# VIRGINIA • PEDIATRICS

American Academy of Pediatrics • Virginia Chapter


## IN THIS Issue

**SUMMER | 2017**



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# 20 Seconds Can Save A Teen From Suicide?


**Ted Abernathy, MD, FAAP**
*Pediatric & Adolescent Health Partners*
*Richmond, VA*


Teenage Suicide is the Second Leading cause of death for youths aged 10 to 24 years. In fact, there are more deaths from suicide than deaths from the 7 other leading causes of death in this age group combined.

To change this statistic, early detection by implementing a critical suicide prevention strategy is necessary. The outpatient primary care setting is the ideal place to identify kids at risk and get them the mental health care they need. Tragically, research shows the majority of young people who have chosen to die by suicide, visited a healthcare provider within 3 months before their death.

This presents an enormous opportunity for Pediatricians; however, the majority of outpatient pediatric practices, although trained to care for many patients with behavioral health issues, they are not trained to screen for suicide risk.

Two years ago, I attended the Donald W. Lewis Pediatric Conference presented by Children's Hospital of the King's Daughter in Williamsburg, Va. At that conference, Dr. Lisa Horowitz, a researcher from the National Institute of Mental Health, spoke about a tool that was developed to help Pediatricians detect kids in their practices at risk for suicide. She spoke of a simple to administer, very brief, 4 question validated tool called the "Ask Suicide-Screening Questions" (ASQ). I learned that kids keep their suicidal thoughts to themselves, and that parents rarely know that their children are thinking about killing themselves. Unless the kids are asked directly, "Are you having thoughts about killing yourself," they will not tell anyone and they will suffer alone, in silence and suicide may be the end result. I thought about our practice, where coincidentally, we had recently learned that one of our patients had attempted suicide. This was a surprise to us all; however, remembering that incidence, I began to worry that other patients in our care may be harboring thoughts of suicide and were not planning to tell anyone about these feelings and thoughts. I thought it was possible that during that time, a visit to our office would be their only chance to tell a trusted adult what they were feeling. Talking with my group of Clinicians, we decided we had no choice but to act. We began collaboration with the NIMH researchers/clinicians and being extremely supportive, they gave my group the tools to implement a quality improvement project (QIP) to screen adolescents for suicide risk using the ASQ (Ask Suicide Questionnaire). We developed scripts for the nurses to use with our patients and families, flyers for parents explaining the ASQ, why we were asking these questions and an educational sheet titled the "Sad Statistics of Suicide". We wrote a Brief Suicide Safety Assessment Guide for our Clinicians on how to safely assess youth at risk for suicide. Our entire staff, receptionists, nurses and clinicians were trained on this new initiative. The training sessions helped us become comfortable talking about suicide, how to handle questions from the parents, how to screen our patients and how to manage the patients that screened positive for suicide risk. At first, it was difficult and awkward. It was hard for nurses to ask these very sensitive, very personal questions yet even with discomfort we persevered.

We screened every child 12 years and over during each well visit adding only 20 seconds to the visit time. Anyone who screened positive received the brief suicide safety assessment by the Clinician and referral to the appropriate facility or mental health provider. There was a learning curve, and some bumps along the way; however, 4 months into the initiative, our nurses were screening for suicide like it was measuring just another vital sign and something we had always done.

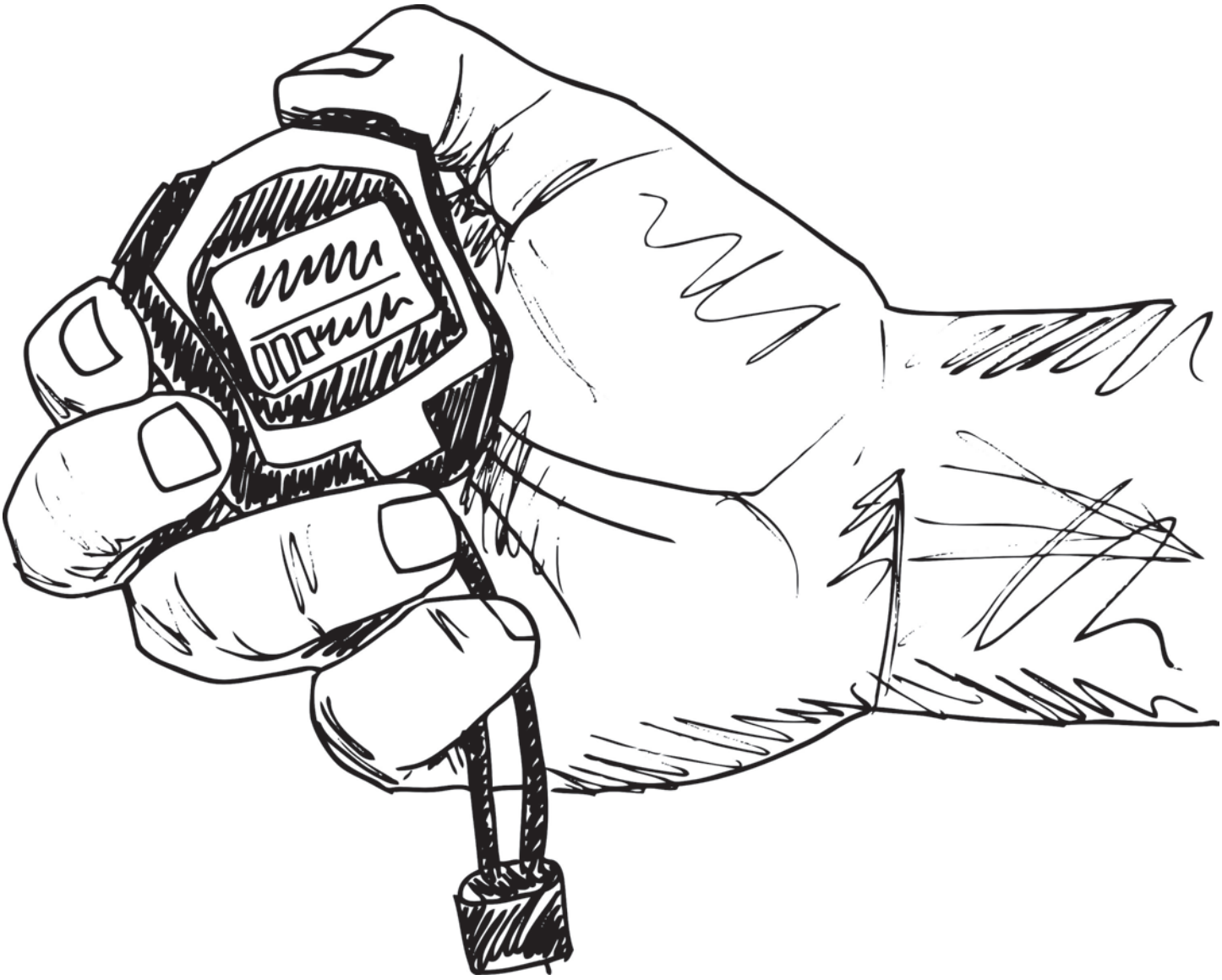
To validate the value of screening and because of the discomfort of the subject, we wanted to know what our adolescents and their parents thought about this screen and the questions. 91% of our adolescent patients were supportive of the screen and thought it was a good idea. Interestingly, only 33% of the adolescents had been asked about suicide by anyone in the past. 83% of the parents thought the same and that it was appropriate to screen in the office. Some; however, did feel discomfort and feared that asking these questions would put ideas into their child's head. In fact, will asking about suicide make a teen more likely

*cont. page 2...*

to kill themselves is the number one myth about screening for suicide risk! The NIMH researchers showed us studies that refuted this idea and the studies showed the best way to protect our kids from killing themselves is to instead ask them directly, "Are you thinking about killing yourself?" To further support this, one of our 18-year-old teens stated: *"Suicidal thoughts often occur at random times. It's better to offend someone asking them than not asking at all. People who want to commit suicide have a mask on. Try to ask questions in a way that will penetrate the mask, but leave it intact."*

We now screen all patients 12 years and above for suicide risk, depression and anxiety.
***Doing this is not disruptive to our workflow and takes 20 seconds, 20 seconds to save a life is time well spent.***

We are all busy in our practices, taking care of way too many patients with way too little time. A patient screening positive for suicide risk can throw off your whole schedule. It takes time to talk to the patient, time to talk to the parent, time to figure out next steps and whether to send them to the Emergency Room or to refer them for outpatient mental health care. However, as a group, we cannot imagine anything more burdensome than living with the thought that we missed someone and did not prevent a successful suicide. So, in our practice, we are grateful to take the 20 seconds and ask about suicide directly, knowing if the screen is positive, we can save a valuable young life.



