics

Discipline	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Psychology	*	*	*	*	*	*
PNP	*			*		
ST	*	*	*	*		*
OT	*			*		
SW	*	*		*		*
Nutrition				*		
GI				*		
Child Life				*		



DBPNet: Identifying Important Research Topics in Developmental-Behavioral Pediatrics

- Modified Delphi Study
 - Iterative interactive process used to develop consensus opinion among a group of experts
 - 27 developmental-behavioral pediatricians, 16 psychologists, 12 parents
 - Phase 1: 375 proposed questions—216 unique questions
 - Phase 2: Importance of each question rated on a 9 point Likert scale
 - Phase 3: Borderline important items rated as second time while seeing response of each stakeholder group



Discussion of Potential Research Questions

- Top 3 questions from Delphi (median score of at least 7 and 25% score at least 6)
 - Evaluate the efficacy of pharmacological treatments for children with ASD and comorbidities (7.32)
 - Identify effective and efficient ways to measure functional impairment across developmental and behavioral diagnostic categories (6.91)
 - Evaluate strategies for teaching developmental-behavioral pediatrics to residents to prepare them for primary care practice (6.89)



Designing a Network Study

- Given the priorities of DBPNet, what specific study would members of the audience recommend?
- How could that study be conducted in the context of a network?
 - Participants?
 - Sites?
 - Methods?



Further Considerations

- How would the study be funded?
 - Interested funders
 - Other options
- Advantages of the network for this project?
- Challenges to the network in this project?



Questions?





Society for Developmental
& Behavioral Pediatrics

Concurrent Session 3

Sunday, September 18, 1:30 pm - 3:00 pm

*Transition from Pediatric to Adult Services
for People on the Autism Spectrum: What
Should a Pediatric Specialist Know?*

*M. Paige Powell, PhD, Sherry S. Vinson, MD, Robert
G. Voigt, MD, Baylor College of Medicine/Texas
Children's Hospital, Houston, TX*

Conference Room 17-18

Handouts to be provided by speakers during the session.



Society for Developmental
& Behavioral Pediatrics

Concurrent Session 4

Sunday, September 18, 3:15 pm - 4:45 pm

Autism 2011: Clinical Research on New Behavioral Interventions, Psychopharmacology, and Medical Co-morbidity

Daniel L. Cury, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH, Stephen M. Kanne, PhD, Psychology, Baylor College of Medicine, Houston, TX, Jeremy Veenstra-VanderWeele, MD, Psychiatry, Vanderbilt University Medical Center, Nashville, TN

Salon H

Medical Co-Morbidities in ASD

Daniel L. Coudy MD, FAAP
Medical Director,
Autism Speaks Autism Treatment Network
Professor of Pediatrics and Psychiatry
The Ohio State University



Funded by cooperative agreement U43 MC11054 through the U.S. Department of Health & Human Services, Health Resources & Services Administration, Maternal & Child Health Research Program

Medical Co-Morbidities

- Gastrointestinal
- Nutritional
- Sleep
- Neurologic – epilepsy, repetitive movements



There is much controversy:

Do children with ASD have more

- GI problems
- Sleep problems
- Immune problems

Are medical problems (GI, sleep) related to a child's ASD?

Does treatment of a child's medical problems improve their ASD symptoms (behavior, developmental progress)?



Are there more GI problems?

- Smith RA, Farnworth H, et al **Are there more bowel symptoms in children with autism compared to normal children and children with other developmental and neurological disorders? A case control study.** *Autism* 13(4): 343-355, 2009

Yes, more than typically developing children but not more than seen in children with other developmental and neurological disorders.



Are there more GI problems?

- Ibrahim S, et al. **Incidence of Gastrointestinal Symptoms in Children With Autism: A Population-Based Study.** *Pediatrics* 124;680-686, 2009

Don't think so. While these authors found more constipation (33.9% vs 17.6% in controls) and food selectivity (24.5% vs 16.1%), they felt these differences were due to behaviors related to autism and not an underlying GI problem.



Are there more GI problems?

- Molloy CA, Manning-Courtney P. **Prevalence of chronic gastrointestinal symptoms in children with autism and autistic spectrum disorders.** *Autism Jun;7(2):165-71, 2003*

In a sample of 137 children with ASD, 24% had GI symptoms. Most common was diarrhea, seen in 17%. There was no comparison group.



"GI Symptoms in children with Autism Spectrum Disorders in the ATN"

- The GI Symptom Inventory, the Child Behavior Check List (CBCL) and the Pediatric Quality of Life (PedsQL) questionnaire were completed by 1185 parents
- 45% reported GI symptoms; most common were abdominal pain (59% of those with symptoms), followed by constipation, diarrhea and nausea
- Children with GI symptoms had more overall behavioral abnormalities than those without
- Children with GI symptoms had lower health related quality of life than those without



Are there more GI problems?

- ***Who knows?***
- Well done studies have conflicting results
- ***Is there anything we CAN agree on ?***



GI Problems – Common Ground

- **Evaluation, diagnosis, and treatment of gastrointestinal disorders in individuals with ASDs: a consensus report**
- **Recommendations for evaluation and treatment of common gastrointestinal problems in children with ASDs.**
- Pediatrics. Jan;125 Suppl 1:S1-29, 2010





GI Problems – Common Ground

- Children with ASDs who have gastrointestinal disorders may present with behavioral manifestations
- Children with autism spectrum disorders (ASDs) can benefit from adaptation of general pediatric guidelines for the diagnostic evaluation of abdominal pain, chronic constipation, and gastroesophageal reflux disease
- ***In other words, if they have GI symptoms, evaluate them as you would any other child with GI symptoms***





If they have GI symptoms, evaluate them as you would any other child with GI symptoms

- If a child with ASD has recurrent problems with constipation, it makes sense to treat this as one would in a child without ASD
- The same is true for diarrhea, reflux / GERD, and other symptoms





Diet and Nutrition in ASD : Summary of Diet Analysis

Over 240 children recruited and over 75 records completely analyzed across 5 sites
Preliminary Report of Top 5 Areas of Deficit (less than 2/3 RDA)

Nutrient	%	Implication For...
Potassium	78 %	High Blood Pressure
Vitamin D	64 %	Bone; Immune Health
Fiber	62 %	Constipation
Choline	33 %	Precursor for Acetyl Choline & Betaine Metabolism
Vitamin K	25 %	Clotting; Bone Health





Sleep

Children with ASD and parent reported sleep problems have

- More daytime behavior problems as measured by CBCL
- Higher rate of reporting self-injurious behavior
- Higher rates of restrictive and repetitive behavior

Than children with ASD and no sleep problems

Goldman SE et al, Research in Autism Spectrum Disorders
5:1223-1229, 2011



Epilepsy

- Individuals with ASD and epilepsy have >8 times the death rate of individuals with ASD alone
- Epilepsy in individuals with ASD has also been reported to be associated with IQ, ASD diagnosis, gender, regression, and repetitive movements



ATN Registry Data *Epilepsy*

- N=2569
- No seizures- 2149 (84%), seizures- 420 (16%)
- No differences among ASD diagnoses or gender
- IQ difference $p=0.04$ Seizures: ≥ 70 60% ; < 70 40%. No seizures: ≥ 70 65% ; < 70 35%
- Race/ethnicity- Caucasian ($p=0.01$) or Latino/Hispanic ($p=0.04$)



ATN Registry Data *Regression by Parent Report*

- Parent Developmental History Form
- Parent reported loss of skills
- $P < 0.0001$
- Seizures: Loss 21% No Loss 79
- No seizures: Loss 13% No Loss 87%



ATN Registry Data *Regression by ADI-R*

- ADI-R (N=187)
- Other variables
- Loss of Communicative Intent (p=0.05)
- Seizures: Loss 29% No Loss 71%
- No Seizures: Loss 12% No Loss 88%



SUMMARY

- Medical co-morbidities occur frequently in individuals with ASD
- These co-morbidities can have significant impact on individual's overall health
- Awareness and assessment of these co-morbid conditions is important in the comprehensive management of ASD





Autism 2011: Clinical Research on New Behavioral Interventions, Psychopharmacology, and Medical Co-morbidity

September, 2011
Stephen M. Kanne, PhD, ABPP
Pediatrics



Why Intervene?

- In the past, poor prognosis
 - 50% develop spoken language (Dawson, 1989)
 - Now, 75-95% who receive EIBI develop useful speech (e.g., Rogers 1998 review)
- Other improvements
 - Decrease in core symptoms
 - Increase in developmental outcomes
 - Many have no discernable evidence of disability (e.g., Howard et al., 2005)

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Why Early?

- Alter course
 - Genetic, environmental, & phenotypic risk factors
 - Failure to engage in early social interactions
 - Alters social and language brain circuitry, acquisition, organization, and function
- Not just behavior
 - Reciprocal social interactions lead to increases in cortical specialization, perceptual, and representational systems for processing social and language information (e.g., Dawson et al., 2005)
 - E.g., fusiform gyrus, superior temporal sulcus, integrate with reward areas and the amygdala and ventromedial prefrontal cortex

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Basic Science

- Rats
 - Nursing & grooming changes pups behaviors and hypothalamic-pituitary-adrenal stress into adulthood
 - Epigenetic changes: maternal behaviors impact DNA methylation and chromatic structure (e.g., Weaver et al., 2004)
- Oxytocin and vasopressin
 - Increases social orienting and affiliation
 - Operate on mesocorticolimbic dopamine circuit
 - In humans: reduced repetitive bxs, increased affective recognition (Holland et al., 2003; 2007)

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Parent-Child Interaction

- The dance
 - Transactional – each influences the other
- Importance has been demonstrated
 - Interventions focusing on promoting maternal sensitivity were more effective than the combination of all other types of interventions (Bakermans-Kranenburg et al, 2003, meta-analysis of at-risk infants)
 - Not "Refrigerator Mom" of Bruno Bettelheim

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What about older kids?

- Missed critical period?
 - Symptoms more "set"?
 - heterogeneity
- Outcome
 - Variable per individual
 - No good outcome measure
- New therapies also being developed for older individuals

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Gold Standard

- RCT
- Eliminates bias in treatment assignment
 - selection bias and confounding
- Facilitates blinding
 - from investigators, participants, and assessors
- Permits the use of probability theory
 - the likelihood that any difference in outcome between treatment groups does not merely indicate chance

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Interventions

- Applied Behavior Analysis (ABA)
 - Also called Early Intensive Behavior Intervention (EIBI)
 - Science that involves using modern behavioral learning theory (e.g., operant and classical conditioning, shaping, extinction) to modify overt behaviors
 - Not just autism

Pediatrics



Interventions (ABA)

- Focus's on a range of skills and functional areas:
 - Imitation
 - Language
 - Toy play
 - Social interaction
 - Motor
 - Adaptive behaviors

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Interventions (ABA)

- Intensive
 - Highly trained staff
 - 20+ hours face to face per week
- Validated approach
 - 3 RCTs that show gains in IQ, social skills, academic skills, language
 - Jocelyn et al, 1998; Sallows and Graupner, 2005; Smith et al., 2000
 - National Autism Center's National Standards Report, 2009
 - Reviewed treatments between 1957 and 2007
 - Over 45 experts
 - Reviewed 1060 articles

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NAC Best Practice

- These general guidelines can be used to interpret each
 - Established
 - Emerging
 - Unestablished
 - Ineffective/Harmful
- Sufficient evidence is available to confidently

Although one or more

There is little or no evidence to allow us to draw firm conclusions about treatment effectiveness with individuals with ASD. Additional research may show the treatment to be effective, ineffective, or harmful.

autism spectrum.

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Established

- Antecedent Package {99 studies}
- Behavioral Package {231 studies}
- Comprehensive Beh. Treatment for Young Children {22 studies}
- Joint Attention Intervention {6 studies}
- Modeling {50 studies}
- Naturalistic Teaching Strategies {32 studies}
- Peer Training Package {33 studies}
- Pivotal Response Treatment {14 studies}
- Schedules {12 studies}
- Self-management {21 studies}
- Story-based Intervention Package {21 studies}

Pediatrics



Emerging

- Augmentative and Alternative Communication Device {14 studies}
- Cognitive Behavioral Intervention Package {3 studies}
- Developmental Relationship-based Treatment {7 studies}
- Exercise {4 studies}
- Exposure Package {4 studies}
- Imitation-based Interaction {6 studies}
- Initiation Training {7 studies}
- Language Training (Production) {13 studies}
- Language Training (Production & Understanding) {7 studies}
- Massage/Touch Therapy {2 studies}
- Multi-component Package {10 studies}

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Emerging Cont'd

- Music Therapy {6 studies}
- Peer-mediated Instructional Arrangement {11 studies}
- Picture Exchange Communication System {13 studies}
- Reductive Package {33 studies}
- Scripting {6 studies}
- Sign Instruction {11 studies}
- Social Communication Intervention {5 studies}
- Social Skills Package {16 studies}
- Structured Teaching {4 studies}
- Technology-based Treatment {19 studies}
- Theory of Mind Training {4 studies}

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Unestablished

- Academic Interventions {10 studies}
- Auditory Integration Training {3 studies}
- Facilitated Communication {5 studies}
- Gluten- and Casein-Free Diet {3 studies}
- Sensory Integrative Package {7 studies}

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Interventions (ABA)

- American Academy of Pediatrics concluded:
 - the benefit of ABA-based interventions in autism spectrum disorders (ASDs) "has been well documented" and
 - "children who receive early intensive behavioral treatment have been shown to make substantial, sustained gains in IQ, language, academic performance, and adaptive behavior as well as some measures of social behavior."

- Myers, S.M., Johnson, C.P., Council on Children with Disabilities (2007). "Management of children with autism spectrum disorders". *Pediatrics* 120 (5): 1162-82. doi:10.1542/peds.2007.2382

Pediatrics



Other Interventions

- Early Start Denver Model (Dawson et al., 2009)
 - Based on Denver Model
 - Developed by Dr. Sally Rogers (then at the University of Colorado)
 - Preschool intervention for young children with autism
 - First called the play school model because intervention was developed in the course of children's play activities
 - Theoretical foundation for this approach was Piaget's theory of cognitive development
 - Early Start extends it down to younger children

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Other Interventions (ESDM)

- Foundations
 - Focus on teaching skills that follow typical development
 - PRT
 - ABA in play-based environment
- Curriculum
 - Individualized therapy goals
 - E.g., verbal communication, imitation, social skills, play skills, motor skills, adaptive skills
 - Goals to be met in 12 week program, new goals after 12 weeks

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Other Interventions (ESDM)

- Team
 - Family, professionals, and therapists
 - Psychologists, speech-language pathologists, OT, teachers
 - Parents play key role
- Teaching
 - Through play activities
 - 1:1
 - Natural environment

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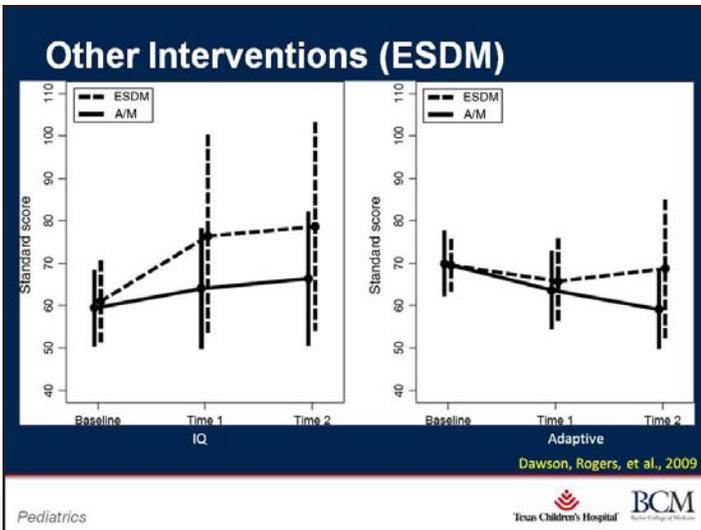


Other Interventions (ESDM)

- RCT
 - Dawson 2009
 - 48 children
 - 18 – 30 months of age
 - Randomly assigned to group (ESDM or TAU)
 - Significant IQ improvements (17.6 points vs. 7.0)
 - Maintained adaptive growth (comparison showed greater delays)
 - More likely to experience change in diagnosis

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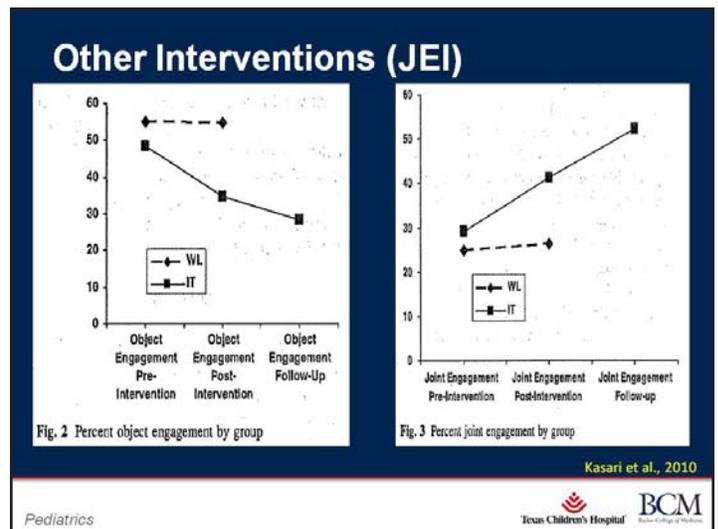
Other Interventions

- Joint Engagement Intervention (Kasari et al, 2010)
 - Caregiver mediated Joint Attention Intervention
 - What is Joint Attention and why important?
 - Based on developmental readiness for learning
 - Development of play routines
 - Adult to follow child's interests
 - Maintain and expand play activities
 - Focused on children with minimal language
 - Mediated through parents

Other Interventions

- RCT
 - 24 caregiver mediation sessions with 1 year follow-up
 - 10 modules, dyad with trained therapist
 - 38 children and caregivers, randomized to waitlist control
 - 21 to 36 months of age (M = 30.82)
 - Primary outcome measure: 15 minute videotaped interaction

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Other Interventions (JEI)

- Showed increased joint attention
- Increased diversity of play
- Maintained after 1 year
- Parent mediated intervention had impact on core impairment

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Other Interventions

- Reciprocal Imitation Training (RIT; Ingersoll, 2008)
 - developed for young children with autism that teaches imitation within a naturalistic social and play context
 - Focuses on creating a responsive and rich social context
 - Emphasizes social role of imitation
 - imitating child's actions, gestures, and vocalizations
 - describing child's actions using simplified language
 - Therapist:
 - models actions for the child to imitate
 - provides physical prompts for imitation, social praise for correct imitations

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Other Interventions (RIT)

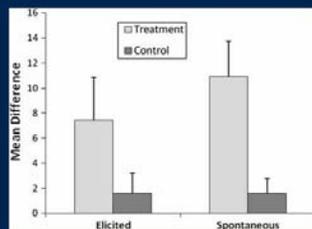


Fig. 1 Mean difference in elicited and spontaneous imitation performance from pre- to post-treatment by group

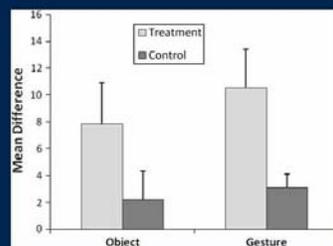


Fig. 2 Mean difference in object and gesture imitation performance from pre- to post-treatment by group

Ingersoll, 2010

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Other Interventions (RIT)

- RCT (Ingersoll, 2010)
 - 2- to 4-year-old children with autism
 - 3 hours per week of RIT for 10 weeks
 - Made significantly greater gains in elicited and spontaneous imitation than children in a community-based control group
 - Initiated more joint attention (ESCS), greater gains in social-emotional functioning (SEGC) 2011
 - RIT can lead to gains in key aspects of social engagement that maintain and may improve even after the intervention is terminated

Pediatrics



Questions?



Pediatrics

Texas Children's Hospital **BCM**
Baylor College of Medicine



Society for Developmental
& Behavioral Pediatrics

Concurrent Session 5

Sunday, September 18, 3:15 pm - 4:45 pm

Interventions to Improve Early Childhood Development. Do they work? Should they be expanded?

Alan Mendelsohn, MD, New York School of Medicine, New York, NY

Conference Room 17-18

Handouts to be provided by speakers during the session.



Society for Developmental
& Behavioral Pediatrics

Concurrent Session 6

Sunday, September 18, 3:15 pm - 4:45 pm

Sleeping in San Antonio: Sleep Health Advocacy for DBP Providers

*Judy Owens, MD, Children's National Medical
Center, Washington, DC*

Conference Room 1-4

Sleeping in San Antonio: Sleep Health Advocacy for DBP Providers

Judith A. Owens MD MPH
Children's National Medical Center
Washington DC

SDBP Annual Meeting
September 2011

Objectives

- Develop an approach to promoting healthy sleep education in the practice and community settings, including the role of caffeine use and electronic media
- Discuss the rationale for delaying high school start times
- Summarize the relationship between insufficient sleep and childhood obesity risk
- Keep the audience awake

The Epidemic of Inadequate Sleep

- Decline in children's average reported sleep duration over time
 - Cohort data from the 1970s to the 1990s show:
 - 10 yo getting 15 minutes less sleep per night
 - 5 yo getting almost 30 min less sleep per night
 - Percentage of adolescents with an average SD < 7h doubled from 1960 to 2001
 - Inadequate sleep amounts compared to "ideal"
 - NSF polls, survey data sleep amts
 - 45% adolescents get < 8h
 - 12th graders average 6.9 h
 - 90% HS students self-report ≤ 8 h aver weekday average sleep; 19% < 6h
 - 5 yo average 9.7h, 10 year olds 9.1 h
 - 7.5-10.9 yo boys average 9.9h

Ideal 9 h

Ideal 10-12h

The Epidemic of Inadequate Sleep

- Sleep duration even lower high risk groups (low SES, minorities)
 - 43% 10-11yo minority (AA, Hispanic) boys average < 9h (vs 18% non-minority girls)
 - ~ Five-fold increased risk for minority children having a BT ≥ 11 p
- Other risk factors inadequate sleep
 - Male gender? Especially older age groups
 - Late bedtimes
 - Shift to later BT start as early as 8-9yo
 - Weekday/Weekend BT differences seen at 3-5yo



Health Consequences

- Immune function: sleep deprivation impairs host defenses
- Metabolic regulation:
 - > 75 studies suggest shorter sleep amounts associated with increased body weight in children and adolescents
- Injuries more common in sleepy children
- Stimulant use
 - 2006 NSF poll: 75% drink at least one caffeinated beverage/d; 31% >2
- Drowsy driving crashes
 - NSF poll: 68% of HS seniors have driven while drowsy; 15% at least 1x/wk

Healthy Sleep Education

- Practices Promoting Sleep Regulation (Circadian and Sleep Drive)
 - Maintain an organized and consistent sleep-wake cycle
 - Set and enforce a consistent bedtime weekdays and weekends
 - Set and enforce a consistent wake time weekdays and weekends
 - Keep a regular daily schedule of activities, including meals
 - Avoid bright light in the bedroom at bedtime and during the night
 - Increase light exposure in the morning
 - Establish an appropriate napping schedule

Healthy Sleep Education

- Practices Promoting Sleep Conditioning
 - Establish a regular and consistent bedtime routine
 - Limit activities which promote wakefulness while in bed (watching TV, cell phone use); use the bed for sleep only
 - Don't use bed for punishment (time out)
 - Avoid using staying up late as a reward for good behavior and going to bed as a punishment for undesired behavior
 - Avoid sleeping in environments other than the bedroom (couch, car)

Healthy Sleep Education

- Practices Reducing Arousal and Promoting Relaxation
 - Keep electronics out of the bedroom and limit use of electronics before bedtime
 - Reduce stimulating play at bedtime
 - Avoid heavy meals and vigorous exercise close to bedtime
 - Reduce cognitive and emotional stimulation before bedtime
 - Eliminate caffeine
 - Include activities in the bedtime routine that are relaxing and calming

Healthy Sleep Education

- Practices Promoting Adequate Sleep Quantity and Quality
 - Set an age-appropriate bedtime and wake time to ensure adequate sleep
 - Maintain a safe and comfortable sleeping environment (low noise and light levels, cooler temperatures, age-appropriate bedding and sleeping surface)



Parental Knowledge and Attitudes Healthy Sleep

- HCH primary care clinic survey 2010 (N=184)¹
 - Demographics: 20% white/45% Hispanic/25% AA; 48% HS grad
 - 59% 1-5yo
 - ~40/50% do not have set BT/WT 7d/wk
 - 57% fall asleep w/adult in room
 - 76% TV in BR
 - 60% include TV viewing in BT routine
 - 21% no regular bedtime routine
 - 18% drink caffeine daily
 - 76% of parents underestimated sleep needs

¹Owens et al (2011); JDBP July/August 32(6):447-453

Tips to Improve Sleep

The first step to improving sleep is to set an appropriate early bedtime that allows your child to get the recommended amount of sleep. Having a set bedtime and bedtime routine will help your child fall asleep more easily. Additional tips include:

- Keep bedrooms and nap rooms cool (no more than 68 degrees)
- Keep electronics (cellphones, computers, gaming systems) out of your child's bedroom.
- Allow for a small, healthy snack such as olive oil and apple slices before bed.
- Make the 30 minutes before bed shared quiet time. Encourage reading or talking instead of high energy activities like rough play or watching TV just before bed.
- Don't give products containing caffeine.
- Keep bedrooms comfortable, quiet, and dark.
- Don't use your child's bedroom for their nest or punishment.

For more information:

NATIONAL SLEEP FOUNDATION:
www.sleepfoundation.org

SLEEP FOR KIDS:
www.sleepforkids.org

AMERICAN ACADEMY OF SLEEP MEDICINE:
www.aasmnet.org

HASBRO CHILDREN'S HOSPITAL PEDIATRIC SLEEP CLINIC:
www.kidssleep.org

HEALTHY SLEEP

a parent's guide

Healthy powered through a generous grant from the Pappas Foundation

Recommendations for Sleep

AGE:	SLEEP NEED
3-12 months	14 to 15 hours
1-2 years	12 to 14 hours
3-5 years	11 to 13 hours
6-12 years	10 to 11 hours
12-18 years	8.5 to 9.5 hours

Tip: Observe how much sleep your child gets during "test" days on weekends or school vacation to get a sense of how much sleep he/she needs.

Signs That Your Child May Not Be Getting Enough Sleep

A well-rested child performs without difficulty in the morning, alert and ready to face the day. In addition to further sleep cues, a child getting inadequate sleep may exhibit any of the following:

Increased	Decreased
Moodiness and irritability with emotions	Fatigue during school and in social situations
Aggressiveness and hyperactivity and inattention	Memory, attention, learning, and reasoning
Autistic (opposite) types	Autism (opposite "temperament")

Sleep and Your Child's Health

Problems with Sleep

Sleep problems affect about 1 in 4 of all children. These problems range from difficulties falling or staying asleep, to problems with breathing during sleep. Children who have trouble staying at night have more difficulty functioning during the day. Poor sleep is also linked to health problems, such as poor growth, problems with the immune system, increased rate of accidents, and obesity (see next page for more information on the connection between sleep and obesity).

It is important to be aware of the warning signs that your child may not be getting enough sleep. Discuss any concerns with your child's doctor.

Did you know? Poor sleep and obesity are related!

Children who do not get enough sleep are at a much higher risk of being overweight or obese. How are sleep and weight connected? Getting too little sleep may lead to chemical changes in the brain that cause individuals to feel hungrier and eat more.

In addition, being overweight significantly increases the likelihood of your child suffering from breathing problems that disrupt sleep at night. Nighttime breathing pauses, snoring, and restless sleep can be signs of a breathing problem called sleep apnea and should be discussed with your child's doctor.

It is important to make sure that your child gets at least 100 minutes of physical activity daily. This may help with both weight and sleep problems.

The 5 keys to a healthy weight:

- Get regular exercise
- Eat a healthy diet
- Get enough sleep

Impact of a Brief Healthy Sleep Educational Intervention (HCH)

- 83% of parents underestimate their child's sleep needs
 - 80% believe child gets enough sleep (60% post-test)
 - 78% believe child has healthy sleep habits (55% post-test)
 - 31% plan to change sleep habits (60% post-test)
- Sleep knowledge
 - 71% answered $\leq 50\%$ of items correctly (26% post-test)
 - 77% associated insufficient sleep with being *underweight*
 - 40% failed to associate overweight with increased risk of sleep problems
 - 50% endorsed snoring as a sign that a child is "sleeping well"
- 25% average too little sleep for age
 - Associated with lack regular bedtime, parental knowledge sleep needs

QUICK START KIT: SLEEP WELL

<http://www.ymca.net/healthyfamilyhome/welcome.html>

Rested and Ready to Grow
 One of the best ways to raise healthy kids is to make sure they—and you—get enough sleep. A healthy family depends on it.

► **Make Rest Your Priority Too**
 Restful sleep also has important short- and long-term health benefits for adults, including a role in maintaining our healthy immune system, metabolism, mood, memory, learning, and other vital functions. Researchers are also beginning to point towards the benefits of sleep for the prevention of heart disease and other chronic conditions. Doctors recommend seven to eight hours per night.

Parental Knowledge and Attitudes Healthy Sleep

- CMOM survey 2010 (N=248)¹
 - Demographics: 61% white/16% Hispanic/7% AA; 96% HS grad
 - 56% 1-3yo; 35% 3-5yo
 - ~23% do not have set BT/WT 7d/wk
 - 56% fall asleep w/adult in room
 - 23% ≥ 1 electronic in BR
 - 4% no regular bedtime routine

¹Owens et al (2011); JCSM 7(4); 345-50

Parental Knowledge and Attitudes Healthy Sleep (CMOM)

- 52% of parents underestimate their child's sleep needs
 - 80% believe child gets enough sleep
 - 75% believe child has healthy sleep habits
- Sleep knowledge
 - 35% $\leq 50\%$ correct
 - Association sleep duration/obesity: 56% incorrect/DK
 - Weight and increased risk sleep problems: 25% incorrect/DK
- 27% average too little sleep for age
 - Associated with lack regular bedtime, parental knowledge sleep needs

Sleep Practices, Attitudes and Beliefs in Middle School Children

- Survey/interview 64 multi-ethnic sample inner city students NYSP
- Reasons for insufficient sleep
 - TV (57), social activities (23), inability fall asleep (22), time management (18)
- Consequences inadequate sleep
 - Fatigue (37), mood changes (20), attention/cognitive problems (19)
 - Negative impact athletic (42), academic performance (21)
- Sources information
 - Teachers (63), media (56), parents (49), doctors (45), coaches (42)
 - Variability quality information, source acceptability, credibility
 - Multiple misconceptions sleep physiology, hygiene
 - Interest in additional education
 - TV as potential vehicle for education "sleep infomercials"
- Sleep role models
 - Siblings (34), TV personalities (29), parents (21), peers (15)
- Sleep strategies
 - Set bedtime, parental supervision/assistance (61), later school start time (20)

Owens et al, BSM 2006

Adolescent Sleep Health Education

- Drowsy driving
 - 1% of all motor vehicle crashes; 4% of crashes involving fatality
 - NSF poll: 68% of HS seniors have driven while drowsy; 15% at least 1x/wk
 - Campaign partnership with AAA
 - "No ZZZs – No Keys"
- Caffeine
 - High usage: NSF polls: 26% 6-8th and 35% 9-12th graders consume 2+ cans/cups/d; ~30% school-age and 18% pre-schoolers drink at least one caffeinated beverage/d
 - Increased reports toxicity/overdose
 - "Gateway drug"?
 - Early caffeine use (≤12yo) associated with later use tobacco, illicit drugs, alcohol, stimulants
 - Combination with ETOH
 - Labeling content, warning labels, age restriction/prohibition sales of energy drinks, advertising restrictions; limit access

School Start Times

- Multiple studies comparing schools with earlier vs later start times¹⁻⁶:
 - Shorter sleep duration
 - Erratic sleep patterns
 - Increased sleepiness
 - Dozing off in class
 - Difficulty concentrating
 - Increased rates tardiness
 - More stimulant use
 - More behavior problems, lower grades
 - MSLT results = level of daytime sleepiness seen in patient with narcolepsy
 - Similar bedtimes but later start time students wake time 1 hr later= 1 hr more sleep/night

¹Allen 1992 ²Epstein 1995 ³Epstein 1998 ⁴Gianotti 1997 ⁵Carskadon 1998 ⁶Carskadon 1998
⁷Wahlstrom 2001

The Great Minnesota Experiment

- 1996: Edina MN changed high school start times from 7:20a to 8:30a
- 1997: Minneapolis changed high school start times from 7:15a to 8:40a; dismissal 1:45p to 3:20p
- N>18,000 students
- Outcomes:
 - Average school night bedtime stayed constant at 10:40pm
 - Sleep duration increased by 1 hr/school night; 5 hrs/week
 - Tardiness rates dropped
 - Daily attendance rates improved
 - Drop-out rates declined
 - Grades improved
 - SAT scores for the top 10% of students jumped from 1288 to 1500

¹Wahlstrom 2001, ²Wahlstrom 2002

Other School Districts: Outcomes

- Kentucky: 7:30 →8:40a start time
 - Attendance up
 - Standardized test scores up
 - No change student participation extra-curricular
 - Teens involved in car crashes down by 16% (vs 9% increase in the rest of the state)

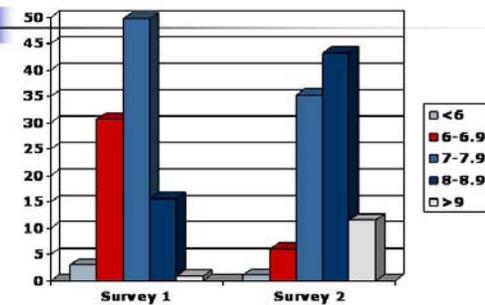
St. George's School, Newport RI

- Delay school start time from 8:00a to 8:30a
- Winter term (Jan – March)
- Student pre (Dec '08) and post (Feb '09) on-line surveys
- School pre and post data:
 - Health center visits
 - Tardies/absences
 - Breakfast

Results: Sleep Duration

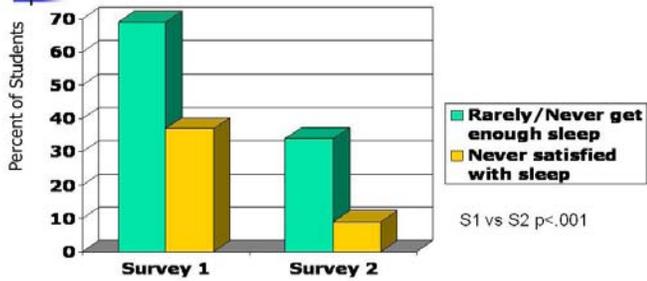
- | | |
|--|--|
| <ul style="list-style-type: none"> ■ 8am start time <ul style="list-style-type: none"> ■ School day sleep duration: <ul style="list-style-type: none"> ■ Mean = 7.11 hrs ■ School night bedtime: 23:39 | <ul style="list-style-type: none"> ■ 8:30a start time <ul style="list-style-type: none"> ■ School day sleep duration: <ul style="list-style-type: none"> ■ Mean = 7.86 hrs (S1 vs S2 p<.001) ■ School night bedtime: 23:21 (S1 vs S2 p<.001) |
|--|--|

Results: Sleep Duration



Percentage of students in each self-reported school night sleep duration category at Surveys 1 and 2

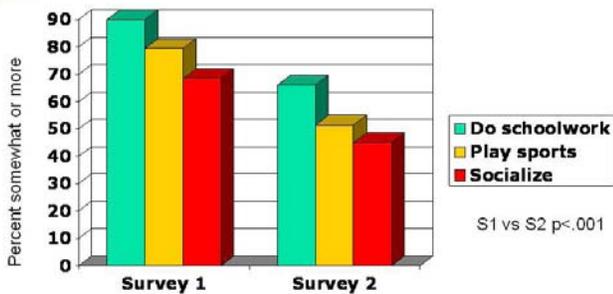
Results: Sleep Satisfaction



Daytime Sleepiness

- 8:00am
 - Problem daytime sleepiness: 49%
 - Sleepy in class: 85%
 - Sleepy doing homework: 83%
 - Fell asleep am class: 39%
 - Arrived late: 36%
 - Nap: 52%
- 8:30am
 - Problem daytime sleepiness: 20% (p<.001)
 - Sleepy in class: 64% (p<.001)
 - Sleepy doing homework: 63% (p=.001)
 - Fell asleep am class: 18% (p<.001)
 - Arrived late: 22% (p<.001)
 - Nap: 36% (p=.001)

Results: Too Tired to...



