THE NEW GENERATION OF PEDIATRICS
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The Florida Pediatrician is the peer reviewed journal of the Florida Chapter of the American Academy of Pediatrics, published by the FCAAP Editorial Board for FCAAP members.

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Dear Colleagues,

Since I wrote my last note a lot has happened.

Two hurricanes impacted parts of Texas, Florida, Georgia, and Alabama, and hurricane Maria devastated Puerto Rico. Our fellow citizens were significantly affected. We owe a debt of gratitude to our first responders. We also need to be proud of our healthcare systems and providers who were well prepared to respond to these disasters. As we learn from these disasters, we will be even better prepared next time.

While every state in our District, District X which includes Florida, Georgia, Alabama, and Puerto Rico, was impacted, clearly Puerto Rico was affected most severely. It will take a long time for Puerto Rico to recover. Our colleagues will need our support. The AAP, Florida Chapter, and many of us individually have shown solidarity with our Puerto Rican sisters and brothers. We will continue to provide whatever support we can provide. All of Puerto Rica remains in our thoughts and prayers.

There has been some good news for the Florida Chapter. After a long drought, Florida is well represented at the District level. Lisa Cosgrove, MD, was elected as District X Chair and I had the great honor of being elected as District X Vice Chair. I know I speak for Lisa also when I say that I want to thank you all for your encouragement and support. I hope we can serve all the District and represent Florida well on the national stage.

We also had another successful Annual conference, with record attendance and many trainees and students participating. When, as President, I started the Annual Conference, I never imagined the degree of success it has achieved. It is now an annual event that many look forward to. Kudos to our planning team, leadership, and staff. A special thanks to Scott Rivkees, MD, who has supported the student participation. We had students from all over the United States present their research. This edition highlights the winning student presenters. The residency training program directors and José Zayas, MD, also continue to support the conference and the Annual Brain Bowl was again a resounding success this year.

Finally, I want to thank the Editorial Board and the staff for their continued dedication to produce the journal. I would encourage all of you to submit your work: review articles, original research, interesting case reports or images and encourage trainees to also submit their work.

Cheers,

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Florida Chapter American Academy of Pediatrics
INTRODUCTION

The American Academy of Pediatrics (AAP) recommends exclusive breastfeeding for about 6 months; continued breastfeeding for at least one year, after introduction of appropriate complementary solids; and, thereafter, breastfeeding as long as mother and child desire. The AAP advocates that breastfeeding is a public health imperative and not merely a lifestyle choice.\(^1\)

Breastfeeding rates in the United States (US) are higher than they have been in decades. According to the Centers for Disease Control and Prevention (CDC) National Immunization Survey, among the birth cohort from 2013, 81.1\% of newborns started out breastfeeding. By 6 months, 51.8\% continued any breastfeeding. This number decreased to 30.7\% by 12 months. Only 22.3\% were exclusively breastfed at 6 months. There are significant disparities, with rates for African American, American Indian, and Alaska native infants lagging behind those of white and Hispanic infants. In Florida, breastfeeding rates for any breastfeeding were 81.1\% at initiation, 47.3\% at 6 months, and 24.6\% at 12 months. Exclusive rates at 6 months were 18.4\% in Florida.\(^2\) Women encounter barriers to breastfeeding in the health care system,\(^3\) in the workplace, and in public, with many mothers reporting that they do not achieve their own breastfeeding goals.

EVIDENCE BASE FOR BREASTFEEDING

The 2007 Agency for Healthcare Research and Quality evidence-based review, “Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries,” summarized the infant and maternal outcomes related to breastfeeding from
more than 400 studies. The review concluded that a history of breastfeeding was associated with reduced risk of acute otitis media, non-specific gastroenteritis, severe lower respiratory tract infections, atopic dermatitis, asthma in young children, obesity, diabetes, childhood leukemia, sudden infant death syndrome, and necrotizing enterocolitis (NEC). Mothers who had breastfed experienced a reduced risk of type 2 diabetes, breast, and ovarian cancer. Early cessation of breastfeeding, or not breastfeeding, was associated with an increased risk of maternal postpartum depression.

Two recent global evidence-based reviews have been published. Grummer-Strawn (2015) summarized the literature comparing infants who were exclusively breastfed for the first 6 months of life, followed by continued breastfeeding, to those who were never breastfed. He found that infant mortality rates were higher in those never breastfed. In addition, children who were breastfed had lower risk of otitis media, obesity and asthma; reduced malocclusion; and higher intelligence quotients. Many of the benefits of breastfeeding continued well beyond the period of direct breastfeeding.

In The Lancet Breastfeeding Series, Victora and colleagues (2016) concluded that breastfeeding has substantial benefits for women and children in both high- and low-income countries and that both the health and economic benefits of breastfeeding are significant. Globally, the costs of not breastfeeding approximate $300 billion annually and contribute to more than 820,000 infant and maternal deaths. Breastfeeding was shown to improve nutrition, education, and maternal and child health and survival. The authors urged countries to invest in the policies and programs that support women’s breastfeeding decisions.

In US epidemiologic analyses, Bartick estimated that low breastfeeding rates among women contributed to 5,000 cases of breast cancer, 54,000 cases of hypertension, and almost 14,000 myocardial infarctions per year. Nearly 3,340 annual maternal deaths, due to myocardial infarctions, breast cancer, and diabetes mellitus, and 721 pediatric deaths may be attributable to suboptimal breastfeeding rates. Lack of adequate breastfeeding in the extremely low birthweight population contributes to 928 excess cases of NEC and 121 deaths, costing $27.1 million in direct medical costs.

The role of human milk in establishing the gut microbiota has both short- and long-term benefits, optimized with exclusive breastfeeding. Human milk is a biologic fluid containing whole cellular components; a multitude of bioactive factors, including enzymes, growth factors, and antimicrobial substances; and, compounds that provide passive immunity, such as lysozymes, secretory IgA, and cytokines. Probiotics in human milk inhibit the growth of many pathogenic gastrointestinal organisms. Human milk also contains human milk oligosaccharides, prebiotics occurring in abundance, which promote the growth and activity of both Bifidobacterium and Bacteroides species in the infant’s intestine.