# President's • MESSAGE

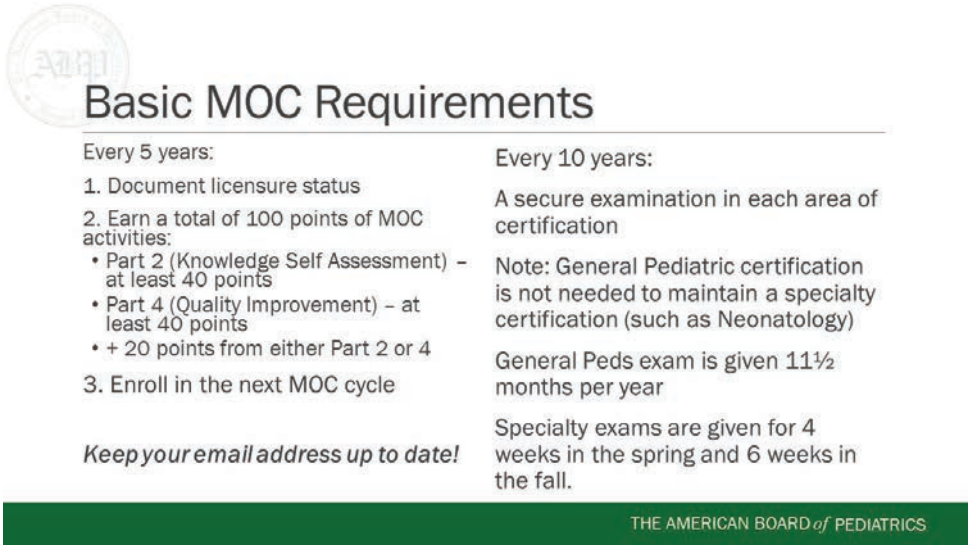
**Sam Bartle, MD, FAAP**
*President Virginia Chapter, American Academy of Pediatrics*

Summer is here and the children we care for are out of school. No homework, no tests, no studying necessary. But for us as doctors, the homework never stops as we keep abreast of new treatments, procedures and studies. Not only do our patients and their families expect that we know the most current medical information that is out there, we as professionals expect it of ourselves. This is the reasoning behind board certifications and maintenance of certification. The problem is that like school kids, we may not understand the reasoning for what material is selected or the testing method used. Unlike many school age children, as medical professionals we understand the need for continual acquisition of knowledge. Medical information continues to grow and, with it, we need to keep up with these changes. I would like to believe that most, if not all, pediatricians believe this.

But a problem arises when we face the complex process and cost of Maintenance of Certification. For many in pediatrics the mere mention of the MOC can induce stress. The fact that it consists of four parts in contrast to the old one-step process doesn't help matters. Its complexity often lends to confusion. How pediatricians are certified and re-certified seems to change like the weather. A secured standardized test one time. An extensive open book computerized format the next. Some colleagues can recall having to take oral boards. One pediatrician jokingly said he was looking forward to certification being tied to patient satisfaction surveys (hope he was joking). Another common response among pediatricians is more emotional. Recertification has come to be viewed as a process too time consuming and convoluted for a practicing pediatrician to get anything out of doing it. There is no denying that it has become more complex and time demanding, not to mention much more costly.

All of this has been in the forefront of my mind, as I start a new MOC Cycle. To help me manage the process, I wanted to understand why it is has to be done and make sense of it. The simple answer I could come up with is that it is necessary to do to continue to be able to say that I am board certified pediatrician. Until there is some other means to sustain my board certification, I simply have no choice but to do what it takes. Looking into what the MOC process includes has helped clarify matters a bit.

Of the four parts, Part 1 is the most straightforward to understand. To satisfy this requirement is to have and maintain a state medical license. This has to be done anyway if one is to practice medicine so consider MOC Part 1 a gimme. No extra effort to accomplish this if you are a legitimate medical provider.




But when it comes to Part 2, demonstrate Lifelong Learning and Self-Assessment, it starts getting more challenging. Completing various educational activities, such as PREP, satisfies this. One way to look at it is that it is not too dissimilar to the required CME many of us already have to obtain for other reasons, such as maintaining hospital privileges. On the surface it makes it obvious that the CME credits one can buy but lack substance may not count toward this and are less valuable.

The Part 3 of the MOC is the Secure Exam. This is the traditional test on everything we are to know for our profession, to be taken in 3-4 hours one afternoon. Like those tests taken in medical school a lot of value is placed on this test, at least by the person taking it. Even after taking more than a few of these examinations, I am still not certain how to best prepare.

The last component of the MOC Part 4, Improving Professional Practice, seems to be the root of a lot of the discontent with the MOC. Many doctors take this as an affront to how we are practicing medicine. The first go round participating in the MOC, when only Part 2 and Part 4 had to be done, the options of projects approved for Part 4 was limited. Many doctors took part in the Hand Washing Assessment and it became the butt of office jokes. Since that time and having learned more about the process, Part 4 has become less intimidating. In medicine when new information is discovered, it is processed to determine if it is beneficial to what we do. Is the new drug helping our patients? Is the new billing program for the office computer catching all the charges? Is the layout of our office such that we are able to see patients efficiently? If the process being followed is beneficial, it will be continued, if not it will not be. Part 4 formalizes this process.

Deliberating on what the MOC is and why it is being required seems to be making better sense. It does not take the sting out of the necessity of having to take it. There continues to be the financial cost of the process.

But that is a topic for another time.

I am telling you all about this because the Virginia Chapter continues to participate in many Chapter Quality Network Projects to help our members secure their MOC credits. ***Be sure to review the Virginia Chapter Member Alerts to make sure you are aware of these opportunities!***

## Happy 3rd Birthday King's Daughter's Milk Bank | **Michelle Brenner, MD, IBCLC**


The King's Daughters Milk Bank just celebrated its third birthday! We are proud of our accomplishments and our milk donors for being on the forefront of providing this life-saving medical treatment for fragile infants.

Since 2014, we have collected more than ¾ of a million ounces of donor human milk from over 1200 donors across the country. Virginia moms make up the overwhelming majority of our donors. On a weekly basis we provide more than 4000 ounces of pasteurized donor human milk (PDHM) to our critically ill patients at the Children's Hospital of The King's Daughters (CHKD) and over 30 NICUs in the US.

Further supporting our mission, The American Academy of Pediatrics (AAP) published a new policy statement in December 2016, entitled Donor Human Milk for the High Risk Infant: Preparation, Safety, and Usage Options in the United States. http://pediatrics.aappublications.org/content/early/2016/12/15/peds.2016-3440

***To summarize:***

1. Although a mother's own milk is always preferred, PDHM may be used for high-risk infants when the mother's milk is not available.
2. Priority should be given to infants born at <1500 g (~3 pounds 5oz).
3. Human milk donors should be identified and screened by using methods established by the Human Milk Banking Association of North America (HMBANA) or other established commercial milk banks.
4. Donor milk should be pasteurized according to accepted standards. Milk should be cultured after pasteurization to make sure it is bacteria free.
5. Health care providers should discourage families from direct human milk sharing or purchasing human milk from the Internet. These practices increase the risk of bacterial or viral contamination and the possibility of exposure to medications, drugs, or other substances, including cow milk protein.
6. Fortification of PDHM is required to meet the nutritional and growth needs of high-risk infants, even if the infant is receiving 100% mother's own milk.

One of the most rewarding activities in the milk bank is helping families who have experienced the loss of an infant-- breast milk donation can bring great comfort. Our bereaved moms each have their own story to tell—from a miscarriage, stillbirth, NICU stay or unexpected death at home. Some mothers donate the milk they already have stored in their freezers, and others will begin or continue expressing breastmilk to donate as a tribute to their son or daughter. The King's Daughters Milk Bank makes bereavement donations as easy as possible, accepting any volume a mother has to give, arranging for expedited screening, and shipping right from the NICU so parents do not have to return to pick it up.

Many thanks to all of the pediatric providers in Virginia who have been recommending the King's Daughters Milk Bank to families with surplus milk and for signing off on the donor infant health forms! We are also very grateful to The King's Daughters for their generous ongoing support of the milk bank.