Results: Mood

- Survey 1
 - Feel unhappy, depressed: 65%
 - Health center
 - Visits for fatigue: 15%
 - Rest requests: 69
 - First class tardies/cut: 158
- Survey 2
 - Feel unhappy, depressed: 45%
 - Health center
 - Visits for fatigue: 4%
 - Rest requests: 30 (56% decrease)
 - First class tardies/cuts: 101 (36% decrease)

Comments

- **Students:**
 - "Well for me, ever since the 8:30 start, I have seen how much good 30 mins of extra sleep does for me, so I have been inspired to do homework even earlier to get an additional half hour on top of the 30 minutes and it has been fantastic."
 - "Because of the extra 30 min in the morning i have been able to last all of study hall. i used to get so tired and distracted around 8:45 that i would have to get my homework done before 9 or not at all. now i am more focused for the entire study hall."
 - "Since the new 8:30 start time was put in place I feel like the overall morale of the school has gone up quite a lot."
- **Faculty:**
 - "On a more personal note, I have found the 8:30 start to be the single most positive impact to my general quality of life at SG since I started 12 years ago."

What else can schools do?

- Educate school personnel - teachers, nurses, coaches
- Include sleep as part of student health education
- Include drowsy driving in driver ed classes - "crash in bed instead"- ASDA high school 2000
 - Drowsy driving is as dangerous - and as avoidable - as drunk driving
 - Encourage them to find alternatives to driving when they're feeling drowsy
- Convince students that sleep is not just a luxury; it's as important as eating and breathing.
- Help students manage their schedules so that they have time for adequate sleep.
- Brainstorm techniques for building sleep into their busy schedules

Healthy Sleep: Medical Education

- Sleep knowledge survey community pediatricians¹
 - Significant knowledge gaps
 - Inadequate screening practices
 - 66% do not routinely screen adolescents
 - 75% do not screen for snoring
 - Level of confidence in screening, evaluation, treatment low (<50%)
- NIH SBIR Phase I Brown/NERI collaboration: Promoting Sleep Health in a Pediatric Setting: A Web-based CME www.kidzzzsleepcme.com

1Owens Pediatrics 2001

Web-Based Sleep Health Education

- **Specific Aim 1:** To develop a clinical content outline for a CME program that will focus on two major areas:
 - Assessment and promotion of sleep health in infants, children, and adolescents in the primary care setting and emphasis on the importance of sleep as a third key component of a healthy lifestyle
 - Promotion of cultural competence in pediatric health care professionals regarding pediatric sleep
- **Specific Aim 2:** Develop the full clinical content and interactivity for one prototype chapter of the Web-based CME course
- **Specific Aim 3:** Develop a unique approach to learning on the web through video-based storytelling vignettes which will present the problems of poor sleep habits and ways to identify and address them
- **Specific Aim 4:** Conduct a set of qualitative interviews prior to and after development of the course material.

Web-Based Sleep Health Education

■ Sleep Health Screening Module Learning Objectives

- Understand the essential components of good sleep health in children and the importance of healthy sleep practices
- Recognize the importance of screening in the assessment of healthy and unhealthy sleep behaviors in children
- Provide the appropriate tools and language to conduct sleep health screening
- Manage caregiver concerns or obstructions to improved sleep through sleep health screening
- Recognize cultural aspects of sleep health and how to identify and discuss with caregivers

The Epidemic of Childhood Obesity

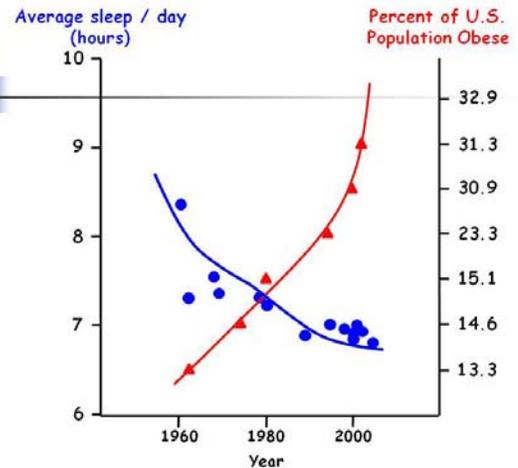
- 37% of US children 6-11 years old currently defined as overweight/obese
- 17% US children obese (2004); increase 20% over 6yrs
- High risk groups (black, Hispanic, low SES)

The Epidemic of Childhood Obesity

- Associated with health risks:
 - Elevated cholesterol/triglycerides
 - Increased risk insulin resistance/Type II diabetes
 - Hypertension
 - Adult obesity
- Standard behavioral treatment programs (diet, exercise) yield only modest effects

The Epidemic of Inadequate Sleep

- Average adult sleep duration:
 - 35% ≥ 8 h in 1998 to 26% in 2005
 - 40% < 7 h
 - 39% of American adults are NOT getting the recommended 7-9 hours
- Similar decline in children's average reported sleep duration over time
- Sleep duration even lower in high risk groups (low SES, minorities)



SD and Weight: Children

- Strong relationship SD/weight controlling for confounders:
 - Extrinsic: TV viewing, breast-feeding, mat smoking, single parent status, physical activity, season of the year
 - Intrinsic: Birth weight, parental obesity
 - Intake patterns: diet, snacking, breakfast

Sleep Duration and Weight: Children

- Almost all cross-sectional pediatric studies show negative relationship between SD and obesity
 - Across age groups, racial/ethnic populations, SES, sample populations, obese and non-obese/underweight
 - Controlling for confounders:
 - Extrinsic: TV viewing, breast-feeding, mat smoking, single parent status, physical activity
 - Intrinsic: Birth weight, parental obesity
 - Relationship seems "dose dependent" (ie, the less sleep, the greater the weight)
 - Relationship is most robust *in young children*

SD and Weight: Children

- Cross-sectional studies
 - Risk of obesity associated with inadequate sleep equal to or higher than most other risk factors
 - Of 21 potential risk factors, only mat smoking, parental BMI, TV viewing, intake junk food higher risk than SD
 - Five-fold increased risk for short SD/Ob vs:
 - Snacking (1.3x), TV viewing (2.1x)
- Conclusions:
 - 60-80% increase in odds of being a short sleeper in obese children
 - Increased SD reduces risk OW/Ob
 - For additional hr sleep, odds of obesity decrease by 80%

SD and Weight: Children

- Longitudinal data – prospective cohort studies
 - 915 children multi-site group practice:
 - Aver 24hr SD at 6, 12, 24mths < 12 hrs associated higher BMI z score, OR 2.0 overweight
 - 8234 children:
 - SD at age 38 mths associated obesity at age 7yo in dose-dependent fashion
 - 150 children followed 0-9.5yrs:
 - Negative correlation SD at 3-5yo and BMI at 9.5yo
 - Aver 30 min less sleep predicted overweight
 - 785 children NICHHD study (2007)
 - SD 3rd grade independently associated greater overweight risk in 6th grade and independent of weight status in 3rd grade
 - Increased risk OW in children with greatest decline SD 3rd to 6th grade
 - Protective effect longer SD mediated by earlier bedtimes

Mechanisms

- Effects of sleep deprivation on neurohormones
 - Decreased leptin → increased appetite
 - Increased ghrelin → increased calorie intake (amount, calorie dense foods, carbs)
- Increase insulin resistance:
 - Sleep loss associated with increased levels of cortisol
 - Sleep loss results in activation of the sympathetic nervous system
 - Sleep loss associated with up-regulation pro-inflammatory mediators (CRP, IL-6)
 - Inadequate sleep linked to insulin resistance in obese children
- Altered thermoregulation (core body T)

Mechanisms

- Fatigue → reduced physical activity
 - NSF adolescent poll 2006: 32% report too tired to exercise
 - Decreased SD associated increased TV viewing, decreased sports participation
- Decreased SD → increased opportunity to eat

Daytime Sleepiness in Children: Impact

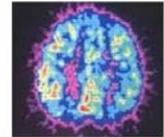
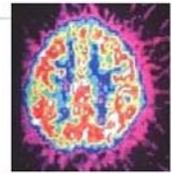
- Mood regulation and emotional changes: irritability, mood instability, less positive mood
- Behavioral problems:
 - Internalizing
 - Externalizing (aggressiveness, hyperactivity, impulsivity)



- Neurocognitive deficits
 - Attention
 - Executive functions (organization, self-monitoring, planning)
 - Memory
 - Verbal creativity
- Family disruption
 - Increased parent stress
 - Maternal depression
- Performance deficits
 - Poor academic functioning
 - Social impairments
 - Decreased QOL

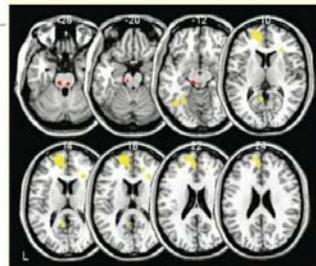
This is Your Brain Without Sleep

- Even short-term sleep deprivation produces global decreases in brain activity, especially the PFC
- This results in deficits in attention and higher-level cognitive or executive functions ("ADHD" brain)
 - Judgment, motivation
 - Monitoring and modifying behavior
 - Modulation emotions
 - Managing frustration



Sleep and Mood

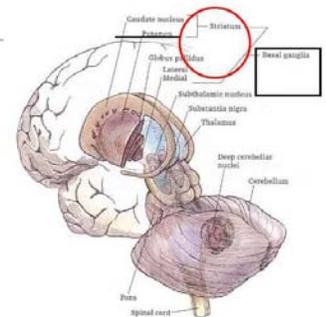
- Sleep deprivation effects on the "emotional brain"
- Sleep-deprived volunteers viewed emotional images:
 - Increased amygdala response
 - Weaker connection amygdala-PFC
 - = Less emotional control



■ Sleep control > Sleep deprivation
 ■ Sleep deprivation > Sleep control
 Current Biology

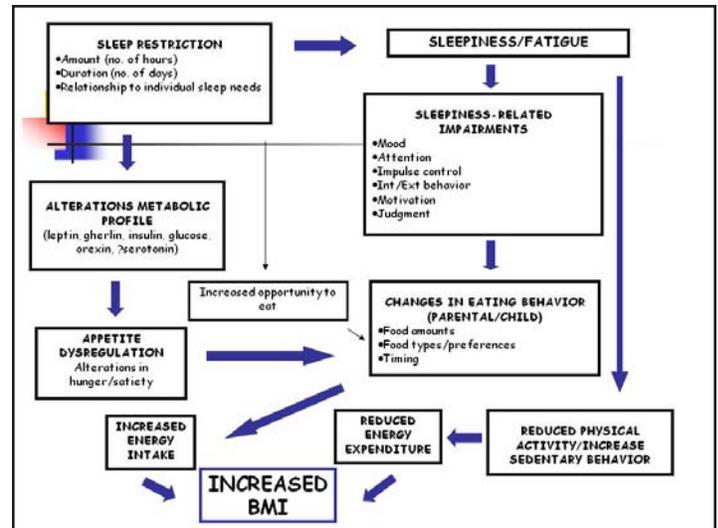
Sleep and Reward-Related Brain Function

- Striatum important for reward-related brain function
 - Positive emotions
 - Motivation
 - Response to reward
- *Less* activation by reward may lead to *greater* sensation-seeking, risk-taking
- Studies in adults suggest insufficient sleep linked to changes in reward-related decision making
 - Take greater risks, less concern negative consequences



Mechanisms

- Behavioral/mood/cognitive effects EDS → changes in eating patterns
 - Decreased SD associated with increased emotional lability
 - Food-related tantrums, increased anger/frustration, decreased soothability strong predictor BMI
 - Children with both internalizing and externalizing behavioral problems increased concurrent and future risk overweight
 - May be exacerbated by comorbid SDB
 - BUT, externalizing/internalizing behaviors, lax parenting did not confound relationship SD and overweight



Mechanisms

Role sleep disordered breathing?

- Possible contribution to obesity risk?
 - Behavioral issues, reduced physical activity
 - T&A may result in weight *gain*



Pediatric SDB: Risk Factors

Increased prevalence obesity in OSA

- 399 2-18yo urban sample family members of proband with OSA
 - Obese increased risk for moderate SDB (AHI>10): (28% obese; OR 4.6)
- Sample 60 pre/adolescents weight loss clinic²
 - 13% AHI>5, increased symptoms SDB
- Age-dependent (weaker association in pre-pubertal children)
 - Increased racial/ethnic risk OSA
 - IA-A race (OR 3.5) Hispanic, Asian
 - Increased risk OSA low SES
 - Increased risk FH OSA

} Increased risk obesity

Impact of Pediatric SDB

Mechanism: sleep fragmentation, sleep deprivation, intermittent hypoxia

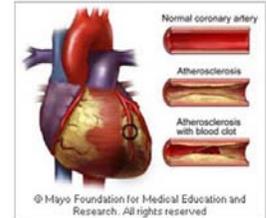
- Increased subjective/objective sleepiness levels
- Internalizing/externalizing behavior problems
- Mood instability, depressive symptoms
- Cognitive deficits
- Impairments attention, executive functions
- Decrements academic performance
- Decreased QOL



Impact of Pediatric SDB

Adverse cardiovascular/metabolic outcomes

- Greater insulin resistance in obese children associated with OSA *and* SD
- Systemic inflammation and oxidative stress



Perfect Storm?

Pathophysiology:

- Shortened sleep duration associated with obesity in children
- SDB more common in obese children
- SDB associated with sleep deprivation
- High risk groups (African-American, Hispanic, low SES):
 - Obesity more common
 - SDB more common
 - Inadequate sleep more common
 - Less likely to be identified, diagnosed, and treated; access to care issues

Perfect Storm?

Other factors:

- TV viewing associated both obesity and short SD
- Combined impact of obesity/short SD/SDB
 - Neurobehavioral and cognitive functions
 - Metabolic alterations: glycemic control
 - Cardiovascular consequences: inflammatory cytokines
 - Impaired QOL
 - Additive effects?
 - Children referred for SDB more likely to have impaired cognitive function if they have snoring/increased AHI *and* short/variable TIB

Childhood Obesity Prevention

- Cross-sectional study 8550 4 yo (2010)
 - 18% obese
 - Association obesity and household routines
 - Eating family meals >5x/wk (57%)
 - Adequate nighttime sleep (≥ 10.5 hrs) (58%)
 - Limited screens (≤ 2 hrs/d) (40%)
 - Independent association each routine with obesity
 - Prevalence obesity 3 routines 13% vs 24% none (40% lower prevalence)
 - Presence routines vary across racial/ethnic groups, maternal education, income, single parent ($p < .001$)

Children's Museum of Manhattan (CMOM)

- New 3 year national Early Childhood Obesity Prevention project
 - Adapt the NIH We Can!™ curriculum for early childhood audiences (children under 8) and their parents
 - Pilot testing of 11 week community-based curriculum in children ages 2-5 in South Bronx, New Orleans
 - We Can!™ messages focused on improving nutritional and dietary habits, and increasing physical activity
 - Additional CMOM component focused on sleep (NIH-supported)



CMOM

- Smart Sleep! Families learn that developing a healthy sleep routine is as important as proper nutrition and physical activity
- National and State Pre-K Health Performance Standards
 - S1: Identify that healthy behaviors impact personal health
 - S2: Identify how the family influences personal health practices/behaviors
- Developing Preschool Readiness Skills
 - Counting skills; dramatic play, body awareness, gross motor development
- Parent Training Messages
 - Adequate sleep is essential to living a healthy life
 - Sleep is as important as eating and exercising
 - Methods: Weekly parent handout, Family Journal
- Evaluation Measurable Outcomes
 - Develop a family bedtime routine

Children's Museum of Manhattan Family Health Handout

Smart Sleep!

Benefits of Sleep:

1. Body restores itself during sleep
2. Increases brain's ability to focus, learn, and think clearly
3. Helps boost immune system which helps fight sickness
4. Active period of bodily growth and repair

Family Goal

Develop a family bedtime routine! Use this night time check list:

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Take a warm bath	<input type="checkbox"/>						
Brush teeth	<input type="checkbox"/>						
Place a cup of water by the bed	<input type="checkbox"/>						
Share the best part of the day	<input type="checkbox"/>						
Read a story together	<input type="checkbox"/>						
Turn on the night light	<input type="checkbox"/>						
Sing a lullaby	<input type="checkbox"/>						
Give a hug or kiss goodnight	<input type="checkbox"/>						
Give a backrub	<input type="checkbox"/>						

Fact of the Week: 1-3 year olds need 10-14 hours of sleep in a 24-hour period. 3-4 year olds need 11-13 hours of sleep each night.

Health Tip
Help children sleep better by maintaining a consistent bedtime routine.

Surprising Fact
Increasing daily physical activities helps all family members sleep better.

Strategy
Turn off the TV and read a book together in bed.



Program Content
Art Activity: Sleep
Mobile
Movement/Music: Scarf
dancing and stretching
to jazz and/or classical
music

At Home Tools

Sleep Books

Goodnight Moon
by Margaret Wise Brown
and Clement Hurd

Hush Little Baby
by Sylvia Long

Go Away Big Green Monster
by Ed Emberly

Goodnight Mr. Night
by Dan Yakkamo

Pajama Time
by Sandra Boynton

Good Night Gorilla
by Peggy Rathmann

New Words to Use

1. Tired
2. Sleep
3. Nap
4. Rest
5. Bed

Bedtime Snacks

- Cup of warm milk or
- Banana slices or
- 2 slices of toast or
- Cup of applesauce with cinnamon sprinkled on top

Did you know . . .
Getting too little sleep may lead to chemical changes in the brain that cause individuals to feel hungrier and eat more.

Quiet Bedtime Activities

- Read favorite books together
- Give a backrub
- Stretch gently
- Keep bedroom comfortable, quiet and dark



eMOM
Created by the Children's Museum of Manhattan

www.cmom.org
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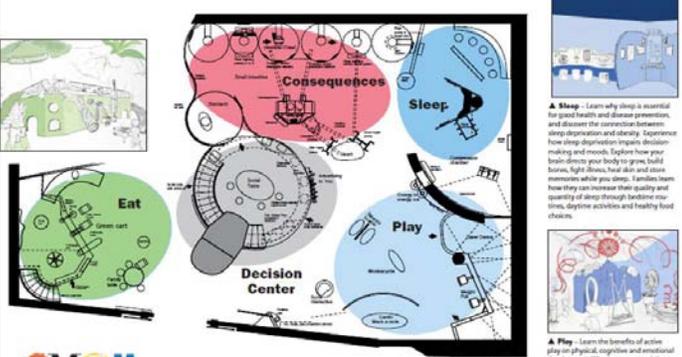
Children's Museum of Manhattan Program

Healthy Lifestyles exhibit: nutrition, exercise, and sleep (planned opening 11/2011)

- Interactive hands-on programs, performances and events focusing on the importance of sleep for young children and caregivers
- Importance of Sleep (play and learn better, body and brain growth, improve decision-making, mood and immune system)
- Preparing to Sleep (set a regular bedtime, follow a bedtime routine, take television and electronics out of the bedroom)
- Sleep & Performance Foosball
- Sleep Deprivation
 - Sleep stealers! (late bedtimes, caffeine, video games, etc)
 - Impact: Mix and Match Moods, Food Choices, Body Repair, Connect the Dots, Grow, Heal Boo-Boos, Body Battles
- Sleep Apnea
- Dreams

EatSleepPlay Building Health Every Day

A 3,500 sq. ft. health education and training center for families, teachers and health professionals opening November 5, 2011.



Eat - Learn why sleep is essential for good health and disease prevention, and discover the connection between sleep deprivation and obesity. Experience how sleep deprivation impacts decision-making and moods. Explore how your brain directs your body to grow, build bones, fight stress, heal skin and store memories while you sleep. Families learn how they can increase their quality and quantity of sleep through bedtime routines, daytime activities and healthy food choices.

Play - Learn the benefits of active play on physical, cognitive and emotional development. Whether power parking, dancing, leaping or jumping, these play stations inspire families to be active together. A central display of lights and activity gauges represents the combined energy output of players.

eMOM
Eat Sleep Play™, A CMOM Health Initiative has been generously funded by the Institute of Museum and Library Services, Laurie M. Tisch Illumination Fund and Katlogg Foundation.

Children's Museum of Manhattan The Tisch Building, 217 West 83rd Street, New York, NY 10024 www.cmom.org

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Society for Developmental
& Behavioral Pediatrics

Poster Symposium I

Monday, September 19, 1:00 pm - 2:15 pm

Abstracts 11-15

Pediatricians' Views of Mental Health Screening and Intervention

Brandi S. Henson, PsyD, Emily N. Neger, BA, R. Christopher Sheldrick, PhD, Ellen C. Perrin, MD, Pediatrics, Tufts Medical Center, Floating Hospital, Boston, MA

Co-Located Developmental and Mental Health Care within Pediatric Primary Care Practice

Kathryn Mattern, BA, R. Christopher Sheldrick, PhD, Ellen C. Perrin, MD, Pediatrics, Floating Hospital, Tufts Medical Center, Boston, MA

Child Behavioral Severity and Parents' Perceptions of the Effectiveness and Likelihood of Seeking Behavioral Health Treatment

Aimee M. West, BA, Robert Dempster, MA, Beth Wildman, PhD, Psychology, Kent State University, Kent, OH, Diane Langkamp, MD, NeuroDevelopmental Center, Akron Children's Hospital, Akron, OH

What's in a Name? Variation in Parents' Perception of Acceptability of Treatment

Aimee M. West, BA, Robert Dempster, MA, Beth Wildman, PhD, Psychology, Kent State University, Kent, OH, Diane Langkamp, MD, NeuroDevelopmental Center, Akron Children's Hospital, Akron, OH

Integrating Developmental and Maternal Depression Screening in Pediatric Practice

David O. Childers, MD, Pediatrics, UF College of Medicine, Jacksonville, Jacksonville, FL, Melena Smith, RN, JoAnn DiNicola, RN, Jane Veniard, RN, Department of Health, Partnership for Child Health, Jacksonville, FL, Edessa Jobli, MD, Jeffrey Goldhagen, MD, Pediatrics, UF College of Medicine, Jacksonville, Jacksonville, FL

Conference Room 1-4

Abstract 11

Pediatricians' Views of Mental Health Screening and Intervention

Brandi S. Henson, PsyD, Emily N. Neger, BA, R. Christopher Sheldrick, PhD, Ellen C. Perrin, MD, Pediatrics, Tufts Medical Center, Floating Hospital, Boston, MA

Purpose: There is growing consensus that the pediatric practice is a viable and efficient context for the identification of and early intervention for children's mental health problems. We worked with 10 pediatric practices to administer a brief behavioral screening tool to parents at 2- and 3- year well child visits. Parents whose children scored high were invited to participate in a parenting class (The Incredible Years). At the completion of the project, pediatric staff were asked to complete a survey regarding the implementation of the screening tool and parenting classes. **Methods:** Two electronic surveys were distributed in each of the 10 participating practices: one to pediatric leaders and administrators; one to providers. **Results:** 60% (75) of providers and 86% (19) of pediatric leaders and administrators completed the survey. Providers were generally satisfied with the feasibility of the screening protocol and found it clinically useful, particularly to initiate discussion of behavioral concerns with parents. 19% of providers reported improved attitudes about screening in general. The biggest concern was the potential increase in visit times. All but 1 provider wanted parenting groups to continue in their practice (61% definitely, 38% maybe). 57% of providers had received feedback from patients about the groups, and this feedback was primarily positive (45% Very Satisfied, 30% Satisfied). Most providers thought parenting groups should be available to any interested parent (82%), but only 37% of leaders and administrators indicated that they were very likely to run groups after the research. Potential barriers included finding enough parents, finding staff to organize and run groups, and managing costs. **Conclusion:** Routine screening can be implemented in pediatric practices and provides information to enhance clinical impressions. Parenting groups are a mental health intervention that can be offered in response to screening results. Both screening and parenting groups are of considerable interest to pediatric providers and administrators, particularly when they see direct benefits and receive feedback from parents, but concerns about feasibility may limit widespread implementation.

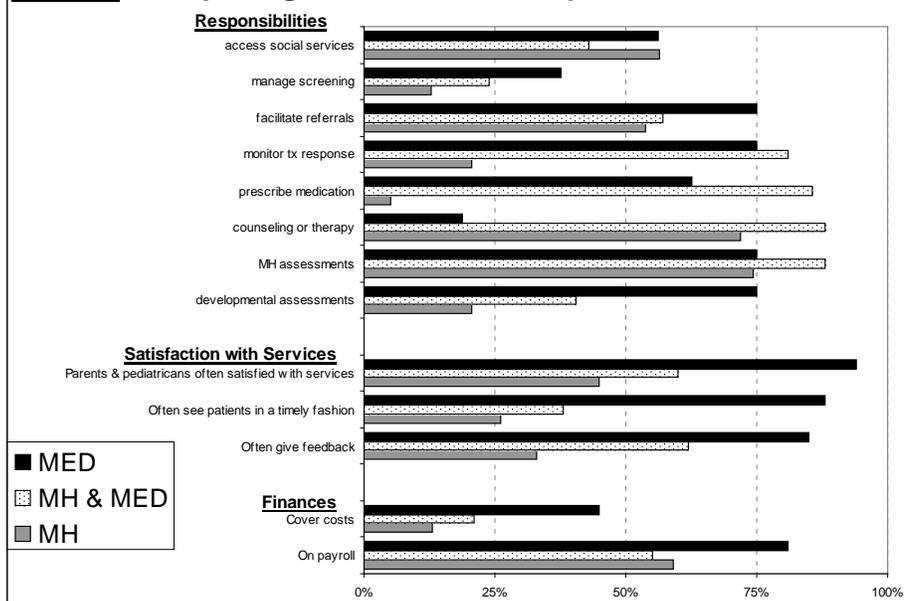
Abstract 12

Co-Located Developmental and Mental Health Care within Pediatric Primary Care Practice

Kathryn Mattern, BA, R. Christopher Sheldrick, PhD, Ellen C. Perrin, MD, Pediatrics, Floating Hospital, Tufts Medical Center, Boston, MA

Purpose: Previous studies have suggested that there are benefits to providing developmental/mental health care in the same setting as primary pediatric care. How frequently pediatricians have established such arrangements, the level of integration and collaboration between medical and developmental/mental health clinicians, and their experience with these arrangements, is unknown. **Methods:** We surveyed members of the MA Chapter of the American Academy of Pediatrics who provide primary care (n=752) via a web survey. **Results:** Of the 305 physicians (40%) who completed the survey, 33% reported that they had one or more mental health/developmental (MH/D) specialist(s) located within their practice setting. Of these, 39% identified a psychologist or social worker (MH), 15% identified a physician, nurse, or nurse practitioner (MED), and 42% identified both a mental health and a medical clinician (MH&MED) as the co-located MH/D specialist. The majority of these clinicians are on the practice payroll, but their revenues generally do not cover their costs (see Figure). More than half of the co-located MH/D clinicians are reported to receive support staff assistance, attend staff meetings, and share charts with primary care physicians. Responsibilities vary considerably across the three categories (see Figure). Using a 4-point scale (from 1 'never' to 4 'usually'), respondents whose practices include physicians or nurses/nurse practitioners rated consistency of feedback, timeliness of access, and overall satisfaction higher than those with MH clinicians (see Figure). **Conclusion:** Pediatricians have developed many unique arrangements to facilitate developmental and mental health care in their practices. One third of respondents have developed various systems of co-located care.

Figure. Comparing co-located MH/D providers



Abstract 13

Child Behavioral Severity and Parents' Perceptions of the Effectiveness and Likelihood of Seeking Behavioral Health Treatment

Aimee M. West, BA, Robert Dempster, MA, Beth Wildman, PhD, Psychology, Kent State University, Kent, OH, Diane Langkamp, MD, NeuroDevelopmental Center, Akron Children's Hospital, Akron, OH

Purpose: Although externalizing behavior problems are the most common problems in childhood, most remain untreated. Identifying barriers to treatment-seeking can help close the gap between need and use. This study examined how child behavior severity moderates the relationship between parents' perceptions of treatment effectiveness and the likelihood of using 4 interventions. Severity was measured with the Pediatric Symptom Checklist (PSC), and the interventions included hospital-based mental health professional, community-based mental health professional, research-based parent training program, and prescription medication. Methods: Participants were 69 parents of 2 to 8 year-old children at primary care pediatric visits in 5 Midwestern community-based practices. Parents completed questionnaires rating the perceived effectiveness of the treatment, likelihood of attending, and PSC. Results: Separate linear regressions were conducted for each treatment type, with perceived likelihood of using the treatment as the dependent variable, perceived effectiveness and severity entered in the first step, and the interaction of the two entered in the second step. Results for the hospital-based intervention only were significant. Child behavior moderated the relationship between parental perceived effectiveness and likelihood to use hospital-based intervention, $p < .05$. Parents of children with high behavioral severity were likely to use the intervention, regardless of believing if it will work. For parents of children with low behavioral severity, belief in a hospital-based intervention's effectiveness was positively associated with likelihood of use, $R^2 = .58$, $p < .001$. All other regressions were not significant. Conclusion: The impact of perceived effectiveness on help-seeking for hospital-based out-patient services varies depending on child's symptom severity. Parents may believe that a hospital-based treatment is only for severe cases. The lack of such relationships for other treatments may reflect greater acceptability of community-based services. For children with low behavioral severity, perceived effectiveness predicts the parent's reported likelihood to use. Therefore, parents of children without a clinically-significant behavior problem need to believe in a treatment's effectiveness in order to increase their likelihood to use it.

Abstract 14

What's in a Name? Variation in Parents' Perception of Acceptability of Treatment

Aimee M. West, BA, Robert Dempster, MA, Beth Wildman, PhD, Psychology, Kent State University, Kent, OH, Diane Langkamp, MD, NeuroDevelopmental Center, Akron Children's Hospital, Akron, OH

Purpose: Less than 20% of children with behavior problems receive treatment. The goals of the present study were to determine (1) what types of treatments parents believe are helpful, and (2) if the name used to describe behavioral parent training, an evidence-based intervention, changes how likely a parent will be to attend treatment. Methods: Participants were 87 parents with 2 to 8 year-old children in 5 Midwestern suburban and urban community-based primary care pediatric practices. Participants rated perceptions of treatment effectiveness for 10 types of treatment. They were randomly assigned to rate how likely they would be to follow through on a physician referral to services at the primary care office or another office for the following treatments: a program for managing difficult child behavior, behavior therapy, behavioral parent training, parenting classes, or an appointment with a behavioral specialist. Results: A Repeated-Measures ANOVA was conducted on ten ways of gaining advice. Parents prefer one or two options (i.e., individual intervention) over all other options (group, phone, media), $p < .001$. A One-Way Between Subjects ANOVA on the name of services found that parents prefer to attend treatments at the primary care office, regardless of name. Likelihood to use services in other offices varied with the name of service, $p < .05$. Parents reported being more likely to attend a program for managing difficult child behavior than behavioral parent training, $p < .05$. Conclusion: Participants preferred to receive advice in one-on-one settings and in the primary care office. When referring to services outside the office, providers should use caution in how they label and describe the behavioral health services; parents reported being more likely to attend a program for managing difficult child behavior than behavioral parent training. Future research should further explore differences in how treatment labels influence parental help-seeking.