**INITIATIVES TO SUPPORT BREASTFEEDING**

Former Surgeon General Regina Benjamin issued a US Surgeon General’s Call to Action to Support Breastfeeding in 2011, urging greater support for breastfeeding women, elimination of barriers to breastfeeding, and greater education and training in breastfeeding for all health care workers. The Patient Protection and Affordable Care Act (ACA) required employers to provide reasonable break time and a private, non-bathroom place for nursing mothers to express breast milk during the workday, for one year after the child’s birth. In addition, the ACA required health plans to cover preventive services for women with no cost share for breastfeeding support, supplies, and counseling and to provide breastfeeding women with a breast pump.

The U.S. Department of Health and Human Services issued the Business Case for Breastfeeding to provide guidance for business owners, human resources departments, and managers in supporting employed breastfeeding women. Businesses that support breastfeeding families experience a return on investment with reduced health care costs, employee absenteeism rates, and employee turnover, as well as improved employee loyalty. Workplace support may range from a place to breastfeed to having dedicated lactation support personnel on site. Breastfeeding-friendly childcare centers have policies that address staff training and the storage and handling of breast milk, such as that provided in the “Ten Steps to Breastfeeding-Friendly Child Care,” developed by the University of North Carolina and the Carolina Global Breastfeeding Institute.

The CDC supports breastfeeding by providing tools for providers and families, collecting breastfeeding statistics and promoting population health measures, such as community-based obesity prevention programs. Biannually, the CDC publishes a national breastfeeding report card, monitoring national and state indicators. The CDC monitors trends in hospital practices through the Maternity Practices in Infant Nutrition and Care (mPINC) self-assessment surveys and aggregates these data by state, as well as providing individual hospital outcomes for quality improvement processes. Findings show that while most hospital administrators and staff agree that breastfeeding provides optimal nutrition for infants, breastfeeding is not widely recognized as a significant public health issue, and many are unaware of the specific characteristics of a supportive hospital environment.
In Florida, 76% of the maternity facilities participated in the 2015 mPINC survey. The state scored 80 out of 100 possible, aggregately, ranking 22nd out of 53 states and territories. Areas for improvement on Florida’s mPINC results include: (1) limiting supplemental feedings to breastfeeding infants, (2) performing all routine care in the patient’s room, instead of in a newborn nursery or other location, (3) providing breastfeeding education routinely to both new and continuing staff members, (4) having a breastfeeding policy that includes all 10 model policy elements, and (5) ending the practice of accepting infant formula for patient use free of charge. Birth hospitals accredited by The Joint Commission must monitor their exclusive breastfeeding rates as part of the Perinatal Care Core Measure Set.

The number of births in hospitals designated as Baby-Friendly Hospitals by Baby-Friendly USA, through implementation of the Ten Steps to Successful Breastfeeding (See Table 1), increased almost 10-fold over the last 10 years, in part due to CDC funding to facilitate the process of achieving designation. Currently, more than 849,000 births (21% of the annual US total) occur in Baby-Friendly designated facilities. Evidence shows that the more of the ten steps that are in place, the more likely infants are to breastfeed. The Florida Breastfeeding Coalition supports breastfeeding throughout Florida by recognizing hospitals in the process of implementing the Ten Steps to Successful Breastfeeding, businesses that are breastfeeding-friendly, and childcare sites that support breastfeeding mothers and children. Table 2 lists the hospitals designated as Baby-Friendly in Florida, as of May 2017, with others close to designation.

Table 1.
Source: Baby-Friendly USA (www.babyfriendlyusa.org). Reproduced with permission

Key aspects of the Baby-Friendly Hospital Initiative include skin-to-skin care after delivery, continuous rooming in, and avoidance of infant formula and pacifiers during the newborn stay. Hospital staff must be educated on non-intrusive assessment of the stable mother and baby while skin-to-skin care occurs. Families should be informed about the importance of placing the baby supine on a separate sleep surface while the mother sleeps to minimize the risk of accidental falls, suffocation, or sudden unexpected postnatal collapse.

Finally, addressing breastfeeding disparities is an important part of breastfeeding protection, promotion, and support and can decrease infant mortality rates. Incorporating peer counselors with diverse backgrounds in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) programs has helped to address disparities in breastfeeding rates. Non-profit organizations, such as Reaching Our Sisters Everywhere, and the National Association of Peer and Professional Lactation Supporters of Color aim to improve breastfeeding support provided to women of color.

DONOR MILK FOR LOW BIRTHWEIGHT PREMATURE INFANTS

Non-profit human milk banks providing pasteurized donor human milk for the premature and ill neonatal population have increased in number recently. The Human Milk Banking Association of North America provides oversight for development of these milk banks and endorses standard procedures in screening donors, collecting and processing milk, and distributing to the population most in need. Donor mothers must undergo a screening health history, be approved by their physician, undergo serologic testing, and have the donated milk cultured after pasteurization to ensure safety. The Mother’s Milk Bank
FALL 2017

of Florida, located in Orlando, is the only donor milk bank in Florida. Florida neonatal intensive care units can contact the bank to obtain pasteurized donor milk or to become a depot where mothers can drop off excess milk for processing.

The AAP statement on “Donor Human Milk for the High-Risk Infant: Preparation, Safety, and Usage Options in the United States” emphasized the importance of human milk feeding for high-risk infants born weighing less than 1500 grams, especially to reduce the risk of NEC. Mother’s own milk is always preferred, but donor milk should be used when mother’s milk is not available. Ability to pay for donor milk should not limit access to milk when medically necessary. By contrast, informal sharing of milk should be discouraged due to risk of exposure to infectious diseases from the donor, potential contamination with pathogens and possible adulteration with cow milk products.