*For more information:*

**www.chkd.org/Our-Services/Specialty-Care-and-Programs/Milk-Bank**

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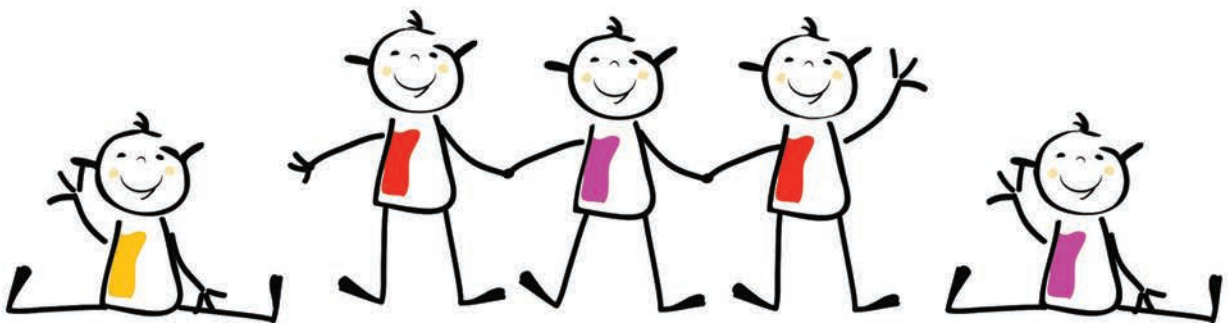
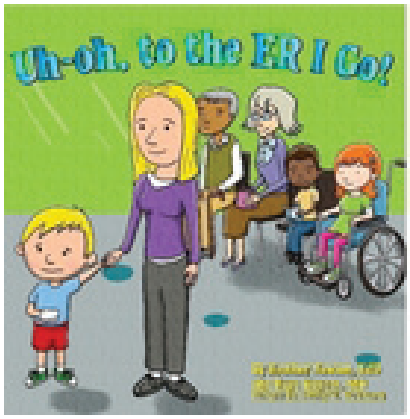


*On May 18th, 2 of our Pediatric Faculty (John Harrington, MD – Director of General Academic Pediatrics and Rupa Kapoor, MD – Emergency Medicine and Director of our Global Health Program) and 2 of our Senior Residents (Lindsay Eilers, MD and Nithiya Panneer, MD) were inducted into Alpha Omega Alpha (AOA). Alpha Omega Alpha is a professional medical organization that recognizes excellence in scholarship and the highest ideals in the profession of medicine. To make it even more special, their induction was by vote of the Senior EVMS Medical Students. Dr. Eilers will serve as one of our four chief residents this academic year before entering Cardiology Fellowship training at Baylor University. Nithiya will be moving to Northern Virginia to practice general pediatrics.*




## CHKD's third Children's Book is ***hot off the press!***

Written by Rupa Kapoor, MD (Emergency Medicine) and Heather Newton, PhD, (Education), the book highlights a visit to the CHKD Emergency Room. The book contains a glossary of words highlighted in the text.

## Advancing Advocacy | **Amara Majeed MD, MBBS Dana Ramirez MD**

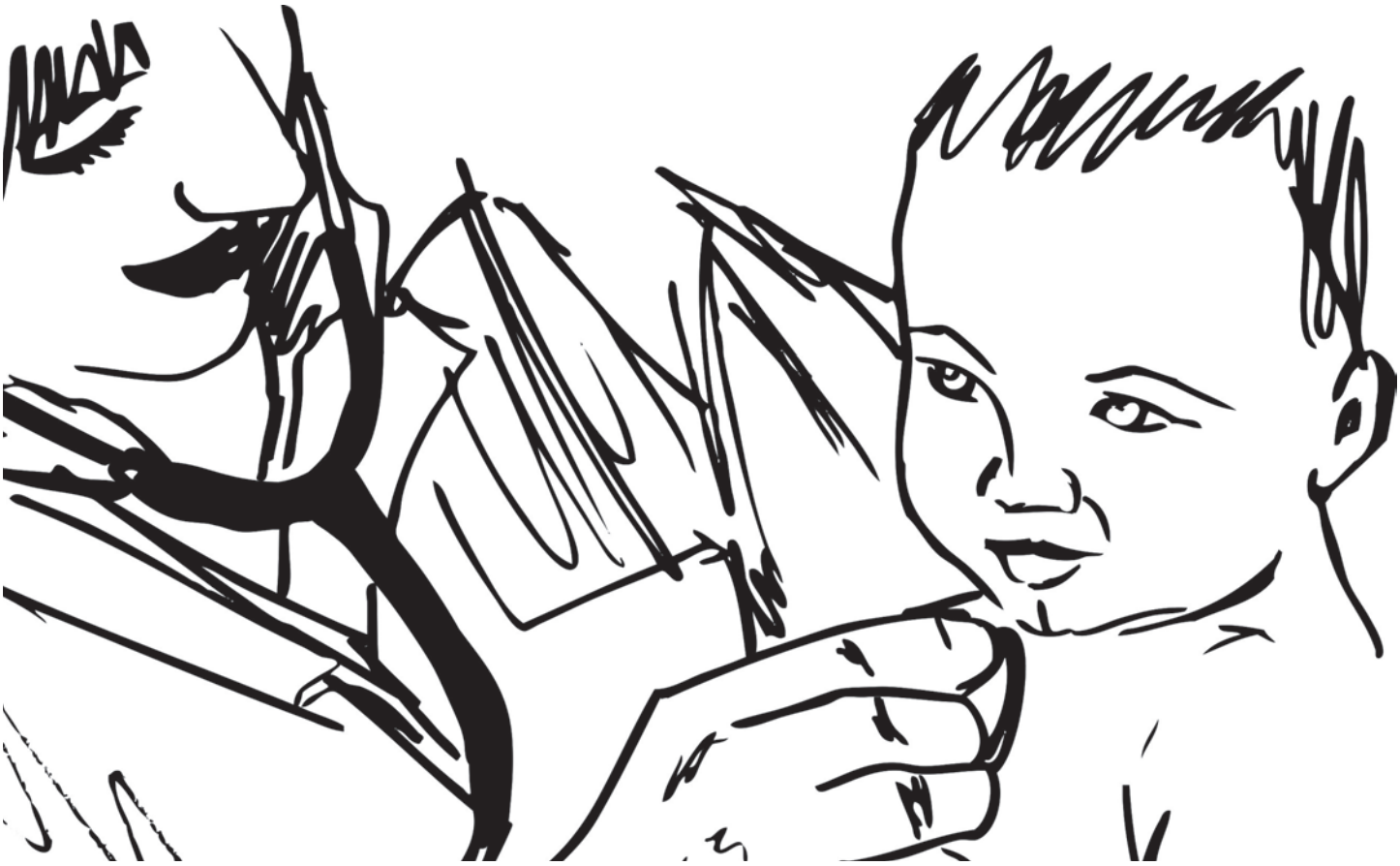
Rudolph et al defined a pediatric problem requiring advocacy as "any child health problem where the system is at fault and political action is required." A pediatric resident physician gets limited exposure to the art of advocacy and the intricacies of health care policy implementation at a legislative level.

Additionally, studies have shown that exposure to advocacy early in training improves involvement in child health advocacy later in a pediatrician's career. In an effort to enhance resident advocacy education, a faculty/resident pair developed the Advocacy Curriculumat Children's Hospital of The King's Daughters with funding from the AAP community pediatrics initiative training grant and collaboration with the Virginia AAP.

The goals of this curriculum were to enhance resident advocacy skills and knowledge in the context of key child health issues in Virginia and improve resident knowledge regarding state and federal legislation. Additionally, it aimed to develop resident interest in child advocacy with the goal of creating future pediatricians who continue to participate in child health advocacy.

The curriculum enabled residents to learn and practice the skill of conducting child health advocacy meetings with representatives, the art of negotiation, and op-ed writing. There were lectures and workshops held to familiarize residents with existing VA state policies/programs on pediatric nutrition, sudden infant death syndrome (SIDS), and child mental health. Each resident was provided access to extensive advocacy training resources including flash drives with advocacy training materials. Pre-educational activity surveys (n=62) revealed that majority of residents had not been involved in community, state or federal level advocacy (73%, 97%, 98 %). Almost half of pediatric residents (47% and 42%) were not comfortable communicating with or finding their representative. And, 61% of residents indicated unfamiliarity with advocacy resources.
The first set of educational activities started in Fall 2016 when the former VA Health Commissioner, Dr. Cynthia Romero and Lieutenant Governor of VA, Dr. Ralph Northam delivered didactics covering an overview of legislative processes, priorities for VA child health policy and misconceptions preventing trainees from advocacy participation. In spring 2017, three workshops were led by local VA-AAP members, faculty and advocacy leaders focusing on how to meet your representative, the art of negotiation and op-ed/letter writing in the context of pediatric nutrition, SIDS, and child mental health respectively. The AAP VA lobbyist Aimee Siebert delivered the final didactic discussing AAP child health priorities and important legislation for the year 2016-17.

Interested residents attended the VA General Assembly Day and a VA-AAP board meeting. This was the largest group of pediatric trainee representation from a single residency program in Virginia. We are still in the process of collecting post-curriculum data, but initial analysis reveals that overall this curriculum was very well received. It seems that exposing pediatric trainees to state and federal child health information and policy cultivates a culture of awareness and desire to contribute to change in health policy. Hence, we must take every opportunity to educate young trainees to enable a bright future for our children.