Abstract 15

Integrating Developmental and Maternal Depression Screening in Pediatric Practice

David O. Childers, MD, Pediatrics, UF College of Medicine, Jacksonville, Jacksonville, FL, Melena Smith, RN, JoAnn DiNicola, RN, Jane Veniard, RN, Department of Health, Partnership for Child Health, Jacksonville, FL, Edessa Jobli, MD, Jeffrey Goldhagen, MD, Pediatrics, UF College of Medicine, Jacksonville, Jacksonville, FL

Purpose: Periodic evidence-based developmental screening is required to identify at-risk children. Despite this knowledge and AAP guideline, most pediatricians do not screen. Strong empirical evidence exists regarding maternal depression and child development. Similarly, few pediatricians screen for maternal depression despite AAP recommendations. Methods: 10 primary care practices (single and groups) volunteered for the study. The Ages and Stages (ASQ-II) and Maternal Depression Inventory (2 questions) were used. Pre & post attitude surveys were delivered. Practices received training on the instruments and ongoing support for 2 months. Medicaid and uninsured patients ranged from 1%-95% (mean 15% SD=33) and from 1-35% (mean 7% SD=8.3) respectively. Practices were followed for 1 year. Results: 876 children, 4-60 mos. (mean 21, SD=17) were screened in Spring 2008. Average screens completed per site was 87.6. Informants were mothers (78%), fathers (6%). 14% (n=124) of screens were positive. Of these 36 (29%) were referred and 88 (71%) were not. Only 4/10 groups screened for Maternal Depression. 90 total screens were completed. Eleven (12%) were positive on the 1st question and 8 (9%) positive on the 2nd. No referrals for maternal mental health were made. Reasons for non-participation included concerns over liability and possible disruption of physician-parent relationships. At 2 months, the number of

Poster Symposium

physicians rating ASQ as "very effective" increased from 21% to 54%. 33% of physicians utilized the 96110 billing code with an average reimbursement of \$11-14. All physicians reported positive parental satisfaction with screening. No practices continued developmental or maternal screening at 1 year follow-up. Conclusion: Despite knowledge of the importance of evidence-based developmental screening, positive feedback from parents, & reimbursement, none of the private, public or academic sector practices continued to screen at 1 year. Referral rates for positive screenings mirrored previous studies. Even with education regarding the link between maternal depression and child development, 60% of the practices chose not to screen for maternal depression and no practices made referrals for positive maternal depression screenings. Given its importance to children's health, more studies will be required to identify the key factors that will persuade and/or support the investment of pediatricians' time to screen.



Society for Developmental
& Behavioral Pediatrics

Poster Symposium II

Monday, September 19, 1:00 pm - 2:15 pm

Abstracts 16-19

How Comprehensive Are Newborn Screening Programs in the U.S.: State-specific Sociodemographic and Fiscal Correlates -- An End-of Decade Analysis

Andrew Adesman, MD, Pediatrics, Cohen Children's Medical Center of NY, Lake Success, NY, Suzanne Sunday, PhD, Psychiatry, Feinstein Institute for Medical Research, Manhasset, NY

ADHD Medication Holidays: Factors Involved in the Parental Decision whether or not to Continue Medical Treatment during the Summer

Jay H. Lee, MD, David Meryash, MD, Alyson Gutman, MD, Pediatrics, Cohen Children's Medical Center of New York, Lake Success, NY, Nina Kohn, MA, Biostatistics Unit, Feinstein Institute for Medical Research, Manhasset, NY, Andrew Adesman, MD, Pediatrics, Cohen Children's Medical Center of New York, Lake Success, NY

Quality Improvement and Clinician Adherence: A Plan to Increase Adverse Event Monitoring in Children Treated with Antipsychotic Medications

Rebecca A. Baum, MD, Developmental and Behavioral Pediatrics, Traci E. Hemming, MS, Center for Innovation in Pediatric Practice, Judy Lee, RN, Quality Improvement Services, John V. Campo, MD, Child & Adolescent Psychiatry, Nationwide Children's Hospital, Columbus, OH

An Evaluation of Community-Based Partnerships to Improve Developmental Diagnosis

John C. Duby, MD, Pediatrics, Northeast Ohio Medical University, Akron, OH, Marilyn Espe-Sherwindt, PhD, College of Education, Health, and Human Services, Kent State University, Tallmadge, Ohio, Jennifer Snyder, MD, Pediatrics, Northeast Ohio Medical University, Akron, OH

Conference Room 17-18

Abstract 16

How Comprehensive Are Newborn Screening Programs in the U.S.: State-specific Sociodemographic and Fiscal Correlates -- An End-of Decade Analysis

Andrew Adesman, MD, Pediatrics, Cohen Children's Medical Center of NY, Lake Success, NY, Suzanne Sunday, PhD, Psychiatry, Feinstein Institute for Medical Research, Manhasset, NY

Purpose: In 2006, the American College of Medical Genetics (ACMG) recommended that state newborn screening programs (NSP) mandate screening for 29 core conditions (CC) and reporting for 25 secondary target conditions (ST). Our objective was to do an end-of-decade analysis of state-specific compliance of newborn screening programs with the ACMG's recommended mandates, & examine if compliance is linked to fiscal & sociodemographic variables (FSV). **Methods:** State-specific NSP data for year-end 2010 were collated and compared. Each state was assessed regarding how many CC, ST, and additional conditions (AC) were universally screened. A weighted score was calculated for each NSP, & a backward elimination linear regression was performed on this weighted score using FSV to identify possible predictors; those with $p < 0.10$ were entered into the final model. **Results:** Almost all states had 100% compliance for CC disorders of Fatty Acid (FA 49 states, 96%), Organic Acid (OA 48, 94%), and Amino Acid metabolism (AA 48, 94%). Full compliance (100%) for ST disorders was much lower: FA (9 states, 18%), OA (19 states, 37%) and AA (10 states, 20%); a number of states required none of the secondary tests (FA 16, 31%; OA 17, 33%; AA 5, 10%). Hearing screens were required in 36 states (71%); though expensive, compliance was not linked to FSV. Only 3 states required and 3 others offered universal screening for severe combined immunodeficiency (SCID). Weighted scores differed somewhat across geographic locations (higher in the Northeast & Midwest). The best regression model of the weighted score accounted for 15% of the variance. In general, largest states, states that spent more on Medicaid and states with fewer people below the poverty line had highest infant screening scores. **Conclusion:** Despite recommendations from the ACMG to standardize newborn screening programs, states still vary considerably with respect to screening for CC. Compliance is variable for hearing loss, and worst for SCID, a recently added CC. Many states are also less compliant in screening for ST. Compliance was not primarily linked to FSV.

Abstract 17

ADHD Medication Holidays: Factors Involved in the Parental Decision whether or not to Continue Medical Treatment during the Summer

Jay H. Lee, MD, David Meryash, MD, Alyson Gutman, MD, Pediatrics, Cohen Children's Medical Center of New York, Lake Success, NY, Nina Kohn, MA, Biostatistics Unit, Feinstein Institute for Medical Research, Manhasset, NY, Andrew Adesman, MD, Pediatrics, Cohen Children's Medical Center of New York, Lake Success, NY

Purpose: To determine 1) what clinical child characteristics can be identified that distinguish parents who opt to continue medication for treatment of ADHD during the summer from those who chose to stop medication, and 2) to determine whether parental perceptions of impairment or medication side effects are factors in the decision they make. **Methods:** Over an 8-week period in fall 2010, parents of 162 children (ages 6-18) being treated for ADHD completed questionnaires during their regular medication follow-up visits focusing on their experience during the preceding summer. Questions addressed included parental perception of the child's degree of impairment due to ADHD in academic, social, and behavioral functioning; parental perception of medication side effects; the child's summer activities; use of CAM therapy; and family structure. Data gathered from the medical record included the child's age, gender, ADHD subtype, severity of his/her symptoms on initial presentation, and medication dosage. The Fisher's exact test was used to examine associations between categorical factors and continuing medication during the summer. The Cochran-Armitage Test for Trend was used to examine associations between parental perceptions and continuing medication. **Results:** Parental perception of impairment in social and/or behavioral functioning was significantly associated with an increased likelihood of continuing medication for ADHD during the summer ($p < 0.035$). No associations were found between the decision to continue or discontinue medication over the summer and the child's age, gender, ADHD subtype, severity of symptoms on initial presentation, the type of summer activities in which the child participated, use of CAM therapy, family structure, parental perception of impairment in academic functioning, or parental perception of medication side effects. **Conclusion:** It appears that, in parents' decisions whether or not to medicate their children during the summer, impairment in social and/or behavioral functioning weighs more heavily than any other factor studied, including academic impairment and perceived medication side effects. No other clinical factors correlated with whether a child continued medication. This study provides some insight into what factors are considered by parents in their decision whether to medicate their children for treatment of ADHD over the summer break.

Abstract 18

Quality Improvement and Clinician Adherence: A Plan to Increase Adverse Event Monitoring in Children Treated with Antipsychotic Medications

Rebecca A. Baum, MD, Developmental and Behavioral Pediatrics, Traci E. Hemming, MS, Center for Innovation in Pediatric Practice, Judy Lee, RN, Quality Improvement Services, John V. Campo, MD, Child & Adolescent Psychiatry, Nationwide Children's Hospital, Columbus, OH

Purpose: Antipsychotic medication use in children can pose significant adverse effects. Monitoring for adverse events is not universally performed, due in part to the lack of standard guidelines for use in the pediatric population. We developed an internal monitoring guideline and used Quality Improvement (QI) methodology to increase guideline adherence, as previous experience with

conditions such as ADHD and developmental screening suggests that guideline development alone is insufficient to change practice behavior. We aimed to achieve 50% improvement in guideline adherence within 1 month of implementation. Methods: Full guideline adherence was measured by a composite assessment that included weight, height, BMI, heart rate, blood pressure, an abbreviated version of the Abnormal Involuntary Movement Scale (A-AIMS) results, fasting blood glucose and lipid panel. Baseline and quarterly follow up data were collected. Five Plan Do Study Act (PDSA) cycles were conducted to improve guideline adherence. Results: Full guideline adherence improved 50% three months after implementation. Adherence increased from zero to a maximum of 59% but declined to 48% at the last audit. Analysis of individual guideline parameters showed that anthropomorphic data and A-AIMS were obtained 90% of the time. Laboratory studies were obtained less than 50% of the time. Clinician education and office flow were identified as key drivers to improve adherence and formed the basis for PDSA cycle topics. Conclusion: Adverse event monitoring improved after guideline development and multiple PDSA cycles designed to improve clinician education and address process issues. Despite these interventions, full adherence remained less than 60% and declined in the last quarter. Barriers to adherence include partial transition to an electronic health record (EHR), continued lack of standardized processes, and staffing limitations. Potential solutions include the use of an EHR best practice alert and further improvements in office flow. The use of QI methodology, including further PDSA cycles, will be used to improve and maintain adherence.

Abstract 19

An Evaluation of Community-Based Partnerships to Improve Developmental Diagnosis

John C. Duby, MD, Pediatrics, Northeast Ohio Medical University, Akron, OH, Marilyn Espe-Sherwindt, PhD, College of Education, Health, and Human Services, Kent State University, Tallmadge, Ohio, Jennifer Snyder, MD, Pediatrics, Northeast Ohio Medical University, Akron, OH

Purpose: The purpose of the research is to evaluate the implementation of a state-wide model for providing local, timely, comprehensive developmental evaluations for children with a concern about autism in 30 Ohio counties. Methods: Community-Based Diagnostic Partnerships are in place in 30 Ohio counties. Developmental evaluation teams work with medical partners to enhance the breadth and depth of their evaluations, including a daily routines interview and the Autism Diagnostic Observation Schedule (ADOS). The medical partner interprets the results as part of a medical and developmental history, makes a diagnosis, and assures linkages with community services. The medical and developmental evaluation teams participate in training to strengthen their evaluation and diagnostic skills and to build the model for collaboration. The evaluation teams complete a 2-day ADOS training and participate in structured web-based inter-rater reliability training. Teams join monthly conference calls for ongoing support and problem solving. Partners submit de-identified data from their evaluations, including diagnosis, evaluation results, an evaluation of the components' usefulness, and a measure of professional satisfaction with the process. Parents complete a survey identifying the time from initial concern to diagnosis and assessing their satisfaction with the process. Results: 268 evaluations were completed between Winter 2009 and Spring 2011. 54% received an autism spectrum diagnosis. Professional partners found the Bayley or Battelle, daily routines interview, ADOS, developmental history and DSM-IV criteria to be most helpful in clarifying differential diagnosis. Professionals and families reported a high level of satisfaction with the process. The lag time from initial concern to diagnosis was reduced to 19 months compared to baseline state data indicating a lag time of 31 months. Conclusion: Community-Based Diagnostic Partnerships improve access to local, timely, comprehensive evaluations for children with a concern about autism. The process reduces the lag time from initial concern to diagnosis. Professionals and families are highly satisfied with the model.



Society for Developmental
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Concurrent Session 7

Monday, September 19, 3:30 pm - 5:00 pm

Implementing & Evaluating Integrated Behavioral Health in Primary Care: Program Models and Lessons Learned

Celia B. Neavel, MD, Pediatrics, UT Southwestern Austin Pediatrics, Austin, Texas, Lynda Frost, JD, PhD, Hogg Foundation for Mental Health, University of Texas at Austin, Austin, Texas, Robin Rosell, MSW, Social Work, People's Community Clinic, Austin, Texas, Toni Watt, PhD, Sociology, Texas State University at San Marcos, San Marcos, Texas

Conference Room 17-18

Implementing & Evaluating Integrated Behavioral Health in Primary Care: Program Models and Lessons Learned

Celia Neavel, MD, FSAHM
Lynda Frost, JD, PhD
Robin Rosell, LCSW, LMFT
Toni Watt, PhD

OUTLINE

- Introductions & Goals & Objectives
- Cases
- Why IBH
- The viewpoint and lessons learned from the Hogg Foundation
- Models of care and lessons learned at People's Community Clinic
- Evaluating programs
- Case conclusions
- Discussion

INTRODUCTIONS

- **Celia Neavel, MD, FSAHM**
Clinical Assist. Prof., UT Southwestern Austin Pediatrics; Director, Center for Adolescent Health; Director, Goals; People's Community Clinic, Austin, Texas
- **Lynda Frost, JD, PhD**
Director of Planning and Programs, Hogg Foundation for Mental Health, University of Texas at Austin, Austin, Texas
- **Robin Rosell, LCSW, LMFT**
Director of Social Services and Tandem Coordinator; Supervisor Integrated Behavioral Health Program, People's Community Clinic, Austin, Texas
- **Toni Watt, PhD**
Associate Professor, Sociology, Texas State University at San Marcos; Program Evaluator; San Marcos, Texas
- Attendees

GOALS AND OBJECTIVES

- Review data supporting Integrated Behavioral Health (IBH) – Attendees will have a better understanding of behavioral/mental health professional shortages, the prevalence of behavioral/mental health disorders in youth, and traditional models of care
- Present IBH models of care and available outcome studies – Attendees will be more familiar with options of care for youth with the more common behavioral/mental health disorders and what evaluations have been performed, including the challenges of performing evaluations in youth who often have additional comorbid developmental diagnoses
- Discuss the roles of developmental/behavioral/mental health specialists in IBH as participants, evaluators, and teachers – Attendees will understand their potential roles in supporting IBH and attendee discussion will be encouraged.

CASE PRESENTATIONS

- K.G. 7 y.o. newly on Medicaid and from Iran diagnosed as MR by school. Referred by another PCP who doesn't take Medicaid. Parents anxious, upset, wanting a different answer NOW.
- A.J. 18 y.o. uninsured and followed for 10 years at our clinic for primary care. Now with recurring depression and first time cutting.

THE PROBLEM

- At least 25- 30% of general pediatric complaints may have developmental or behavioral origins and at least one study has shown that over half of pediatric resident graduates would want more training in mental or developmental disorders. According to Mental Health America, 2/3 of youth with mental health problems don't get needed help, and of the 5-10% of children with ADHD, as many as 50% aren't diagnosed. Numerous articles in the medical and lay literature discuss the shortage of behavioral health specialists.

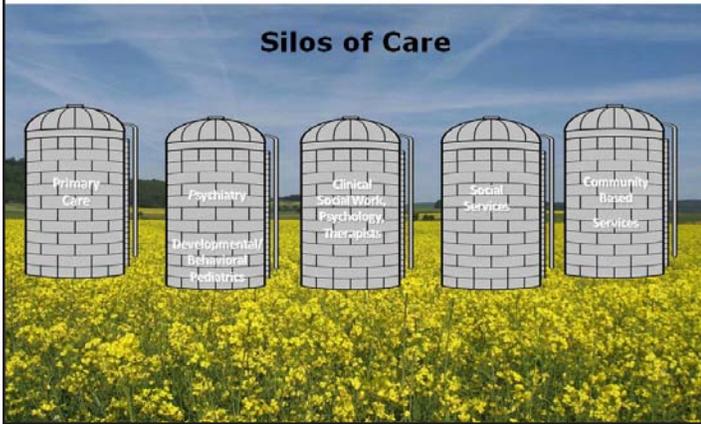
A SOLUTION?

- As is delineated in a National Institute for Health Care Management paper, integrated systems of care are an important solution. Having developmental/behavioral professionals aware of Integrated Behavioral Health (IBH) models, including challenges in implementation and emerging research, can both facilitate participation and support for IBH and encourage teaching IBH to both primary care and developmental/behavioral/mental health trainees and practicing professionals with the ultimate goal being improved access to evidence-based care for children and adolescents.

The Hogg Foundation

- Since 1940, the foundation has worked to promote improved mental health for all Texans through grants, policy work, & public education programs
- Part of The University of Texas at Austin, Division of Diversity & Community Engagement

Siloed systems do not reflect reality.



BH problems in primary care

- Mild to moderate disorders are common in PC settings
 - Anxiety, depression, substance use in adolescents
 - Anxiety, ADHD, behavioral problems in children
 - **Early intervention opportunity**
- Chronic medical disorders have high co-morbid rates of BH problems
 - Diabetes, asthma + depression
 - **Worse outcomes & higher costs if both problems aren't addressed**

Why go to PC for BH care?

- Uninsured or underinsured
- Restrictive eligibility criteria for public BH services
- Cultural beliefs and attitudes
- Availability of BH services, especially in rural areas

Key opportunity

- Integrating care offers:
 - Chance to reach groups who cannot or will not access specialty care
 - Early intervention opportunity

Current reality

- BH problems often go undetected and untreated in PC
- When PCPs do detect BH problems, they tend to undertreat them
- Populations of color, children and adolescents, uninsured, and low-income patients are especially unlikely to receive adequate care for BH problems

Challenges

- **Patient factors** (e.g., unwillingness to discuss BH problems or participate in treatment due to stigma)
- **PCP factors** (e.g., lack of training and time, fears re: prescribing for children)
- **System factors** (e.g., limited insurance benefits for BH conditions, limitations on PCPs' ability to bill for BH services)

Changing service delivery

- Helpful, but not sufficient:
 - Provider training
 - Screening
 - Referrals
 - Co-location of services
- Strongest outcomes:
 - Collaborative care
- Other programs are likely effective, but have not been formally evaluated

How do you gauge the degree of integration in current programs?

Implementing & Evaluating Integrated Behavioral Health in Primary Care: Program Models and Lessons Learned

Moving towards integrated care



MH/PC Integration Options

© 2006 Kathleen Reynolds (Integrated Care Adaptation only); adapted from Doherty, McDaniel & Baird, 1995.

Function	Minimal Collaboration	Basic Collaboration from a Distance	Basic Collaboration On-Site	Close Collaboration/Party Integrated	Fully Integrated/Merged
THE CONSUMER and STAFF PERSPECTIVE EXPERIENCE					
Access	Two front doors; consumers go to separate sites and organizations for services	Two front doors; cross system conversations on individual cases with signed releases of information	Separate reception, but accessible at same site, easier collaboration at time of service	Same reception; some joint service provided with two providers with some overlap	One reception area where appointments are scheduled; usually one health record; one visit to address all needs; integrated provider model
Services	Separate and distinct services and treatment plans; two physicians prescribing	Separate and distinct services with occasional sharing of treatment plans for O4 consumers	Two physicians prescribing with consultation; two treatment plans but routine sharing on individual plans, probably in all quadrants	O1 and O3 one physician prescribing, with consultation; O2 & 4 two physicians prescribing some treatment plan integration, but not consistently with all consumers	One treatment plan with all consumers; one site for all services; ongoing consultation and involvement in services; one physician prescribing for O1, 2, 3, and some 4; two physicians for some O4; one set of lab work
Funding	Separate systems and funding sources; no sharing of resources	Separate funding systems; both may contribute to one project	Separate funding; but sharing of some on-site expenses	Separate funding with shared on-site expenses; shared staffing costs and infrastructure	Integrated funding; with resources shared across needs; maximization of billing and support staff; potential new flexibility
Governance	Separate systems with little or no collaboration; consumer is left to navigate the chaos	Two governing Boards; line staff work together on individual cases	Two governing Boards with executive Director collaboration on services for groups of consumers, probably O4	Two governing Boards that meet together periodically to discuss mutual issues	One Board with equal representation from each partner
EBP	Individual EBP's implemented in each system;	Two providers; some sharing of information but responsibility for care held in one clinic or the other	Some sharing of EBP's around high utilizers (O4); some sharing of knowledge across disciplines	Sharing of EBP's across systems; joint monitoring of health conditions for more quadrants	EBP's like PHQ9, IDDT, diabetes management; cardiac case provider across populations in all quadrants
Data	Separate systems, often paper based, little if any sharing of data	Separate data sets, some discussion with each other of what data shares	Separate data sets; some collaboration on individual cases	Separate data sets, some collaboration around some individual cases; maybe some aggregate data sharing on population issues	Fully integrated; (electronic) health record with information available to all practitioners on need to know basis; data collection from one source

Key Activities in Texas

- 2006: Hogg Foundation \$2.6 million collaborative care grant program
- 2008: Integrated health care conference with over 400 attendees
- 2009: Integrated health care learning community begins
- 2010: Report of Integration of Health and Behavioral Health Workgroup

Lessons Learned from Collaborative Care Grant program

- IHC can be implemented with good clinical outcomes in varying clinical settings in impoverished communities
- Care provided and outcomes varied widely
- Early and intensive follow-up is key; need to allocate sufficient staff
- Organizations with no pre-existing MH personnel created strongest IHC teams
- Depression outcomes were markedly superior among Spanish-dom. clients

Additional Lessons Learned

- Collaborative care is not the best model for all settings and organizations
- Once a program is established, it does not necessarily require additional funding to sustain
- Clear leadership is helpful, but clinical staff buy-in may be just as important
- Financial barriers can be resolved

Lessons Learned from Austin Conference

- A multi-day conference alone is insufficient to achieve change, but it can provide crucial motivation and connections
- There is a high demand for practical and user-friendly materials



Lessons Learned from IHC Learning Community

- Staff training, esp. BH and PC cross-training is essential
- “Champions” are a great asset
- Team-building, development of trust, relationship-building should come early
- Billing and financial sustainability are major concerns
- Technology issues can pose barriers
- The learning community can provide an impetus and accountability

Additional Lessons Learned

- Extensive planning and technical assistance is needed to implement change
- Additional staff often are not essential
- It can be difficult to identify useful tools for participants (website, TA calls, coaching, webinars)

IHBH Workgroup Draft Recommendations

1. Create a State Healthcare Integration Leadership Council
2. Create and support a focus on healthcare integration in Texas.
3. Establish local healthcare integration planning.
4. Address systemic barriers to healthcare integration.
5. Encourage adoption of confidential health information technology and information sharing.
6. Develop systems for meaningful and functional outcome measurement and tracking.
7. Support routine health and behavioral health screening during patient assessments.
8. Develop policies to address training, continuing education and workforce needs.
9. Integration efforts should be implemented as part of federal health reform requirements.

Upcoming Initiatives in Texas

- Hogg Foundation / DHHS Office of Minority Health expert meeting, funder meeting, large TX conference
- Collaborative Family Healthcare Association Annual Conference in Austin, October 4-6, 2012
- Seed grants for planning and integrated health care implementation?

More information at:

www.hogg.utexas.edu
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People's Community Clinic



- One of the oldest continually-running independent clinics for PC in U.S. for all ages
- Mission: *to improve the health of medically underserved and uninsured Central Texans by providing high quality, affordable healthcare.*
- **GOALS** program - ages 4-19
- **IBH** program—ages 15 and older

HISTORY GOALS PROGRAM

- A developmental/behavioral/primary care program
- Informal Beginnings
- Grant Formalized-Became Part of Clinic's Culture
- "Promotes optimal developmental functioning, wellness, and mental health. Diagnostic and treatment services are included as an essential part of child health."



INITIAL GRANT OBJECTIVES

- Better identify own patients
 - Pediatric Symptom Checklist at all 4-19 y.o. WCC, HEEADDSS interview all adolescents
 - Provider discretion
- Become better resource for community
 - Take new referrals (schools, agencies, word of mouth, relatives, calling around) but we must become medical home
 - Community Advisory Council (still meeting)
 - Role model

FORMAL ASSESSMENT

- Social work, resident, staff physician over 1-2 visits
- Medical/developmental/behavioral intake using structured form (new challenges with EMR!)
- Address any primary care medical needs
- Standardized rating scales collected by SW
 - Achenbach series
 - Vanderbilts
 - Others as indicated
- Collect/review outside records
- Determine if need more assessment

TREATMENT

- Meet with family
- Determine plan
- Prescribe medications as indicated
- Coordinate referrals, letters to schools as needed
- Social worker as case manager/bridging therapist
- Monitor through registry
- Ongoing treatment/reassessment in medical home



INTERNAL TEAM

- Primary care physicians, pediatric residents on adolescent or dev/behav rotations
- Social Workers-
 - Through 14 y.o.
 - 15-19 y.o.
 - Supervisor
- Part-time psychologist as needed
- Consulting psychiatrist as needed

GOALS PSYCHIATRY MODEL

- Meet monthly
- Child and adolescent psychiatrist visits clinic
- Reviews evaluations ahead of time
- Team and family participate
 - PCPs, 2-3 SW, Pedi Residents, +/- School Staff
- Each visit 15-35"
- 3-6 patients each session

ADVANTAGES

- Break for psychiatrist
- Team learning
- Everyone hears same thing
- Partner with patient and family
- Problem solve and identify resources
- Efficient use of psychiatrist's time
- Power of group
- Review other cases as time

DISADVANTAGES

- Cost
- Patients no show or run over
- Initially intimidating
- Time to organize
- PCP/SW must provide follow-up

GOALS PSYCHOLOGY MODEL

- Staff some cases informally
- Reviews evaluations we have done
- Helps decipher other testing
- Decides least amount of testing that will get answers needed
- Writes short reports for chart or school

EXTERNAL TEAM

- Schools
- Other non-profits
- Private therapists
- Physician sub-specialists

EXAMPLES OF DIAGNOSES

- ADHD
- Learning Disabilities, Language Delays, and Developmental Coordination or Sensory Processing Disorders
- Autism Spectrum Disorders
- Affective Disorders
- Prenatal substance exposure
- Post Traumatic Stress Disorder, Attachment Disorders

SUMMARY GOALS

- Evolved
- Grants formalize/sustain (currently 3 foundation grants + pediatric residency program)
- Developmental/behavioral perspective in medical home – more fluidity in care
- Recruit own and referred complex patients
- Upfront initial assessment
- Paved way for rest of IBH
- Older adolescents move towards IBH
 - Overlap around school/ADHD

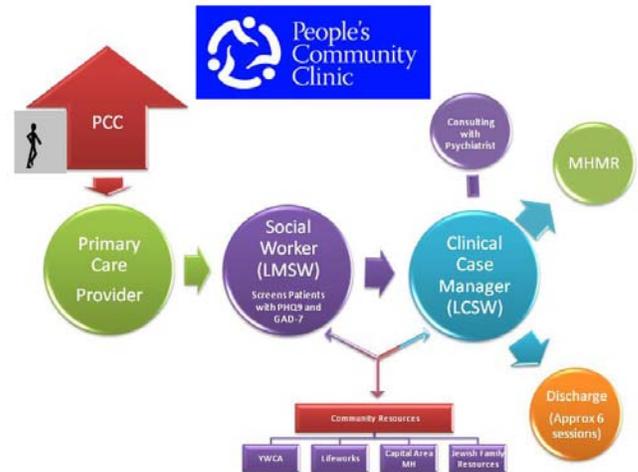
IBH

- Imported model
- Focuses on anxiety and depression
- Middle to late adolescents
- More commonly own patients (vs referred in)
- Has included pregnant/parenting adolescents

Collaborative care model functions in two main ways:

- The patient's primary care provider works with a care manager to develop and implement a treatment plan (medications and/or brief, evidence-based psychotherapy)
- Care manager and primary care provider consult with psychiatrist to change treatment plans if patients do not improve

Collaborative Care Flowchart



Care Manager

- Educates the patient about depression
- Supports antidepressant therapy prescribed by the patient's primary care provider if appropriate
- Coaches patients in behavioral activation and pleasant events scheduling
- Offer a brief (six-eight session) course of counseling, such as Problem-Solving Treatment in Primary Care
- Monitors depression symptoms for treatment response
- Completes a relapse prevention plan with each patient who has improved

Designated Psychiatrist

- Consults to the care manager and primary care physician on the care of patients who do not respond to treatments as expected.
 - in person
 - telephone
- Caseload supervision / support
 - scheduled
 - emergency back-up
- Provider education / support

Consult with psychiatrist when patient ...

- Fails to respond to treatment
- Has complicating mental health diagnosis, such as personality disorder or substance abuse
- Is bipolar or psychotic
- Has current substance dependence

Psychiatric recommendations

- Revisit diagnosis and case formulation
- Change medication dose
- Augment or switch medication
- Add or switch to psychotherapy
- Referral for other specialty mental health or social services

Stepped care

- Treatment adjusted based on clinical outcomes and according to an evidence-based algorithm
- Aim for a 50 percent reduction in symptoms within 10-12 weeks
- If patient is not significantly improved at 10-12 weeks after the start of a treatment plan, change the plan. The change can be an increase in medication dosage, a change to a different medication, addition of psychotherapy, a combination of medication and psychotherapy, or other treatments suggested by the team psychiatrist.

How can a registry help?

- Keeps track of all clients
 - Up to date contact information facilitates engagement and follow-up
- Tells you who needs additional attention
 - Who is improving or not improving
 - Reminders for clinicians & managers
 - Customized caseload reports
- Facilitates mental health specialty consultation
- Facilitates communication between treating providers

Some Lessons

- 1) All 'core components' are needed.
PCP, Care Manager, Consultants (Psychiatry)
- 2) Co-location is NOT sufficient
- 3) Initial treatments are rarely sufficient
- 4) Working with EMR & funders

More information at:

www.austinpcc.org

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Research on Pediatric Integrated Behavioral Health

Dr. Toni Watt
Associate Professor
Texas State University

Pediatric IBH: Existing Literature

- Need for children's mental health services and potential of primary care
- Practices
 - Best Practices: CBT, behavioral therapy, medication
 - Promising approaches: ADHD: Nature, Nutrition, Placebo
- Feasibility studies of ADHD screening in primary care (Vanderbilt)
 - Feasible, but 40% of parent and teacher surveys are discrepant on ADHD
- No studies describe pediatric IBH populations
- Studies reveal challenge of retention (attrition 28-60)
- Small number of studies report improvements for ADHD and depression

Current Research on Pediatric IBH

- Evaluation of two pediatric IBH programs
 - Lone Star Circle of Care and People's Community Clinic
 - Completed September 1st
 - Process and Outcome Evaluation
 - Comparison of program models to best practices
 - Number of patients served, patient profile, and clinic/phone contacts
 - Retention
 - Preliminary outcome data on patients with ADHD/ADD, depression, and anxiety

PCC Pediatric IBH Evaluation Issues

- Instruments
 - Achenbach assessments in place
 - Comprehensive but lengthy (140 items)
- Need for both assessment and follow-up
 - PHQ-9 for depression and GAD for anxiety (older adolescents)
 - Vanderbilt (55 items baseline, 26 items follow-up)
 - Diagnostic for ADD/ADHD. Screens for conduct disorder, depression, and anxiety
 - Follow-up of ADD/ADHD symptoms and performance (school and home)
- Need for system to house data and report metrics
- How to interpret outcomes if obtained?

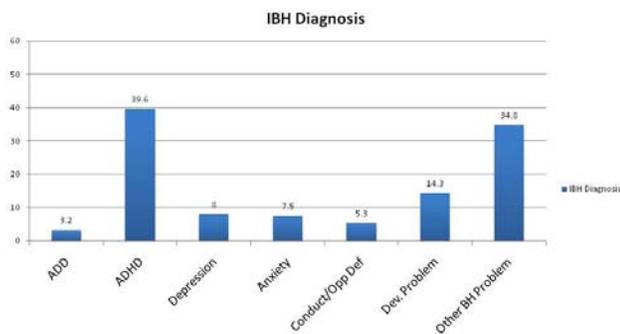
PCC Evaluation Results: GOALS Program

- Description of Patients Served
- Assessment Process
- Preliminary Outcome Data
- Interpreting Outcomes

PCC GOALS Program: Patient Profile

- Adolescent IBH
 - 41 patients past year
 - Average age 17.75, range 14-19
 - 17% male, 83% female
 - All English speaking
 - Predominately Depression and/or Anxiety
- GOALS Program
 - 187 Patients past year
 - Average age =10.5, range 4-19
 - 56% male, 44% female
 - 44% Spanish speaking

PCC Patient Profile: GOALS



PCC GOALS Patients: Achenbach Assessment

	Provider	Parent	Sig.	Provider	Teacher	Sig.	Parent	Teacher	Sig.
ADD/ADHD	.61	.26	***	.76	.25	***	.28	.33	ns
Depression	.18	.18	ns	.13	.16	ns	.23	.12	d
Anxiety	.20	.18	ns	.11	.13	ns	.12	.04	d
Cond. Dis	.06	.35	***	.11	.32	***	.35	.32	ns

ns=not significant, d, p<=.10; *, p<.05; **, p<=.01; ***, p<=.001

PCC GOALS Patients: Vanderbilt Assessment

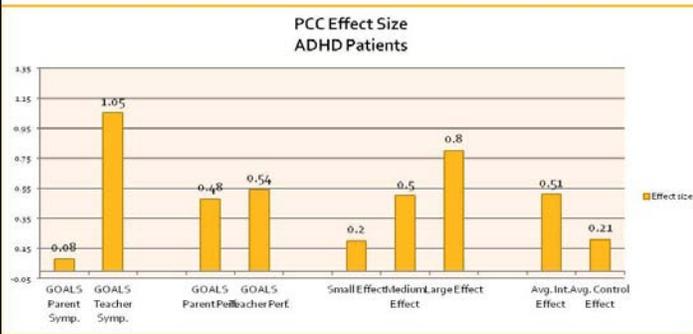
	Provider	Parent	Sig.	Provider	Teacher	Sig.	Parent	Teacher	Sig.
ADD/ADHD	.74	.44	*	.74	.74	ns	.46	.71	d

ns=not significant, d, $p < .10$; *, $p < .05$; **, $p < .01$; ***, $p < .001$

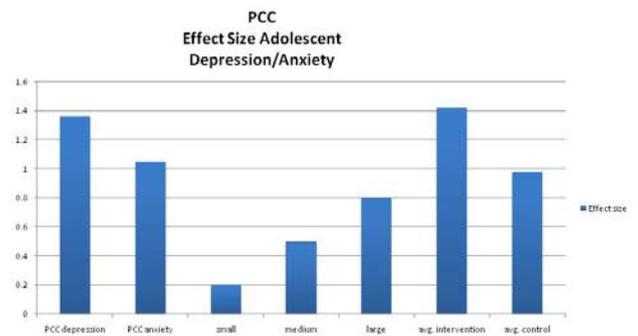
Interpreting Outcomes

- Statistical significance can be misleading
 - Small sample sizes require large changes for significance
 - Large sample sizes suggest everything is significant
- Effect size should also be used
 - Standardized measure of change (simple formula)
 - Interpretation on absolute basis: small, medium, and large effects
 - Compare programs with different populations and metrics

PCC GOALS Outcomes: Using Effect Size



PCC Adolescent IBH: Outcomes



Pediatric IBH Research: Lessons Learned

- Importance of a tracking system
 - ADD/ADHD, Depression, Anxiety
 - How to track progress of other diagnoses (e.g. developmental delay, referral/testing)?
 - Assessment is complex
 - Baseline and follow-up data needed
- Need for training on instrument administration and scoring.
 - Vanderbilt scoring can be confusing
- IBH appears to benefit patients more than usual care
 - Whether benefits are seen at school, at home, or both, is unclear.
- Effect sizes useful for interpretation of outcomes

Select Sources: Pediatric IBH Research

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CASE CONCLUSIONS

- K.G – ultimately diagnosed with Moderate Receptive & Expressive Language Delay, Non-verbal IQ of 75, ADHD, and Developmental Coordination Disorder. Making wonderful gains in speech and occupational therapy and on medication.
- A.J. – over the years, eventually agreed to rating scales, evaluation and therapy with social worker, consultations with psychology and psychiatry, and medication. Attending community college and has a few friends.