WHAT PEDIATRICIANS CAN DO TO SUPPORT BREASTFEEDING

Pediatricians, who are either hospital-based or round in the newborn nursery, must be well informed about breastfeeding, understand the Ten Steps to Successful Breastfeeding, and work with their local hospital breastfeeding committees in implementation of these practices. Pediatricians should be competent in evaluating breastfeeding mother-baby dyads in the mother’s rooms. Pediatric care providers should ensure that babies are breastfeeding adequately, latching on and transferring milk well, before hospital discharge. Prior to discharge, providers should assess all babies for excessive weight loss or jaundice. Likewise, lactation consultants should evaluate all mothers having difficulty, experiencing pain, or concerned about milk supply. Timely follow-up, generally within 24 to 72 hours of discharge depending on the length of the hospital stay, or by the third to fifth day of life, should be arranged before discharge.

The first follow-up visit in the pediatrician’s office is important in establishing the relationship with the family and ensuring that the newborn continues to breastfeed well. Formal observation and evaluation of breastfeeding should occur at the first visit and any subsequent visit in which the mother has concerns. The AAP recently published a clinical practice report on “The Breastfeeding-Friendly Pediatric Office Practice.” See Table 3 for summary. Training of the office staff, especially nurses who provide telephone triage or assessment of breastfeeding mothers and babies, is important.

Pediatricians who care for breastfeeding mothers and infants should be able to assess the infant’s latch and transfer of milk. Babies need to latch on with a wide-open mouth, so that the nipple is far back in the baby’s mouth, close to the junction of the hard and soft palate. The tongue should cover the lower alveolar border and facilitate milk removal. Babies who nurse on just the tip of the nipple do not transfer milk well. This also causes maternal pain and soreness, ultimately leading to nipple abrasions and significant pain, if not corrected. The AAP recommends that breastfed infants abstain from using pacifiers until breastfeeding is firmly established.

Newborns are expected to lose up to 8% of their birthweight within the first 3 to 4 days of life, but should begin gaining weight once the mother experiences an increase in her milk production. Multiparous women experience an earlier increase in the milk supply after delivery. Lactogenesis may be delayed in primiparous women, or in women with diabetes, obesity,

<table>
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<tr>
<th>BABY-FRIENDLY DESIGNATED HOSPITALS IN FLORIDA (AS OF MAY 2017)</th>
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<td>Florida Hospital Celebration Health, Celebration</td>
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<td>Florida Hospital Heartland Medical Center, Sebring</td>
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<td>Jackson South Community Hospital, Palmetto Bay</td>
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<td>Mease Countryside Hospital, Safety Harbor</td>
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<td>Morton Plant Hospital, Clearwater</td>
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<td>Naval Hospital Jacksonville, Jacksonville</td>
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<td>Sacred Heart Hospital, Pensacola</td>
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<td>St. Vincent’s Medical Center Southside, Jacksonville</td>
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<td>Tampa General Hospital, Tampa</td>
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<td>UF Health Shands Hospital, Gainesville</td>
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<td>West Kendall Baptist Hospital, Miami</td>
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Table 2.
Source: Baby-Friendly USA (www.babyfriendlyusa.org); Reproduced with permission
those who experience cesarean deliveries. Excess weight loss has been documented in infants of mothers who receive large volumes of fluid along with epidural anesthesia in the peripartum period. Nomograms are available to monitor the weight loss pattern for infants delivered by vaginal and cesarean birth at newbornweight.org for plotting on handheld devices.

Excess weight loss, alone, is not an indication for supplementation, but should be a red flag for careful evaluation of the milk supply, milk transfer to the infant, and feeding routines. Newborns typically feed 8 to 12 times per day. The Academy of Breastfeeding Medicine’s revised clinical protocol on supplementation of the healthy term breastfed newborn (2017) outlines possible indications for supplementation, which include asymptomatic hypoglycemia unresponsive to frequent breastfeeding, evidence of significant dehydration, continued meconium stools on day 5, suboptimal intake associated with jaundice despite appropriate breastfeeding intervention, and glandular insufficiency of the mother. Generally, breastfeeding jaundice is associated with a lack of adequate breastfeeding and responds to improved latch and increased frequency and duration of breastfeeding. Infants should begin gaining an average of 20 to 30 grams per day by the third to fourth day of life and continue that rate through the first 3 to 4 months of life. Providers should plot growth parameters on the World Health Organization growth standards for children birth through age 2 years.

Ankyloglossia, or tongue-tie, has been a recent hot topic in breastfeeding. Ankyloglossia can interfere with the baby maintaining an adequate latch and facilitating good milk transfer. There has been a growing trend to intervene early in these cases. A Cochrane Review indicated that tongue-tie is present in about 4 to 11% of newborns and may be associated with poor breastfeeding and maternal nipple pain, however, available studies were limited and had methodological problems. The conclusion was that frenotomy did appear to reduce nipple pain in the short term, but there were no consistent positive effects on breastfeeding demonstrated. Power and Murphy concluded that there were no major complications from frenotomy, and complications can be minimized by having the procedure performed by a trained professional using a checklist before the procedure. They found that 50% of breastfeeding babies with ankyloglossia would not encounter any problems, so intervention at 2 to 3 weeks might be a reasonable period in which to consider frenotomy in borderline cases.

To increase breastfeeding duration, pediatricians should advise mothers about continued breastfeeding after the mother’s return to work and refer to community-based breastfeeding support personnel, such as lactation consultants, WIC nutrition staff and peer counselors, and mother-to-mother support groups. Pediatricians must also be knowledgeable about medication use, whether over the counter or prescription, during breastfeeding. Current information on medications and herbals can be

Table 3.
Reproduced with permission from Pediatrics, Vol. 139, Page 133, Copyright © 2017 by the AAP
accessed through LactMed, a National Institutes of Health/National Library of Medicine website, also available as a phone application.35 Fortunately, very few medications are absolutely contraindicated during lactation. To assist pediatricians, the AAP has published a listing of ICD-10 breastfeeding codes to be used when providing breastfeeding support in the office.36 Generally, complex breastfeeding visits should be billed according to time-based codes.