# Summary of the First International Consensus Statement for Diagnosis and Management of Silver-Russell Syndrome

*Ayanna Butler-Cephas, MD*
*Children's Hospital of the King's Daughters*
*Eastern Virginia Medical School*

The first international consensus statement for Silver-Russell syndrome was recently published in Nature Reviews Endocrinology in February 2017. This article provides helpful guidelines for diagnosing Silver-Russell Syndrome (SRS), which can be difficult when a patient does not have all the known characteristics of SRS. It also outlines management of SRS at each stage of childhood. 41 task members from 16 countries including pediatric endocrinologists, molecular geneticists, clinical geneticists, gastroenterologists and five representatives from parent support groups collaborated to compose this consensus statement.

Silver-Russell Syndrome is characterized by prenatal and postnatal growth failure, body asymmetry, relative macrocephaly, prominent forehead, triangular facies, and feeding difficulties. Globally, the incidence of SRS ranges from 1:30,000 to 1:100,000; however, SRS is thought to be under-diagnosed as those estimates were based on molecularly confirmed cases. The most common genetic abnormalities resulting in SRS are loss of methylation of chromosome 11p15 (11p15 LOM) and maternal uniparental disomy of chromosome 7 (upd(7)mat). However, the molecular etiology is unknown in many cases.

**Diagnosis**
Clinical diagnosis is based on multiple characteristic features with molecular confirmation of diagnosis in only 60% of patients. However, diagnosis can be difficult due to the variability in expression of the features, and many of the features are nonspecific.

**Clinical diagnosis**
The Netchine-Harbison clinical scoring system (NH-CSS) developed in 2015 is the only scoring system currently used for diagnosis that was based on prospective data. The NH-CSS has 98% sensitivity and 89% negative predictive value. However, the specificity is only 36%, which can lead to many false positive results if diagnosis is based on clinical criteria alone. Because of this, it is recommended when all molecular testing is negative; the patient must have at least four of the six clinical criteria to obtain a diagnosis of "clinical SRS."

The first clinical criterion included in the NH-CSS is a history of small for gestational age in weight or length defined as ≤-2 SDS for gestational age. The growth failure usually continues in the postnatal period with a height at 24 months ≤-2 SDS or ≤-2 SDS below mid-parental height. This is the second criterion. 2 additional clinical characteristics included in the NH-CSS that are not typically seen in SGA unrelated to SRS are the following: (1) A protruding forehead; and (2) relative macrocephaly at birth with a head circumference ≥1.5 SDS above birth weight or length SDS. Body asymmetry and feeding difficulties requiring a feeding tube or an appetite stimulant are the final two characteristics included in the NH-CSS.

**Molecular diagnosis**
A score of less than three in the NH-CSS does not support a diagnosis of SRS. Molecular testing is recommended in the following circumstances: (1) A patient scores a three with continued high suspicion; or (2) a patient scores above three based on clinical criteria. A positive molecular diagnosis aids in stratification into a molecular subgroup for appropriate management.

The most common underlying mechanism for SRS is loss of methylation on chromosome 11p15 (11p15 LOM), which occurs in 30-60% of patients. Hypomethylation of H19/IGF2 intergenic differentially methylated region (DMR) on chromosome 11p15 causes less paternal IGF2 expression and more maternal H19 expression, which lead to growth restriction. Hypomethylation of KCNQ1OT1 TSS-DMR on chromosome 11p15 is also associated with SRS. Less than 10 percent of cases of SRS are due to maternal uniparental disomy for chromosome 7 at genes GRB10 and MEST. Copy number variants have also been reported. Measuring DNA methylation of the above genes through methylation-specific multiplex ligation-mediated PCR amplification (MS-MLPA) is the most common test used. An array analysis can be used to detect the presence of copy number variants as well. Patients with a molecular diagnosis for SRS should receive genetic counseling. 11p15 LOM and upd(7)mat are associated with low recurrence risk in offspring. However, 11p15 duplication and various other mutations may have a recurrence risk as high as 50%.

**Differential diagnosis**
There are many other syndromic and chromosomal mutations that can cause prenatal onset growth failure in children. Children with the following atypical features should be considered for diagnoses other than SRS: microcephaly, cognitive or global delays, dysmorphic facies, other congenital anomalies, absence of feeding difficulties, or family history of growth failure or consanguinity. Osteogenesis imperfecta should be considered in patients with prenatal growth failure, relative macrocephaly with a large fontanelle, blue sclera, and body asymmetry.

**Management**
A multidisciplinary team is necessary for management of patients with SRS including the following pediatric subspecialists: endocrinologist, gastroenterologist, dietician, clinical geneticist, craniofacial team, orthopedic surgeon, neurologist, speech therapist and psychologist.

**Feeding and nutritional support**
The failure to thrive seen in SRS is likely due to feeding difficulties, severe gastroesophageal reflux and constipation. During the first 2 years of life, the management goals for SRS should be nutritional support, prevention of hypoglycemia, and recovery of any growth failure related to poor caloric intake. However, care should be taken not to produce rapid weight gain, as this has been associated with metabolic and cardiovascular disease in adulthood. Because children with SRS have low muscle mass, the goal BMI is between 12-14 kg/m2 for children 2-4 years of age. A weight below 70% of ideal weight for height results in growth failure despite growth hormone treatment. In children over 4 years, ideal BMI depends on muscle mass.

**Hypoglycemia**
The incidence of hypoglycemia is 27% among children with SRS. The contributing factors to hypoglycemia include low liver and muscle mass, large brain-for-body size, as well as feed-


*cont. page 8...*

ing difficulties. Because of this, parents should be taught to recognize signs of hypoglycemia. It is recommended to monitor urinary ketones to prevent hypoglycemia related to fasting, activity, or illness. For those at risk of developing hypoglycemia overnight, high molecular weight glucose polymer for infants less than 10 months or uncooked cornstarch for older infants and children can be added to the evening feed. Glucagon is not recommended to correct hypoglycemia, as they have poor glycogen stores and limited gluconeogenesis ability. If hypoglycemia is a persistent problem, early growth hormone therapy should be considered.

**Surgery**

Because of the risk of hypoglycemia, patients necessitating surgery should be scheduled as the first case of the day when possible. They are at an increased risk for hypothermia given their low BMI and large head size. They may also have abnormal tooth distribution and a small mandible, which may make them difficult to intubate. In the perioperative period, children with SRS may need longer periods of gut rest due to gut dysmotility and feeding defects. Prior to discharge, it should be confirmed that the child is able to maintain ketone free for 12 hours of feeding without intravenous fluid support. If the child is malnourished, healing may be delayed following surgery.

**Growth hormone treatment**

Patients with SRS can receive growth hormone (GH) treatment under the SGA indication as it is associated with significant reduction in adult height. SRS was included in the clinical trials for GH in SGA. These clinical trials demonstrated an increase in predicted adult height of 7-11 cm. Strong predictors of improved GH response were young age and shorter stature at time of initiation. Additional potential benefits of GH therapy are increased appetite, lean body mass and mobility. It can also reduce the risk of developing hypoglycemia. For most children with SRS, an increase in height velocity of ≥ 3 cm/yr is the lower limit of effective response range. During GH treatment, IGF-1 levels are difficult to interpret, because basal serum levels of IGF-1 are in the upper quartile of normal or higher in many children with SRS. This indicates a level of GH resistance in children with SRS, especially those with 11p15 LOM. IGF-BP3 levels are also elevated. These levels may rise significantly above reference ranges with GH treatment.

**Bone age advancement and puberty**

Children with SRS typically have bone age delay early in life; however they start puberty in the early range of normal. Rapid increases in BMI can also contribute to early adrenarche and central puberty. Patients with SRS and premature adrenarche have been noted to have an earlier onset of central puberty with a rapid tempo. Because of this, the window of treatment with growth hormone is shorter. It is recommended to consider a course of a GnRHa in these children to temporarily delay progression of puberty to preserve adult height potential.

**Long term metabolic complications**

SRS is associated with an increased risk of metabolic syndrome including hypertension, coronary heart disease, insulin resistance, dyslipidemia and obesity. It is important to screen for indicators of insulin resistance during GH treatment. Consider performing a 2-hour oral glucose tolerance test in individuals with clinical signs of insulin resistance.

**Other Problems**

Motor and speech delays are common in children with SRS. Potential orthopedic problems seen in children with SRS include limb or body asymmetry, scoliosis, hip dysplasia, and hand/foot anomalies. Maxillofacial abnormalities associated with SRS include velopharyngeal insufficiency, delayed dental eruption, microdontia, and absence of secondary teeth. Congenital renal and cardiac anomalies may also be present. Genital abnormalities seen include hypospadias and cryptorchidism in boys and hypoplasia of the uterus and the upper part of the vagina in girls (Mayer-Rokitansky-Hauser syndrome).