PARENT SURVEYS

RESIDENT SURVEY

CONCURRENT SESSION WRAP-UP

- Discuss the roles of developmental/behavioral/mental health specialists in IBH as participants, evaluators, and teachers

Plenary Session Abstracts

Plenary Session I (Abstracts 1-5)

Sunday, September 18, 2011 from 9:15 am - 10:30 am

Abstract 1A

Developmental Outcome of Children Whose Mothers Reported Loss of Fetal Activity During Pregnancy

Andrew Adesman, MD, Pediatrics, Cohen Children's Medical Center of NY, Lake Success, NY, Sarah A. Keim, PhD, Pediatrics, The Research Institute at Nationwide Children's Hosp, Columbus, OH

Purpose: Loss of fetal activity during pregnancy is a potential red flag of obstetric complications and/or fetal compromise. Few analyses have examined the developmental consequences associated with this concern. Using data from the U.S. Collaborative Perinatal Project (CPP), a large, prospective cohort study of pregnancy and child health, our objective was to examine the long-term developmental outcome of children whose mothers reported loss of fetal activity. **Methods:** A multivariate statistical analysis was performed on 59,407 pregnancies from the CPP; we limited analyses to 29,979 pregnancies. Exclusions included: implausible gestational age estimate (>44 wks), multiple gestations, and women for whom fetal activity data was not collected or missing. Separate analyses were done for mothers who reported loss of fetal activity >1 time in the 2nd trimester (T2; N=432) and >1 time in the 3rd trimester (T3; N=1074) when queried at each prenatal visit. The primary outcome variables were APGAR scores, IQ scores at ages 4 (Stanford-Binet) and 7 (WISC), and psychologist ratings of inattention (IA), impulsivity (IMP) and hyperactivity (HA) during testing. Multivariate linear and logistic regression was performed; models were adjusted for gestational age, smoking, sex, SES, race, parity, and maternal age. **Results:** For each additional instance of loss of fetal activity in T2, APGAR scores decreased by 0.12 points (beta = -.12; p=.03), but there was no difference in IQ or ADHD symptoms at age 4 or 7. For reported loss of fetal activity in T3, there was no difference in APGAR. IQ score at age 4 was lower (Beta = -1.0; p<.05) but no IQ difference was noted at age 7. No difference in ADHD symptoms during testing were noted at age 4 or 7 years in relation to fetal activity in T3. **Conclusion:** Loss of fetal activity is frequently of concern to pregnant women and their physicians. Although a modestly lower APGAR score at birth and lower IQ at age 4 was associated with 2nd trimester loss of fetal activity by maternal report, no differences were noted at age 7. Likewise, there was no difference in psychologist ratings of IMP, HA, or IA at ages 4 or 7 years.

Abstract 1B

Neuromotor Outcome of Young Children Whose Mothers Reported Loss of Fetal Activity

Andrew Adesman, MD, Pediatrics, Cohen Children's Medical Center of NY, Lake Success, NY, Sarah A. Keim, PhD, Pediatrics, The Research Institute at Nationwide Children's Hosp, Columbus, OH

Purpose: Loss of fetal activity (LFA) during pregnancy is a potential red flag of obstetric complications and/or fetal compromise. Few analyses have examined the neuromotor consequences of maternal reports of LFA during pregnancy. Using data from the U.S. Collaborative Perinatal Project (CPP), a large, prospective cohort study of pregnancy and child health, our objective was to examine the early neuromotor outcome of children whose mothers reported LFA. **Methods:** A multivariate statistical analysis was performed on 59,407 pregnancies from the CPP; we limited analyses to 29,979 pregnancies. Exclusions included: implausible gestational age estimate (>44 wks), multiple gestations, and women for whom fetal activity data was not collected or missing. Separate analyses were done for mothers who reported LFA >1 time in the 2nd trimester (MRLFA2, N=432) and >1 time in the 3rd trimester (MRLFA3, N=1074) when queried at each prenatal visit. The primary outcome variables were motor milestones at 4 months and 1 year, hypotonia at age 1 year and 4 years, and fine motor (FM) or gross motor (GM) delay at age 4 years. Multivariate linear and logistic regression was performed; models were adjusted for gestational age, smoking, sex, SES, race, parity, and maternal age. **Results:** At 4 months, infants with MRLFA2 were more likely to be unable to sit with support at 4 months with head erect and steady (adjusted Odds Ratio (aOR) 2.0, 95% CI [1.4, 2.8]). At 1 year, infants were more likely to be unable to walk, stand, pull-up, and creep if MRLFA2 (aOR 2.4, [1.1, 5.1]) or if MRLFA 3 (aOR 1.8, [1.0, 3.3]). There was no increase in hypotonia at 1 or 4 years among children whose mothers reported loss of fetal activity, and results were imprecise (e.g., any hypotonia at age 1: aOR 2.0, [0.7, 5.6]). FM delay was more common in MRLFA3 (aOR 1.8, [1.0, 3.1]) but not MRLFA2 (aOR 0.8, [0.3, 2.6]); GM delay was not associated with FLA in the 2nd or 3rd trimester. **Conclusion:** Maternal report of loss of fetal activity in the 2nd trimester is associated with motor milestone delay at 4 and 12 months. LFA in the 3rd trimester was not associated with early delays, but mild FM delays at age 4 years.

Abstract 2

Association between Screen Time Use and Developmental Outcomes in Hispanic Children Under Age 3 Years

Helena Duch, PsyD, Marta Font, MS, Mailman School of Public Health, Caroline Taromino, BA, Ipek Ensari, BS, Teacher's College, Alison Harrington, BFA, Mailman School of Public Health, Columbia University, New York, NY, John Shuler, Psychology, Georgetown University, Washington, DC

Purpose: 1) To test the feasibility of measuring screen time use in Hispanic young children and explore its association with children's developmental outcomes and; 2) To identify factors that contribute to screen time use and physical activity in this population. Meth-

Plenary Session Abstracts

ods: We conducted a mixed-methods, cross-sectional study by collecting data on the screen use of 155 Hispanic infants and toddlers attending an urban Early Head Start (EHS) program. We administered a detailed questionnaire on screen time use and daily activities to EHS parents, including a 24 hour recall of television use. We obtained results from developmental screenings (Ages and Stages Questionnaire III) administered by EHS personnel. A subgroup of children (n=60) whose parents reported high and low screen time use received a more in depth developmental assessment using the Bayley Scales of Infant and Toddler Development III. Bivariate analyses were used to identify associations between screen time use and developmental outcomes. Analysis of variance tests were used to assess differences in screen time use by categorical variables. Multivariable linear regressions were conducted to explore the relationship between screen time use and developmental outcomes. To address the second aim, we conducted 3 focus groups (n=30 families). Focus groups explored families' use of media in the home, opportunities for physical activity, sedentary habits and the role of cultural factors in decision making around these issues. Focus group data was transcribed and analyzed using open and selective coding. Results: Results indicate that toddlers in the high screen time use group were reported to have lower scores in the language domain as measured by the ASQ III when compared to toddlers in the low screen time use group. No significant differences were observed in other developmental domains. Results from the Bayley III are being analyzed at this time. Focus groups identified important contributors to screen time use and physical activity in children such as seasonality, access to playgrounds, social isolation and cultural factors. Conclusion: Screen time use is associated with negative developmental outcomes at a very early age. Pediatricians need to provide guidance to specific groups about how to promote physical activity and reduce screen time in very young children. Recommendations will be provided as well as further areas for research.

Abstract 3

Grade at Entry to Special Education and Academic Achievement in Children with Reading Disorders

Jennifer Ehrhardt, MD, Noelle Huntington, PhD, Janine Molino, MS, William Barbaresi, MD, Division of Developmental Medicine, Children's Hospital Boston, Boston, MA

Purpose: Additional research is needed to understand how the timing of educational interventions for children with Reading Disorders (RD) impacts their academic achievement. The objectives of our study were to determine if grade at entry to special education influences academic achievement in children with RD and if the effect of grade at entry to special education differs by socioeconomic status (SES). Methods: We conducted a secondary data analysis using data from the Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K), a nationally representative cohort of children identified in kindergarten and followed longitudinally through 8th grade (1998-2007). Using data from the 5th grade wave of the study, we identified children with RD (n=260). Our outcome was a child's change in score between 1st and 5th grade on the reading achievement test, which was developed by ECLS-K staff. Using multiple linear regression, we modeled our outcome as a function of a child's grade at entry to special education. We controlled for several covariates, including score on the reading achievement test in 1st grade, average hours/week of special education services, gender, maternal education, household income, and co-morbid mental health disorder. Results: We found that early entry to special education (1st grade or earlier v. 2nd grade or later) is associated with larger gains in reading achievement scores between 1st and 5th grade. Children who enter special education during or before 1st grade gain 3.8 more points on the reading achievement test than those who enter during or after 2nd grade ($p < 0.0001$). We also found that the magnitude of gains is greater for children of low SES, where early entry to special education is associated with a gain of 4.8 points on the reading achievement test ($p < 0.0001$). In contrast, in children of high SES, early entry to special education is associated with a gain of 3 points ($p = 0.005$). Conclusion: For children with RD, the provision of needed educational interventions early in elementary school can have long-term benefits, especially for those children from more vulnerable populations.

Abstract 4

Getting Ready for School: A Preliminary Evaluation of a Parent-Focused School Readiness Program

Helena Duch, PsyD, Mailman School of Public Health, Kimberly G. Noble, MD, PhD, GH Sergievsky Center and Dept of Pediatrics, Columbia University, New York, NY

Purpose: The primary objective of this study was to assess the promise of the Getting Ready for School (GRS) program, a parent-focused intervention that was administered to Latino families participating in an urban Head Start program. A secondary objective was to collect qualitative data from parents participating in the intervention to assess their response to the materials and their perceived impact of the intervention. Methods: A small, experimental pilot study was conducted with a group of Latino children participating in Head Start. We hypothesized that parent participation in the GRS curriculum would improve children's literacy and math skills, relative to participation in Head Start-as-usual. Randomization occurred at the classroom level. Data were available on 39 children (20 intervention & 19 control children). Participants predominantly identified as Hispanic, spoke Spanish at home, and had a high school education or less. Families in the GRS intervention group participated in a weekly 2-hour workshop for 15 weeks focusing on promoting children's school readiness skills in reading and math. Children in both groups participated in a brief pre- post-intervention assessment of their early literacy and math skills using the Woodcock-Johnson Test of Academic Achievement (WJIII) / Bateria Woodcock-Munoz. A multivariate repeated measures MANOVA was performed, with time as the within-group variable (2 levels: pre and post), and intervention as the between-group variable (2 levels: intervention and control). A focus group was conducted post-intervention with participating families. Focus group data were transcribed and later analyzed using open and selective coding. Results: Overall children's performance improved from pre-test to post-test. As predicted, a significant time x GRS interaction was

Plenary Session Abstracts

found ($F(6, 32) = 2.492$; $p < 0.05$), confirming that Head Start children whose parents received GRS showed more growth in skills relative to children enrolled in Head Start-as-usual. Six main themes emerged from focus groups. Conclusion: This study demonstrates that a targeted parent-focused program may be effective in supporting the development of school readiness skills of disadvantaged preschool children. The pediatric practice plays an important role in disseminating school readiness messages to parents. We discuss how a curriculum like GRS may be adapted for use in the primary care setting.

Abstract 5

Symptoms of Attention Deficit/Hyperactivity Disorder (ADHD) Differentially Predict Social Functioning in High School Students

Julia S. Anixt, MD, Richard Gilman, PhD, Developmental & Behavioral Pediatrics, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

Purpose: To describe patterns of social acceptance and ostracism associated with the core ADHD symptom domains of attention problems and hyperactivity. **Methods:** Peer- and self-reported behavioral and social functioning variables were obtained through a 2011 computer-administered survey of 546 students in one public high school. Self-reported attention problems and hyperactivity were measured using the Behavior Assessment System for Children (BASC). Two forms of ostracism (active social exclusion and passive ignored) were measured using the Ostracism Experiences Scale (OES). Peer-reported social networks and perceived acceptance/exclusion of their classmates were also obtained. The consent rate was 96%. **Results:** Separate hierarchical regressions revealed that hyperactivity and attention problems differentially predicted each ostracism dimension, after controlling for gender as a potential confounder. Hyperactivity was a significant and positive predictor of passive ignoring ($\beta = 0.21$) and a negative predictor of active exclusion ($\beta = -0.28$). Attention problems were a significant predictor only of passive ignoring ($\beta = 0.18$). All p -values were < 0.001 . Paralleling self-reported social outcomes, each core ADHD symptom domain differentially predicted an adolescent's location in the social network, as well as peer-perceived acceptance/exclusion. **Conclusion:** This study examined the patterns of social difficulties experienced by adolescents with ADHD symptoms. Increasing levels of both hyperactive and inattentive symptoms predicted passive ignoring by peers. However, increasing levels of hyperactivity were associated with decreased risk of active social exclusion. These findings were consistent with respect to self- and peer-ratings, indicating strong method convergence. These findings, interpreted from a social network perspective, underscore the importance of developing targeted interventions to improve the social experiences of youth with varying ADHD symptom profiles.

Plenary Session II (Abstracts 6-10)

Monday, September 19, 2011 from 9:00 am - 10:15 am

Abstract 6

Gender Differences in Clinical Presentation of Autism Spectrum Disorders

Yamini J. Howe, MD, Developmental Behavioral Pediatrics, Hasbro Children's Hospital, Brown Medical School, Providence, RI, Yvette E. Yatchmink, MD, PhD, Developmental Behavioral Pediatrics, Hasbro Children's Hospital, Brown Medical School, Providence, RI, Eric M. Morrow, MD, PhD, Dept of Molecular Biology, Cell Biology and Biochem, Brown University, Providence, RI

Purpose: The aim of this study was to examine differences in clinical presentation of Autism Spectrum Disorders (ASDs) between males and females across a range of developmental functioning using standardized measures of symptom severity. **Methods:** Data were obtained from the Autism Genetics Resource Exchange, a national dataset of primarily multiplex families with children with ASDs. There were 1702 subjects (1379 males and 323 females) over the age of 5 that met Autism Diagnostic Interview criteria for Autism and Autism Diagnostic Observation Schedule (ADOS) criteria for Autism or Spectrum. Subjects were separated into 4 groups based on developmental ability, similar to the methods proposed by Gotham et al in their 2007 revised ADOS algorithm, based on verbal ability and age: 1) those administered ADOS Module 1 who were nonverbal, 2) those administered ADOS Module 1 who had some words, 3) those administered Module 2 (for those with phrase speech), and 4) those administered Modules 3 or 4 (for those who are fluent). Within each group, scores on the Stanford-Binet Intelligence Scales, Vineland Adaptive Behavioral Scales (VABS), and parent-rated Social Responsiveness Scales (SRS), were compared between the genders. **Results:** There were no significant age or IQ differences between genders, within each group. Parent-rated SRS scores were higher (more severe symptoms) for females versus males in all groups. Among those administered Modules 3 or 4, differences in SRS "Autistic Mannerisms" scores achieved the highest level of significance ($p < 0.0001$) with females being rated as having more "Autistic Mannerisms" than males. VABS scores were similar between males and females who had been administered ADOS 1 or 2, but were higher (better adaptive functioning) for females who had been administered ADOS Modules 3 or 4 than males ($p < 0.01$). **Conclusion:** Across levels of functioning, autistic females were perceived as having more social impairments than autistic males. However, lower functioning autistic females have equally impaired adaptive abilities as boys. Higher functioning autistic females have in particular more autistic mannerisms, but better adaptive functioning overall than males. These results suggest that an autism diagnosis may be missed in higher functioning girls, unless autistic mannerisms are prominent.

Plenary Session Abstracts

Abstract 7

Birds of a feather do not flock together: Subtypes of Intellectual Functioning in Children with Mild Intellectual Disabilities

Nikhil S. Koushik, PhD, Pediatric Psychology, MetroHealth Medical Center, Cleveland, OH, Andrew Taylor, PhD, Psychology, Windsor Essex Community Health Centre, Windsor, ON, Canada, Cory Saunders, PhD, John Strang, PhD, Joseph Casey, PhD, Psychology, Ozad Institute, Windsor, ON, Canada

Purpose: Subtypes of intellectual functioning have been established in children with learning disabilities (Saunders et al., 2006) but little research has examined subtypes of functioning in children with intellectual disabilities (ID). We explored the presence of cognitive subtypes in children with mild IDs and externally validated the subtypes on measures of academic achievement and adaptive functioning. Methods: 167 patients with mild IDs (102 boys, 65 girls), ages 6-16 years (M= 10.6 years, SD= 2.2 years) were assessed at a developmental centre in Southwestern Ontario. Participants reflected the diverse ethnic composition of the area and completed standardized tests of intellectual functioning (Wechsler Intelligence Scale for Children, 3rd Edition [WISC-III]), academic achievement (Wechsler Individual Achievement Test), and adaptive functioning (Vineland Adaptive Behavior Scales). Mean full-scale intelligence (FSIQ) on the WISC-III was 63.32 (SD= 9.0; range= 60.5-73.4). Most children had non-specific etiologies of IDs but 27% had identifiable conditions (e.g. neurological or genetic conditions) Results: Two-stage cluster analysis using the four WISC-III index scores generated four strength-based subtypes: language-strength (highest score on the verbal comprehension index); non-verbal strength (highest score on the perceptual-organization index); symbol-processing strength (highest scores on processing speed and freedom from distractibility indices); and global deficits (relatively low scores across all indices). After controlling for FSIQ, significant differences were found on tests of academic achievement ($F= 2.5, p<.01$) and adaptive functioning ($F= 2.9, p<.05$). Conclusion: Pediatricians involved in the care of children with mild IDs need to advocate for appropriately modified interventions that target the unique patterns of cognitive, academic, and adaptive functioning found in this population.

Abstract 8

Ostracism Predicts Increased Risk of Internalizing Conditions in Youth with Special Health Care Needs

Margaret McKenna, MD, Pediatrics, Medical University of South Carolina, Charleston, SC, Conway Saylor, PhD, Kaitlin Twomey, BS, Kristina Kenny, BA, Psychology, The Citadel, Charleston, SC, Eve Spratt, MD, Psychiatry, Michelle Macias, MD, Pediatrics, Medical University of South Carolina, Charleston, SC

Purpose: This study investigated bullying, ostracism, and illness status as predictors of depression and other internalizing problems in children and youth with special health care needs (CYSHCN). Methods: Participants aged 8-17 (33 males, 31 females) were recruited from developmental pediatrics, pulmonary, hematology, cardiology, and endocrinology subspecialty clinics. IQ >70 was required for participation. Children with diagnosed developmental disabilities and/or chronic medical conditions were assessed for the occurrence of bullying and/or ostracism using Saylor's Bullying and Ostracism Screening Scale (BOSS). The BOSS quantifies bullying by asking about physical, verbal-social, and cyber-bullying experiences. A separate BOSS section asks about and quantifies ostracism experiences. Hierarchical multiple regression analyses examined the relative weight of ostracism experiences, bullying experiences, presence/absence of chronic health conditions, presence/absence of ADHD, gender, and age on child reported depression (Kovac's Child Depression Inventory Short Form, CDI-SF) and parent reported internalizing problems (Achenbach's Child Behavior Checklist, CBCL). Results: Ostracism experience was the sole significant predictor of CDI-SF T-score, accounting for 37% of the variance ($F=37.12, B=36.31, SE=2.2, P<.001$). Ostracism and chronic illness status combined in the most robust predictive model for CBCL Internalizing score, accounting for 28% of the variance ($F=11.85, B=49.63, SE=4.35, P<.001$). Conclusion: CYSHCN who report experiencing ostracism by their peers may be at elevated risk of depression and other internalizing emotional-behavioral problems. Impact of ostracism appears to be greater than that of bullying or chronic health condition alone. Screening for ostracism and bullying is recommended in the ongoing care of CYSHCN.

Abstract 9

Developmental-Behavioral Pediatric Teaching of Medical Students: A National Survey of Clerkship Directors

Neelkamal S. Soares, MD, Shibani Kanungo, MD, MPH, Pediatrics, University of Kentucky, Lexington, KY, Daisha Seyfer, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH

Purpose: The Council on Medical Student Education in Pediatrics (COMSEP) developed a national curriculum for medical student education in the Pediatrics clerkship and entire medical school experience. While there is no mandatory component of developmental-behavioral pediatric (DBP) teaching in the clerkship, many programs provide opportunities for students to participate in clinic-based and sometimes community-based activities. COMSEP curriculum has outlined knowledge based competencies for DBP, and suggested processes to accomplish these goals. To our knowledge, there has been no study of the extent of, or the nature of these activities, nor how clerkship directors are implementing the suggested curriculum. Methods: With IRB approval from University of Kentucky Office of Research Integrity, a survey was administered to the membership of COMSEP. The survey was embedded into a larger annual survey that COMSEP sends to its membership listserv, with additional IRB approval from University of Washington. Statistical

Plenary Session Abstracts

analysis was done with SPSS-19. Results: Of the 147 medical schools, survey completion rate was 71% with respondents 58% female, 97% Board-certified in Pediatrics, and 92% follow the national COMSEP curriculum. Only 9% also direct the DBP rotation for Pediatric residents, and 47% have a sub-intern elective in DBP. 59% have some form of preclinical student teaching in DBP, mostly didactic lectures (89%). Exposure to DBP in the clerkship is in clinical settings (91%) and didactics (74%). Most teaching is done by General Pediatricians (87%), with 50% by DBP/Neurodevelopmental physicians. DBP competencies are mostly assessed by case logs and faculty feedback (45% each). Barriers towards implementing the curriculum were time constraints, lack of DBP faculty, and training in DBP topics. Electronic learning tools, increasing DBP training of General Pediatricians and increasing clerkship length were suggested as ways to overcome barriers. Conclusion: While most Pediatric clerkships follow the national COMSEP curriculum, directors report barriers to implementation, mostly related to personnel and content limitations for DBP competencies. DBP physicians should take a greater role in undergraduate medical education (UME) by developing electronic resources and providing community opportunities for students. Information in this study will be used to design DBP curricular elements for UME.

Abstract 10

Dysphagia in Young Infants with Down Syndrome

Maria A. Stanley, MD, Pediatrics, Indiana University School of Medicine, Indianapolis, IN, Randall J. Roper, PhD, Department of Biology, Nicole E. Shepherd, Undergraduate Student, Department of Biology, Indiana University-Purdue University Indianapolis, Indianapolis, IN, Charlene M. Davis, MSN, Pediatrics, Riley Hospital for Children, Indianapolis, IN, Marilyn J. Bull, MD, Pediatrics, Indiana University School of Medicine, Indianapolis, IN

Purpose: Dysphagia has been described in children with a variety of neurodevelopmental disabilities, including Down syndrome (DS). Dysphagia can be associated with serious sequelae such as failure to thrive and respiratory complications, including aspiration pneumonia. Incidence of dysphagia in young infants with DS has not previously been reported. **Methods:** To assess incidence of dysphagia in young infants with DS, we conducted a retrospective chart review of 174 infants, ages 0 to 6 months (corrected for prematurity, if indicated), referred to the Down Syndrome Program at a large academic-affiliated children's hospital from August 2005 to June 2010. **Results:** 100/174 (57%) of these infants had clinical concerns that warranted referral for Videofluoroscopic Swallow Study (VFSS). 96/174 (55%) had some degree of oropharyngeal dysfunction. 69/174 (39%) had dysphagia severe enough to warrant recommendation for alteration of breast milk/formula consistency or for non-oral feeds. Infants with certain comorbidities were at increased risk for significant dysphagia, including those with prematurity (OR=1.7) and functional airway/respiratory abnormalities (OR=7.2). Infants with desaturation with feeds were at dramatically increased risk (OR=15.8). **Conclusion:** Infants with DS are at high risk for dysphagia. All young infants with DS should be screened clinically for swallowing concerns. If concerns are identified, consideration should be given to further evaluation with VFSS.

Poster Board Assignments by Abstract No.

Abstract/ Board #	Abstract Title	First Author
20	Melatonin use in Individuals with Williams Syndrome: A Survey of Families	Daisha Seyfer, MD
21	Medication Use for ADHD in Individuals with Williams Syndrome: A Survey of Families	Daisha Seyfer, MD
22	Burden of Comorbid Psychiatric Disorders among ADHD Cases and Controls in a Population-Based Birth Cohort	Kouichi Yoshimasu, MD, PhD
23	Communication of Sexual Topics among Puerto Rican HIV Positive and Negative Mothers with Adolescent Daughters	Nanet Lopez-Cordova, PsyD
24	Using Children's Books to Promote Positive Parenting in Primary Care	Nerissa Bauer, MD, MPH
25	Comparing Alternative Modalities for Pre-Visit Screening for Different Demographic Groups	Raymond Sturner, MD
26	Identifying Children with ADHD Does Not Result in a Service Burden for Schools	Raymond Sturner, MD
27	Group Social Skills Training for Children with Asperger's Syndrome: Intervention Effectiveness and Health-Related Quality of Life Correlates	Diane Arms, MS
28	Effective Disclosure of ASD	Zachary Warren, PhD
29	Autism Diagnosis in Pediatric Practice: Advanced Training and Practice Change	Zachary Warren, PhD
30	Medical Students' Perceptions of Working with Children at the Start of the Pediatric Clerkship	Neelkamal Soares, MD
31	Using Telehealth to deliver Parent Training to Underserved Families with Children who have ADHD	Neelkamal Soares, MD
32	A Double Blind, Placebo Controlled Trial of Minocycline in Children with Fragile X Syndrome	Mary Jacena Leigh, MD
33	Inspired from "Reach Out and Read": Experience from an Overseas Developmental-Behavioral Pediatrics Unit	Emine Bahar Bingoler Pekcici
34	Relationship between Sleep and Autism on the Achenbach Child Behavior Checklist (CBCL) in Young Children	Gray Buchanan, PhD
35	Psychiatric Comorbidities among Adults with Childhood Identified ADHD: A Prospective, Population-Based Study	Slavica Katusic, MD
36	Impact of Sleep Duration on Adolescent Behavior- Does Chronicity Matter?	Pamela Williams-Arya, MD
37	Developing a Code Set Based on the International Classification of Functioning for Children Who Rely on Augmentative and Assistive Communication	Charity Rowland, PhD
38	Examining the Prevalence of Autism in Methylenetetrahydrofolate Reductase (MTHFR) Polymorphisms: Supporting the Folate Hypothesis?	Daniel Schulteis, MD
39	What Can I do to Ensure that Residents Give Out Books for Reach Out and Read?	Bill Bryson-Brockmann, PhD
40	Developmental Assessments for Children in Foster Care in a Rural Ohio Community	Sherrri Thomas, MD
41	Attention Deficit Hyperactivity Disorder symptoms in Autism Spectrum Disorder	P. Vora, MD
42	The Prevalence of At-Risk Development in Children 30-60 Months Old Who Present with Disruptive Behaviors	Megan McHenry, MD
43	Social Emotional Learning in Grades 3 to 6 and the Early Onset of Sexual Behavior	David Schonfeld, MD
44	Medical Comorbidities in Children with Epilepsy and Autism Spectrum Disorders	Daniel Coury, MD

Poster Board Assignments by Abstract No.

Abstract/ Board #	Abstract Title	First Author
45	Correlates of Repetitive Movements In Autism Spectrum Disorders	Daniel Coury, MD
46	The Role of Stigma in Parental Help-Seeking for Child Behavior Problems	Robert Dempster, MA
47	Improving Children's Self-Regulation and Executive Function: Does Martial Arts Training Help?	Kimberley Lakes, PhD
48	Feasibility and Effectiveness of Mid-Level Developmental Assessment	Kyle Pruett, MD
49	Room to Grow: Medical Students' Baseline Knowledge of Child Development	Peter MacPherson, BSc
50	The Great Canadian Developmental Mnemonic Contest: A Somewhat Unorthodox Faculty-Student Collaboration	Debra Andrews, MD
51	Adherence and Psychological Evaluation Recommendations for Young Children with ASD	Elizabeth Dohrmann, BA
52	Screening of Developmental Disorders in Primary Care: Results of an Argentinean Experience	Viviana Ensenat, MD
53	An Extended-Release Formulation of Clonidine Hydrochloride Tablets for the Treatment of ADHD in Children and Adolescents with Inadequate Response to Stimulants	John Giblin, MD, FAAP, CPI
54	Chronic Administration of Clonidine Hydrochloride Extended-Release Tablet Monotherapy or Combination Therapy in Pediatric Patients with Attention-Deficit/Hyperactivity Disorder	Matthew Brams, MD
55	The Health Belief Model and Adherence in Children with Cystic Fibrosis	Nicole Wightman, MA
56	Relating Adherence and Perceptions of Psychosocial Variables among Children with Cystic Fibrosis	Nicole Wightman, MA
57	Comparative Cost Analysis of Telemedicine versus Traditional In-Person Developmental-Behavioral Pediatric Encounters	Neelkamal Soares, MD
58	Geomapping in Utilization and Cost-Benefit of Telemedicine Developmental-Behavioral Pediatric Services in Kentucky	Neelkamal Soares, MD
59	Cognitive and Behavioral Outcomes of Late Preterm Infants: The Bigger the Better?	Prachi Shah, MD
60	Self-Reported Bullying and Ostracism in Youth with Chronic Medical Conditions and/or Attention Deficit Hyperactivity Disorder	Margaret McKenna, MD
61	Identification of Siblings at Risk of Autism in Multiplex Families: A Gender-Specific Genetic Based Approach	Francois Liebaert, MD
62	Pediatricians' Knowledge, Skills, and Attitudes about Special Education Referrals and Monitoring IEP's	Reshma Shah, MD
63	Management of Rett Syndrome: A Systematic Review	Eileen Dolan, MD
64	The Social Awareness Knowledge (SAK) Test: An Interactive Test to Detect Autism Spectrum Disorders (ASD) in Toddlers	Roula Choueiri, MD
65	The Effects of a Home Visiting Program on Well Child Appointment Keeping	Jerilynn Radcliffe, PhD
66	Assessing Factors in the Neurodevelopmental Outcomes in Infants with Twin-Twin Transfusion Syndrome (TTTS)	Douglas Vanderbilt, MD
67	What is the Role of Peer Support in the Relation Between Gender and Anxiety in Clinically Anxious Youth?	Emma Ross, BS
68	Impact of Media Exposure, Media Content and Harsh Discipline on Preschool Behavior	Susanne Martin-Herz, MD, MS
69	Quality of Life and Its Predictors in Adolescents after General Traumatic Injury	Susanne Martin-Herz, MD, MS

Poster Board Assignments by Abstract No.