SUMMARY

While initiation rates are high nationally, and in Florida, the drop-off rates are steep indicating that many mothers and children do not achieve optimal health outcomes, which correlate most closely with longer duration and exclusivity. Pediatricians play a key role in providing direct support for breastfeeding families, but also in advocating for office, hospital, state, and national policies that help to eliminate barriers mothers face in meeting their goals.

REFERENCES:


The 2nd Annual Pediatric Resident Forum brought together residents from all 10 pediatric residency programs in the State of Florida. Under the direction of Dr. Jose Zayas and many others, the Forum provided presentations relevant and applicable to residents beginning and finishing their residency programs. With more than a dozen submissions, the top overall abstracts were presented orally during the forum. Before the conference ended, the top resident poster presentations were announced.

Congratulations to everyone who participated in the Forum and to all of the residents who submitted abstracts!

SAVE THE DATES!

DISNEY’S GRAND FLORIDIAN RESORT & SPA
AUGUST 31-SEPTEMBER 2, 2018
Top Overall Abstracts (Oral Presentations)

BEST QUALITY IMPROVEMENT ABSTRACT
Mariam Zeini, MD, UF Pediatric Residency at Orlando, Health
A Novel Resident-Driven, Interactive, Evidence-Based-Medicine, Curriculum Increases EBM Knowledge and Confidence

BEST ADVOCACY ABSTRACT
Bianca Pinto, MD, University of Florida College of Medicine, Jacksonville
Education Gaps In LGBTQ+ Health Among Medical Residents

BEST RESEARCH ABSTRACT
Michael Dressing, MD, Johns Hopkins- All Children’s Hospital
Development of a Scale to Measure Academic-Related Anxiety Following Concussion
Top Poster Presentations

OVERALL BEST POSTER
Michael Dressing, MD, Johns Hopkins- All Children's Hospital
Development of a Scale for Academic Related Anxiety Following Concussion

BEST ORIGINAL RESEARCH POSTER
Camille Ortega, DO, Nicklaus Children's Hospital
Dexamethasone as Corticosteroid of Choice in Acute Asthma Exacerbations

BEST QUALITY IMPROVEMENT POSTER
Mariam Zeini, MD, UF Pediatric Residency at Orlando, Health
A Novel, Resident-Driven, Interactive, Evidence-Based Medicine Curriculum increases EBM Knowledge and Confidence

BEST ADVOCACY POSTER
Jenifer Andrews, DO and Emmanuel Pena, DO, UF College of Medicine- Jacksonville
Survey Says: If We Only Obtain a Single Skeletal Survey We are Potentially Missing Physical Abuse

Survey Says: If We Only Do One Skeletal Survey, We Are Potentially Missing Physical Abuse
Jennifer Andrews, D.O., Emmanuel Pena, D.O., Kathleen Guly, M.D.
Lessons Learned from a Resident-Led Advocacy Initiative Addressing Childhood Toxic Stress

Sarah M. Marsicek, MD, John Morrison, MD PhD, Zach Spoehr-Labutta, MD, Raquel Hernandez, MD MPH, David Berman, DO

ABSTRACT

Utilizing a national advocacy platform put forth by the American Academy of Pediatrics Section on Pediatric Trainees, our residents designed and implemented a hospital and community-wide advocacy week focused on raising awareness of childhood toxic stress, its lasting health implications, and the promotion of resilience in children. While our advocacy initiative was successful in reaching a broad audience, it was unclear whether our efforts would influence a change in practice among pediatricians. We share six key lessons addressing both the successes and opportunities for improvement for our initiative with the hope to aid in the development of resident advocacy campaigns at other institutions.

The landmark Adverse Childhood Experiences Study from the Centers for Disease Control and Prevention and Kaiser Permanente revealed that toxic stressors, defined as repetitive stress experienced without a support system, in childhood were not only common, but also caused lasting adverse health consequences. Nearly two decades later, childhood toxic stress remains an unfamiliar concept to many providers and an uncomfortable topic of discussion to those that are familiar. Pediatricians are poised to address these highly personal experiences with children and their families as part of providing a medical home. The American Academy of Pediatrics Section on Pediatric Trainees (SOPT) dedicated their annual nationwide advocacy campaign to educating its members and encouraging them to integrate projects into their training programs focusing on toxic stress in childhood and promoting resilience to combat its negative effects. We have identified key lessons that promote success for advocacy through our experiences utilizing this campaign.
LESSON ONE: A structured advocacy curriculum provides an opportunity for residents to advocate.

Pediatric graduate medical education requires trainees to participate in advocacy during residency. Our residency program emphasizes advocacy as a core tenant of our curriculum by instituting a platform that allows trainees to develop and implement advocacy campaigns. Each year, our residents utilize the national SOPT advocacy campaign to construct an initiative directed towards both our institution and community. This platform prioritizes residents as leaders and emphasizes the engagement and education of individuals employed by our institution and the community in which it resides. The result: a sustainable campaign that maintains our hospital's presence within the surrounding community. This year, our residents created a campaign focusing on toxic stress and the promotion of resilience as a part of the national campaign, Partnering for Resilience.

LESSON TWO: Advocacy must take place both inside and outside of the hospital walls.

We engaged over 700 individuals from the community and our institution during our advocacy campaign through 9 in-person events hosted by our committee. Addressing toxic stress requires patients, their families, and providers to collaborate on identifying and utilizing resources that mitigate the effects of adverse childhood experiences (ACEs). To ignite interest in our campaign, Dr. Nadine Burke Harris, a leading expert on childhood toxic stress, presented at grand rounds. Events that followed included an outreach booth at our institution and at our local farmers market and screenings of the newly-released documentary, “Resilience”. Utilizing connections within the hospital’s marketing department, as well as reaching out to different media venues, we were able to engage the media both through printed stories in the Tampa Bay Times and a television segment on a local news station. Furthermore, the initiative and its informational resources reached over 9,000 Twitter users from committee members utilizing a dedicated hashtag.