**Conclusion**

This consensus statement published in print in February 2017 is the first international statement for the diagnosis and management of SRS. It is based on published evidence as well as professional opinion. The aim is to provide clinicians caring for children with SRS a source with syndrome specific management guidance based on the age of the child. However, there are many questions remaining regarding SRS and further research is necessary.

Wakeling, E.L. et al. Diagnosis and management of Silver-Russell syndrome: first international consensus statement. Nat Rev Endocrinol. 13, 105-124 (2017)

*The Department of Pediatrics celebrated the 24th Annual Pediatric Research Day on June 1, 2017. Abstracts were submitted by medical students, residents, faculty, as well as by health professionals including Pharmacists and Nurses.*

Several of the Senior Pediatric Residents' abstracts are included:

TITLE: *Preliminary Development of a No Hit Zone in a Primary Pediatric Office*

***By: M. Anthony Zanni, MD*** (PL-3; Presenting author)

INTRODUCTION: Corporal punishment of children has been found to have lasting detrimental behavioral effects on children. The AAP has issued guidelines for pediatrician to encourage parents to not use spanking and other physical forms of punishment to discipline children. Several studies by Gershoff et al have found that parental physical punishment often occurs in clinical settings with varying degrees of intervention. Hospital-wide programs to address hitting in the clinical setting have been successful. Our goal was to establish a similar No-Hit Zone concept in the CHKD GAP clinic that would ease staff interventions during witnessed corporal punishment.

METHODS: A team of stakeholders was formed to develop a No-Hit Zone program that would work for our academic primary pediatric office. The team included physicians, nurses, social work, and community advocates. Together we are developing teaching material, signs, and marketing to help in implementing a No-Hit Zone. A survey was created to establish efficacy of our efforts in easing staff interactions with parental corporal punishment.

RESULTS: The process to develop a No Hit Zone has taken longer than expected. Preliminarily we have collected pre-survey results of staff thoughts and personal experience of corporal punishment. We have also developed signs, pamphlets, and brochures. Speakers and teachings have begun to lay the groundwork for cultural change.

DISCUSSION: We are close to implementing a No-Hit Zone at CHKD General Academic Pediatrics. Similar programs have had great success at establishing new cultures not only in the hospital/clinic setting, but also into the community at large. If we are able to show improved comfort in confronting corporal punishment in the clinic setting, we hope to expand to other sites within our network.

TITLE: *Improving Treatment of Neonatal Abstinence Syndrome in the level 2 Nursery through Implementation of a Standardized Morphine protocol.*

***By: Jennifer Gibson, MD*** (PL-3; Presenting author)

BACKGROUND: As opioid abuse reaches epidemic proportions across the United State, pediatricians are seeing rising rates of Neonatal Abstinence Syndrome (NAS), a constellation of symptoms of opioid withdrawal. Research efforts have focused on identifying the ideal agent and treatment regimen to reduce symptoms and costs associated with NAS. Reviews of current practice across the country reveal a predominance of morphine and methadone treatment, however few trials directly compare these agents and the results are conflicting. Additionally, few studies focus the clinically important metric of time to capture infants in withdrawal with medication therapy. Interestingly, a recent multicenter quality improvement initiative out of Ohio shows that implementation of a morphine protocol reduced length of stay and duration of opioid treatment significant.

OBJECTIVE: In light of these findings, our center is starting a quality improvement project to standardize treatment of NAS at a 48 bed level 2 nursery. Prior to implementation, our center primarily used methadone with dosing and weaning determined at the attending's discretion using modified Finnegan scores. Some of our patients were ultimately discharged on methadone to continue weaning at home under the guidance of the general pediatrician. Based on the literature available, our patients would be better served to be treated according to a protocol, therefore we have decided to change our practice and implement a protocol which uses morphine instead of methadone. Our new protocol gives specific guidance on monitoring at-risk infants with modified Finnegan scoring, including minimum observation periods depending on the type of opioid exposure. It also incorporates a score-based standardized algorithm for escalation and weaning of morphine and adding of adjuvant drugs. Lastly, the protocol has a standard 48hr monitoring off of opioid therapy prior to discharge home.

DESIGN: This quality improvement project will examine multiple aspects of care including length of hospital stay, duration of opioid therapy, time to regain birthweight, and time to therapeutic NAS scores from initiation of treatment. We will examine baseline statistics from our level 2 nursery and then collect data once the protocol is initiated. All infants in level 1 and level 2 nursery with suspected or confirmed opioid exposure will be observed and treated according to the protocol. Data collection for this study will be used for the purpose of assessing the efficacy of our intervention and improving our clinical practice. Results: Based on prior publications, we hypothesize that a standardized regimen will improve the consistency of treatment of NAS at our center and potentially decrease duration of opioid therapy and length of stay. Additionally, by switching to morphine, a short-half life agent, we anticipate that we will be able to reach therapeutic levels and achieve relief of withdrawal symptoms earlier than with methadone. Our hope is that, if this protocol demonstrates an improvement in care it could be implemented at the other Nurseries overseen by our neonatology group.

TITLE: *A Highly Regenerative, Light-Curable Gel Patch For Nonsurgical Tympanoplasty*

***By: Jesse Ranney, MD*** (PL-3; Presenting author)
***Benjamin Rubinstein, MD,***
***Parastoo Khoshakhlagh, PhD;***
***Barry Strasnick, MD, FACS;***
***Elaine Horn-Ranney, PhD***

*Research Type: Basic/Translational*

OBJECTIVES: Evaluate i) the efficacy of a novel gel patch in repairing chronic tympanic membrane (TM) perforations, and ii) the quality of the regenerated tissue. Both outcomes were compared to the positive control (Epidisc).
Methods: Thirty-eight adult male chinchillas underwent bilateral TM perforation via CO2 laser (n = 76 TMs), with 38 perforations (50%) persisting for 8 weeks without disruption. At 8 weeks, either the gel patch (n = 26) or Epidisc (n = 12) was applied to the perforation through the ear canal. Perforation margins were not abraded prior to gel patch application, only for Epidisc. Three months after patch application, the animals were euthanized and their bullae removed for histologic analysis.
RESULTS: The difference in perforation size between those treated with the gel patch (31.1 ± 19.4) and Epidisc (36.7 ± 24.9) was not statistically significant ($p = 0.25$). After 3 weeks post-patch application, for ears that did not contract infection, 15 of 20 (75%) perforations treated with the gel patch healed, compared to 5 of 11 (45%) of those treated with Epidisc. The largest perforation healed with gel patch was 6mm in diameter. Histological analysis showed trilaminar regeneration of TMs treated with the gel patch, compared to monolayer TMs treated with Epidisc. No evidence of ototoxicity was present in cochlea from either gel patch or Epidisc treatment.

CONCLUSIONS: With improved histological outcomes and no perforation debridement needed, the gel patch is a promising nonsurgical alternative to conventional tympanoplasty procedures for large perforations.

TITLE: *Redesign of the CHKD/EVMS Pediatric Global Health Track*

***By: Ashley Serrette, Heather Newton, Dana Ramirez, Rupa Kapoor***

Global health is an ever expanding field in pediatric healthcare and continues to be a major consideration for residency candidates in choosing a training program. With the rapid development of fellowships and career paths in pediatric global health, our goal in redesigning the global health track is two-fold. First, provide the opportunity for those interested in a career in global health to have a comprehensive, longitudinal global health curriculum that meets or exceeds current national standards, to include didactics, travel opportunities with guaranteed funding and protected travel time, and mentorship in international projects/research (scholar track). Second, continue to provide opportunities for those who desire a global health experience to do so in a responsible, ethical manner (experience track). Our first step was an exhaustive review of current global health program designs, didactic options, and international experience offerings. Next, we sought faculty engagement in design and requirements of the track, to include level of commitment to mentorship, travel, and site development. We are now actively solidifying current relationships at travel sites we have participated in and seeking/developing additional sites. Additionally, we are mapping each part of the curriculum to ACGME competencies. CHKD has developed a global health track to help adequately prepare, educate, and mentor pediatric residents who have a passion for global health. The global health curriculum is designed to address the core topics related to pediatric care in low resource settings, including, but not limited to, neonatal and maternal health, socioeconomic determinants of health, malnutrition and global health ethics. The components included in the global health track will allow residents to participate in global health rotations at approved sites, provide training workshops to enhance clinical skills and procedures that are crucial in low resource settings such as venipuncture, wound care, and point of care ultrasound, and offer journal clubs that will integrate global health with social justice, public health and sustainability. Additional components will include ethics simulation, personal care/wellness, safety/security, and prebriefing/debriefing. This track has been created with purpose to successfully foster all CHKD residents who have decided to make global health a part of their residency training and future careers.