Abstract/ Board #	Abstract Title	First Author
70	Development and Initial Validation of a New Instrument for Developmental Surveillance	Shela Merchant, MA
71	Effectiveness of Responsive Teaching with Young Children with PDD: Impact of Parental Psychological Status and Responsiveness	Shanna Kralovic, DO
72	Results of an Open-Label Trial of STX209 (arbaclofen) in Autism Spectrum Disorders: Social and Communicative Function	Craig Erickson, MD
73	First Step to Success in Hawai`i Preschools	Jean Johnson, DrPH
74	Associations between Acculturation and Attachment Security in a Low SES, Latino Sample	Samantha Berkule, PhD
75	Diet, Activity, and Bone Density in 10 to 18 year olds with Autistic Spectrum Disorders	Sarah Soden, MD
76	Factors Associated with Psychotropic Medication Use In Autism Spectrum Disorders (ASD)	Daniel Coury, MD
77	Periodic Limb Movements of Sleep, Serum Ferritin Levels, and Sleep Fragmentation on Polysomnogram in Autism Spectrum Disorders	Julie Youssef, DO
78	Does Umbilical Cord Length -- An Indirect, Objective Measure of Fetal Activity -- Predict Hyperactivity in Grade School Children?	Andrew Adesman, MD
79	Improving Response Rate for Mailed Pediatric Questionnaires: Effect of Cover Letter Tone and Literacy Level	Andrew Adesman, MD
80	Early Detection of Neuromotor Abnormalities in Former Preterm Infants	Jennifer Poon, MD
81	Correlates of School Placement among Children with Ambulatory Cerebral Palsy	Sarah Bauer, MD, MS
82	A Research Synthesis and Review of Developmental Screening Measures for Young Children	Marisa Macy, PhD
83	Gastrointestinal Symptoms in Children with Autism Spectrum Disorders: A Comparison between Hispanics & Non-Hispanics	Virginia Chaidez, PhD
84	Do Families Want their Pediatricians to Diagnose Autism?	Elizabeth Dohrmann, BA
85	Distress and Well-being in Parents of Young Children Recently Diagnosed with ASD: Associations with Beliefs about Autism	Alison Vehorn, BS
86	Mortality and Social Adversity in Adults with a History of Childhood ADHD: A Population-Based, Prospective Study	William Barbaresi, MD
87	Clonidine Hydrochloride Extended-Release Tablet Monotherapy for Pediatric Patients with Attention-Deficit/Hyperactivity Disorder	Frank López, MD

Poster Board Assignments by Author

First Author	Title	Abstract/ Board #
Andrew Adesman, MD	Does Umbilical Cord Length -- An Indirect, Objective Measure of Fetal Activity -- Predict Hyperactivity in Grade School Children?	78
Andrew Adesman, MD	Improving Response Rate for Mailed Pediatric Questionnaires: Effect of Cover Letter Tone and Literacy Level	79
Debra Andrews, MD	The Great Canadian Developmental Mnemonic Contest: A Somewhat Un-orthodox Faculty-Student Collaboration	50
Diane Arms, MS	Group Social Skills Training for Children with Asperger's Syndrome: Intervention Effectiveness and Health-Related Quality of Life Correlates	27
William Barbaresi, MD	Mortality and Social Adversity in Adults with a History of Childhood ADHD: A Population-Based, Prospective Study	86
Nerissa Bauer, MD, MPH	Using Children's Books to Promote Positive Parenting in Primary Care	24
Sarah Bauer, MD, MS	Correlates of School Placement among Children with Ambulatory Cerebral Palsy	81
Samantha Berkule, PhD	Associations between Acculturation and Attachment Security in a Low SES, Latino Sample	74
Emine Bahar Bingoler Pekcici	Inspired from "Reach Out and Read": Experience from an Overseas Developmental- Behavioral Pediatrics Unit	33
Matthew Brams, MD	Chronic Administration of Clonidine Hydrochloride Extended-Release Tablet Monotherapy or Combination Therapy in Pediatric Patients With Attention-Deficit/Hyperactivity Disorder	54
Bill Bryson-Brockmann, PhD	What Can I do to Ensure that Residents Give Out Books for Reach Out and Read?	39
Gray Buchanan, PhD	Relationship between Sleep and Autism on the Achenbach Child Behavior Checklist (CBCL) in Young Children	34
Virginia Chaidez, PhD	Gastrointestinal Symptoms in Children with Autism Spectrum Disorders: A Comparison between Hispanics & Non-Hispanics	83
Roula Choueiri, MD	The Social Awareness Knowledge (SAK) Test: An Interactive Test to Detect Autism Spectrum Disorders (ASD) in Toddlers	64
Daniel Coury, MD	Correlates of Repetitive Movements In Autism Spectrum Disorders	45
Daniel Coury, MD	Medical Comorbidities In Children with Epilepsy and Autism Spectrum Disorders	44
Daniel Coury, MD	Factors Associated with Psychotropic Medication Use in Autism Spectrum Disorders (ASD)	76
Robert Dempster, MA	The Role of Stigma in Parental Help-Seeking for Child Behavior Problems	46
Elizabeth Dohrmann, BA	Do Families Want their Pediatricians to Diagnose Autism?	84
Elizabeth Dohrmann, BA	Adherence and Psychological Evaluation Recommendations for Young Children with ASD	51
Eileen Dolan, MD	Management of Rett Syndrome: A Systematic Review	63
Viviana Ensenat, MD	Screening of Developmental Disorders in Primary Care: Results of an Argentinean Experience	52
Craig Erickson, MD	Results of an Open-Label Trial of STX209 (arbaclofen) in Autism Spectrum Disorders: Social and Communicative Function	72
John Giblin, MD, FAAP, CPI	An Extended-Release Formulation of Clonidine Hydrochloride Tablets for the Treatment of ADHD in Children and Adolescents with Inadequate Response to Stimulants	53

Poster Board Assignments by Author

First Author	Title	Abstract/ Board #
Jean Johnson, DrPH	First Step to Success in Hawai`i Preschools	73
Slavica Katusic, MD	Psychiatric Comorbidities among Adults with Childhood Identified ADHD: A Prospective, Population-Based Study	35
Shanna Kralovic, DO	Effectiveness of Responsive Teaching with Young Children with PDD: Impact of Parental Psychological Status and Responsiveness	71
Kimberley Lakes, PhD	Improving Children's Self-Regulation and Executive Function: Does Martial Arts Training Help?	47
Mary Jacena Leigh, MD	A Double Blind, Placebo Controlled Trial of Minocycline in Children with Fragile X Syndrome	32
Francois Liebaert, MD	Identification of Siblings at Risk of Autism in Multiplex Families: A Gender-Specific Genetic Based Approach	61
Frank López, MD	Clonidine Hydrochloride Extended-Release Tablet Monotherapy for Pediatric Patients with Attention-Deficit/Hyperactivity Disorder	87
Nanet Lopez-Cordova, PsyD	Communication of Sexual Topics among Puerto Rican HIV Positive and Negative Mothers with Adolescent Daughters	23
Peter MacPherson, BSc	Room to Grow: Medical Students' Baseline Knowledge of Child Development	49
Marisa Macy, PhD	A Research Synthesis and Review of Developmental Screening Measures for Young Children	82
Susanne Martin-Herz, MD, MS	Quality of Life and Its Predictors in Adolescents after General Traumatic Injury	69
Susanne Martin-Herz, MD, MS	Impact of Media Exposure, Media Content and Harsh Discipline on Pre-school Behavior	68
Megan McHenry, MD	The Prevalence of At-Risk Development in Children 30-60 Months Old Who Present with Disruptive Behaviors	42
Margaret McKenna, MD	Self-Reported Bullying and Ostracism in Youth with Chronic Medical Conditions and/or Attention Deficit Hyperactivity Disorder	60
Shela Merchant, MA	Development and Initial Validation of a New Instrument for Developmental Surveillance	70
Jennifer Poon, MD	Early Detection of Neuromotor Abnormalities in Former Preterm Infants	80
Kyle Pruett, MD	Feasibility and Effectiveness of Mid-Level Developmental Assessment	48
Jerilynn Radcliffe, PhD	The Effects of a Home Visiting Program on Well Child Appointment Keeping	65
Emma Ross, BS	What is the Role of Peer Support in the Relation Between Gender and Anxiety in Clinically Anxious Youth?	67
Charity Rowland, PhD	Developing a Code Set Based on the International Classification of Functioning for Children Who Rely on Augmentative and Assistive Communication	37
David Schonfeld, MD	Social Emotional Learning in Grades 3 to 6 and the Early Onset of Sexual Behavior	43
Daniel Schulteis, MD	Examining the Prevalence of Autism in Methylenetetrahydrofolate Reductase (MTHFR) Polymorphisms: Supporting the Folate Hypothesis?	38
Daisha Seyfer, MD	Medication Use for ADHD in Individuals with Williams Syndrome: A Survey of Families	21
Daisha Seyfer, MD	Melatonin Use in Individuals with Williams Syndrome: A Survey of Families	20
Reshma Shah, MD	Pediatricians' Knowledge, Skills, and Attitudes about Special Education Referrals and Monitoring IEP's	62

Poster Board Assignments by Author

First Author	Title	Abstract/ Board #
Prachi Shah, MD	Cognitive and Behavioral Outcomes of Late Preterm Infants: The Bigger the Better?	59
Neelkamal Soares, MD	Using Telehealth to Deliver Parent Training to Underserved Families with Children who Have ADHD	31
Neelkamal Soares, MD	Geomapping in Utilization and Cost-Benefit of Telemedicine Developmental-Behavioral Pediatric services in Kentucky	58
Neelkamal Soares, MD	Comparative Cost Analysis of Telemedicine versus Traditional In-Person Developmental-Behavioral Pediatric Encounters	57
Neelkamal Soares, MD	Medical Students' Perceptions of Working with Children at the Start of the Pediatric Clerkship	30
Sarah Soden, MD	Diet, Activity, and Bone Density in 10 to 18 Year Olds with Autistic Spectrum Disorders	75
Raymond Sturner, MD	Identifying Children with ADHD Does Not Result in a Service Burden for Schools	26
Raymond Sturner, MD	Comparing Alternative Modalities for Pre-Visit Screening for Different Demographic Groups	25
Sherrri Thomas, MD	Developmental Assessments for Children in Foster Care in a Rural Ohio Community	40
Douglas Vanderbilt, MD	Assessing Factors in the Neurodevelopmental Outcomes in Infants with Twin-Twin Transfusion Syndrome (TTTS)	66
Alison Vehorn, BS	Distress and Well-being in Parents of Young Children Recently Diagnosed with ASD: Associations with Beliefs about Autism	85
P. Vora, MD	Attention Deficit Hyperactivity Disorder Symptoms in Autism Spectrum Disorder	41
Zachary Warren, PhD	Autism Diagnosis in Pediatric Practice: Advanced Training and Practice Change	29
Zachary Warren, PhD	Effective Disclosure of ASD	28
Nicole Wightman, MA	Relating Adherence and Perceptions of Psychosocial Variables among Children with Cystic Fibrosis	56
Nicole Wightman, MA	The Health Belief Model and Adherence in Children with Cystic Fibrosis	55
Pamela Williams-Arya, MD	Impact of Sleep Duration on Adolescent Behavior- Does Chronicity Matter?	36
Kouichi Yoshimasu, MD, PhD	Burden of Comorbid Psychiatric Disorders among ADHD Cases and Controls in a Population-Based Birth Cohort	22
Julie Youssef, DO	Periodic Limb Movements of Sleep, Serum Ferritin Levels, and Sleep Fragmentation on Polysomnogram in Autism Spectrum Disorders	77

Poster Session Abstracts

Poster Symposia

Monday, September 19, 2011 from 1:00pm - 2:15pm

Abstracts 11-19

Please see page 85 in the handout section. Posters may also be displayed during Sunday's Meet the Author Session.

Poster Session 1

Sunday, September 18, 2011 from 6:00pm - 7:00pm

Abstract 20

Melatonin use in Individuals with Williams Syndrome: A Survey of Families

Daisha L. Seyfer, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH, Marilee A. Martens, PhD, Nisonger Center, The Ohio State University, Columbus, OH, Daniel L. Coury, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH, Rebecca R. Andridge, PhD, College of Public Health, Kelsey E. McClure, Psychology, The Ohio State University, Columbus, OH, Jessica E. Foster, MD, MPH, Bureau of Children with Medical Handicaps, Ohio Department of Health, Columbus, OH

Purpose: Williams syndrome (WS) is a genetic condition with an estimated prevalence of 1 in 7,500. Up to 97% of individuals with WS commonly have sleep problems and/or disorders. The use of melatonin or other sleep-inducing medicines in WS has not been reported in the literature to date. The purpose of this study is to gather more information about the use of melatonin in the WS population. **Methods:** A survey of the use and effectiveness of psychotropic medications, including sleep aids and melatonin, was distributed to members of the Williams Syndrome Association. This survey of children and adults with WS included questions regarding melatonin use, age at time of use, duration of use, benefits, and side effects. Participants completed the survey in paper format or online either at a Williams Syndrome Association conference or from home between July 7 - September 15, 2010. **Results:** Five hundred thirteen families completed the survey. Eighty-one participants (15.8%) indicated that their family member with WS had taken melatonin (33 males and 48 females). The average age of the participants at the time they started taking melatonin was 6.7 years (median age 4 years, range 10 months- 32 years). Overall, 91.4% of participants taking melatonin felt that it was "Helpful" or "Somewhat Helpful." Of note, 48.2% of those who found melatonin to be "Helpful" were 10 months to 4 years of age at start of use. **Conclusion:** Melatonin use in the WS population is common for promoting sleep. Overall, it appears that individuals with WS and sleep difficulties find melatonin to be helpful. The early use of melatonin found in this study suggests that sleep problems in this population are significant in the toddler and preschool years. This parent-completed survey begins to address the melatonin usage experiences of individuals with WS. These results support the need for further study of use of melatonin and other sleep aids, as well as continued study of sleep disturbance in the WS population.

Abstract 21

Medication use for ADHD in Individuals with Williams Syndrome: A Survey of Families

Daisha L. Seyfer, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH, Marilee A. Martens, PhD, Nisonger Center, The Ohio State University, Columbus, OH, Daniel L. Coury, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH, Rebecca R. Andridge, PhD, College of Public Health, Kelsey E. McClure, Psychology, The Ohio State University, Columbus, OH, Jessica E. Foster, MD, MPH, Bureau of Children with Medical Handicaps, Ohio Department of Health, Columbus, OH

Purpose: Williams syndrome (WS) is a genetic condition with an estimated prevalence of 1 in 7,500. Although attention deficit/hyperactivity (ADHD) symptoms are reported in up to 65% of individuals with WS, few studies have been done to evaluate the use of stimulant medications in this population. The purpose of this study is to address the need for more research in this area. **Methods:** A survey about psychotropic medication history was distributed to members of the Williams Syndrome Association. This survey of children and adults with WS included questions regarding ADHD medication use, sex, age of first use, duration of use, perceived benefits, and side effects. **Results:** Five hundred thirteen families completed the survey, and 136 (27%) indicated that their family member with WS had been prescribed a medication for ADHD in their lifetime. Families reported initiation of stimulant medication as young as age 2 years (1 case), and 20 participants (15% of ADHD subjects, 3.9% of overall WS survey population) had received at least a trial of stimulant medication or atomoxetine by age 5 years. Forty-nine percent of ADHD med users had taken >1 ADHD medication and 26% had taken >2 ADHD medications in their lifetime. Common adverse effects from stimulants reported by individuals in this study were irritability (38%), appearing "zoned" (31%), anxiety (29%), weight loss (28%), sleep problems (22%), fighting (17%), and stomach ache (15%). Individuals were prescribed stimulant medications in both the presence and absence of underlying cardiac conditions. Individuals with WS and ADHD symptoms rated methylphenidates higher in terms of helpfulness as compared to

Poster Session Abstracts

amphetamines and atomoxetine (73% vs. 59% vs. 59% at least somewhat helpful, $p=0.13$). Conclusion: Psychotropic medications are often prescribed for ADHD symptoms in individuals with WS, and side effects of these medications are common in this population. This family survey begins to address the ADHD medication experiences of individuals with Williams syndrome, and supports a need for further study of clinical efficacy, dosing, and covariant conditions in this population.

Abstract 22

Burden of Comorbid Psychiatric Disorders among ADHD Cases and Controls in a Population-Based Birth Cohort

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

Purpose: To compare the burden of comorbid psychiatric disorders between research-identified incident cases of ADHD and population-based controls, overall and between boys and girls within each group. ADHD is frequently associated with comorbid psychiatric disorders. There are no population-based studies that precisely define the burden of comorbid psychiatric disorders in children with ADHD. **Methods:** Subjects included a birth cohort of all children born during 1976-1982 remaining in Rochester, MN after age 5 years ($n=5718$). Among them we identified 379 ADHD incident cases and 758 age- and sex-matched non-ADHD controls, passively followed to age 19 years. Through a systematic, multi-staged process, utilizing detailed, routinely collected data, all psychiatric diagnoses confirmed by medical professionals were identified among 343 ADHD cases (86 girls, 257 boys) and 712 controls (178 girls, 534 boys) with research authorization. The psychiatric disorders were categorized into 10 categories based on DSM-IV, and burden was defined as having 0, 1, 2, 3 or more psychiatric disorders. The proportion fulfilling one or more psychiatric disorder categories was compared between the two groups using the chi-square test. The burden scale was compared between the two groups using the Wilcoxon rank sum test. **Results:** Among ADHD cases, 62% had one or more comorbid psychiatric disorders compared to 19% of the non-ADHD controls ($p<0.001$). Among cases, 28%, 22%, and 12% fulfilled the criteria for 1, 2, 3 or more psychiatric disorder categories, respectively, compared to 11%, 5%, and 3% of the controls. The burden was significantly greater in ADHD cases than in controls ($p<0.001$). However, the burden was not significantly different between boys and girls, either within ADHD cases ($p=0.47$) or controls ($p=0.53$). **Conclusion:** This population-based study confirms that there are relatively few children with ADHD who do not have psychiatric comorbidity. Many children with ADHD have two or more psychiatric disorders in different DSM-IV categories. Besides treating ADHD, clinicians should assess and monitor for potentially more than one psychiatric comorbidity in both boys and girls with ADHD.

Abstract 23

Communication of Sexual Topics among Puerto Rican HIV Positive and Negative Mothers with Adolescent Daughters

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Purpose: Adequate communication has the potential to reduce risky adolescent sexual behavior by fostering responsible sexual decision making. The objective of this study was to explore the communication of sexual topics in a sample of Puerto Rican HIV+ and HIV- mothers regarding sexuality and HIV risk prevention. **Methods:** Qualitative study using focus groups technique. A convenience sample was recruited consisting of HIV positive and negative mothers recruited from clinics in three cities in Puerto Rico. Participants completed questionnaires and attended one of 6 focus groups conducted following Krueger methodology. Sessions were tape recorded and transcribed, then coded for specific topics such as: mother's discussion on sexual development, abstinence, condom use, and pregnancy prevention, HIV knowledge, HIV disclosure, and communication barriers among others. All qualitative analysis was transported into Atlas Ti for data analysis. **Results:** 22 HIV+ and 22 HIV- mothers were enrolled in the study (M age=41 years). Sexual issues were not discussed in the majority of homes of origin in both groups, and were described as taboo, which resulted in a reluctance to speak openly about sexual topics with their daughters. However, HIV+ mothers were more likely to use their own experiences as an example of what not to do as a tool for HIV prevention. **Conclusion:** Latina mothers express discomfort discussing most sexual topics with their adolescent daughters regardless of HIV status. These findings reinforce the importance of communication between mothers and daughters in the prevention of STI's, HIV/AIDS and teenage pregnancy in minority populations. Research supported by NIH-NCRR Grants # U54RR019507 and G12RR-03035.

Poster Session Abstracts

Abstract 24

Using Children's Books to Promote Positive Parenting in Primary Care

Nerissa S. Bauer, MD, MPH, Anna M. Hus, BS, Paula D. Sullivan, PhD, Dorota Szczepaniak, MD, Stephen M. Downs, MD, MS, General & Community Pediatrics, Indiana University, Indianapolis, IN

Purpose: Behavior challenges are common among young children. Well child visits are an optimal time to address parenting skills and provide caregiver support. There is a critical need for a parenting intervention that can be delivered efficiently in practice, is low-cost and low-burden to clinic staff. Methods: A prospective 1 month study of caregivers with a 4 to 7 year old child presenting to 1 of 3 pediatric clinics for a well child visit was conducted. 1 of 3 books was read aloud to families and given to the family to take home. Caregivers reported intent to change after the book reading and any change in parent-child interactions at 1-month. Thematic analysis of caregiver comments of what was learned after the book reading (at baseline) and using the book (at 1 month) was performed. Results: 100 families participated in the study. The book reading took 3 minutes. 71% of caregivers reported learning something from the book reading with two-thirds (47/71) able to identify a specific technique or example illustrated in the books. Two-thirds (61/100) reported definite intent to change at baseline. 80 caregivers completed the 1 month follow up telephone interview. 91% of caregivers reported reading the book to their child and/or sharing it with someone else. Three-quarters (60/80) reported a change in parent-child interactions. Conclusion: Distribution of children's books with positive parenting content is a feasible and promising tool for use in primary care practice. The use of content specific children's books demands further study as a low-burden, low-cost and therapeutic intervention for pediatric primary care practice.

Abstract 25

Comparing Alternative Modalities For Pre-Visit Screening for Different Demographic Groups

Raymond A. Sturner, MD, Barbara J. Howard, MD, Pediatrics, Johns Hopkins U School of Medicine, Baltimore, MD, Sid J. Schneider, PhD, Westat, Rockville, MD, Lindsay Andon, MPH, Johns Hopkins U School of Public Health, Perry Hall, MD, Tanya Morrel, PhD, Total Child Health, Baltimore, MD

Purpose: To compare alternative pre-visit screening modalities: paper, laptop, touch screen tablet, and Interactive Voice Response (IVR) phone completed in the waiting room or from home to determine relative efficiencies and preferences for completion of a standard autism screen (MCHAT) by parents in a sample of pediatric offices with diverse demographics. Methods: 162 parents of children age 16 to 38 months were recruited from the waiting room in 5 demographically dissimilar practices. The sample comprised 50% white; 41% African American; 9% other with 43% Medicaid. After being observed completing the full MCHAT using one randomly assigned modality (laptop, paper, kiosk, phone) each parent completed a satisfaction survey. The parent then completed the first 4 items of the MCHAT again using each of the remaining 3 questionnaire-delivery modalities presented in random order and was surveyed about preferences. Results: Parents tended to be very satisfied with the modality presented to them initially, regardless of type. Few parents said that they would not complete the questionnaire before their visit in the future. Most parents preferred touch screen (35%), followed by paper (30.6%); keyboard (28%); and phone (6.4%). Administration time for paper was significantly faster than the others; however, time requirements for office staff were greater for the paper modality. Compared to whites, African Americans were less likely to prefer paper in the waiting room, and Medicaid insured and Latino parents were more likely to list paper as their least preferred modality. There were no demographic differences in choosing either touch screen or computer. Those who had completed screens at home preferred to do this rather than use a waiting room method. Medicaid insured participants were more likely to prefer screening in the waiting room rather than before the visit. Conclusion: Technological alternatives for pre-visit screening are acceptable and even preferred by parents across the racial and income spectrum.

Abstract 26

Identifying Children with ADHD Does Not Result in a Service Burden for Schools

Raymond A. Sturner, MD, Pediatrics, The Johns Hopkins U School of Medicine, Baltimore, MD, Barbara J. Howard, MD, Pediatrics, Johns Hopkins U School of Medicine, Baltimore, MD, Paul Bergmann, MA, Syncretix, St Paul, MN, Tammy Barry, PhD, Psychology, University of Southern Mississippi, Hattiesburg, MS, Karen Seymour, PhD, Total Child Health, Alexandria, VA, Ronald Kent, MD, Connections, Hattiesburg, MS, Casey Sullivan, MS, Hattiesburg Connections, Hattiesburg, MS

Purpose: To identify educational services provided for children with ADHD diagnoses acknowledged by the school and compare with services utilized by children discovered to be at risk for ADHD by universal school screening. Methods: Teachers for grades 1-5 completed Vanderbilt teacher ratings for ADHD online for all 5727 children whose parents consented, yielding 1174 children screening positive for ADHD. At year-end, children were rescreened and school intervention services were surveyed for children screening positive for ADHD and for 108 children randomly selected from those initially screening negative. These positive screen and control cohorts were re-screened the next school year in the fall and spring, and school services and acknowledged ADHD diagnoses identified by teachers in the spring. Analyses were performed for services both years including IEPs, Social Skills, Conflict Resolution, Tutoring, Psych testing, and Ed. Testing by ADHD group - diagnosed, at risk, and low risk children. Results: Services showing significant differences from low risk children are shown in the table. Services were greater for children screening positive without acknowledged diagnoses for ADHD than for those with acknowledged diagnoses for each service type except Tutoring (ADHD diagnosed highest). Conclusion: The burden to schools for children acknowledged as having ADHD is somewhat lower than for children found to be at risk for ADHD from universal screening.

Poster Session Abstracts

Rates of School Service Differences (all $p < 0.01$) by ADHD Status

	ADHD Diagnosis N = 133	Positive Both Years N= 205	Low Risk N =178
IEP (Yr 1)	(21) 15.8%	(37) 18.0%	(13) 13 7.4%
Social Skills (Yr 2)	(13) 9.8%	(21) 10.2%	(4) 4 2.3%
Conflict Resolution (Yr 2)	(6) 4.5%	(23) 11.2%	(6) 3.4%
Tutoring (Yr 2)	(42) 31.6%	(56) 27.3%	(29) 16.5%

Abstract 27

Group Social Skills Training for Children with Asperger's Syndrome: Intervention Effectiveness and Health-Related Quality of Life Correlates

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Purpose: This study examined: (a) if children's social skills competency correlated with health-related quality of life (HRQOL) and severity of Asperger's Syndrome (AS) behavior patterns and (b) pre- vs. post-intervention effectiveness data. **Methods:** Sixteen 1st-3rd or 4th-6th graders participated in 6-week social skills training groups. Additional data (12 participants) will be available after the June groups conclude. Children and parents completed the Pediatric Quality of Life Inventory (PedsQL) and parents completed the Asperger's Syndrome Diagnostic Scale (ASDS) and the Observed Child Behavior Questionnaire (OCBQ), a study-specific questionnaire to measure actual use of social skills taught in the groups (i.e., social skills competency). Parents completed the OCBQ again on completion of the groups. **Results:** Pre-intervention OCBQ did not correlate with PedsQL Total self report [$r(12) = .12, p = .69$] or parent report [$r(13) = .13, p = .66$]. The OCBQ did not correlate with the ASDS Quotient [$r(11) = -.44, p = .14$]. However, a t-test for dependent samples revealed a significant effect of the intervention on social skills [$t(7) = -4.53, p = .003$]. Specifically, parents reported that children displayed the targeted social skills more frequently (better competency) after completing the social skills training ($M = 54.61, SD = 15.98$) compared to before the training ($M = 43.75, SD = 14.00$). **Conclusion:** No significant correlations emerged between social skills competency and HRQOL or between social skills competency and severity of AS. However, a significant improvement was demonstrated on OCBQ parental ratings of social skills competency, indicating that our intervention was effective in improving social skills in children with AS. Additional data this summer may alter our findings. These results add support for group social skills training as an integral component of interventions for children with AS. Implications will be discussed for future research to follow-up on participants to determine retention and generalization of the social skills learned and for tracking of HRQOL in children with AS.

Abstract 28

Effective Disclosure of ASD

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Purpose: To explore parent perceptions of effective characteristics of diagnostic disclosure as well as emotions and thoughts surrounding disclosure. **Methods:** All families coming through a university affiliated ASD clinic and receiving a diagnosis of ASD were asked to complete a survey - The Diagnostic Process Questionnaire [DPQ] - regarding characteristics of diagnostic process, questions about what they wished had been a part of the diagnostic event, perceptions of support surrounding the diagnostic event, as well as thoughts and feelings at the time of diagnosis. **Results:** 76 caregivers completed the DPQ survey. Families frequently endorsed long-waits (53% > 6 months; 41% > 1 year) and visiting numerous service providers (61% > 3; 22% > 5) from the initial time of mentioning concerns to a professional to receiving a formal diagnosis. When asked to reflect on ideal characteristics of evaluation and feedback a majority of parents (96%) reported they would want to receive diagnostic feedback the day of the child's assessment. Although a majority of caregivers had support persons present on the day of the diagnosis (88%), those who did not frequently endorsed wishing another support person was present (67%). Of those parents whose child was in fact present in the room for the ASD diagnosis (65%) most noted that they would still want this to be the case (82%). Parents generally reported positive support from their family concerning the ASD diagnosis (78%); however, they frequently endorsed that specific members of their family/support system (i.e., spouse, parents, in-laws) were not supportive of the ASD diagnosis itself. 39% of parents did not report strong support from their pediatrician about their child's ASD diagnosis. When inquiring of feeling and thoughts at the time of ASD diagnosis, many parents reported feeling prepared and indicated that the diagnosis was not surprising or shocking, yet at the same time extreme feelings of distress were often reported. **Conclusion:** Research examining reactions to the diagnostic assessment process itself in association with clinical characteristics of the child and other family process factors could potentially provide information helpful for adapting the assessment process and recommendations to promote family specific engagement in intervention best practices.

Poster Session Abstracts

Abstract 29

Autism Diagnosis in Pediatric Practice: Advanced Training and Practice Change

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Purpose: To evaluate a state-wide model program designed to enhance ASD identification and diagnosis in community pediatric practices. **Methods:** 27 pediatric providers in Tennessee participated in 5 regional trainings over a 3.5 year period focused on diagnosis of ASD within community practice settings utilizing interactive screening (i.e., Screening Tool for Autism in Two-Year-Olds [STAT]) and developmentally sensitive diagnostic interviewing. A subset of providers ($n = 6$) was selected to participate in a diagnostic confirmation procedure aimed at replication and validation of the proposed consultation model (Warren, Stone, and Humberd, 2009). Additionally, all practitioners were asked to complete an assessment of model implementation and practice change at an average of 1.61 years following training. **Results:** Case confirmation results from the 6 practitioners indicated good agreement (85.7 - 92.9%) between judgments based on the consultation model and those resulting from independent, comprehensive psychological evaluations. The majority of participating clinicians documented significant increases in their engagement in and comfort with ASD-specific consultations. In fact, a 65.5% increase of within-practice ASD diagnosis was reported over the study period. A majority of providers indicated that, following training, they were more likely to evaluate children who screened positively for ASD within-practice, rather than refer them for an outside psychological evaluation. **Conclusion:** These findings support the applicability of the current model to community pediatric practices in increasing comfort and accuracy in identifying ASDs. Implications for this may be far-reaching given common delays in early diagnosis and implementation of early intervention.

Abstract 30

Medical Students' Perceptions of Working with Children at the Start of the Pediatric Clerkship

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Purpose: The Pediatric clerkship rotation for 3rd year medical students (MS-3) is often the students' first encounter with children in a clinical setting. Anecdotally there seems to be a lot of anxiety among students, related to the pediatric physical exam, parent expectations of the students' abilities and history taking from a caregiver. The objective of this study is to explore the attitudes and comfort level of medical students at the start of the clerkship as part of a larger study examining the effect of an innovative curriculum in preclinical medical students on self-report levels of comfort and attitudes towards children. **Methods:** Following University of Kentucky (UK) Office of Research Integrity approval, the MS-3 class of the UK College of Medicine entering the Pediatric clerkship was surveyed using a questionnaire designed for the study. Responses were coded into medical and non-medical related categories, comfort with children was assessed using Likert-type scale and multiple regression approaches were used. Other open-ended responses were content coded and reliability checked by a second rater (96% concordant). **Results:** 52 students' responses (57% male) revealed that < 10% had children of their own, almost 25% had NO experience with children and less than 30% had medical related experience. 36% gave responses that mixed themes of positive and negative tone in working with children and were most concerned about the parents, working with ill children and not having knowledge base (particularly developmental milestones). Regression analysis revealed perceived greater comfort level with children in medical setting is seen in students having children of their own ($p=.047$) and having experience with children prior to clerkship ($p=.0004$). Gender was not associated with either rating. **Conclusion:** Many Pediatric clerks enter the rotation with limited experience with children, and this is reflected in their concern about working with children and families. This information will be used to tailor the orientation curriculum of the Pediatric clerkship. Another strategy is to use experiential activities in the preclinical years that could help alleviate the problem of lack of experience with children and parents in a clinical setting, but could also better prepare students for third year clinical clerkships in general.

Abstract 31

Using Telehealth to Deliver Parent Training to Underserved Families with Children who have ADHD

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Purpose: Families with children with specialized mental health needs in rural areas have limited access to care (Nelson, Bui, & Valasquez, 2011). This study aims to expand the literature on modes of effective mental health care delivery to underserved families who have children and adolescents with Attention Deficit Hyperactivity Disorder (ADHD) and/or significant behavioral problems. This study is being conducted to determine whether telehealth delivery format of a group parent training program is beneficial for reducing child problem behavior, parent depression, anxiety, and stress, inter-parent relationship quality, inter-parent conflict regarding child rearing, and parenting self-efficacy. **Methods:** All procedures were approved by the Office of Research Integrity at University of Kentucky. A case series design was utilized with parents from a rural area in Southeastern Kentucky. Study participants identified as ADHD were recruited through a community counseling center and local child psychiatrist. Research personnel contacted interested parents via telephone and conducted an intake interview to determine whether their child met inclusion criteria for the study. Prior to the first session, parents received packets containing the informed consent, demographic questionnaire, Child Behavior Checklist, Parenting Scale, Parent Problem Checklist, Relationship Quality Index, and the Depression Anxiety Stress Scale-21. **Results:** Preliminary data revealed 7 parents, all Caucasian and mostly female (71.4%), with mean age of 33.8 years. Pre and post data were collect-

Poster Session Abstracts

ed to determine whether families benefitted from the parent training via telehealth. Preliminary results indicate improvements on all study measures. An effect size (ES) of $d = -1.23$ was found for improvements to child problem behavior; this is larger than the ES for improving child misbehavior noted in a meta-analysis that included the Group Triple P intervention delivered in person (Thomas & Zimmer-Gembeck, 2007). Conclusion: Implications of this research may expand the evidence base of mental health services available to underserved families in rural areas. Further analysis with parents in a comparison group is ongoing to determine whether results are equitable to other formats. Telehealth can serve as a delivery model for psychosocial interventions to families of children with ADHD and other behavior problems.

Abstract 32

A Double Blind, Placebo Controlled Trial of Minocycline in Children with Fragile X Syndrome

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Purpose: The purpose of this study was to determine the efficacy and tolerability of minocycline as a targeted treatment for children with fragile X syndrome (FXS). Minocycline decreases matrix metalloproteinase 9 (MMP9) levels and rescues dendritic spine abnormalities in the fragile X knock out mouse. Prior open label human studies suggest benefits. **Methods:** Children with FXS ages 3.5-16 years of age were randomized to receive minocycline or placebo. After three months, participants were crossed over to minocycline or placebo as appropriate for the following three months. Investigators and participants were blinded to the randomization. Outcome measures including the Visual Analogue Scale (VAS) for behaviors, the Aberrant Behavior Checklist (ABC), and the Clinical Global Impressions-Improvement (CGI-I) scale were administered at baseline, 3 months and 6 months. **Results:** This preliminary analysis focuses on the first 3 months of treatment comparing minocycline to placebo for 30 individuals, 14 on minocycline and 16 on placebo. The mean difference between minocycline and placebo in VAS for the first target behavior was 1.4cm (SE 0.61), a significant improvement ($p=0.031$), and the mean difference in VAS for the second target behavior was 2.7cm (SE 0.58), also significant ($p<0.01$). The mean CGI-I scores of individuals on minocycline was 2.57 (SD 0.94), compared to 3.40 (SD 0.89) for the placebo group, supporting greater improvement on minocycline, ($p=0.023$). There were no significant changes in the ABC-irritability scale between minocycline and placebo groups. The most common side effects included loose stools on minocycline. The study is ongoing. **Efficacy and safety data for a goal of 50 patients over the full six months will be presented. Conclusion:** Preliminary analysis supports the potential efficacy of minocycline treatment for FXS. Treatment for 3 months was well tolerated. Larger, multi-center trials are indicated to further examine these results. This research was funded by the National Fragile X Foundation and NIH Grant NIH 3 UL1RR024146.