We next hosted a panel discussion including our city’s mayor, a city council member, the local school district, and one of our institution’s psychologists to discuss childhood toxic stress in our city and how we can best address it as both physicians and community members. Our city’s mayor started this discussion by stating he had not previously heard of childhood toxic stress and was amazed to learn that the daily experiences many of his young constituents were facing could have lasting health implications—and he was not alone among the panel members or physician members in the audience. The need for resident advocacy and education of our community and staff was solidified listening to stories of ACEs from local fourth grade students (many of whom are patients in our clinic) shared during an educational forum presented by our residents and child life specialists.

LESSON THREE: Advocacy≠Change in practice.

While advocacy is important, it is the change in practice that matters most. To assess the success of our campaign, provider comfort level with identifying and providing resources for childhood toxic stress was evaluated using a survey before and after our campaign. In order to do this, we surveyed those in attendance at our Grand Rounds event prior to the speaker’s presentation and again two weeks after our last event. Unfortunately, the response rate for this survey was not ideal, with our pre-campaign survey having only a 30% response rate, which dropped to about 15% for the post-campaign survey. However, important trends were noticed. Providers acknowledged ACEs and toxic stress as extremely important and indicated desire to screen for ACEs in their clinical practices both before and after the campaign. However, at the end of our initiative, they were surprisingly no more likely to initiate these discussions with their patients. As our home state of Florida is ranked 40th out of the continental U.S. states for overall child well-being, this is especially troublesome. While the reason for this barrier is unclear, we hypothesize it may be related to a lack of knowledge of resources for patient referral, continued discomfort discussing these intimate topics, and lack of time during an encounter. Our data support the continued need to educate providers and provide clinical tools to screen and intervene when a child is exposed to toxic stress.
LESSON FOUR: Learn from wins and losses.

As a committee, we gained valuable insight to ensure more successful campaigns in the future. First and foremost, having a faculty champion made a tremendous difference. Faculty engagement is an essential component of an institutional advocacy project; without it, we cannot influence meaningful change within our healthcare system. Often, faculty members are able to better disseminate information to both institution leadership and community partners, which was the case with our campaign.

We also learned that engaging faculty and community members requires close attention to the timing of events. Attendance to events planned outside of the traditional workday had poorer attendance than those that took place during the regular workday. In addition, synergizing with pre-existing community events lends itself toward a better turn-out than stand-alone novel events. The final challenge we appreciated was the hurdle of advertising our events. Having assistance from our internal marketing department was vital to the success of our campaign. Not only did they design professional handouts and posters, they were able to use our internal communication system to advertise the campaign. Obtaining buy-in early from this department allowed the development and collaboration of each piece produced, from a story featured on the hospital website to informational flyers.

LESSON FIVE: Advocacy doesn't end when the campaign is over.

While we are confident we raised awareness regarding ACEs within our community, we were frustrated, yet motivated, by the opportunity to instill change in our practices as a medical home. Advocacy is a natural driver into continuous quality improvement to create lasting change. To do so, we are implementing a resident curriculum about childhood toxic stress and will begin screening for ACEs in our continuity clinic and connecting our at-risk families with local resources to promote resilience.

LESSON SIX: Residents mature professionally after advocacy.

Advocacy is an important competency for pediatric trainees. Following the initiative, a survey was given to those residents who participated in the planning committee. Overall, our residents from multiple levels of training found participation in the design and implementation of this campaign useful for their professional development. Furthermore, residents reported increased comfort with creating an advocacy project and are excited about continuing their involvement in the upcoming advocacy efforts.

Understanding the lasting consequences of ACEs is important as pediatric providers. We successfully implemented a resident-led advocacy initiative that directly impacted over 700 people and had a large social media presence utilizing the national platform put forth by the SOPT. However, what we recognize is that the work is just beginning, as our community’s providers are still uncomfortable discussing childhood toxic stress. Through our continued efforts and the efforts of others nationwide, we are hopeful for a future where ACEs discussions are as common as discussions of growth and development, a mainstay of pediatric visits, and second nature for providers.

REFERENCES


Florida Hospital for Children Pediatric Residency Program has participated in the Florida Chapter of the American Academy of Pediatrics Brain Bowl for the past 3 years. We look forward each year to the competition between programs and the opportunity to meet residents from around the state. Our vigorous preparation program has helped us win the Jeopardy competition 2 years in a row. In the fall, we begin our planning for the new team. Volunteers talk with prior team members and chief residents about the study responsibility required. Jeopardy is incorporated monthly into our board review and run by the Chief Residents. These games are rowdy and loud and lots of fun, our residents are super competitive. Our program uses interest in the team, ITE scores and Jeopardy performance to choose the final team. We pick 2 players from the upcoming 3rd year and 2 players from the upcoming 2nd year residents. Team members are selected in the spring and increased preparation begins in earnest. Studying is done individually and as a team away from the hospital over dinners or swim events. All residents are invited to the preparation parties and we often have a big crowd. We have been delighted to see the enthusiasm this competition has brought to learning at Florida Hospital for Children. Our ITE scores are reflecting the early and vigorous studying done by the team members. We look forward to being in competition with our fellow Pediatric Residency programs next year.
2017 marked the fourth year of the Pediatric Medical Student Research Forum hosted during the Future of Pediatric Practice conference. This year truly was a national event, with more than 100 students from coast-to-coast and north to south participating.

The student oral and poster presentations were fantastic! Of the many presentations, special recognition goes to the top presentations listed below.