TITLE: *Patient Safety Inspiring A Team Approach to Nutrition Education*

***By: Julie Dorfman, MD (Rising PL-3 and Presentnig Author), Zoya Khokar, MD, Fabiana Barnabe, MD, Jessica Jones, MHA, BSA, RN; Michele Spurlock, RD, Elizabeth Fay, MS, RD, Dana Ramirez, MD***

BACKGROUND: Nutrition management in the hospital setting relies on a multidisciplinary team including nurses, residents, and nutritionists. Placing inpatients on formula or fortified breast milk requiring special mixing can be confusing. A patient safety event at our institution led to a Root Cause Analysis (RCA) revealing deficiencies within our system. Inadequate education, lack of standardization, and inconsistent communication for complex nutrition management prompted a resident driven multidisciplinary team to focus on improvement.

OBJECTIVE: Improve patient safety through error prevention via ordering standardization and education.

METHODS: The RCA group identified factors leading to the patient safety event. Subsequently, a literature review was completed. The team recognized areas needing improvement through the RCA and by review of other nutrition related events from our error reporting system. It was determined that staff education should focus on nurses and residents as they most commonly provide direct nutritional management.

RESULTS: Immediate changes to diet ordering and education were implemented to address urgent concerns. The process of formula/human milk fortification was standardized. Mixing stations were created on each unit. Residents and nurses were provided education through grand rounds, resident didactic sessions, nursing continuing education, handouts, and addition of electronic resources. Units of measurement were standardized across the institution and patient education materials. At discharge, families were provided with standardized measuring tools. Dietitian availability was increased throughout the hospital. Residents created a concise order set for formula to improve standardization and optimize communication between staff.

CONCLUSION: The complexity associated with infant nutrition and a patient safety event resulted in a multi-disciplinary team led by residents to address immediate concerns and identify long-term goals. Future efforts will focus on an in depth quality improvement project with cycles of planned interventions monitored with our hospital wide patient safety metrics and staff surveys.

TITLE: *Quality Improvement and Follow-up after National Implementation of Helping Babies Breathe and Essential Care for Every Baby Training in Belize Background*

***By: Alexandra Leader, MD***
(PEM Fellowship and Presenting Author)

The Belizean Ministry of Health (MOH) partnered with World Pediatric Project (WPP) and U.S.-based health teams to reduce neonatal mortality and improve newborn care through the national implementation of Helping Babies Breathe (HBB) and Essential Care for Every Baby (ECEB) in Aug 2014-Aug 2015. 170 providers representing all 6 national health districts were trained using a train-the-trainer model with ongoing local MOH program implementation. Pre/post-tests demonstrated increased knowledge after training and positive qualitative response specifically to multidisciplinary approach and bag-mask skills. Neonatal mortality rate decreased from 12.6 to 10.9 and stillbirth rate from 1 to 0.7 from 2013 to 2015.

OBJECTIVE: Conduct follow-up training and evaluation with local facilitators for skills refreshers, quality improvement programming, and qualitative feedback about newborn care training.

DESIGN/METHODS: 8 months after conclusion of national HBB/ECEB rollout, local trainers participated in 2-day session with MOH, WPP team, and U.S. team. Qualitative follow-up survey administered. Skills refresher, feedback session, and quality improvement (QI) discussions conducted.

RESULTS: 13 local trainers representing 6 health districts participated in 2-day HBB/ECEB QI and follow-up session. 100% of survey participants (n=12) stated that HBB/ECEB training improved clinical skills and practice; 83% expressed increased confidence in clinical setting. 92% of providers had practiced HBB/ECEB skills using program materials; only 66% of participants had regular access to training materials. Barriers to local HBB/ECEB course implementation included staff shortages (42%), lack of time (25%), lack of support from administration (25%), and lack of access to program materials (25%). Individualized schedule for future trainings and plan for QI programs designed and presented by local trainers and approved by MOH.

Conclusions: 8 months after HBB/ECEB national rollout, local providers still report subjective improvement in clinical skills and confidence. While most providers had practiced skills with program materials, many did not have regular access to training supplies and were unable to teach local HBB/ECEB courses due to lack of staff, time, and

*cont. page 11...*

administrative support. Increased emphasis on local course implementation, incorporation of QI programming, and approval of planned district trainings by MOH at the time of initial implementation may enhance local dissemination and sustainability.

TITLE: *Developing a Longitudinal, Integrated Leadership Curriculum for Pediatric Residents*

***By: Rupa Kapoor MD (Emergency medicine & Presenting Author) Heather Newton PhD, Peter Farrell MD, Bryan Greenfield MD, Dana Ramirez MD, Paul Mullan MD and CW Gowen MD***

BACKGROUND: Clinical leadership is recognized as crucial to health care quality; however neither leadership training nor assessment of competence in leadership is a required component of medical school or residency. Although there are dual degree programs in business, public health, and education, for select residents, there are no longitudinal leadership training programs offered to non-select groups of residents that we know of. Most leadership training programs offered to all residents usually consists of one day conferences or a few days of training sessions. Studies show there is both a need and desire from residents for leadership training encompassing training in leading a team, coaching and developing others, confronting problem employees, self-management, resolving interpersonal conflict, and understanding different leadership styles.

OBJECTIVE: We aim to develop the first longitudinal, integrated resident leadership curriculum based on best practices in leadership training for all EVMS pediatric residents in order to create outstanding physician-leaders in their practice and within their communities.

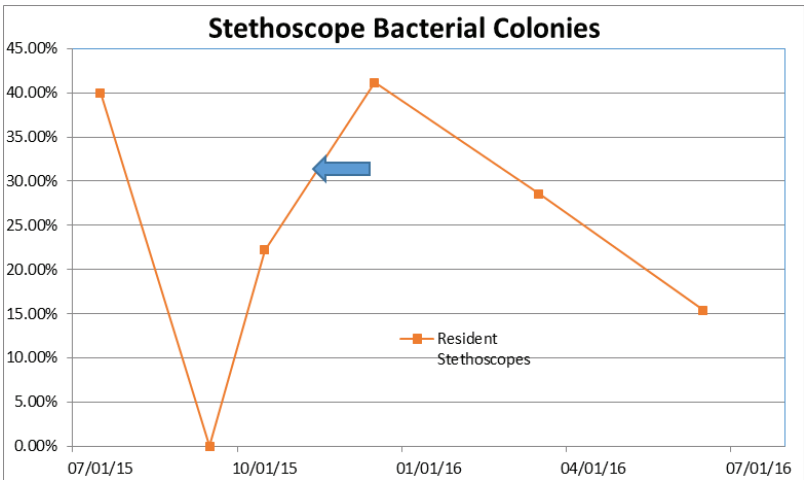
METHODS: Through exhaustive literature review, we identified (1) best practices for leadership training in fields where it is established (2) specific areas requiring development as identified by residents and leaders in medicine. We completed needs assessment of current residents to ensure that our needs matched what was being reported in the literature. We then developed goals and objectives for each targeted area and are in the process of developing and implementing a curriculum that is longitudinal (throughout all 3 years of residency) and integrated (utilizing multiple forums including noon conference, intern morning report, grand rounds, resident retreat). All components are skills-based, specifically targeting: effective communication strategies with patients, peers, and supervisors; self-reflection and self-awareness to inform change in practice and working in teams; peer learning and team based problem solving; teaching skills; conflict resolution; appropriate delegation and supervision; career development, and related topics. We approach these through a combination of didactics, workshops, peer debriefing, and simulation.

NEXT STEPS: We are in the process of reviewing the pre and post surveys and course evaluations to determine resident experience with the curriculum in its first year. We are continuing to develop new materials to target the above specified areas, and will edit curriculum and activities from this year based on evaluations and experience. We hope to share this curriculum as we build and learn from it.

TITLE: *Promoting Stethoscope Hygiene Among Pediatric Housestaff: A Resident Run QI Project*

**Andria Tatem, MD[1] (PL-3 and Presenting Author), Peter Farrell, MD[1], Tina Feeley, MD[1], Sheema Gaffar[2], Amara Majeed, MD[1], Gabriella Richardson, MD[1], Dana Ramirez, MD[1]**

BACKGROUND: While hand hygiene is well known to be a source of spread of healthcare-associated infections, it is not the only means by which infections are spread. Studies have shown that cleaning the head of a stethoscope with a 70% alcohol wipe reduces the burden of bacterial contamination. Stethoscopes are constantly in contact with patients but are seldom included in disinfection protocols. Through a resident-led QI project, we sought to provide interventions that would decrease the bacterial burden on resident stethoscopes. Our long term goal is to use our outcomes to improve stethoscope hygiene among all health care providers in the hospital.