Abstract 33

Inspired from "Reach Out and Read": Experience from an Overseas Developmental- Behavioral Pediatrics Unit

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Purpose: Purpose of this study was to detect the rate of age appropriate books at home environment of children aged 6-48 months old who have developmental delays/difficulties/risks and factors affecting this presence at our hospital's developmental and behavioral pediatrics unit. **Methods:** All children aged 6-48 months were provided a developmentally age appropriate book and the pediatrician modeled how to share the book to the family during the first assessment. It was asked if the children had a book of his own at home and if the family had a chance to use books as it was modeled. At the end of the visit it was suggested that reading/showing a book affects childrens' brain development positively. In the control visits it was asked to the families that if they could afford to buy/find a book and share it with their children. **Results:** Of the 450 patients, 58% were boys and median age was 17 months (range:6-48). Most mothers (46%) had only primary school education and 61% were younger than 30 years of age. Most of the patients were high risked prematures (50%).Of the patients, 26% have difficulties in language area and 16% of them have global developmental delay. Only 18% of families reported that their children have their own age appropriate books at home. To have age appropriate books at home is statistically significantly related with parents educational status, age of the child and working mothers. In the control visits the families who did not have books at home in the first visit reported some difficulties to find/buy the books to their children although they are living in the capital city. Only 7% of the parents managed to find/buy age appropriate books for their children. **Conclusion:** The results of the study demonstrated that there is a lack of stimulation at home in the name of the age appropriate books of the children who have developmental delays/difficulties/risks. Also families have struggles reaching to the sources of the books in our country. "Reach Out and Read" suggests supplying new books during the well child visits, the model used in the study may be entegrated to the high risk child visits in developing countries for the first step before implementing the program for well child visits.

Poster Session Abstracts

Abstract 34

Relationship between Sleep and Autism on the Achenbach Child Behavior Checklist (CBCL) in Young Children

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Purpose: Research examining the prevalence of parasomnias and dysomnias in children with disabilities, especially children with autism, is scarce at best. Although not part of the diagnostic criteria, some investigations have documented increased sleep difficulties in children with autism compared with children with other developmental disabilities and normal control groups. This study sought to better define the prevalence of sleep difficulties in a sample of children presenting in a diagnostic clinic and more closely examine the relationship between sleep and autism. **Methods:** Data on 82 subjects seen in an outpatient setting were examined. Parents completed the CBCL for ages 1½ - 5 and were asked to qualitatively respond to whether their child had sleep difficulties as part of a larger clinical protocol. Children were 27-71 months of age (mean = 52 MOS), were predominantly male (M = 72%; F = 28%), varied in ethnicity (White = 69%; Black = 20%; Latino(a) = 6%; Asian = 2%; Other = 3%), and presented with a variety of DSM-IV diagnoses (ASD = 40%; Communication D/O = 21%; ADHD = 20%; Behavioral D/O = 12%; Anxiety D/O = 7%). **Results:** T-tests between children with and without ASD revealed significant differences on the sleep problems scale of the CBCL ($t = 2.55$; $p = .014$; $d = .65$). A standard multiple regression analysis examined 3 predictors (Sleep Problems, Parental Sleep Complaints, & Aggressive Behavior) in the prediction of a diagnosis of autism. Two predictors (Sleep Problems & Aggressive Behavior) predicted approximately 43% of the variance in a diagnosis of autism [$F(2, 79) = 29.32$; $p < .000$; $f^2 = .74$]. **Conclusion:** Support for considering the impact of sleep problems and aggressive behaviors from the CBCL in assisting in making a diagnosis of autism was consistent with some previous findings. However, the addition of a qualitative report of sleep concerns from parents to a standardized measure did not appear to be helpful in predicting an autism diagnosis. Several limitations of this study include the exclusion of a control group, the need to further establish the relationship between sleep/autism (e.g., mediator/moderator), and the need to further assess other likely predictors of outcomes.

Abstract 35

Psychiatric Comorbidities among Adults with Childhood Identified ADHD: A Prospective, Population-Based Study

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Purpose: To determine the rate of psychiatric comorbidities among all research identified childhood ADHD cases and population-based controls from the same birth cohort. **Methods:** Among all birth cohort children born 1976-1982 in Rochester, Minnesota (N=5,699), ADHD cases and non-ADHD controls were identified. They 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=232; mean age 26.9 years; 167 males, 65 females) and controls (N=335; mean age 28.6 years; 210 males, 125 females). The prevalence of each psychiatric disorder was determined for ADHD cases and controls. Odds ratios (OR) were calculated using logistic regression after adjusting for age and gender. **Results:** ADHD cases had significantly more (57%) of any psychiatric comorbidities compared to 34% among ADHD controls (adjusted OR=2.6, 95% CI=1.8-3.8; $p < 0.001$). When each of 11 psychiatric comorbidities were analyzed the same significant difference was found. **Conclusion:** This prospective, population-based study confirms that adults with childhood identified ADHD are at significant risk for comorbid psychiatric disorders. In addition to monitoring for adult ADHD symptoms, physicians should identify and manage potential psychiatric comorbidities.

Abstract 36

Impact of Sleep Duration on Adolescent Behavior- Does Chronicity Matter?

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Purpose: To examine the significance of chronic versus recent sleep duration on measures of psychological functioning and risk-taking behaviors in adolescents. **Methods:** 296 high school students from four schools in one southeastern state completed a sleep habit questionnaire at the end of the 9th grade (time 1) and 10th grade (time 2). Participants reported on measures of psychological symptoms (depression, anxiety, and inattention), life satisfaction, and substance use (alcohol, cigarette smoking, and marijuana). Separate hierarchical regression models were created with each behavioral measure serving as the outcome variable. These same outcome variables were entered at time 1, as well as time 1 sleep and gender. Time 2 sleep was entered into the model at step 2. **Results:** Sleep behavior was moderately stable from time 1 to time 2 ($r = .38$, $p < .001$) as were self-reported behavioral symptoms and risk behavior. Sleep at time 2 was significantly associated ($p < .01$) with all behavioral outcome measures, with standardized betas ranging from 0.15 (global satisfaction) to -0.21 (marijuana use). Sleep at time 1 did not predict behavioral outcomes at time 2 when controlling for time 1 behaviors. **Conclusion:** Current sleep deprivation significantly positively predicted inattention, depression, anxiety, and substance use (marijuana and alcohol) and negatively predicted life satisfaction. This remained after controlling for previously reported behavioral factors. Longer-term (i.e., chronic) sleep deficits (as measured in the 9th grade) had no significant

Poster Session Abstracts

predictive power on these outcomes in the 10th grade. With the high prevalence of adolescent sleep deprivation in our modern society, these findings underscore the importance of screening current sleep quantity when evaluating an adolescent's health and behavior risks and counseling on appropriate sleep needs.

Abstract 37

Developing a Code Set Based on the International Classification of Functioning for Children Who Rely on Augmentative and Assistive Communication

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Purpose: To describe the development of the ICF-CY for AAC Profile, a tool to integrate information about the multiple factors affecting communication skill development and use in school aged children with complex communication needs. **Methods:** The profile uses the World Health Organization's International Classification of Functioning, Disability and Health - Children & Youth Version (WHO, 2007) as its framework. The process involved: a) an initial draft by project staff; b) review/revision suggestions by our team of expert consultants; c) alpha testing/revisions by project staff; d) alpha testing by professional colleagues followed by revisions responsive to their suggestions; e) beta testing; and f) revisions in response to beta testing results. **Results:** Alpha testing: 94% of respondents completely or somewhat agreed that "the survey would be useful for describing the communication limitations experienced by a child who has difficulty speaking or who has no speech". 69% completely or somewhat agreed that "the survey gathers all of the information that I would need to develop educational goals related to communication for a child who is a potential AAC user". 83% completely or somewhat agreed that "the questions on this survey cause me to think about a child's communication needs and abilities in new ways". Beta testing: Inter-rater agreement was 94% for School-related activities, 93% for Interpersonal interaction/relationships, 87% for Receptive language/literacy, 87% for Expressive language/literacy; 83% for Functions of communication, and 88% for Rules of social interaction. **Conclusion:** We propose that the ICF-CY for AAC Profile constitutes a code set which provides content and guidance to professionals who need to develop AAC-related IEP goals. We hope that this tool will move the AAC community to consider a broader view of environmental factors which influence the student's communication skills, and that it will move the ICF community to consider communication function and developmental sequence for all aspects of activities and participation in children and youth.

Abstract 38

Examining the Prevalence of Autism in Methylenetetrahydrofolate Reductase (MTHFR) Polymorphisms: Supporting the Folate Hypothesis?

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Purpose: Our study sought to analyze data to either support or refute the prenatal folate hypothesis as a potential cause for some cases of autism. By using an MTHFR-specific database, we tested a corollary hypothesis that individuals with MTHFR polymorphisms may be at an increased risk for an autism spectrum disorder (ASD). **Methods:** We utilized an institutional database of patients who were screened for two MTHFR polymorphisms (677C>T and 1298A>C) because of clinical presentation of stroke, family history of hypercoagulability, or premedication risk assessment. Electronic medical records were reviewed to determine whether or not any of these patients were previously diagnosed with an ASD. **Results:** 487 patient records were reviewed. 246 were found to have one of the two MTHFR polymorphisms (51%), with 68% having the 677C>T change. We identified 14 cases of ASD, compared to an anticipated 4.43 (based on CDC estimates). Of the 14 cases, 9 (64.3%) were found to have an MTHFR polymorphism. The 677C>T polymorphism showed the greatest risk ($\chi^2=17.81$, $p<0.001$, $RR=1.459$), especially the heterozygous variant ($\chi^2=18.507$, $p<0.001$, $RR=1.647$). **Conclusion:** These results suggest that having an MTHFR polymorphism results in a 1.7 times increased risk of an ASD, lending additional credibility to the hypothesis that prenatal folate supplementation may be implicated in some cases of ASD. Because these findings may have potential treatment implications, prospective studies are needed to confirm this hypothesis as a possible cause for some cases of ASD.

	Totals	+ ASD Cases	Expected ASD Cases (1/110)
MTHFR Polymorphism (any)	246	9*	2.236
Normal MTHFR	241	5	2.191
Totals	487	14	4.427
* $\chi^2=24.06$, $p<0.001$ $RR=1.76$			

Poster Session Abstracts

Abstract 39

What can I do to Ensure that Residents give out Books for Reach Out and Read?

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Purpose: The Reach Out and Read (ROR) program at Winthrop Pediatric Associates promotes early literacy by encouraging pediatricians to distribute age appropriate books and give anticipatory guidance to patients from 6 months to 5 years of age. We were concerned that our pediatric residents were not distributing as many books as they should and some residents commented that it was easier to remember to distribute the books at another site because those books were more visible. Khandekar, et al., 2011 found that book distribution was at high rates prior to intervention and that training efforts improved ROR-related skills in their pediatricians. **Methods:** The number of books distributed by our pediatric residents each day were counted. Baseline levels were measured over 2 months. Then, five different conditions were implemented sequentially over a period of 8 months with the number of books distributed counted daily. The interventions include moving books to a more easily viewed area, placing posters in patient and precepting rooms, placing stickers on well-child patient charts, verbal reminders by the ROR Coordinator, and announcing the aim of the study to all residents during Grand Rounds. **Results:** Compared with baseline levels, the most successful interventions were placing books in a more easily viewed area and putting a sticker into the well-child charts to remind residents. These interventions produced the greatest level of change. **Conclusion:** These results imply that interventions that visually remind residents at the time of the visit are most effective in producing behavior change.

Abstract 40

Developmental Assessments for Children in Foster Care in a Rural Ohio Community

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Purpose: Studies suggest as many as 60% of children in foster care have developmental-behavioral concerns. We describe here the results of developmental assessments in a clinic serving children in foster care in a rural community. **Methods:** We reviewed the charts of twenty two children seen in the Foster Care Developmental Clinic over a one year period. We examined previously known diagnoses and new diagnoses made in the clinic. Children were referred for assessment if they were in the custody of Jobs and Family Services, resided in the county, and had not received prior developmental assessments. Priority was given if a child had a suspected disorder or disability as reported by the school or foster family. **Results:** Children's ages ranged from 2 months to 14 years 11 months. Reason for removal from family of origin was indicated as: neglect 50%, prenatal drug exposure/maternal substance abuse 36.4%, victim of abuse 22.7%, caregiver illness 9%, and polygamy/incest 9%. Witness of violence occurred in 40.9%. Developmental-behavioral diagnoses made by previous general health care providers included: ADHD 31.8%, post traumatic stress disorder 18.2%, language delay 13.6%, motor delay 9%, violent behavior 4.5%, intellectual disability 4.5%, obsessive compulsive disorder 4.5%, and reactive attachment disorder 4.5%. Notable medical conditions included: history of lead toxicity 9%, growth hormone deficiency 4.5%, and XYY syndrome 4.5%. New developmental-behavioral diagnoses made by assessment in this clinic were: global developmental delay 18.2%, anxiety 13.6%, language delay 13.6%, hypotonia 9%, ADHD 4.5%, autism 4.5%, disordered sleep 4.5%, disruptive behavior 4.5%, encopresis 4.5%, and post traumatic stress disorder 4.5%. New medical diagnosis made included torticollis 4.5%, auricular skin tag 4.5% and one child with 16p13.3 deletion spanning the tuberous sclerosis and polycystic kidney gene regions. **Conclusion:** Children in foster care are exposed to multiple stressors and are at high risk for developmental disorders. Referral for developmental-behavioral assessment is recommended to identify disorders and assure appropriate treatment.

Abstract 41

Attention Deficit Hyperactivity Disorder symptoms in Autism Spectrum Disorder

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Purpose: We hypothesized children with Autism Spectrum Disorder (ASD) and co-morbid Attention Deficit Hyperactivity Disorder (ADHD) symptoms have a poorer quality of life and greater impairment in adaptive functioning than children with ASD without ADHD symptoms. We also examined the frequency of ADHD symptoms in ASD children and the number of ASD children with ADHD symptoms receiving stimulant medication. **Methods:** The study population consisted of children ages 2-18 years in the Autism Treatment Network (ATN) Registry. The ATN collects data on children with ASD determined by multidisciplinary evaluation, including ADOS. Data analyzed included parent completed medical history form, scores from the Child Behavior Checklist (CBCL), Vineland Adaptive Behavior Scales, 2nd Ed. (VABS-2), and Pediatric Quality of Life scale (PedsQL). **Results:** Variability in the parent completion of forms lead to some incomplete data. Of the completed Vineland (N=2,169) and PedsQL (N=2,036), it was found that children with ASD and ADHD had more concerning scores in all areas of both measures ($p < 0.0001$) than children with ASD alone. CBCL findings revealed a high rate of ADHD symptoms as noted below. Of the 2,760 children with a CBCL and history form, only 11% were taking a stimulant medication. **Conclusion:** A significant number of children with ASD have ADHD symptoms (55-58%). Children with ASD and co-morbid ADHD symptoms have lower scores on scales examining quality of life and adaptive functioning than children with ASD alone. The 11% of subjects receiving stimulant medication suggests that many ASD children with ADHD symptoms are not receiving adequate medication management for their impulsivity and distractibility problems.

Poster Session Abstracts

CBCL: N=2,916	N (%)
T > 65 - Attention Scale	1,610 (55.5%)
T > 65 - ADHD Scale	1,677 (57.8%)
T > 65 - both subscales	1,022 (35.2%)

Abstract 42

The Prevalence of at-risk Development in children 30-60 months old who Present with Disruptive Behaviors *Megan S. McHenry, MD, Pediatrics, Indiana University School of Medicine, Indianapolis, IN, Kavitha Nudakki, MBBS, MPH, Pediatrics, Children's Health Services Research, Indianapolis, IN, Dorota Szczepaniak, MD, Pediatrics, Indiana University School of Medicine, Indianapolis, IN*

Purpose: To determine whether children 30-60 months old who present with disruptive behavior disorders (DBDs) have higher prevalence of developmental delays (DDs) than general population. **Methods:** A retrospective chart review was conducted at a pediatric behavioral clinic in Indianapolis, IN. Charts of patients seen between 8/2008 and 4/2011 were reviewed. Inclusion criteria were patients age between 30-60 months and a chief complaint of DBDs. Patient characteristics, final diagnoses, and Ages and Stages Questionnaires (ASQs) were collected. **Results:** Males were twice as likely to be referred to behavioral clinic as females. Out of those patients who had a completed ASQs, fine motor and communication were the two domains at highest risk for DDs (52.5% and 50.5% respectively). The number of patients referred for DBDs were 6x more likely to have DDs than the general population. **Conclusion:** ASQ is a useful screening tool for DDs, which are more common in children with DBDs. Developmental screening should be a part of the work up for DBDs in primary care.

Abstract 43

Social Emotional Learning in Grades 3 to 6 and the Early Onset of Sexual Behavior

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Purpose: The study aimed to explore whether an evidence-based elementary school social emotional learning (SEL) curricula (PATHS) focused on social problem solving skills, combined with sexual risk prevention lessons, would have an impact on preventing the early onset of sexual intercourse. **Methods:** A 4-year longitudinal, cluster-randomized, controlled design was employed in which 24 elementary schools in an urban school system in the northeast were assigned to receive the already in place SEL curriculum (control) or the enhanced curriculum (intervention; PATHS + sexual risk prevention lessons) during grades 3-6. **Results:** Results focused on 705 students intervention n = 344; control n = 361) who remained in the study cohort and same group assignment over the 4-year period and had complete data. Social problem solving skills were assessed in grade 6 through a theoretical social problem solving dilemma involving undesired pressure to engage in sexual behavior. Sexual behavior was assessed in grades 6 and 7 via an audio-computer assisted survey in English and Spanish. **Results:** Rates of sexual intercourse were 9.1% and 21.1% in 6th and 7th grades, respectively. Those receiving the intervention curriculum were more likely to focus on issues specific to the dilemma and this social cognitive skill, in turn, made it less likely for the adolescent to have engaged in sexual intercourse by 7th grade. Although a direct effect of the intervention on sexual behavior was not found, a significant mediational effect was demonstrated for the effect between the intervention/control group membership to the ability to focus on the problem of the dilemma and, in turn, this ability to focus on the problem and later sexual behavior. **Conclusion:** The results provide evidence of the positive impact of SEL on students' social problem solving skills and delay in initiating sexual intercourse.

Abstract 44

Medical Comorbidities In Children with Epilepsy and Autism Spectrum Disorders

Daniel L. Cury, MD, Pediatrics, Nationwide Children's Hospital, Columbus, OH, Greg Barnes, MD, Neurology, Vanderbilt University Medical Center, Nashville, TN, Alvin Loh, MD, Neurology, Holland Bloorview Kids Rehab, Toronto, ON, Canada, Navreet Sidhu, MD, Neurology, Columbia University Medical Center, New York, NY, Traci Clemons, PhD, EMMES Corp, Rockville, MD

Purpose: The relationship of autism spectrum disorder (ASD) individuals with epilepsy to sleep, behavior, cognition and medical concerns has not been well characterized. We examined possible links between epilepsy, sleep, GI symptoms and behavior/cognition in individuals with ASD. **Methods:** Children with ASD (autism, Asperger disorder, or PDD-NOS) confirmed by ADOS, age 2 - 18 years were enrolled in the Autism Treatment Network (ATN) Registry. Parents completed a medical history questionnaire, GI Symptom Inventory, Children's Sleep Habits Questionnaire (CSHQ) and Child Behavior Check List (CBCL). Subjects underwent a battery of assessments including cognitive testing, Vineland Adaptive Behavior Scales and detailed neurologic examination. **Results:** Data were available on 2573 children with 423 (16%) reporting a history of seizures (ASD-Epi). For the 1280 children (202 with ASD-Epi) with a completed CBCL (ages 1 to 5), children with ASD-Epi had significantly higher mean scores on the total CBCL and all subscales when compared to those without seizures. Similarly, for the 1055 children (173 with a history of seizures) with a completed CBCL (ages 6

Poster Session Abstracts

to 18), children with ASD-Epi had significantly higher mean scores on the total CBCL and all subscales. A total of 2,120 (345 with ASD-Epi) had a completed CSHQ evaluating sleep problems. Children with ASD-Epi had significantly higher proportion of parent reported sleep problems (CSHQ) compared to children with ASD alone (74.2 versus 64.8, p -value = 0.000). A total of 2,421 (397 with ASD-Epi) had a completed GI form. Children with ASD-Epi had a higher proportion of GI problems compared to children without ASD alone (63.2% compared to 49.8%, p -value = 0.000). A total of 1921 (302 with ASD-Epi) had a completed cognitive battery. Children with ASD-Epi had a higher proportion with lower cognition compared to children without ASD alone, but this did not reach significance (60% compared to 65.5%; p -value = 0.07). For the 962 children (161 with ASD-Epi) with a completed Vineland, those with a history of seizures had significantly lower mean scores for the overall score and its subscales. Conclusion: Children with ASD and a history of seizures have increased rates of GI problems, sleep problems, and daytime behavior problems compared to children with ASD and no seizures. Greater understanding of these relationships could lead to better interventions for this population.

Abstract 45

Correlates of Repetitive Movements In Autism Spectrum Disorders

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Purpose: Characterization of clinical phenotypes in autism spectrum disorders (ASD) may be useful in identifying potential complications and establishing treatment plans. Stereotypic and repetitive movements may help identify subtypes of ASD. We sought to determine clinical findings associated with stereotypic movements in individuals with ASD enrolled in a large ASD registry. Methods: Children with a diagnosis of ASD (autism, Asperger disorder, or PDD-NOS) confirmed by ADOS, age 2 - 18 years were enrolled in the Autism Treatment Network (ATN) Registry which collects data on children with ASD at 14 sites across the US and Canada. Parents completed a medical history questionnaire and subjects underwent a battery of assessments including cognitive testing and detailed neurologic examination. Repetitive movements were assessed and observed by clinician during examination. Results: Examination of 2482 children with ASDs revealed 892 with repetitive movement abnormalities (36%). Rates across ASD categories showed 41.6% in autism, 21.2% in Asperger syndrome, and 25.0% in PDD-NOS. Of the 892 children with at least one repetitive movement abnormality the most common abnormality was hand flapping (59%). The relationship between repetitive movements and language regression, EEG results, IQ, and parent reported GI problems and sleep problems was examined. Using a p -value of 0.0055 as evidence of an association (Bonferroni adjusted for multiple (9) looks per item) two significant associations were found. Children with parent reported language regression and lower IQ had significantly higher presence of repetitive movements (p -value = 0.002 and 0.000, respectively). Conclusion: Repetitive or stereotypic movements are common in ASDs, with hand flapping movements most frequently reported. Although common, stereotyped behaviors are not universal as a core feature of ASD. Individuals with lower cognitive ability <70 and with history of language regression were significantly more likely to demonstrate repetitive movement abnormalities. It is possible that children with higher cognitive abilities have more verbally related obsessions, or are able to process verbal or physical redirection better than lower functioning children. While repetitive behaviors can be environmentally influenced, the association with other neurodevelopmental abnormalities suggests further study of a neurologic and genetic basis is indicated.

Abstract 46

The Role of Stigma in Parental Help-Seeking for Child Behavior Problems

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Purpose: Parental help-seeking is a crucial first step in obtaining care for children with behavior problems. Stigma has been shown to predict help-seeking in the adult literature, but has not been unexamined in regard to parental help-seeking. The present study examined the relationship between stigma and parental help-seeking. Methods: 159 parents of children ages 2-8 were recruited in the waiting room of a Midwestern, rural, primary care practice. Parents completed survey instruments assessing demographic variables, child behavior, barriers to treatment, perceived stigma regarding parenting classes (parental self-stigma, public stigma, and personal impact of stigma), and perceived likelihood of enrolling in parenting classes. Results: After controlling for demographic variables, barriers to treatment, and child behavior, separate linear regressions were conducted to examine the impact of stigma towards parents and stigma towards children on parental help-seeking. Parents rated themselves as significantly more likely to attend parenting classes with lower ratings of self-stigma ($p < .05$) and greater parental personal impact of stigma ($p < .05$). The inclusion of stigma toward the child did not significantly increase the variance explained in perceived likelihood of attending parenting classes over control variables. Paired sample t -tests revealed that parents believed that children are more likely than parents to receive public stigma ($p < .001$) and be personally impacted by stigma, ($p < .001$). Child behavior moderated the relationship between help-seeking and parental public stigma ($p < .05$) as well as parental personal impact of stigma ($p < .05$). Specifically, parents of children with low levels of behavior problems were less likely to seek help with higher levels of stigma, whereas parents of children with high levels of behavior problems were more likely to seek help with higher levels of stigma. Conclusion: Parents weigh how they will be personally impacted by stigma when deciding whether to enroll in parenting classes. Parents may also weigh the stigma of having a child with behavior problems against the stigma of attending treatment when deciding whether to seek help. When making referrals, primary care pediatricians should keep in mind how parents may stigmatize themselves or believe they will be treated differently by others for attending treatment, and address these concerns.

Poster Session Abstracts

Abstract 47

Improving Children's Self-Regulation and Executive Function: Does Martial Arts Training Help?

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Purpose: Martial arts are globally popular, and many parents perceive them as potentially beneficial to children's self-regulation and executive function (e.g., ability to pay attention). The purpose of this presentation is to present the current state of scientific evidence on the topic and to present results from a randomized, school-based martial arts intervention. **Methods:** First, I summarize the scientific evidence for or against martial arts training for children based on an extensive review of the literature. Second, I present results from my research examining the impact of school-based Tae Kwon Do training on elementary age children. Children (N = 207) from kindergarten through Grade 5 were randomly assigned by homeroom class to either the intervention (Taekwondo) group or a comparison (traditional physical education) group. Outcomes were assessed using multidimensional, multimodal assessments. **Results:** After a 3-month intervention, results indicated that the Taekwondo group demonstrated greater improvements than the comparison group in areas of cognitive self-regulation, affective self-regulation, prosocial behavior, classroom conduct, and performance on a mental math test. A significant Group by Gender interaction was found for cognitive self-regulation and classroom conduct, with boys showing greater improvements than girls. **Conclusion:** In a randomized, school-based study of Taekwondo, results were positive and indicated that children did improve their self-regulation, executive function, and classroom behavior. I discuss the implications and needs for future research. Given the wide variability between martial arts programs, instructors, and teaching methods, more research is needed to distinguish positive training environments from those that may not produce results similar to those found in my research.

Abstract 48

Feasibility and Effectiveness of Mid-level Developmental Assessment

Kyle D. Pruett, MD, Yale University, New Haven, CT, Susan Vater, EdM, Kimberly Martini Carvell, MS, Sandy Kyriakopoulos, PsyD, Village for Families and Children, Hartford, CT, Paul Dworkin, MD, Connecticut Children's Medical Center, Hartford, CT

Purpose: When developmental screening identifies children in need of further evaluation, referral for comprehensive assessment is often delayed. We report on the feasibility and effectiveness of a Mid-level Developmental Assessment (MLDA) model designed to address the needs of children with mild/moderate levels of delay and to enable children with more severe delay to access tertiary-level assessment in a timely fashion. **Methods:** Referrals for MLDA were solicited from child health, early care and education, mental health, and social service providers, and parents. MLDA was conducted by a Masters-level social worker and a developmental specialist. Components included: solicitation of data from the child health provider; parent interview and completion of the Parenting Stress Index; child evaluation using the Developmental Assessment of Young Children or the Provence Profile of the Infant and Toddler Developmental Assessment; the development of an Individualized Family Service Plan (IFSP); and case management. **Results:** 80 children from an at-risk, urban population received MLDA during a 22 month pilot period. 82% were found to have mild to moderate delays. 18% were referred for tertiary evaluation and were found eligible for categorical programs (e.g., Part C and Part B). Children were typically seen within one week of referral and MLDA completed within two weeks of initial interview. All children were connected to community-based programs and services. MLDA was largely covered by third-party reimbursement. **Conclusion:** MLDA is a feasible and effective model for the timely assessment of children suspected of developmental delay on the basis of surveillance and screening. Children with mild/moderate delays are efficiently linked to programs and services, while children with more severe delays have facilitated access to more comprehensive assessment and services.

Abstract 49

Room to Grow: Medical Students' Baseline Knowledge of Child Development

Peter MacPherson, BSc, Pediatrics, C R. North, BSc, Public Health Sciences, University of Alberta, Edmonton, AB, Canada, Shirley Leew, PhD, Alberta Health Services, Calgary, AB, Canada, Suzanne Tough, PhD, Pediatrics and Community Health Sciences, University of Calgary, Calgary, AB, Canada, Debra Andrews, MD, Pediatrics, University of Alberta, Edmonton, AB, Canada

Purpose: To recognize abnormal child development, physicians require knowledge of normal development. Both medical trainees and practicing physicians have identified significant knowledge gaps in this area. We are conducting a longitudinal study of medical students' knowledge of child development. Phase One assessed students' baseline knowledge. **Methods:** In the first semester of medical school, all 169 students were sent an online survey prior to receiving any formal teaching in child development. The survey contained demographic questions and a child development knowledge survey (17 questions on the age at which most children attain developmental milestones). The total number of correct answers was dichotomized into low and high. Logistic regression was used to conduct the analysis. Additionally, milestones were separated into motor and non-motor categories. A paired t-test was used to compare the proportion of correct responses between motor and non-motor questions. **Results:** 104 students responded (62% response rate). The average score was 4 out of 17 (range: 1-8). In the univariate analyses, age, interaction with children, and gender were not associated with scores on the milestone questionnaire. In the multivariate analysis (containing age, interaction with children and gender), none of the variables were associated with scores. When milestones were separated into motor and non-motor categories, no variables were associated with scores. Students performed significantly better on questions that tested motor milestones compared to all other milestones ($p < 0.001$). **Conclusion:** At the start of training, medical students lack basic knowledge

Poster Session Abstracts

of child development. No factors predicted greater knowledge of child development. As such, all students will require direct instruction and clinical experience to gain expertise.

Abstract 50

The Great Canadian Developmental Mnemonic Contest: A Somewhat Unorthodox Faculty-Student Collaboration

Debra Andrews, MD, Peter MacPherson, BSc, Pediatrics, University of Alberta, Edmonton, AB, Canada

Purpose: Medical students know how they learn most effectively but may not know what is most important in a new content area. Expert faculty know what's important but often have difficulty teaching students because of what some have termed the Curse of Knowledge- the inability to think like a novice learner. This disconnect limits educators' effectiveness. Ongoing collaboration between faculty and learners could help: teachers determine important learning objectives, learners let teachers know if objectives are retained and how they might best be presented. We describe a simple educational intervention to bridge the gap between faculty and students. Methods: We held a contest in which Year 2 medical and dental students in a preclinical neurosciences course were asked to develop a mnemonic to describe 5 sectors of child development. A panel of 3 faculty judges assessed entries on creativity, stickiness, brevity, and humour. Results: Students submitted 73 entries. A grand prize, 10 runner-up prizes and 3 special prizes were awarded. The winning mnemonic was presented at a paediatric department event and was used in 3 seminars, appended to 3 teaching tools, and incorporated into the 2011 syllabus of the course for which it was prepared. Conclusion: Collaboration using a fun, creative contest approach engaged student learners to produce their own educational products, and the winning entry has already been taken up by faculty teaching normal child development in the coming year. Future evaluation of student uptake of the mnemonic will also require assessment of whether students retained knowledge of the five sectors it was designed to teach.

Abstract 51

Adherence and Psychological Evaluation Recommendations for Young Children with ASD

Elizabeth Dohrmann, BA, Hylan Noble, BA, Alison Vehorn, BS, TRIAD, Julie Lounds Taylor, PhD, Special Education, Zachary Warren, PhD, Division of Developmental Medicine, Vanderbilt University, Nashville, TN

Purpose: To evaluate accurate recollection and implementation of recommendations following ASD diagnoses. Methods: 75 mothers whose children had been evaluated and diagnosed through a research clinic completed a booklet of questionnaires assessing recollection of recommended services. Recommendations were also coded by blinded research assistants and discrepancies in report were evaluated. Results: A majority of mothers accurately recalled recommendations regarding behavioral, educational, and adjunctive therapy services (e.g., speech therapy, developmental preschool, ABA consultation). Parents frequently failed to recall recommendations about joining parent support groups, contacting other parents, genetic testing, and incorporating specific behavioral support within school programs. Parents also frequently endorsed recommendations for services that had not been made (e.g., referral to DAN doctor). In terms of actual implementation of the recommendations, the highest adherence rates (70% or higher) were associated with recommendations for IEP/IFSPs, school placement, speech/language services, and incorporating behavioral supports in the home. Recommendations with the least adherence (under 30%) included genetic testing, sleep evaluations, and accessing private ABA consultation. For these recommendations the most commonly endorsed reasons for non-adherence were disagreement with the recommendation (e.g., genetic testing) and cost (e.g., ABA in the home). Conclusion: While most parents appear to be able to adequately recall recommendations, many parents struggle to implement such recommendations. The impact this discrepancy has on parent and child functioning warrants future investigation.