**ORAL PRESENTATIONS**

**First Place – Jaclyn Rosenthal**

*Prevalence of CD19 and CD22 Dim-Negative De Novo B Lymphoblastic Leukemia and Correlation with Response to Targeted Immunotherapeutics*

Jaclyn Rosenthal¹, Ammar Naqvi, Ph.D.², Gerald Wertheim, M.D., Ph.D.³, Michele Paessler, D.O.⁴, Susan Rheingold, M.D.⁴, Andrei Thomas-Tikhonenko, Ph.D.², and Vinodh Pillai, M.D., Ph.D.⁵

1 University of Pennsylvania Perelman School of Medicine, Alex’s Lemonade Stand Foundation, Love Your Melon  
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3 Department of Pathology and Laboratory Medicine  
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**Second Place – Ami Patel**

*Outcomes Of Children with Paraneoplastic Opsoclonus Myoclonus Syndrome and Neuroblastoma*

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Third Place – Sankalp Malhotra

Mixed Communities of Mucoid And Non-Mucoid Pseudomonas aeruginosa Exhibit Enhanced Resistance to Host Antimicrobials

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POSTER PRESENTATIONS

First Place – Samuel Rudisill

MRI Pilot Study: Investigation of Infant Brain Growth with Exposure to Anesthesia and Prolonged Sedation

Samuel S. Rudisill¹, Chandler R. L. Mongerson¹, Russell W. Jennings²,³, Patricia E. Grant³,⁴, Dusica Bajic²,⁴

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Second Place – Megan McSherry

The Debbie Project: A Service Learning Program Aimed at Reducing Bias Among Medical Students Toward Individuals with Intellectual and Developmental Disabilities

Megan McSherry, Gabrielle Hodgins, Eric Gibbs, University of Miami Miller School of Medicine

Third Place – Rachel Leeman

Type 1 Diabetes: Immunological Changes Associated with Mesenchymal Stem Cell Infusion in a Nonhuman Primate Model Of Islet Cell Transplantation.

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SPECIAL THANKS TO THE DEDICATED ORGANIZERS AND TO THE SPONSORS, UNIVERSITY OF FLORIDA, BOSTON CHILDREN’S HOSPITAL, AND NICHD

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Acute lymphoblastic leukemia (ALL) is the most common childhood cancer, accounting for 25% of pediatric cancers and 75% of pediatric leukemias. While overall survival in children with ALL exceeds 85%, survival rates for children who relapse are low. In recent years, targeted immunotherapy has shown significant responses in refractory ALL. CAR-modified T-cells and Blinatumomab are two immunotherapy treatments targeting the CD19 antigen that have shown to be effective in treating patients with relapse refractory ALL. However, many of the patients relapse with CD19-negative disease after targeted therapy. A central question is whether a small population of CD19 dim-negative cells are present at diagnosis or did immunotherapy induce a population of CD19-negative cells. The entire flow cytometry archives at The Children’s Hospital of Philadelphia from 2002 – 2017 were reviewed to identify 250 primary B-ALL cases. Flow cytometry dot plot of every case was reviewed to determine expression levels of CD45, CD19, and CD22 and correlated with cytogenetic data. In parallel, RNA expression data from the Therapeutically Applicable Research to Generate Effective Treatments (TARGET) study for Pediatric ALL was analyzed to identify cases with dim CD19 and CD22 expression. To quantify the expression of CD45, CD19-positive, and CD22-positive B-cell surface antigens in the flow cytometry, a 4-point scale was used. The scale ranged from 0-3 with 0 representing no expression, 1 representing dim expression, 2 representing normal expression compared to circulating B cells, and 3 representing bright expression of the surface antigen. CD19 vs CD10 dot plots of CD45dim blasts were used to accurately quantify the number of CD19-negative events in a pure population of blasts. A similar strategy was used to quantify CD22 as well. Cytogenetics, FISH, whole genome SNP array data were obtained on these cases. 20% of B-ALL cases showed significant (>1%) populations of CD19-negative blasts. 8% of B-ALL cases were negative for surface CD22. Eight cases showed downregulation of both CD19 and CD22 antigens. All cases showed strong expression of CD79a, terminal deoxy transferase (TdT) and lacked myeloperoxidase (MPO) expression ruling out AML or a mixed phenotype acute leukemia. Of 157 cases analyzed from the TARGET study, 18% showed dim CD19 RNA expression and 11% showed dim CD22 RNA expression. While a subset of these cases could be classified into classic cytogenetic categories such as hyperdiploidy or ETV6-RUNX1, the majority of them showed unusual or complex cytogenetic changes. A subset of these cases were treated with anti-CD19 and anti-CD22 immunotherapeutic agents with variable responses. Future directions include correlating flow at diagnosis with response to any CD19 or CD22 targeted immunotherapy and protein expression changes at subsequent relapse.
Outcomes of Children with Paraneoplastic Opsoclonus Myoclonus Syndrome and Neuroblastoma

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BACKGROUND

Opsoclonus myoclonus syndrome (OMS) is a paraneoplastic syndrome associated with neuroblastoma (NB), the most common extracranial solid tumor of childhood. Previously healthy patients develop abnormal eye movements, jerking of the extremities, and/or ataxia. Treatment has been based on the view that immune dysregulation underlies the pathophysiology of NB-associated OMS.

HYPOTHESIS

1. Early initiation of IVIg, ACTH, and rituximab combination therapy may improve outcomes, as determined by treatment duration and OMS relapse.
2. Beginning 2 years post-treatment completion, childhood immunizations can resume without complications, including no recurrence of OMS.

METHODS

Institutional Review Board approval was obtained before data collection. We reviewed the records of 15 patients with NB-associated OMS who received care at MSKCC from 2000-2016. Variables including clinical presentation, treatment, outcomes, and long-term sequelae were collected. A univariate descriptive analysis was conducted.
RESULTS

The 15 patients (10 female) were 4-21 (median 16) months old at diagnosis and had stage 1 (n=12), stage 2B, intermediate-risk stage 4, or stage 4S disease. Tumor histology was favorable in 12 patients, unfavorable in two, and unknown in one patient. No patient had MYCN gene amplification. All patients underwent tumor resection. Overall survival is 100% at 1-15 (median 9) years from diagnosis.