**** y-axis represents the percentage of bacterial colonies cultured from resident stethoscopes*

OBJECTIVE: To show that a resident wide initiative to promote stethoscope hygiene will decrease the bacterial burden on stethoscopes among pediatric residents.

DESIGN/METHODS: Resident stethoscopes were cultured and plated on Mueller Hinton agar to determine the bacterial colony burden on the diaphragm. Baseline data was obtained prior to implementing the interventions for the stethoscope cleanliness project. Each stethoscope was graded based on the number of colonies that grew. Residents were advised to clean their stethoscopes before and after each patient encounter along with hand hygiene. Interventions implemented included didactic education in conferences, reminders on patient rounds, and placement of reminder signs and baskets with large 70% alcohol wipes outside of patient rooms. Stethoscopes were randomly cultured every 1-2 months to determine the effectiveness of each of the interventions. The same grading system was used throughout to keep track of compliance of stethoscope cleanliness.

RESULTS: Initial plating data showed that 40% of stethoscopes had significant bacterial burden. After the initial intervention, that number decreased to 0% although this did not prove to be sustainable and required additional interventions. Throughout the year, an overall decrease in bacterial burden on stethoscopes was demonstrated.

CONCLUSIONS: Our preliminary data shows that educating and providing materials to promote stethoscope hygiene greatly decreases the bacterial burden on stethoscopes among residents. This has the potential to decrease the spread of hospital acquired infections. Future studies will be broadened to include other healthcare providers and sustaining the results.

TITLE: *Orthodox Jewish Parents Less Apt to Follow Safe Sleep Positioning Guidelines*

***Ohana, Alison[1, 2] (Sleep Fellow and Presenting Author); Vazifedan, Turaj1; Harrington, John1; Vorona, Robert[2]; Ware, J. Catesby[2]***
***[1]Children's Hospital of The King's Daughters, Norfolk VA; [2]Eastern Virginia Medical School, Norfolk VA***

INTRODUCTION: The back to sleep/safe sleep campaign has made a significant change in the rate of SIDS across the United States since 1994. Prone positioning has decreased as has SIDS' incidence. Most information for demographic adherence is based on race, age and socioeconomic factors. Orthodox Jews have a birthrate of approximately 4.1 (nationwide birthrate 2.2) and make up at least 30% of the Jewish children under 18 years of age in the United States. No data exist for SIDS rates or appropriate supine sleep rates among Orthodox Jewish families.

METHODS: Through an anonymous paper and online survey, our team compared answers of 63 Orthodox Jewish parents to 27 non-Orthodox parents. Our survey used demographic information modeled after the CDC's Pregnancy Risk Assessment Monitoring System (PRAMS) which included marital status, number of children in the home, parental age, tobacco use, and household income. We tabulated their responses related to the sleep position of their most recent child under 4 months old, similar to the PRAMS questionnaire.

RESULTS: The Orthodox parents reported a rate of infants supine sleeping of 64%. This is significantly below the national rate of 81.9% of Caucasian parents ($p<0.001$). The non-Orthodox parent's rate was 93% in comparison. The relationship remained even after correcting for age of parents and number of children in the household. Both groups were overwhelmingly married, insured, educated beyond high school, employed, and had almost non-existent tobacco use.

CONCLUSION: Practitioners should attempt to address infant supine sleep positioning more strongly in Orthodox Jews particularly given their high birth rate. Further research is needed to determine why the safe sleep message has not been more broadly accepted by this group.

Support: Mailing of survey provided by Children's Hospital of the King's Daughters Chairmen's Fund.

TITLE: *BUN Levels: A potential marker for severity of Pediatric Acute Pancreatitis*

***Peter Farrell, MD (Chief Resident and Presenting Author), Ashley Serrette, MD; Peter Farmer, MD***

BACKGROUND: Acute pancreatitis is a reversible process characterized by pancreatic inflammation, presence of edema, and varying degrees of necrosis, apoptosis and hemorrhage.[1] The incidence of acute pancreatitis can be as high as 13 per 100,000 per year in children, a level which approaches that seen in adults.[2] Though etiology might differ, pathophysiology points to aberrant generation of calcium signals followed by activation of zymogens which causes a cascade of cytokine production leading to pancreatic and ultimately systemic inflammation.

The mainstay of management is bowel and pancreatic rest with significant fluid support to minimize the effect of the cytokines on the pancreas and other organs such as the lungs, heart, and kidneys.[1,2,3,4] Most of the guidelines related to the details of management of acute pancreatitis are extrapolated from the adult literature. There is only limited data regarding management of acute pancreatitis in children.[2,4]

In the adult population, there are criteria related to the severity of acute pancreatitis, of which, BUN has emerged as an important early marker, which can be predictive of mortality. [5,6] This data suggests that BUN can be an important objective laboratory marker that can be trended early in the disease course to identify the most severe cases.[5,6] No such association has been investigated in the pediatric population to date to the best of the authors' knowledge, prompting this study.

SPECIFIC STUDY OBJECTIVES

1. To determine if BUN levels on admission are correlated with severity of acute pancreatitis, as measured by total length of stay.
2. To determine if the rate of change of BUN levels impacts recovery time, as defined by length of stay and time to initiation of feeds.

METHODS: This is a retrospective chart review of pediatric patients who present to the emergency department (ED) or inpatient ward diagnosed with acute pancreatitis. Permission was granted by the local Institutional Review Board (IRB). The subject population includes patients aged 0-18.9 years diagnosed with acute pancreatitis in the ED or hospital inpatient ward between 12/31/2011-12/31/2016, based on ICD-9 or ICD-10 codes. Patients were considered who were admitted up to 12/31/2016, but must have been discharged by 1/31/17.

RESULTS

A total of 337 charts were reviewed. Of those, 308 met the <18.9 age criteria. Of those 308, 199 patients met the criteria for acute pancreatitis. Of those 199, 121 met the criteria for acute pancreatitis on presentation. The BUN values for this cohort, along with their length of stay, is presented in Figure 1. One of the patients in this subset met the criteria for severe pancreatitis and was transferred to the PICU. Out of those 121, 72 had serial measurements of BUN sufficient to trend the values. These values are presented in Figure 2, examining BUN levels at different points in the first 3 days.

CONCLUSION AND FUTURE DIRECTIONS: There appears to be a weak association between BUN at presentation and length of stay. Further statistical analysis is required to determine if this is statistically significant. Additionally, it would appear that the BUN levels trend down over the course of the hospitalization in all cases. This likely represents resolution of the edematous condition. Further study is required to determine whether this is significant. These data suggest that BUN may be a worthwhile clinical marker to trend in pediatric acute pancreatitis to monitor resolution of the clinical dehydration, and may ultimately be part of a severity criteria and resolution standard, analogous to the adult Ranson criteria. We are currently in the process of obtaining prospective data on first time acute pancreatitis patients, which includes BUN levels, and will allow for further investigation.

(Peter Farrell, MD will be entering GI Fellowship at Cincinnati Children's Hospital and Medical Center)

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TITLE: *Physician Knowledge Survey for Early Hearing Detection and Intervention in Virginia Follow Up*

**Mona Iskander, MD, FAAP**
*Virginia AAP Champion for EHDI*

A recent survey was sent out through VA-AAP chapter to identify gaps in physician knowledge about 1-3-6 management of infants who do not pass newborn hearing screening and those who pass but are designated "pass at risk". 81 VA-AAP members responded to the survey.

Survey results reflected that though physicians tended to have a uniformly solid knowledge of risk factors for hearing loss- there was a significant knowledge deficit regarding the timing and reporting of appropriate follow up.

Passed in 1998 and implemented in July 2000, the Early Hearing Detection and Intervention (EHDI) Act legislates the early hearing detection and intervention programs in Virginia. It mandates that (1) all hospitals provide hearing screen tests for all infants and (2) all hearing screening, diagnostic evaluations, and intervention follow guidelines set by the Joint Committee on Infant Hearing (JCIH) and all insurance issued in Virginia includes coverage for hearing screening and evaluation of infants. The goal of the EHDI program is to identify hearing loss at the earliest possible age and to connect families to early intervention to ensure every child develops communication and social skills commensurate with their cognitive abilities.

The first three goals of the EHDI program are frequently referred to as the 1-3-6 plan:

- **Goal 1:** All newborns will be screened for hearing loss before 1 month of age, preferably before hospital discharge.
- **Goal 2:** All infants who screen positive will have a diagnostic audiology evaluation before 3 months of age.
- **Goal 3:** All infants identified with a hearing loss will receive appropriate early intervention services before 6 months of age.