Abstract 52

Screening of Developmental Disorders in Primary Care: Results of an Argentinean Experience

Viviana M. Ensenat, MD, Maria L. Fernie, MD, Pediatrics, British Hospital, Caba, Buenos Aires, Argentina

Purpose: A developmental screening test created in Argentina, has been reported to be an effective tool for the detection of developmental disorders. Sensitivity and specificity have been estimated to be 80.4% and 93% respectively. The aim of this study was to evaluate this test in an unselected population of healthy children. Methods: Children aged 6 months to 6 years attending well-child visits at an Outpatient Clinics were screened as part of a change in practice. Children previously diagnosed with a developmental disorder, or those referred because of suspected developmental disorders were excluded. The test was administered to the sample by three pediatricians previously trained. Written information about the test and its results was provided to the caregivers. Results were coded as passed, failed or untestable. Results: A total of 453 children were assessed. Eighteen could not be assessed on the first screen, and sixteen with a positive first screen did not return for the second. After two screens and further assessment, a total of 84 were identified with a developmental disability, behavioural disorder or relevant medical condition. This included 57 children with Developmental Disability (34 with Language disorder, 7 with Global developmental delay, 6 with developmental coordination disorder, 5 with Autism, 4 with ADHD and 1 with Cerebral Palsy); 24 with behavioral disorders and 3 had a new medical condition identified during screening. A further 2 children failed both screens but further evaluation found them to have normal development and they were coded as false positives. Assuming 80% sensitivity, we calculate that 21 additional children had a developmental disability but passed their first screen, leaving 293 of the 314 who passed their first screen as "true negatives". The specificity of this screening test is then calculated as 293/(453-84) or 79%, which remains within the guidelines suggested for a screening test Conclusion: The test appears to maintain its good specificity in a general pediatrics clinic with a prevalence of unrecognized developmental

Poster Session Abstracts

disabilities of 18.5% and only 2 false positive tests in this sample. While we do not know the true sensitivity, the fact that we found the predicted number of children with developmental disabilities in this unselected sample suggests that it is good.

Abstract 53

An Extended-Release Formulation of Clonidine Hydrochloride Tablets for the Treatment of ADHD in Children and Adolescents With Inadequate Response to Stimulants

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Purpose: Some patients with attention-deficit/hyperactivity disorder (ADHD) may not achieve an adequate response with stimulants (STM) and may require combination therapy with nonstimulants. In a flexible-dose, double-blind, placebo-controlled study, the efficacy and safety of clonidine hydrochloride extended-release tablets (CLON-XR [KAPVAY; Shionogi Inc, Florham Park, NJ]) combined with STM in pediatric and adolescent patients with ADHD was assessed. **Methods:** Patients aged 6 to 17 years with hyperactive or combined ADHD who had inadequate response after ≥ 30 days on a stable STM regimen received flexible-dose CLON-XR 0.1-0.4 mg/d (doses >0.1 mg/d given as twice daily doses) or placebo (PBO) plus STM for 8 weeks. Primary endpoint was mean change in ADHD Rating Scale-IV (ADHD-RS-IV) total score from baseline to the end of week 5 using a last observation carried forward method. Clinical Global Impression of Severity (CGI-S) and Improvement (CGI-I), Conners Parent Rating Scale-Revised: Long Form (CPRS-R), and Parent Global Assessment (PGA) scores were secondary endpoints. Safety data were collected throughout. **Results:** At week 5, a statistically significant improvement from baseline in ADHD-RS-IV total score was observed with CLON-XR + STM vs PBO + STM ($P=0.009$). ADHD-RS-IV inattention and hyperactivity/impulsivity subscale scores were significantly improved at week 5 with CLON-XR + STM ($P=0.017$ and $P=0.014$, respectively). CPRS-R total score ($P=0.017$) and CGI-I ($P=0.006$), CGI-S ($P=0.021$), and PGA ($P=0.001$) scores improved significantly in the CLON-XR + STM group. Overall effect size for CLON-XR + STM vs PBO + STM based on ADHD-RS-IV total score was 0.34. Somnolence and fatigue were common treatment-emergent adverse events but did not cause discontinuation in the CLON-XR + STM group. Cardiovascular and electrocardiographic changes with CLON-XR were negligible. **Conclusion:** CLON-XR in combination with STM improved ADHD symptoms in children and adolescents with ADHD who had an inadequate response to a stable STM regimen and was well tolerated, supporting the use of CLON-XR in the treatment of pediatric patients with ADHD and a suboptimal response to STM.

Abstract 54

Chronic Administration of Clonidine Hydrochloride Extended-Release Tablet Monotherapy or Combination Therapy in Pediatric Patients With Attention-Deficit/Hyperactivity Disorder

Matthew Brams, MD, Bayou City Research, Ltd, Houston, Texas, Leslie Magnus, MD, Medical Affairs, Shionogi Inc, Florham Park, NJ

Purpose: The primary objective of this open-label study was to evaluate the long-term safety of clonidine hydrochloride extended-release tablets (CLON-XR [KAPVAY; Shionogi Inc, Florham Park, NJ]) alone or in combination with other medications for the treatment of attention-deficit/hyperactivity disorder (ADHD) in pediatric patients for up to 1 year; the secondary objective was to assess the long-term efficacy of CLON-XR. **Methods:** Patients aged 6 to 17 years with ADHD who previously completed a phase 3 efficacy trial of CLON-XR alone or in combination with other ADHD medications or who discontinued for reasons other than safety were enrolled. Patients received flexible dosing of CLON-XR (0.1-0.4 mg/d; twice daily for doses >0.1 mg/d) alone or with other ADHD medications. **Results:** The safety population comprised 301 patients: 33% received CLON-XR monotherapy, and 67% received CLON-XR in combination with other therapies. Mean weight increased (mean change, 4.5 kg at month 12), mirroring the anticipated growth of the patients. Treatment-emergent adverse events (TEAEs) were reported in 84% and 81% of patients in the CLON-XR alone and CLON-XR combination groups, respectively, and were more frequent during the first 27-day time period (ie, period of upward titration of CLON-XR and frequent study visits). The most common TEAE was transient somnolence (32%; median duration, 27 days). Seventeen patients (6%) discontinued because of a TEAE. Somnolence was the most common reason for discontinuation and occurred in only 1% of patients. No cardiac-related serious adverse events occurred. After 4 weeks, mean change from baseline in ADHD Rating Scale-IV total score was -13.7, and improvement was sustained throughout the 12-month study in patients who remained in the study (mean at 12 months, -14.6). **Conclusion:** Flexible dosing of CLON-XR 0.1 to 0.4 mg/d (twice daily for doses >0.1 mg/d) as monotherapy or in combination with other ADHD medications for up to 1 year was safe and well tolerated. Safety was comparable in patients receiving CLON-XR alone or in combination with other ADHD medications. Mean change in ADHD Rating Scale-IV total score was markedly improved at 1 month.

Poster Session Abstracts

Poster Session 2

Monday, September 19, 2011 from 2:20pm - 3:20pm

Abstract 55

The Health Belief Model and Adherence in Children with Cystic Fibrosis

Nicole R. Wightman, MA, Beth G. Wildman, PhD, Psychology, Kent State University, Kent, OH, Tracy L. Masterson, PhD, Psychology, John Carroll University, University Heights, OH

Purpose: Cystic Fibrosis (CF) is a life-shortening genetic disease that targets the respiratory and digestive systems and requires many daily treatments. The goal of the present study was to evaluate the use of the Health Belief Model (HBM) in understanding children's medical adherence. **Methods:** Participants were 33 child-parent dyads from a Midwestern CF center. Parents and CF patients completed questionnaires regarding their self-reported health beliefs and adherence to treatment. **Results:** Multiple linear regressions were used to test the relationship among the HBM variables and self-reported global adherence for both children's and parents' reports. For children, the HBM variables were significantly related to global adherence, $F = (5, 27) 7.485$, $p < .001$, and accounted for 50% of the variance. For parents, the HBM variables were also significantly related to global adherence, $F(5,27) = 4.958$, $p < .01$, and accounted for 38% of the variance. Multiple linear regressions were used to explore the relationship among the HBM variables and self-reported specific treatment adherence for children's and parents' reports. For children, the HBM variables were significantly related to their self-reported adherence for aerosol medications ($p < .01$), aerosol antibiotics ($p < .01$), and vitamins ($p < .05$). These models accounted for 30-55% of the variance in treatment adherence. For parents, the HBM variables were significantly related to their report of children's adherence to airway clearance ($p < .01$), oral antibiotics ($p < .01$), and vitamins ($p < .05$). These models accounted for 27-37% of the variance in treatment adherence. Paired sample t-tests revealed significant differences between children's and parents' health beliefs. **Conclusion:** These findings provide further support for the use of the HBM in evaluating adherence in a chronically ill, pediatric population. Due to children's and parents' different perceptions of health beliefs and how they relate differently to adherence, results suggest that interventions to increase adherence should focus on children and their parents, individually, as well as by specific medical treatment.

Abstract 56

Relating Adherence and Perceptions of Psychosocial Variables among Children with Cystic Fibrosis

Nicole R. Wightman, MA, Psychology, Kent State University, Stow, OH, Beth G. Wildman, PhD, Psychology, Kent State University, Kent, OH, Tracy L. Masterson, PhD, Psychology, John Carroll University, University Heights, OH

Purpose: Cystic Fibrosis (CF) is a life-shortening disease that targets the respiratory and digestive systems and requires a complex adherence regimen. The relationship between children's health beliefs and adherence were evaluated in order to design more effective adherence interventions. **Methods:** Participants were 29 child-parent dyads from a Midwestern CF center who completed questionnaires regarding their disease knowledge, management, attitude towards illness, social support, and adherence. **Results:** The mean age of participants was 13.5 years and 50% were male. A correlation matrix found that disease knowledge was not significantly related to children's reported disease management, attitude towards illness, social support, or adherence. Self-reported adherence was positively correlated with perceived social support ($r = .439$, $p < .05$) and less disease management difficulty ($r = -.348$, $p < .05$). Linear regression findings show children's disease management mediated the relationship between children's social support and attitude towards illness ($p < .01$, Sobel $< .05$), such that children who feel more socially supported have less disease management difficulty, which improves their attitude towards their illness. **Conclusion:** These findings indicate that children's perceived social support and ability to manage their illness are related to their attitude towards their illness, as well as their self-reported adherence. Previous research has found that children with more negative attitudes toward their illness are more likely to have adjustment problems, such as depression and anxiety. The results of this study suggest these are important area to assess and intervene.

Abstract 57

Comparative Cost Analysis of Telemedicine versus Traditional In-Person Developmental-Behavioral Pediatric Encounters

Neelkamal Soares, MD, Pediatrics, Rob Sprang, MBA, Kentucky TeleCare, Jessica Heath-Ahlgrim, CPC, Pediatrics, University of Kentucky, Lexington, KY

Purpose: While Eastern Kentucky presents significant geographic barriers to specialty pediatric care, accessing developmental-behavioral pediatric (DBP) care through the TIDBIT (Telemedicine In Developmental-Behavioral Pediatric Intervention and Training) program has been shown to be of cost-benefit to families (Soares, Patidar et al, in press). This study provides a cost-benefit analysis for healthcare systems for TIDBIT in Kentucky, particularly to demonstrate no revenue disparity for telemedicine (TM) versus in-person DBP care. **Methods:** A review of billing charges for DBP at University of Kentucky over a 2-year period was done including all patient encounters for in-person and TM, identified by modifier code GT. System business cost including clinician travel reimbursement and lease for equivalent outreach efforts, and hourly cost for TM and in-person clinic utilization was calculated. Gross collection rates (GCR) for TM and in-person DBP encounters variance was calculated. **Results:** 267 TM versus 1507 in-person encounters, with identical distribution of diagnoses (ADHD 25% and Developmental Delay 18% commonest). There were more consult/new patients seen by

Poster Session Abstracts

TM (45%) versus in-person (29%) and 3 major payors accounted for mean 93% for TM, and 88.5% for in-person collections. Total GCR variance between TM and in-person was -2.3% (46.8% vs. 49.1%) and by payor ranged from +4% to -8%. Comparison by E&M codes variance revealed -11% to +11% for established and -10% to +6% for new/consult. Cost of TM encounter for primary site averages \$42/hour and \$22/hour for distal community site. Latter is able to charge/recoup \$26/patient as "facility fee" from private payors. Cost of in-person encounter at primary site is \$38/patient. With distal TM sites averaging 99 miles one-way from primary site, calculated expense for physician outreach (without TM) is \$39/patient. Conclusion: Systems costs for operating Telemedicine DBP clinical services are equivalent when compared to in-person; and reimbursement varies, but is almost equivalent between TM and in-person in Kentucky. The incalculable benefits include partnerships with community hospitals and retention of patient care in the community, while being of positive cost-benefit to families seeking DBP services for their children. This study can help other DBP clinicians determine feasibility of launching TM services in their area.

Abstract 58

Geomapping in Utilization and Cost-Benefit of Telemedicine Developmental-Behavioral Pediatric services in Kentucky

Neelkamal S. Soares, MD, Pediatrics, University of Kentucky, Lexington, KY, Nitish Patidar, MBBS, MHA, Health Administration, University of Alabama at Birmingham, Birmingham, AL, Andrew O. Johnson, PhD, Health Services Management, Shibani Kanungo, MD, MPH, University of Kentucky, Lexington, KY

Purpose: Eastern Kentucky in traditionally underserved rural Appalachia presents significant geographic barriers to care for children with developmental-behavioral problems. Accessing regional subspecialists at metropolitan tertiary centers burdens families with large travel times and costs, and potential lost wages for caregivers. In Eastern Kentucky, access to a Developmental-Behavioral Pediatrician through high-speed videoconferencing technology is by the TIDBIT (Telemedicine In Developmental-Behavioral Pediatric Intervention and Training) program. To date, there has been no study about utilization and cost-benefit of a pediatric model of telemedicine subspecialty care using Geographical Information System (GIS) mapping. Methods: Approved by University of Kentucky (UK) Institutional Review Board, a retrospective chart review of patients in the TIDBIT program at three Telemedicine sites over a 22-month period from 2008-2010 was done. Patient addresses were geocoded and spatially analyzed by ArcGIS software. Calculation of time and distance to alternate UK clinic compared to telemedicine site patient was actually seen was done and direct and indirect costs to families calculated. Results: 149 patients utilized TIDBIT services for total of 249 visits, ranging in age from 1-17 years with 18% females. 41 Kentucky counties and 4 West Virginia counties were represented, and 77% of patients carried state Medicaid insurance. 26 categories of diagnoses were represented, most frequent being Developmental delay 28.86%, and ADHD 16.11%. For patients, compared to travel to UK tertiary center, using telemedicine yielded average savings per visit of \$47.85, (travel cost: \$20.77, wages lost: \$24.83, parking: \$2.25). Round trip travel of 91.90 miles and 96.60 minutes was saved. Conclusion: GIS analysis demonstrates significant cost savings for patient families that utilize telemedicine to deliver subspecialty pediatric care in Kentucky. Future explorations using ArcGIS mapping will identify potential locations to expand the TIDBIT program to further improve access for families of children with developmental-behavioral problems.

Abstract 59

Cognitive and Behavioral Outcomes of Late Preterm Infants: The Bigger the Better?

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Purpose: We explored the associations among preterm status (Very preterm infant (VPI: <30 weeks), Moderate preterm (MPI: 30-336/7 weeks), Late preterm (LPI: 34-366/7 weeks), parenting, and later cognitive and behavioral outcomes, hypothesizing that low-risk preterm infants who experienced more positive parenting would demonstrate better cognitive and behavioral outcomes at 36 months. Methods: Sample included 123 preterm infants (gestation < 37 wk) and their mothers from a larger study of high-risk infants, and included measures of neonatal and socio-economic risks at NICU discharge; maternal vocabulary at 9-months, IQ and behavior at 36-months, and maternal depressive symptoms and parenting at all timepoints. Associations among parenting, cognition, behavior, and preterm status were explored using hierarchical regression analyses. Results: MANOVAs indicated that LPIs have more optimal neonatal health during the NICU stay. There were no differences in IQ between VPIs, MPIs and LPIs. However, preterm infants who experienced less negative parenting had higher IQs at 36 months with the greatest effects seen in VPIs (Beta= -3.245, p = .017). LPIs demonstrated more externalizing (p= 0.019) and oppositional behaviors (p=0.016) compared with VPIs. Overall, less negative parenting was associated with fewer externalizing behaviors (Beta= -.25, p = .043). Conclusion: LPIs demonstrate developmental vulnerabilities despite being at lower medical risk than infants who were born more preterm. LPIs manifest similar IQ, but increased behavior problems compared to VPIs. Preterm infants appear to be differentially susceptible to the effects of parenting, with VPIs demonstrating the greatest cognitive gains in the context of more positive parenting.

Poster Session Abstracts

Abstract 60

Self-reported Bullying and Ostracism in Youth with Chronic Medical Conditions and/or Attention Deficit Hyperactivity Disorder

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Purpose: This study investigates relative rates of self-reported bullying and ostracism experiences in youth with chronic medical conditions and/or ADHD. **Methods:** Participants aged 8-17 (33 males and 31 females) were recruited from subspecialty clinics in a tertiary care medical center. There were 31 elementary school students, 18 middle school students, and 15 high school students. Of the 64 participants, 19 had a diagnosis of ADHD only (ADHD), 31 had a diagnosis of chronic medical condition (CMC), and 14 had a combination of both (ADHD+CMC). Patients were assessed for the occurrence of bullying and/or ostracism using Saylor's Bullying and Ostracism Screening Scale (BOSS). The BOSS quantifies bullying by asking about physical, verbal-social, and cyber-bullying experiences. A separate BOSS section asks about and quantifies ostracism experiences. **Results:** Analyses of Variance with Duncan Post Hoc tests were used to compare the three diagnostic groups (ADHD, CMC, ADHD+CMC) on self-reported rates of ostracism experiences, peer victimization experiences (Victim), and bullying of others (Bully). The groups were significantly different in ostracism rates, $F(2,61) = 8.45, p < .001$. The ADHD and ADHD+CMC groups reported significantly higher ostracism than the patients with CMC only. The diagnostic groups also reported significantly different rates of being victimized by their peers, $F(2,61) = 5.41, p < .007$. Again, students who had diagnosed ADHD, with or without CMC, reported higher victimization rates than students with CMC alone. There were no significant differences among the diagnostic groups in rates of self-reported bullying of others. **Conclusion:** Based on self-reported measures, ADHD, independent of other diagnoses, appears to put a child at increased risk of experiencing ostracism or being victimized by their peers. Practitioners caring for youth with ADHD need to be cognizant of this increased risk and regularly monitor their patients for bullying and ostracism concerns.

Abstract 61

Identification of Siblings at Risk of Autism in Multiplex Families: A Gender-Specific Genetic Based Approach

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Purpose: Autism spectrum disorders (ASDs) are highly heritable complex neurodevelopmental disorders with a 4:1 male:female ratio and a 10% sibling recurrence-risk. We explored the predictive ability of a gender-specific genetic score based on the presence of associated single-nucleotide polymorphisms (SNPs) to evaluate the risk of autism in siblings of children with autism. **Methods:** SNPs associated with an increased risk of autism were identified by performing gender-based genome-wide association studies on 544 multiplex families. Identified SNPs were prioritized using relevant biological data. We then assessed the ability of gender-specific genetic scores (GS), the sum of individual risk-associated alleles, to discriminate siblings with or without autism. **Results:** A total of 88 autism associated SNPs were identified. 52 SNPs were associated with autism in both males and females, 17 SNPs were associated with autism in males only and 19 SNPs in females only. GSs were constructed by combining these SNPs with 8 previously identified autism-associated SNPs using 1,034 children with ASDs and 300 unaffected siblings. For males, the area under the receiver operator characteristic curve (AUC) was 0.82 (95%CI:0.77-0.86); a GS of 76 was associated with an 89% specificity, a 50% sensitivity and a 47% positive predictive value (PPV). In females, the AUC was 0.84 (95%CI:0.79-0.88); a GS of 75 was associated with a 93% specificity, a 48% sensitivity and a 23% PPV. **Conclusion:** Our findings demonstrate that a gender-specific genetic score based on the presence of multiple risk-associated markers allows for the identification of siblings of children with autism who have a significantly higher risk to develop autism.

Abstract 62

Pediatricians' Knowledge, Skills, and Attitudes about Special Education Referrals and Monitoring IEP's

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Purpose: Pediatricians must be knowledgeable of services for children ages 3-21 years with developmental, behavioral, and educational challenges requiring an Individualized Education Program (IEP) and the special education referral process. The extent to which the medical community plays a role in the development of the IEP is unknown, as are pediatricians' current knowledge and practices with regard to special education. **Methods:** A survey instrument was developed and mailed to a national sample of 1000 randomly selected general pediatricians and pediatric residents. **Results:** The response rate was 42%. Of the 7 knowledge items, respondents answered an average of 4.1 correctly (95% confidence interval [CI]: 3.9, 4.2) reflecting gaps in pediatricians' knowledge about special education referral and management. The majority felt pediatricians should be responsible for identifying children who may benefit from special education services (84% [CI]: 81%, 88%) and assist patients in obtaining services (85% [CI]: 81%, 88%). However, though the majority of pediatricians inquired whether a child was having difficulty at school (98%, [CI]: 97%, 100%), few asked parents if they need assistance obtaining services (61%, [CI]: 56%, 66%), conducted screening tests (60% [CI]: 55%, 65%), or provided materials

Poster Session Abstracts

about special education services (13% [CI]: 10%, 17%). Financial reimbursement (97%, [CI]: 95%, 99%), access to guidelines (90%, [CI]: 87% 93%), and adequate training (88% [CI]: 85%, 92%) were amongst the most significant barriers impacting a pediatrician's ability to provide care to children with educational difficulties. Conclusion: This study represents a first step in understanding pediatricians' knowledge, beliefs, and practice patterns in providing care to children with special education needs. In order to provide a comprehensive medical home pediatricians must be informed about the special education process. However, this study demonstrates that addressing gaps in pediatricians' knowledge and practice patterns regarding special education will require a variety of adult learning strategies.

Abstract 63

Management of Rett Syndrome: A Systematic Review

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Purpose: Rett Syndrome (RTT) is an X-linked neurodevelopmental disorder almost exclusively occurring in girls. It is characterized by a period of typical development, followed by stagnation in development and regression. Medical problems including seizures, breathing abnormalities, sleep disturbance, poor growth/nutrition, scoliosis, possible prolonged QT syndrome and other complications are commonly seen in this syndrome. Particular developmental and behavioral patterns are also observed. This review aims to provide physicians with a guideline for the management of patients with RTT. Methods: A literature review was completed using an Ovid MedLine search with the search term Rett Syndrome. This was focused and expanded, with the limits of English language, age range of 0-18 years, and humans. A combined filter of diagnosis/treatment/etiology/management was then run. Abstracts were reviewed in a three pass process and articles focusing on management/treatment issues were grouped by medical system and systematically appraised. Results: Seventy-five studies met the criteria for review. A limited amount of good quality evidence was found for specific treatment options of RTT. However, evidence based care recommendations on surveillance and management of girls with RTT were created based on best evidence, including clinical expertise when published evidence was lacking. Conclusion: There are common medical, developmental, and behavioral conditions that are seen in girls with RTT. These care recommendations will help to direct the decision making process for clinicians managing children with RTT. Ongoing and future research is needed to improve the evidence base for the management of RTT.

Abstract 64

The Social Awareness Knowledge (SAK) Test: An Interactive Test to Detect Autism Spectrum Disorders (ASD) in Toddlers

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Purpose: Interactive tools may trigger atypical behaviors, leading to enhanced early identification and improved outcome of ASD. We present preliminary data on the performance of the SAK in affected toddlers. Methods: The 9 testlets of the SAK detect social communication skills delayed in toddlers with ASD: joint attention; response to name; reaction to emotions and human agency. Each testlet is coded from 0-4 (typical to atypical) from which a total score is generated. Administration and scoring take 10 minutes. A 4-session, 90-minute training module was developed and pilot tested with a multidisciplinary team in our specialty clinic. The training module consisted of observation, scoring of videos of SAK assessments, and group discussion of scoring results. The initial 7 testlets (version A) were expanded to 9 testlets (version B) for improved precision. In parallel, the SAK was piloted in a toddler autism evaluation project that follows progress every 6 months. The SAK and the Autism Diagnostic Observation Schedule (ADOS)-Module 1 were administered at 2 visits by the same examiner; these were videotaped to be scored by an independent reviewer. We calculated correlation coefficients using Spearman's rho statistic of total scores from both versions of the SAK with the ADOS. (See table) Results: Forty-three toddlers were tested: 37 boys and 6 girls, aged 16 to 32 months (mean: 25.2 months). Both versions of the SAK were significantly correlated with the ADOS. Conclusion: We present promising preliminary data on the validation of a 10-minute interactive test to detect ASD in toddlers, following a short and easy training.

SAK and ADOS Strongly Correlated

	SAK A	SAK B
Visit 1	N=25	N= 18
	r=0.55; p=0.005	r= 0.70; p=0.001
Visit 2	N=3	N= 13
		r=0.87; p=<0.001

Poster Session Abstracts

Abstract 65

The Effects of a Home Visiting Program on Well Child Appointment Keeping

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Purpose: The MOM Program is an innovative randomized controlled trial home visiting program in which services are delivered by a team that includes both nurse practitioners and community workers, with the aim of empowering mothers to seek community resources on behalf of their children. This report describes the rates of completed home and primary care physician (PCP) visits throughout the study, and examines their relationship. The fundamental question examined is whether home visits increase the likelihood that children receive well child visits. Methods: Of the 302 mothers initially recruited into the study, 152 were randomized to receive the intervention, which consisted of 9 home visits over the 33 months of the program. On average, mothers in the program completed 7 of the 9 visits, and 89% of the sample were retained throughout the study. Results: The rates of successful home visits and PCP visits varied, with rates of completed home visits ranging from 82.2% to 90.8% and rates of completed PCP visits ranging from 26.3% to 90.1%. Although the percentages of successful home visits remained stable and high over the course of the intervention, the likelihood of mothers keeping health care visits for their children decreased over time. Two PCP visits were particularly challenging, those at 15 and 30 months. In each case, although the visits were recommended by the American Academy of Pediatrics, children did not receive immunizations or special procedures at these visits. Generalized estimating equations for determining the probability of completing a PCP visit when a successful home visit was completed were derived. The odds of having a successful PCP visit when there was a prior successful home visit was found to be 10.77 times greater than having a successful PCP visit without a successful home visit ($p < .001$). Conclusion: These results offer support for the utility of home visiting programs in promoting PCP visits for at-risk children.

Abstract 66

Assessing Factors in the Neurodevelopmental Outcomes in Infants with Twin-Twin Transfusion Syndrome (TTTS)

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Purpose: TTTS develops in monochorionic twins from unbalanced sharing of blood through vascular communications in the common placenta. The shunting of blood from one twin (donor) to the other twin (recipient) results in donor fetus hypovolemia and recipient fetus volume overload. TTTS leads to high rates of perinatal mortality and neurodevelopmental morbidity. Selective laser photocoagulation of communicating vessels via operative fetoscopy has produced significant improvement in perinatal outcomes. Despite this success, studies of the risk factors to long-term neurodevelopment outcomes of the infants with TTTS post-fetoscopic laser ablation are few, with no studies conducted in the United States. An observational retrospective cohort study of infants who underwent fetoscopic laser surgery for TTTS was performed to evaluate the effects of risk factors on the neurodevelopmental outcomes of these infants at 24 months of age. Methods: Data from the first year of recruitment are presented. The Battelle Developmental Inventory (BDI) total standardized score was used to assess neurodevelopment. Higher Quintero stage, later gestational age of surgery, lower gestational age at birth, and/or lower birth weight were hypothesized to result in poorer BDI outcomes at 24 months of age. Multi-level regression models in Mplus were used to account for shared variance among twins. Results: In Year 1 of the study, 46 children from 24 families were assessed at 24 months +/- 6 weeks. 52% of subjects were male; 48% were donors; 43% were Latino, and 14% were Asian; and 29% of mothers had high school degree or below. Mean BDI scores were average (mean=101.1 (+/-12.7)) with none below a developmental quotient of 70. Significant risk factors for poorer BDI score included lower birth weight, lower current weight and head circumference, and higher corrected age. Intraclass correlations showed that 81% of BDI score variance in the unadjusted model, and 56% of variance in the adjusted model, occurred at the family rather than child level. Conclusion: While this cohort of TTTS infants showed developmental quotients in the average range, family factors emerged as important determinants of those outcomes.

Abstract 67

What is the Role of Peer Support in the Relation Between Gender and Anxiety in Clinically Anxious Youth?

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Purpose: Anxiety disorders are the most prevalent mental health disorders among youth. Although understanding of etiology and maintenance of anxiety disorders has been recently advanced, little is known about the roles that a child's gender and social support may have in how children experience anxiety. This study will examine the role that perceived peer social support may have on children's anxiety level and the level of impairment associated with such anxiety across genders. Methods: Participants were 61 youth diagnosed with a primary or secondary anxiety disorder through the Anxiety Disorders Interview Schedule for Children (ADIS; Albano

Poster Session Abstracts

& Silverman, 1996). Anxiety was measured with the Revised Childrens Manifest Anxiety Scale (RCMAS) and impairment was measured by the severity rating assigned to the primary or secondary anxiety disorder from the ADIS. Social support was measured through child responses to the questions in the Interpersonal Relationships section of the ADIS. Results: A hierarchical regression analysis predicting anxiety scores (RCMAS) revealed a significant gender X perceived social support interaction, $R^2 = .11$, $F(1, 51) = -3.556$, $p < .05$. Girls reported high anxiety across levels of perceived social support, whereas boys who reported low social support reported significantly more anxiety than boys who reported high social support. Analyses dealing with impairment will be complete for SDBP. Conclusion: Few studies have examined the effect that peer support has on each gender in the development or maintenance of an anxiety disorder. Our results provide some evidence that for children diagnosed with anxiety disorders, the severity of anxiety experienced may be associated and maintained by the children's perceived peer support. Further, this finding is qualified by the child's gender, with boys who report low peer support suffering the most anxiety. Peer support was measured by the children's report of engagement in group peer activities and their number of friends. Thus, it is possible that girls' anxiety levels were not affected because larger, less intimate, social relationships are more relevant for boys.

Abstract 68

Impact of Media Exposure, Media Content and Harsh Discipline on Preschool Behavior

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Purpose: This study aimed to investigate the relationship of media exposure hours (MH), media content (MC) and the use of harsh discipline (HD) on externalizing, internalizing and prosocial behavior in preschool-aged children. While all have been associated with increased aggressive behavior in children and media violence and corporal punishment have been associated with increased anxiety, few studies have looked at the combined influence of these factors. Methods: 614 parents reported on their preschool-aged child's MH, MC, and the use of HD (hit with an object, swear, spank, scream or hurt feelings). A composite harsh discipline score was calculated. Three linear regressions were conducted with behavior (Social Competence and Behavior Evaluation-30) as the outcome measure and gender, age, ethnicity, MH, violent or scary MC, and HD as control or potentially associated variables Results: Children were mean age 3.8 ± 0.7 years, 55% male, 66% white, non-Hispanic, 18% below twice the poverty level. After controlling for age, gender, ethnicity and poverty, higher MH ($\beta=0.13$, $p<.05$) were significantly associated with more externalizing behaviors. When violent MC (NS), scary MC (NS) and HD ($\beta=0.36$, $p<.001$) were included, the relationship of MH to externalizing behaviors was no longer significant. The final model explained 16% of the variance. Findings were similar regarding prosocial behavior, with only harsh discipline ($\beta=-0.20$, $p<.001$) significant in the final model, explaining 9% of the variance. No significant relationship was detected for internalizing behaviors. Conclusion: While increased media exposure continues to be associated with more externalizing and fewer prosocial behaviors, the influence of harsh discipline techniques on child behavior appears dominant in this study. Investigation of other home and community variables that may be associated with increased media hours and behavioral difficulties in preschoolers seems warranted.

Abstract 69

Quality of Life and Its Predictors in Adolescents after General Traumatic Injury

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Purpose: This project studied Quality of Life (QOL) in adolescents after general traumatic injury and evaluated factors potentially associated with poorer QOL outcomes. Methods: One hundred eight 12- to 18-year-olds admitted to a level 1 trauma center after injury participated in this prospective cohort study with a population-based sampling frame. Data were collected within 30 days of and 2, 5, and 12 months after injury. A comparison sample included 116 12- to 18-year-olds without disability, mental health diagnosis or chronic illness. Adolescent posttraumatic stress disorder (PTSD), depressive symptoms, and pre- and postinjury stressful life events (SLE) were considered as possible predictors. The Youth Quality of Life Instrument, Research Version was the outcome measure. QOL was investigated in 2 ways: repeated measures at 2, 5, and 12 months after injury and 12-month only. Final analyses included mixed-model and linear regression. Results: Injured adolescents reported normative QOL at injury and 2 months after and significantly better QOL than the comparison sample at 5 and 12 months after injury. However, those meeting symptomatic criteria for PTSD reported significantly poorer repeated measures of QOL ($\beta=-7.76$, $p<0.001$), and those with a higher number of postinjury stressful life events had poorer QOL 1 year after injury ($\beta=-1.24$, $p=0.001$). Continuous 2- to 12-month time-varying depressive symptoms were also significantly associated with lower QOL ($\beta=-0.85$, $p<0.001$). PTSD and depressive symptoms were not included in one regression due to significant multicollinearity. Conclusion: Adolescents without PTSD did not report reduced QOL after injury, and QOL did not change significantly over time. Findings suggest potential points of intervention for those with poorer QOL, including PTSD, depressive symptoms and postinjury stressful life events. Future directions include attention to preinjury mental health and the possibility of posttraumatic growth and investigations with younger children.

Poster Session Abstracts

Abstract 70

Development and Initial Validation of a New Instrument for Developmental Surveillance

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Purpose: The purpose of this study was to create and validate a series of brief questionnaires to assess young children's developmental progress, called "Milestones." The Milestones was designed to be feasible in pediatric settings, and to be short enough to be administered as part of a comprehensive surveillance tool called the Survey of Well-Being of Young Children (SWYC). The SWYC concurrently assesses three domains: child behavior, child development, and family risk factors. This study reports findings regarding the child development component of the larger SWYC. **Methods:** Initial questions were developed based on a systematic review of existing developmental assessments for young children and pilot-tested on a panel of parents and child development experts. To validate the new measure, we enrolled 906 parents from primary care settings and specialty clinics to complete the questionnaires about their children. In addition to these questions about developmental milestones, parents were asked about existing diagnoses of developmental delay and autism, and they filled out validated screening tools such as the Ages and Stages Questionnaire (ASQ-3) and the Modified Checklist for Autism in Toddlers (M-CHAT). **Results:** Individual questions were chosen based on item-response analyses, and 10-item checklists were created to correspond to each pediatric well-child visit. To assess validity, we compared the Milestones to the ASQ-3 and the M-CHAT with regard to their ability to detect parent reports of developmental delay and autism. In each case, sensitivity and specificity of the Milestones was greater than 0.70, even after controlling for covariates such as age, gender and race/ethnicity. Overall accuracy (as measured by the Area Under the receiver-operating Curve, or AUC) compared favorably to the ASQ-3 and the M-CHAT. **Conclusion:** The Milestones shows promise for detecting developmental delays and early signs of autism. A second round of validation in an independent sample is in process.