For OMS management, 13 patients received IVIg, ACTH, and rituximab. One patient had mild symptoms and required no therapy. Another patient only received IVIg and ACTH as family declined rituximab. Among the 7 patients with OMS relapse, 5 received low-dose cyclophosphamide and two received rituximab. The mean treatment duration for patients who completed their treatment course at MSKCC was 47 months (range: 1-96 months).

Of the patients who received rituximab, 7 patients got it within 3 months of diagnosis and had shorter treatment duration than the average for our cohort. One patient in this group had OMS relapse during ACTH taper, requiring re-initiation of rituximab therapy. This patient had longer treatment duration than the average for our cohort and also had OMS relapse after treatment completion, following febrile illness. The remaining 6 patients received rituximab more than 4 months after diagnosis. Five of these patients experienced OMS relapse and had treatment durations in the higher end of the range for our cohort. One patient remains on active therapy at 10 months since diagnosis.

Five patients to date have been revaccinated two years after completion of OMS therapy and have had no recurrence of OMS. The vaccines were spaced 6 months apart and live vaccines were avoided.

CONCLUSION

As shown previously, patients with NB-associated OMS had excellent overall survival. It was observed that early initiation of rituximab, in combination with IVIg and ACTH, may be associated with lower risk of OMS relapse and shorter treatment duration. Additionally, vaccinations can be resumed without exacerbation of OMS, following a 2-year period of no recurrence after treatment completion. Further investigation with a larger sample size will help reinforce these conclusions.
The Debbie Project: A Service Based Learning Program Aimed at Reducing Bias Among Medical Students Toward Individuals with Intellectual and Developmental Disabilities

Megan L. McSherry, Gabrielle E. Hodgins, Eric P. Gibbs
University of Miami Miller School of Medicine

**Abstract**

 Few medical schools or primary care residencies are appropriately addressing the care of patients with disabilities. Lack of medical education in this area can result in inadequate care and discomfort among physicians. However, few medical schools or residency programs offer structured experiences for learning about patients with special needs. Lack of such training undoubtedly contributes to the substantial health disparities that are reported in these populations. The Debbie Project (DP) was established to provide medical students with structured, longitudinal exposure to children with developmental delays and disabilities, with the goal of increasing confidence, comfort, and willingness to provide care to this patient population. The Debbie School (DS), an educational and research facility for children who have IDD, which medical students volunteer weekly at the Debbie School, to gain the necessary experience and research facility for children who have IDD.

Each medical student was assigned to a classroom that they attended weekly during the 2016-17 school year. Perceptions of medical student volunteers were measured by administering pre- and post-year questionnaires consisting of two parts: demographics (age, race, sex, disabilities in the family) and the Multidimensional Attitude Scale Toward Persons with Disabilities (MAS). The survey was done in an anonymous online format.

There were baseline sex differences in the data. On feeling helpless, females reported higher baseline scores (p=0.05), mean difference 1.25 (SD 2.32). On fear, males reported higher baseline scores (p=0.01), mean difference 2.25 (SD 2.25). Finally, on guilt, females reported higher baseline scores (p=0.01), mean difference 0.78 (SD 1.48). Six questions showed a statistically significant improvement in score after volunteering. These were relaxation, serenity, helplessness, calmness, pity, and finding an excuse to leave. Notably, there was no statistically significant increase in the other two parts: demographics (age, race, sex, disabilities in the family) and the Multidimensional Attitude Scale Toward Persons with Disabilities (MAS). The survey was done in an anonymous online format. Additionally, a qualitative anonymous online survey was administered.

Upon analyzing the data it is clear that volunteering with developmentally different preschoolers has numerous positive effects on the attitudes of medical students towards persons with disabilities.

**Results**

- There were multiple statistically significant baseline sex differences in the data. For example, there were sex in the post-volunteering results. Further improvement in overall score was not different between males and females.
- Six questions showed a statistically significant improvement in score after volunteering. There were relaxation, serenity, helplessness, calmness, and finding an excuse to leave.
- There were no statistically significant changes that represented a worsened attitude toward persons with disabilities after volunteering.

After reviewing the necessary MAS questions to create a comprehensive total score, it was found that the decrease in total score was statistically significant.

The most notable finding from the mid-year qualitative survey was that 100% of our volunteers believed they will be a better doctor because of their experience at the DS and 100% of volunteers feel more comfortable around persons with disabilities after volunteering. Many volunteers also engaged in a similar experience, 53% of those polled feel that any preconceived notions they had about persons with disabilities were changed. 60% of volunteers found the experience to be “extremely enjoyable.”

**Conclusions and Future Discussion**

This pilot study clearly demonstrates the value of medical students having increased exposure to persons with disabilities. An IAT is being written to extend the study, using the IAT along with the IAT to measure change in paradigms among future doctors who volunteer in the volunteer program with differently abled youth.

The medical community needs to do more to ensure that future doctors are comfortable caring for persons with disabilities and engage in a similar experience. 53% of those polled feel that any preconceived notions they had about persons with disabilities were changed. 60% of volunteers found the experience to be “extremely enjoyable.”

The University of Miami has responded to our early findings and is increasing opportunities for students to interact with differently abled patients.

**References**


**MEDICAL STUDENT ABSTRACT**

**The Debbie Project: A Service Learning Program Aimed at Reducing Bias Among Medical Students Toward Individuals with Intellectual and Developmental Disabilities**

**Megan McSherry, Gabrielle Hodgins, Eric Gibbs**
University of Miami Miller School of Medicine, Miami, FL

**Background**

Various studies endorse the idea that exposure to disabled or developmentally different patients helps reduce bias and discomfort among physicians. However, few medical schools or residency programs offer structured experiences for learning about patients with special needs. Lack of such training undoubtedly contributes to the substantial health disparities that are reported in these populations. The Debbie Project (DP) was established to provide medical students with structured, longitudinal exposure to children with developmental delays and disabilities, with the goal of increasing confidence, comfort, and willingness to provide care to this patient population. The Debbie School (DS), where these experiences take place, is a combined educational and research facility for children who have developmental disabilities.