*Who should be screened for hearing loss?*

Every newborn in the state of Virginia should receive a hearing screen at birth.

*Should I rescreen?*

A child who failed a newborn hearing screen should be retested by automated auditory brainstem response (AABR). Rescreening with OAE will miss infants with auditory neuropathy. AABR is the test of choice for neonatal screening. Hospitals in Virginia follow a protocol of scheduling repeat hearing screening prior to discharge if an infant has failed the initial screen. Unfortunately, up to 35% of infants with failed newborn hearing screens are lost to follow up. **As a provider, you can provide appropriate rescreening by referring to a reliable pediatric audiologists at http://www.ehdi-pals.org/.**

*When should rescreening occur?*

If a newborn fails a newborn hearing screen, EHDI recommends the infant be rescreened by 1 month of age in order for the infant to meet the 1-3-6 schedule of actions. Rescreen by 1 month. Diagnose by 3 months. Early intervention by 6 months. **Hearing screen information and patient specific recommendations are easily accessible on the VIIS website** *(https://viis.vdh.virginia.gov/).* Delay in diagnosing or treating hearing loss can lead to significant and irreversible delays in language and social development- early diagnosis and intervention is essential.

*Where should rescreening occur?*

An infant who has failed a hearing screen should be referred to a pediatric audiologist. With increasing trends of early hospital discharge and out of hospital births, more children are in need of initial hearing screening or follow-up screening. In office OAE is not recommended as an initial or repeat screening tool. Recent data has shown that almost 35% of infants who failed the newborn hearing screen or rescreen had never received appropriate follow-up. **As a provider, you can provide appropriate rescreening by referring to a reliable pediatric audiologists at http://www.ehdi-pals.org/**

*What follow-up is needed for an "at risk" infant?*

In Virginia, an infant who passed the initial screen and/or diagnostic audiometry but has an "at risk" history should be tested again at 12 – 15 months. The "at risk" infant needs a full diagnostic evaluation due to the risk of progressive or late onset hearing loss. Repeating a screen is not sufficient. If follow up is too early, you may miss some children who develop later onset progressive hearing loss. Although the national standard is 18-24 months, the state of Virginia advises diagnostic testing at 12-15 months, since many "at risk" children will demonstrate hearing loss by 12 months. This allows for earlier intervention if needed.

*Where can I go for resources if I have a patient who fails a hearing screen?*

***Algorithm can be found at:*** https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/PEHDIC/Documents/Algorithm1_2010.pdf

***General information can be found at:*** www.aap.org/EHDI

**If you are interested in more information about hearing loss and the mission of helping every child achieve his best potential, consider joining or establishing a learning community in your area.** Contact Kathleen Watts at Kathleen.watts@vdh.virginia.gov about learning communities.

11TH ANNUAL

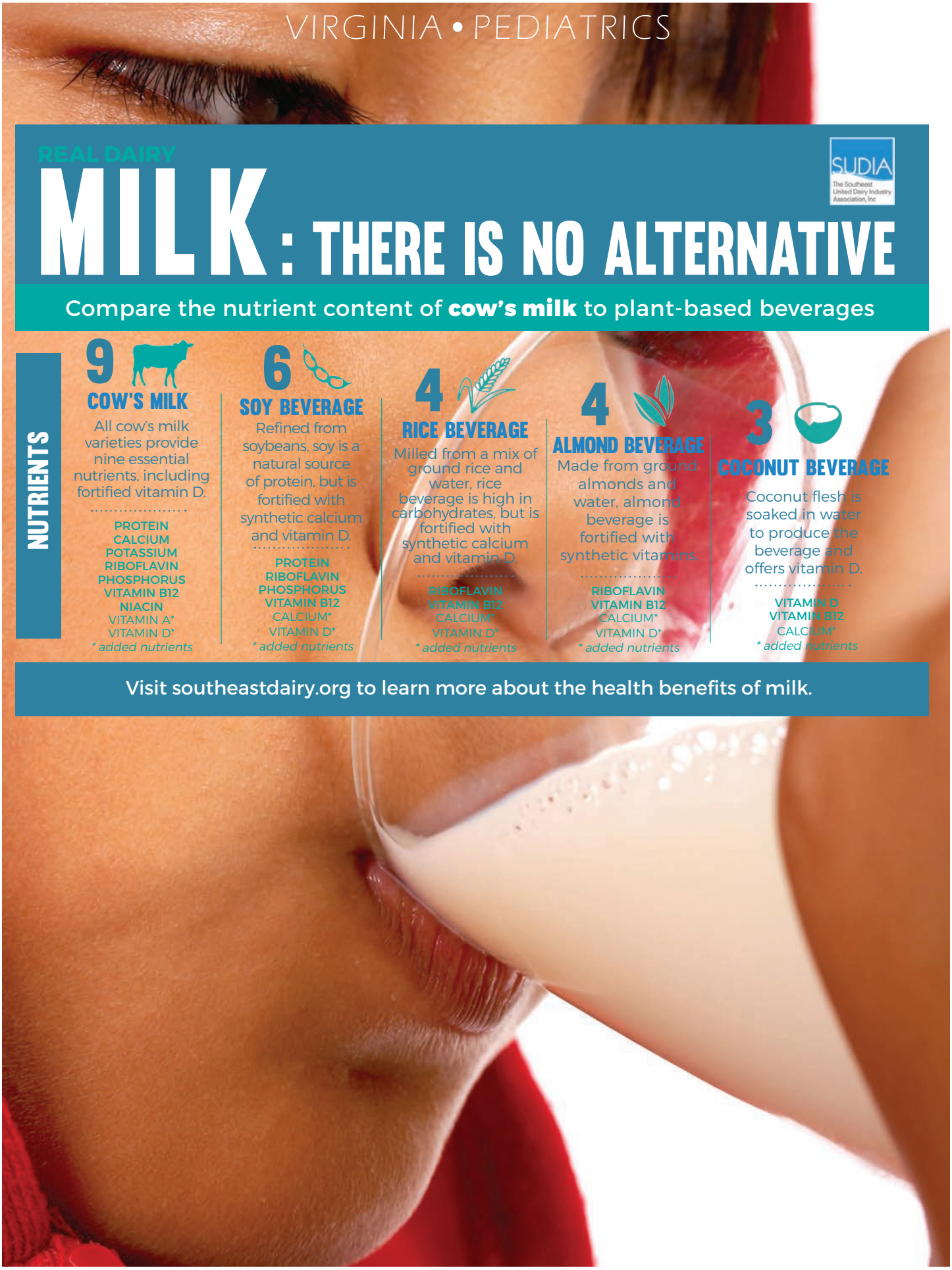
# MOHSEN ZIAI PEDIATRIC CONFERENCE

PRESENTED BY INOVA CHILDREN'S HOSPITAL

## FRIDAY, NOVEMBER 3 – SATURDAY, NOVEMBER 4, 2017

THE RITZ-CARLTON, TYSONS CORNER | MCLEAN, VA

WWW.INOVA.ORG/PEDSCME



REAL DAIRY

# MILK: THERE IS NO ALTERNATIVE

SUDIA
The Southeast United Dairy Industry Association, Inc

Compare the nutrient content of **cow's milk** to plant-based beverages

NUTRIENTS

## 9 COW'S MILK

All cow's milk varieties provide nine essential nutrients, including fortified vitamin D.

**PROTEIN**
**CALCIUM**
**POTASSIUM**
**RIBOFLAVIN**
**PHOSPHORUS**
**VITAMIN B12**
**NIACIN**
VITAMIN A*
VITAMIN D*
** added nutrients*

## 6 SOY BEVERAGE

Refined from soybeans, soy is a natural source of protein, but is fortified with synthetic calcium and vitamin D.

**PROTEIN**
**RIBOFLAVIN**
**PHOSPHORUS**
**VITAMIN B12**
CALCIUM*
VITAMIN D*
** added nutrients*

## 4 RICE BEVERAGE

Milled from a mix of ground rice and water, rice beverage is high in carbohydrates, but is fortified with synthetic calcium and vitamin D.

**RIBOFLAVIN**
**VITAMIN B12**
CALCIUM*
VITAMIN D*
** added nutrients*

## 4 ALMOND BEVERAGE

Made from ground almonds and water, almond beverage is fortified with synthetic vitamins.

**RIBOFLAVIN**
**VITAMIN B12**
CALCIUM*
VITAMIN D*
** added nutrients*

## 3 COCONUT BEVERAGE

Coconut flesh is soaked in water to produce the beverage and offers vitamin D.

**VITAMIN D**
**VITAMIN B12**
CALCIUM*
** added nutrients*

Visit southeastdairy.org to learn more about the health benefits of milk.