Abstract 71

Effectiveness of Responsive Teaching with Young Children with PDD: Impact of Parental Psychological Status and Responsiveness

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Purpose: This study compared the effectiveness of a parent-implemented intervention called Responsive Teaching (RT) with children with PDD to investigate how one year of intervention was associated with children's cognitive, communication, and social emotional functioning. **Methods:** The sample included 19 parent-child dyads (one to six years old). Parents and their children received either 3 or 6 months of weekly intervention services. Data collected included the 1) Maternal Behavior Rating Scale (MBRS); 2) Bayley Scales of Mental Development; 3) Vineland Adaptive Behavior Scale; 4) Child Behavior Checklist (CBCL); 5) Temperament and Atypical Behavior Scale (TABS); 6) Center for Epidemiological Studies Depression Scale (CES-D); and 7) Parental Stress Index (PSI). Repeated measures multivariate analyses of variance were conducted to assess the effects of intervention and intervention by age group interactions. Hierarchical multiple regression was conducted to explore the effects of responsiveness and maternal depression on intervention outcomes. **Results:** Multivariate analyses indicated significant intervention effects for maternal responsiveness as well as for children's Bayley and Vineland Developmental Quotients. Hierarchical multiple regressions analyses indicated that on two of the four developmental measures, mothers' CES-D scores were negatively associated with children's intervention outcomes. For all four developmental measures, mothers' responsiveness at T2 was positively associated with children's intervention outcomes. **Conclusion:** Results replicate previous findings (Mahoney & Perales, 2005) which have shown that Responsive Teaching is associated with significant intervention effects on children's cognitive and language development. Although mothers of younger children were substantially more depressed and stressed than mothers of older children, they made comparable changes in their level of responsiveness with their children during intervention. Findings from this study suggest that Responsive Teaching may be an effective intervention for use with very young children with autism. However, results also illustrate how the extremely high levels of depression and parenting stress, commonly reported for parents of very young children with ASD, may moderate the effects of this intervention.

Abstract 72

Results of an Open-Label Trial of STX209 (arbaclofen) in Autism Spectrum Disorders: Social and Communicative Function

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Purpose: To examine the safety, tolerability, and efficacy of STX209 (arbaclofen) in the treatment of autism spectrum disorders (ASD). STX209, which is a GABA-B agonist and is the active isomer of baclofen, may act by modulating the ratio of excitatory:inhibitory neurotransmission, and by modulating synaptic plasticity by decreasing the activation of metabotropic glutamate receptors (mGluR). In a blinded trial in fragile X syndrome (FXS), STX209 showed promise for improving social function.

Poster Session Abstracts

Methods: An 8-week, open-label trial was conducted in individuals with ASD, age 6-17 years. A minimum ABC-Irritability score (ABC-I) of 16 was required. Up to 2 concurrent psychoactive medications (but not antipsychotics) were permitted. Drug dosing was individually titrated. This trial was funded by Seaside Therapeutics, Cambridge, MA. Results: 32 subjects (29 male) were enrolled, with IQ scores of 56 ± 4 (mean \pm SD). 25 subjects completed the study, with 2 discontinuing due to adverse events (AEs) and 5 for other reasons. STX209 was well-tolerated. There was 1 serious AE (increased aggression), which occurred during down-titration of study medication. Study subjects showed a significant improvement on the primary endpoint, the ABC-I, from 24.7 ± 8.3 at baseline, to 17.3 ± 10.5 at Week 8 ($p < 0.001$). Subjects also showed significant improvements on the ABC-Social Withdrawal scale (from 18.1 ± 8.2 to 12.6 ± 9.3 , $p = 0.001$), the Clinical Global Impression of Improvement (CGI-I) scale ($p < 0.05$), and the CGI-Severity scale ($p < 0.001$). Standard scores on the Vineland Adaptive Behavior Scales - Communication domain increased by an average of 4 points in this 8 week trial ($p < 0.01$). Conclusion: STX209 showed broad beneficial effects on core ASD symptoms of social and communicative function in this open-label study. Similar improvements in social function were found in the recently-completed trial in FXS. Confirmatory, multi-site, controlled trials are underway for both ASD and FXS.

Abstract 73

First Step to Success in Hawai`i Preschools

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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. In three years, the program has been implemented in Hawaii with 66 Target Students from 32 classrooms in 6 preschool programs. 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 72.9% to 89.5%. The average Pre Post ESP scores are the following: Adaptive Behavior Scale= 23.5 to 30.8 for 56 students; Maladaptive Behavior Scale= 26.9 to 19.7 for 56 students, and Aggression Subscale= 21.8 to 15.7 for 56 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 4.0 to 4.7 out of 5. The results of the Parent Satisfaction Report thus far show that parents are satisfied with the program as well, with averages responses ranging from 3.9 to 4.8 out of 5. Conclusion: These findings suggest that implementation of the First Step to Success program in Hawai`i preschools is making a positive impact on its participants.

Abstract 74

Associations between Acculturation and Attachment Security in a Low SES, Latino Sample

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Purpose: US-acculturation may be associated with adverse child outcomes in low SES families, possibly related to the Healthy Immigrant Effect. There has been no study of the impact of acculturation on attachment security, a crucial aspect of social-emotional functioning with long-term developmental implications. Our purpose was to determine whether U.S. acculturation is adversely associated with attachment security in low income Latino children. Methods: Consecutive eligible 12-18 month-old dyads were enrolled within a larger study of child development (BELLE) in an urban public hospital serving low SES families. Mother-child dyads were assessed for attachment security using the Strange Situation, a structured observation of parent-child interaction. Assessments were videotaped, behaviors coded and classifications assigned (secure, insecure) by a researcher certified as reliable by experts in the field. Mothers were assessed for U.S. acculturation using the Psychological Acculturation Scale; scores were dichotomized as US-acculturated or not US-acculturated based on standard criteria. Sociodemographic characteristics were also obtained. Results: 34 Latino dyads assessed at mean(sd) 15.63(1.9) mos. Mothers: immigrant (94%), Spanish language (91%), low Hollingshead SES (91%), married/partner (89%), high school grad (49%). Children: firstborn (51%), female (65%). Most dyads were classified as securely-attached (71.4%); most mothers were not US-acculturated (82.9%). In unadjusted and multiple logistic regression analyses, adjusting for sociodemographic variables, acculturation predicted insecure attachment (AOR 8.2, $p = .02$). Conclusion: Greater acculturation was associated with increased risk of attachment insecurity. This is consistent with studies of the Healthy Immigrant Effect, showing reduced health in association with increased exposure to U.S. culture. In addition, there was a somewhat lower frequency of insecure attachment as compared to other samples in which the rate of insecure attachment has been reported as approximately 30-40%, suggesting the possibility of resilience among low income mother-infant dyads. Additional study is needed to understand mechanisms that might lead US culture to adversely impact attachment security. Support: APA Young Investigator Award, NICHD 2R01HD047740-05A1, Children of Bellevue, Inc., KiDS of NYU, Inc., Tiger Foundation, Marks Family Foundation.

Poster Session Abstracts

Abstract 75

Diet, Activity, and Bone Density in 10 to 18 year olds with Autistic Spectrum Disorders

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Purpose: Diet and activity preferences of youth with autistic spectrum disorders (ASD) may confer risk for osteopenia. 43% of 4-8 year olds with ASD have inadequate calcium intake. This study aims to measure bone mineral density, nutritional intake, and activity in 10-18 year olds with ASDs. Methods: 10-18 year old patients with ASDs were recruited from an outpatient multidisciplinary clinic. Participants were examined, and anthropometric data recorded. Bone mineral density was assessed using a lumbar dual energy x-ray absorptiometry (DXA) scans. Serum markers for 20 vitamins and minerals were measured. Dietary intake, exercise, electronic media use, and sunlight exposure were recorded by the subjects' families for 36 hours. Results: Participants included 9 individuals with Autism, 6 with Asperger's Disorder, and 11 with Pervasive Developmental Disorder-NOS. 7 subjects (27%) had low bone density, as defined by bone mineral density z-score < -1. Z-scores were -2 or lower for 4 of the 7. 54% of subjects had low serum 25-OH vitamin D, 65% low zinc levels, 85% low hematocrit, and 15% low serum vitamin C. Mean electronic media use was 251 min/day (range 0-850 min/day). Mean physical activity was 69 min/day (range 0-180 min/day). Analysis of diet diaries revealed that nearly one third of participants were not meeting recommended daily allowances for nutritional intake in most areas. Bone density correlated significantly with body mass ($p < .05$), calcium intake ($p < .05$), and caloric intake ($p < .01$); but not with physical activity or serum vitamin D levels. Conclusion: 10-18 year olds with autism are at risk for asymptomatic osteopenia. Those with low BMI and insufficient calcium intake are at greater risk. Other potentially unhealthy behaviors in this population include a high screen time to physical activity ratio, low vitamin D levels, anemia, and multiple dietary nutrient deficiencies.

Abstract 76

Factors Associated with Psychotropic Medication Use In Autism Spectrum Disorders (ASD)

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Purpose: Individuals with autism spectrum disorders (ASD) often have challenging behaviors and symptoms which are treated with psychotropic medications. We studied the use of psychotropic medications in individuals with ASD to determine factors associated with their use. Methods: The study population consisted of children and adolescents ages 2 - 18 years entered in the Autism Treatment Network (ATN) Registry. Children with a diagnosis of ASD, as determined by comprehensive multidisciplinary evaluation, including ADOS, were included. Psychotropic medication use was established by parent and clinician report at entry into the registry. Results: Medication information was available for 2,053 children. 582 (28%) were on at least one psychotropic medication. Commonly prescribed drugs included stimulants, serotonin reuptake inhibitors, and second generation antipsychotics. Twenty percent (20%) of children without a previous diagnosis of ASD were on psychotropic medications versus 36% with a prior diagnosis of ASD (p -value < 0.001). A higher percentage of older children are exposed to these medications (42% no previous diagnosis and 57% previous diagnosis). Very few children under the age of 3 were taking psychotropic drugs (2%). Of 347 children with medication data and a comorbid diagnosis of ADHD, bipolar disorder, obsessive compulsive disorder, depression or anxiety w, 230 (66%) are on at least one psychotropic medication. Percentages of children on psychotropic medications by diagnosis are as follows: ADHD - 65%; OCD - 46%; Anxiety - 49%; Bipolar - 33%; Depression - 41%. Children with no comorbid diagnosis ($N=1,327$) had a rate of being on a psychotropic medication of 16%. For those with only one psychiatric comorbidity the probability of being on a psychotropic medication was 75%. This increased as the number of comorbidities increases ($p = 0.014$, Cochran-Armitage Trend test). Children with 2 - 4 comorbidities have an almost 90% chance of being on a psychotropic medication. Conclusion: Overall use of psychotropic medication in this ASD population is lower than prior descriptions from other datasets. Psychotropic medication use is frequently initiated prior to a formal diagnosis of ASD. Comorbid psychiatric conditions greatly increase the likelihood of use of psychotropic medications, suggesting that such individuals present with much more challenging behaviors.

Abstract 77

Periodic Limb Movements of Sleep, Serum Ferritin Levels, and Sleep Fragmentation on Polysomnogram in Autism Spectrum Disorders

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Purpose: Children with autism spectrum disorders (ASD) experience a range of sleep disturbances. Exact mechanisms are not well characterized. This study investigates the association of serum-ferritin and sleep-fragmentation on polysomnograms (PSG). Methods: We conducted a retrospective chart-review of children with ASD seen in a tertiary-care center between 1990-2010. Inclusion criteria were availability of PSG-data and ferritin-levels. The following variables on PSG characterized sleep fragmentation: arousal-index, presence of alpha-intrusions, reduced sleep-efficiency, and apnea-hypopnea-index. Results: Of 9791 children with ASD identified, 511 had a ferritin level, 377 had PSG-data, and 53 had both ferritin and PSG-data. Median age was 8y(range:5-13). Median ferritin level in the entire ASD population: 35ng/mL(23-73); the study population: 27ng/mL(18-49); ASD subjects with sleep fragmentation

Poster Session Abstracts

on PSG: 24ng/mL(17-47); and controls: 86ng/mL (35-264). The prevalence of periodic limb movements of sleep (PLMS) was 47%, compared to 8% in a previous study with controls. A marker of sleep-fragmentation was observed in 40% of subjects with ASD. Median ferritin levels were significantly lower in patients with poor sleep-efficiency(7ng/mL: 3-19) compared to those with normal sleep-efficiency(29.1ng/mL:18-51,p=0.011). Trends for females to have alpha intrusions (p=0.060) and lower sleep efficiency (p=0.07) were observed. Conclusion: The prevalence of PLMS in children with ASD was nearly six-times higher than that observed in controls. Our preliminary observations, which have not been described before, need to be validated in further multicenter prospective studies.

Abstract 78

Does Umbilical Cord Length -- An Indirect, Objective Measure of Fetal Activity -- Predict Hyperactivity in Grade School Children?

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Purpose: Although fetal hypoactivity has been associated with short umbilical cord length (UCL) and neurodevelopmental disorders, the clinical implications of fetal hyperactivity (HA) are less clear. To date, there has been no large-scale, prospective analysis of fetal HA or UCL and later HA. Using data from the National Collaborative Perinatal Project (NCPP), a large-scale prospective cohort study of pregnancy and child health, our goal was to examine the relationship between umbilical cord length (UCL) as an indirect measure of fetal activity and later childhood inattention (IA), impulsivity (IMP), and HA. Methods: The NCPP followed 59,407 pregnancies; we limited analyses to 25,485 off-spring for whom UCL and follow-up data at least to age 7 was available. Exclusion criteria were prematurity, SGA, LGA, oligo- or polyhydramnios, or multiple gestation. Children were also excluded if neurological risk factors were present (e.g., blind, deaf, MR, CP). The primary outcome variables were ratings of IA, IMP and HA during testing by a psychologist at ages 4 and 7, and a speech pathologist at age 8. Multivariate logistic regression was performed; Odds Ratios (OR) were adjusted for sex, SES, race, maternal age, smoking, & parity. Results: There was no relationship between UCL and IMP or HA at ages 4, 7, or 8 years. Increased UCL was associated with IA IMP HA (combined) at age 4, (unadjusted OR 1.029 with 95% C [1.000, 1.058]); however, this was not significant when adjusted. Increasing UCL (5-cm increments) was associated with IA at age 7 (adjusted OR 0.979; 95% C [0.961, 0.997]) and at age 8 (adjusted OR 0.942 with 95% C [0.891, 0.996]). Conclusion: Contrary to our hypothesis, a longer UCL was not associated with IMP or HA when assessed during testing at ages 4, 7 and 8 years. If UCL is a reliable indirect biometric marker of fetal activity, then mothers who report fetal HA may be reassured knowing there is no increased association with observed IMP or HA at ages 7 and 8 years.

Abstract 79

Improving Response Rate for Mailed Pediatric Questionnaires: Effect of Cover Letter Tone and Literacy Level

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Purpose: Questionnaires are an important research tool to learn more about parenting beliefs and practices as well as to assess pediatrician practices and knowledge. Response rate (RR) by physicians is notoriously low, which can skew or bias results. The aim was to determine if RR by pediatricians for a mailed questionnaire could be increased by adding humor or a personal plea in the cover letter (CL). A secondary aim was to assess the impact of the cover letter's readability. Methods: A 6-minute questionnaire on parenting myths was mailed to 5,000 primary care pediatricians in the U.S. Four different CLs were created to go to 4 randomly selected groups of 1250 pediatricians. One CL had a humorous tone, and one had an imploring/desperate tone (written by a 3rd year fellow required to complete the research project for her training). The 2 control CLs were written in a dry tone: one at a 5th grade reading level (RL) and one at a college RL. The mailings were otherwise identical; all included a postage-paid return envelope. RR was the outcome variable. Chi-square analysis examined whether RR varied by CL; logistic regression examined an association between RR, CL, and gender. Results: There was a significant association between RR and CL version (p<0.0001). Although humor did not appear to improve RR, the letter with the desperate plea had the highest RR. No gender difference was noted in RR overall or RR for any specific CL version. RR did not differ with the CL ease of reading (5th Grade vs. College level). Conclusion: RR was not influenced by a humorous tone nor by the ease of reading. Male and female pediatricians were more likely to answer a questionnaire when the cover letter had an emotional tone with a desperate appeal. These findings can likely also enhance response rates to parent surveys focused on developmental and behavioral topics and concerns.

Poster Session Abstracts

Abstract 80

Early Detection of Neuromotor Abnormalities in Former Preterm Infants

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Purpose: Early detection of neuromotor impairment is important, particularly in former preterm infants. In practice, physicians may solely rely on parent completed developmental screening questionnaires (PQ) for screening and detection of motor abnormalities, however, there is no evidence for the use of PQ for this purpose. Methods: Infants born <37 weeks gestational age (GA). Parents completed the Parents Evaluation of Developmental Status (PEDS) and the Ages and Stages Questionnaire (ASQ-3). The Alberta Infant Motor Scale (AIMS) was administered as the gold standard, with scores below 10% considered concerning. Tone was considered abnormal if there was hypertonia and/or hypotonia. A modified scale from the Peabody Developmental Motor Scales (M-PDMS) was used; DQs <85 were considered a concern. The PEDS was considered a concern if marked yes/a little to the gross motor domain. The ASQ was considered a concern if the gross motor score interpretation was borderline or below the cut-off. Results: Data was analyzed at 3 months (n=61) and 6 months (n=47) corrected GA. Birth GA ranged from 24-35 weeks, birth weight from 400 to 2725 grams, 54% were male. At 3 months, 18% failed the AIMS, 79% had abnormal tone, and 30% failed the M-PDMS. At 6 months, 33% failed the AIMS, 60% had abnormal tone, and 17% failed the M-PDMS. Sensitivity of PQ was low. Conclusion: Overall, PQs have low sensitivity, but high specificity in detecting early neuromotor abnormalities in the former preterm infant, compared to physician assessment. In neuro-motor evaluation of the former preterm infant, physicians should complete a thorough neuromotor examination and not solely rely on PQ.

PQ Compared to Neuromotor Assessment

	AIMS		Tone		M-PDMS	
	Sn	Sp	Sn	Sp	Sn	Sp
3 months						
PEDS	.09	.86	.15	1	.17	.88
ASQ-3	.45	.72	.5	.77	.34	.83
6 months						
PEDS	.33	.84	.23	.76	.38	.82
ASQ-3	.67	.71	.54	.76	.75	.67

Abstract 81

Correlates of School Placement among Children with Ambulatory Cerebral Palsy

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Purpose: We explored how reading, mathematics, writing, language comprehension, behavior, and functional skills related to school placement in children with ambulatory cerebral palsy (CP). Methods: Participants were recruited from the Cerebral Palsy Outcomes Project (CPOP) network. Parents rated children's reading, math, and writing skills as well as language comprehension and behavioral manageability using a 5-level ordinal scale. Children's school placement and need for curriculum modifications were also obtained. Clinicians rated gross motor function on the GMFCS and hand function on the MACS. Ordinal logistic regression models were constructed to assess how reading, mathematics, writing, language comprehension, behavior, GMFCS, and MACS contributed to school placement. Results: We recruited 112 children with CP (68 boys, 44 girls) with GMFCS levels I-III. Mean age was 10.9 ± 3.6 years. For reading, math, and writing, the majority of parental responses were distributed as above average or average compared to peers, with a minority being very far behind or unable to do specific skills (20%, reading; 22%, math; and 22%, writing). Parental report of school placement (Table 1) was significantly and positively associated with children's math skills. Neither children's reading, writing, or language comprehension skills nor their functional skills were associated with school placement. Conclusion: Parental report of school placement in children with ambulatory CP was significantly related to math skills, and these children required more special education supports.

Poster Session Abstracts

Table 1: Correlates of School Placement

Factor	Odds Ratio	95% Confidence Interval
Reading	1.60	0.83-3.09
Math	3.92	2.03-7.57
Writing	1.13	0.65-1.97
Language	0.61	0.20-1.81
Behavior	1.20	0.77-1.87
GMFCS	1.08	0.56-2.09
MACS	1.20	0.59-2.47

Abstract 82

A Research Synthesis and Review of Developmental Screening Measures for Young Children

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Purpose: What evidence is available to support the use of developmental screening tools for identifying young children who have a delay/disability? How do we know if the developmental screening tools work? How do users know which tools have empirical support? To better understand the effectiveness and accuracy of screening tools, as well as provide screening tool users helpful information on the evidence needed to make sound decisions, a review of the literature was conducted to locate empirical studies. **Methods:** Nineteen developmental screening measures were chosen on the basis of their commercial availability. Studies were included in the research synthesis if the investigation, (a) researched one or more of the selected 19 developmental screening measures, (b) involved young children birth to kindergarten with disabilities or at-risk for developing a disability due to environmental or biological risk conditions, (c) examined the usefulness, accuracy, and/or effectiveness of the tool at screening young children with disabilities and/or at risk, and (d) was published in a peer reviewed and scholarly publication. **Results:** A total of 221 studies met criteria. The screening instruments that had the most published research were the: (1) ASQ, (2) Denver/DDST, and (3) McCarthy/MST. A total of 127,268 young children, in the United States and abroad, were included in research studies. Most reliability studies investigated sensitivity (n = 49) and specificity (n = 48) of screening measures. The least number of studies investigated inter-item reliability (n = 8). There were 22 inter-rater reliability studies, and 15 test-retest reliability. The most studies included a concurrent validity (n = 92) design. There were 48 predictive and 30 construct validity studies. The least number of studies looked at criterion validity (n = 7). A total of 42 utility studies are included in this research synthesis. **Conclusion:** The research base on developmental screening assessments has been growing since the 1970s. Practitioners in health, social, and education fields are increasingly being called to use evidence-based practices and assessment tools. This synthesis shows that there is a promising body of research dedicated to studying the usefulness, accuracy and effectiveness of screening tools.

Abstract 83

Gastrointestinal Symptoms in Children with Autism Spectrum Disorders: A Comparison between Hispanics & non-Hispanics

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Purpose: To compare parent-reported gastrointestinal (GI) symptoms in children with an autism spectrum disorder between Hispanics (H) & non-Hispanics (NH). **Methods:** The Childhood Autism Risks from Genetics & the Environment (CHARGE) study is a population-based case-control study of children with autism/ASD, developmental delay (DD) & typical development (TD) between the ages of 24 & 60 months. Current GI history was assessed using a self-administered parent questionnaire: 10 items assess frequency of GI symptoms using 5 point Likert scale (Never, rarely, sometimes, often, always) & 4 items assess the presence of food allergies, food restrictions, food dislikes & GI diagnosis. Sample size consisted of 952 children (AU/ASD n=496, TD n=320, DD n=136). Distribution between NH & H for AU/ASD: NH=350 & H=167; TD: NH=227 & H=93; DD: NH=85 H=54. GI symptoms were dichotomized into high frequency (often or always) or low frequency (never-sometimes) for comparisons using chi-square or Fishers exact test. **Results:** Cases had higher reports for most GI symptoms compared to TD but not DD controls, where constipation (AU/ASD 15.6%, TD 3.6%, DD 15.9%, p<0.0001), diarrhea (AU/ASD 12.8%, TD 1.6%, DD 6.2%, p<0.0001) & gaseousness or bloating (AU/ASD 11.1%, TD 2.0%, DD 2.4%, p<0.0001) were the most prevalent symptoms. Similarly, cases had more reports of food allergies (AU/ASD 19.8%, TD 7.4%, DD 9.1%, p<0.0001), restrictions (AU/ASD 37.2%, TD 10.5%, DD 21.1%, p<0.0001), & dislikes (AU/ASD 63.9%, TD 34.1%, DD 34.9%, p<0.0001) compared to control groups. Comparisons between H & NH revealed no significant differences for GI symptoms in cases & controls. However, NH had higher reports of food restrictions in cases (NH 43.2% vs. H 26.1%, p=0.0002) & DD controls (NH 28.9% vs. H 7.6%, p=0.002). For cases, reports of food dislikes (NH 67.9% vs. H 52%, p=0.02) & GI diagnosis (NH 9.3% vs. H 3.7%, p=0.02) also differed. **Conclusion:** Overall, children with AU/ASD have higher reports of GI symptoms compared to TD, & are similar to DD children for constipation & related symptoms. Ethnic comparisons revealed higher reports of food restrictions, dislikes & GI diagnosis in NH compared to H children with AU/ASD.

Poster Session Abstracts

Abstract 84

Do Families Want their Pediatricians to Diagnose Autism?

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Purpose: To evaluate attitudes held by parents of children with autism spectrum disorders, regarding the diagnosis of their child and the clinicians involved. Methods: 59 families who had previously participated in a clinical research program for their child with an ASD diagnosis completed an online questionnaire. The survey consisted of 12 questions evaluating the timeframe of their initial developmental concerns, the type and number of professionals they consulted, the age of first diagnosis, and their preference for another hypothetical child being assessed by a psychologist or a pediatrician for an ASD given several different situations (i.e., common wait times, accuracy involved in utilizing common tools). Results: 86.4% (51/59) of respondents indicated that they first became concerned about their child's development before their child was 24 months old, and 75.9% (44/59) of parents reported these concerns to their child's pediatric provider during that time, although only 54.2% (32/59) of the sample was diagnosed by the age of 3. The majority of respondents (56/59, 94.9%) discussed concerns with more than one professional prior to receiving a diagnosis. Overall, 67.8% (40/59) of respondents believed primary care physicians should be able to issue autism diagnoses. In fact, when presented with the choice 47.5% (28/59) of families indicated they would prefer a pediatrician to issue a diagnosis to a psychologist. Further, when faced with a potential 6 -12 month wait for a psychological evaluation, this number increased to 58.6% (34/59). Conclusion: A majority of families indicated a desire for their pediatric providers to have the capacity to diagnose ASD within practice. With increased awareness of ASD and existing practice parameters mandating explicit screening, there are significant potential benefits to incorporating within-practice diagnostic measures into models of pediatric care.

Abstract 85

Distress and Well-being in Parents of Young Children Recently Diagnosed with ASD: Associations with Beliefs about Autism

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Purpose: Despite powerful evidence from other areas of pediatric illness and disability research suggesting that parental beliefs and thoughts regarding illness significantly impact familial, parent, and child behavior, very little work has examined the role that parental beliefs about ASD have in terms of caregiver distress. Parents of young children with ASD face unique caretaking challenges, but also often struggle to answer important and uncertain questions about their child's, their own, and their family's future. The purpose of the current study was to examine the associations of characteristics of child functioning, in terms of global developmental patterns (e.g., cognitive functioning, adaptive functioning, ASD symptoms) and challenging behaviors, and parental beliefs about ASD as related to parental distress (i.e., anxiety and depression) and well-being. Methods: 75 mothers of young children recently diagnosed with ASD completed a survey designed to assess parents' depression and well-being, child behavior, as well as beliefs about autism following ASD diagnosis. Results: IQ, ASD symptom severity (i.e., ADOS calibrated severity scores), and adaptive behavior profiles were not significantly related to distress or well-being. Increased problem behaviors (CBCL scores) were significantly correlated with increased levels of maternal anxiety and depression and decreased well-being. Controlling for problem behaviors, overall beliefs about ASD and its perceived negative impact on parental and child happiness significantly contributed to maternal anxiety and depression. Conclusion: Beliefs about ASD are significantly tied to parenting distress and well-being beyond the contributions of challenging behavior. As such, increased awareness and attention to such thoughts and beliefs within models of clinical care could potentially help caregivers not only in terms of their own functioning, but potentially their child's functioning as well.

Abstract 86

Mortality and Social Adversity in Adults with a History of Childhood ADHD: A Population-Based, Prospective Study

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Purpose: Previous research on the developmental course of ADHD is limited. Important questions about adult health and psychosocial outcomes associated with childhood ADHD remain unanswered. The objective of this study is to describe health and social outcomes in adulthood among research-identified childhood ADHD cases from a population-based birth cohort. Methods: Research-identified childhood ADHD cases (N=379) and non-ADHD controls were identified in a 1976-1982 birth cohort (N=5699). Vital status was determined for 367 ADHD cases who had not denied access to their medical records for research purposes. The number of deaths was compared with the expected number derived from state census data to construct a standardized mortality ratio (SMR). ADHD cases and controls were invited to participate in a prospective follow-up study. Participating subjects included research-identified childhood ADHD cases (N=232; mean age 26.9 years; 167 males, 65 females) and controls (N=335; mean age 28.6 years; 210 males, 125 females). All subjects completed a psychosocial questionnaire that included questions about education, relationship status and employment. Outcomes were compared between the two groups using logistic/linear regression models, adjusted for age and gender.

Poster Session Abstracts

Results: The observed number of deaths among the 367 childhood ADHD cases was 7 versus 2.14 expected, yielding a SMR of 3.3 (95% CI 1.3-6.7; $p < 0.001$). Mean age of death was 21.9 and cause of death was primarily accidents (N=3) or suicide (N=3). Compared to non-ADHD controls, adults with a history of childhood ADHD were more likely not to have graduated from high school (17.7% vs 6.0%; $p < 0.01$); less likely to have any degree beyond high school (37.1% vs 67.5%; $p < 0.01$); less likely to have ever been married (26.7% vs 45.7%; $p = 0.03$); more likely to be unemployed (9.9% vs 5.1%; $p = 0.09$); less well paid (median income \$20,000 vs \$30,000; $p < 0.01$); and more likely to have been fired from a job (50.9% vs 21.2%; $p < 0.01$). Conclusion: This is the first prospective, population-based study of adult outcomes of childhood ADHD. Increased mortality combined with lower levels of education, marriage, income and stable employment provide stark evidenced that ADHD is a chronic disorder associated with poor outcomes and social adversity in adulthood.

Abstract 87

Clonidine Hydrochloride Extended-Release Tablet Monotherapy for Pediatric Patients With Attention-Deficit/Hyperactivity Disorder

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Purpose: Stimulants are a treatment option for attention-deficit/hyperactivity disorder (ADHD); however, not all patients achieve an optimal response with stimulants alone and treatment with a noncontrolled substance (eg, nonstimulant) may be preferred. This randomized fixed-dose study evaluated the efficacy and safety of clonidine hydrochloride extended-release tablets (CLON-XR [KAPVAY; Shionogi Inc, Florham Park, NJ]) for the treatment of children and adolescents with ADHD. Methods: Patients aged 6 to 17 years with hyperactive- or combined-subtype ADHD received CLON-XR 0.2 or 0.4 mg/d as twice-daily doses or placebo for 8 weeks. Improvement in inattention and hyperactivity/impulsivity, from baseline to the end of week 5 were evaluated by ADHD Rating Scale-IV (ADHD-RS-IV) total and subscale scores using a last observation carried forward method. Other endpoints included Clinical Global Impression of Severity (CGI-S) and Improvement (CGI-I), Conners Parent Rating Scale-Revised: Long Form (CPRS-R), and Parent Global Assessment (PGA) scores. Safety data were collected throughout the study. Results: Significant improvement in ADHD-RS-IV total score at week 5 occurred in the CLON-XR 0.2-mg/d ($n=76$; $P < 0.0001$) and CLON-XR 0.4-mg/d ($n=78$; $P < 0.0001$) groups compared with the placebo group ($n=76$). In both treatment groups, ADHD-RS-IV inattention ($P < 0.0011$) and hyperactivity/impulsivity ($P < 0.0012$) subscale scores improved significantly at week 5. Mean change from baseline to week 5 was significantly greater in both CLON-XR groups than in the placebo group for CPRS-R total score ($P < 0.0122$) and CGI-S ($P < 0.0001$), CGI-I ($P < 0.0032$), and PGA ($P < 0.0099$) scores. Somnolence was the most common treatment-emergent adverse event, causing discontinuation in 4% and 6% of patients in the CLON-XR 0.2-mg/d and 0.4 mg/d groups, respectively. Minor dose-related changes in heart rate and blood pressure were observed and caused discontinuation only in 1 patient. Changes from baseline in electrocardiographic parameters were minimal. Conclusion: CLON-XR monotherapy significantly improved ADHD symptoms and was well tolerated, suggesting that CLON-XR monotherapy is an effective nonstimulant treatment option for pediatric patients with ADHD.

"I met with my mentor for the first time during the annual meeting. He's been a wonderful motivator and "cheerleader" so far. As an M.D. fellow looking at different career paths, I've found his experience and wisdom to be invaluable as I figure out "what next." He's been emailing me regularly to check in since SDBP, and he's made himself available by phone as well.

In short, THANK YOU to the SDBP for setting this up and making it happen."

--Andy Barnes, MD, Minneapolis, MN

SDBP Mentor-Mentee Matchmaker Service

Just one of many SDBP member benefits!

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

SDBP

Society for Developmental
& Behavioral Pediatrics

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





SDBP Strategic Plan

Mission Statement

SDBP is an interdisciplinary professional organization that promotes the developmental and behavioral health of all infants, children, adolescents and their families by advancing research, education, evidence-based clinical practice and advocacy.

Vision Statement

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

Core Values

- Biopsychosocial
- Collaboration
- Scientific basis of field
- Interdisciplinary
- Collegiality
- Child and Family Advocates
- Cultural competency
- Teachers/Educators

Six Goals

- Goal 1:** To become the recognized organizational home for diverse professionals engaged in interdisciplinary approaches to developmental-behavioral health.
- Goal 2:** To be a leader in advocacy regarding public policy for children and professionals in the field.
- Goal 3:** To design, produce, and disseminate high-quality interdisciplinary education in developmental-behavioral Pediatrics.
- Goal 4:** To promote and disseminate high quality research in developmental-behavioral health.
- Goal 5:** To promote sustainable, high quality, interdisciplinary practice in developmental-behavioral pediatrics.
- Goal 6:** Assure continued growth in the interdisciplinary fields of developmental-behavioral pediatrics.

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