**Hypothesis**

We hypothesize that a structured program of active, longitudinal engagement with persons with disabilities improves emotional, cognitive, and behavioral attitudes of medical students toward this population.

**Methods**

Participating medical students were assigned to a classroom that they attended weekly during the 2016-17 school year. There are two types of classrooms in the school: B2 Early Education classrooms serve children with varying exceptionalities from 3 months to 3 years of age. Auditory/Oral Education classrooms serve children who are deaf or hard of hearing, ages 12 months to 7 years. Volunteer attitudes were measured before and after participation in the program using the Multidimensional Attitude Scale Toward Persons with Disabilities (MAS), which has been previously validated.

**Background**

- People with disabilities face barriers to accessing health care.
- Study have shown that physicians do not always acknowledge patients with disabilities. One specific study showed that 71% of physicians have discomfort treating patients with mental impairments.
- Training to help with this discomfort is not implemented in many medical schools. One study done with third year medical students showed qualitative improvement in comfort levels when exposed to people with disabilities as part of a preceptorship.

**Research Questions**

- Does working with people with disabilities change the comfort level that medical students have working with this patient population?
- Does working with people with disabilities change perceptions towards the patient population?

**Methods**

Twenty medical students were each assigned to a classroom that they attended weekly during the 2016-17 school year for one hour. Attendance was kept and each student logged at least 10 hours of volunteer time throughout the year. While in the classrooms, the students were instructed to help the teachers with their curriculum. This could include working on social, reading, motor, and cooperative play skills, as well as other aspects of development. Perceptions of medical student volunteers toward persons with disabilities were measured using the Multidimensional Attitude Scale Toward Persons with Disabilities (MAS). The survey was done in an anonymous online format. Additionally, a qualitative anonymous online survey was administered.

**References**

The MAS consists of a written scenario pertaining to an individual in a wheelchair followed by 34 questions designed to assess the responder’s affect, behavior, and cognition. Subjects respond to prompts using a 5-point Likert scale, ranging from 1 (not at all) to 5 (very much). Surveys were administered in an anonymous online format.

RESULTS

In all, 27 students participated in the program. Attendance ranged from 8-16 weeks, and 19 participants (67%) completed both pre- and post-surveys. At baseline, differences were apparent between males and females. Females reported higher levels of helplessness \((p=0.008, \text{mean difference } 1.350 +/- 0.502)\) and guilt \((p=0.012, \text{mean difference } 0.775 +/- 0.448)\). Moreover, male participants reported higher levels of fear \((p=0.011, \text{mean difference } 0.275 +/- 0.463)\). Volunteers who have family members with disabilities showed significantly less stress \((p =0.026)\) and depression \((p =0.001)\).

Paired post-survey data revealed that attitudes evolved in multiple areas following the program. MAS results showed significant improvements in relaxation \((p =0.004, \text{mean difference } 0.889 +/- 0.267)\), serenity \((p=0.003, \text{mean difference } 0.889 +/- 0.254)\), calmness \((p=0.001, \text{mean difference } 0.994 +/- 0.249)\), pity \((p=0.024, \text{mean difference } 0.667 +/- 0.268)\), alertness \((p=0.001, \text{mean difference } 1.444 +/- 0.372)\), and desire to leave \((p=0.002, \text{mean difference } 0.667 +/- 0.181)\). There was no category measured by the MAS in which attitudes worsened over the trial period. Notably, even volunteers with disabilities in their family, who displayed better attitudes at baseline, had significant improvements.

CONCLUSION

This is the first prospective cohort study to evaluate a service learning based medical education initiative related to patients with disabilities. Our data demonstrate that structured, longitudinal volunteering substantially improves medical student attitudes towards this special population regardless of prior experiences.

REFERENCES:


Want to present a poster at the 2018 Pediatric Medical Student Research Forum? Visit fcaap.org/events for submission information.
Mesenchymal Stem Cells (MSC) are capable of producing immunomodulatory signals in vitro and in vivo. In a cynomolgus monkey model of type 1 diabetes, we compared the graft promoting effect of bone marrow-derived MSC, obtained from the islet recipient (autologous), islet donor, or unrelated 3rd party, on islet transplant outcomes. Under the cover of subtherapeutic immune suppression, optimal rejection free and overall islet allograft survival were obtained when autologous MSC were infused on post-operative day 0 (POD 0=day of the islet cell transplant), 5, 11, 18 and 28 post-transplant (follow up to POD 180). In this project, we assessed the effects of MSC infusion on lymphocyte subsets via immunophenotyping of whole blood samples, collected prior to transplant and on POD 14, 28 and 60, and analyzed via flow cytometry. Baseline absolute counts for CD3+/8+ and CD3+/4+ T cells, central memory (CD3+/95+/28+) and effector memory (CD3+/95+28-) CD4 and 8 T cells, CD20+ B cells, CD3-/8+/16+ NK cells, and T regulatory cells (Tregs, CD3+/4+/25bright/Foxp3+) were obtained by multiplying the percent positive cells in a pre-transplant sample by the absolute lymphocyte count. POD 14, 28 and 60 absolute count data was obtained and % change from the pre-transplant, baseline value was calculated and analyzed for significant differences among groups. MSC are known to induce T regulatory cells (Tregs); however, the only significant difference noted among the groups in this study was on POD 14, with higher Treg values observed for the Donor vs. No MSC group (p<0.0494). No significant differences were observed among groups for CD3+/4+ or CD3+/8+ T cells, Natural Killer (NK) cells or B cells. Several significant differences were observed, however, for CD4 and CD8 central and effector memory T cells, with the Autologous MSC group having lower values as compared to the No MSC, Donor and 3rd Party MSC groups on POD 28 and 60. This data suggests that infusion of Autologous MSC attenuates post-islet transplant increases in central and effector memory CD4 and CD8 T cells, thereby prolonging rejection free and overall islet survival.
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